



**U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

GUNNISON SAGE-GROUSE RANGEWIDE

**Draft Resource Management Plan Amendment
Draft Environmental Impact Statement**



**BLM COLORADO STATE OFFICE
Lakewood, Colorado**

Ruth Welch, State Director

AUGUST 2016

BLM UTAH STATE OFFICE

Salt Lake City, Utah

Jenna Whitlock, Acting State Director

BLM MISSION

It is the mission of the Bureau of Land Management to sustain
the health, diversity, and productivity of the public lands for the
use and enjoyment of present and future generations.

BLM/CO/PL-16/008

BUREAU OF LAND MANAGEMENT

Gunnison Sage-Grouse Rangewide

Draft Resource Management Plan Amendment

and Draft Environmental Impact Statement

U.S. Department of the Interior
Bureau of Land Management

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**Access the Draft Resource Management Plan
and Draft Environmental Impact Statement
online through the project website at:
<http://1.usa.gov/1Uusw8C>**

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ABSTRACT

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Gunnison Sage-Grouse Rangewide Draft Resource Management Plan Amendment/ Draft Environmental Impact Statement

Responsible Agency: United States Department of the Interior, Bureau of Land Management

Type of Action: Administrative

Document Status: Draft

This draft resource management plan amendment and environmental impact statement has been prepared by the Bureau of Land Management (BLM) with assistance from 21 cooperating agencies. It describes and analyzes four alternatives for managing approximately 741,700 acres of BLM-administered land and nearly 1.35 million acres of BLM-administered subsurface federal mineral estate that may lie beneath other surface ownership. Surface estate and federal mineral estate is managed by seven BLM field offices (Grand Junction, Gunnison, San Luis Valley, Tres Rios and Uncompahgre in Colorado and Moab and Monticello in Utah), three national conservation areas (Dominguez-Escalante, Gunnison Gorge and McInnis Canyons) and Canyons of the Ancients National Monument. The analysis area spans portions of 12 counties: Chaffee, Delta, Dolores, Gunnison, Hinsdale Mesa, Montrose, Ouray, Saguache, and San Miguel in Colorado and Grand and San Juan in Utah.

The alternatives present a range of management actions to achieve the goal of Gunnison Sage-Grouse conservation for BLM Colorado and Utah. Major planning issues addressed include land and realty actions, energy and minerals, recreation and travel management and livestock grazing. Alternative A is a continuation of current management (No Action Alternative); use of public lands and resources would continue to be managed under the current BLM RMPs, as amended. Alternative B manages land primarily for the benefit of GUSG and its habitat. Alternative C minimizes or compensates for impacts from resource uses and other actions to varying degrees. Alternative D represents the agency's preliminary preference for a combination of decisions to effectively achieve BLM goals and policies, meet the purpose and need, address the key planning issues, and respond to the recommendations of cooperating agencies and BLM specialists.

Review Period: Comments on the Gunnison Sage-Grouse Rangewide Draft Resource Management Plan Amendment/Environmental Impact Statement will be accepted for 90 calendar days following publication of the United States Environmental Protection Agency's Notice of Availability in the Federal Register.

For further information, contact:

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DEAR READER LETTER

DEAR READER LETTER



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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In Rely Refer To:
1610 (CO-910)

JUL 26 2016

Dear Reader:

Enclosed for your review and comment is the Gunnison Sage-Grouse (GUSG) Rangewide Draft Resource Management Plan (RMP) Amendment/Draft Environmental Impact Statement (EIS). The Bureau of Land Management (BLM) prepared this Draft RMP Amendment/Draft EIS in consultation with 21 cooperating agencies and in accordance with the National Environmental Policy Act of 1969 (as amended), Federal Land Policy and Management Act of 1976 (as amended), BLM Land Use Planning Handbook (H-1601-1), and other applicable laws, policies, and implementing regulations.

The planning area for the Draft RMP Amendment/Draft EIS consists of approximately 2.1 million acres of federal, state, city, county and private lands in Colorado and Utah (including just over 740,000 acres of BLM-administered lands), along with an estimated 1.3 million acres of BLM-administered federal mineral estate. BLM lands and federal mineral estate in the planning area are managed by seven BLM field offices (Grand Junction, Gunnison, San Luis Valley, Tres Rios and Uncompahgre in Colorado; Moab and Monticello in Utah) spanning portions of 10 Colorado counties (Chaffee, Delta, Dolores, Hinsdale, Gunnison, Mesa, Montrose, Ouray, Saguache and San Miguel) and two Utah counties (Grand and San Juan). If approved, the plan could amend up to 11 existing BLM RMPs (including one national monument RMP and three national conservation area RMPs) in order to provide current guidance for managing and conserving GUSG habitat on BLM-administered lands and federal mineral estate.

The BLM encourages the public to provide information and comments pertaining to the analysis presented in the Draft RMP Amendment/Draft EIS. We are particularly interested in feedback concerning the adequacy and accuracy of the proposed alternatives, the analysis of their respective management decisions, and any new information that would help the BLM as we develop the plan. As a member of the public, your timely comments will help us formulate the Proposed RMP Amendment/Final EIS. Comments will be accepted for ninety (90) calendar days following the Environmental Protection Agency's (EPA) publication of its Notice of Availability in the Federal Register. The BLM can best utilize your comments and resource information submissions if received within the review period.

Your review and comments on the content of this document are critical to the success of this planning effort. If you wish to submit comments on the Draft RMP Amendment/Draft EIS, we request that you make your comments as specific as possible. Comments will be more helpful if they include suggested changes, sources, or methodologies, and reference a section or page

number. Comments containing only opinion or preferences will be considered and included as part of the decision making process, but they will not receive a formal response from the BLM.

Comments may be submitted electronically through the project website: <http://1.usa.gov/1Uusw8C>. Submissions will also be accepted by email to: GUSG_amend@blm.gov; facsimile to: (303) 239-3699; or mail to: Gunnison Sage-Grouse EIS, BLM Colorado State Office, 2850 Youngfield Street, Lakewood, CO 80215. Please avoid duplicate comments by submitting them only once and in one format.

Before including your address, phone number, email address or other personally identifiable information, be advised that your entire comment—including personally identifiable information—may be made publicly available at any time. While you can request to have your personally identifiable information withheld from public review, the BLM cannot guarantee that we will be able to do so.

Public meetings to provide an overview of the document, respond to questions, and take public comments will be announced by local media, website, and/or public mailings at least 15 days in advance.

Copies of the Draft RMP/Draft EIS have been sent to affected Federal, state and local government agencies. Interested parties can view the Draft RMP Amendment/Draft EIS electronically through the project website, <http://1.usa.gov/1Uusw8C>. The BLM has printed a limited number of paper copies as well. Paper copies are available for public review at the following BLM locations:

- Colorado State Office, 2850 Youngfield Street, Lakewood, CO 80215
- Colorado Southwest District Office, 2465 South Townsend Avenue, Montrose, CO 81401
- Grand Junction Field Office, 2815 H Road, Grand Junction, CO 81506
- Gunnison Field Office, 210 West Spencer Avenue, Gunnison, CO 81230
- San Luis Valley Field Office, 1313 E. Highway 160, Monte Vista, CO 81144
- Tres Rios Field Office, 29211 Highway 184, Dolores, CO 81323
- Utah State Office, 440 West 200 South, Suite 500, Salt Lake City, UT 84101
- Utah Canyon County District Office, 82 East Dogwood, Moab, UT 84532
- Monticello Field Office, 365 North Main, Monticello, UT 84535

Thank you for your continued interest in and contributions to this important planning effort. For additional information or clarification regarding this document or the planning process, please contact BLM Colorado Sage Grouse Coordinator Bridget Clayton at (970) 244-3045.

Sincerely,



Ruth Welch
State Director

EXECUTIVE SUMMARY

INTRODUCTION

The Gunnison Sage-Grouse (GUSG) (*Centrocercus minimus*) is a ground-dwelling bird species with a current range limited to seven scattered populations in southwest Colorado and southeast Utah—approximately 7% (FWS 2010a) of its recognized historical range in southwest Colorado, southeast Utah, northeast Arizona, and northern New Mexico (RCP 2005 and FWS 2014b, c). The GUSG is designated as a sensitive species by the State of Utah and labeled as a species of special concern by the State of Colorado.

In January 2013, the U.S. Fish and Wildlife Service (FWS) proposed to list the GUSG as endangered under the Endangered Species Act (ESA) (FWS 2013a) and to designate critical habitat for the species (FWS 2013b). On November 20, 2014, the FWS published a final rule in the Federal Register listing the GUSG as a threatened species (FWS 2014b) and designating critical habitat (FWS 2014c). The BLM manages approximately 40 percent of GUSG habitat across twelve counties in southwestern Colorado and southeastern Utah. The inadequacy of regulatory mechanisms in land use plans was identified as a major threat in the FWS listing decision. In response to the listing decision, the United States (U.S.) Department of the Interior, Bureau of Land Management (BLM) has prepared this Draft Resource Management Plan (RMP) Amendment to analyze the addition of GUSG conservation measures to their existing RMPs.

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the BLM to develop and periodically revise or amend its RMPs, which guide management of BLM-administered lands. The FWS has identified conservation measures in land use plans as the principal regulatory mechanism for protecting GUSG on BLM-administered lands. Based on the FWS-identified threats to the GUSG, the BLM needs to incorporate objectives and adequate conservation measures into RMPs to contribute to the conservation and assist with the recovery of the GUSG. The conservation measures could include restrictions on resource uses and programs that affect GUSG, as well as measures to reduce the impacts resulting from BLM programs and authorized uses.

An Environmental Impact Statement (EIS) has been prepared in association with the RMP Amendment. An EIS is a document required by the National Environmental Policy Act (NEPA) for federal government agency actions "significantly affecting the quality of the human environment." A tool for decision-making, an EIS discloses the environmental effects of a proposed agency action and evaluates a range of alternative actions.

Management direction and actions outlined in this RMP Amendment apply only to BLM-administered lands within the planning area, as well as to the federal mineral estate beneath other surface-owned lands—this constitutes the decision area. These areas are located in Chaffee, Delta, Dolores, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, and San Miguel counties in southwestern Colorado and Grand and San Juan counties in Southeastern Utah.

The decision area includes approximately 620,000 acres of BLM-administered public land, as well as approximately 1,000,000 acres of subsurface federal mineral estate (as shown in Figure I.1 and described in Table I.1 and Table I.2).

The decision area is defined as BLM-administered lands and federal mineral estate within three categories of GUSG habitat:

Occupied Habitat

Occupied critical habitat, as designated by the FWS under the ESA, forms the core, but not the entirety of what is defined as Occupied Habitat in this Draft RMP Amendment. Occupied Habitat supplements occupied critical habitat as necessary to meet the purpose and need of this action and comply with the multiple use and sustained yield mandate of the BLM. Occupied Habitat supplements occupied critical habitat as follows:

- Occupied Habitat includes an area of vacant/unknown and a small area of occupied, as defined and delineated by the CPW, not included in FWS-designated critical occupied habitat.
- Occupied Habitat includes the Poncha Pass area. The FWS did not include the Poncha Pass area in their final occupied critical habitat designation because they concluded that the “Poncha Pass area, for reasons unknown, is not a landscape capable of supporting a population of Gunnison sage-grouse and therefore does not meet primary constituent element (PCE) I.” However, the Poncha Pass area does currently support GUSG and the BLM will treat it as such unless and until it no longer meets the criteria.
- Occupied Habitat includes specific properties coinciding with BLM-administered federal minerals that the FWS excluded from the critical habitat designation. While the removal of surface lands with these properties from critical habitat is appropriate, the removal of subsurface public lands from Occupied Habitat is not. Removing these properties from Occupied Habitat would exclude the subsurface mineral estate from the management actions contained in this RMP Amendment.

Unoccupied Habitat

Unoccupied critical habitat, as designated by the FWS under the ESA, forms the extent of Unoccupied Habitat. Unoccupied critical habitat consists of specific areas

outside of those occupied by GUSG at the time of the listing that are determined to be essential for the conservation of the species (16 USC § 1532 (5), (A), (ii)).

Non-Habitat Areas within Four Miles of a Lek

Disruptive activities outside of Occupied or Unoccupied Habitat can affect GUSG and GUSG habitat. As a result, disruptive activities occurring within four miles of a lek in Non-Habitat Areas adjacent to Occupied and/or Unoccupied Habitat will be considered.

PURPOSE AND NEED FOR THE RESOURCE MANAGEMENT PLAN AMENDMENT

PURPOSE

This RMP Amendment provides a framework for conserving and assisting with the recovery of the GUSG and for conserving and restoring habitat upon which the species depends on BLM-administered public lands across the range of the bird. The ESA requires agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or result in the adverse modification or destruction of critical habitat for a listed species. In meeting this requirement, the BLM will strive to integrate management objectives and actions that promote recovery of the GUSG with the agency's responsibility to allow for appropriate public land uses that enhance the economic stability of local communities in accordance with the multiple use and sustained yield direction set forth in the FLPMA.

NEED

ESA Section 7(a)(1) requires the BLM to use its authority to further the purposes of the ESA by implementing programs for the conservation of federally listed species and the ecosystems upon which they depend. The BLM conducted land use plan evaluations in accordance with its planning regulations, which require that RMPs "shall be revised as necessary based on ..., new data, new or revised policy ..." (43 Code of Federal Regulations [CFR] 1610.5-6). These evaluations concluded that a RMP Amendment is necessary in order to address the changed circumstances and new information resulting from the 2014 FWS listing of the GUSG as "threatened" under the ESA.

THE SCOPING PROCESS

Scoping is an early and open process for determining the scope, or range, of issues to be addressed and for identifying the significant issues to consider in the planning

EXECUTIVE SUMMARY

process. Scoping is designed to meet the public involvement requirements of FLPMA and NEPA. Scoping helps the BLM to identify the concerns of the agency and affected public and define the relevant issues and alternatives that will be examined in detail in the RMP Amendment. A planning issue is defined as a major controversy or dispute regarding management or uses on BLM-administered lands that can be addressed through a range of alternatives.

A 60-day public scoping period began on July 18, 2014, with the publication in the Federal Register of a Notice of Intent to begin planning and ended on August 18, 2014.

This cooperative process included soliciting input from interested state and local governments, tribal governments, other federal agencies and organizations, and individuals to identify the scope of issues to be addressed in the RMP Amendment and to assist in formulating reasonable alternatives. The scoping process is a method for opening dialogue between the BLM and the public about managing for the GUSG and GUSG habitat on BLM-administered lands. The process also identifies the concerns of those who have an interest in this subject. As part of the scoping process, the BLM requested that the public submit nominations for potential areas of critical environmental concern (ACECs) for the GUSG and its habitat.

Scoping included four open-house meetings in Golden, Gunnison, Montrose, and Dove Creek Colorado in early August 2014. In addition, news releases notified the public of the scoping period and invited them to provide written comments. Public comments were used to define the relevant issues that would be addressed by a reasonable range of alternatives in the RMP Amendment and associated EIS.

The Gunnison Sage-Grouse Rangewide Resource Management Plan Amendment/EIS Scoping Summary Report (BLM 2014) is available on the project website. The discussion below provides an overview of the scoping results.

ISSUES

During the scoping process, the public and agencies identified issues to be addressed in the GUSG RMP Amendment/EIS. Issues outlined in the Scoping Summary Report, as well as resource and use issues from the BLM Land Use Planning Handbook and Manual (H-1610-1; BLM 2005), were considered in developing the alternatives brought forward for analysis. The scope of issues included GUSG habitat, energy and mineral development, livestock grazing, vegetation and riparian management, lands and realty and recreation and travel management.

MANAGEMENT ALTERNATIVES

Alternatives development is guided by established planning criteria (as outlined in 43 CFR Section 1610). The basic goal of alternative development is to produce distinct potential management scenarios that:

- Address the identified major planning issues
- Explore opportunities to enhance management of resources and resource uses
- Meet the purpose and need for the RMP Amendment
- Are feasible

Between September 2014 and March 2016, the BLM project team met to develop management goals and identify objectives and actions. Various groups, along with cooperating agencies, met a number of times to refine their work. Through this process, the planning team developed one no action alternative (A), required by CEQ, and three action alternatives (B, C, and D). The action alternatives were designed to address the planning issues, to fulfill the purpose of and need for the RMP Amendment, and to meet the multiple use mandates of FLPMA (43 US Code, Section 1716).

The three resulting action alternatives offer a range of possible management approaches. Their purpose is to respond to planning issues and concerns identified through public scoping, to maintain or increase GUSG abundance and distribution in the planning area, and to provide adequate regulatory mechanisms for GUSG.

While the goal is the same across alternatives, each alternative contains a discrete set of objectives, allowable uses, and management actions constituting a separate RMP Amendment. The goal is through varying approaches, with the potential for different long-range outcomes and conditions. Land use allocations and conservation measures in the alternatives are focused on mapped GUSG habitat (Occupied, Unoccupied and Non-Habitat), depending on the alternative's objective.

The relative emphasis given to particular resources and resource uses differs as well, including allowable uses, restoration measures, and specific direction pertaining to individual resource programs. When resources or resource uses are mandated by law or are not tied to planning issues, there are typically few or no distinctions between alternatives.

The alternatives are also directed toward responding to FWS-identified issues and threats to GUSG and their habitat. All of the action alternatives were developed to employ resource programs to address the FWS-identified threats. A complete description of all decisions proposed for each alternative is in Chapter 2, Alternatives. A summary of each of the alternatives is presented below.

NO ACTION ALTERNATIVE A

Alternative A meets the CEQ requirement that a no action alternative be considered. This alternative would continue current management direction and prevailing conditions derived from the existing planning documents of each field office. Goals and objectives for resources and resource uses are based on the most recent RMP decisions, along with associated amendments, activity and implementation level plans, and other management decision documents. Laws, regulations, and BLM policies that supersede RMP decisions would apply.

Goals and objectives for BLM-administered lands and mineral estate would not change. Appropriate and allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, construction of utility corridors, and livestock grazing would also remain the same. The BLM would not modify existing or establish additional criteria to guide the identification of site-specific use levels for implementation activities.

ALTERNATIVE B

GUSG conservation measures and threats outlined in the FWS listing decision published in the Federal Register in November 2014 and conservation measures identified in the Gunnison Sage-grouse Rangewide Conservation Plan (RCP) (2005) were used to formulate BLM management direction under Alternative B.

Management actions implemented by the BLM, in concert with local, state and other federal agencies and private landowners, play a critical role in the future trends of GUSG populations. Alternative B would achieve the purpose of and need for the RMP Amendment by avoiding negative impacts from resource uses and other actions in Occupied Habitat and Unoccupied Habitat and enhancing recovery opportunities.

ALTERNATIVE C

Alternative C would achieve the purpose of and need for the RMP Amendment by minimizing or compensating for impacts from resource uses and other actions to varying degrees in Occupied Habitat and Unoccupied Habitat. Resource uses and other actions would be allowed if their impacts could be avoided, minimized, rectified, reduced/eliminated over time, or through compensatory mitigation. Impacts that occur would be rectified by repairing, rehabilitating, or restoring the affected environment and/or by reducing or eliminating the impact over time through preservation and maintenance operations during the life of the action. Negative impacts that cannot be minimized would be compensated for by replacing or providing substitute resources or environments, often off-site.

ALTERNATIVE D (AGENCY PREFERRED)

Alternative D (consisting of sub-alternatives D₁ and D₂) is the agency-preferred alternative and seeks to allocate resources among land uses and conserve natural resource values, while sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat. Public scoping efforts and language included in the FWS decision to list the species as threatened under the ESA enabled the BLM to identify and shape significant issues pertaining to GUSG Habitat, energy development, livestock grazing, potential ACECs, public land access, and other program areas to provide a balanced level of protection, restoration, enhancement, and use of resources and services to meet ongoing programs and land uses. Conservation measures under Alternative D are focused on both Occupied and Unoccupied Habitat.

As Alternative D was being developed, it became apparent that, while some management actions should be consistent rangewide, there were more that should be specific to the Gunnison Basin Population or to the satellite (non-Gunnison Basin) populations due to distinct differences in bird numbers, amount of contiguous habitat (BLM and non-BLM), extent, scale, and intensity of threats, and other considerations among and between the populations. For this reason, the preferred alternative was divided into two sub-alternatives labeled D₁ and D₂.

Sub-Alternative D₁

Sub-Alternative D₁ is the agency-preferred alternative for the Gunnison Basin Population of GUSG. The Gunnison Basin Population contains the largest numbers of birds and habitat across the range of the species. The extent, scale, and nature of the threats to this population are generally different than those affecting the satellite populations. While critical to the long-term success and recovery of the species, the management actions necessary for this population are different from those necessary for the satellite populations. Resource uses and other actions would be allowed if their impacts could be avoided, minimized, rectified, reduced/eliminated over time, or through compensatory mitigation.

Sub-Alternative D₂

Sub-Alternative D₂ is the BLM preferred alternative for the satellite (non-Gunnison Basin) populations of GUSG. The low numbers of birds, and range of habitat threats separate from those present in the Gunnison Basin, were identified as critical factors in the FWS decision to list the GUSG as threatened under the ESA. As a result, these population areas are key to species recovery and require different combinations of protection than needed within the Gunnison Basin. Sub-Alternative D₂ would achieve the purpose of and need for the RMP Amendment by balancing resources and resource use among competing human interests, land uses, and the

conservation of natural and cultural resource values, while sustaining and enhancing ecological integrity across the population, including plant and wildlife habitat.

ENVIRONMENTAL CONSEQUENCES

The purpose of the environmental consequences analysis in this RMP Amendment/EIS is to determine the potential for significant impacts of the federal action on the human environment. CEQ regulations for implementing NEPA state that the human environment is interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (40 CFR, Part 1508.14). The federal action is the BLM's selection of an RMP Amendment that will provide a consistent framework for its management of the GUSG and its habitat on BLM-administered lands. This would be in concert with its allocation of resources, in accordance with the multiple-use and sustained yield mandates of FLPMA.

Management actions proposed in Chapter 2, Alternatives are primarily planning-level decisions and typically would not result in direct on-the-ground changes. However, by planning for uses on BLM-administered surface estate and federal mineral estate during the planning horizon, this impact analysis focuses on impacts that could eventually result in on-the-ground changes. Impacts for some resources or resource uses, such as livestock grazing and off-highway vehicle use, could be confined to the BLM-administered surface estate.

Other impacts, such as energy and minerals and requirements to protect GUSG from such activity, could apply to all BLM-administered federal mineral estate (including split-estate). Some BLM management actions may affect only certain resources under certain alternatives. This impact analysis in Chapter 4, Environmental Consequences, identifies impacts that may enhance or improve a resource as a result of management actions, as well as those impacts that have the potential to impair a resource.

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ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used throughout this document.

COMMON ABBREVIATIONS/ ACRONYMS	COMPLETE PHRASE
ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
APD	Application for Permit to Drill
ATV	all-terrain vehicle
AUM	animal unit month
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	best management practice
BO	Biological Opinion
BOR	Bureau of Reclamation
BRCW	Black Ridge Canyons Wilderness (designated Wilderness within McInnis Canyons NCA)
CCA	Candidate Conservation Agreement
CCAA	Candidate Conservation Agreement with Assurances
CCNCA	Colorado Canyons NCA (former title for McInnis Canyons NCA)
CCR	Colorado Code of Regulations
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	Conditions of Approval
CPW	Colorado Parks and Wildlife (previously Colorado Division of Wildlife)
CSU	Controlled Surface Use
dBA	A-Weighted Decibel
DEIS	Draft Environmental Impact Statement
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DRMP Amendment	Draft Resource Management Plan Amendment

ABBREVIATIONS AND ACRONYMS

COMMON ABBREVIATIONS/ ACRONYMS	COMPLETE PHRASE
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act of 1973
FAR	Functional at Risk
FLPMA	Federal Land Policy and Management Act of 1976
FO	Field Office
FRCC	Fire Regime Condition Class
FRN	Federal Register Notice
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information Systems
GUSG	Gunnison Sage-Grouse
IM	Instruction Memorandum
LN	Lease Notice
LUP	land use plan
MOU	Memorandum of Understanding
MS	BLM Manual Section
NCA	National Conservation Area
NEPA	National Environmental Policy Act of 1969
NF	Non Functional
NM	National Monument
NPS	U.S. National Park Service
NRCS	National Resources Conservation Service
NSO	No Surface Occupancy
OHV	Off-Highway Vehicle
PCE	Primary Constituent Element
PFC	proper functioning condition
RAC	Resource Advisory Council
RCP	Rangewide Conservation Plan

ABBREVIATIONS AND ACRONYMS

COMMON ABBREVIATIONS/ ACRONYMS	COMPLETE PHRASE
RMP	Resource Management Plan
RMP Amendment	Resource Management Plan Amendment
ROD	Record of Decision
ROW	right-of-way
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SSR	Site-Specific Relocation
SSS	Special Status Species
TL	timing limitation
TMP	travel management plan
UDWR	Utah Division of Wildlife Resources
U.S.	United States
USC	United States Code
USFS	U.S. Forest Service
VCC	vegetation condition class
WEM	waiver, exception, or modification
WO	Washington Office
WSA	Wilderness Study Area
WSR	Wild and Scenic Rivers

I. INTRODUCTION

The United States (U.S.) Department of the Interior (DOI) Bureau of Land Management (BLM) has prepared this Draft Resource Management Plan (RMP) Amendment and Draft Environmental Impact Statement (EIS) in order to analyze alternative approaches to contribute to the conservation of, and implement actions to assist with the recovery of, the Gunnison Sage-Grouse (GUSG) (*Centrocercus minimus*) and its habitat. The BLM proposes to incorporate goals, objectives, and management actions for the benefit of the GUSG and its habitat into approved resource management plans (RMPs) across the range of the species. This amendment will govern the allocation and administration (including use, protection, and enhancement) of resources, resource uses, and special management areas relevant to the GUSG and GUSG habitat, potentially amending land use plan decisions in up to eleven BLM RMPs currently in use.

A Draft EIS has been prepared in association with the Draft RMP Amendment and incorporated into this document. The EIS is a tool for decision-making required for any federal agency action significantly affecting the quality of the human environment. The EIS analyzes and describes the positive and negative environmental effects of the alternative approaches to conservation of the GUSG.

Draft decisions in this document apply only to BLM-administered public surface lands and subsurface mineral estate. Lands within the planning area administered by other Federal agencies (including the U.S. Forest Service [USFS], U.S. Fish and Wildlife Service [FWS], and National Park Service [NPS]) and state agencies (such as the Colorado and Utah state land boards), along with actions that are the administrative responsibility of other agencies (such as county roads), are not the subject of this planning effort. In addition, planning decisions in this RMP Amendment do not pertain to private lands, with the exception of federal minerals that lie beneath private surface (known as split estate).

I.I. BACKGROUND

I.I.I. GUNNISON SAGE-GROUSE

The GUSG (*Centrocercus minimus*) is a ground-dwelling bird species with a current range limited to seven scattered populations in southwest Colorado and southeast Utah—approximately 7% (FWS 2010a) of its recognized historical range in southwest Colorado, southeast Utah, northeast Arizona, and northern New Mexico (RCP 2005 and FWS 2014b, c). The GUSG is designated as a sensitive species by the State of Utah and labeled as a species of special concern by the State of Colorado.

In January 2013, the U.S. Fish and Wildlife Service (FWS) proposed to list the GUSG as endangered under the Endangered Species Act (ESA) (FWS 2013a) and to designate critical habitat for the species (FWS 2013b). On November 20, 2014, the FWS published a final rule in the Federal Register listing the GUSG as a threatened species (FWS 2014b), as well as a final rule designating critical habitat for the bird (FWS 2014c). The FWS determined that the most substantial threats to the GUSG currently and in the future include habitat decline due to human disturbance, small population size and structure, drought, climate change, and disease.

I.I.2. BLM LAND USE PLANNING REQUIREMENT

PLAN AMENDMENTS

The Federal Land Policy and Management Act of 1976 (FLPMA) directs the BLM to develop and periodically revise or amend its RMPs to ensure that goals and actions reflect current policies and conditions. Per 43 Code of Federal Regulations (CFR) 1610.5-5, RMP amendments change one or more of the terms, conditions, or decisions of an approved land use plan, including decisions related to desired outcomes and measures to achieve desired outcomes. RMP amendments are most often prompted by the need to:

- Consider a proposal or action that does not conform to the plan;
- Implement new or revised policy that changes land use plan decisions, such as an approved conservation agreement between the BLM and the FWS;
- Respond to new, intensified, or changed uses on public land; or
- Consider significant new information from resource assessments, monitoring, or scientific studies that change land use plan decisions.

BLM regulations in 43 CFR 1600 and CEQ NEPA regulations in 40 CFR 1500 guide the preparation of plan amendments. RMPs requiring amendment may be grouped geographically or by type of decision in the same amendment process. Similarly, one amendment process may amend the same or related decisions in more than one land use plan. When preparing an associated EIS, the amending process follows the same procedure required for the preparation and approval of the plan, but consideration shall be limited to that portion of the plan being considered for amendment. If several plans are being amended simultaneously, a single EIS may be prepared to cover all amendments.

I.I.3. PURPOSE AND NEED

PURPOSE

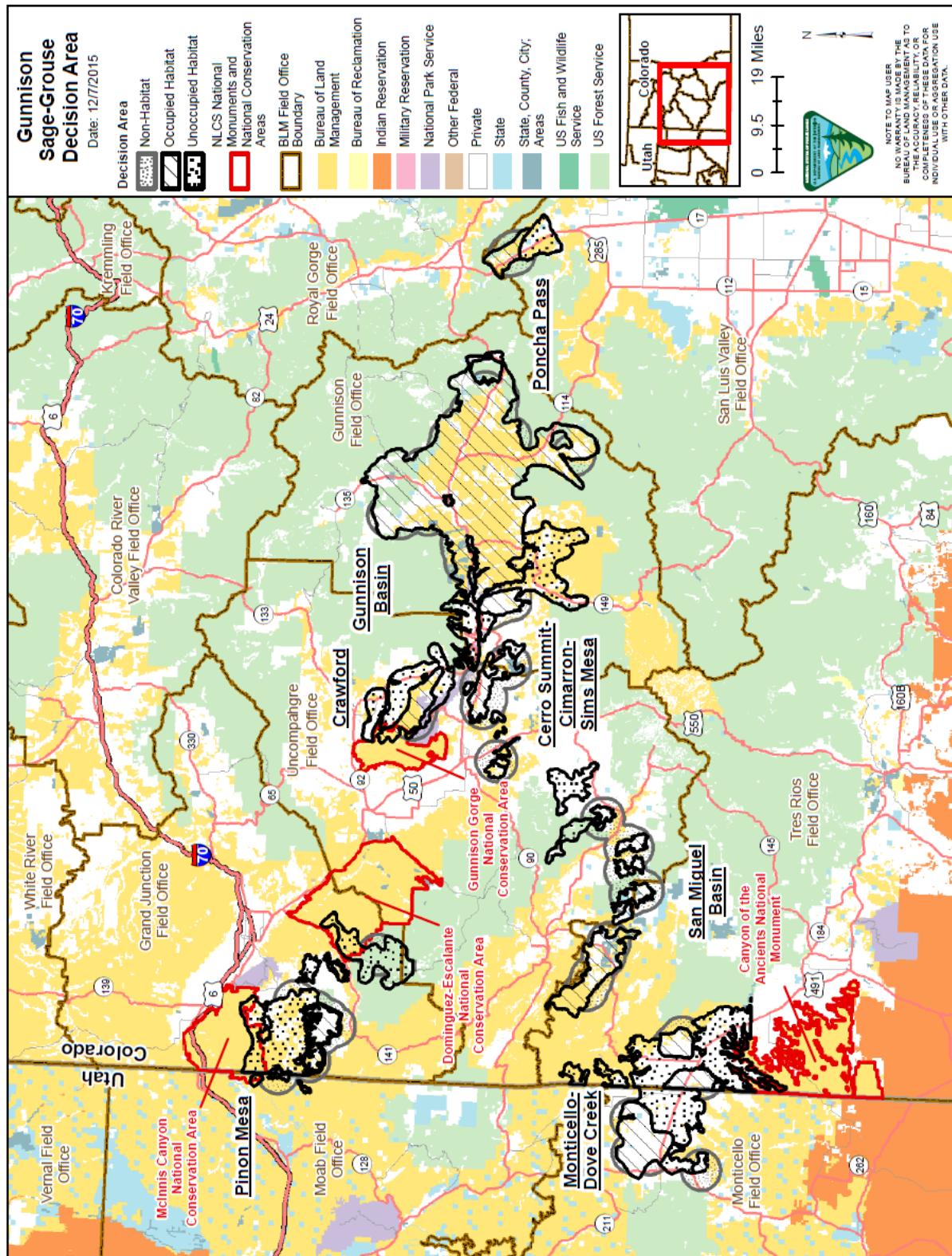
This land use plan amendment provides a framework for conserving and assisting with the recovery of the Gunnison Sage-Grouse and for conserving and restoring habitat upon which the species depends on BLM-administered public lands across the range of the bird. The Endangered Species Act requires agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or result in the adverse modification or destruction of critical habitat for a listed species. In meeting this requirement, the BLM will strive to integrate management objectives and actions that promote recovery of the Gunnison Sage-Grouse with the agency's responsibility to allow for appropriate public land uses that enhance the economic stability of local communities in accordance with the multiple use and sustained yield direction set forth in the Federal Land Policy and Management Act of 1976.

NEED

ESA Section 7(a)(1) requires the BLM to use its authorities to further the purposes of the ESA by implementing programs for the conservation of federally listed species and the ecosystems upon which they depend. The BLM conducted plan evaluations in accordance with its planning regulations, which require that RMPs "shall be revised as necessary based on ..., new data, new or revised policy ..." (43 CFR 1610.5-6). These evaluations concluded that a plan amendment is necessary to address the changed circumstances and new information resulting from the 2014 FWS listing of the GUSG as "threatened" under the Endangered Species Act.

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Figure 1.1 - Decision Area for the GUSG Rangewide RMP Amendment/EIS



I.2. THE PLANNING AREA

I.2.I. GUSG RMP AMENDMENT PLANNING AREA

As stated in the BLM Land Use Planning Handbook H-1601-1 (2010), the planning area is the geographic boundary within which the BLM makes decisions during a planning effort. When appropriate, BLM State Directors may establish regional planning areas that encompass several field offices and/or states. A planning area boundary includes all lands regardless of jurisdiction. However, the BLM will only make decisions on lands that fall under the BLM's jurisdiction (as detailed in the description of decision areas below). Lands within the planning area administered by other state and federal agencies or under private ownership are not the subject of this planning effort, with the exception of federal minerals beneath public and private surface lands.

The planning area for the GUSG Rangewide Draft RMP Amendment/Draft EIS consists of lands within the boundaries of the following BLM Colorado and Utah field offices, national monuments, and national conservation areas, and the decisions made through this RMP Amendment/EIS have the potential to affect the associated RMPs for these units:

BLM Colorado

- Canyons of the Ancients NM (Canyons of the Ancients NM RMP)
- Dominguez-Escalante NCA (Dominguez-Escalante NCA RMP)
- Grand Junction FO (Grand Junction FO RMP)
- Gunnison Gorge NCA (Gunnison Gorge NCA RMP)
- Gunnison FO (Gunnison Resource Area RMP)
- McInnis Canyons NCA (McInnis Canyons NCA RMP)
- San Luis Valley FO (San Luis Resource Area RMP)
- Tres Rios FO (Tres Rios FO RMP)
- Uncompahgre FO (San Juan/San Miguel RMP and Uncompahgre Basin RMP)

BLM Utah

- Moab FO (Moab FO RMP)
- Monticello FO (Monticello FO RMP).

The planning area includes BLM-administered lands not allocated as GUSG habitat. This RMP Amendment does not establish any additional management for these lands, and each would continue to be managed in accordance with the existing underlying BLM land use plan for that area.

1.2.2. GUSG RMP AMENDMENT DECISION AREAS

The decision area is the geographic boundary within which a BLM planning decision will apply, and the specific lands within that boundary to which the decision applies. Decisions in this amendment apply only to lands for which the BLM has authority (jurisdiction) to make land use and management decisions (shown in Figure I.1). As a general rule, the BLM has jurisdiction over public lands, including federal surface lands and subsurface mineral estate, administered by the BLM for the Secretary of the Interior (see the glossary definition of Public Lands). In split estate situations (where the surface land is owned by a non-federal entity, such as a state trust or private owner, and the federal subsurface mineral estate is administered by the BLM), jurisdiction pertains only to the federal subsurface mineral estate. Decision areas are limited in geographic scope to encompass only the area relevant to the analysis and do not extend beyond the planning area.

The decision areas in this amendment consist of specified GUSG Occupied Habitat, GUSG Unoccupied Habitat, and Non-Habitat Areas. A decision may apply to more than one decision area. Surface and subsurface maps depicting Occupied Habitat, Unoccupied Habitat, and Non-Habitat Areas for each GUSG population are included in the map section in Appendix A.

OCCUPIED HABITAT

Occupied Habitat, as defined in this Draft RMP Amendment, consists primarily, but not exclusively, of occupied critical habitat designated by the FWS under the ESA. Occupied Habitat supplements occupied critical habitat as necessary to meet the purpose and need of this action and comply with the multiple use and sustained yield mandate of the BLM. In the Draft RMP Amendment, BLM Occupied Habitat supplements FWS-designated occupied critical habitat as follows:

- Occupied Habitat includes a small area of occupied habitat (as defined and delineated by Colorado Parks and Wildlife [CPW]) and an area of vacant/unknown habitat on BLM lands supporting the Crawford Population of GUSG that are not included in FWS-designated critical occupied habitat.
- The Poncha Pass population area is included as Occupied Habitat in the Draft RMP Amendment. Although included in their proposed designation of occupied critical habitat and identified as containing “the physical and biological features essential to the conservation of the Gunnison sagegrouse” (FWS 2013a), the FWS did not include the Poncha Pass Unit in their final designation, as they concluded that the “Poncha Pass area, for reasons unknown, is not a landscape capable of supporting a population of Gunnison sage-grouse and therefore does not meet primary constituent element (PCE)

I.” However, the Poncha Pass area is currently occupied by GUSG and the BLM will treat it as Occupied Habitat until a recovery plan identifying FWS goals for the Poncha Pass Population have been completed.

- Occupied Habitat includes specific properties coinciding with BLM-administered federal minerals that the FWS excluded from the critical habitat designation. While private lands with conservation easements were removed from critical habitat, conservation easements do not apply to the federal mineral estate. These areas are included in the RMP Amendment in order to identify and prescribe management for the federal mineral estate.

For purposes of this Draft RMP Amendment, Occupied Habitat includes only BLM-administered surface lands and subsurface minerals. Lands occupied by GUSG but not administered by the BLM are not included within the definition of Occupied Habitat and are not subject to the decisions adopted in this Draft RMP Amendment, but are considered in the analysis of alternatives, as appropriate.

UNOCCUPIED HABITAT

Unoccupied critical habitat, as designated by the FWS under the ESA, forms the extent of Unoccupied Habitat. Unoccupied critical habitat consists of specific areas outside of those occupied by GUSG at the time of the listing that are determined to be essential for the conservation of the species (16 USC § 1532 (5), (A), (ii)).

For purposes of this Draft RMP Amendment, Unoccupied Habitat includes only BLM-administered surface lands and subsurface minerals. BLM decisions do not apply to Unoccupied Habitat on private land or on lands managed by other government organizations. When conducting an analysis, all Unoccupied Habitat is included.

NON-HABITAT AREAS WITHIN FOUR MILES OF A LEK

Disruptive activities occurring outside of Occupied or Unoccupied Habitat have the potential to affect GUSG or GUSG habitat. As outlined in Table 2.7, Alternative B identifies management prescriptions to address potential disruptive activities occurring within four miles of a lek in Non-Habitat Areas adjacent to Occupied and/or Unoccupied Habitat.

Physical (natural) and human-constructed features and vegetative characteristics on the landscape can prevent otherwise disruptive activities from affecting GUSG or its habitat. In order to assess these situations, a matrix would be developed at the implementation level by the FWS in cooperation with the BLM, state fish and game agencies, and other cooperating agencies to assist the BLM in determining whether a

proposed action could disrupt GUSG or GUSG habitat or if potential disruptive activities could be prevented due to site-specific conditions. If project analysis establishes that an activity would be disruptive or does not determine with certainty whether disruption could be effectively prevented, then the appropriate management prescriptions (outlined in Table 2.7) would apply. If it is clearly established that no disruption would result, then the specific management prescriptions would not be applicable. When a clear determination cannot be made, the parties would revise the matrix as necessary to provide greater clarity.

The management prescriptions for Non-Habitat Areas would pertain only to disruptive activities on BLM-administered surface lands and sub-surface minerals within four miles of a lek and adjacent to Occupied and/or Unoccupied Habitat.

I.2.3. PLANNING AREA BY GUSG POPULATION

GUSG habitat is predominantly non-contiguous—separated by natural geographic barriers and human development. Because of the disconnected nature of the habitat, the GUSG is described as occurring within seven distinct populations (with five of these primarily located within Colorado and two extending into Utah):

- Cerro Summit-Cimarron-Sims Mesa
- Crawford
- Gunnison Basin
- Monticello-Dove Creek
- Piñon Mesa
- Poncha Pass
- San Miguel Basin

Delineating the GUSG by population enables the BLM to better analyze variations in habitat, threats, and impacts throughout the decision area, and identify appropriate responses to these different populations and habitat issues. The population approach also provides a natural starting point from which to evaluate issues related to habitat fragmentation.

Table I.1 provides acreages and percentages of BLM, state, local, private, and other federal lands within each of the seven GUSG population areas, while Table I.2 provides the acreages of federal subsurface minerals within each of the population areas.

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Table I.1 - Surface Ownership/Administration by GUSG Population Area

GUSG POPULATION AREA	BLM		LOCAL		NPS		OTHER		PRIVATE		STATE		USFS		TOTAL
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres
Cerro Summit-Cimarron-Sims Mesa	20,815	16%	7,032	5%	4,500	4%	0	0%	95,750	75%	0	0%	369	0%	128,466
Occupied	4,380	12%	4,336	12%	362	1%	0	0%	28,064	76%	0	0%	0	0%	37,142
Unoccupied	5,011	26%		0%	6	0%	0	0%	14,353	74%	0	0%	0	0%	19,370
Non-Habitat	11,425	16%	2,696	4%	4,132	6%	0	0%	53,333	74%	0	0%	369	1%	71,955
Crawford	33,955	28%	0	0%	17,331	14%	0	0%	69,562	57%	0	0%	2,190	2%	123,039
Occupied	22,150	63%	0	0%	4,402	13%	0	0%	8,444	24%	0	0%	0	0%	34,996
Unoccupied	10,324	13%	0	0%	7,023	9%	0	0%	60,738	76%	0	0%	2,190	3%	80,274
Non-Habitat	1,481	19%	0	0%	5,907	76%	0	0%	380	5%	0	0%	0	0%	7,768
Gunnison Basin	378,003	46%	12,524	2%	20,509	2%	0	0%	264,048	32%	4,366	1%	143,491	17%	822,942
Occupied	302,024	50%	9,880	2%	9,430	2%	0	0%	187,761	31%	3,205	1%	92,724	15%	605,026
Unoccupied	63,972	47%	0	0%	7,407	5%	0	0%	53,034	39%	414	0%	12,181	9%	137,009
Non-Habitat	12,007	15%	2,643	3%	3,671	5%	0	0%	23,252	29%	747	1%	38,586	48%	80,907
Monticello-Dove Creek	69,788	17%	5	0%	0	0%	4	0%	335,021	82%	1,156	0%	944	0%	406,919
Occupied	8,483	8%	0	0%	0	0%	0	0%	102,864	92%	922	0%	0	0%	112,269
Unoccupied	35,904	15%	5	0%	0	0%	0	0%	199,918	85%	0	0%	48	0%	235,877
Non-Habitat	25,400	43%	0	0%	0	0%	4	0%	32,239	55%	235	0%	896	2%	58,774
Piñon Mesa	137,111	45%	0	0%	0	0%	25	0%	111,526	37%	916	0%	55,021	18%	304,598
Occupied	12,686	29%	0	0%	0	0%	0	0%	30,689	70%	0	0%	729	2%	44,104
Unoccupied	97,795	49%	0	0%	0	0%	25	0%	60,845	30%	0	0%	42,698	21%	201,363

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GUSG POPULATION AREA	BLM		LOCAL		NPS		OTHER		PRIVATE		STATE		USFS		TOTAL
Non-Habitat	26,629	45%	0	0%	0	0%	0	0%	19,992	34%	916	2%	11,594	20%	59,131
Poncha Pass	25,500	39%	0	0%	0	0%	0	0%	16,642	26%	2,083	3%	20,347	32%	64,571
Occupied	9,860	48%	0	0%	0	0%	0	0%	4,875	24%	478	2%	5,214	26%	20,428
Unoccupied	14,877	53%	0	0%	0	0%	0	0%	11,225	40%	1,605	6%	187	1%	27,894
Non-Habitat	763	5%	0	0%	0	0%	0	0%	541	3%	0	0%	14,945	92%	16,249
San Miguel Basin	76,568	29%	8,686	3%	0	0%	0	0%	140,304	52%	6,956	3%	35,328	13%	267,842
Occupied	35,879	35%	8,357	8%	0	0%	0	0%	52,458	52%	3,437	3%	1,466	1%	101,597
Unoccupied	0	0%	0	0%	0	0%	0	0%	29,094	70%	0	0%	12,393	30%	41,488
Non-Habitat	40,689	33%	329	0%	0	0%	0	0%	58,752	47%	3,519	3%	21,469	17%	124,757
Total Acres	741,740	35%	28,247	1%	42,340	2%	29	0%	1,032,853	49%	15,477	1%	257,691	12%	2,118,377

Table I.2 - Acres of Federal Subsurface Minerals by Population Area

GUSG POPULATION AREA	ALL MINERALS	COAL ONLY	OIL AND GAS ONLY	OIL, GAS AND COAL ONLY	OTHER	TOTAL
Cerro Summit-Cimarron-Sims Mesa	59,277	11,264	643	177	0	71,361
Occupied	15,110	3,136	171	137	0	18,554
Unoccupied	11,261	0	127	0	0	11,388
Non-Habitat	32,906	8,128	346	39	0	41,419
Crawford	72,657	0	128	36	167	72,989
Occupied	31,781	0	0	0	0	31,781
Unoccupied	33,277	0	128	36	0	33,442
Non-Habitat	7,598	0	0	0	167	7,765
Gunnison Basin	633,509	894	684	0	6,287	641,375
Occupied	454,701	569	684	0	4,103	460,057
Unoccupied	110,485	0	0	0	2,127	112,612
Non-Habitat	68,323	326	0	0	56	68,705
Monticello-Dove Creek	76,922	509	33,548	0	8,286	119,265
Occupied	8,782	309	10,175	0	4,217	23,174
Unoccupied	40,015	0	20,916	0	2,509	63,741
Non-Habitat	28,125	200	2,457	0	1,569	32,350
Piñon Mesa	230,301	0	445	0	44	230,790
Occupied	25,769	0	41	0	0	25,810
Unoccupied	158,442	0	143	0	44	158,629
Non-Habitat	46,090	0	261	0	0	46,351
Poncha Pass	47,660	0	0	0	306	47,966
Occupied	16,382	0	0	0	85	16,468
Unoccupied	15,800	0	0	0	0	15,800
Non-Habitat	15,478	0	0	0	220	15,698
San Miguel Basin	156,394	0	2,386	0	6,511	165,290
Occupied	65,082	0	1,325	0	364	66,771
Unoccupied	8,320	0	0	0	5,297	13,617
Non-Habitat	82,991	0	1,061	0	850	84,902
Total Acreage	1,276,720	12,667	37,835	213	21,600	1,349,036

I.2.4. BLM RMPs POTENTIALLY AMENDED BY THIS ACTION

The following BLM RMPs currently in use within the planning area have the potential to be amended by this RMP Amendment:

BLM COLORADO PLANS

Canyons of the Ancients NM RMP

The Canyons of the Ancients NM RMP was issued in June 2010. Canyons of the Ancients NM operates under this plan and contains Unoccupied Habitat supporting the Monticello-Dove Creek GUSG Population.

Dominguez-Escalante NCA RMP

The draft Dominguez-Escalante NCA RMP was released in April 2013 and the final plan is expected to be issued in 2016. Dominguez-Escalante NCA is co-administered by the Grand Junction FO under the Grand Junction FO RMP and the Uncompahgre FO under the Uncompahgre Basin RMP and contains Unoccupied Habitat in the Piñon Mesa GUSG Population.

Grand Junction FO RMP

The approved Grand Junction RMP revision was signed in August of 2015. The Grand Junction FO operates under this plan and it contains habitat supporting the Piñon Mesa GUSG Population.

Gunnison Gorge NCA RMP

The Gunnison Gorge NCA Approved RMP and ROD was issued in November 2004. Gunnison Gorge NCA is administered by the Uncompahgre FO under this plan and contains habitat supporting the Crawford GUSG Population.

Gunnison Resource Area RMP

The Gunnison Resource Area RMP was issued in February 1993. The Gunnison FO operates under this plan and provides habitat for two GUSG populations: the Cerro Summit-Cimarron-Sims Mesa Population and the Gunnison Basin Population.

McInnis Canyons NCA RMP

The McInnis Canyons (formerly Colorado Canyons) NCA and Black Ridge Canyons Wilderness RMP and ROD was issued in September 2004. McInnis Canyons NCA is administered by the Grand Junction FO under this plan and contains habitat supporting the Piñon Mesa GUSG Population.

San Juan/San Miguel RMP

The San Juan/San Miguel RMP was issued in 1985. A portion of the Uncompahgre FO operates under this plan and contains habitat supporting the San Miguel Basin GUSG Population. This portion of BLM-administered land is included in the planning area for the Uncompahgre RMP, and the approved RMP is expected to be issued in late 2017.

San Luis Resource Area RMP

The San Luis Resource Area ROD and Approved RMP was issued in December 1991. The San Luis Valley FO contains habitat supporting the Poncha Pass GUSG Population. In addition, the FO manages habitat supporting the Poncha Pass Population within the Royal Gorge FO.

Tres Rios FO RMP

The Tres Rios FO RMP was issued in February 2015. The Tres Rios FO provides habitat for two GUSG populations: the Monticello-Dove Creek Population (with the Dove Creek sub-population predominantly within the Tres Rios FO) and the San Miguel Basin Population.

Tres Rios FO Areas of Critical Environmental Concern (ACEC) RMP Amendment

The BLM is preparing an RMP Amendment and associated Environmental Assessment (EA) for the Tres Rios FO (DOI-BLM-CO-S010-2016-0018-EA). The EA will evaluate and consider management prescriptions for eighteen potential ACECs. Two of the proposed ACECs (Dry Creek Basin and Northdale) meet the relevance and importance criteria for GUSG conservation.

The proposed range of alternatives and management prescriptions prepared for the Tres Rios FO RMP ACEC Amendment would be consistent with the GUSG planning effort. Protection of identified relevance and importance values will be considered during project-level analysis of any management actions or project proposals.

Additionally, Alternative B in this document analyzes an ACEC for all GUSG Occupied and Unoccupied Habitat, which overlaps the Dry Creek Basin and Northdale ACECs proposed in the Tres Rios FO RMP ACEC Amendment.

Uncompahgre Basin RMP

The Uncompahgre Basin RMP and ROD was issued in July 1989. A significant portion of the Uncompahgre FO operates under this plan and provides habitat for four GUSG populations: the Cerro Summit-Cimarron-Sims Mesa Population (with the Sims Mesa sub-population entirely within the Uncompahgre FO), the Crawford Population, the Gunnison Basin Population, and the Piñon Mesa Population. This

portion of the field office is included in the planning area for the Uncompahgre RMP. The Draft Uncompahgre RMP was issued in May 2016, and the approved RMP is expected to be issued in late 2017.

If the GUSG RMP Amendment is issued prior to the revised Uncompahgre RMP, then it would amend the existing Uncompahgre Basin RMP (as well as the San Juan/San Miguel RMP) for lands in the Uncompahgre RMP planning area. Analysis from the GUSG EIS would be incorporated by reference into the Uncompahgre Proposed RMP/Final EIS, and decisions made in the GUSG Approved RMP Amendment/ROD would be carried forward to the Uncompahgre Approved RMP/Record of Decision. However, if the revised Uncompahgre RMP is issued first, then the GUSG RMP Amendment could require amendment of the Uncompahgre RMP.

BLM UTAH PLANS

Moab FO RMP

The Moab FO ROD and Approved RMP was issued in October 2008. The Moab FO operates under this plan and contains habitat supporting the Piñon Mesa GUSG Population.

Monticello FO RMP

The Monticello FO ROD and Approved RMP was issued in November 2008. The Monticello FO operates under this plan and contains habitat supporting the Monticello-Dove Creek GUSG Population (with the Monticello sub-population predominantly within the Monticello FO).

Table I.3 provides the acreages of Occupied Habitat, Unoccupied Habitat, and Non-Habitat Areas within Four Miles of a Lek for each of the potentially affected RMPs.

Table I.3 - Acreage of GUSG Habitat on BLM Lands by Affected RMP

AFFECTED RMP	SURFACE ACRES			SUB-SURFACE ACRES		
	Occupied Habitat	Unoccupied Habitat	Non-Habitat Areas	Occupied Habitat	Unoccupied Habitat	Non-Habitat Areas
Canyons of the Ancients NM RMP	—	4,042	—	—	4,079	—
Dominguez-Escalante NCA RMP	—	—	—	—	—	—
Grand Junction FO RMP	12,335	71,889	12,676	25,460	128,339	32,892
Gunnison Gorge NCA RMP	22,148	5,491	1,481	27,383	12,263	1,861
Gunnison Resource Area RMP	302,349	65,000	13,391	461,052	108,748	73,983
McInnis Canyons NCA RMP	351	21,575	181	350	20,475	181
Moab FO RMP	—	4,338	13,772	—	4,265	13,277

AFFECTED RMP	SURFACE ACRES			SUB-SURFACE ACRES		
	Occupied Habitat	Unoccupied Habitat	Non-Habitat Areas	Occupied Habitat	Unoccupied Habitat	Non-Habitat Areas
Monticello FO RMP	3,234	1,745	13,540	10,619	8,238	20,006
San Juan/San Miguel RMP	825	—	20,280	11,745	12,550	46,511
San Luis Resource Area RMP	9,742	14,877	763	15,750	15,800	14,970
Tres Rios FO RMP	40,308	30,106	32,269	67,270	51,416	44,868
Uncompahgre Basin RMP	4,057	8,816	10,041	21,958	28,957	41,532

1.2.5. ISSUES AND RESOURCES IDENTIFIED AND CONSIDERED BUT NOT CARRIED FORWARD

The following issues identified during public scoping are not being carried forward in this RMP Amendment/EIS for reasons that include lack of significant impacts and topics beyond the scope of the RMP Amendment:

Air Quality - Management of air quality was not identified as a key issue driving the formulation of alternatives for this RMP Amendment. While no significant changes in air quality are anticipated as a result of efforts to conserve and restore GUSG, management actions with the potential to impact air quality are addressed in this EIS.

Coal - As part of BLM land use planning, RMPs identify lands with potentially developable coal resources. There are four specific land use screening steps that are unique to developing land use planning decisions for federal coal lands. These are:

- Identification of coal with potential for development
- Determination if the lands are unsuitable for coal development
- Consideration of multiple use conflicts
- Surface owner consultation

The purpose of the coal screening portion of the land use planning process (43 CFR 3420.1-4) is to identify those federal lands that are acceptable for further consideration for coal leasing and development. Only those areas that have development potential may be identified as acceptable for further consideration for leasing. The suitability of those lands for coal leasing is then determined based upon twenty criteria listed in Section 522 of the Surface Mining Control and Reclamation Act and in 43 CFR 3461.5. Lands found suitable for coal leasing are evaluated in relation to potential multiple-use conflicts and protective measures identified in the RMP to determine whether or not coal leasing would be acceptable. No federal minerals subject to BLM administration have been identified as suitable for further consideration for coal leasing within the analysis area in the Grand Junction, draft

Uncompahgre, and Tres Rios RMPs. Coal leasing is not mentioned in the Gunnison or San Luis RMPs.

In the Moab and Monticello FOs and their respective RMPs, no expressions of interest for coal leasing have been received and the development potential for coal resources is low. If an interest in coal leasing were expressed, the respective RMP would be amended as appropriate and mining unsuitability criteria (43 CFR 3461) would be applied by the field office, as applicable, before any coal leases would be issued. If issued, a coal lease would be subject to special conditions developed in the RMP and unsuitability assessment that could restrict all or certain types of mining techniques. Before any coal could be removed, the field office would have to approve the mining permit application package, incorporating stipulations developed in the RMP. McInnis Canyons, Dominguez-Escalante, and Gunnison Gorge NCAs and Canyon of the Ancients NM are withdrawn from coal leasing as stipulated in the enabling legislation for each area.

Cultural Resources - Management of cultural resources was not identified as a key issue driving the formulation of alternatives for this RMP Amendment. Additionally, no significant changes to cultural resources are anticipated as a result of management actions and alternatives. Many beneficial effects potentially accrue to cultural resources from the conservation of GUSG habitat. There is also potential for negative impacts resulting from habitat improvement activity, vegetation management, restrictions on mitigation options (e.g. fence exclosures for protection), and the movement of development into other areas of cultural resource sensitivity (e.g. pinyon juniper vegetation zone).

Quantification of potential impacts requires knowledge of the extent of cultural resources, or at least a reasonable predictive capability. Such knowledge or reasonable prediction capability is unavailable beyond the basic premise that cultural resources are more likely to be found in pinyon juniper vegetation (Haas, Personal Communication, 2015). Quantification also requires the ability to estimate the proposed extent of potentially impactful management actions in quantifiable terms such as acres or percent. The management actions and objectives relevant to cultural resources do not contain such quantitative metrics. The combination of this lack of quantification of both the resource and the potential impacts renders quantitative analysis, and therefore estimation of significance of effects, inappropriate for this RMP Amendment. Finally, cultural resources are protected from significant impacts as a general matter by the laws and regulations that govern impacts to them.

ESA Listing Decisions - Decisions directly associated with the listing of the GUSG under the ESA are the purview of the FWS and are not addressed in this RMP Amendment.

Fish and Wildlife - While the GUSG is addressed in the *Special Status Species* resource sections of this EIS and three wildlife species are addressed in the *Fish and Wildlife* sections, general fish and wildlife management was not identified as a key issue to be addressed through this RMP Amendment.

Hunting of GUSG - The hunting of GUSG is not allowed in either Colorado or Utah. Comments related to state-regulated actions are outside the scope of this RMP Amendment.

Land Tenure - Land tenure is an action that has been addressed in the existing RMPs, in accordance with FLPMA. Land tenure refers to public land ownership, both disposal and acquisition. Changes in land tenure can be accomplished through direct sales, land exchanges, land purchases, and/or land donations. The existing RMPs identify specific parcels or criteria for parcels that are available for disposal. Public lands within Wilderness Areas, Wilderness Study Areas, the Canyons of the Ancients NM, and the Dominguez-Escalante, McInnis Canyons, and Gunnison Gorge NCAs are withdrawn from disposal under the public land laws.

Any land tenure actions, including disposals identified in an RMP, are subject to site-specific environmental analysis under NEPA. Land tenure adjustments must be determined to be in the public interest (FLPMA sec. 102(a)(1), 203(a), 205(b), and 206(a)) and to be in conformance with relevant laws, regulations, and policies. These include the policy as stated in BLM Manual 6840, Special Status Species Management: "the BLM shall retain in Federal ownership those habitats essential for the conservation of any listed species, particularly those that are part of a broader, logical public land ownership management unit. The BLM may dispose of lands providing habitat for listed species, including critical habitat, only following consultation with the FWS and upon a determination that such action is consistent with relevant law."

Lands with Wilderness Characteristics - Section 201 of FLPMA requires the BLM to maintain an inventory of all public lands and their resources and other values, including wilderness characteristics. FLPMA further provides that the preparation and maintenance of the inventory shall not, in and of itself, change or prevent change of the management or use of public lands. BLM lands identified as possessing wilderness characteristics must possess sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation, and may also possess supplemental values. The purpose of and need for this RMP Amendment is limited to making land use planning decisions specific to the conservation of GUSG habitat. As no decisions related to the management of lands with wilderness characteristics will be made as part of this planning effort, any discussion of lands with wilderness characteristics will be limited to the analysis of potential impacts from the management action alternatives.

The BLM will conduct wilderness characteristics inventories as a part of the NEPA analysis for any site-specific projects, such as vegetation treatments, that have the potential to impact this resource. At that time, alternatives will be considered to avoid or minimize the impacts to wilderness characteristics where possible, while still meeting the purpose and need for the project.

National Heritage Areas - No National Heritage Areas are located within the planning area.

National Historic Landmarks - No National Historic Landmarks are located on BLM-managed lands within the planning area.

National Historic Trails - National Historic Trails (NHTs) closely follow historic trails or routes of travel of national significance. Branches of the Old Spanish NHT occur throughout the planning area in both Colorado and Utah. The Old Spanish NHT was an important pack trail (and a later emigration route) connecting Santa Fe and Los Angeles from 1829 to 1848. Because the trail consisted of a multitude of general corridors on which the pack strings were driven, evidence of the actual routes that define the trail are extremely rare. Management actions for the conservation of the GUSG are not expected to impact the values of the Old Spanish NHT.

National Recreation Areas (NRA) - No NRAs occur on BLM-managed lands within the planning area. Curecanti NRA, located on the Gunnison River within the planning area, is managed by the National Park Service.

National Scenic Trails - National Scenic Trails (NST) are only authorized and designated through an Act of Congress. NSTs provide maximum outdoor recreation potential and for the conservation and enjoyment of the various qualities—scenic, historical, natural, and cultural—of the areas through which they pass. In the Gunnison Basin, the BLM manages approximately one mile of the Continental Divide NST within the planning area. On BLM lands, the Continental Divide NST is located on the extreme southern edge of GUSG habitat, and management actions taken for the conservation of the GUSG are not expected to impact its values.

Oil Shale and Tar Sands - The BLM completed the Approved Land Use Plan Amendments/ROD for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the BLM in Colorado, Utah, and Wyoming and Final EIS in 2013. The Oil Shale/Tar Sands EIS analyzed the most geologically prospective oil shale areas in Colorado, Utah, and Wyoming. The ROD amended three RMPs in Colorado and four in Utah, only two of which—the 1988 Grand Junction RMP (as amended by the 2006 Roan Plateau RMP Amendment) and the 2008 Monticello

RMP—overlap with the planning area. No federal oil shale or tar sands resources were made available for application for leasing in the planning area.

Paleontological Resources - The management of paleontological resources was not identified as a key issue driving the development of alternatives for this RMP Amendment. While no significant changes to paleontological resources in the planning area are anticipated as a result of efforts to conserve and restore GUSG, management actions with the potential to impact paleontological resources are addressed in this EIS.

Prime and Unique Farmlands - None of the actions proposed in this RMP Amendment were determined to have the potential to impact prime and unique farmlands (as defined by the CEQ and mapped by the Natural Resources Conservation Service) or farmlands of statewide or local importance (as mapped by state or local agencies). Irrigation is necessary for land to be classified as Prime and Unique Farmlands and BLM lands are not irrigated.

Renewable Energy Land Use Authorizations - Renewable energy includes geothermal, solar power, wind, and hydropower resources. Geothermal resources are managed as a leasable fluid mineral and are discussed in the Leasable Minerals sections of this EIS. Solar, wind, and hydropower resources are managed by the lands and realty program. The BLM completed programmatic environmental analyses and subsequent decisions for both wind energy and solar energy development. In the Programmatic EIS on Wind Energy Development (BLM 2005), none of the decision area was identified as having potential for future wind energy development. There are currently no wind energy development proposals in the planning area.

In the Approved Resource Management Plan Amendments/ROD for Solar Energy Development in Six Southwestern States (BLM 2012), the entire planning area is excluded from utility-scale solar development (projects generating 20 megawatts or greater), either through designation as an exclusion area or by being subject to exclusion criteria. There are currently no utility-scale solar energy development proposals or authorizations on public lands in the planning area.

Small-scale wind, solar, and hydropower projects would be managed by the lands and realty programs and are discussed in the Lands and Realty sections of this EIS.

Scenic, Historic, and Backcountry Byways - Several national and state scenic and/or historic byways exist within the planning area. The West Elk Loop Scenic Byway crosses three population areas: Crawford, Cerro Summit-Cimarron-Sims Mesa, and Gunnison Basin. The San Juan Skyway touches the outer southwest edge of the San Miguel Basin Population, while the Unaweep/Tabeguache Scenic Byway brushes the edges of two sub-units on the east side of the Piñon Mesa Population. The Silver Thread Scenic Byway also intersects GUSG Habitat., but is located on state

highways. Conservation of the GUSG is not expected to alter the experience of America's or Colorado/Utah designated byways and designation of additional byways is beyond the scope of this planning effort; therefore, byways are not analyzed in detail in this planning effort.

Special Status Plants - The Draft RMP Amendment does not propose the removal of any protections for listed or sensitive plant species. BLM Manual 6840 on Special Status Species Management provides instruction on survey and protection of sensitive and listed plants. In accordance with this manual, surveys and avoidance of special status plants would be required where GUSG conservation measures such as habitat improvements have the potential to affect them. This standard practice, in combination with the conservation nature of this RMP Amendment, precludes the need to analyze listed and sensitive plants further in this document.

In no scenario under the Draft RMP Amendment would disturbance to a special status plant species increase; the opposite will be the case. Under the RMP Amendment, special status plant species would receive additional protection where their range overlaps with GUSG. Requiring no surface disturbance in order to protect GUSG and their habitat would also benefit other special status species. Habitat treatments would focus on pinyon and juniper encroachment into sagebrush and on sagebrush restoration. Stand type conversion of pinyon-juniper stands are not included in this amendment.

Taylor Grazing Act/National Grazing Policy - Both elimination and reduction of livestock (i.e., permitted grazing use) within GUSG habitat in the planning area are considered in different alternatives. This is consistent with Instruction Memorandum (IM) 2012-169, RMP Alternative Development for Livestock Grazing.

Visual Resources - The management of visual resources was not identified as a key issue driving the development of alternatives for this RMP Amendment. While no significant changes to visual resources are anticipated as a result of efforts to conserve and restore GUSG, management actions with the potential to impact visual resources are addressed in this EIS.

Water Quality - The management of water quality was not identified as a key issue driving alternatives design for this RMP Amendment. Additionally, consideration and initial analysis of water quality did not identify reasonably foreseeable significant impacts occurring due to any of the alternatives. Therefore, water quality was not analyzed in detail.

Wild Horse and Burro Management - No wild horses and burros or wild horse and burro herd management areas occur within the decision area.

Wild and Scenic Rivers - While no stream segments within the planning area have been designated as Wild and Scenic Rivers (WSR), both the Tres Rios and

Uncompahgre FOs contain stream segments partially intersecting the planning area that have been identified as eligible or suitable for WSR designation. The RMPs for the respective offices include land use prescriptions that provide for interim protective management of river-related values. All of the alternatives under consideration in this planning effort contain land use restrictions that would be as restrictive as or more restrictive than land use prescriptions presently in effect for the stream segments. Because of the additional protections provided for river-related values along eligible and suitable stream segments under any of the alternatives and the small amount of intersection between the planning area and eligible and suitable stream segments, WSR issues are not analyzed in detail in this planning effort.

The BLM will not consider any management actions or allocations through this planning effort that would prevent the agency from managing eligible and suitable WSRs in a manner that would protect river values and ensure a decision on suitability could be made for eligible rivers, and in the case of suitable rivers, until Congress designates the segment or releases it for other uses.

Wilderness/Wilderness Study Areas - Four of the GUSG populations—Crawford, Gunnison Basin, Monticello-Dove Creek, and Piñon Mesa—either intersect or abut wilderness areas or wilderness study areas. Management for the conservation of GUSG in designated wilderness areas or wilderness study areas is not expected to result in measurable impacts or impair existing wilderness character. It is beyond the current authority of the BLM and the scope of this planning effort to designate new wilderness areas or wilderness study areas. The BLM will not consider any management actions or allocations through this planning effort that would prevent the agency from managing recommended wilderness areas in a manner that would preserve and protect wilderness characteristics or preclude Congress from designating wilderness areas in the future.

I.3. PLANNING CRITERIA

I.3.1. ABOUT BLM PLANNING CRITERIA

Planning criteria are standards and rules used as a framework to resolve issues and develop alternatives and to ensure that decision making is tailored to the issues and the BLM avoids unnecessary data collection and analysis. Planning criteria are based on appropriate laws, regulations, and BLM manuals, handbooks, and policy directives, as well as on public participation and coordination with cooperating agencies (consisting of state, local, and other federal agencies and government entities) and Native American tribes.

I.3.2. CRITERIA FOR THE GUSG RMP AMENDMENT

Preliminary planning criteria were established at the start of public scoping in order to guide initial input, and have been modified as a result of feedback and new information.

The current planning criteria state that:

- The planning effort will be limited to making land use planning decisions specific to the conservation of the GUSG and its habitat. For the purposes of this planning effort, GUSG habitat may include areas in addition to those designated as critical habitat by the FWS in the final listing decision.
- Lands addressed in the RMP Amendment will consist of GUSG Occupied and Unoccupied Habitat and Non-Habitat Areas administered by the BLM. Decisions in the RMP Amendment will apply only to federal public lands and minerals administered by the BLM.
- The BLM will consider land use allocations and/or prescriptive standards to conserve GUSG habitat, as well as objectives and management actions to restore, enhance, and improve GUSG habitat.
- The BLM will use a collaborative and multi-jurisdictional approach, where appropriate, to determine the goals and objectives of public lands for the conservation of the GUSG and its habitat.
- As described by law and policy, the BLM will strive to ensure that conservation measures are as consistent as possible with other planning jurisdictions within the planning area boundary.
- The BLM will consider a reasonable range of alternatives, including appropriate management prescriptions that focus on the relative values of

resources while contributing to the conservation of the GUSG and its habitat.

- The BLM will consider GUSG conservation measures developed by or in conjunction with cooperating agencies, including county and state governments and the FWS, among others.
- The RMP Amendment will consider management actions that have been previously demonstrated as successful for GUSG conservation on private, local, state, other federal, or BLM-administered lands.
- The BLM will use the Gunnison Sage-Grouse Rangewide Conservation Plan (Rangewide Steering Committee 2005) and other appropriate resources to identify GUSG habitat requirements and best management practices (BMPs).
- The planning effort will comply with FLPMA, NEPA, CEQ regulations at 40 CFR parts 1500–1508, DOI regulations at 43 CFR part 46 and 43 CFR part 1600, BLM H-1601 Land Use Planning Handbook Appendix C: Program-Specific and Resource-Specific Decision Guidance Requirements for affected resource programs; BLM NEPA Handbook H-1790-1 (2008); and all other applicable BLM policies and guidance.
- The planning effort will recognize valid existing rights.
- The BLM will address socioeconomic impacts of the alternatives developed. Socioeconomic analyses will use an accepted input/output quantitative model such as the Impact Analysis for Planning or the Regional Input-Output Modeling System.
- The BLM will use current scientific information, research, technologies, and results of inventory, monitoring, and coordination to determine appropriate local and regional management strategies that will enhance or restore GUSG habitat.
- All activities and uses for BLM-administered lands within GUSG habitat will follow existing land health standards. Standards and guidelines for livestock grazing and other applicable programs will be applicable to all alternatives for BLM lands.
- Resources and resource programs that do not contain specific management direction for GUSG and that may be indirectly affected by the proposed management actions will be identified and discussed only to the degree required to fully understand the range of effects of the proposed management actions.
- The BLM will consult with Native American tribes to identify sites, areas, and objectives important to their cultural and religious heritage within GUSG habitat.
- The BLM will coordinate and communicate with state, local, and tribal governments to ensure that the BLM considers provisions of pertinent plans, will seek to resolve inconsistencies between state, local, and tribal plans, and

will provide ample opportunities for state, local and tribal governments to comment during development of the RMP Amendment.

- The planning effort will be based on adaptive management principles.
- The BLM will use the most current approved BLM corporate spatial data supported by current metadata to ascertain the extent and quality of GUSG habitat. Data will be consistent with the principles of the Information Quality Act of 2001.
- The BLM will make use of data and expertise pertaining to the GUSG provided by the FWS and state wildlife agencies to the fullest extent practicable in making management determinations on federal lands. The BLM recognizes the jurisdiction of state wildlife agencies as the primary management agencies for species not managed under the Endangered Species Act.
- The BLM will adhere to the principles of multiple use and sustained yield.
- The BLM will use a systematic interdisciplinary approach to integrate physical, biological, economic, and other sciences.

I.4. THE PLANNING PROCESS

I.4.I. BLM LAND USE PLANNING PROCESS

FLPMA requires that the BLM develop and maintain RMPs as management tools by which "present and future use is projected" (43 United States Code [USC] 1701[a][2]). The implementing regulations of FLPMA for planning (43 CFR Part 1600) state that RMPs are a preliminary step in the overall process of managing BLM-administered lands and are "designed to guide and control future management actions and the development of subsequent, more detailed and limited scope plans for resources and uses" (43 CFR Part 1601.0-2). Public participation and input are important components of land use planning.

Under BLM regulations, approval of an EIS-level RMP revision or amendment is considered a major federal action that could significantly affect the quality of the human environment and therefore requires disclosure and documentation of environmental effects as described in NEPA. Thus, this EIS accompanies the amendment of the existing RMPs.

The EIS follows the format outlined in the BLM Land Use Planning Handbook H-1601-I, planning regulations at 43 CFR 1610, NEPA Handbook H-1790-I, CEQ regulations at 40 CFR 1500–1508, and DOI NEPA regulations at 43 CFR 46. The RMP Amendment and EIS are being developed in full compliance with NEPA and the planning process is being conducted in compliance with legal and policy requirements regarding public notices, required elements, distribution of draft and final documents, and specific laws.

The BLM uses a nine-step planning process to develop or revise RMPs outlined in 43 CFR Part 1600 and the BLM Land Use Planning Handbook H-1601-I (BLM 2005d). This EIS analyzes the impacts of four alternatives for the GUSG Rangewide RMP Amendment/EIS, including a No Action Alternative. In accordance with the BLM planning handbook, portions of separate alternatives analyzed in the Draft RMP Amendment may be combined in order to formulate a comprehensive alternative for the final RMP Amendment.

Through a rangewide plan amendment effort the BLM will incorporate objectives and management actions into approved RMPs. The BLM will evaluate and adapt a suite of conservation measures based on the RCP, local GUSG conservation initiatives, current peer-reviewed research, and conservation summaries developed in conjunction with FWS and state fish and wildlife agencies.

This planning effort is limited to actions that support conservation or recovery of the GUSG and its habitat and will be structured to incorporate adaptive management practices where appropriate in order to achieve habitat conservation, restoration, and enhancement goals.

A Scoping Report was completed prior to formulating the alternatives and preparing the Draft RMP Amendment/EIS. Public comments on the Draft RMP Amendment/EIS will be analyzed following a 90-day review period. The BLM will consider all comments prior to publishing a Proposed RMP Amendment/Final EIS. Prior to issuing a Record of Decision (ROD), the public will have an opportunity to protest the Proposed RMP Amendment and the states of Colorado and Utah will conduct Governor's Consistency Reviews.

PLAN MAINTENANCE

Over the life of a plan, the BLM expects that new information gathered from field inventories and assessments, other agency studies, and other sources will update geographic information system (GIS) and other data (to include best management practices). To the extent that new information or actions address issues covered in the RMP Amendment, the BLM will integrate the data through plan maintenance. BLM regulations in 43 CFR 1610.5-4 provide that plan decisions and supporting actions can be maintained to reflect minor changes in data. Maintenance is limited to further refining, documenting, or clarifying a previously approved decision incorporated in the RMP Amendment. Maintenance must not expand the scope of resource uses or restrictions or change the terms, conditions, and decisions of the approved RMP Amendment.

RELATIONSHIP TO OTHER POLICIES AND PLANS

This planning effort recognizes the many ongoing efforts to conserve the GUSG through policies and plans implemented throughout the planning area by other land managers and government agencies. The BLM will seek to be consistent with or complement other management actions in accordance with FLPMA and regulations.

2. ALTERNATIVES

Chapter Two details alternatives A through D (including sub-alternatives D₁ and D₂) for the GUSG Rangewide RMP Amendment/EIS, identifying management actions and where those actions would be applicable. The draft alternatives were formulated in response to issues and concerns identified through public scoping and threats to the GUSG identified in the FWS final listing decision and in an effort to maintain or increase GUSG abundance and distribution by conserving, enhancing, or restoring the sagebrush ecosystem upon which the species depends, as well as implement actions that will lead to recovery of the species. Decisions resulting from this RMP Amendment would apply to federal surface lands and federal subsurface mineral estate administered by the BLM in the decision area (described in Section 1.2.2).

2.I. INTRODUCTION TO ALTERNATIVES

The GUSG RMP Amendment/EIS was drafted in compliance with NEPA, which directs the BLM to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...” (NEPA Section 102[2][e]). At the heart of the alternative development process is the requirement that the range of alternatives is reasonable. The purpose of and need for the action provide the parameters for determining the reasonableness of the range of alternatives.

The BLM recognizes that social, economic, and environmental issues extend across land ownership boundaries and that extensive cooperation is necessary in order to actively address issues of mutual concern. To the extent possible, these alternatives reflect input provided during public scoping and from cooperating agencies.

RMP decisions consist of identifying and clearly defining goals and objectives (desired outcomes) for resources and resource uses. After establishing desired outcomes, the BLM identifies allowable uses (land use allocations) and management actions for different alternatives that are anticipated to achieve the goals and objectives.

2.I.I. COMPONENTS OF ALTERNATIVES

Goals are broad statements of desired outcomes that usually are not quantifiable. Objectives identify specific desired outcomes for resources. Goals typically pertain to all of the alternatives, while objectives may be consistent across alternatives or vary by alternative. An RMP can include some objectives that vary by alternative and other objectives that are consistent across alternatives. And while goals typically apply to the entire decision area, objectives, allowable uses, and management actions may apply to the decision area as a whole or to a specific geographic area(s).

RMPs identify resource uses or allocations that are allowable, restricted, or prohibited on public lands and federal mineral estate. These allocations identify surface lands and/or subsurface mineral interests where uses are allowed, including restrictions necessary to meet goals and objectives. Land use plans also identify lands where specific uses are excluded in order to protect resource values. At the land use plan level, it is important to identify reasonable development scenarios for allowable uses to enable the orderly implementation of future actions. These scenarios provide a context for RMP decisions and an analytical base for NEPA analysis. The BLM may also establish criteria in a land use plan to guide the identification of site-specific use levels for activities during plan implementation.

Land use plans must identify the management actions anticipated to achieve outcomes, including actions to maintain, restore, or improve land health. These actions include proactive measures (such as measures to enhance function and condition), as well as measures or criteria guiding day-to-day activities occurring on public lands.

2.1.2. PURPOSE OF ALTERNATIVES DEVELOPMENT

Land use planning and NEPA regulations require the BLM to formulate a reasonable range of alternatives. Alternative development is guided by established planning criteria (as outlined in 43 CFR Section 1610).

The basic goal of alternative development is to produce distinct potential management scenarios that:

- Address the identified major planning issues
- Explore opportunities to enhance management of resources and resource uses
- Meet the purpose and need for the RMP Amendment
- Are feasible.

Pursuit of this goal provides the BLM and the public with an appreciation for the diverse ways in which conflicts regarding resources and resource uses might be resolved, and offers the BLM State Director(s) a reasonable range of alternatives from which to make an informed decision. The components and broad aim of each alternative considered for the GUSG Range-wide RMP Amendment/EIS are discussed below.

2.1.3. DEVELOPING ALTERNATIVES

ALTERNATIVES DEVELOPMENT PROCESS

The planning team adhered to the BLM planning process in developing a reasonable range of alternatives for the RMP Amendment/EIS. Planning was conducted in compliance with NEPA and White House Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR 1500), including seeking public input and analyzing a reasonable range of alternatives. In order to meet the planning criteria and respond to scoping issues and FWS-identified threats, the alternatives include management options that could modify or amend decisions in field office, national conservation area, and national monument RMPs across the planning area. Because the RMP Amendment/EIS is specific to

GUSG conservation, numerous decisions in existing RMPs remain valid. In these instances, no alternative management prescriptions were required.

Public input received during the scoping process was considered to ensure that all issues and concerns would be addressed, as appropriate, when developing the alternatives. The planning team identified the issues to be addressed in the RMP Amendment/EIS based on broad concerns or controversies related to conditions, trends, needs, and existing and potential uses of planning area lands and resources.

DEVELOPING A REASONABLE RANGE OF ALTERNATIVES

The BLM project team identified planning issues, developed management goals, and drafted objectives and actions to address the goals based on scoping and collaboration efforts. Cooperating agencies reviewed, discussed, and provided comments on the drafts. Reasonable alternatives meet the purpose and need of the project and can be feasibly carried out based on estimated cost, logistics, technology, and social and environmental factors.

Using a two-step process, the planning team:

- Developed preliminary action alternatives B and C. The action alternatives were designed to:
 - Address the planning issues by offering a range of management responses;
 - Fulfill the purpose and need for the RMP Amendment (outlined in Chapter I, Section 1.1, Purpose and Need);
 - Meet the multiple use mandates of FLPMA (43 USC 1716).
- Blended goals, objectives, and actions from the action alternatives to formulate a third action alternative (Alternative D) that strives for balance among competing interests and has the greatest potential to effectively address the purpose and need in the Gunnison Basin and each of the satellite populations. This quest for balance was further refined by splitting Alternative D into two sub-alternatives. Sub-alternative D₁ focuses on issues associated with the more stable Gunnison Basin Population, while D₂ focuses on issues associated with the smaller satellite populations.

The action alternatives (B and C and sub-alternatives D₁/D₂) respond to issues and concerns raised during the public scoping period, as well as planning criteria and guidance applicable to management of resources and resource uses with the potential to affect GUSG or GUSG Habitat.

2.1.4. RESULTING RANGE OF ALTERNATIVES

The No Action Alternative (A) outlines existing management direction, including current decisions set forth in field office RMPs and reasonable, foreseeable, management scenarios. CEQ requires a No Action Alternative in order to provide a baseline for comparison of the other alternatives (CEQ 1981). While reflecting current management, management actions from Alternative A can also be selected for the final RMP Amendment/EIS.

The action alternatives (B and C and sub-alternatives D₁ and D₂) offer a range of possible management approaches for responding to planning issues and concerns to conserve and restore GUSG and habitat in the decision area. While the goal is the same across alternatives, objectives can differ by alternative, and each of the alternatives contains a discrete set of management actions with the potential for different long-range outcomes and conditions to meet the purpose and need for the amendments.

The relative emphasis given to particular resources and resource uses differs as well, including allowable uses, restoration measures, and specific direction pertaining to individual resource programs. When resources or resource uses are mandated by law or are not tied to planning issues, there are typically few or no distinctions between alternatives.

Differences among the alternatives are described in Table 2.5 - Summary of Impacted Acres by Resource Use. Table 2.7 details the proposed goals, objectives, management actions, and allowable uses by resource for each of the action alternatives B and C and sub-alternatives D₁ and D₂. No Action Alternative A is outlined in a separate table (Table 2.6) that precedes the action alternatives table.

A complete description of the stipulations developed for implementation of the management actions can be found in Appendix H, Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations. A complete description of the Best Management Practices (BMPs) for implementation of the management actions described in the alternatives is available in Appendix I, Best Management Practices.

Geographic information system (GIS) data has been used in developing acreage calculations and for generating many of the figures. Calculations in this EIS are rounded and are dependent upon the quality and availability of data. Data were collected from a variety of sources, including the BLM, collaborative partners, stakeholders, and cooperating agencies, among others. Given the scale of the analysis, the compatibility constraints between datasets, and the lack of data for some resources, all calculations are approximate and serve for comparison and analytic purposes only. Because the BLM may receive additional GIS data, the acreages are likely to be recalculated and revised.

CHAPTER 2 - ALTERNATIVES

The action alternatives (B and C and sub-alternatives D₁/D₂) may modify planning decisions in the three NCAs and or the National Monument, but only as consistent with their designations.

The action alternatives were designed to respond to threats to the GUSG and GUSG habitat identified by the FWS, as well as issues identified by the public and cooperating agencies during scoping. Table 2.4 identifies these threats and issues, as well as the applicable BLM resource programs and management decisions being analyzed in this EIS to address the threats and issues.

Table 2.4 - Applicable BLM Programs and Decisions to Address Issues and FWS Threats

FWS THREAT*	SCOPING ISSUE	APPLICABLE BLM RESOURCE PROGRAM FOR ADDRESSING THREAT
		RANGEWIDE - MOST SUBSTANTIAL THREAT
Habitat Decline Due to Human Disturbance	Energy and Minerals	<p>Program: Minerals</p> <p>Decisions: Identify areas open and closed to fluid mineral leasing. Identify No Surface Occupancy (NSO), Controlled Surface Use (CSU), and/or Timing Limitation (TL) stipulations for open areas. Identify areas to petition for withdrawal from mineral development. Establish terms, conditions, or special considerations. Identify areas open and closed to mineral materials disposal. Establish BMPs.</p>
	Lands and Realty	<p>Program: Lands and Realty</p> <p>Decision: Identify stipulations for ROW grants and utility corridors. Identify ROW avoidance or exclusion areas.</p>
	Recreation	<p>Program: Recreation</p> <p>Decision: Identify terms, conditions and stipulations for SRPs.</p>
	Range Management	<p>Program: Range Management</p> <p>Decision: Identify appropriate grazing management practices and suitability for range facilities/improvements.</p>
	Travel Management	<p>Program: Travel and Transportation Management - Roads</p> <p>Decision: Identify areas open, limited, or closed to travel and modes of access and travel.</p>
Small Population Size and Structure	Lands and Realty	<p>Program: Lands and Realty</p> <p>Decision: Identify criteria for areas for retention, disposal, or acquisition.</p>
Climate Change	Climate Change	Although no individual resource program addresses this threat to the GUSG or GUSG Habitat, the threat has been considered as part of individual resource concerns and monitored trends.
Disease	No similar issue identified.	<p>Program: Range Management, Special Status Species</p> <p>Decision: Identify actions to minimize potential of spread of West Nile Virus.</p>
Drought	Drought	Although no individual resource program addresses this threat to the GUSG or GUSG Habitat, the threat has been considered as part of individual resource concerns and monitored trends.
LOCALIZED - LESS SUBSTANTIAL THREAT		

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FWS THREAT*	SCOPING ISSUE	APPLICABLE BLM RESOURCE PROGRAM FOR ADDRESSING THREAT
Grazing Practices Inconsistent with Local Ecological Conditions	Livestock Grazing Vegetation Management	Program: Range Management Decisions: Identify areas open and closed to grazing. Establish animal unit months (AUMs). Identify appropriate grazing management practices and suitability for range facilities/improvements.
		Program: Wildlife Decisions: Identify habitat management.
		Program: Special Status Species Decision: Identify habitat management.
Fences	Range Improvements	Program: Range Management Decision: Identify appropriate grazing management practices and suitability for fences.
Invasive Species	Weeds	Program: Vegetation Management, Range Management, Wildland Fire Management, and Recreation Decisions: Control, suppress, or eradicate weeds. Identify BMPs for allowable uses. Actively manage or treat weeds.
Fire	Fire Management Vegetation Management	Program: Wildfire Management Decisions: Consider changes to fire management strategies. Identify areas suitable/unsuitable for managing wildfire to meet resource objectives. Identify priority areas for suppression.
Mineral Development	Energy and Mineral Development	Program: Fluid Minerals Decisions: Identify areas open and closed to fluid mineral leasing. Identify NSO, CSU, and TL stipulations for open areas.
		Program: Lands and Realty Decisions: Identify stipulations for ROW grants and utility corridors. Identify ROW avoidance or exclusion areas.
		Program: Locatable Minerals Decisions: Identify areas to petition for withdrawal from mineral development. Establish terms, conditions, or special considerations.
		Program: Salable Mineral Materials Decisions: Identify areas open and closed to mineral materials disposal. Establish terms, conditions, or special considerations.
		Program: Non-energy Leasable Minerals Decisions: Identify areas open and closed to non-energy leasable minerals. Establish terms, conditions, or special considerations.
Conifer Invasion (including pinyon and juniper)	Vegetation Management	Program: Vegetation Decisions: Identify habitat management.
		Program: Wildfire Management Decisions: Consider changes to fire management strategies. Identify areas suitable/unsuitable for managing wildfire to meet resource objectives. Identify priority areas for suppression.

FWS THREAT*		SCOPING ISSUE	APPLICABLE BLM RESOURCE PROGRAM FOR ADDRESSING THREAT
Large-Scale Water Development	No similar issue identified.	Program: Lands and Realty Decision: Identify stipulations for development.	
Predation	Predation	Program: Lands and Realty, Minerals, Recreation, Range Management Decision: Establish design features and BMPs.	
Recreation	Recreation and Travel Management	Program: Recreation Decision: Establish design features and BMPs to apply to SRPs.	
		Program: Travel and Transportation Management Decision: Identify areas open, limited, or closed to travel and modes of access and travel.	
No similar threat identified.	Special Management Areas	Program: Special Designations Decisions: Identify special management areas.	
No similar threat identified.	Social, Economic, and Environmental Justice	Although no individual resource program addresses this threat to the GUSG or GUSG Habitat, the threat has been considered as part of individual resource concerns and monitored trends.	

*As identified in the FWS final listing decision (FR Vol. 79, No. 224)

ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Alternative Focused on Management Actions for Occupied Habitat

As part of internal scoping, a recommendation was made for an alternative focused solely on Occupied Habitat. As the majority of acres included under the umbrella of “Unoccupied Habitat” includes lands designated as critical habitat by the FWS, this alternative would not meet the purpose and need of this effort or meet BLM’s responsibilities under Section 7(a)(2) of the Endangered Species Act, and therefore, was not carried forward for analysis. Specifically, nearly one third of GUSG critical habitat on BLM surface lands is classified as Unoccupied Habitat. Although currently not in use by GUSG, the lands are designated as critical habitat and considered to be essential for conservation of the species.

Alternative Emphasizing Full Resource Development

This alternative would not meet the purpose and need of this effort to address threats to the species or meet BLM responsibilities under Section 7(a)(2) of the Endangered Species Act, as the majority of acreage in the planning area includes land designated as critical habitat by the FWS. The No Action Alternative represents the fullest development scenario within the range of alternatives analyzed. As stated in the Purpose and Need, the “Endangered Species Act requires agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or result in the adverse modification or destruction of critical habitat for a

listed species.” Full development of resources and infrastructure on lands designated as critical habitat would likely result in habitat degradation and fragmentation, which would hinder conservation of the GUSG. Therefore, this alternative was not carried forward for analysis.

Alternative Closing Areas to Entry or Activities to Protect Populations

A recommendation was made to provide increased protection of Gunnison sage-grouse, particularly for the satellite populations. Among the protections would be to provide the ability of BLM to exclude or prohibit all human entry or activities that may conflict with the conservation of Gunnison sage-grouse. Such an alternative would be counter to 43 CFR 2310.3-4, which states that “All orders withdrawing 5,000 or more acres shall be subject to the Congressional Review Provision of section 204(c) of the Act (43 U.S.C. 1714(c).” Moreover, the potential to implement such withdrawals would not be considered to be within a reasonable range of alternatives. Alternative B, other protections considered in this document, and the adaptive management provisions will help protect the species. Therefore, this suggested alternative was not carried forward for analysis.

AREA OF CRITICAL ENVIRONMENTAL CONCERN PROPOSALS

Areas of Critical Environmental Concern (ACECs) differ from other special designations, such as Wilderness Study Areas, in that designation by itself does not automatically prohibit or restrict other uses in the area.

Multiple public proposals recommending designation of new ACECs were submitted to the BLM during the public scoping period, including the following:

- Establish a system of conservation areas to anchor restoration efforts by conserving the highest quality habitats:
 - Areas of high ecological value for GUSG and other sagebrush dependent species
 - Designate sagebrush reserves that encompass centers of GUSG abundance large enough to achieve the goals of biological representation and ecological redundancy and resiliency.
- Consider all GUSG Habitat on BLM lands, including both Occupied Habitat and critical habitat as delineated by the FWS, for ACEC designation in at least one alternative.
- Consider designation of all proposed critical habitat on public lands in a conservation alternative.
- Consider the following specific areas for designation as ACECs:

- o All habitat on BLM land currently occupied by populations of GUSG outside of the Gunnison Basin, with a buffer large enough to ensure that activities authorized adjacent to the ACEC will not result in functional loss or fragmentation of currently Occupied Habitat
- o Priority habitat on BLM lands in the Gunnison Basin, as identified by the CCA, with improvements
- o Areas outside of priority habitat in the Gunnison Basin with high potential for restoration and re-establishment of populations
- o Any ACECs or special management designations in GUSG Habitat that have been included in current public or internal draft BLM RMPs (e.g. Tres Rios, Uncompahgre, etc.)
- Designate all GUSG Habitat on federal lands.
- Designate priority habitat.
- Designate large blocks of core habitat.
- Manage potential critical habitat as ACECs for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve GUSG seasonal habitat objectives.

In consideration of these public proposals, the BLM proposes to designate all Occupied and Unoccupied habitat as an ACEC under Alternative B. Occupied Habitat and Unoccupied Habitat were separately evaluated by a team of BLM biologists and determined to meet the relevance and importance criteria. See Appendix G, Areas of Critical Environmental Concern, Relevance and Importance Rationale, for details of the analysis."

2.2. ALTERNATIVES

2.2.1. SUMMARY OF ALTERNATIVES

This section summarizes and compares the four alternatives (A through D) considered in the EIS. To reduce the length and avoid confusion, only select meaningful differences among alternatives (with the most potential to affect resources) are summarized in this section. Combined with the appendices and Table 2.4 - Applicable BLM Resource Programs and Management Decisions for Addressing Scoping Issues and FWS-identified Threats, Table 2.6 - Alternative A: No Action, and Table 2.7 - Draft Action Alternatives B and C and Sub-Alternatives D₁/D₂ highlight meaningful differences among the alternatives regarding what they establish and where they occur.

Table 2.5 summarizes the acreage that would be allocated or restricted for each resource or resource use, based on the management actions for each of the alternatives. Please note that there is overlap between acreages of resources and resource uses as currently managed (under No Action Alternative A) and as potentially managed (under the action alternatives B and C and sub-alternatives D₁/D₂).

Decisions made through this RMP Amendment are anticipated to be subsequently implemented. Restrictions on resource uses (such as closures to leasing) made through this amendment apply for the life of an RMP unless otherwise amended or revised.

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Table 2.5 - Summary of Impacted Acres by Resource Use for Each Alternative

RESOURCE USE	NO ACTION ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	SUB- ALTERNATIVE D ₁	SUB- ALTERNATIVE D ₂
COMPREHENSIVE TRAVEL & TRANSPORTATION MANAGEMENT					
Open to Cross-Country Motorized Travel	56,072	0	0	2	0
Closed to Motorized Travel	34,550	623,346	34,550	4,541	30,009
LANDS & REALTY					
ROW Exclusion Areas - Occupied Habitat	3,786	395,463	3,786	3,277	BLM lands within 0.6 mile of a lek
ROW Avoidance Areas - Occupied Habitat	24,425	0	391,677	298,747	BLM lands outside 0.6 mile of a lek
ROW Exclusion Areas - Unoccupied Habitat	10,843	227,883	10,843	4,614	6,229
ROW Avoidance Areas - Unoccupied Habitat	89,141	0	217,000	59,358	157,681
Recommended for Withdrawal from Federal Mineral Development	N/A	855,766	TBD	TBD	TBD
FLUID MINERAL LEASING (also applies to Geothermal Leasing)					
Closed to Fluid Mineral Leasing	206,950	851,752	126,133	9,148	197,802
Open to Leasing Subject to NSO	370,466	N/A	498,584	381,330	276,926
LOCATABLE MINERALS, MINERAL MATERIALS, & NON-ENERGY SOLID LEASABLE MINERALS					
Closed to Mineral Material Sales	65,946	611,710 - plus 169 riparian miles in Unoccupied Habitat	65,946	8,446	57,500
Closed to Non-Energy Mineral Leasing	206,950	851,752	126,133	9,148	197,802
LIVESTOCK GRAZING					
Not Permitted for Livestock Grazing	46,147	623,346	46,147	26,375	19,772

ALTERNATIVE A - NO ACTION

The No Action Alternative A would continue current management direction and prevailing conditions derived from the existing planning documents of each field office. Goals and objectives for resources and resource uses are based on the most recent RMP decisions, along with associated amendments, activity and implementation level plans, and other management decision documents. Laws, regulations, and BLM policies that supersede RMP decisions would apply.

Goals and objectives for BLM-administered lands and mineral estate would not change. Appropriate and allowable uses and restrictions pertaining to activities such as mineral leasing and development, recreation, construction of utility corridors, and livestock grazing would also remain the same. The BLM would not modify existing or establish additional criteria to guide the identification of site-specific use levels for implementation activities.

ALTERNATIVE B

Alternative B would manage lands in the decision area predominately for GUSG and its habitat. GUSG conservation measures and threats outlined in the FWS listing decision published in the *Federal Register* in November 2014 and conservation measures identified in the RCP (2005) were used to formulate BLM management direction under Alternative B. Management actions implemented by the BLM, in concert with local, state and other federal agencies and private landowners, play a critical role in the future trends of GUSG populations. Alternative B would achieve the purpose of and need for the RMP Amendment by avoiding negative impacts from resource uses and other actions in Occupied Habitat and Unoccupied Habitat and enhancing recovery opportunities.

ALTERNATIVE C

Alternative C would achieve the purpose of and need for the RMP Amendment by minimizing or compensating for impacts from resource uses and other actions to varying degrees in Occupied Habitat and Unoccupied Habitat. Resource uses and other actions would be allowed if their impacts could be avoided, minimized, rectified, reduced/eliminated over time, or mitigated through compensatory mitigation. Impacts that occur would be rectified by repairing, rehabilitating, or restoring the affected environment and/or by reducing or eliminating the impact over time through preservation and maintenance operations during the life of the action. Residual impacts are impacts to the resource that remain after avoidance and minimization measures have been implemented. Residual impacts would be

compensated for by replacing or providing substitute resources or environments, as identified in the GUSG Mitigation Plan.

ALTERNATIVE D - AGENCY PREFERRED

Alternative D (consisting of sub-alternatives D₁ and D₂) is the agency-preferred alternative and seeks to allocate resources among land uses and conserve natural resource values, while sustaining and enhancing ecological integrity across the landscape, including plant, wildlife, and fish habitat. Public scoping efforts and language included in the FWS decision to list the species as threatened under the ESA enabled the BLM to identify and shape significant issues pertaining to GUSG Habitat, energy development, livestock grazing, public land access, and other program areas to provide a balanced level of protection, restoration, enhancement, and use of resources and services to meet ongoing programs and land uses. Conservation measures under Alternative D are focused on both Occupied and Unoccupied Habitat.

As Alternative D was being developed, it became apparent that, while some management actions should be consistent rangewide, there were more that should be specific to either the Gunnison Basin Population or the satellite (non-Gunnison Basin) populations, due to distinct differences in bird numbers, amount of contiguous habitat (BLM and non-BLM), extent, scale, and intensity of threats, and other considerations among and between the populations. The Gunnison Basin Population is the only population large enough to have a very high probability of surviving random demographic stochastic events over a 50-year timeframe (RCP, pg. 202) and has been relatively stable based on the last 19 years of lek counts (as discussed in the FWS 2014 listing decision). It is also the only population large enough in and of itself to maintain a reasonably large degree of genetic variation over time (RCP, p. 202). Additionally, the Gunnison Basin is not currently undergoing significant pinyon-juniper encroachment (Boyle and Reeder 2005).

Declining trends in the abundance of GUSG outside of the Gunnison Basin indicate that currently Occupied Habitat for the satellite populations may be less than the minimum amount of habitat necessary for their long-term viability (FWS 2014 listing decision) and has some degree of documented pinyon-juniper encroachment. Limits on available habitat in the satellite populations suggest local extinctions may occur without intervention. The satellite populations are likely small enough to induce inbreeding depression, and could be losing adaptive potential (FWS 2014 listing decision). For this reason, the preferred alternative was divided into two sub-alternatives labeled D₁ and D₂.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Sub-Alternative D₁ is the agency-preferred alternative for the Gunnison Basin Population of GUSG. The Gunnison Basin Population contains the largest numbers of birds and habitat across the range of the species. The extent, scale, and nature of the threats to this population are generally different than those affecting the satellite populations. While critical to the long-term success and recovery of the species, the management actions necessary for this population are different from those necessary for the satellite populations. Resource uses and other actions would be allowed if their impacts could be avoided, minimized, rectified, reduced/eliminated over time, or through compensatory mitigation.

SUB-ALTERNATIVE D₂ - SATELLITE POPULATIONS PREFERRED

Sub-Alternative D₂ is the BLM preferred alternative for the satellite (non-Gunnison Basin) populations of GUSG. The low numbers of birds, and range of habitat threats separate from those present in the Gunnison Basin, were identified as critical factors in the FWS decision to list the GUSG as threatened under the ESA. As a result, these population areas are key to species recovery and require different combinations of protection than needed within the Gunnison Basin. Sub-alternative D₂ would achieve the purpose of and need for the RMP Amendment by balancing resources and resource use among competing human interests, land uses, and the conservation of natural and cultural resource values, while sustaining and enhancing ecological integrity across the population, including plant and wildlife habitat.

MANAGEMENT COMMON TO ALL ALTERNATIVES

Allowable uses and management actions from existing RMPs that remain valid and do not require revision have been carried forward to all of the proposed alternatives. Other decisions are common only to the action alternatives (B, C, and D₁/D₂).

Although each alternative emphasizes a slightly different mix of resources and resource uses, all alternatives contain the following:

- Conserve, enhance and restore the sagebrush ecosystem upon which GUSG populations depend in cooperation with other conservation partners.
- Comply with state and federal laws, regulations, policies, and standards, including FLPMA multiple use mandates.
- Implement actions originating from laws, regulations, and policies and conform to day-to-day management, monitoring, and administrative functions not specifically addressed.

- Preserve valid existing rights, which include any leases, claims, or other use authorizations established before a new or modified authorization, change in land designation, or new or modified regulation is approved. Existing fluid mineral leases are managed through the stipulations attached to the existing lease and, where supported by site specific analysis, conditions of approval (COAs) to an approved permit.
- Collaborate with adjacent landowners, federal and state agencies, local governments, tribes, communities, other agencies, and other individuals and organizations, as needed to monitor and implement decisions to achieve desired resource conditions.
- Provide protection for human safety and property from wildfire.

AGENCY-PREFERRED ALTERNATIVE

The proposed alternatives offer a range of discrete strategies for resolving potential deficiencies in existing management, exploring opportunities for enhanced management, and addressing issues identified through internal assessment and public scoping related to maintaining or increasing GUSG abundance and distribution on BLM-administered lands.

Comments submitted by other government agencies, public organizations, state and tribal entities, and interested individuals were given careful consideration. Public scoping efforts enabled the BLM to identify and shape significant issues pertaining to GUSG Habitat, energy development, livestock grazing, potential ACECs, public land access, recreation, rights of way, and other program areas. Cooperating agencies participated, reviewed, and provided comments at critical intervals during the alternative development process, as well as the EIS process in general.

The BLM NEPA handbook (H-1790-1) and BLM Planning handbook (H-1610-4.7) require the BLM to identify a preferred alternative in the Draft RMP Amendment/EIS. Formulated by the planning team, the preferred alternative represents those goals, objectives, and actions determined to be most effective at resolving planning issues and balancing resource use at this stage of the process. While collaboration is critical in developing and evaluating alternatives, the final designation of a preferred alternative remains the exclusive responsibility of the BLM.

Alternative D (consisting of sub-alternatives D₁ and D₂) represents the BLM preferred alternative.

2.2.2. TABLES OF ALTERNATIVES

HOW TO READ TABLES 2.6 AND 2.7

Table 2.6 details the No Action Alternative A. Management actions outlined in Alternative A were extracted from planning documents currently in use by the BLM administrative units across the planning area (including RMPs, travel management plans (TMP), and programmatic EISs), and reflect current management direction.

Table 2.7 details the action alternatives B and C and sub-alternatives D₁ (Gunnison Basin Preferred) and D₂ (Satellite Populations Preferred).

When multiple alternatives include the same management action for a resource or resource use, the action is described in the first column, followed by a notation in the subsequent column(s) (i.e., “Same as Alternative B.”).

Both alternatives tables are arranged in the same order by resource or resource use, followed by applicable RMP Amendment goals, objectives, and management actions.

TABLE 2.6 - NO ACTION ALTERNATIVE A

Table 2.6 - Alternative A: No Action

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
TRAVEL AND TRANSPORTATION		
Travel Management Planning		
I	Travel	<p>GRAND JUNCTION RMP 2015 SSS-SGR-MA-03: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks. SSS-SGR-MA-06: To reduce disturbance to Gunnison or Greater Sage-grouse, close duplicative or redundant routes within Sage-grouse habitat and/within 4 miles of a lek.</p> <p>MCINNIS CANYONS NCA 2004 Special emphasis will be given to proper placement of roads and trails, along with rehabilitation and stabilization of existing roads and trails.</p> <p>MOAB FO RMP 2008 Travel Management Decision 3 (TRV-3): Identification of specific designated routes will be initially established through the chosen Travel Plan accompanying this RMP (see Appendix N) and may be modified through subsequent implementation planning and project planning on a case-by-case basis (p. 126). Travel Management Decision 10 (TRV-10): OHV Designations: <ul style="list-style-type: none"> • About 339,298 acres will be closed to OHV travel. • About 1,481,334 acres will be limited to designated routes. • Approximately 2,000 acres (White Wash Sand Dunes) will be open to cross country travel (see Map 30) (p. 127) Travel Management Decision 10 (TRV-10): Designated Routes – Motorized: <ul style="list-style-type: none"> • Designate 3,693 miles of motorized routes. • Designate 313 miles for motorcycles (163 miles on inventoried routes and 150 miles on inventoried single-track). • Designate a dirt bike route from Colorado State Line to Thompson (see Map 3), utilizing 9.0 miles of single-track designated above and 22.0 miles of inventoried Grand County roads (p. 127). </p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MONTICELLO FO RMP 2008 TM-2: Through future implementation level planning, designated routes will be categorized as mechanized only (bicycles), single-track motorized (dirt bikes), or two-track motorized (four-wheelers, jeeps), or available to all vehicles, or any combination of these categories. Adjustments of these categories will be made based on recreational demand and potential conflict. All non-motorized travel is allowed on designated routes unless otherwise prohibited (page 141). TM-6: Appendix O outlines the processes and procedures for making modifications to the travel plan designated route network (page 141).</p> <p>TRES RIOS FO RMP 2015 No cross country motorized travel allowed in sage grouse habitat (limited to existing, in process to limited to designated).</p>
2	Travel	<p>GRAND JUNCTION RMP 2015 SSS-SGR-MA-03: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks. SSS-SGR-MA-06: To reduce disturbance to Gunnison or Greater Sage-grouse, close duplicative or redundant routes within Sage-grouse habitat and/within 4 miles of a lek.</p> <p>MCINNIS CANYONS NCA 2004 Special emphasis will be given to proper placement of roads and trails, along with rehabilitation and stabilization of existing roads and trails.</p> <p>MOAB FO RMP 2008 Travel Management Decision 3 (TRV-3): Identification of specific designated routes will be initially established through the chosen Travel Plan accompanying this RMP (see Appendix N) and may be modified through subsequent implementation planning and project planning on a case-by-case basis (p. 126). Travel Management Decision 10 (TRV-10): OHV Designations: <ul style="list-style-type: none"> • About 339,298 acres will be closed to OHV travel. • About 1,481,334 acres will be limited to designated routes. • Approximately 2,000 acres (White Wash Sand Dunes) will be open to cross country travel (see Map 30) (p. 127) • Travel Management Decision 10 (TRV-10): Designated Routes – Motorized: • Designate 3,693 miles of motorized routes. </p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • Designate 313 miles for motorcycles (163 miles on inventoried routes and 150 miles on inventoried single-track). • Designate a dirt bike route from Colorado State Line to Thompson (see Map 3), utilizing 9.0 miles of single-track designated above and 22.0 miles of inventoried Grand County roads (p. 127). <p>MONTICELLO FO RMP 2008</p> <p>TM-2: Through future implementation level planning, designated routes will be categorized as mechanized only (bicycles), single-track motorized (dirt bikes), or two-track motorized (four-wheelers, jeeps), or available to all vehicles, or any combination of these categories. Adjustments of these categories will be made based on recreational demand and potential conflict. All non-motorized travel is allowed on designated routes unless otherwise prohibited (page 141).</p> <p>TM-6: Appendix O outlines the processes and procedures for making modifications to the travel plan designated route network (page 141).</p> <p>TRES RIOS FO RMP 2015</p> <p>No cross country motorized travel allowed in sage grouse habitat (limited to existing, in process to limited to designated).</p>
3	Travel	<p>GRAND JUNCTION RMP 2015</p> <p>SSS-SGR-MA-03: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks.</p> <p>SSS-SGR-MA-06: To reduce disturbance to Gunnison or Greater Sage-grouse, close duplicative or redundant routes within Sage-grouse habitat and/within 4 miles of a lek.</p> <p>MCINNIS CANYONS NCA 2004</p> <p>Special emphasis will be given to proper placement of roads and trails, along with rehabilitation and stabilization of existing roads and trails.</p> <p>MOAB FO RMP 2008</p> <p>Travel Management Decision 3 (TRV-3): Identification of specific designated routes will be initially established through the chosen Travel Plan accompanying this RMP (see Appendix N) and may be modified through subsequent implementation planning and project planning on a case-by-case basis (p. 126).</p> <p>Travel Management Decision 10 (TRV-10): OHV Designations:</p> <ul style="list-style-type: none"> • About 339,298 acres will be closed to OHV travel. • About 1,481,334 acres will be limited to designated routes.

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • Approximately 2,000 acres (White Wash Sand Dunes) will be open to cross country travel (see Map 30) (p. 127) <p>Travel Management Decision 10 (TRV-10): Designated Routes – Motorized:</p> <ul style="list-style-type: none"> • Designate 3,693 miles of motorized routes. • Designate 313 miles for motorcycles (163 miles on inventoried routes and 150 miles on inventoried single-track). • Designate a dirt bike route from Colorado State Line to Thompson (see Map 3), utilizing 9.0 miles of single-track designated above and 22.0 miles of inventoried Grand County roads (p. 127). <p>MONTICELLO FO RMP 2008</p> <p>TM-2: Through future implementation level planning, designated routes will be categorized as mechanized only (bicycles), single-track motorized (dirt bikes), or two-track motorized (four-wheelers, jeeps), or available to all vehicles, or any combination of these categories. Adjustments of these categories will be made based on recreational demand and potential conflict. All non-motorized travel is allowed on designated routes unless otherwise prohibited (page 141).</p> <p>TM-6: Appendix O outlines the processes and procedures for making modifications to the travel plan designated route network (page 141).</p> <p>TRES RIOS FO RMP 2015</p> <p>No cross country motorized travel allowed in sage grouse habitat (limited to existing, in process to limited to designated).</p>
4	Travel	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Prohibit cross-country motorized and mechanized (such as mountain bike) travel. Limit motorized and mechanized vehicle use to designated routes.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Manage 126,400 acres as closed to mechanized travel:</p> <ul style="list-style-type: none"> • WSAs • ACECs: Atwell Gulch, Juanita Arch, Mt. Garfield, Pyramid Rock, A portion of Rough Canyon (600 acres), and Unaweep Seep • Wildlife Emphasis Areas: Timber Ridge (deer/elk/sagegrouse), A portion of Rapid Creek (1,700 acres), and Bangs (RMZ 3 and 4). • Lands managed for wilderness characteristics: Bangs, A portion of Maverick (1,600 acres), and Unaweep. <p>GUNNISON RMP 1993</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Gunnison Field Office Existing Conditions: 222 Miles of Road 0.6 Mile from Leks; 539 Miles of Road 2 Miles from Leks 719 Miles of Road 4.0 Miles from Leks</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>REC-C-3: The OHV designations in the planning area will include 2,579 acres in the open category, where cross-country, off-route motorized and non-motorized, mechanical vehicular travel will be permitted; 51,727 acres of lands where motorized and non-motorized mechanized use will be limited to designated routes year round; 22,200 acres of public lands where motorized and non-motorized mechanized travel will generally be limited to designated routes from May 1 to November 14 annually, and for the remainder of the year, these lands will be closed to these uses; and 19,274 acres of public lands closed to motorized and mechanized use yearlong, including the Gunnison Gorge Wilderness.</p> <p>MOAB FO RMP 2008</p> <p>Travel Management Decision 4 (TRV-4): Limit travel by motorized vehicle on all lands administered by the Moab Field Office to designated routes, except for Managed Open Areas, and for areas that are closed to motorized travel (see Map 30; see Appendix N for Travel Plan development) (p. 126)</p> <p>Motorized travel is limited to designated routes within Occupied Habitat. There are no Managed Open Areas within GUSG Occupied Habitat, not areas closed to motorized travel.</p> <p>MONTICELLO FO RMP 2008</p> <p>MCA-2: OHV use is either limited to designated routes or closed to cross-country travel. All ACECs will have travel limited to designated routes unless otherwise noted. (p. 55). There are no exceptions that allow for cross-country travel for game retrieval or antler gathering in areas designated as limited or closed. OHV use for game retrieval will adhere to all OHV classifications.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>Provide administrative access to public land to enhance management of the range resource. Provide maintenance of roads in the BLM transportation plan to minimum standards for user safety.</p> <p>SAN LUIS VALLEY TMP 2009/2014</p> <p>Evaluate and manage snowmobile trails/use areas.</p> <p>Eliminate 'OSV open play area' on east side of U.S. Highway 285 from Saguache County Road LL57 (Hayden Pass Rd.), north to Raspberry Creek for the protection of the GUSG. Proposed by GUSG Working Group. Not yet officially part of the SLVFO TMP (SLVFO TMP, as amended - 2014 (NOT FINAL)).</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
5	Travel	<p>MOAB FO RMP 2008 SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E (pg. 117).</p> <p>MONTICELLO FO RMP 2008</p> <ul style="list-style-type: none"> • Prohibit construction of roads year-round. • Prohibit construction of wind power turbines year-round. • Avoid all permitted activities from March 20 to May 15. If impractical to avoid all permitted activities, then no activity from sunset the evening before to 2 hours after sunrise the next morning. Prohibit construction of roads year-round. <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (pg. 137).</p> <p>SAN LUIS RMP 1991 Limited OHV designations in riparian zones.</p>
6	Travel	<p>MOAB FO RMP 2008 Travel Management Decision 3 (TRV-3): Specific designated routes initially established through the Travel Plan accompanying this RMP (see Appendix N) may be modified through subsequent implementation planning and project planning on a case-by-case basis. These identified routes will be available regardless of other management actions. These adjustments will occur only in areas with limited route designations and will be analyzed at the implementation planning level. These adjustments will be done through a collaborative process with local government and will include public review of proposed route changes. Site-specific NEPA documentation will be required for changes to the route designation system. (p. 126)</p> <p>MONTICELLO FO RMP 2008 Year-round habitat (within 4.0 miles of active strutting ground): Avoid the construction of power lines, wind power turbines, or other aboveground structures</p>
7	Travel	No similar action.
8	Travel	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Prohibit the construction of new routes in existing, un-fragmented sagebrush shrublands 60 acres or larger. Allow for the construction of new routes in patches smaller than 60 acres only if one of the following conditions is met:</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • Any additional fragmentation of sagebrush shrublands is offset by projects that reduce fragmentation of sagebrush parks elsewhere. • New routes are placed on the edge of existing sagebrush shrublands to reduce fragmentation. Reroutes would be placed to avoid encompassing more than half of the perimeter of the patch. Reduce fragmentation in existing sagebrush shrublands by closing routes to public use or by rerouting routes to the edge of sagebrush parks. Prioritize the largest patches in sage-grouse critical habitat. Minimize travel routes in and crossing riparian and wetland areas. <p>When routes are contributing to continued decline, do one or more of the following:</p> <ul style="list-style-type: none"> • Close and rehabilitate • Relocate the routes • Re-engineer these routes. Conduct work with partners (e.g., local governments, trail organizations, user groups, etc.). Locate new routes outside of riparian and wetland areas. Minimize the number of crossings and work with partners (e.g., local governments, trail organizations, user groups, etc.) to build bridges or properly armor or protect crossings at necessary crossing locations. <p>GRAND JUNCTION FO RMP 2015</p> <p>Maintain and/or create connections between key sagebrush habitats by encouraging placement of new utility developments (power lines, pipelines, etc.) and transportation routes (roads, trails etc.) in existing utility or transportation corridors to minimize fragmentation of sagebrush vegetation. Where feasible, consistent with user safety, locate/relocate developed travel routes away from riparian wetland areas.</p> <p>GUNNISON BASIN TMP 2010</p> <p>Possible New Routes, It is my decision that before a new route can be approved to be built (ground disturbance), further environmental analysis and public involvement, pursuant to NEPA must be completed prior to a decision to authorize the action. The analysis would also address compliance with other laws and regulations relating to endangered species and cultural resources. Future possible routes not listed in the FEIS may be considered for addition to the BLM Travel Management System if these routes are consistent with criteria identified in the FEIS.</p> <p>MOAB FO RMP 2008</p> <p>SSS -24: All surface-disturbing activities will be prohibited within 0.6 mile of a lek. Implement GUSG RCP (2005) pp. 122: Minimize negative impacts of roads.</p> <p>SSS- 12: As required by the Endangered Species Act, avoid construction of new roads within listed and non-listed special status plant and animal species habitats. (p. 119).</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Travel Management decision 3 (TRV-3): See also specific designated routes initially established through the Travel Plan accompanying this RMP (see Appendix N) may be modified through subsequent implementation planning and project planning on a case-by-case basis. These identified routes will be available regardless of other management actions. These adjustments will occur only in areas with limited route designations and will be analyzed at the implementation planning level. These adjustments will be done through a collaborative process with local government and will include public review of proposed route changes. Site-specific NEPA documentation will be required for changes to the route designation system (p. 126).</p> <p>MONTICELLO FO RMP 2008</p> <p>SSP-23: Lek habitat (within 0.6 mile of active strutting ground): Prohibit construction of roads year-round (p. 139).</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (pg. 136).</p> <p>SAN LUIS VALLEY TMP 2009</p> <p>Reduce route density.</p>
9	Travel	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Prohibit the construction of new routes in existing, un-fragmented sagebrush shrublands 60 acres or larger. Allow for the construction of new routes in patches smaller than 60 acres only if one of the following conditions is met:</p> <ul style="list-style-type: none"> • Any additional fragmentation of sagebrush shrublands is offset by projects that reduce fragmentation of sagebrush parks elsewhere. • New routes are placed on the edge of existing sagebrush shrublands to reduce fragmentation. Reroutes would be placed to avoid encompassing more than half of the perimeter of the patch. Reduce fragmentation in existing sagebrush shrublands by closing routes to public use or by rerouting routes to the edge of sagebrush parks. Prioritize the largest patches in sage-grouse critical habitat. Minimize travel routes in and crossing riparian and wetland areas. <p>When routes are contributing to continued decline, do one or more of the following:</p> <ul style="list-style-type: none"> • Close and rehabilitate • Relocate the routes • Re-engineer these routes. Conduct work with partners (e.g., local governments, trail organizations, user groups, etc.). Locate new routes outside of riparian and wetland areas. Minimize the number of crossings and work with partners (e.g., local governments, trail organizations, user groups, etc.) to build bridges or properly armor or

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>protect crossings at necessary crossing locations.</p> <p>GRAND JUNCTION FO RMP 2015 Maintain and/or create connections between key sagebrush habitats by encouraging placement of new utility developments (power lines, pipelines, etc.) and transportation routes (roads, trails etc.) in existing utility or transportation corridors to minimize fragmentation of sagebrush vegetation. Where feasible, consistent with user safety, locate/relocate developed travel routes away from riparian wetland areas.</p> <p>GUNNISON BASIN TMP 2010 Possible New Routes, It is my decision that before a new route can be approved to be built (ground disturbance), further environmental analysis and public involvement, pursuant to NEPA must be completed prior to a decision to authorize the action. The analysis would also address compliance with other laws and regulations relating to endangered species and cultural resources. Future possible routes not listed in the FEIS may be considered for addition to the BLM Travel Management System if these routes are consistent with criteria identified in the FEIS.</p> <p>MOAB FO RMP 2008 SSS-24: All surface-disturbing activities will be prohibited within 0.6 mile of a lek. Implement GUSG RCP (2005) pp. 122: Minimize negative impacts of roads. SSS-12: As required by the Endangered Species Act, avoid construction of new roads within listed and non-listed special status plant and animal species habitats (p. 119). Travel Management decision 3 (TRV-3): See also specific designated routes initially established through the Travel Plan accompanying this RMP (see Appendix N) may be modified through subsequent implementation planning and project planning on a case-by-case basis. These identified routes will be available regardless of other management actions. These adjustments will occur only in areas with limited route designations and will be analyzed at the implementation planning level. These adjustments will be done through a collaborative process with local government and will include public review of proposed route changes. Site-specific NEPA documentation will be required for changes to the route designation system (p. 126).</p> <p>MONTICELLO FO RMP 2008 SSP-23: Lek habitat (within 0.6 mile of active strutting ground): Prohibit construction of roads year-round (p. 139). SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act. (p. 136)</p> <p>SAN LUIS VALLEY TMP 2009</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Reduce route density.</p>
10	Travel	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Prohibit the construction of new routes in existing, un-fragmented sagebrush shrublands 60 acres or larger. Allow for the construction of new routes in patches smaller than 60 acres only if one of the following conditions is met:</p> <ul style="list-style-type: none"> • Any additional fragmentation of sagebrush shrublands is offset by projects that reduce fragmentation of sagebrush parks elsewhere. • New routes are placed on the edge of existing sagebrush shrublands to reduce fragmentation. Reroutes would be placed to avoid encompassing more than half of the perimeter of the patch. Reduce fragmentation in existing sagebrush shrublands by closing routes to public use or by rerouting routes to the edge of sagebrush parks. Prioritize the largest patches in sage-grouse critical habitat. Minimize travel routes in and crossing riparian and wetland areas. <p>When routes are contributing to continued decline, do one or more of the following:</p> <ul style="list-style-type: none"> • Close and rehabilitate • Relocate the routes • Re-engineer these routes. Conduct work with partners (e.g., local governments, trail organizations, user groups, etc.). Locate new routes outside of riparian and wetland areas. Minimize the number of crossings and work with partners (e.g., local governments, trail organizations, user groups, etc.) to build bridges or properly armor or protect crossings at necessary crossing locations. <p>GRAND JUNCTION FO RMP 2015 Maintain and/or create connections between key sagebrush habitats by encouraging placement of new utility developments (power lines, pipelines, etc.) and transportation routes (roads, trails etc.) in existing utility or transportation corridors to minimize fragmentation of sagebrush vegetation. Where feasible, consistent with user safety, locate/relocate developed travel routes away from riparian wetland areas.</p> <p>GUNNISON BASIN TMP 2010 Possible New Routes, It is my decision that before a new route can be approved to be built (ground disturbance), further environmental analysis and public involvement, pursuant to NEPA must be completed prior to a decision to authorize the action. The analysis would also address compliance with other laws and regulations relating to endangered species and cultural resources. Future possible routes not listed in the FEIS may be considered for addition to the BLM Travel Management System if these routes are consistent with criteria identified in the FEIS.</p> <p>MOAB FO RMP 2008</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>SSS -24: All surface-disturbing activities will be prohibited within 0.6 mile of a lek. Implement GUSG RCP (2005) p. 122: Minimize negative impacts of roads.</p> <p>Travel Management decision 3 (TRV-3): See also specific designated routes initially established through the Travel Plan accompanying this RMP (see Appendix N) may be modified through subsequent implementation planning and project planning on a case-by-case basis. These identified routes will be available regardless of other management actions. These adjustments will occur only in areas with limited route designations and will be analyzed at the implementation planning level. These adjustments will be done through a collaborative process with local government and will include public review of proposed route changes. Site-specific NEPA documentation will be required for changes to the route designation system (p. 126).</p>
11	Travel	No Similar Action.
12	Travel	<p>DOMINGUEZ-ESCALANTE DRAFT RMP 2013</p> <p>TRV-MA-66: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks.</p> <p>TRV-MA-68: To reduce disturbance to Gunnison or Greater Sage-Grouse, close duplicative or redundant routes within Sage-Grouse habitat and within 4 miles of a lek.</p> <p>GRAND JUNCTION FO</p> <p>TRV-MA-62: Reduce redundancies in routes to minimize habitat fragmentation, and minimize direct impacts from motorized and mechanized users of roads, routes, and trails on listed species and in designated critical habitat for threatened and endangered plants. Identify mitigation where open routes are negatively effecting listed species and/or designated critical habitat, and ensure that Land Health Standard 4 is being achieved or progress is being made towards meeting this Standard.</p> <p>TRV-MA-66: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks.</p> <p>TRV-MA-68: To reduce disturbance to Gunnison or Greater Sage-Grouse, close duplicative or redundant routes within Sage-Grouse habitat and within 4 miles of a lek.</p> <p>MOAB FO RMP 2008</p> <p>SSS-24: Implement RCP 2005 pp. 226 -228: Minimize negative impacts of roads.</p> <p>(Travel Management Decision 9 (TRV-9): Any routes that are not baseline routes will be signed "Closed" on the ground. Such routes will be considered as impacts to the area's natural character, and use of such routes will be considered cross country use and not allowed. Non-inventoried routes should be rehabilitated (p. 127).</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>TRV-8: Where the authorized officer determines that off-road vehicles are causing or will cause considerable adverse impacts, the authorized officer shall close or restrict such areas. The public will be notified as to these closures and restrictions (p. 127).</p> <p>MONTICELLO FO RMP 2008</p> <p>TM-8: Where the authorized officer determines that OHVs are causing or will cause considerable adverse impacts, the authorized officer shall close or restrict such areas. The public will be notified. The BLM could impose limitations on types of vehicles allowed on specific designated routes if monitoring indicates that a particular type of vehicle is causing disturbance to the soil, wildlife habitat, cultural or vegetative resources, especially by off-road travel in an area that is limited to designated routes.</p> <p>SSP-18: Any nonessential routes developed for a project located in special status species habitat will be closed and rehabilitated when the project is complete.</p> <p>TRES RIOS FO RMP 2015</p> <p>ACTION: Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.</p>
13	Travel	<p>DOMINGUEZ-ESCALANTE DRAFT RMP 2013</p> <p>TRV-MA-66: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks.</p> <p>TRV-MA-68: To reduce disturbance to Gunnison or Greater Sage-Grouse, close duplicative or redundant routes within Sage-Grouse habitat and within 4 miles of a lek.</p> <p>GRAND JUNCTION FO</p> <p>TRV-MA-62: Reduce redundancies in routes to minimize habitat fragmentation, and minimize direct impacts from motorized and mechanized users of roads, routes, and trails on listed species and in designated critical habitat for threatened and endangered plants. Identify mitigation where open routes are negatively effecting listed species and/or designated critical habitat, and ensure that Land Health Standard 4 is being achieved or progress is being made towards meeting this Standard.</p> <p>TRV-MA-66: Reduce routes through currently suitable or potentially suitable Gunnison and Greater Sage-Grouse habitat by reducing routes through sagebrush parks, with an emphasis on routes that bisect sagebrush parks.</p> <p>TRV-MA-68: To reduce disturbance to Gunnison or Greater Sage-Grouse, close duplicative or redundant routes within Sage-Grouse habitat and within 4 miles of a lek.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MOAB FO RMP 2008 SSS-24: Implement RCP 2005 pp. 226 -228: Minimize negative impacts of roads. (Travel Management Decision 9 (TRV-9): Any routes that are not baseline routes will be signed "Closed" on the ground. Such routes will be considered as impacts to the area's natural character, and use of such routes will be considered cross country use and not allowed. Non-inventoried routes should be rehabilitated (p. 127). TRV-8: Where the authorized officer determines that off-road vehicles are causing or will cause considerable adverse impacts, the authorized officer shall close or restrict such areas. The public will be notified as to these closures and restrictions (p. 127).</p> <p>MONTICELLO FO RMP 2008 TM-8: Where the authorized officer determines that OHVs are causing or will cause considerable adverse impacts, the authorized officer shall close or restrict such areas. The public will be notified. The BLM could impose limitations on types of vehicles allowed on specific designated routes if monitoring indicates that a particular type of vehicle is causing disturbance to the soil, wildlife habitat, cultural or vegetative resources, especially by off-road travel in an area that is limited to designated routes. SSP-18: Any nonessential routes developed for a project located in special status species habitat will be closed and rehabilitated when the project is complete.</p> <p>TRES RIOS FO RMP 2015 ACTION: Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.</p>
14	Travel	<p>GUNNISON GORGE NCA RMP 2004 ACTION: From May 1 to November 14, motorized and non-motorized, mechanical vehicular travel and use on public lands in the unit will be limited to the designated routes shown on Figure 2-4 (see end of this chapter) to prevent disturbance to sage grouse leks or potential leks. The routes shown are preliminary and may not be all inclusive. ACTION: Roads managed by BLM will be closed seasonally or otherwise under the appropriate regulations or laws for protection of resources, for prevention of vandalism or trespass, or for other reasons that warrant such restrictions in order to better manage resources or values on public lands. These options will be implemented as a result of findings during monitoring of resources and programs as part of adaptive management. ACTION: The management unit will be closed to motorized and mechanical vehicular use and travel from</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>November 15 through April 30 annually to prevent disturbance to wintering big game or breeding/strutting sage-grouse. Closure could be extended an additional 30 days if warranted by circumstances.</p> <p>ACTION: Motorized and mechanical vehicle travel on public lands in this management unit will be limited to the designated routes as shown on Figure 2-4 from May 1 through November 14, unless necessary to extend closure another 30 days.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Additional closures or seasonal restrictions on areas or routes may be implemented to reduce resource conflicts, public health and safety concerns, or road and trail damage as necessary.</p> <p>GUNNISON BASIN TMP 2010</p> <p>ACTION: I have decided to apply seasonal closures to motorized travel, for sage-grouse habitat conservation, to specific areas of key sage-grouse habitat rather than simply closing specific routes. This proposed area closure is expected to help protect sage-grouse breeding and early nesting habitat and encompasses about 191,000 acres around Gunnison. This area would be closed to all motorized travel, except to access private in-holdings with proper authorization and some administrative access, from March 15 to May 15 each year.</p> <p>HARTMAN ROCKS RAMP 2014</p> <p>ACTION: Roads and trails south of the power line road would be closed to motorized and mechanized vehicles from March 15 to May 15 each year for GUSG conservation.</p> <p>ACTION: The 2006 RAMP designated system roads and trails. It also designated types of use on those trails. It instituted seasonal closures to help with GUSG conservation. Off route travel with motorized and mechanized vehicles is not allowed under this alternative.</p> <p>ACTION: No cross country travel. Currently, the Public Lands managed by BLM within the planning area are open to over-snow winter travel. The proposed action alternative would amend the RMP to limit over-snow travel by tracked vehicles (e.g. snowmobiles) to specific designated routes within the planning area. Tracked vehicles would be allowed to travel over snow on system roads that are groomed for cross-country skiing. Using tracked vehicles on ungroomed routes would not be allowed at Hartman Rocks Recreation Area.</p> <p>MOAB FO RMP 2008</p> <p>SSS -24: Implement RCP 2005 p. 246: Minimize negative impacts of recreational activities.</p> <p>TRV-5: BLM could impose limitation to types of vehicles if monitoring indicates a type of vehicle is causing disturbances to the soil, wildlife, wildlife habitat, cultural and vegetative resources...</p> <p>TRV-8: Where the authorized officer determines ORV are causing or will cause considerable adverse impacts, the</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>AO shall close or restrict such areas.</p> <p>MONTICELLO FO RMP 2008</p> <p>TM-8: Where the authorized Officer determines that OHVs are causing or will cause adverse impacts, the authorized officer shall close or restrict such areas. The public will be notified. The BLM could impose limitations on types of vehicles allowed on specific designated routes if monitoring indicates that a particular type of vehicle is causing disturbance to the soil, wildlife habitat, cultural or vegetative resources, especially by off-road travel in an area that is limited to designated routes (p. 142).</p> <p>SAN LUIS VALLEY TMP 2013</p> <p>Apply seasonal road closures to all motorized routes from Poncha Pass (east side of U.S. Highway 285) to Saguache County Road LL57 (Hayden Pass), with the exception of the Glider Road (BLM Road 5342) from March 1st to May 15th for the protection of the GUSG.</p>
15	Travel	<p>GUNNISON GORGE NCA RMP 2004</p> <p>ACTION: From May 1 to November 14, motorized and non-motorized, mechanical vehicular travel and use on public lands in the unit will be limited to the designated routes shown on Figure 2-4 (see end of this chapter) to prevent disturbance to sage grouse leks or potential leks. The routes shown are preliminary and may not be all inclusive.</p> <p>ACTION: Roads managed by BLM will be closed seasonally or otherwise under the appropriate regulations or laws for protection of resources, for prevention of vandalism or trespass, or for other reasons that warrant such restrictions in order to better manage resources or values on public lands. These options will be implemented as a result of findings during monitoring of resources and programs as part of adaptive management.</p> <p>ACTION: The management unit will be closed to motorized and mechanical vehicular use and travel from November 15 through April 30 annually to prevent disturbance to wintering big game or breeding/strutting sage-grouse. Closure could be extended an additional 30 days if warranted by circumstances.</p> <p>ACTION: Motorized and mechanical vehicle travel on public lands in this management unit will be limited to the designated routes as shown on Figure 2-4 from May 1 through November 14, unless necessary to extend closure another 30 days.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Additional closures or seasonal restrictions on areas or routes may be implemented to reduce resource conflicts, public health and safety concerns, or road and trail damage as necessary.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUNNISON BASIN TMP 2010 ACTION: I have decided to apply seasonal closures to motorized travel, for sage-grouse habitat conservation, to specific areas of key sage-grouse habitat rather than simply closing specific routes. This proposed area closure is expected to help protect sage-grouse breeding and early nesting habitat and encompasses about 191,000 acres around Gunnison. This area would be closed to all motorized travel, except to access private in-holdings with proper authorization and some administrative access, from March 15 to May 15 each year.</p> <p>HARTMAN ROCKS RAMP 2014 ACTION: Roads and trails south of the power line road would be closed to motorized and mechanized vehicles from March 15 to May 15 each year for GUSG conservation. ACTION: The 2006 RAMP designated system roads and trails. It also designated types of use on those trails. It instituted seasonal closures to help with GUSG conservation. Off route travel with motorized and mechanized vehicles is not allowed under this alternative.</p> <p>MOAB FO RMP 2008 SSS -24 - Implement RCP 2005 p. 246: Minimize negative impacts of recreational activities. TRV-5: BLM could impose limitations on types of vehicle allowed on specific designated routes if monitoring indicates that a particular type of vehicle is causing disturbance to the soil, wildlife, wildlife habitat, cultural or vegetative resources, especially by off-road travel in an area that is limited to designated roads (p. 126).</p> <p>SAN LUIS RMP 1991 Seasonal road closures will be applied to the GUSG lek and nesting habitat area, and includes all motorized routes from Poncha Pass (east of U.S. Highway 285) to the Hayden Pass Road (Saguache County Road LL57), with the exception of the Glider Road (BLM Road 5342 accessed through CR-LL57), which is outside of GUSG Habitat. Dates for seasonal road closures are from March 1st to May 15th.</p>
16	Travel	<p>GUNNISON GORGE NCA RMP 2004 ACTION: From May 1 to November 14, motorized and non-motorized, mechanical vehicular travel and use on public lands in the unit will be limited to the designated routes shown on Figure 2-4 (see end of this chapter) to prevent disturbance to sage grouse leks or potential leks. The routes shown are preliminary and may not be all inclusive.</p> <p>GRAND JUNCTION FO RMP 2015 Additional closures or seasonal restrictions on areas or routes may be implemented to reduce resource conflicts,</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>public health and safety concerns, or road and trail damage as necessary.</p> <p>MOAB FO RMP 2008 SSS -24: Implement 2005 GUSG RCP p. 246: Minimize negative impacts of recreational activities.</p> <p>MONTICELLO RMP 2008 SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (p. 137).</p>
RECREATION		
17	Recreation	<p>MONTICELLO FO RMP 2008</p> <p>REC-2: Consider and, where appropriate, implement management methods to protect natural and cultural resources and while giving consideration to community and economic impacts, implement management methods to maintain or enhance recreation opportunities. Management methods may include limitation of visitor numbers, camping and travel controls, implementation of fees, alteration of when use takes place, and other similar actions as they are approved through normal BLM procedures (p. 88).</p> <p>REC-141: ERMA lands are managed to provide an undeveloped setting where visitors can disperse and recreate in a generally unregulated manner, as long as the use is consistent with other resource values (p. 111).</p> <p>REC-143: Any portions of an ERMA subject to other management prescriptions (i.e., ACEC, WSA, etc.) will be managed according to those prescriptions (p. 111).</p> <p>REC-144: Monitor the ERMA to determine if more intensive recreational management is required to protect resource values and preserve the recreational experience (p. 111).</p> <p>REC-145: Encourage "Leave No Trace" and "Tread Lightly" principles throughout the ERMA (p. 111).</p> <p>REC-149: Within the ERMA, dispersed vehicle camping is allowed only in previously disturbed areas within 150 feet of designated routes (on each side of a centerline). If use is such that undue environmental impacts are taking place, BLM will close and rehabilitate damaged areas. This use will not include areas within WSAs (389,444 acres) or non-WSA areas with wilderness characteristics (88,871 acres), WSR corridors, ACECs, or T&E/special status species habitats. Where monitoring identifies resource impacts, future implementation level plans could consider designation of specific camp sites (p. 112).</p>
18	Recreation	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Mitigate (vegetation damage) by restoration and reclamation for disturbance on a project-level basis.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUNNISON GORGE NCA RMP 2004 Implement additional management actions if needed to ensure recreation use, including motorized and non-motorized, mechanical vehicular use, within Gunnison Sage-Grouse ACEC/IBA is consistent with ACEC objectives. Actions could include: special stipulations for commercial, competitive (outside NCA), and organized groups permits; seasonal restrictions on camping and/or other recreational activities in lek areas to protect strutting birds; and allow camping, firewood gathering, etc., only in designated areas in critical habitat areas.</p> <p>MOAB FO RMP 2008 If GUSG leks are discovered within sage-grouse habitat, no surface-disturbing activities will be allowed within 0.6 mile of a lek. Purpose: To protect occupied lek sites within GUSG Habitat. Exception: An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated. Modification: The Field Manager may modify the boundaries of the stipulation area if: (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM. Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p>
19	Recreation	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Mitigate (vegetation damage) by restoration and reclamation for disturbance on a project-level basis.</p> <p>GUNNISON GORGE NCA RMP 2004 Implement additional management actions if needed to ensure recreation use, including motorized and non-motorized, mechanical vehicular use, within Gunnison Sage-Grouse ACEC/IBA is consistent with ACEC objectives. Actions could include: special stipulations for commercial, competitive (outside NCA), and organized groups permits; seasonal restrictions on camping and/or other recreational activities in lek areas to protect strutting birds; and allow camping, firewood gathering, etc., only in designated areas in critical habitat areas.</p> <p>MOAB FO RMP 2008 If GUSG leks are discovered within sage-grouse habitat, no surface-disturbing activities will be allowed within 0.6 mile of a lek. Purpose: To protect occupied lek sites within GUSG Habitat.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Exception: An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if:</p> <p>(1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p> <p>TRES RIOS FO RMP 2015 Structures in sage grouse habitat should be constructed to limit risk of collision and predation.</p>
Special Recreation Permits (SRPs)		
20	Recreation	<p>GRAND JUNCTION FO RMP 2015 ACTION: Issue SRPs as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs would be applied where appropriate. All new SRP proposals would be reviewed using the Special Recreation Permit Evaluation as outlined in Appendix L, Special Recreation Permits.</p> <p>ACTION: All SRPs would contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce conflicting user interactions, or minimize health and safety concerns.</p> <p>GUNNISON GORGE NCA RMP 2004 Implement additional management actions if needed to ensure recreation use, including motorized and non-motorized, mechanical vehicular use, within Gunnison Sage-Grouse ACEC/IBA is consistent with ACEC objectives. Actions could include: special stipulations for commercial, competitive (outside NCA), and organized groups permits; seasonal restrictions on camping and/or other recreational activities in lek areas to protect strutting birds; and allow camping, firewood gathering, etc., only in designated areas in critical habitat areas.</p> <p>MCINNIS CANYONS NCA RMP 2004 Special Recreation Permits are issued at the discretion of the Field Manager, who may at any time and without prior notice, choose not to issue permits for certain activities or use areas. Such decisions could be based on a variety of factors such as planning decisions, potential resource impacts, existing outfitters in the same area, overcrowding,</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>past poor performance, and other concerns.</p> <p>All SRPs will be evaluated using Permit Evaluation Factors and Permit Classification System (see Appendix I). Monitoring will identify effectiveness of permit classification system and adjustments would be made if determined that goals and objectives are not being met.</p> <p>MOAB FO RMP 2008</p> <p>REC-46: Special Recreation Permits (SRPs): SRPs are issued as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs will be applied where appropriate (p. 97).</p> <p>REC-48: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 98).</p> <p>REC-50: Issue and manage special recreation permits for a wide variety of uses to enhance outdoor recreational opportunities, provide opportunities for private enterprise, manage user-group interaction, and limit the impacts of such uses upon natural and cultural resources. Organized group permits required for groups with 25 or more vehicles (one driver/vehicle) (p. 98).</p> <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E (p. 117).</p> <p>MONTICELLO FO RMP 2008</p> <p>REC-17: SRPs will be issued as a discretionary action as a means to help meet management objectives, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors (p. 91).</p> <p>REC-18: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations (Appendix K of RMP) necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 91).</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (p. 137).</p> <p>TRES RIOS FO RMP 2015</p> <p>Only allow special recreation permits that have neutral or beneficial effects to priority habitat areas.</p>
21	Recreation	GRAND JUNCTION FO RMP 2015

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>ACTION: Issue SRPs as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs would be applied where appropriate. All new SRP proposals would be reviewed using the Special Recreation Permit Evaluation as outlined in Appendix L, Special Recreation Permits.</p> <p>ACTION: All SRPs would contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce conflicting user interactions, or minimize health and safety concerns.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Implement additional management actions if needed to ensure recreation use, including motorized and non-motorized, mechanical vehicular use, within Gunnison Sage-Grouse ACEC/IBA is consistent with ACEC objectives. Actions could include: special stipulations for commercial, competitive (outside NCA), and organized groups permits; seasonal restrictions on camping and/or other recreational activities in lek areas to protect strutting birds; and allow camping, firewood gathering, etc., only in designated areas in critical habitat areas.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>Special Recreation Permits are issued at the discretion of the Field Manager, who may at any time and without prior notice, choose not to issue permits for certain activities or use areas. Such decisions could be based on a variety of factors such as planning decisions, potential resource impacts, existing outfitters in the same area, overcrowding, past poor performance, and other concerns.</p> <p>All SRPs will be evaluated using Permit Evaluation Factors and Permit Classification System (see Appendix I). Monitoring will identify effectiveness of permit classification system and adjustments would be made if determined that goals and objectives are not being met.</p> <p>MOAB FO RMP 2008</p> <p>REC-46: Special Recreation Permits (SRPs): SRPs are issued as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs will be applied where appropriate (p. 97).</p> <p>REC-48: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 98).</p> <p>REC-50: Issue and manage special recreation permits for a wide variety of uses to enhance outdoor recreational</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>opportunities, provide opportunities for private enterprise, manage user-group interaction, and limit the impacts of such uses upon natural and cultural resources. Organized group permits required for groups with 25 or more vehicles (one driver/vehicle) (p. 98).</p> <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E (p. 117).</p> <p>MONTICELLO FO RMP 2008</p> <p>REC-17: SRPs will be issued as a discretionary action as a means to help meet management objectives, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors (p. 91).</p> <p>REC-18: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations (Appendix K of RMP) necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 91).</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (p. 137).</p> <p>TRES RIOS FO RMP 2015</p> <p>Only allow special recreation permits that have neutral or beneficial effects to priority habitat areas.</p>
22	Recreation	<p>GRAND JUNCTION FO RMP 2015</p> <p>ACTION: Issue SRPs as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs would be applied where appropriate. All new SRP proposals would be reviewed using the Special Recreation Permit Evaluation as outlined in Appendix L, Special Recreation Permits.</p> <p>ACTION: All SRPs would contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce conflicting user interactions, or minimize health and safety concerns.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Implement additional management actions if needed to ensure recreation use, including motorized and non-motorized, mechanical vehicular use, within Gunnison Sage-Grouse ACEC/IBA is consistent with ACEC objectives. Actions could include: special stipulations for commercial, competitive (outside NCA), and organized groups permits; seasonal restrictions on camping and/or other recreational activities in lek areas to protect strutting birds; and allow</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>camping, firewood gathering, etc., only in designated areas in critical habitat areas.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>Special Recreation Permits are issued at the discretion of the Field Manager, who may at any time and without prior notice, choose not to issue permits for certain activities or use areas. Such decisions could be based on a variety of factors such as planning decisions, potential resource impacts, existing outfitters in the same area, overcrowding, past poor performance, and other concerns.</p> <p>All SRPs will be evaluated using Permit Evaluation Factors and Permit Classification System (see Appendix I). Monitoring will identify effectiveness of permit classification system and adjustments would be made if determined that goals and objectives are not being met.</p> <p>MOAB FO RMP 2008</p> <p>REC-46: Special Recreation Permits (SRPs): SRPs are issued as a discretionary action as a means to: help meet management objectives, provide opportunities for economic activity, facilitate recreational use of the public lands, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Cost recovery procedures for issuing SRPs will be applied where appropriate (p. 97).</p> <p>REC-48: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 98).</p> <p>REC-50: Issue and manage special recreation permits for a wide variety of uses to enhance outdoor recreational opportunities, provide opportunities for private enterprise, manage user-group interaction, and limit the impacts of such uses upon natural and cultural resources. Organized group permits required for groups with 25 or more vehicles (one driver/vehicle) (p. 98).</p> <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E (p. 117).</p> <p>MONTICELLO FO RMP 2008</p> <p>REC-17: SRPs will be issued as a discretionary action as a means to help meet management objectives, control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors (p. 91).</p> <p>REC-18: All SRPs will contain standard stipulations appropriate for the type of activity and may include additional stipulations (Appendix K of RMP) necessary to protect lands or resources, reduce user conflicts, or minimize health and safety concerns (p. 91).</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act (p. 137).</p> <p>TRES RIOS FO RMP 2015 Only allow special recreation permits that have neutral or beneficial effects to priority habitat areas.</p>
23	Recreation	No similar action.
LANDS AND REALTY MANAGEMENT		
Rights-of-Way (ROWS)		
24	Lands & Realty—Exclusion and Avoidance Areas	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <ul style="list-style-type: none"> Allow no new ROWs to be permitted in Squaw/Cross Canyon SRMA, except for access to private land. Allow land actions to occur only when they will result in minimal adverse impact(s), when they will be beneficial to cultural resource management, or when there is a clear and significant public need. Limit ROWs for development of resources to a 16-foot running surface (road) width. <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Manage 208,990 acres of the D-E NCA as a ROW exclusion area (Map 2–14d), except to allow for:</p> <ul style="list-style-type: none"> Reasonable access and utilities to non-federal property and existing ROW facilities. Upgrades or modifications to existing facilities Allow for the construction of research and monitoring sites in ROW exclusion areas as long as these facilities further understanding and management of the purposes of the D-E NCA. <p>GUNNISON RMP 1993</p> <p>ROW Exclusion Areas:</p> <ul style="list-style-type: none"> MIU 3 (Cochetopa Canyon SRMA): ROWs. Public land in the unit will be classified an exclusion area for above-ground utility ROWs. Underground utility ROWs and development will be limited to previously disturbed areas associated with existing roads. MU 9 (Dillon Pinnacles ACEC): ROWs. Public lands in the unit will be classified an exclusion area for ROWs. ROW Avoidance Areas: MU 1 (Part of Alpine Triangle SRMA): ROWs. Public lands north of the south line of Sections 16 and 17, T.47N.R.3W. NMPM, approximately 2,560 acres, and about 76,880 acres south and west of Lake City will be classified an avoidance area for all other ROWs.

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> MU 1 (Part of Alpine Triangle SRMA): ROWs. With the exception of public lands in the ROWs corridor, the entire unit will be closed to the development of above-ground utilities (91,510 acres). <p>GUNNISON GORGE NCA RMP 2004</p> <ul style="list-style-type: none"> MU 4 (GUSG ACEC/IBA): Construction of all ROWs in the management unit will be restricted from November 15 through April 30 during crucial periods for wintering mule deer, elk, and GUSG. MU 4 (GUSG ACEC/IBA): Except as described below for the relict tree stand on Black Ridge, this management unit will be open to ROWs with appropriate conditions where the ROW will not adversely affect the values for which the management unit was designated. Mitigation will be required in all applications to meet the objectives of this management unit. Public lands in the relict tree stand on Black Ridge will not be available for surface linear ROWs of any kind, nor aerial ROWs or special use permits occupying more than 100 square feet and needing vehicular access constructed, or needing existing vehicular access maintained for distances greater than 200 feet. Buried ROWs will be authorized on a case-by-case basis along previously disturbed areas along existing travel routes. Mitigation will be required in all applications to meet the objectives of this management unit. Exceptions will be made on a case-by-case basis if the proposal supports meeting management unit objectives. <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (LR-AU1): ROW Exclusion Areas (including renewable energy sites such as solar, wind, hydroelectric, and biomass development): Manage 210,000 acres as ROW exclusion areas that are not available for the location of ROWs or other realty authorizations under any conditions, to include the following (Figure 2-27, Appendix A):</p> <p>Within a 0.4-mile radius of Sage-Grouse leks</p> <p>WSAs (allow for ROWs to existing leases without an NSO stipulation issued under the 1987 RMP)</p> <p>Allowable Use (LR-AU2): ROW Avoidance Areas: Manage 779,400 acres as ROW avoidance areas (Figure 2-27, Appendix A) (see Appendix B):</p> <p>Sage-Grouse: Occupied Habitat</p> <p>Sage-Grouse: Within a 4.0-mile radius of leks</p> <p>Streams/springs possessing lotic/lentic riparian characteristics</p> <p>Wetlands, springs, seeps, and riparian areas...</p> <p>Allowable Use (LR-AU9): Leases, permits, and easements authorized under 43 CFR 2920 may be subject to additional protective measures in areas identified as ROW avoidance areas and restrict activities in areas identified as ROW exclusion areas, except for low impact temporary permits, such as filming by foot and horseback.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCINNIS CANYONS NCA RMP 2004 All roads administered by the BLM will be maintained in their current condition, and no improvement will be permitted through ROW authorizations. Any new roads that could be authorized will be constructed to minimal widths and standards similar to nearby existing “jeep roads.” Any such new roads could also be gated to prevent, or limit, public vehicle access.</p> <p>MOAB FO RMP 2008 Implement the most current UDWR Strategic Management Plan for Sage-Grouse (UDWR, 2002 and its future revisions), the Gunnison Sage-grouse Range-wide Conservation Plan (2005, as amended) and recommendations from local sage-grouse working groups to protect, maintain, enhance, and restore Gunnison sage-grouse populations and habitat. There is no GUSG occupation at this time. However, if occupation is identified, through cooperation with UDWR, the following decisions will apply:</p> <ul style="list-style-type: none"> • All surface-disturbing activities will be prohibited within 0.6 mile of GUSG leks on a year-round basis. Within the 0.6 mile buffer, allow no permanent aboveground facilities or powerlines; prohibit or limit year-round construction of fences and where opportunity exists, remove existing fences. • Within four miles of a lek, avoid fence construction, overhead powerline construction, and aboveground structures that provide raptor hunting perches. Where fences are necessary, increase their visibility. Modify or remove fences to minimize sage-grouse mortality. • As required by the Endangered Species Act, avoid construction of new roads within listed and non-listed special status plant and animal species habitats. • ROW avoidance and exclusion areas will be consistent with the stipulations identified in Appendix A for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values. ROW Avoidance Areas: riparian areas and springs. <p>MONTICELLO FO RMP 2008 ROW avoidance and exclusion areas will generally be consistent with the stipulations identified in Appendix B for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values. Areas identified as NSO are open to oil and gas leasing but surface-disturbing activities cannot be conducted on the surface of the land. Access to oil and gas deposits will require directional drilling from outside the boundaries of the NSO areas. NSO areas are avoidance areas for ROWs; no ROW will be granted in NSO areas unless there are no</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>feasible alternatives.</p> <p>SAN LUIS RMP 1991</p> <p>Protection measures (for riparian/wetland areas) will include, but are not limited to, 1) mitigation of impacts from ROWs and utility corridors adjacent to or that cross riparian areas.</p> <p>San Luis Area #1; I-16: Any impacts from ROWs adjacent to or that cross riparian areas will be mitigated.</p> <p>Amended the San Luis RMP: Programmatic policies and BMPs in the Wind Energy Development Program will be adopted.</p> <p>Policy: The BLM will incorporate management goals and objectives specific to habitat conservation for species of concern (e.g., sage-grouse), as appropriate, into the POD for proposed wind energy projects.</p> <p>POD BMPs: Site Monitoring and Testing. Meteorological towers shall not be located in sensitive habitats or in areas where ecological resources known to be sensitive to human activities (e.g., prairie grouse) are present. Installation of towers shall be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors.</p> <p>SOLAR PEIS 2012</p> <p>Solar Energy Program ROW Exclusion Areas:</p> <ol style="list-style-type: none"> 1. All designated and proposed critical habitat areas for species protected under the ESA of 1973 (as amended), or if critical habitat is not yet proposed, then as identified in respective recovery plans or the final listing rule http://ecos.fws.gov/tess_public/TESSWebpageRecovery?sort=1 2. Sage-grouse core areas, nesting habitat, and winter habitat; 3. All ROW exclusion areas identified in applicable land use plans. 4. All ROW avoidance areas identified in applicable land use plans. (p. 38) <p>Grand Junction FO: All lands would be excluded.</p> <p>Gunnison FO: Approximately 3,162 acres in variance areas.</p> <p>Gunnison Gorge NCA: All lands would be excluded.</p> <p>McInnis Canyons NCA: All lands would be excluded.</p> <p>Moab FO: Approximately 587 acres in variance areas.</p> <p>Monticello FO: Approximately 4,120 acres in variance areas.</p> <p>San Juan/San Miguel: Approximately 12,105 acres in variance areas.</p> <p>San Luis Valley FO: Approximately 50,384 acres in variance areas. Four Solar Energy Zones designated (total of 16,308 acres) [none of which are within or adjacent to GUSG Occupied Habitat].</p> <p>Uncompahgre Basin: All lands would be excluded.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
25	Lands & Realty-Road ROWs	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Make every reasonable effort to provide primary access to private landowners when such access will not result in significant adverse impacts to other resources. Allow no new ROWs to be permitted in Squaw/Cross Canyon SRMA, except for access to private land.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Allow for reasonable access to non-Federal property with the following limitations:</p> <ul style="list-style-type: none"> • All ROWs on existing roads administered by the BLM will be maintained in their current condition unless an upgrade in condition would better protect natural and cultural resources • Any new roads would be authorized and constructed in a way that minimizes impacts to natural and cultural resources • Any new roads will be gated as needed to prevent or limit public vehicle access • Utilities to non-Federal property must be co-located within a 50 foot buffer of the access road to the property, unless an exception would reduce impacts to natural and cultural resources. <p>Grant no additional ROWs when reasonable access already exists, unless there is a compelling public need. Authorize only 1 access route to private parcels, unless public safety or local ordinances warrant additional routes. (NOTE: Additional routes will be considered at the discretion of the Monument Manager. The ROW width will be commensurate with the development needs of the individual private parcel.) Work with private landowners to coordinate development of access routes across public lands in order to prevent proliferation of routes (see Appendix L).</p> <p>GUNNISON GORGE NCA RMP 2004 On public lands in the planning area outside the Wilderness, the BLM will cooperate with the US Department of the Interior, Bureau of Reclamation (BOR) to acknowledge and document the agency's existing facilities and access needs for maintenance and operation of these facilities under the appropriate authority, e.g., withdrawals and ROWs. BLM will request adequate information to process for the appropriate documentation, analysis, and authorizations for the facilities. See decisions in Management Unit 6 regarding public lands withdrawn to BOR and OHV uses. On public lands in the planning area outside the Wilderness, the BLM will acknowledge and document the Uncompahgre Valley Water Users Association and BOR's existing facilities and access needs for maintenance and operation of these facilities on public lands, under the appropriate authority, such as withdrawals and ROWs, when the BLM receives adequate mapping and other information to process the appropriate authorizations for the facilities.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCINNIS CANYONS NCA RMP 2004 In response to potential development on private inholdings, the BLM may request Mesa County consideration of land use permitting restrictions on private inholdings for protecting the overall landscape and land use character. Requested restrictions could include limiting land uses or subdivision of property, limiting any development to a portion of the private land, locating and designing developments to minimize adverse impacts to the landscape, limiting use of exterior lights, or providing for limited public access.</p> <p>TRES RIOS FO RMP 2015 Road access to private land is granted only where no other reasonable alternative exists and where it meets the appropriate road design and maintenance standards necessary for resource protection and public safety.</p>
26	Lands & Realty- Power and Phone Lines	<p>GRAND JUNCTION FO RMP 2015 Maintain and/or create connections between key sagebrush habitats by encouraging placement of new utility developments (power lines, pipelines, etc.) and transportation routes (roads, trails etc.) in existing utility or transportation corridors to minimize fragmentation of sagebrush vegetation.</p> <p>GUNNISON GORGE NCA RMP 2004 MU 4 (GUSG ACEC/IBA): Approximately one mile of the public lands in the management unit parallel to Red Canyon Creek will be located within a recommended ROW utility corridor for future growth in the North Fork Valley area. Part of this corridor is also located in Management Unit 6. See Figure 2-2 (at the end of this chapter) for the location and Table 2-3 (see end of this chapter) for information on all recommended corridors in the planning area. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required. MU 6: Corridors (cont'd) Map Key 4, Table 2-3 (at end of this chapter) Along the south side of Red Canyon Creek. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, or placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit will be restricted during crucial periods for wintering deer and elk. Part of this corridor will be located in Management Unit 4. MU 6: Corridors (cont'd) Map Key 5, Table 2-3 (at end of this chapter) Along the northeast boundary of the planning area and NCA, and parallel to Smith Fork Creek and canyon. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>will be restricted during crucial periods for wintering deer and elk. This corridor will be located adjacent to Unit 4.</p> <p>MONTICELLO FO RMP 2008</p> <p>This RMP will adopt the existing designated ROW corridors from the 1991 San Juan RMP including the Western Utility Group (WUG) updates to the Western Regional Corridor Study (Map 5), Section 368 Energy Policy Act of 2005, Westwide Energy Corridor PEIS. Designate additional corridors as needed subject to physical barriers and sensitive resource values. Designated transportation and utility corridors include existing groupings of ROWs for electric transmission facilities, pipelines 16 inches and larger, communication lines, federal and state highways, and major county road systems.</p> <p>TRES RIOS FO RMP 2015</p> <p>Energy transmission facilities should be consolidated within existing corridors and along existing linear energy transmission facilities in order to reduce habitat loss, degradation, and fragmentation resulting from new construction.</p> <p>ENERGY CORRIDOR DESIGNATION PEIS 2009</p> <ul style="list-style-type: none"> • Grand Junction RMP Amendment: Corridors 132-133, 132-276 • Gunnison RMP Amendment: Corridor 87-277 • San Juan/San Miguel RMP Amendment: Corridors 130-131, 130-274 • Uncompahgre Basin RMP Amendment: Corridors 132-136, 134-136, 134-139, 136-139, 139-277, 136-277. <p>The following corridors were identified as "corridors of concern" in the Settlement Agreement, with additional Sage-Grouse habitat concerns to be addressed in the event of ROW pre-application discussion and/or ROW applications: 82-277, 130-274, 130-274 (E).</p> <ul style="list-style-type: none"> • San Luis Valley FO RMP Amendment: San Luis Area #1; I-15: Utility corridor routes, identified by the Western Utility Group and included in the Rio Grande Forest Plan, are adopted with three exceptions: <p>No utility corridor from the Poncha Pass corridor west to Middle Creek (near Saguache) to Del Norte. This area has many acres of crucial winter wildlife habitat, is highly scenic, and is an important dispersed recreation area. Any expansion of utility use in the Poncha Pass corridor will be analyzed thoroughly under the NEPA process.</p>
27	Lands & Realty-Communication Sites	<p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (LR-AU6): Encourage the placement of new facilities or upgrades to existing facilities in delineated corridors or in other areas with previous disturbance and existing facilities, as consistent with other resource values.</p> <p>GUNNISON RMP 1993</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>ROW Corridors: Public lands within one-half mile on each side of the centerline of Western Area Power Administrations' (WAPA) Curecanti to Salida 230 Kv electrical transmission line, and Tri-State Generation and Transmission Association's Blue Mesa to Lake City 115 Kv electrical transmission line will be designated as ROWs corridors. The WAPA line crosses Management Units 8, 11, 12, 13, 14, and 16. A ROW window 1,000 feet in width, or 500 feet either side of the centerline, will be designated where the WAPA line crosses Management Unit 8. The Tri-State corridor crosses Management Units 1, 13, and 16.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <ul style="list-style-type: none"> • MU 4 (GUSG ACEC/IBA): Approximately one mile of the public lands in the management unit parallel to Red Canyon Creek will be located within a recommended ROW utility corridor for future growth in the North Fork Valley area. Part of this corridor is also located in Management Unit 6. See Figure 2-2 (at the end of this chapter) for the location and Table 2-3 (see end of this chapter) for information on all recommended corridors in the planning area. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required. • MU 6: Corridors (cont'd) Map Key 4, Table 2-3 (at end of this chapter). Along the south side of Red Canyon Creek. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, or placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit will be restricted during crucial periods for wintering deer and elk. Part of this corridor will be located in Management Unit 4. • MU 6: Corridors (cont'd) Map Key 5, Table 2-3 (at end of this chapter). Along the northeast boundary of the planning area and NCA, and parallel to Smith Fork Creek and canyon. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit will be restricted during crucial periods for wintering deer and elk. This corridor will be located adjacent to Unit 4. <p>MONTICELLO FO RMP 2008</p> <p>This RMP will adopt the existing designated ROW corridors from the 1991 San Juan RMP including the Western Utility Group (WUG) updates to the Western Regional Corridor Study (Map 5), Section 368 Energy Policy Act of 2005, Westwide Energy Corridor PEIS. Designate additional corridors as needed subject to physical barriers and sensitive resource values. Designated transportation and utility corridors include existing groupings of ROWs for electric transmission facilities, pipelines 16 inches and larger, communication lines, federal and state highways, and</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>major county road systems.</p> <p>TRES RIOS FO RMP 2015 Energy transmission facilities should be consolidated within existing corridors and along existing linear energy transmission facilities in order to reduce habitat loss, degradation, and fragmentation resulting from new construction.</p> <p>ENERGY CORRIDOR DESIGNATION PEIS 2009</p> <ul style="list-style-type: none"> • Grand Junction RMP Amendment: Corridors 132-133, 132-276 • Gunnison RMP Amendment: Corridor 87-277 • San Juan/San Miguel RMP Amendment: Corridors 130-131, 130-274 • Uncompahgre Basin RMP Amendment: Corridors 132-136, 134-136, 134-139, 136-139, 139-277, 136-277. <p>The following corridors were identified as "corridors of concern" in the Settlement Agreement, with additional Sage-Grouse habitat concerns to be addressed in the event of ROW pre-application discussion and/or ROW applications: 82-277, 130-274, 130-274 (E).</p> <ul style="list-style-type: none"> • San Luis Valley FO RMP Amendment: San Luis Area #1; I-15: Utility corridor routes, identified by the Western Utility Group and included in the Rio Grande Forest Plan, are adopted with three exceptions: <ul style="list-style-type: none"> ○ No utility corridor from the Poncha Pass corridor west to Middle Creek (near Saguache) to Del Norte. This area has many acres of crucial winter wildlife habitat, is highly scenic, and is an important dispersed recreation area. Any expansion of utility use in the Poncha Pass corridor will be analyzed thoroughly under the NEPA process.
28	Lands & Realty	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Utilities to non-Federal property must be co-located within a 50 foot buffer of the access road to the property, unless an exception would reduce impacts to natural and cultural resources.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <ul style="list-style-type: none"> • MU 4 (GUSG ACEC/IBA): Construction of all ROWs in the management unit will be restricted from November 15 through April 30 during crucial periods for wintering mule deer, elk, and GUSG. • MU 4 (GUSG ACEC/IBA): Except as described below for the relict tree stand on Black Ridge, this management unit will be open to ROWs with appropriate conditions where the ROW will not adversely affect the values for which the management unit was designated. Mitigation will be required in all applications to meet the objectives of this management unit. Public lands in the relict tree stand on Black Ridge will not be available for surface linear

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>ROWs of any kind, nor aerial ROWs or special use permits occupying more than 100 square feet and needing vehicular access constructed, or needing existing vehicular access maintained for distances greater than 200 feet. Buried ROWs will be authorized on a case-by-case basis along previously disturbed areas along existing travel routes. Mitigation will be required in all applications to meet the objectives of this management unit. Exceptions will be made on a case-by-case basis if the proposal supports meeting management unit objectives.</p>
29	Lands & Realty-Exclusion and Avoidance Areas	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <ul style="list-style-type: none"> Allow no new ROWs to be permitted in Squaw/Cross Canyon SRMA, except for access to private land. Allow land actions to occur only when they will result in minimal adverse impact(s), when they will be beneficial to cultural resource management, or when there is a clear and significant public need. Include all surface-use stipulations (including NGD/NSO, TL, and protective considerations for cultural resources) on new ROWs. Limit ROWs for development of resources to a 16-foot running surface (road) width. <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Manage 208,990 acres of the D-E NCA as a ROW exclusion area (Map 2–14d), except to allow for:</p> <ul style="list-style-type: none"> Reasonable access and utilities to non-federal property and existing ROW facilities. Upgrades or modifications to existing facilities Allow for the construction of research and monitoring sites in ROW exclusion areas as long as these facilities further understanding and management of the purposes of the D-E NCA. <p>GUNNISON RMP 1993</p> <p>ROW Exclusion Areas:</p> <ul style="list-style-type: none"> MU 3 (Cochetopa Canyon SRMA): ROWs. Public land in the unit will be classified an exclusion area for above-ground utility ROWs. Underground utility ROWs and development will be limited to previously disturbed areas associated with existing roads. MU 9 (Dillon Pinnacles ACEC): ROWs. Public lands in the unit will be classified an exclusion area for ROWs. <p>ROW Avoidance Areas:</p> <ul style="list-style-type: none"> MU 1 (Part of Alpine Triangle SRMA): ROWs. Public lands north of the south line of Sections 16 and 17, T.47N.R.3W. NMPM, approximately 2,560 acres, and about 76,880 acres south and west of Lake City will be classified an avoidance area for all other ROWs. MU 1 (Part of Alpine Triangle SRMA): ROWs. With the exception of public lands in the ROWs corridor, the entire unit will be closed to the development of above-ground utilities (91,510 acres).

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUNNISON GORGE NCA RMP 2004</p> <ul style="list-style-type: none"> • MU 4 (GUSG ACEC/IBA): Construction of all ROWs in the management unit will be restricted from November 15 through April 30 during crucial periods for wintering mule deer, elk, and GUSG. • MU 4 (GUSG ACEC/IBA): Except as described below for the relict tree stand on Black Ridge, this management unit will be open to ROWs with appropriate conditions where the ROW will not adversely affect the values for which the management unit was designated. Mitigation will be required in all applications to meet the objectives of this management unit. Public lands in the relict tree stand on Black Ridge will not be available for surface linear ROWs of any kind, nor aerial ROWs or special use permits occupying more than 100 square feet and needing vehicular access constructed, or needing existing vehicular access maintained for distances greater than 200 feet. Buried ROWs will be authorized on a case-by-case basis along previously disturbed areas along existing travel routes. Mitigation will be required in all applications to meet the objectives of this management unit. Exceptions will be made on a case-by-case basis if the proposal supports meeting management unit objectives. <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (LR-AU1): ROW Exclusion Areas (including renewable energy sites such as solar, wind, hydroelectric, and biomass development): Manage 221,600 acres as ROW exclusion areas that are not available for the location of ROWs or other realty authorizations under any conditions, to include the following (Figure 2-27, Appendix A):</p> <ul style="list-style-type: none"> • Within a 0.4-mile radius of Sage-Grouse leks. <p>Allowable Use (LR-AU2): ROW Avoidance Areas: Manage 779,800 acres as ROW avoidance areas (Figure 2-27, Appendix A) (see Appendix B):</p> <ul style="list-style-type: none"> • Sage-Grouse: Occupied Habitat • Sage-Grouse: Within a 4.0-mile radius of leks • Streams/springs possessing lotic/lentic riparian characteristics • Wetlands, springs, seeps, and riparian areas. <p>Allowable Use (LR-AU9): Leases, permits, and easements authorized under 43 CFR 2920 may be subject to additional protective measures in areas identified as ROW avoidance areas and restrict activities in areas identified as ROW exclusion areas, except for low impact temporary permits, such as filming by foot and horseback.</p> <p>ACTION: Identify the following as ROW exclusion areas:</p> <p>Within a 0.6-mile radius of Sage-Grouse leks</p> <p>Allowable Use (LR-AU6): Encourage the placement of new facilities or upgrades to existing facilities in delineated corridors or in other areas with previous disturbance and existing facilities, as consistent with other resource values.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCINNIS CANYONS NCA RMP 2004 All roads administered by the BLM will be maintained in their current condition, and no improvement will be permitted through ROW authorizations. Any new roads that could be authorized will be constructed to minimal widths and standards similar to nearby existing “jeep roads.” Any such new roads could also be gated to prevent, or limit, public vehicle access.</p> <p>MOAB FO RMP 2008 Implement the most current UDWR Strategic Management Plan for Sage-Grouse (UDWR, 2002 and its future revisions), the Gunnison Sage-grouse Range-wide Conservation Plan (2005, as amended) and recommendations from local sage-grouse working groups to protect, maintain, enhance, and restore Gunnison sage-grouse populations and habitat. There is no GUSG occupation at this time. However, if occupation is identified, through cooperation with UDWR, the following decisions will apply:</p> <ul style="list-style-type: none"> • All surface-disturbing activities will be prohibited within 0.6 mile of GUSG leks on a year-round basis. Within the 0.6 mile buffer, allow no permanent aboveground facilities or powerlines; prohibit or limit year-round construction of fences and where opportunity exists, remove existing fences. • Within four miles of a lek, avoid fence construction, overhead powerline construction, and aboveground structures that provide raptor hunting perches. Where fences are necessary, increase their visibility. Modify or remove fences to minimize sage-grouse mortality. <p>As required by the Endangered Species Act, avoid construction of new roads within listed and non-listed special status plant and animal species habitats.</p> <p>ROW avoidance and exclusion areas will be consistent with the stipulations identified in Appendix A for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values.</p> <p>ROW Avoidance Areas: riparian areas and springs.</p> <p>MONTICELLO FO RMP 2008 ROW avoidance and exclusion areas will generally be consistent with the stipulations identified in Appendix B for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values.</p> <p>Areas identified as NSO are open to oil and gas leasing but surface-disturbing activities cannot be conducted on the surface of the land. Access to oil and gas deposits will require directional drilling from outside the boundaries of the NSO areas. NSO areas are avoidance areas for ROWs; no ROW will be granted in NSO areas unless there are no</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>feasible alternatives.</p> <p>SAN LUIS RMP 1991</p> <p>Protection measures (for riparian/wetland areas) will include, but are not limited to, 1) mitigation of impacts from ROWs and utility corridors adjacent to or that cross riparian areas.</p> <p>San Luis Area #1; I-16: Any impacts from ROWs adjacent to or that cross riparian areas will be mitigated.</p> <p>Amended the San Luis RMP: Programmatic policies and BMPs in the Wind Energy Development Program will be adopted.</p> <p>Policy: The BLM will incorporate management goals and objectives specific to habitat conservation for species of concern (e.g., sage-grouse), as appropriate, into the POD for proposed wind energy projects.</p> <p>POD BMPs: Site Monitoring and Testing. Meteorological towers shall not be located in sensitive habitats or in areas where ecological resources known to be sensitive to human activities (e.g., prairie grouse) are present. Installation of towers shall be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors.</p> <p>SOLAR PEIS 2012</p> <p>Solar Energy Program ROW Exclusion Areas:</p> <ol style="list-style-type: none"> 1. All designated and proposed critical habitat areas for species protected under the ESA of 1973 (as amended), or if critical habitat is not yet proposed, then as identified in respective recovery plans or the final listing rule http://ecos.fws.gov/tess_public/TESSWebpageRecovery?sort=1 2. Sage-grouse core areas, nesting habitat, and winter habitat; 3. Greater sage-grouse habitat (currently occupied, brooding, and winter habitat) as identified by the BLM in California, Nevada, and Utah, and GUSG Habitat (currently occupied, brooding, and winter habitat) as identified by the BLM in Utah. 4. All areas designated as NSO in applicable land use plans. 5. All ROW exclusion areas identified in applicable land use plans. 6. All ROW avoidance areas identified in applicable land use plans (p. 38). <p>Grand Junction FO: All lands would be excluded.</p> <p>Gunnison FO: Approximately 3,162 acres in variance areas.</p> <p>Gunnison Gorge NCA: All lands would be excluded.</p> <p>McInnis Canyons NCA: All lands would be excluded.</p> <p>Moab FO: Approximately 587 acres in variance areas.</p> <p>Monticello FO: Approximately 4,120 acres in variance areas.</p> <p>San Juan/San Miguel: Approximately 12,105 acres in variance areas.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>San Luis Valley FO: Approximately 50,384 acres in variance areas. Four Solar Energy Zones designated (total of 16,308 acres) [none of which are within or adjacent to GUSG Occupied Habitat]. Uncompahgre Basin: All lands would be excluded.</p>
30	Lands & Realty	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <ul style="list-style-type: none"> Allow no new ROWs to be permitted in Squaw/Cross Canyon SRMA, except for access to private land. Allow land actions to occur only when they will result in minimal adverse impact(s), when they will be beneficial to cultural resource management, or when there is a clear and significant public need. Include all surface-use stipulations (including NGD/NSO, TL, and protective considerations for cultural resources) on new ROWs. Limit ROWs for development of resources to a 16-foot running surface (road) width. <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Manage 208,990 acres of the D-E NCA as a ROW exclusion area (Map 2-14d), except to allow for:</p> <ul style="list-style-type: none"> Reasonable access and utilities to non-federal property and existing ROW facilities. Upgrades or modifications to existing facilities. <p>Allow for the construction of research and monitoring sites in ROW exclusion areas as long as these facilities further understanding and management of the purposes of the D-E NCA.</p> <p>GUNNISON RMP 1993</p> <p>ROW Exclusion Areas:</p> <ul style="list-style-type: none"> MU 3 (Cochetopa Canyon SRMA): ROWs. Public land in the unit will be classified an exclusion area for above-ground utility ROWs. Underground utility ROWs and development will be limited to previously disturbed areas associated with existing roads. MU 9 (Dillon Pinnacles ACEC): ROWs. Public lands in the unit will be classified an exclusion area for ROWs. <p>ROW Avoidance Areas:</p> <ul style="list-style-type: none"> MU 1 (Part of Alpine Triangle SRMA): ROWs. Public lands north of the south line of Sections 16 and 17, T.47N.R.3W. NMPM, approximately 2,560 acres, and about 76,880 acres south and west of Lake City will be classified an avoidance area for all other ROWs. MU 1 (Part of Alpine Triangle SRMA): ROWs. With the exception of public lands in the ROWs corridor, the entire unit will be closed to the development of above-ground utilities (91,510 acres). <p>GUNNISON GORGE NCA RMP 2004</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • MU 4 (GUSG ACEC/IBA): Construction of all ROWs in the management unit will be restricted from November 15 through April 30 during crucial periods for wintering mule deer, elk, and GUSG. • MU 4 (GUSG ACEC/IBA): Except as described below for the relict tree stand on Black Ridge, this management unit will be open to ROWs with appropriate conditions where the ROW will not adversely affect the values for which the management unit was designated. Mitigation will be required in all applications to meet the objectives of this management unit. Public lands in the relict tree stand on Black Ridge will not be available for surface linear ROWs of any kind, nor aerial ROWs or special use permits occupying more than 100 square feet and needing vehicular access constructed, or needing existing vehicular access maintained for distances greater than 200 feet. Buried ROWs will be authorized on a case-by-case basis along previously disturbed areas along existing travel routes. Mitigation will be required in all applications to meet the objectives of this management unit. Exceptions will be made on a case-by-case basis if the proposal supports meeting management unit objectives. <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (LR-AU1): ROW Exclusion Areas (including renewable energy sites such as solar, wind, hydroelectric, and biomass development): Manage 221,600 acres as ROW exclusion areas that are not available for the location of ROWs or other realty authorizations under any conditions, to include the following (Figure 2-27, Appendix A):</p> <ul style="list-style-type: none"> • Within a 0.4-mile radius of Sage-Grouse leks. <p>Allowable Use (LR-AU2): ROW Avoidance Areas: Manage 779,800 acres as ROW avoidance areas (Figure 2-27, Appendix A) (see Appendix B):</p> <ul style="list-style-type: none"> • Sage-Grouse: Occupied Habitat • Sage-Grouse: Within a 4.0-mile radius of leks • Streams/springs possessing lotic/lentic riparian characteristics • Wetlands, springs, seeps, and riparian areas... <p>Allowable Use (LR-AU9): Leases, permits, and easements authorized under 43 CFR 2920 may be subject to additional protective measures in areas identified as ROW avoidance areas and restrict activities in areas identified as ROW exclusion areas, except for low impact temporary permits, such as filming by foot and horseback.</p> <p>ACTION: Identify the following as ROW exclusion areas:</p> <p>Within a 0.6-mile radius of Sage-Grouse leks</p> <p>Allowable Use (LR-AU6): Encourage the placement of new facilities or upgrades to existing facilities in delineated corridors or in other areas with previous disturbance and existing facilities, as consistent with other resource values.</p> <p>MCINNIS CANYONS NCA RMP 2004</p>

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		<p>All roads administered by the BLM will be maintained in their current condition, and no improvement will be permitted through ROW authorizations. Any new roads that could be authorized will be constructed to minimal widths and standards similar to nearby existing “jeep roads.” Any such new roads could also be gated to prevent, or limit, public vehicle access.</p> <p>MOAB FO RMP 2008</p> <p>Implement the most current UDWR Strategic Management Plan for Sage-Grouse (UDWR, 2002 and its future revisions), the Gunnison Sage-grouse Range-wide Conservation Plan (2005, as amended) and recommendations from local sage-grouse working groups to protect, maintain, enhance, and restore Gunnison sage-grouse populations and habitat. There is no GUSG occupation at this time. However, if occupation is identified, through cooperation with UDWR, the following decisions will apply:</p> <ul style="list-style-type: none"> • All surface-disturbing activities will be prohibited within 0.6 mile of GUSG leks on a year-round basis. Within the 0.6 mile buffer, allow no permanent aboveground facilities or powerlines; prohibit or limit year-round construction of fences and where opportunity exists, remove existing fences. • Within four miles of a lek, avoid fence construction, overhead powerline construction, and aboveground structures that provide raptor hunting perches. Where fences are necessary, increase their visibility. Modify or remove fences to minimize sage-grouse mortality. <p>As required by the Endangered Species Act, avoid construction of new roads within listed and non-listed special status plant and animal species habitats.</p> <p>ROW avoidance and exclusion areas will be consistent with the stipulations identified in Appendix A for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values.</p> <p>ROW Avoidance Areas: riparian areas and springs.</p> <p>MONTICELLO FO RMP 2008</p> <p>ROW avoidance and exclusion areas will generally be consistent with the stipulations identified in Appendix B for oil and gas leasing and other surface-disturbing activities. These stipulations have been developed to protect important resource values.</p> <p>Areas identified as NSO are open to oil and gas leasing but surface-disturbing activities cannot be conducted on the surface of the land. Access to oil and gas deposits will require directional drilling from outside the boundaries of the NSO areas. NSO areas are avoidance areas for ROWs; no ROW will be granted in NSO areas unless there are no feasible alternatives.</p>

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		<p>SAN LUIS RMP 1991 Protection measures (for riparian/wetland areas) will include, but are not limited to, 1) mitigation of impacts from ROWs and utility corridors adjacent to or that cross riparian areas. San Luis Area #1; I-16: Any impacts from ROWs adjacent to or that cross riparian areas will be mitigated. Amended the San Luis RMP: Programmatic policies and BMPs in the Wind Energy Development Program will be adopted. Policy: The BLM will incorporate management goals and objectives specific to habitat conservation for species of concern (e.g., sage-grouse), as appropriate, into the POD for proposed wind energy projects. POD BMPs: Site Monitoring and Testing. Meteorological towers shall not be located in sensitive habitats or in areas where ecological resources known to be sensitive to human activities (e.g., prairie grouse) are present. Installation of towers shall be scheduled to avoid disruption of wildlife reproductive activities or other important behaviors.</p> <p>SOLAR PEIS 2012 Solar Energy Program ROW Exclusion Areas: 1. All designated and proposed critical habitat areas for species protected under the ESA of 1973 (as amended), or if critical habitat is not yet proposed, then as identified in respective recovery plans or the final listing rule http://ecos.fws.gov/tess_public/TESSWebpageRecovery?sort=1 2. Sage-grouse core areas, nesting habitat, and winter habitat; 3. Greater sage-grouse habitat (currently occupied, brooding, and winter habitat) as identified by the BLM in California, Nevada, and Utah, and GUSG Habitat (currently occupied, brooding, and winter habitat) as identified by the BLM in Utah. 4. All areas designated as NSO in applicable land use plans. 5. All ROW exclusion areas identified in applicable land use plans. 6. All ROW avoidance areas identified in applicable land use plans (p. 38). <ul style="list-style-type: none"> • Grand Junction FO: All lands would be excluded. • Gunnison FO: Approximately 3,162 acres in variance areas. • Gunnison Gorge NCA: All lands would be excluded. • McInnis Canyons NCA: All lands would be excluded. • Moab FO: Approximately 587 acres in variance areas. • Monticello FO: Approximately 4,120 acres in variance areas. • San Juan/San Miguel: Approximately 12,105 acres in variance areas. </p>

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		<ul style="list-style-type: none"> • San Luis Valley FO: Approximately 50,384 acres in variance areas. Four Solar Energy Zones designated (total of 16,308 acres) [none of which are within or adjacent to GUSG Occupied Habitat]. • Uncompahgre Basin: All lands would be excluded.
31	Lands & Realty	No similar action.
32	Lands & Realty	No similar action.
33	Lands & Realty	<p>GRAND JUNCTION FO RMP 2015 Allowable Use (LR-AU6): Encourage the placement of new facilities or upgrades to existing facilities in delineated corridors or in other areas with previous disturbance and existing facilities, as consistent with other resource values.</p> <p>TRES RIOS FO RMP 2015 Energy transmission facilities should be consolidated within existing corridors and along existing linear energy transmission facilities in order to reduce habitat loss, degradation, and fragmentation resulting from new construction.</p>
34	Lands & Realty	<p>GRAND JUNCTION FO RMP 2015 Allowable Use (LR-AU6): Encourage the placement of new facilities or upgrades to existing facilities in delineated corridors or in other areas with previous disturbance and existing facilities, as consistent with other resource values.</p> <p>TRES RIOS FO RMP 2015 Energy transmission facilities should be consolidated within existing corridors and along existing linear energy transmission facilities in order to reduce habitat loss, degradation, and fragmentation resulting from new construction.</p>
35	Lands & Realty	<p>GUNNISON RMP 1993 MU 14 (riparian areas containing important sage grouse brood-rearing areas): ROWs. Mitigating measures will be included in ROW authorizations to prevent disturbance within this unit to brooding sage grouse from June 15 through July 31 and from December 1 through April 30 on crucial big game winter range to prevent disturbance to wintering deer and elk.</p> <p>MU 15 (important fishery streams): ROWs. No surface-disturbing activities will be permitted along Alder, Willow (west of Gunnison), and Razor Creeks, and along the lower one-mile of South Beaver Creek in the unit from July 1 through July 31 in order to prevent disturbance to sage grouse during the brood rearing period. Mitigating measures will be included in ROW authorizations in these areas of this unit to prevent disturbance to brooding sage grouse.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
36	Lands & Realty	<p>GUNNISON GORGE NCA RMP 2004</p> <p>Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required.</p> <ul style="list-style-type: none"> • MU 6: Corridors (cont'd) Map Key 4, Table 2-3 (at end of this chapter) Along the south side of Red Canyon Creek. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, or placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit will be restricted during crucial periods for wintering deer and elk. Part of this corridor will be located in Management Unit 4. • MU 6: Corridors (cont'd) Map Key 5, Table 2-3 (at end of this chapter) Along the northeast boundary of the planning area and NCA, and parallel to Smith Fork Creek and canyon. Measures to prevent damage and injury to sage-grouse during the crucial seasonal use periods (strutting, nesting, and potentially winter), such as raptor-proofing utility poles, placing power lines in a horizontal array, will be required. Construction of ROWs in the Unit will be restricted during crucial periods for wintering deer and elk. This corridor will be located adjacent to Unit 4.
37	Lands & Realty	<p>GUNNISON RMP 1993</p> <ul style="list-style-type: none"> • MU 14 (riparian areas containing important sage grouse brood-rearing areas): ROWs. Mitigating measures will be included in ROW authorizations to prevent disturbance within this unit to brooding sage grouse from June 15 through July 31 and from December 1 through April 30 on crucial big game winter range to prevent disturbance to wintering deer and elk. • MU 15 (important fishery streams): ROWs. No surface-disturbing activities will be permitted along Alder, Willow (west of Gunnison), and Razor Creeks, and along the lower one-mile of South Beaver Creek in the unit from July 1 through July 31 in order to prevent disturbance to sage grouse during the brood rearing period. Mitigating measures will be included in ROW authorizations in these areas of this unit to prevent disturbance to brooding sage grouse.
RANGELAND MANAGEMENT		
38	Range Management	<p>TRES RIOS FO RMP 2015</p> <p>Guideline 2.4.65: Within occupied Gunnison sage-grouse critical habitat the RCP grazing guidelines should be incorporated when appropriate.</p>
39	Range	DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
	Management	<p>Livestock grazing permits will include seasonal utilization limits for palatable forage that reflect best management practices and are consistent with meeting land health standards or other biological objectives. Lower limits will be established for grazing allotments with land health problems where grazing is contributing to those problems.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>ACTION (A10): Identify appropriate utilization levels based on allotment or site-specific management practices, such as season-of-use, grazing intensity and duration, and utilization patterns, as well as vegetative conditions, riparian conditions, the presence or absence of range improvements, and resource issues or concerns.</p> <p>ACTION (A11): Implement changes in livestock use through allotment management plans, grazing use agreements, and terms and conditions on grazing permits for priority allotments based on the current prioritization process and/or land health issues.</p> <p>TRES RIOS FO RMP 2015</p> <p>Guideline 2.4.65: Within occupied Gunnison sage-grouse critical habitat the RCP grazing guidelines should be incorporated when appropriate.</p> <p>Guideline 2.4.66: Within Occupied Habitat, grazing in treatment areas should be deferred for 2 growing season after treatment, unless needed for seedbed preparation or desired understory and over-story are established.</p>
40	Range Management	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Administer 23 allotments. Remove 5 grazing allotments from Availability: the East and West Sand Canyon, Rock Creek, Goodman Gulch, and Trail Canyon allotments. Remove the Rock Creek allotment at the time the current grazing. Permittee is no longer able to run a livestock operation. Pursue establishing common reserve allotments, as allotments become available, in order to allow for periodic rest and deferment in other allotments. Make one of the following determinations in the event a grazing permit is relinquished or cancelled:</p> <ol style="list-style-type: none"> 1. Reissue a term grazing permit. 2. Close, either temporarily or permanently, the allotment to grazing where any of the following exists and is attributable to livestock grazing: <ul style="list-style-type: none"> ○ damage to cultural resources; ○ fragile soil/biological crusts essential for soil and water resource protection; ○ low forage production (less than 200 pounds/acre); inadequate facilities to manage livestock grazing (such as fencing, water, or forage availability); and/or ○ degraded riparian and/or upland conditions. 3. Create, temporarily or permanently, a reserve forage allotment. (NOTE: Permits for reserve forage allotments

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>will not be held by specific grazing operators.) Require grazing to meet the goals described for the area in the RMP and, if applicable, in an allotment management plan. Grant temporary, nonrenewable use to Federal permit holders when there is a demonstrated need to rest a permittee's allotment. [NOTE: "Need" for rest will include, but not be limited to, the following reasons: to improve resource condition of other allotments prior to prescribed burns or necessary fence construction; and during/after rehabilitation projects (such as wildland fire, drought, flood, insect damage, and/or disease).]</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Close the following areas to livestock use (361 acres, Map 2-4p): • Bean Allotment (361 acres, due to conflicts with adjoining private lands). Unallocated areas would be managed according to the following (Map 2-4p): Area open to livestock grazing (acreage also included in line 506 as available to grazing): 994 acres Area where active movement would be the only livestock use allowed: 572 acres Area closed to livestock use: 3,489 acres New (un-allotted) land acquisitions would be evaluated and closed or allotted to neighboring permittees on a case-by-case basis considering topography and resource objectives.</p> <p>Based on biological resource objectives, evaluate and allocate vacated or relinquished allotments, or un-allotted areas for:</p> <ul style="list-style-type: none"> • combining with active allotments to provide for additional management options. • establishing grass banks • closure to grazing. <p>Changes (increases or decreases) in forage allocation for livestock grazing could be made where such changes would allow for progress toward the achievement of biological objectives.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Offer temporary use on a case-by-case basis in allotments where grazing preference has been relinquished, or non-use warrants to rest other allotments that include important Sage-Grouse habitat.</p> <p>Action (A4): Make 66,600 acres unavailable for livestock grazing, which includes allotments, portions of allotments, and unallotted land. The purpose includes steep slopes, conflict with BLM recreation sites, or avoidance of sensitive resources such as those described in the Areas of Critical Environmental Concern section. Refer to Appendix J, Livestock Grazing Allotments.</p> <p>Action (A5): Close the following allotments to livestock use (see Appendix J):</p> <ul style="list-style-type: none"> • Same as Alternative A plus the following: o Baldridge Mesa; o Bevan; o Boulder Canyon; o Browns Place; o Brush Creek; o Charlesworth; o Clifton; o Clover Gulch; o Coon Creek; o Dead Horse; o Dry Kimball; o Eby Point; o Erven; o Etcheverry; o Fetters; o Heely; o Hight; o Horizon; o Hunter; o Logan Wash; o Parkes Place; o Plateau

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Creek; o Red Mountain; Webber; o Webb Isolated Tracts; and o Whitewater Hill.</p> <p>Action (A6): In open allotments, close the following areas to livestock use:</p> <ul style="list-style-type: none"> • Ant Research Area; • Badger Wash ungrazed paired plots or designated no grazing areas as defined in the study objectives; • Miracle Rock picnic area; • Mud Springs picnic area; • North Fruita Desert developed campground; • Pyramid Rock ACEC; • Study area enclosures; • West Creek picnic area. • Palisade municipal watershed. <p>Action (A8): Periodically evaluate whether to close other allotments or portions of allotments to livestock grazing, and implement with project level analysis, based on the following criteria:</p> <ul style="list-style-type: none"> • Areas identified as BLM disposal tracts; • Lack of administrative access to public land; • Small percentage of forage in allotment is contributed by BLM lands in allotment (less than 15 percent); • Areas not accessible to livestock grazing (e.g., steep slopes); • “C” category allotments that are relinquished and determined to be impractical for the administration of livestock grazing by the Authorized Officer; • Major impact to sensitive resources such as wildlife or threatened and endangered species (e.g., competition for forage, winter range, Sage-Grouse habitat), or sensitive fish habitat, as determined by data analysis; • Public health and safety; • High intensity recreation areas/facilities; • Resource objectives for municipal watersheds; • Impacts to cultural resources; and • Conflicts with adjoining private lands (development). <p>Action (A23): Offer temporary use on a case-by-case basis in allotments where grazing preference has been relinquished, or non-use warrants to rest other allotments that include important Sage-Grouse habitat.</p> <p>Action (A24): Pursue the opportunity to establish grass banks from un-allotted grazing allotments to provide management options on other allotments (e.g., fire, drought, vegetation treatments, and allotments not meeting land health).</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Forage for livestock will not be permanently allocated on newly acquired lands. Cattle will not be permitted to use forage on these newly acquired lands. On newly acquired lands in the planning area BLM will prepare, with input from permittees, a grazing allotment and grazing strategy that will permit the lands to be used by any existing sheep grazing permittee when permittee's allotment(s) are not usable, such as if grazing is restricted on allotments because of drought/fire, a vegetation treatment (e.g., vegetation manipulation and follow-up seeding) is being conducted on an</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>allotment that requires a deferment from grazing, or if their allotment requires a deferment from grazing to allow plants to recover from previous grazing (There are concerns within the planning area regarding potential disease transfer to bighorn sheep from domestic sheep that occupy the same, or immediately adjacent, lands. Not authorizing new permanent allocations of forage for domestic sheep grazing within occupied bighorn sheep habitat or associated nine mile buffer zones, will move bighorn sheep management in the NCA slightly closer to the guidelines contained in BLM's Revised Guidelines for Management of Domestic Sheep and Goats in Native Wild Sheep Habitats ([BLM 1998f]). Suitable public lands will be available for livestock grazing use. Grazing allotments that become unallocated will be considered for: 1) using occasionally as a grazing bank to alleviate grazing pressure on other allotments in the region; or 2) adding to an existing, contiguous allotment to increase grazing flexibility.</p> <p>MCINNIS CANYONS NCA RMP 2004 Any grazing permit that is relinquished or canceled will be evaluated for future allocation and level of use.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985 Un-allotted tracts generally will remain available for future livestock grazing, as provided for in the BLM grazing regulations (43 CFR 4110 and 43 CFR 4130). However, certain tracts not currently authorized for grazing use will remain un-allotted.</p> <p>SAN LUIS RMP 1991 I-7: Consider allocating 1,500 AUMs for livestock grazing in the presently un-allotted acres (approximately 30,000 acres) that are suitable for grazing.</p> <p>TRES RIOS FO RMP 2015 If grazing privileges are relinquished or cancelled on Tres Rios FO lands where fragile soils, low forage production, low livestock water availability, and/or conflicts with other resources make livestock grazing undesirable, the privileges should not be re-allocated. Prior to allocating grazing privileges for a new grazing permittee on unallocated grazing allotments, the needs of existing rangeland management, as well as ecological diversity and species viability, should be considered. The designation of grazing allotments to be used as forage reserves should be considered when grazing privileges terminate, if such designations would improve land management as well as livestock management opportunities. The BLM should consider closing custodial allotments when term grazing permits expire where public lands cannot be properly managed due to the subdividing of surrounding base property, or due to insufficient or livestock water availability, access, management flexibility, and/or lack of capable rangeland.</p>
41	Range	CANYONS OF THE ANCIENTS NM RMP 2010

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
	Management	<p>Administer 23 allotments. Remove 5 grazing allotments from Availability: the East and West Sand Canyon, Rock Creek, Goodman Gulch, and Trail Canyon allotments. Remove the Rock Creek allotment at the time the current grazing Permittee is no longer able to run a livestock operation. Pursue establishing common reserve allotments, as allotments become available, in order to allow for periodic rest and deferment in other allotments. Make one of the following determinations in the event a grazing permit is relinquished or cancelled:</p> <ol style="list-style-type: none"> 3. Reissue a term grazing permit. 4. Close, either temporarily or permanently, the allotment to grazing where any of the following exists and is attributable to livestock grazing: <ul style="list-style-type: none"> ○ damage to cultural resources; ○ fragile soil/biological crusts essential for soil and water resource protection; ○ low forage production (less than 200 pounds/acre); inadequate facilities to manage livestock grazing (such as fencing, water, or forage availability); and/or ○ degraded riparian and/or upland conditions. 5. Create, temporarily or permanently, a reserve forage allotment. (NOTE: Permits for reserve forage allotments will not be held by specific grazing operators.) Require grazing to meet the goals described for the area in the RMP and, if applicable, in an allotment management plan. Grant temporary, nonrenewable use to Federal permit holders when there is a demonstrated need to rest a permittee's allotment. [NOTE: "Need" for rest will include, but not be limited to, the following reasons: to improve resource condition of other allotments prior to prescribed burns or necessary fence construction; and during/after rehabilitation projects (such as wildland fire, drought, flood, insect damage, and/or disease).] <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Close the following areas to livestock use (361 acres, Map 2-4p): ● Bean Allotment (361 acres, due to conflicts with adjoining private lands). Unallocated areas would be managed according to the following (Map 2-4p): Area open to livestock grazing (acreage also included in line 506 as available to grazing): 994 acres Area where active movement would be the only livestock use allowed: 572 acres Area closed to livestock use: 3,489 acres New (un-allotted) land acquisitions would be evaluated and closed or allotted to neighboring permittees on a case-by-case basis considering topography and resource objectives. Based on biological resource objectives, evaluate and allocate vacated or relinquished allotments, or un-allotted areas for: ● combining with active allotments to provide for additional management options. ● establishing grass banks ● closure to grazing.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Offer temporary use on a case-by-case basis in allotments where grazing preference has been relinquished, or non-</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>use warrants to rest other allotments that include important Sage-Grouse habitat.</p> <p>Action (A4): Make 66,600 acres unavailable for livestock grazing, which includes allotments, portions of allotments, and unallotted land. The purpose includes steep slopes, conflict with BLM recreation sites, or avoidance of sensitive resources such as those described in the Areas of Critical Environmental Concern section. Refer to Appendix J, Livestock Grazing Allotments.</p> <p>Action (A5): Close the following allotments to livestock use (see Appendix J):</p> <ul style="list-style-type: none"> • Same as Alternative A plus the following: o Baldridge Mesa; o Bevan; o Boulder Canyon; o Browns Place; o Brush Creek; o Charlesworth; o Clifton; o Clover Gulch; o Coon Creek; o Dead Horse; o Dry Kimball; o Eby Point; o Erven; o Etcheverry; o Fetters; o Heely; o Hight; o Horizon; o Hunter; o Logan Wash; o Parkes Place; o Plateau Creek; o Red Mountain; Webber; o Webb Isolated Tracts; and o Whitewater Hill. <p>Action (A6): In open allotments, close the following areas to livestock use:</p> <ul style="list-style-type: none"> • Ant Research Area; • Badger Wash ungrazed paired plots or designated no grazing areas as defined in the study objectives; • Miracle Rock picnic area; • Mud Springs picnic area; • North Fruita Desert developed campground; • Pyramid Rock ACEC; • Study area enclosures; and • West Creek picnic area. • Palisade municipal watershed. <p>Action (A8): Periodically evaluate whether to close other allotments or portions of allotments to livestock grazing, and implement with project level analysis, based on the following criteria:</p> <ul style="list-style-type: none"> • Areas identified as BLM disposal tracts; • Lack of administrative access to public land; • Small percentage of forage in allotment is contributed by BLM lands in allotment (less than 15 percent); • Areas not accessible to livestock grazing (e.g., steep slopes); • “C” category allotments that are relinquished and determined to be impractical for the administration of livestock grazing by the Authorized Officer; • Major impact to sensitive resources such as wildlife or threatened and endangered species (e.g., competition for forage, winter range, Sage-Grouse habitat), or sensitive fish habitat, as determined by data analysis; • Public health and safety; • High intensity recreation areas/facilities; • Resource objectives for municipal watersheds; • Impacts to cultural resources; and • Conflicts with adjoining private lands (development). <p>Action (A23): Offer temporary use on a case-by-case basis in allotments where grazing preference has been relinquished, or non-use warrants to rest other allotments that include important Sage-Grouse habitat.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Action (A24): Pursue the opportunity to establish grass banks from un-allotted grazing allotments to provide management options on other allotments (e.g., fire, drought, vegetation treatments, and allotments not meeting land health).</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Forage for livestock will not be permanently allocated on newly acquired lands. Cattle will not be permitted to use forage on these newly acquired lands. On newly acquired lands in the planning area BLM will prepare, with input from permittees, a grazing allotment and grazing strategy that will permit the lands to be used by any existing sheep grazing permittee when permittee's allotment(s) are not usable, such as if grazing is restricted on allotments because of drought/fire, a vegetation treatment (e.g., vegetation manipulation and follow-up seeding) is being conducted on an allotment that requires a deferment from grazing, or if their allotment requires a deferment from grazing to allow plants to recover from previous grazing (There are concerns within the planning area regarding potential disease transfer to bighorn sheep from domestic sheep that occupy the same, or immediately adjacent, lands. Not authorizing new permanent allocations of forage for domestic sheep grazing within occupied bighorn sheep habitat or associated nine mile buffer zones, will move bighorn sheep management in the NCA slightly closer to the guidelines contained in BLM's Revised Guidelines for Management of Domestic Sheep and Goats in Native Wild Sheep Habitats ([BLM 1998f]). Suitable public lands will be available for livestock grazing use. Grazing allotments that become unallocated will be considered for: 1) using occasionally as a grazing bank to alleviate grazing pressure on other allotments in the region; or 2) adding to an existing, contiguous allotment to increase grazing flexibility.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>Any grazing permit that is relinquished or canceled will be evaluated for future allocation and level of use.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>Un-allotted tracts generally will remain available for future livestock grazing, as provided for in the BLM grazing regulations (43 CFR 4110 and 43 CFR 4130). However, certain tracts not currently authorized for grazing use will remain un-allotted.</p> <p>SAN LUIS RMP 1991</p> <p>I-7: Consider allocating 1,500 AUMs for livestock grazing in the presently un-allotted acres (approximately 30,000 acres) that are suitable for grazing.</p> <p>TRES RIOS FO RMP 2015</p> <p>If grazing privileges are relinquished or cancelled on Tres Rios FO lands where fragile soils, low forage production, low livestock water availability, and/or conflicts with other resources make livestock grazing undesirable, the</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		privileges should not be re-allocated. Prior to allocating grazing privileges for a new grazing permittee on unallocated grazing allotments, the needs of existing rangeland management, as well as ecological diversity and species viability, should be considered. The designation of grazing allotments to be used as forage reserves should be considered when grazing privileges terminate, if such designations would improve land management as well as livestock management opportunities. The BLM should consider closing custodial allotments when term grazing permits expire where public lands cannot be properly managed due to the subdividing of surrounding base property, or due to insufficient or livestock water availability, access, management flexibility, and/or lack of capable rangeland.
42	Range Management	No similar action.
Range Improvements		
43	Range Management	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Implement specific projects (such as cross-fencing of riparian areas, development of water sources outside of riparian areas, and use of seedlings) in a manner that facilitates effective management and promotes recovery and maintenance of riparian/alluvial habitat. Consider allowing temporary range improvement structures, on a case-by-case basis, where risk of damage to other resource values is low.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Construct new livestock facilities (e.g., water developments, fences, corrals) as needed to achieve biological resources objectives.</p> <p>GRAND JUNCTION FO RMP 2015 Design any new structural range improvements to conserve, enhance, or restore Sage-Grouse habitat through an improved grazing management system relative to Sage-Grouse objectives. Structural range improvements, in this context, include but are not limited to: cattle guards, fences, enclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments.</p> <p>Action (VR-A4): Consider the following management actions for improvement or protection of riparian values: riparian grazing pastures, exclosures, land acquisitions, adjustments to grazing management, stream structures, and plantings.</p> <p>Action (A13): Construct range improvement projects on allotments to implement changes in grazing management to improve vegetative conditions, riparian conditions, or reduce conflicts with other resources or public land users.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Action (A20): Design any new structural range improvements to conserve, enhance, or restore Sage-Grouse habitat through an improved grazing management system relative to Sage-Grouse objectives. Structural range improvements, in this context, include but are not limited to: cattle guards, fences, enclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks structures used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments.</p> <p>Action (A22): When conducting NEPA analysis for water developments or other rangeland improvements, address the direct and indirect effects to Sage-Grouse populations and habitat.</p> <p>GUNNISON RMP 1993</p> <p>Structural and non-structural range improvements such as fences, water developments, bums, spray treatments, and others will continue to be identified and prescribed in activity plans or agreements. This will facilitate livestock management to achieve specific management and resource objectives defined in activity plans or agreements. However, any range improvements identified in the Management Framework Plan ROD that were not implemented, and will enhance or facilitate resource management objectives will be considered for development. Existing range improvements will continue to be maintained as assigned in cooperative agreements and range improvement permits. Cooperative agreements will be the preferred method to authorize range improvements. These agreements will be used to authorize all structural and nonstructural, multiple-use range improvements (removable and non-removable). Range improvement permits will be used to authorize single use, removable range improvements required for livestock operations. These range improvements will be paid for and constructed by the permittee, or other non-federal entities. Maintenance will be assigned and contributions defined in both cooperative agreements and range improvement permits. All range improvement permits and cooperative agreements will comply with 43 CFR 4120.3-2.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>Additional range improvements will be utilized to improve grazing management in accordance with grazing management plans.</p> <p>SAN LUIS RMP 1991</p> <p>New range improvements will be constructed if needed to achieve allotment management plan objectives and/or implement the grazing management programs prescribed in the allotment management plans. Manipulation of vegetation can be used if needed to meet management objectives.</p> <p>San Luis I-7: Construct new range improvements, if needed, to achieve allotment management plan objectives and/or implement the grazing programs prescribed in the allotment management plans. Manipulation of vegetation will be used, if needed, to meet management objectives.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		TRES RIOS FO RMP 2015 Wildlife needs should be considered in the design of structural and non-structural range improvements.
44	Range Management	No similar action.
45	Range Management	No similar action.
46	Range Management	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Encourage range, fuels and fire, and vegetation management activities that will protect and/or enhance riparian/aquatic resource conditions. Manage riparian areas in a manner that moves them toward achieving Proper Functioning Condition. (NOTE: Projects designed for enhancement or improvement of riparian and alluvial sites will not be allowed within 100 feet of active channel edges without appropriate mitigation.) Design spring developments that maintain water flow in riparian channels and that, at the same time, provide livestock water outside of the channel and spring source area. Fence springs (and associated cultural resource sites) in livestock use areas. Fence streams and riparian areas where reduced livestock numbers, or season of use adjustments, do not result in achieving PFC and/or in meeting Public Land Health Standards and Guidelines.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Apply SSR (see Appendix B, Map 2-2e) within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone of naturally occurring seeps and springs (lentic riparian areas). Also apply SSR to the spring/seep recharge zone where it is determined to extend more than 100 meters from the riparian zone. For all new water developments, inspect and characterize all springs and seeps located inside the affected watershed, down gradient and within one mile of proposed development. Allow for new water developments when: a. Surface disturbing actions would not directly impact the source area, and; b. characterization of the spring/seep, indicates recharge potential would not be significantly altered, and; c. Development would be limited to instances where needed to achieve biological resources objectives. Apply SSR within a minimum distance of 30 meters (98 feet) from the edge of the ordinary high-water mark (bank-full stage) of ephemeral streams (see Appendix B, Maps 2-2d and 2-2e).</p> <p>GRAND JUNCTION FO RMP 2015 Allowable Use (VR-AU3): STIPULATION NSO-4: Lentic Riparian Areas (including springs, seeps, and fens). (Alternative B: All Programs Except Fluid Minerals. Alternative C: All Surface-disturbing Activities) Prohibit surface</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone. (Refer to Appendix B.) See Figures 2-43 (Alternative B) and 2-44 (Alternative C) in Appendix A. Standard exceptions apply; see Appendix B.</p> <p>NSO-2 (ROWA) Streams/Springs Possessing Lotic Riparian Characteristics (except oil and gas).</p> <p>NSO-4 (ROWA) Lentic Riparian Areas (including springs, seeps, and fens) (except oil and gas).</p> <p>ACTION (A13): Construct range improvement projects on allotments to implement changes in grazing management to improve vegetative conditions, riparian conditions, or reduce conflicts with other resources or public land users.</p> <p>ACTION (A19): Authorize new water developments for diversions from spring or seep source only when priority Sage-Grouse habitat would benefit on both upland and riparian habitat from the development or there are no negative impacts to sage grouse. This includes developing new water sources for livestock as part of an allotment management plan/ conservation plan to improve sage-grouse habitat.</p> <p>ACTION (A22): When conducting NEPA analysis for water developments or other rangeland improvements, address the direct and indirect effects to Sage-Grouse populations and habitat.</p> <p>GUNNISON RMP 1993</p> <p>New water sources will be developed with concern for the protection of riparian areas. Structural and non-structural range improvements such as fences, water developments, bums, spray treatments, and others will continue to be identified and prescribed in activity plans or agreements. This will facilitate livestock management to achieve specific management and resource objectives defined in activity plans or agreements. However, any range improvements identified in the Management Framework Plan ROD that were not implemented, and will enhance or facilitate resource management objectives will be considered for development. Existing range improvements will continue to be maintained as assigned in cooperative agreements and range improvement permits. Federally funded livestock watering developments such as reservoirs (ponds), spring developments, wells, water pipelines etc. will be developed and be safe for livestock and wildlife needs. Federally funded livestock watering developments such as reservoirs (ponds), spring developments, wells, water pipelines etc. will be developed and be safe for livestock and wildlife needs.</p> <p>Existing water source developments within riparian areas will be modified, or relocated, if inventories and studies indicate the hydrologic condition is being negatively impacted from use of the development. Water developments that are range improvements will be modified or relocated in accordance with 43 CFR 4120.</p> <p>MOAB FO RMP 2008</p> <p>GRA-20 Grazing in Riparian Areas: Evaluate non-functioning and functioning-at-risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if restriction from grazing will</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		improve riparian functioning condition.
47	Range Management	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Encourage range, fuels and fire, and vegetation management activities that will protect and/or enhance riparian/aquatic resource conditions. Manage riparian areas in a manner that moves them toward achieving Proper Functioning Condition. (NOTE: Projects designed for enhancement or improvement of riparian and alluvial sites will not be allowed within 100 feet of active channel edges without appropriate mitigation.) Design spring developments that maintain water flow in riparian channels and that, at the same time, provide livestock water outside of the channel and spring source area. Fence springs (and associated cultural resource sites) in livestock use areas. Fence streams and riparian areas where reduced livestock numbers, or season of use adjustments, do not result in achieving PFC and/or in meeting Public Land Health Standards and Guidelines.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Apply SSR (see Appendix B, Map 2-2e) within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone of naturally occurring seeps and springs (lentic riparian areas). Also apply SSR to the spring/seep recharge zone where it is determined to extend more than 100 meters from the riparian zone. For all new water developments, inspect and characterize all springs and seeps located inside the affected watershed, down gradient and within one mile of proposed development. Allow for new water developments when: a. Surface disturbing actions would not directly impact the source area, and; b. characterization of the spring/seep, indicates recharge potential would not be significantly altered, and; c. Development would be limited to instances where needed to achieve biological resources objectives. Apply SSR within a minimum distance of 30 meters (98 feet) from the edge of the ordinary high-water mark (bank-full stage) of ephemeral streams (see Appendix B, Maps 2-2d and 2-2e).</p> <p>GRAND JUNCTION FO RMP 2015 Allowable Use (VR-AU3): STIPULATION NSO-4: Lentic Riparian Areas (including springs, seeps, and fens). (Alternative B: All Programs Except Fluid Minerals. Alternative C: All Surface-disturbing Activities) Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone. (Refer to Appendix B.) See Figures 2-43 (Alternative B) and 2-44 (Alternative C) in Appendix A. Standard exceptions apply; see Appendix B. NSO-2 (ROWA) Streams/Springs Possessing Lotic Riparian Characteristics (except oil and gas). NSO-4 (ROWA) Lentic Riparian Areas (including springs, seeps, and fens) (except oil and gas). ACTION (A13): Construct range improvement projects on allotments to implement changes in grazing management</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>to improve vegetative conditions, riparian conditions, or reduce conflicts with other resources or public land users.</p> <p>ACTION (A19): Authorize new water developments for diversions from spring or seep source only when priority Sage-Grouse habitat would benefit on both upland and riparian habitat from the development or there are no negative impacts to sage grouse. This includes developing new water sources for livestock as part of an allotment management plan/ conservation plan to improve sage-grouse habitat.</p> <p>ACTION (A22): When conducting NEPA analysis for water developments or other rangeland improvements, address the direct and indirect effects to Sage-Grouse populations and habitat.</p> <p>GUNNISON RMP 1993</p> <p>New water sources will be developed with concern for the protection of riparian areas. Structural and non-structural range improvements such as fences, water developments, burns, spray treatments, and others will continue to be identified and prescribed in activity plans or agreements. This will facilitate livestock management to achieve specific management and resource objectives defined in activity plans or agreements. However, any range improvements identified in the Management Framework Plan ROD that were not implemented, and will enhance or facilitate resource management objectives will be considered for development. Existing range improvements will continue to be maintained as assigned in cooperative agreements and range improvement permits. Federally funded livestock watering developments such as reservoirs (ponds), spring developments, wells, water pipelines etc. will be developed and be safe for livestock and wildlife needs. Federally funded livestock watering developments such as reservoirs (ponds), spring developments, wells, water pipelines etc. will be developed and be safe for livestock and wildlife needs.</p> <p>Existing water source developments within riparian areas will be modified, or relocated, if inventories and studies indicate the hydrologic condition is being negatively impacted from use of the development. Water developments that are range improvements will be modified or relocated in accordance with 43 CFR 4120.</p> <p>MOAB FO RMP 2008</p> <p>GRA-20 Grazing in Riparian Areas: Evaluate non-functioning and functioning-at-risk riparian areas using Standards for Rangeland Health and Guidelines for Livestock Grazing Management to determine if restriction from grazing will improve riparian functioning condition.</p>
48	Range Management	No similar action.
49	Range Management	<p>GRAND JUNCTION FO RMP 2015</p> <p>SSS-SGR-MA-10: To reduce Sage-Grouse strikes and mortality, remove, modify, or mark fences in high risk areas.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>When fences are necessary, require a Sage-Grouse-safe design.</p> <p>SSS-SGR-MA-04: Improve brood-rearing habitat by implementing the following action: restore old ponds or construct new ponds in areas lacking water, while minimizing potential for promoting mosquito breeding habitat at elevations below 8,000 feet.</p> <p>SSS-SGR-MA-09: Design any new structural range improvements to conserve, enhance, or restore Sage-Grouse habitat through an improved grazing management system relative to sage-grouse objectives. Structural range improvements , in this context, include but are not limited to: cattleguards, fences, enclosures, corrals, or other livestock handling structures; pipelines troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments.</p> <p>GUNNISON RMP 1993</p> <p>Fences will be installed according to spacing, height, and other specifications described in the BLM Manual, Section 1740 and Handbook H-1741-1, for the control of livestock as well as the protection of wildlife. An example will be spacing the bottom wire of a 3-wire fence at 16 inches above the ground in pronghorn antelope ranges. Variances from these standards require approval of the authorized officer after consultation with affected parties.</p> <p>MOAB FO RMP 2008</p> <p>SSS-24: Implement the most current UDWR Strategic Management Plan for Sage-Grouse (UDWR, 2002 and its future revisions), the GUSG RCP (2005 as amended) and recommendations from local sage-grouse working groups to protect, maintain, enhance, and restore GUSG populations and habitat. About 175,727 acres of potential habitat has been identified within the Moab planning area. There is no GUSG occupation at this time. However, if occupation is identified, through cooperation with UDWR, the following decisions will apply:</p> <ul style="list-style-type: none"> • All surface-disturbing activities will be prohibited within 0.6 miles of GUSG leks on a year-round basis. Within the 0.6 mile buffer, allow no permanent aboveground facilities or power-lines; prohibit or limit year-round construction of fences and where opportunity exists, remove existing fences. • Within 4.0 miles of a lek, avoid fence construction, overhead power-line construction, and aboveground structures that provide raptor hunting perches. Where fences are necessary, increase their visibility. Modify or remove fences to minimize sage-grouse mortality. <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E.</p> <p>MONTICELLO FO RMP 2008</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act.</p> <p>SSP-23: Lek habitat (within 0.6 miles of active strutting ground): Prohibit year-round construction of fences. Retrofit visual devices on existing fences to prevent collisions. Where opportunity exists, remove existing fences and Avoid all permitted activities from March 20 to May 15. If impractical to avoid all permitted activities, then no activity from sunset the evening before to 2 hours after sunrise the next morning.</p> <p>SSP-24 Year-round habitat (within 4 miles of active strutting ground): Avoid construction of new fences. If impracticable, increase the visibility of the fences (flagging, white-tipped T-posts, etc.) and monitor effectiveness of visual devices and modify or remove fences if necessary to minimize sage-grouse mortality.</p> <p>RIP-4: The BLM will follow Utah's Standards for Rangeland Health and Guidelines for Grazing and Recreation Management (BLM 1997) to achieve riparian PFC.</p> <p>RIP-16 Develop seasonal restrictions, closures, and/or forage utilization limits on grazing in riparian areas considered Functioning at Risk.</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act.</p> <p>Within 4.0 miles of a lek, avoid fence construction, overhead power-line construction and aboveground structures that provide raptor hunting perches. Where fences are necessary, increase their visibility. Modify or remove fences to minimize sage-grouse mortality. All surface-disturbing activities will be prohibited within 0.6 miles of GUSG leks on a year-round basis. Within the 0.6 mile buffer, allow not permanent aboveground facilities; prohibit or limit year-round construction of fences and where there is opportunity to remove them.</p> <p>TRES RIOS FO RMP 2015</p> <p>Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat.</p> <p>Guideline 2.4.59: Structures in sage-grouse habitat should be constructed to limit risk of collision and predation.</p> <p>2.3.70 Structures in sage-grouse habitat should be constructed to limit risk of collision and predation.</p>
50	Range Management	<p>GRAND JUNCTION FO RMP 2015</p> <p>SSS-SGR-MA-04: Improve brood-rearing habitats by implementing the following action:</p> <ul style="list-style-type: none"> • Restore old ponds or construct new ponds in areas lacking water, while minimizing potential for promoting mosquito breeding habitat at elevations below 8,000 feet. <p>MONTICELLO FO RMP 2008</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCA-4: The BLM will coordinate actions with affected parties where natural resources may be impacted by fire, drought, insects and diseases, or natural disasters.</p> <p>TRES RIOS FO RMP 2015 Guideline 2.4.67: When developing or modifying water developments, BMPs (Appendix N) should be used to mitigate potential impacts from West Nile virus on sage-grouse within Occupied Habitat.</p>
51	Range Management	<p>GRAND JUNCTION FO RMP 2015 SSS-SGR-MA-04: Improve brood-rearing habitats by implementing the following action:</p> <ul style="list-style-type: none"> • Restore old ponds or construct new ponds in areas lacking water, while minimizing potential for promoting mosquito breeding habitat at elevations below 8,000 feet. <p>MONTICELLO FO RMP 2008 MCA-4: The BLM will coordinate actions with affected parties where natural resources may be impacted by fire, drought, insects and diseases, or natural disasters.</p> <p>TRES RIOS FO RMP 2015 Guideline 2.4.67: When developing or modifying water developments, BMPs (Appendix N) should be used to mitigate potential impacts from West Nile virus on sage-grouse within Occupied Habitat.</p>

FLUID MINERALS

Unleased Fluid Minerals

52	Fluid Minerals	No similar action.
53	Fluid Minerals	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 As specified in the enabling legislation (P.L. 111-11), subject to valid existing rights, all Federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <ol style="list-style-type: none"> 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws. <p>GUNNISON GORGE NCA RMP 2004</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Oil and gas stipulation: Gunnison Gorge NCA-I (Colorado BLM Exhibit CO-02) NSO stipulation. To protect grouse strutting/dancing grounds (including sage and mountain sharp-tailed grouse and lesser and greater prairie chickens) within a two-mile (three-kilometer) radius from the site (potentially affects MU 4).</p> <p>Oil and gas stipulation: Gunnison Gorge NCA-12 NSO stipulation. To protect GUSG brood rearing habitat in certain riparian areas (potentially affects MU 3, 4, 6).</p> <p>Oil and gas stipulation: Gunnison Gorge NCA-14 CSUS: Activities associated with oil and gas exploration and development including roads, transmission lines, storage facilities, are restricted to an area beyond 500 feet of the riparian vegetation zone on the lands described below (for clarification, the 500-foot restriction starts at the point between riparian vegetation and upland vegetation). To protect perennial water impoundments and streams, and/or riparian/wetland vegetation zone, important GUSG brood-rearing habitat, and fish use, water quality, and other related resource values.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 295,600 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>GUSG Critical Habitat;</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>GUSG Critical Habitat (16,500 acres)</p> <p>GUNNISON RMP 1993</p> <p>CO-2, Sage Grouse Lek/Courtship sites; CO-2: No surface occupancy or use is allowed within a one-quarter mile radius of sage grouse lek sites/courtship sites.</p> <p>NOTE: The 1993 Gunnison RMP specifies a NSO buffer for sage-grouse leks within a 0.25-mile radius of leks. The 2005 Gunnison Sage Grouse RCP specifies a NSO buffer within a 0.6-mile radius of active leks. Per BLM policy to implement the RCP, the 1997 Public Land Health Standards Amendment to the RMP, and BLM policy regarding sage-grouse management, the 0.6-mile sage-grouse active lek buffer would be implemented.</p> <p>GUSG lek sites NSO stipulation (G-10) (within a 0.6 mile radius of GUSG leks of inactive, historic, and unknown status). (Geothermal Amendment)</p> <p>CSU, CO-28, Riparian/Wetland vegetation in Sage Grouse Brood Rearing Habitat -- Lease STIPULATION CSU GUSG mapped summer-fall habitat CSU stipulation (G-25)</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCINNIS CANYONS NCA PROCLAMATION 2000 As specified in the enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the McInnis Canyons NCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <ol style="list-style-type: none"> 1. all forms of entry, appropriation, or disposal under the public land laws; 2. location, entry, and patent under the mining laws; and 3. the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto. <p>MOAB FO RMP 2008 If GUSG leks are discovered within sage-grouse habitat, no surface-disturbing activities will be allowed within 0.6 mile of a lek. Purpose: To protect occupied lek sites within GUSG Habitat. Exception: An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated. Modification: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM. Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p> <p>MONTICELLO FO RMP 2008 CSU STIPULATION: Avoid surface-disturbing activities within year round habitat (between 0.6 and 4.0 miles of active [GUSG lek]. If activities cannot be avoided, then an operating plan which incorporates the applicable conservation measures outlined in the GUSG RCP (2005 as amended) must be approved by the BLM prior to surface-disturbing activities. Conservation measures from this plan include, but are not limited to: Fences would be fitted with visual devices to minimize grouse collisions; Road length and width would be minimized and vehicles not exceed 35 mph; Bury power lines or place raptor perching deterrents on power poles; Any necessary equipment would produce minimal noise, including compressors, vehicles, and other sources of noise by using mufflers or noise suppression devices. Exception: The Field Manager may grant an exception after an analysis the authorized officer determines that the animals are not present in the project area. Modification: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as sage-grouse habitat.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Waiver: A waiver may be granted if the habitat is determined as unsuitable for sage-grouse.</p> <p>CSU STIPULATION: No surface-disturbing activities are allowed within 0.6 miles of an active GUSG strutting ground [lek].</p> <p>No surface-disturbing activities are allowed within 0.6 mile of an active strutting ground.</p> <p>Exception: The Field Manager may grant an exception if, after an analysis, the authorized officer determines that the animals are not present in the project area or the activity can be completed so as to not adversely affect the animals.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as sage-grouse habitat.</p> <p>Waiver: A waiver may be granted if the habitat is determined as unsuitable for sage-grouse.</p> <p>Purpose: To protect and conserve GUSG and their habitat.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>NSO: [Stip. Code: CO-2] Grouse (includes sage grouse, mountain sharp-tailed, lesser and greater prairie chickens). NSO within one-quarter mile radius of a lek site (courtship area). (p. 17)</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>NSO on all Occupied Habitat within 4.0 miles of lek sites and extending to include the top of Poncha Pass on all BLM-managed mineral estate north of the 4.0-mile buffer on both sides of Highway 285.</p> <p>TRES RIOS FO RMP 2015</p> <p>NSO: No surface occupancy is allowed on the lands described below: as mapped for occupied Gunnison sage-grouse habitat. For the purpose of: Protecting priority habitat such as lek sites and nesting habitat for Gunnison sage-grouse. (3.4.2)</p> <p>Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat. (2.4.61)</p>
54	Fluid Minerals	<p>GUNNISON GEOTHERMAL LEASING RMP AMENDMENT 2011</p> <p>GUSG mapped summer-fall habitat CSU stipulation (G-25).</p> <p>MONTICELLO FO RMP 2008</p> <p>Leasing will be available with CSU stipulations for oil and gas development. Follow Suggested Management Practices, where applicable, for oil and gas development listed in the GUSG RCP (2005 as amended).</p> <p>CSU Stipulation: No surface-disturbing activities allowed within 0.6 miles of an active Gunnison Sage-grouse strutting ground [lek].</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>CSU Stipulation: Avoid surface-disturbing activities within year round habitat (between 0.6 and 4.0 miles of active [GUSG lek]. If activities cannot be avoided, then an operating plan that incorporates the applicable conservation measures outlined in the RCP must be approved by the BLM prior to surface-disturbing activities.</p> <p>TRES RIOS FO RMP 2015</p> <p>CSU - Unoccupied Habitat: In unoccupied Gunnison sage-grouse habitat, NSO would be allowed within a 0.6-mile radius of a newly identified lek site. A TL may be applied to lease activities if surface occupancy is allowed. A TL may apply to construction, drilling, and workovers within 4.0 miles of an identified lek site from March 1 through June 30, dependent on the distribution of suitable nesting habitat and line of sight from the activity to the lek (potential habitat as identified in the Gunnison Sage Grouse Rangewide Plan, 2005). (3.4.3)</p>
55	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>No WEMs.</p>
56	Fluid Minerals	No similar action.
57	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit off-lease seismic activities only for the purpose of defining the limits of common reservoirs now being produced.</p> <p>Limit geophysical operations to BLM-authorized routes. Prohibit vehicle traffic along receiver lines. Require that all vehicles associated with geophysical operations travel only on BLM-authorized routes if water is visible in the channel at washes, alluvial valleys, or perennial water features, and/or where riparian vegetation is present.</p> <p>Prohibit seismic operation-related work by bulldozers and/or by other earthmoving equipment.</p> <p>Require that any ground disturbance along source or receiver lines be reclaimed in a manner that protects cultural and natural resources. Conduct reclamation of these routes using methods appropriate to the area (including, but not limited to, the use of natural barriers, such as boulders or dead-and-down wood, and/or ripping, reseeding, and signing).</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres).</p>
58	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit off-lease seismic activities only for the purpose of defining the limits of common reservoirs now being produced.</p> <p>Limit geophysical operations to BLM-authorized routes. Prohibit vehicle traffic along receiver lines. Require that all vehicles associated with geophysical operations travel only on BLM-authorized routes if water is visible in the channel at washes, alluvial valleys, or perennial water features, and/or where riparian vegetation is present.</p> <p>Prohibit seismic operation-related work by bulldozers and/or by other earthmoving equipment.</p> <p>Require that any ground disturbance along source or receiver lines be reclaimed in a manner that protects cultural and natural resources. Conduct reclamation of these routes using methods appropriate to the area (including, but not limited to, the use of natural barriers, such as boulders or dead-and-down wood, and/or ripping, reseeding, and signing).</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres).</p>
59	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit off-lease seismic activities only for the purpose of defining the limits of common reservoirs now being produced.</p> <p>Limit geophysical operations to BLM-authorized routes. Prohibit vehicle traffic along receiver lines. Require that all vehicles associated with geophysical operations travel only on BLM-authorized routes if water is visible in the channel at washes, alluvial valleys, or perennial water features, and/or where riparian vegetation is present.</p> <p>Prohibit seismic operation-related work by bulldozers and/or by other earthmoving equipment.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Require that any ground disturbance along source or receiver lines be reclaimed in a manner that protects cultural and natural resources. Conduct reclamation of these routes using methods appropriate to the area (including, but not limited to, the use of natural barriers, such as boulders or dead-and-down wood, and/or ripping, reseeding, and signing).</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres).</p>
60	Fluid Minerals	<p>GRAND JUNCTION FO RMP 2015</p> <p>Action (FM-A5): In areas being actively developed, the operator would be encouraged to submit a Master Development Plan (formerly known as Geographic Area Proposal) that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns.</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>In areas being actively developed, the operator must submit a Master Development Plan that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns. This requirement for a Master Development Plan may be waived for individual or small groups of exploratory wells, for directional wells drilled on previously developed well pads.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
61	Fluid Minerals	<p>GRAND JUNCTION FO RMP 2015</p> <p>Action (FM-A5): In areas being actively developed, the operator would be encouraged to submit a Master Development Plan (formerly known as Geographic Area Proposal) that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns.</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>In areas being actively developed, the operator must submit a Master Development Plan that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns. This requirement for a Master Development Plan may be waived for individual or small groups of exploratory wells, for directional wells drilled on previously developed well pads.</p>
62	Fluid Minerals	<p>GUNNISON GORGE NCA RMP 2004</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands outside the NCA and Wilderness boundaries will be open to leasing with standard lease terms, except as noted in management unit prescriptions... Other special stipulations and conditions for leasing of federal mineral estate, such as NSO stipulation and timing limitation stipulation (TLS), will be recommended in some management unit prescriptions; these special stipulations and conditions will also apply to federal surface and split-estate lands adjacent to the management unit in which the stipulations in Appendix E will apply.</p> <p>GUNNISON RMP 1993</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands, that is, private or other non-federal surface estate overlying federal mineral estate, will be open to leasing with standard lease terms. Other special stipulations and conditions for leasing such as no surface occupancy and seasonal restrictions are assigned or specified in each management unit prescription and as deemed necessary; these special stipulations and conditions will also apply to federal surface and split-estate lands.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MOAB FO RMP 2008 On 20,061 acres of split-estate lands, the BLM will apply the same lease stipulations as those applied to surrounding lands with Federal surface. BLM will close or impose a no surface occupancy stipulation on 9,617 acres of split-estate lands (see Appendix A). Mitigation measures to protect other resource values will be developed during the appropriate site-specific environmental analysis and will be attached as conditions of approval to permits in consultation with the surface owner or SMA.</p> <p>MONTICELLO FO RMP 2008 On split-estate lands, lease stipulations will consist of those necessary to comply with non-discretionary federal laws, such as the Endangered Species Act. The one exception to this will be the stipulations developed for GUSG as identified in Appendix B. Mitigation measures will also be applied to protect other resource values such as VRM class, recreation, and non-federally protected fish and wildlife species consistent with Section 6 of the standard lease terms. These mitigation measures will be developed during site-specific environmental analysis and will be attached as COAs in consultation with the surface owner or surface management agency.</p> <p>UNCOMPAHGRE BASIN Federal oil, gas, and geothermal estate on both federal surface and split-estate lands will be open to leasing with standard lease terms: Other conditions for leasing such as no surface occupancy and seasonal stipulations (see Appendix A) are assigned in each management unit prescription; special stipulations and conditions also apply to federal surface and split-estate lands. Any special stipulations (i.e., seasonal closures) prescribed for a management unit will also apply to seismic and drilling activities.</p>
63	Fluid Minerals	<p>TRES RIOS FO RMP 2015 Guideline 2.4.61: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
64	Fluid Minerals	No similar action.
Leased Fluid Minerals		
65	Fluid Minerals	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 As specified in the enabling legislation (P.L. 111-11), subject to valid existing rights, all Federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Oil and gas stipulation: Gunnison Gorge NCA-I (Colorado BLM Exhibit CO-02) NSO stipulation. To protect grouse strutting/dancing grounds (including sage and mountain sharp-tailed grouse and lesser and greater prairie chickens) within a two-mile (three-kilometer) radius from the site (potentially affects MU 4).</p> <p>Oil and gas stipulation: Gunnison Gorge NCA-12 NSO stipulation. To protect GUSG brood rearing habitat in certain riparian areas (potentially affects MU 3, 4, 6).</p> <p>Oil and gas stipulation: Gunnison Gorge NCA-14 CSUS: Activities associated with oil and gas exploration and development including roads, transmission lines, storage facilities, are restricted to an area beyond 500 feet of the riparian vegetation zone on the lands described below (for clarification, the 500-foot restriction starts at the point between riparian vegetation and upland vegetation). To protect perennial water impoundments and streams, and/or riparian/wetland vegetation zone, important GUSG brood-rearing habitat, and fish use, water quality, and other related resource values.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat;</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres)</p> <p>GUNNISON RMP 1993</p> <p>CO-2, Sage Grouse Lek/Courtship sites; CO-2: No surface occupancy or use is allowed within a one-quarter mile radius of sage grouse lek sites/courtship sites.</p> <p>NOTE: The 1993 Gunnison RMP specifies a NSO buffer for sage-grouse leks within a 0.25-mile radius of leks. The 2005 Gunnison Sage Grouse RCP specifies a NSO buffer within a 0.6-mile radius of active leks. Per BLM policy to implement the RCP, the 1997 Public Land Health Standards Amendment to the RMP, and BLM policy regarding sage-grouse management, the 0.6-mile sage-grouse active lek buffer would be implemented.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUSG lek sites NSO stipulation (G-10) (within a 0.6 mile radius of GUSG leks of inactive, historic, and unknown status). (Geothermal Amendment)</p> <p>CSU, CO-28, Riparian/Wetland vegetation in Sage Grouse Brood Rearing Habitat -- Lease STIPULATION CSU GUSG mapped summer-fall habitat CSU stipulation (G-25)</p> <p>MCINNIS CANYONS NCA PROCLAMATION 2000</p> <p>As specified in the enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the McInnis Canyons NCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <ol style="list-style-type: none"> 1. all forms of entry, appropriation, or disposal under the public land laws; 2. location, entry, and patent under the mining laws; and 3. the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto. <p>MOAB FO RMP 2008</p> <p>If GUSG leks are discovered within sage-grouse habitat, no surface-disturbing activities will be allowed within 0.6 mile of a lek.</p> <p>Purpose: To protect occupied lek sites within GUSG Habitat.</p> <p>Exception: An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p> <p>MONTICELLO FO RMP 2008</p> <p>CSU STIPULATION: Avoid surface-disturbing activities within year round habitat (between 0.6 and 4.0 miles of active [GUSG lek]. If activities cannot be avoided, then an operating plan which incorporates the applicable conservation measures outlined in the GUSG RCP (2005 as amended) must be approved by the BLM prior to surface-disturbing activities.</p> <p>Conservation measures from this plan include, but are not limited to: Fences would be fitted with visual devices to minimize grouse collisions; Road length and width would be minimized and vehicles not exceed 35 mph; Bury power lines or place raptor perching deterrents on power poles; Any necessary equipment would produce minimal noise, including compressors, vehicles, and other sources of noise by using mufflers or noise suppression devices.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Exception: The Field Manager may grant an exception after an analysis the authorized officer determines that the animals are not present in the project area.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as sage-grouse habitat.</p> <p>Waiver: A waiver may be granted if the habitat is determined as unsuitable for sage-grouse.</p> <p>CSU STIPULATION: No surface-disturbing activities are allowed within 0.6 miles of an active GUSG strutting ground [lek].</p> <p>No surface-disturbing activities are allowed within 0.6 mile of an active strutting ground.</p> <p>Exception: The Field Manager may grant an exception if, after an analysis, the authorized officer determines that the animals are not present in the project area or the activity can be completed so as to not adversely affect the animals.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as sage-grouse habitat.</p> <p>Waiver: A waiver may be granted if the habitat is determined as unsuitable for sage-grouse.</p> <p>Purpose: To protect and conserve GUSG and their habitat.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>NSO: [Stip. Code: CO-2] Grouse (includes sage grouse, mountain sharp-tailed, lesser and greater prairie chickens). NSO within one-quarter mile radius of a lek site (courtship area). (p. 17)</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>NSO on all Occupied Habitat within 4.0 miles of lek sites and extending to include the top of Poncha Pass on all BLM-managed mineral estate north of the 4.0-mile buffer on both sides of Highway 285.</p> <p>TRES RIOS FO RMP 2015</p> <p>NSO: No surface occupancy is allowed on the lands described below: as mapped for occupied Gunnison sage-grouse habitat. For the purpose of: Protecting priority habitat such as lek sites and nesting habitat for Gunnison sage-grouse. (3.4.2)</p> <p>Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat. (2.4.61)</p>
66	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit off-lease seismic activities only for the purpose of defining the limits of common reservoirs now being produced.</p> <p>Limit geophysical operations to BLM-authorized routes. Prohibit vehicle traffic along receiver lines. Require that all</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>vehicles associated with geophysical operations travel only on BLM-authorized routes if water is visible in the channel at washes, alluvial valleys, or perennial water features, and/or where riparian vegetation is present. Prohibit seismic operation-related work by bulldozers and/or by other earthmoving equipment. Require that any ground disturbance along source or receiver lines be reclaimed in a manner that protects cultural and natural resources. Conduct reclamation of these routes using methods appropriate to the area (including, but not limited to, the use of natural barriers, such as boulders or dead-and-down wood, and/or ripping, reseeding, and signing).</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-38 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres).</p>
67	Fluid Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit off-lease seismic activities only for the purpose of defining the limits of common reservoirs now being produced.</p> <p>Limit geophysical operations to BLM-authorized routes. Prohibit vehicle traffic along receiver lines. Require that all vehicles associated with geophysical operations travel only on BLM-authorized routes if water is visible in the channel at washes, alluvial valleys, or perennial water features, and/or where riparian vegetation is present. Prohibit seismic operation-related work by bulldozers and/or by other earthmoving equipment. Require that any ground disturbance along source or receiver lines be reclaimed in a manner that protects cultural and natural resources. Conduct reclamation of these routes using methods appropriate to the area (including, but not limited to, the use of natural barriers, such as boulders or dead-and-down wood, and/or ripping, reseeding, and signing).</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Allowable Use (FM-AU2): No Leasing: BLM surface/federal minerals. Manage 239,400 acres of the federal mineral estate underlying BLM surface as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.)</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>See Figure 2-38 in Appendix A: [includes] Occupied GUSG Habitat</p> <p>Allowable Use (FM-AU3): No Leasing: Split-estate. Manage 25,400 acres of Private and State surface/federal fluid mineral estate as closed to fluid mineral leasing and geophysical exploration. (Refer to Appendix B.) See Figure 2-39 in Appendix A: [includes]</p> <p>Occupied GUSG Habitat (12,700 acres).</p>
68	Fluid Minerals	No similar action.
69	Fluid Minerals	<p>GRAND JUNCTION FO RMP 2015</p> <p>Action (FM-A5): In areas being actively developed, the operator would be encouraged to submit a Master Development Plan (formerly known as Geographic Area Proposal) that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns.</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>In areas being actively developed, the operator must submit a Master Development Plan that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns. This requirement for a Master Development Plan may be waived for individual or small groups of exploratory wells, for directional wells drilled on previously developed well pads.</p>
70	Fluid Minerals	<p>GRAND JUNCTION FO RMP 2015</p> <p>Action (FM-A5): In areas being actively developed, the operator would be encouraged to submit a Master Development Plan (formerly known as Geographic Area Proposal) that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns.</p> <p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013</p> <p>In areas being actively developed, the operator must submit a Master Development Plan that describes a minimum of two to three years activity for operator-controlled federal leases within a reasonable geographic area (to be determined jointly with BLM). Use the Master Development Plan to plan development of federal leases within the area to account for well locations, roads, and pipelines, and to identify cumulative environmental effects and appropriate mitigation. The extent of the analysis would be dependent on the extent of surface ownership, extent of lease holdings, topography, access, and resource concerns. This requirement for a Master Development Plan may be waived for individual or small groups of exploratory wells, for directional wells drilled on previously developed well pads.</p>
71	Fluid Minerals	<p>GUNNISON GORGE NCA RMP 2004</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands outside the NCA and Wilderness boundaries will be open to leasing with standard lease terms, except as noted in management unit prescriptions... Other special stipulations and conditions for leasing of federal mineral estate, such as NSO stipulation and timing limitation stipulation (TLS), will be recommended in some management unit prescriptions; these special stipulations and conditions will also apply to federal surface and split-estate lands adjacent to the management unit in which the stipulations in Appendix E will apply.</p> <p>GUNNISON RMP 1993</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands, that is, private or other non-federal surface estate overlying federal mineral estate, will be open to leasing with standard lease terms. Other special stipulations and conditions for leasing such as no surface occupancy and seasonal restrictions are assigned or specified in each management unit prescription and as deemed necessary; these special stipulations and conditions will also apply to federal surface and split-estate lands.</p> <p>MOAB FO RMP 2008</p> <p>On 20,061 acres of split-estate lands, the BLM will apply the same lease stipulations as those applied to surrounding lands with Federal surface. BLM will close or impose a no surface occupancy stipulation on 9,617 acres of split-estate lands (see Appendix A). Mitigation measures to protect other resource values will be developed during the appropriate site-specific environmental analysis and will be attached as conditions of approval to permits in consultation with the surface owner or SMA.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MONTICELLO FO RMP 2008 On split-estate lands, lease stipulations will consist of those necessary to comply with non-discretionary federal laws, such as the Endangered Species Act. The one exception to this will be the stipulations developed for GUSG as identified in Appendix B. Mitigation measures will also be applied to protect other resource values such as VRM class, recreation, and non-federally protected fish and wildlife species consistent with Section 6 of the standard lease terms. These mitigation measures will be developed during site-specific environmental analysis and will be attached as COAs in consultation with the surface owner or surface management agency.</p> <p>UNCOMPAHGRE BASIN Federal oil, gas, and geothermal estate on both federal surface and split-estate lands will be open to leasing with standard lease terms: Other conditions for leasing such as no surface occupancy and seasonal stipulations (see Appendix A) are assigned in each management unit prescription; special stipulations and conditions also apply to federal surface and split-estate lands. Any special stipulations (i.e., seasonal closures) prescribed for a management unit will also apply to seismic and drilling activities.</p>
72	Fluid Minerals	No similar action.
73	Fluid Minerals	<p>GUNNISON GORGE NCA RMP 2004 Oil and gas stipulation: Gunnison Gorge NCA-15 (Colorado BLM Exhibit CO-30) Information Notice or Lease Notice: A potential closure period from March 1 through June 30, and special mitigation measures to protect nesting GUSG from surface-disturbing activities. Information Notice or Lease Notice: The lessee is hereby notified of potential closure period (March 1 through June 30) and special mitigation to protect nesting GUSG from surface-disturbing activities. GUSG nesting habitat is described as sagebrush stands with plants between 30 and 100 centimeters in height and 15 to 40 percent mean canopy cover. Oil and gas stipulation: Gunnison Gorge NCA-8 TLS: No surface use is allowed December 16 through March 15 [Nov.15 – March 30 specified in RMP]. Protecting crucial GUSG wintering range (potentially affects MU 4, 6).</p> <p>GUNNISON GEOTHERMAL LEASING RMP AMENDMENT 2011 GUSG Timing Limitation stipulations (G-20): Construction or drilling activities will not be allowed in Occupied Habitat between March 15 and May 15. GUSG Timing Limitation stipulations (G-21): Routine operations, maintenance, and other activities in Occupied Habitat will be allowed between 9:00 a.m. and 4:00 p.m. during the period between March 15 and May 15. This restriction applies to human activity, and not to continuing operation of equipment and facilities, such as well pumps, power plant, and cooling equipment.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>SAN LUIS GEOTHERMAL RMP AMENDMENT 2013 BRCW (applicable on BLM-managed and split-estate lands) No human encroachment in mapped Occupied Habitat March 1 – August 15.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985 Stipulation Code CO-30: In order to protect nesting grouse species, surface-disturbing activities proposed during the period between March 1 and June 30 will be relocated, consistent with lease rights granted and section 6 of standard lease terms, out of grouse nesting habitat. Sage-grouse nesting habitat is described as sage stands with sagebrush plants between 30 and 1000 centimeters in height and a mean canopy cover between 15 and 40 percent. TL: To protect important seasonal wildlife habitat, exploration, drilling, and other developmental activity will be allowed only from May 16 to March 14 on sage grouse strutting grounds. This limitation does not apply to maintenance and operation of producing wells. Exceptions to this limitation in any year may be specifically authorized in writing by BLM's Authorized Officer. Stipulation Code CO-15: Grouse (includes sage-grouse, mountain sharp-tailed, and lesser and greater prairie chickens) Sage-grouse crucial winter habitat -- December 16 to March 15.</p> <p>TRES RIOS FO RMP 2015 2.3.71: New noise sources resulting from management activities should not contribute to noise levels that negatively impact sage-grouse leks during the active lek season (March 1 to June 30) based on best available science. 3.4.5 Controlled Surface Use – Noise Restriction Occupied and Unoccupied Habitat Surface occupancy or use is subject to the following special operating constraints: New noise sources resulting from management activities must not contribute to noise levels exceeding 34 A-weighted decibels (dBA) (10 dBA above ambient measures, typically 20 to 24 dBA) from 6 p.m. until 9 a.m. at the perimeter of a lek during active lek season. In Occupied Habitat the BLM would not authorize vehicular traffic between the hours of 6 p.m. and 9 a.m. within 1.9 miles of a lek from March 15 through May 15 annually. This stipulation applies to vehicles that may create noise levels that exceed recommended guidance. 2.3.70: Structures in sage-grouse habitat should be constructed to limit risk of collision and predation. (See Structure Design in General Management.) Guideline 2.4.62: Remote methodologies for monitoring, transporting fluids to centralized collection tanks, etc., should be utilized to minimize human disturbance in Gunnison sage-grouse habitat.</p>
SOLID MINERALS		

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
Locatable Minerals		
74	Solid Minerals	No similar action.
Locatable Minerals		
75	Locatable Minerals	<p>CANYONS OF THE ANCIENTS NM PROCLAMATION 2000 From the Proclamation: All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral leasing, other than by exchange that furthers the protective purposes of the monument, and except for oil and gas leasing as prescribed herein. ... The establishment of this monument is subject to valid existing rights.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 As specified in the enabling legislation (P.L. 111-11), subject to valid existing rights, all federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws.</p> <p>MCINNIS CANYONS NCA PROCLAMATION 2000 As specified in the CCNCA enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the CCNCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto.</p> <p>MOAB FO RMP 2008 Where public lands are sold or exchanged under 43 U.S.C. 682(B) (Small Tracts Act), 43 U.S.C. 869 (Recreation and Public Purposes Act), 43 U.S.C. 1718 (Sales) or 43 U.S.C. 1716 (Exchanges), the minerals reserved to the United States will continue to be removed from the operation of the mining laws unless a subsequent land-use planning</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		decision expressly recommends restoring the land to mineral entry.
76	Locatable Minerals	<p>CANYONS OF THE ANCIENTS NM PROCLAMATION 2000 From the Proclamation: All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral leasing, other than by exchange that furthers the protective purposes of the monument, and except for oil and gas leasing as prescribed herein. ... The establishment of this monument is subject to valid existing rights.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 As specified in the enabling legislation (P.L. 111-11), subject to valid existing rights, all federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws.</p> <p>MCINNIS CANYONS NCA PROCLAMATION 2000 As specified in the CCNCA enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the CCNCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto.</p> <p>MOAB FO RMP 2008 Where public lands are sold or exchanged under 43 U.S.C. 682(B) (Small Tracts Act), 43 U.S.C. 869 (Recreation and Public Purposes Act), 43 U.S.C. 1718 (Sales) or 43 U.S.C. 1716 (Exchanges), the minerals reserved to the United States will continue to be removed from the operation of the mining laws unless a subsequent land-use planning decision expressly recommends restoring the land to mineral entry.</p>
77	Locatable Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Locate no new mining claims and undertake no new prospecting or exploration activities designed to identify new</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>locatable hardrock minerals or to establish the discovery of valuable mineral deposits. Approve no operating plans for mining operations, unless the USDOI has made a final determination regarding the validity of the mining claims and mill sites covered by the plan.</p> <p>GUNNISON GORGE NCA RMP 2004 BLM will conduct validity examinations on all mining claims located within the NCA or on any lands withdrawn from mineral entry.</p>
78	Locatable Minerals	<p>GUNNISON GORGE NCA RMP 2004 Plans of operation will be required for proposed locatable mineral activity authorized by BLM's surface management regulations on the following lands: 1) lands closed to OHV travel and 2) lands within designated ACECs. MU 4 (GUSG ACEC/IBA): A plan of operation will be required in this ACEC, for locatable mineral activities that will result in surface disturbance.</p> <p>MOAB FO RMP 2008 To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix A. Locatable minerals include gold, copper, and uranium.</p> <p>TRES RIOS FO RMP 2015 See Timing Limitations and No Ground Disturbance in General Management section. 2.3.73 Applicable BMPs should be applied to all mineral proposals as COAs within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
79	Locatable Minerals	<p>TRES RIOS FO RMP 2015 See Timing Limitations and No Ground Disturbance in General Management section. 2.3.73 Applicable BMPs should be applied to all mineral proposals as COAs within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
Salable Minerals		
80	Salable Minerals	<p>CANYONS OF THE ANCIENTS NM RMP 2010 See 43 CFR 3600 which prohibits mineral materials disposal in National Monuments.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>As specified in the enabling legislation (P.L. 111-11), subject to valid existing rights, all federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <ol style="list-style-type: none"> 1. all forms of entry, appropriation, or disposal under the public land laws; 2. location, entry, and patent under the mining laws; and 3. the operation of the mineral leasing, mineral materials, and geothermal leasing laws. <p>GUNNISON GORGE NCA RMP 2004</p> <p>Disposal of saleable mineral material on federal mineral estate will not be permitted in the NCA and Wilderness. Disposal of mineral materials from specific areas outside the NCA and Wilderness will be permitted unless prohibited in a management unit prescription. Disposal of mineral materials where not prohibited will be discretionary with the authorizing official and will be determined on a case-by-case basis. Disposal of mineral materials within power site reserves or within other agency withdrawn lands will require approval of the agency reserving the withdrawal.</p> <p>GUNNISON RMP 1993</p> <p>Disposal of mineral material on federal mineral estate will be permitted. Disposal of mineral materials from specific areas is discretionary with the authorizing official and will be determined on a case-by-basis. Disposal of mineral materials within power site reserves or within other agency withdrawn lands will require approval of the agency reserving the withdrawal.</p> <p>MCINNIS CANYONS NCA PROCLAMATION 2000</p> <p>As specified in the CCNCA enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the CCNCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <ol style="list-style-type: none"> 1. all forms of entry, appropriation, or disposal under the public land laws; 2. location, entry, and patent under the mining laws; and 3. the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto. <p>MOAB FO RMP 2008</p> <p>To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix A. Salable minerals include sand and gravel, clay, and building stone.</p> <p>MONTICELLO FO RMP 2008</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Management conditions for disposal of mineral materials under each category correspond respectively to the oil and gas leasing stipulations developed in the RMP, as follows:</p> <p>Standard lease terms</p> <p>TL and CSU</p> <p>NSO and closed.</p> <p>SAN LUIS RMP 1991</p> <p>San Luis Area #1; I-4: Federal mineral estate will be open on 486,240 acres (99 percent) and will be available for disposal of mineral materials except in riparian zones.</p> <p>TRES RIOS FO RMP 2015</p> <p>See Timing Limitations and No Ground Disturbance in General Management section.</p> <p>2.3.73: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
81	Salable Minerals	<p>GUNNISON RMP 1993</p> <p>MU 7 (West Antelope Creek ACEC)</p> <p>MU 11 (grouse high production areas)</p> <p>MU 12 (elk and deer crucial winter range)</p> <p>MU 14 (riparian areas containing important sage grouse brood-rearing areas)</p> <p>MU 16 (general resource lands):</p> <p>Disposal of mineral materials will not be permitted on federal mineral estate within 1/4 mile of all leks in the unit from April 1 through May 31 in order to prevent disturbance to strutting sage grouse.</p>
82	Salable Minerals	<p>GUNNISON RMP 1993</p> <p>MU 7 (West Antelope Creek ACEC)</p> <p>MU 11 (grouse high production areas)</p> <p>MU 12 (elk and deer crucial winter range)</p> <p>MU 14 (riparian areas containing important sage grouse brood-rearing areas)</p> <p>MU 16 (general resource lands):</p> <p>Disposal of mineral materials will not be permitted on federal mineral estate within 1/4 mile of all leks in the unit from April 1 through May 31 in order to prevent disturbance to strutting sage grouse.</p> <p>MOAB FO RMP 2008</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix A. Salable minerals include sand and gravel, clay, and building stone.</p> <p>MONTICELLO FO RMP 2008</p> <p>Management conditions for disposal of mineral materials under each category correspond respectively to the oil and gas leasing stipulations developed in the RMP, as follows:</p> <p>Standard lease terms</p> <p>TL and CSU</p> <p>NSO and closed.</p> <p>TRES RIOS FO RMP 2015</p> <p>See Timing Limitations and No Ground Disturbance in General Management section.</p> <p>2.3.73: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
83	Salable Minerals	No similar action.
LEASABLE MINERALS		
<p>Non-Energy Leasable Minerals</p> <p>84 Non-Energy Leasable Minerals CANYONS OF THE ANCIENTS NM PROCLAMATION 2000</p> <p>From the Proclamation: All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral leasing, other than by exchange that furthers the protective purposes of the monument, and except for oil and gas leasing as prescribed herein.... The establishment of this monument is subject to valid existing rights.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>As specified in the enabling legislation (P.L. 111-1106-353), subject to valid existing rights, all federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from:</p> <p>4. all forms of entry, appropriation, or disposal under the public land laws;</p>		

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>5. location, entry, and patent under the mining laws; and the operation of the mineral leasing, mineral materials, and geothermal leasing laws.</p> <p>GRAND JUNCTION FO RMP 2015 Allowable Use (AU2): Close 561,700 acres in the following areas to non-energy leasable mineral exploration and/or development (Figure 2-62, Appendix A): Occupied GUSG Habitat.</p> <p>MCINNIS CANYONS NCA PROCLAMATION 2000 As specified in the enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the McInnis Canyons NCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto.</p>
85	Non-Energy Leasable Minerals	<p>CANYONS OF THE ANCIENTS NM PROCLAMATION 2000 From the Proclamation: All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral leasing, other than by exchange that furthers the protective purposes of the monument, and except for oil and gas leasing as prescribed herein.... The establishment of this monument is subject to valid existing rights.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 As specified in the enabling legislation (P.L. 111-1106-353), subject to valid existing rights, all federal land within the Conservation Area and the Wilderness, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 6. all forms of entry, appropriation, or disposal under the public land laws; 7. location, entry, and patent under the mining laws; and 8. the operation of the mineral leasing, mineral materials, and geothermal leasing laws.</p> <p>GRAND JUNCTION FO RMP 2015 Allowable Use (AU2): Close 561,700 acres in the following areas to non-energy leasable mineral exploration and/or development (Figure 2-62, Appendix A): Occupied GUSG Habitat.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MCINNIS CANYONS NCA PROCLAMATION 2000 As specified in the enabling legislation (P.L. 106-353), subject to valid existing rights, all federal land within the McInnis Canyons NCA and the BRCW, and all land and interests in land acquired for the Conservation Area or the Wilderness by the United States are withdrawn from: 1) all forms of entry, appropriation, or disposal under the public land laws; 2) location, entry, and patent under the mining laws; and 3) the operation of the mineral leasing, mineral materials, and geothermal leasing laws, and all amendments thereto.</p>
86	Non-Energy Leasable Minerals	<p>MOAB FO RMP 2008 To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix A. Leasable minerals include oil and gas, coal, and potash.</p> <p>TRES RIOS FO RMP 2015 See Timing Limitations and No Ground Disturbance in General Management section. 2.3.73: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
87	Non-Energy Leasable Minerals	<p>MOAB FO RMP 2008 To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable). These stipulations are found in Appendix A. Leasable minerals include oil and gas, coal, and potash.</p> <p>TRES RIOS FO RMP 2015 See Timing Limitations and No Ground Disturbance in General Management section. 2.3.73: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
Split-Estate		
88	Split Estate	<p>GUNNISON GORGE NCA RMP 2004 Federal oil, gas, and geothermal estate on both federal surface and split-estate lands outside the NCA and Wilderness boundaries will be open to leasing with standard lease terms, except as noted in management unit prescriptions... Other special stipulations and conditions for leasing of federal mineral estate, such as NSO stipulation</p>

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		<p>and timing limitation stipulation (TLS), will be recommended in some management unit prescriptions; these special stipulations and conditions will also apply to federal surface and split-estate lands adjacent to the management unit in which the stipulations in Appendix E will apply.</p> <p>GUNNISON RMP 1993</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands, that is, private or other non-federal surface estate overlying federal mineral estate, will be open to leasing with standard lease terms. Other special stipulations and conditions for leasing such as no surface occupancy and seasonal restrictions are assigned or specified in each management unit prescription and as deemed necessary; these special stipulations and conditions will also apply to federal surface and split-estate lands.</p> <p>MOAB FO RMP 2008</p> <p>On 20,061 acres of split-estate lands, the BLM will apply the same lease stipulations as those applied to surrounding lands with Federal surface. BLM will close or impose a no surface occupancy stipulation on 9,617 acres of split-estate lands (see Appendix A). Mitigation measures to protect other resource values will be developed during the appropriate site-specific environmental analysis and will be attached as conditions of approval to permits in consultation with the surface owner or SMA.</p> <p>MONTICELLO FO RMP 2008</p> <p>On split-estate lands, lease stipulations will consist of those necessary to comply with non-discretionary federal laws, such as the Endangered Species Act. The one exception to this will be the stipulations developed for GUSG as identified in Appendix B. Mitigation measures will also be applied to protect other resource values such as VRM class, recreation, and non-federally protected fish and wildlife species consistent with Section 6 of the standard lease terms. These mitigation measures will be developed during site-specific environmental analysis and will be attached as COAs in consultation with the surface owner or surface management agency.</p> <p>UNCOMPAHGRE BASIN</p> <p>Federal oil, gas, and geothermal estate on both federal surface and split-estate lands will be open to leasing with standard lease terms: Other conditions for leasing such as no surface occupancy and seasonal stipulations (see Appendix A) are assigned in each management unit prescription; special stipulations and conditions also apply to federal surface and split-estate lands. Any special stipulations (i.e., seasonal closures) prescribed for a management unit will also apply to seismic and drilling activities.</p>
WILDLAND FIRE ECOLOGY AND MANAGEMENT		

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Fuels Management		
89	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Encourage range, fuels and fire, and vegetation management activities that include the protection and/or enhancement of the health and productivity of native and other desirable plant and animal communities.</p> <p>Encourage range, fuels and fire, and vegetation management activities that will protect and/or enhance riparian/aquatic resource conditions.</p> <p>Approve, within 1-3 years following the signing of the ROD, a list of areas requiring fuels management and vegetation management treatments (as determined by the Monument Manager).</p> <p>Prioritize this list based upon such criteria as pending threats to life and property; potential threats to Monument objects (such as cultural resources); vegetation management goals and objectives; consideration of areas where fire suppression has disrupted natural fire regimes, and consideration of areas where similar efforts are being pursued by adjacent landowners.</p> <p>Update this list annually in order to address changing threats, conditions, and opportunities.</p> <p>Allow all forms of fuels or vegetation management treatments (including mechanical, biological, chemical, and/or prescribed burns) on the Monument where they promote vegetation and cultural resource management goals and objectives.</p> <p>Authorize no mechanical fuels or vegetation management treatment in RMZ 4 (Squaw-Cross Canyon).</p> <p>Determine a treatment's location, size, specific layout, and project design features, as well as any measures needed in order to protect sensitive resources, through the environmental review process.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Use mechanical, chemical and biological treatments and prescribed fire to improve FRCC and to meet biological and cultural resource objectives. Manage fire and fuels to protect private property, infrastructure, cultural and biological resources, and watersheds.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Design vegetation treatments in Sage-Grouse habitats to strategically reduce wildfire threats in the greatest area. This may involve spatially arranging new vegetation treatments with past treatments, vegetation with fire-resistant seral stages, natural barriers, and roads in order to constrain fire spread and growth. This may require vegetation treatments to be implemented in a more linear versus block design.</p> <p>Action (A3): Implement fuels treatments actions that may include, but are not limited to:</p> <p>Mechanical treatments, including mowing, weed-whacking, chopping (roller chopper), chipping, grinding (hydro-ax),</p>

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		<p>chaining, tilling, and cutting.</p> <p>Manual treatments, including hand cutting (chainsaw/handsaw) and hand-piling.</p> <p>Prescribed fire, including pile and broadcast burning.</p> <p>Chemical spraying or biological treatments, such as insects or goats.</p> <p>Seeding, including aerial or ground application.</p> <p>MOAB RMP 2008</p> <p>FIRE-4: Hazardous fuels reduction treatments will be used to restore ecosystems; protect human, natural and cultural resources; and reduce the threat of wildfire to communities.</p> <p>FIRE-11: Criteria for Establishing Fire Management Priorities: Protection of human life is the primary fire management priority. Establishing a priority among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources is based on human health and safety, the values to be protected, and the costs of protection. When firefighters and other personnel have been committed to an incident, these human resources become the highest values to be protected. Priorities for all aspects of fire management decisions and actions are based on the following:</p> <p>Protecting the Wildland-Urban Interface (WUI; including At-risk Communities and At-risk Watersheds).</p> <p>Maintaining existing healthy ecosystems.</p> <p>High priority sub-basins (HUC-4) or watersheds (HUC-5).</p> <p>Threatened, endangered, or special species.</p> <p>Cultural resources and/or cultural landscapes.</p> <p>FIRE-14: Fuels Treatment: Fuels management activities outlined in the FMP will be consistent with the resource goals and objectives contained in the RMP. To reduce hazards and to restore ecosystems, authorized fuels management actions include wildland fire use, prescribed fire, and mechanical, manual, chemical, biological, and seeding treatments. The FMP describes fuels management goals and objectives and the full range of fuels management strategies and actions authorized for fuels reduction. Fuels treatments are focused on the DWFC of restoring historic fire regimes to ecosystems when feasible, so that future wildland fire use actions can be more easily implemented.</p> <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E.</p> <p>MONTICELLO FO RMP 2008</p> <p>FIRE-7: Wildland fire is authorized as a tool, when appropriate, to allow naturally ignited wildland fire to accomplish</p>

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		<p>specific resource management objectives. Due to existing resource conditions and proximity to values at risk, fire cannot be allowed to resume its natural role on all BLM lands in the FO. Consideration of ongoing management decisions and other natural changes will direct periodical reassessment of DWFC and determination of potential areas for wildland fire use. Operational management of wildland fire use is described in the Wildland Fire Implementation Plan (WFIP). The FMP identifies FMUs that may have the potential for wildland fire use. Wildland fire use may be authorized for all areas, except when the following resources and values may be negatively impacted and there are no reasonable Resource Protection Measures to protect such resources and values: WUI areas; Areas known to be highly susceptible to post-fire cheatgrass or invasive weed invasion; Important terrestrial and aquatic habitats; Non-fire-adapted vegetation communities; Sensitive cultural resources; Areas of soil with high or very high erosion hazard; Class I areas and PM10 nonattainment areas; Administrative sites; Developed recreation sites; Communication sites; Oil, gas, and mining facilities; Aboveground utility corridors; High-use travel corridors, such as interstates, railroads, and/or highways.</p> <p>FIRE-8: Fuels management activities outlined in the FMP will be consistent with the resource goals and objectives contained in the RMP. To reduce hazards and to restore ecosystems, authorized fuels management decisions include wildland fire use, prescribed fire, and mechanical, manual, chemical, biological, and seeding treatments. The FMP describes fuels management goals and objectives, and the full range of fuels management strategies and actions authorized for fuels reduction. Fuels treatments are focused on the DWFC of restoring historic fire regimes to ecosystems when feasible, so that future wildland fire use actions can be more easily implemented.</p> <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act.</p> <p>TRES RIOS FO RMP 2015</p> <p>GUSG: In Occupied Habitat fuels treatments must be designed and implemented with an emphasis on protecting and enhancing existing sagebrush ecosystems.</p> <p>ACTION: Fuels treatments should be designed to meet strategic protection of identified occupied sage-grouse habitat.</p> <p>Guideline 2.4.63: Fuels treatments should be designed to meet strategic protection of identified occupied sage-grouse habitat.</p>
90	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Require a plan for reclamation, with a reclamation budget, for all proposed vegetation management treatment projects (including mechanical, biological, and chemical treatments, and prescribed burns). Consider prescribed burns as a treatment option for ecosystems that are identified as fire-dependent or fire-adaptive. Assess fuel loads</p>

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		<p>within the treatment area(s) for expected fire behavior. Mitigate for heavy concentrations (hazardous fuels) prior to prescribed burn ignition. (NOTE: Under these circumstances, prescribed burns will be used, and will attempt to simulate natural fire intensity and timing.) Use prescribed burns on a limited basis in order to achieve management objectives or for the safety of firefighters.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Use mechanical, chemical and biological treatments and prescribed fire to improve FRCC and to meet biological and cultural resource objectives.</p> <p>GUNNISON GORGE NCA RMP 2004 In all management units in the planning area, prescribed and planned ignitions will continue to be allowed as a management tool to meet management objectives, such as to increase forage for wildlife and livestock grazing. Prior to any ignitions, an environmental analysis, burn plan, and burning permit will be prepared or obtained.</p> <p>GRAND JUNCTION FO RMP 2015 Avoid natural and prescribed fire in low-elevation sagebrush communities infested with or susceptible to cheatgrass. Ground disturbing mechanical treatments completed in low-elevation sagebrush may require seeding.</p> <p>GUNNISON RMP 1993 Prescribed fires for resource enhancement or fuel hazard reduction could occur throughout the Planning Area in accordance with approved prescribed burn plans. A site-specific burn plan and Environmental Analysis (EA) will be prepared prior to authorizing any prescribed burns.</p> <p>SAN LUIS RMP 1991 San Luis Area #1 I-5: Allow vegetative manipulation such as mechanical, chemical, or fire practices to aid in accomplishing the overall objective and the desired plant communities described in activity plans. Prescribed burn plans and necessary NEPA documentation will be written for areas requiring visual landscape or vegetation manipulation; however, no specific areas are identified at this time.</p> <p>TRES RIOS FO RMP 2015 Planned and unplanned fire ignitions are used to increase resiliency and diversity across all forest and rangeland vegetation types. Unplanned ignitions, wildland fire tactical options, and planned ignitions on Tres Rios FO lands will be determined on a case-by-case basis.</p>
Wildfire		

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
91	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Designate the entire Monument as FMZ B (area where natural fire is generally not desired under current conditions and suppression is emphasized.) Use Appropriate Management Response for all fires within the Monument.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Allow natural unplanned ignitions to be managed for multiple objectives (including resource benefit) within 208,565 acres of the D-E NCA to meet biological resource objectives. Manage fire and fuels to protect private property, infrastructure, cultural and biological resources, and watersheds.</p> <p>GUNNISON GORGE NCA RMP 2004 Any fire that occurs in a fire use category area before a prescribed burn plan is approved, that is not within the limits of the prescription, or that threatens life or property will be suppressed as a conditional suppression area fire.</p> <p>GRAND JUNCTION FO RMP 2015 Use new fire starts and prescribed fire where suitable to meet resource objectives as deemed appropriate by Land Health Assessments, Ecological Site Inventories, Emergency Stabilization & Rehabilitation monitoring, and prescribed fire monitoring. Avoid natural and prescribed fire in low-elevation sagebrush communities infested with or susceptible to cheatgrass. Action (A1): Allow unplanned fire on 857,400 acres for resource benefit to manage diversity in desired plant communities in those areas identified in Figure 2-76 in Appendix A. Action (A4): Use a combination of planned and unplanned fire along with fuels treatments including mechanical, manual, chemical, and seeding to meet resource objectives. The priority would be using any of the above treatments based on strategic goals for site-specific projects.</p> <p>GUNNISON RMP 1993 Wildfires on about 508,388 acres of public land will be suppressed according to a "conditional suppression" policy and about 76,624 acres of public land will be suppressed according to a "full suppression" policy.</p> <p>MOAB FO RMP 2008 Suppression: An "Appropriate Management Response" (AMR) procedure is required for every wildland fire that is not a prescribed fire. In all fire management decisions, strategies and actions, firefighter and public safety are the highest priority followed by consideration of benefits and values to be protected as well as suppression costs. The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). Resource goals and objectives outlined in the RMP guide the development and implementation of AMR fire management activities in regard to the accomplishment of those objectives. The FMP establishes fire suppression objectives with minimum</p>

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		<p>and maximum suppression targets for each Fire Management Unit (FMU) within the MPA. While firefighter and public safety are the first priority, considerations for suppression activities also include fire intensity, acreage, and spread potential; threats to life and property; potential to impact high-value resources such as critical habitat for threatened, endangered and sensitive species; crucial wildlife habitat; cultural resources and/or riparian areas; historic fire regimes; and other special considerations such as wilderness and/or adjacent agency lands.</p> <p>MONTICELLO RMP 2008</p> <p>FIRE-6-Suppression: An Appropriate Management Response (AMR) procedure is required for every wildland fire that is not a prescribed fire. In all fire management decisions, strategies, and actions, firefighter and public safety are the highest priority followed by consideration of benefits and values to be protected as well as suppression costs. The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). Resource goals and objectives outlined in the RMP guide the development and implementation of AMR fire management activities in regard to the accomplishment of those objectives. The FMP establishes fire suppression objectives with minimum and maximum suppression targets for each Fire Management Unit (FMU) within the PA. While firefighter and public safety are the first priority, considerations for suppression activities also include fire intensity, acreage, and spread potential; threats to life and property; potential to impact high-value resources such as critical habitat for threatened, endangered, and sensitive species; crucial wildlife habitat; cultural resources and/or riparian areas; historic fire regimes; and other special considerations such as wilderness and/or adjacent agency lands.</p> <p>SAN LUIS RMP 1991</p> <p>Any fire, including wildfires, occurring in the resource area will be suppressed.</p> <p>TRES RIOS FO RMP 2015</p> <p>Planned and unplanned fire ignitions are used to increase resiliency and diversity across all forest and rangeland vegetation types. Unplanned ignitions, wildland fire tactical options, and planned ignitions on Tres Rios FO lands will be determined on a case-by-case basis.</p> <p>UNCOMPAHGRE BASIN RMP 1989</p> <p>Consider fire as a management tool for the entire planning area, subject to site specific environmental analysis and approved burn plans.</p>
92	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Designate the entire Monument as FMZ B (area where natural fire is generally not desired under current conditions and suppression is emphasized.) Use Appropriate Management Response for all fires within the Monument.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Allow natural unplanned ignitions to be managed for multiple objectives (including resource benefit) within 208,565 acres of the D-E NCA to meet biological resource objectives. Manage fire and fuels to protect private property, infrastructure, cultural and biological resources, and watersheds.</p> <p>GUNNISON GORGE NCA RMP 2004 Any fire that occurs in a fire use category area before a prescribed burn plan is approved, that is not within the limits of the prescription, or that threatens life or property will be suppressed as a conditional suppression area fire.</p> <p>GRAND JUNCTION FO RMP 2015 Use new fire starts and prescribed fire where suitable to meet resource objectives as deemed appropriate by Land Health Assessments, Ecological Site Inventories, Emergency Stabilization & Rehabilitation monitoring, and prescribed fire monitoring. Avoid natural and prescribed fire in low-elevation sagebrush communities infested with or susceptible to cheatgrass. Action (A1): Allow unplanned fire on 857,400 acres for resource benefit to manage diversity in desired plant communities in those areas identified in Figure 2-76 in Appendix A. Action (A4): Use a combination of planned and unplanned fire along with fuels treatments including mechanical, manual, chemical, and seeding to meet resource objectives. The priority would be using any of the above treatments based on strategic goals for site-specific projects.</p> <p>GUNNISON RMP 1993 Wildfires on about 508,388 acres of public land will be suppressed according to a "conditional suppression" policy and about 76,624 acres of public land will be suppressed according to a "full suppression" policy.</p> <p>MOAB FO RMP 2008 Suppression: An "Appropriate Management Response" (AMR) procedure is required for every wildland fire that is not a prescribed fire. In all fire management decisions, strategies and actions, firefighter and public safety are the highest priority followed by consideration of benefits and values to be protected as well as suppression costs. The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). Resource goals and objectives outlined in the RMP guide the development and implementation of AMR fire management activities in regard to the accomplishment of those objectives. The FMP establishes fire suppression objectives with minimum and maximum suppression targets for each Fire Management Unit (FMU) within the MPA. While firefighter and public safety are the first priority, considerations for suppression activities also include fire intensity, acreage, and spread potential, threats to life and property, potential to impact high-value resources such as critical habitat for</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>threatened, endangered and sensitive species, crucial wildlife habitat, cultural resources and/or riparian areas, historic fire regimes, and other special considerations such as wilderness and/or adjacent agency lands.</p> <p>MONTICELLO RMP 2008</p> <p>FIRE-6-Suppression: An Appropriate Management Response (AMR) procedure is required for every wildland fire that is not a prescribed fire. In all fire management decisions, strategies, and actions, firefighter and public safety are the highest priority followed by consideration of benefits and values to be protected as well as suppression costs. The AMR can range from full suppression to managing fire for resource benefit (wildland fire use). Resource goals and objectives outlined in the RMP guide the development and implementation of AMR fire management activities in regard to the accomplishment of those objectives. The FMP establishes fire suppression objectives with minimum and maximum suppression targets for each Fire Management Unit (FMU) within the PA. While firefighter and public safety are the first priority, considerations for suppression activities also include fire intensity, acreage, and spread potential; threats to life and property; potential to impact high-value resources such as critical habitat for threatened, endangered, and sensitive species; crucial wildlife habitat; cultural resources and/or riparian areas; historic fire regimes; and other special considerations such as wilderness and/or adjacent agency lands.</p> <p>SAN LUIS RMP 1991</p> <p>Any fire, including wildfires, occurring in the resource area will be suppressed.</p> <p>TRES RIOS FO RMP 2015</p> <p>Planned and unplanned fire ignitions are used to increase resiliency and diversity across all forest and rangeland vegetation types. Unplanned ignitions, wildland fire tactical options, and planned ignitions on Tres Rios FO lands will be determined on a case-by-case basis.</p> <p>UNCOMPAGRE BASIN RMP 1989</p> <p>Consider fire as a management tool for the entire planning area, subject to site specific environmental analysis and approved burn plans.</p>
Emergency Stabilization and Rehabilitation		
93	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Evaluate all burned areas in order to determine whether or not fire rehabilitation is required. This evaluation will include the following considerations:</p> <ul style="list-style-type: none"> • Would life or private property be threatened if rehabilitation practices are not implemented?

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • Would naturally reestablished vegetation be unacceptable (such as exotic annual grasses or noxious weeds) or not meet vegetation resource management goals and objectives? • Would adequate desirable vegetation recover sufficiently in order to stabilize soil and prevent on or off- site soil erosion problems? • Would immediate or long-term damage (such as erosion) to cultural resources occur? <p>Prepare an Emergency Fire Rehabilitation Plan (EFRP) for all escaped wildland fires if one or more of the above criteria are not met. (NOTE: EFRPs will be in accordance with the Emergency Fire Rehabilitation Handbook and the Monument RMP ROD.) Address all critical resources (including cultural, air, water, vegetation, and soils) in EFRPs, and specifically identify how these resources will be addressed in area rehabilitation.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Implement emergency stabilization and rehabilitation as needed to meet biological, recreation and cultural resource objectives.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Action (A6): Design Burned Area Rehabilitation (BAR) and ES treatment actions based on the severity of the wildfire impacts. BAR and ES priorities include, but are not limited to, areas where:</p> <ul style="list-style-type: none"> • Life, safety, or property requires protection. • Unique or sensitive cultural resources are at risk. • Soils are highly susceptible to accelerated erosion or water quality protection is required. • Perennial grasses and forbs are not expected to provide soil and watershed protection within two years. • Unacceptable vegetation, such as noxious weeds, may invade and become established. • It is necessary to quickly restore threatened, endangered, or special species habitat populations to prevent adverse impacts. • Stabilization and rehabilitation are necessary to meet RMP resource objectives. <p>Action (A7): Design BAR treatment actions based on the severity of wildfire impacts. BAR priorities include, but are not limited to:</p> <ul style="list-style-type: none"> • Repairing or improving lands unlikely to recover naturally. • Implementing weed treatments to remove invasive weeds and planting native or non-natives to restore or establish healthy ecosystems. • Planting to reestablish native trees. • Repairing or replacing minor facilities (e.g., fences, campgrounds, interpretive signs, shelters, wildlife guzzlers, etc.)

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MOAB FO RMP 2008</p> <p>Rehabilitation Plan (NFRP) is in place to meet emergency stabilization and rehabilitation (ESR) needs and to comply with up-to-date ESR policy and guidance. The NFRP is a programmatic implementation plan authorizing treatment options specific to vegetative communities and dependent upon post-wildland fire conditions and other site-specific considerations. Treatment actions are designed according to the type and severity of wildfire impacts and priorities include, but are not limited to, areas where the following criteria apply:</p> <ul style="list-style-type: none"> • It is necessary to protect human life and safety as well as property. • Unique or critical cultural and/or historical resources are at risk. • It is determined soils are highly susceptible to accelerated erosion. • Perennial grasses and forbs (fire-tolerant plants) are not expected to provide soil and watershed protection within two years. • There is a need to establish a vegetative fuel break of less flammable species (greenstrips). Unacceptable vegetation, such as noxious weeds, may readily invade and become established. • Shrubs and forbs are a crucial habitat component for wintering mule deer, pronghorn, sage grouse, or other special status species. • Stabilization and rehabilitation are necessary to meet RMP resource objectives, including rangeland seedings. • It is necessary to protect water quality. • It is necessary to quickly restore threatened, endangered, or special species habitat populations to prevent adverse impacts. <p>SSS-3: As required by the Endangered Species Act, no management action will be permitted on public lands that will jeopardize the continued existence of plant or animal species that are listed or are officially proposed or are candidates for listing as T&E.</p> <p>MONTICELLO RMP 2008</p> <p>FIRE-14: A Normal Year Fire Stabilization and Rehabilitation Plan (NFRP) is in place to meet ES&R needs and to comply with up-to-date ES&R policy and guidance. The NFRP is a programmatic implementation plan authorizing treatment options specific to vegetative communities and dependent upon post-wildland fire conditions and other site-specific considerations. Treatment actions that are designed according to the type and severity of wildfire impacts and priorities include but are not limited to areas where the following criteria apply:</p> <ul style="list-style-type: none"> • It is necessary to protect human life and safety as well as property. • Unique or critical cultural and/or historical resources are at risk.

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • It is determined soils are highly susceptible to accelerated erosion. • Perennial grasses and forbs (fire-tolerant plants) are not expected to provide soil and watershed protection within two years. • There is a need to establish a vegetative fuel break of less flammable species (greenstrips). • Unacceptable vegetation, such as noxious weeds, may readily invade and become established. • Shrubs and forbs are a crucial habitat component for wintering mule deer, antelope, sage-grouse, or other special status species. • Stabilization and rehabilitation are necessary to meet RMP resource objectives, including rangeland seedings. • It is necessary to protect water quality. • It is necessary to quickly restore threatened, endangered, or special status species habitat populations to prevent negative impacts. <p>SSP-6: No management action will be permitted on BLM lands that will jeopardize the continued existence of species that are listed, proposed for listing, or candidates for listing under the Endangered Species Act.</p> <p>TRES RIOS FO RMP 2015 Seeding and other site rehabilitation practices should be provided, as necessary, on wildland fire and managed wildland fire areas. Fire suppression support activities and facilities (including constructed fire lines, fuel breaks and safety areas, fire camps, staging areas, heli-bases, and heli-spots), as well as mechanical and prescribed fire treatment areas, should follow the same site rehabilitation practices.</p>
94	Fire, Fuels, Rehabilitation	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Prepare an Emergency Fire Rehabilitation Plan (EFRP) for all escaped wildland fires if one or more of the above criteria are not met. (NOTE: EFRPs will be in accordance with the Emergency Fire Rehabilitation Handbook and the Monument RMP ROD.) Address all critical resources (including cultural, air, water, vegetation, and soils) in EFRPs, and specifically identify how these resources will be addressed in area rehabilitation.</p> <p>GRAND JUNCTION FO RMP 2015 Apply integrated control methods (physical, cultural, biological, chemical, fire) to noxious and invasive pest populations. Use vegetative treatments to improve diversity, reduce noxious and invasive species, and restore native plant communities to support wildlife and livestock. Implement treatments designed to replenish the native seed bank and control noxious and invasive species. Restore the species composition and diversity of successional stages of sagebrush communities.</p>

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		<p>Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought.</p> <p>MOAB FO RMP 2008 Rehabilitation Plan (NFRP) is in place to meet emergency stabilization and rehabilitation (ESR) needs and to comply with up-to-date ESR policy and guidance. The NFRP is a programmatic implementation plan authorizing treatment options specific to vegetative communities and dependent upon post-wildland fire conditions and other site-specific considerations.</p> <p>MONTICELLO RMP 2008 FIRE-14: A Normal Year Fire Stabilization and Rehabilitation Plan (NFRP) is in place to meet ES&R needs and to comply with up-to-date ES&R policy and guidance. The NFRP is a programmatic implementation plan authorizing treatment options specific to vegetative communities and dependent upon post-wildland fire conditions and other site-specific considerations.</p> <p>TRES RIOS FO RMP 2015 Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible. In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist. Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat. Standard 2.4.37: Gunnison Sage-Grouse: invasive vegetation must be monitored and controlled post-treatment.</p>
95	Fire, Fuels, Rehabilitation	<p>TRES RIOS FO RMP 2015 Guideline 2.4.66: Within Occupied Habitat, grazing in treatment areas should be deferred for 2 growing season after treatment, unless needed for seedbed preparation or desired understory and over-story are established.</p>
96	Fire, Fuels, Rehabilitation	<p>TRES RIOS FO RMP 2015 Guideline 2.4.64: Use of native seeds should be used for revegetation following fuels management treatment based</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		on availability, adaptation (site potential), and probability of success (Richards et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat objectives.
SPECIAL STATUS SPECIES		
97	Special Status Species	<p>MONTICELLO FO RMP 2008 Avoid all permitted activities from March 20 to May 15. If impractical to avoid all permitted activities, then no activity from sunset the evening before to 2 hours after sunrise the next morning. Prohibit construction of roads year-round. GRA-24: Sage Flat, Upper East Canyon, Sage-grouse and Dry Farm allotments will not be grazed from March 20 to May 15 (Gunnison Sage-grouse nesting season) (pg. 78). SSP-23 Lek habitat (within 0.6 miles of active strutting ground): Avoid all permitted activities from March 20 to May 15. If impractical to avoid all permitted activities, then no activity from sunset the evening before to 2 hours after sunrise the next morning. SSP-24 Year-round habitat (within 4 miles of active strutting ground): Limit grazing use levels as necessary to maintain and/or improve sage-grouse habitat.</p> <p>TRES RIOS FO RMP 2015 Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible. In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist. Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat. Standard 2.4.34: Gunnison Sage-Grouse: Management activities must not occur from March 1 to June 30 within Occupied Habitat suitable for nesting to allow for breeding and December 1 to March 15 for known winter habitat. Guideline 2.4.61: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
98	Special Status	GUNNISON RMP 1993

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
	Species	<p>MU 10 (yearlong bighorn sheep and other wildlife habitat.): ROWs. Public lands will be open to the location of ROWs with appropriate mitigation to insure compatibility with the management of bighorn sheep. ROW construction or maintenance that will result in disturbance to lambing bighorn sheep will not be permitted from April 15 through June 15.</p> <p>MU 15 (important fishery streams): ROWs. No surface-disturbing activities will be permitted along Alder, Willow (west of Gunnison), and Razor Creeks, and along the lower one-mile of South Beaver Creek in the unit from July 1 through July 31 in order to prevent disturbance to sage grouse during the brood rearing period. Mitigating measures will be included in ROW authorizations in these areas of this unit to prevent disturbance to brooding sage grouse.</p> <p>TRES RIOS FO RMP 2015</p> <p>Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible.</p> <p>In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist.</p> <p>Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat.</p> <p>Standard 2.4.34: Gunnison Sage-Grouse: Management activities must not occur from March 1 to June 30 within Occupied Habitat suitable for nesting to allow for breeding and December 1 to March 15 for known winter habitat.</p> <p>Guideline 2.4.61: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
99	Special Status Species	<p>GUNNISON RMP 1993</p> <p>MU 7 (West Antelope Creek ACEC): ROWs. ROW-related construction activities will not be permitted on crucial big game winter range from December 1 through April 30 to prevent disturbance to wintering elk and deer.</p> <p>MU 14 (riparian areas containing important sage grouse brood-rearing areas): ROWs. Mitigating measures will be included in ROW authorizations to prevent disturbance within this unit to brooding sage grouse from June 15 through July 31 and from December 1 through April 30 on crucial big game winter range to prevent disturbance to wintering deer and elk.</p> <p>GUNNISON GORGE NCA RMP 2004</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MU 4 (GUSG ACEC/IBA): Construction of all ROWs in the management unit will be restricted from November 15 through April 30 during crucial periods for wintering mule deer, elk, and GUSG.</p> <p>TRES RIOS FO RMP 2015</p> <p>Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible.</p> <p>In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist.</p> <p>Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat.</p> <p>Standard 2.4.34: Gunnison Sage-Grouse: Management activities must not occur from March 1 to June 30 within Occupied Habitat suitable for nesting to allow for breeding and December 1 to March 15 for known winter habitat.</p> <p>Guideline 2.4.61: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p> <p>UNCOMPAHGRE BASIN RMP 1989</p> <p>Management Unit 2 will be open to major utility development with possible restrictions, on construction activities from December 1 through April 30 within crucial deer and elk winter range to protect crucial deer and elk winter range from disturbance.</p>
100	Special Status Species	<p>TRES RIOS FO RMP 2015</p> <p>Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible.</p> <p>In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist.</p> <p>Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat.</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Standard 2.4.35: Gunnison Sage-Grouse: New structural improvements or surface disturbance must not occur within known winter concentration areas or within 0.6 mile radius of known Gunnison Sage-Grouse leks.</p> <p>Guideline 2.4.61: Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within occupied sage-grouse habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.</p>
101	Special Status Species	<p>TRES RIOS FO RMP 2015</p> <p>Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible.</p> <p>In order to determine site occupation, pre-implementation surveys may be required for projects occurring in habitats that may support populations of sensitive species and species listed or proposed under the ESA, as determined by an agency biologist.</p> <p>Objective 2.4.20: Gunnison Sage-Grouse (<i>Centrocercus minimus</i>): improve habitat for Gunnison sage-grouse when conducting resource management actions within Occupied Habitat.</p> <p>Standard 2.4.38: Gunnison Sage-Grouse: New noise sources resulting from management activities should not contribute to noise levels that negatively impact sage-grouse leks during the active lek season (March 1 to May 15) based on best available science.</p>
102	Special Status Species	<p>MOAB FO RMP 2008</p> <p>If GUSG leks are discovered within sage-grouse habitat, no surface-disturbing activities will be allowed within 0.6 mile of a lek.</p> <p>Purpose: To protect occupied lek sites within GUSG Habitat.</p> <p>Exception: An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p>Modification: The Field Manager may modify the boundaries of the stipulation area if:</p> <p>(1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area, as determined by the BLM.</p> <p>Waiver: A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p>
103	Special Status Species	No similar action.

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
104	Special Status Species	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>On sites where the Ecological Site Description potential is for sagebrush shrublands, prevent expansion of pinyon-juniper vegetation into these areas using mechanical and/or manual treatments, and planned or unplanned wildfire. (From Proposed RMP 2015)</p> <p>Use vegetation treatments (e.g., mechanical treatments, chemical treatments, planned and unplanned wildfire, reseeding, targeted grazing) to move towards meeting structural habitat guidelines found within the Gunnison sage-grouse Rangewide Conservation Plan (Gunnison Sage-grouse Rangewide Steering Committee, 2005), or comparable, best available scientific guidance.</p> <p>Apply vegetation treatments to reintroduce and/or increase cover of sagebrush in old vegetation treatments where it was removed.</p> <p>Apply vegetation treatments to reintroduce native grass, forb and shrub species in old vegetation treatments where crested wheatgrass is now a dominant species. Prior to completing vegetation treatments: establish research or pilot plots in D-E NCA to determine successful treatment prescriptions (exemption: noxious weed treatments); or ensure that likely outcomes are known on the basis of other tests conducted in the region. Use existing research or pilot plots from the D-E NCA or surrounding region to inform vegetation treatment prescriptions in this vegetation type.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Maintain present composition of late- to mid-seral plant communities providing suitable habitat for wildlife. Minimize activities that would result in a persistent early-seral stage in the lower elevations. Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. Restore the species composition and diversity of seral stages of sagebrush communities. Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought. Reduce the encroachment of juniper (<i>Juniperus spp.</i>) and other woody tree species in sagebrush habitat. Sites should have evidence of past sagebrush plant communities as evidenced by residual native plants or soils that support a rangeland not a woodland ecological site.</p> <p>GUNNISON RMP 1993</p> <p>Specific, desired plant communities will be identified in activity plans. Exceptions to a late seral ecological status needed to meet objectives will be identified in activity plans.</p> <p>MOAB FO RMP 2008</p> <p>Vegetation Treatments: Maintain the existing vegetation treatments (46,307 acres) to increase available forage</p>

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R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>within the following allotments. These areas have been treated over the past 50 years and consist primarily of pinyon-juniper woodlands. These areas will be treated by prescribed fire, chemical or mechanical or other means in accordance with BLM sagebrush conservation guidance and other applicable resource goals. The improved forage will benefit multiple use objectives including livestock and wildlife use. Allotments: Adobe Mesa, Big Triangle, Black Ridge, Buckhorn.</p> <p>MONTICELLO FO RMP 2008</p> <p>Maintain an estimated 1,500 acres/year of existing land treatments and implement new vegetation treatments to restore ecosystem health, functioning condition, etc. in the following vegetation cover types (Map 15):</p> <ul style="list-style-type: none"> sagebrush 1,500 acres/year weed treatments 3,000 acres/year pinyon-juniper 3,000 acres/year riparian 100 acres/year greasewood 200 acres/year
105	Special Status Species	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>On sites where the Ecological Site Description potential is for sagebrush shrublands, prevent expansion of pinyon-juniper vegetation into these areas using mechanical and/or manual treatments, and planned or unplanned wildfire. (From Proposed RMP 2015)</p> <p>Use vegetation treatments (e.g., mechanical treatments, chemical treatments, planned and unplanned wildfire, reseeding, targeted grazing) to move towards meeting structural habitat guidelines found within the Gunnison sage-grouse Rangewide Conservation Plan (Gunnison Sage-grouse Rangewide Steering Committee, 2005), or comparable, best available scientific guidance.</p> <p>Apply vegetation treatments to reintroduce and/or increase cover of sagebrush in old vegetation treatments where it was removed.</p> <p>Apply vegetation treatments to reintroduce native grass, forb and shrub species in old vegetation treatments where crested wheatgrass is now a dominant species. Prior to completing vegetation treatments: establish research or pilot plots in D-E NCA to determine successful treatment prescriptions (exemption: noxious weed treatments); or ensure that likely outcomes are known on the basis of other tests conducted in the region. Use existing research or pilot plots from the D-E NCA or surrounding region to inform vegetation treatment prescriptions in this vegetation type.</p> <p>GRAND JUNCTION FO RMP 2015</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Maintain present composition of late- to mid-seral plant communities providing suitable habitat for wildlife. Minimize activities that would result in a persistent early-seral stage in the lower elevations. Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. Restore the species composition and diversity of seral stages of sagebrush communities. Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought. Reduce the encroachment of juniper (<i>Juniperus spp.</i>) and other woody tree species in sagebrush habitat. Sites should have evidence of past sagebrush plant communities as evidenced by residual native plants or soils that support a rangeland not a woodland ecological site.</p> <p>GUNNISON RMP 1993 Specific, desired plant communities will be identified in activity plans. Exceptions to a late seral ecological status needed to meet objectives will be identified in activity plans.</p> <p>MOAB FO RMP 2008 Vegetation Treatments: Maintain the existing vegetation treatments (46,307 acres) to increase available forage within the following allotments. These areas have been treated over the past 50 years and consist primarily of pinyon-juniper woodlands. These areas will be treated by prescribed fire, chemical or mechanical or other means in accordance with BLM sagebrush conservation guidance and other applicable resource goals. The improved forage will benefit multiple use objectives including livestock and wildlife use. Allotments: Adobe Mesa, Big Triangle, Black Ridge, Buckhorn.</p> <p>MONTICELLO FO RMP 2008 Maintain an estimated 1,500 acres/year of existing land treatments and implement new vegetation treatments to restore ecosystem health, functioning condition, etc. in the following vegetation cover types (Map 15):</p> <ul style="list-style-type: none"> • sagebrush 1,500 acres/year • weed treatments 3,000 acres/year • pinyon-juniper 3,000 acres/year • riparian 100 acres/year • greasewood 200 acres/year
106	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Encourage range, fuels and fire, and vegetation management activities that will protect and/or enhance riparian/aquatic resource conditions. Evaluate all proposed projects in order to ensure their compliance with BLM</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>policies on riparian habitat management. Manage riparian areas in a manner that moves them toward achieving Proper Functioning Condition (PFC). (NOTE: Projects designed for enhancement or improvement of riparian and alluvial sites will not be allowed within 100 feet of active channel edges without appropriate mitigation.)</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Use vegetation treatments and/or restrictions on allowable uses to meet priority species and vegetation objectives. Restore native riparian species in degraded areas by planting, seeding and by relying on natural regeneration associated with flooding and successional processes. Apply SSR (see Appendix B, Map 2-2e) within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone of naturally occurring seeps and springs (lentic riparian areas). Also apply SSR to the spring/seep recharge zone where it is determined to extend more than 100 meters from the riparian zone. Reintroduce appropriate native, wetland obligate plant species to seeps and springs that have been degraded. Emphasize reintroductions in springs and seeps that lack rare species and communities.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Vegetation planting and weed control will take place on all areas identified in the Gunnison Gorge Land Health Assessment (BLM 2001a) as needing restoration, and restoration will occur until an acceptable native plant community occupies the site.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Restore natural disturbance regimes such as fire, and use vegetative treatments to accomplish biodiversity objectives in resilient plant communities.</p> <p>Allowable Use (VR-AU3): STIPULATION NSO-4: Lentic Riparian Areas (including springs, seeps, and fens). (Alternative B: All Programs Except Fluid Minerals. Alternative C: All Surface-disturbing Activities) Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone. (Refer to Appendix B.) See Figures 2-43 (Alternative B) and 2-44 (Alternative C) in Appendix A. Standard exceptions apply; see Appendix B.</p> <p>ACTION (VR-A2): Give priority for riparian management to areas identified as special status species habitat and those riparian areas not meeting Proper Functioning Condition (e.g., Roan, Carr, Hawhurst, Coon Creek, and Plateau Creeks; the Gunnison, Colorado, and Dolores Rivers; and Unaweep Seep).</p> <p>ACTION (VR-A4): Consider the following management actions for improvement or protection of riparian values: riparian grazing pastures, exclosures, land acquisition, adjustments to grazing management, stream structures, and plantings.</p> <p>NSO-2 (ROWA): Streams/Springs Possessing Lotic Riparian Characteristics (except oil and gas).</p> <p>NSO-4 (ROWA): Lentic Riparian Areas (including springs, seeps, and fens) (except oil and gas).</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUNNISON RMP 1993 Resources and values in riparian areas will be maintained, restored, or improved, including the diversity, vigor, and quantity of herbaceous and woody plants necessary for the 1) proper hydrological functioning of riparian systems, 2) control of accelerated soil erosion, and 3) sustained high quality livestock forage and wildlife habitat. During the preparation of all plans for surface-disturbing activities on public lands, affected wetlands will be inventoried, classified, and considered.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985 Management actions within floodplains and wetlands will include measures to preserve, protect, and, if necessary, restore their natural functions (as required by Executive Orders 11988 and 11990).</p> <p>TRES RIOS FO RMP 2015 Management actions must not cause long-term change away from desired conditions in riparian or wetland vegetation communities. Agency actions should avoid or otherwise mitigate long-term adverse impacts to riparian areas and wetlands. Agency actions should avoid or otherwise mitigate damage to the long-term soil productivity of riparian area and wetland ecosystems. Woody riparian vegetation along low-gradient ephemeral and permanent stream channels should be maintained or restored to ensure terrestrial food sources for invertebrates, fish, birds, and mammals, and to minimize water temperature changes.</p> <p>UNCOMPAHGRE BASIN RMP 1989 Measures designed to minimize site-specific riparian and aquatic deterioration will be required in site specific plans for surface-disturbing land use activities. Vegetation conditions and streambank cover will be maintained or improved.</p>
107	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Treat over-mature or overly dense sagebrush-steppe habitat in a manner that provides for a diversity of age classes and for a better shrub-grass mosaic. Plant desirable native grasses and forbs.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Use vegetation treatments and/or restrictions on allowable uses to meet priority species and vegetation objectives. (In sagebrush communities) Use vegetation treatments (e.g., mechanical treatments, chemical treatments, planned and unplanned wildfire, reseeding, targeted grazing) to move towards meeting structural habitat guidelines found within the GUSG RCP (2005) or comparable, best available scientific guidance. (In sagebrush communities) Apply vegetation treatments to reintroduce and/or increase cover of sagebrush in old vegetation treatments where it was</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>removed. (In sagebrush communities) Apply vegetation treatments to reintroduce native grass, forb and shrub species in old vegetation treatments where crested wheatgrass is now a dominant species. Prior to completing vegetation treatments: establish research or pilot plots in D-E NCA to determine successful treatment prescriptions (exemption: noxious weed treatments); or ensure that likely outcomes are known on the basis of other tests conducted in the region. Use existing research or pilot plots from the D-E NCA or surrounding region to inform vegetation treatment prescriptions in this vegetation type.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>Vegetation planting and weed control will take place on all areas identified in the Gunnison Gorge Land Health Assessment (BLM 2001a) as needing restoration, and restoration will occur until an acceptable native plant community occupies the site. Plant community improvement projects will take place to restore native perennial grasses and forbs to communities where these have been depleted far below average levels.</p> <p>Unit 4 grouse area:</p> <ul style="list-style-type: none"> • In the Black Ridge area of the unit, the size, number, and types of vegetation (see Figure 3-8 in Chapter 3 of the DRMP [BLM 2003c]) will be tailored first to GUSG needs, and second to big game winter range needs. • Vegetation treatments will be managed to ensure that appropriate plant communities are present for all life functions for the GUSG. • In areas of severely degraded vegetation, restoration treatments will be undertaken. <p>GRAND JUNCTION FO RMP 2015</p> <p>ACTION: Consistent with current guidance for sagebrush-dependent species, improve areas of poor quality nesting habitat by implementing the following actions, including but not limited to:</p> <ul style="list-style-type: none"> • In areas where species diversity is low seed area with grasses and forbs, with an emphasis on forbs if brood-rearing occurs in the area, accompanied by light disking and inter-seeding, or drill seeding. • Where sage is decadent and does not meet habitat objectives, conduct thinning by roller-chopping, light disking, Dixie Harrow, Lawson Aerator or other methods. • Conduct vegetation treatments to retain residual cover through fall and winter into nesting season. <p>ACTION: Prioritize the following greater Sage-Grouse and GUSG winter areas for treatment and restoration:</p> <ul style="list-style-type: none"> • winter habitat areas in need of enhancement • areas that pose a fire risk to key winter habitats; and • areas to meet habitat condition objectives (e.g., Sunny Side and Wagon Track Ridge). <p>ACTION: Inventory upper-elevation sagebrush to identify non-functioning habitat and develop restoration plans</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>within priority management units to increase patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. Prioritize management of upper-elevation sagebrush in the following order:</p> <p>I. Greater and GUSG important habitat, including but not limited to Glade Park, Brush Mountain, and 4A Mountain.</p> <p>Action (A14): Implement vegetation treatments, including mechanical, chemical, and fire, on priority allotments to improve rangeland health or reduce conflicts with other resources or public land users.</p> <p>GUNNISON RMP 1993</p> <p>Specific, desired plant communities will be identified in activity plans. Exceptions to a late seral ecological status needed to meet objectives will be identified in activity plans. Structural and non-structural range improvements such as fences, water developments, burns, spray treatments, and others will continue to be identified and prescribed in activity plans or agreements. This will facilitate livestock management to achieve specific management and resource objectives defined in activity plans or agreements. However, any range improvements identified in the MFP ROD that were not implemented, and will enhance or facilitate resource management objectives will be considered for development. Existing range improvements will continue to be maintained as assigned in cooperative agreements and range improvement permits.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>Vegetation restoration and reclamation projects will be implemented on those areas currently not meeting land health standards, in concert with other programs that will improve the land health on all priority areas, including the River Corridor, Rabbit Valley, Black Ridge, as well as on other sites that will benefit from treatment for various resources such as sage grouse, desert bighorn, and prairie dogs. Emphasis will also be placed on improving plant diversity, particularly in those areas dominated by cheatgrass or crested wheatgrass, and in other priority areas. Rehabilitation efforts appropriate for the area will be applied.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>Development of habitat management plans for key species and their related habitat will occur over the term of the plan. Completion of these plans will be dependent upon need, availability of funding, and manpower. Several key habitats in which plans might be developed include: big game winter ranges; winter raptor concentration areas; aquatic riparian habitats; bighorn sheep habitat; pronghorn antelope habitat; and threatened and endangered (T&E) species habitat. Priority will generally be given to the development of a habitat management plan for T&E species.</p> <p>SAN LUIS RMP 1991</p> <p>San Luis Area #1 I-5: Allow vegetative manipulation such as mechanical, chemical, or fire practices to aid in</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>accomplishing the overall objective and the desired plant communities described in activity plans.</p> <p>San Luis Area #1 I-7: Provide 40 percent of increased forage production to livestock grazing and 60 percent, if needed, to non-livestock uses and needs (e. g., wildlife, riparian, watershed, soils, etc.).</p> <p>TRES RIOS FO RMP 2015 Vegetation management planning should emphasize restoration needs in the sagebrush ecosystem type.</p>
108	Special Status Species	<p>TRES RIOS FO RMP 2015 Use of native seeds should be used for re-vegetation following fuels management treatment based on availability, adaptation (site potential), and probability of success (Richards et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat objectives.</p>
109	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <ul style="list-style-type: none"> • Consider vegetation treatments on a case-by-case basis with weighted consideration of cultural resource values. Prioritize areas for restoration and reclamation where management changes alone will not improve resource conditions. • Implement and monitor new restoration projects, as needed. <p>GRAND JUNCTION FO RMP 2015</p> <ul style="list-style-type: none"> • Restore natural disturbance regimes such as fire, and use vegetative treatments to accomplish biodiversity objectives in resilient plant communities. • Maintain or restore vegetative communities to provide soil stability and resistance to erosion. • Use vegetative treatments to improve diversity, reduce noxious and invasive species, and restore native plant communities to support wildlife and livestock. • Ensure that managed activities (grazing, recreation, energy development, etc.) are not leading to degraded conditions. Maintain present composition of late- to mid-seral plant communities providing suitable habitat for wildlife. • Minimize activities that would result in a persistent early-seral stage in the lower elevations. • Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. • Restore the species composition and diversity of seral stages of sagebrush communities. • Implement treatments designed to replenish the native seed bank and control noxious and invasive species. Inventory lower-elevation sagebrush to identify non-functioning habitat and develop restoration plans within

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>priority management units to increase patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species.</p> <ul style="list-style-type: none"> • Prioritize management of lower-elevation sagebrush in the following order: 1. Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) and GUSG important winter habitat. 2. Critical and severe big-game winter range. 3. Areas not meeting land health. • Inventory low-elevation sagebrush to identify non-functioning habitat. • Develop restoration plans that prioritize efforts to achieve specific species and habitat goals. Habitat goals include but are not limited to increased patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. • Prioritize the following greater Sage-Grouse and GUSG winter areas for treatment and restoration: <ul style="list-style-type: none"> ◦ winter habitat areas in need of enhancement ◦ areas that pose a fire risk to key winter habitats ◦ areas to meet habitat condition objectives (e.g., Sunny Side and Wagon Track Ridge). • Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. • Restore the species composition and diversity of successional stages of sagebrush communities. • Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought. • Inventory upper-elevation sagebrush to identify non-functioning habitat and develop restoration plans within priority management units to increase patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. • Prioritize management of upper-elevation sagebrush in the following order: 1. Greater and GUSG important habitat, including but not limited to Glade Park, Brush Mountain, and 4A Mountain. 2. Critical and severe big-game winter range. 3. Areas not meeting land health. 4. Areas that pose a fire risk to key habitats. • Remove sagebrush to create small openings in continuous or dense sagebrush to create a mosaic of multiple age classes and associated understory diversity across the landscape to benefit many sagebrush-dependent species. Factors that help determine the mosaic are soil types, topography, aspect, climate and local weather patterns, and current and potential plant communities. <p>Action (A14): Implement vegetation treatments, including mechanical, chemical, and fire, on priority allotments to improve rangeland health or reduce conflicts with other resources or public land users.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>MOAB FO RMP 2008 Reclaim and restore up to 257,809 acres of sagebrush habitat and shrub-steppe ecosystems where appropriate in accordance with the BLM sagebrush conservation guidance. Reclamation/restoration will be undertaken in cooperation with the Utah Partners for Conservation and Development and may include removing surface material, re-contouring, spreading topsoil, seeding or planting seedlings, and/or changing livestock grazing strategies, such as, changing season of use, type of use, removing or reducing spring grazing, reducing livestock numbers, reducing grazing intensity, improving distribution, requiring rest rotation practices, or exclusion. Work in coordination with UDWR to reduce wildlife numbers, as necessary, to restore sagebrush habitat.</p> <p>TRES RIOS FO RMP 2015 ACTION: When re-seeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush.</p>
I10	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Consider vegetation treatments on a case-by-case basis with weighted consideration of cultural resource values. Prioritize areas for restoration and reclamation where management changes alone will not improve resource conditions. Implement and monitor new restoration projects, as needed.</p> <p>GRAND JUNCTION FO RMP 2015</p> <ul style="list-style-type: none"> • Restore natural disturbance regimes such as fire, and use vegetative treatments to accomplish biodiversity objectives in resilient plant communities. • Maintain or restore vegetative communities to provide soil stability and resistance to erosion. • Use vegetative treatments to improve diversity, reduce noxious and invasive species, and restore native plant communities to support wildlife and livestock. • Ensure that managed activities (grazing, recreation, energy development, etc.) are not leading to degraded conditions. Maintain present composition of late- to mid-seral plant communities providing suitable habitat for wildlife. • Minimize activities that would result in a persistent early-seral stage in the lower elevations. • Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. • Restore the species composition and diversity of seral stages of sagebrush communities.

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<ul style="list-style-type: none"> • Implement treatments designed to replenish the native seed bank and control noxious and invasive species. Inventory lower-elevation sagebrush to identify non-functioning habitat and develop restoration plans within priority management units to increase patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. • Prioritize management of lower-elevation sagebrush in the following order: 1. Greater Sage-Grouse (<i>Centrocercus urophasianus</i>) and GUSG important winter habitat. 2. Critical and severe big-game winter range. 3. Areas not meeting land health. • Inventory low-elevation sagebrush to identify non-functioning habitat. • Develop restoration plans that prioritize efforts to achieve specific species and habitat goals. Habitat goals include but are not limited to increased patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. • Prioritize the following greater Sage-Grouse and GUSG winter areas for treatment and restoration: <ul style="list-style-type: none"> ◦ winter habitat areas in need of enhancement ◦ areas that pose a fire risk to key winter habitats ◦ areas to meet habitat condition objectives (e.g., Sunny Side and Wagon Track Ridge). • Maintain or improve high-quality sagebrush habitats consistent with the natural range of variability for sagebrush communities. • Restore the species composition and diversity of successional stages of sagebrush communities. • Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought. • Inventory upper-elevation sagebrush to identify non-functioning habitat and develop restoration plans within priority management units to increase patch size and connectivity through vegetation treatments and consolidation of disturbance to support sagebrush obligate species. • Prioritize management of upper-elevation sagebrush in the following order: 1. Greater and GUSG important habitat, including but not limited to Glade Park, Brush Mountain, and 4A Mountain. 2. Critical and severe big-game winter range. 3. Areas not meeting land health. 4. Areas that pose a fire risk to key habitats. • Remove sagebrush to create small openings in continuous or dense sagebrush to create a mosaic of multiple age classes and associated understory diversity across the landscape to benefit many sagebrush-dependent species. Factors that help determine the mosaic are soil types, topography, aspect, climate and local weather patterns, and current and potential plant communities.

CHAPTER 2 - ALTERNATIVES

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Action (A14): Implement vegetation treatments, including mechanical, chemical, and fire, on priority allotments to improve rangeland health or reduce conflicts with other resources or public land users.</p> <p>MOAB FO RMP 2008 Reclaim and restore up to 257,809 acres of sagebrush habitat and shrub-steppe ecosystems where appropriate in accordance with the BLM sagebrush conservation guidance. Reclamation/restoration will be undertaken in cooperation with the Utah Partners for Conservation and Development and may include removing surface material, re-contouring, spreading topsoil, seeding or planting seedlings, and/or changing livestock grazing strategies, such as, changing season of use, type of use, removing or reducing spring grazing, reducing livestock numbers, reducing grazing intensity, improving distribution, requiring rest rotation practices, or exclusion. Work in coordination with UDWR to reduce wildlife numbers, as necessary, to restore sagebrush habitat.</p> <p>TRES RIOS FO RMP 2015 ACTION: When re-seeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush.</p>
III	Special Status Species	<p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 In coordination with the counties, use early detection/rapid response to contain and (where possible) eradicate all State listed species and selected BLM species of concern (see Appendix F for list of State weeds. Treat tamarisk, Russian olive and elm (and other woody non-native plants) with a phased approach. Remove patches of woody non-natives to 1) allow for the establishment of native species in treated patches prior to treating adjacent patches and 2) minimize disruption to habitat connectivity. Conduct active restoration in disturbed patches.</p> <p>GRAND JUNCTION FO RMP 2015 Apply integrated control methods (physical, cultural, biological, chemical, fire) to noxious and invasive pest populations. Use vegetative treatments to improve diversity, reduce noxious and invasive species, and restore native plant communities to support wildlife and livestock. Implement treatments designed to replenish the native seed bank and control noxious and invasive species. Restore the species composition and diversity of successional stages of sagebrush communities. Implement treatments designed to reduce pinyon-juniper and conifer encroachment, replenish diminished native seed banks, control noxious and invasive species, and provide periods of grazing rest or reduced usage during drought.</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>GUNNISON RMP 1993 A noxious weed program, and control of noxious weeds, will be initiated in cooperation with the local county weed district, county governments, and other affected interests.</p> <p>GUNNISON GORGE NCA RMP 2004 Vegetation planting and weed control will take place on all areas identified in the Gunnison Gorge Land Health Assessment (BLM 2001a) as needing restoration, and restoration will occur until an acceptable native plant community occupies the site. Pursuant to BLM's Partners in Weeds strategy, BLM will conduct integrated weed management with counties, private landowners, and other agencies to meet land health standards.</p> <p>MCINNIS CANYONS NCA RMP 2004 The BLM will manage noxious weeds using an Integrated Weed Management (IWM) approach, while incorporating weed education information into CCNCA literature, web sites, and key entry points into the CCNCA. The BLM's Partners Against Weeds (PAWs) action plan is a comprehensive strategy providing guidance for preventing and controlling the spread of noxious weeds. Goals of the PAWs plan are prevention and detection, education and awareness, inventory, planning, Integrated Weed Management, monitoring and evaluation, and research and technology transfer. PAWs and additional guidance such as the Certified Weed-Free Forage Program are integral to the CCNCA weed management program.</p> <p>MOAB FO RMP 2008 Make consistent with LUA and maybe minerals. Consider making General or applying to Control invasive and non-native weed species and prevent the introduction of new invasive species by implementing a comprehensive weed program (as per national guidance and local weed management plans in cooperation with state, federal affected counties), including: coordination with partners; prevention and early detection; education; inventory and monitoring; and using principles of integrated weed management. Control invasive and non-native weed species and prevent the introduction of new invasive species by implementing a comprehensive weed program (as per national guidance and local weed management plans in cooperation with state, federal affected counties), including: coordination with partners; prevention and early detection; education; inventory and monitoring; and using principles of integrated weed management. Manage for vegetation restoration, including control of weed infestations and control of invasive and undesirable non-native species. Maintain, protect and enhance special status plant and animal habitats in such manner that the potential need to consider any of these species for listing as threatened or endangered under the Endangered Species Act does not arise. Maintain or enhance the integrity of current sagebrush and sage steppe communities and identify areas in need of restoration.</p>

CHAPTER 2 - ALTERNATIVES

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Initiate restoration and/or rehabilitation efforts to ensure sustainable populations of sage-grouse, mule deer and other sagebrush obligate species.</p>
I12	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Inventory and prioritize areas for noxious weed treatment (such as routes, riparian areas, stock ponds, and areas of ground disturbance) within 3 years of the signing of the ROD. Monitor, annually, at least 20 percent of treatment areas.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Within SRMAs: Prioritize non-native plant treatments to most efficiently achieve both biological and recreation objectives. In all other areas: Prioritize non-native plant treatments to most efficiently achieve biological resources objectives. Focus weed inventory surveys and treatments on high use areas (roads, trails, ponds, river, etc.), federally listed species habitat, and in stream segments suitable for inclusion in the National Wild and Scenic Rivers system.</p> <p>GRAND JUNCTION FO RMP 2015 Prioritize treatment areas for priority noxious and invasive species based on the following criteria: • Current state, county, and BLM priority weed lists; • Appropriate time of year for the most effective treatment; and • River restoration projects.</p>
I13	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010 Apply all weed prevention BMPs (see Appendix D) to ground-disturbing activities.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013 Ensure noxious weed preventive measures are applied to Special Recreation Permit activities, construction activities, road maintenance and mechanical vegetation treatment activities as outlined in contracts, permits, and cooperative agreements.</p> <p>GRAND JUNCTION FO RMP 2015 Implement preventative measures for activities associated with oil and gas operations; ROWs; range developments; special recreation permits (SRP); and construction and mechanical vegetation treatment activities as authorized in contracts and permits.</p> <p>MOAB FO RMP 2008 Control invasive and non-native weed species and prevent the introduction of new invasive species by implementing</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>a comprehensive weed program (as per national guidance and local weed management plans in cooperation with state, federal affected counties), including: coordination with partners; prevention and early detection; education; inventory and monitoring; and using principles of integrated weed management.</p> <p>TRES RIOS FO RMP 2015</p> <p>For all proposed projects or activities, the risk of invasive aquatic and plant species introduction or spread should be determined and appropriate prevention and mitigation measures implemented.</p> <p>ACTION: GUSG: Invasive vegetation must be monitored and controlled post-treatment.</p>
114	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Permit no personal fuelwood cutting. Authorize, by permit, commercial fuelwood cutting. Use both dead-and-down wood and live trees for commercial fuelwood harvesting. Require a Class III Cultural Resource Inventory in areas permitted for commercial fuelwood harvesting. Authorize, on a case-by-case basis, the removal of products not aforementioned for research and/or for traditional purposes. Allow the commercial removal of special forest products following the completion of a Class III Cultural Resource Inventory, and a determination by the Monument Manager that the use (such as fuelwood harvesting, post cutting, or Christmas tree cutting) will not result in any new impacts that will interfere with the proper care and/or management of the objects (cultural, biological, and/or geological resources). Designate areas for commercial special forest product removal in order to meet vegetation management objectives.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Allow for the authorized collection of plant materials (including firewood) within the D-E NCA, where doing so helps achieve biological and/or cultural resource objectives. Evaluate yearly and designate as-needed firewood collection areas in order to conserve, protect or enhance biological and/or cultural resources, while maintaining the recreational value of this traditional use. Designate Christmas tree cutting areas where doing so helps meet goals and objectives established for biological resources in the D-E NCA, and evaluate such areas on yearly basis.</p> <p>GUNNISON GORGE NCA RMP 2004</p> <p>All public lands in the planning area will be closed to commercial forestry activities. Fuelwood collection or cutting will be allowed only if all other management unit objectives will continue to be met and, upon completion of fuelwood collection, existing ground conditions will not hinder proposed treatments. In areas on the east side of the Gorge that receive vegetation treatments, prescribed burns, or other techniques, fuelwood collection could be allowed as a means to accomplish a resource objective, priority, cleanup, or to remove fuel from the ground and to facilitate the purposes of the treatment, if appropriate. (Unit 4 grouse area) In areas that receive vegetation</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>treatments, prescribed burns, or other techniques, fuelwood collection could be allowed as a means to accomplish a resource objective, priority, cleanup, or to remove fuel from the ground and to facilitate the purposes of the treatment, if appropriate. Fuelwood collection or cutting, where authorized, will be allowed only if all other management unit objectives will continue to be met and, upon completion of fuelwood collection, existing ground conditions will not hinder proposed treatments.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Make 830,500 acres available for wilding permits. Issue commercial seed permits on a case-by-case basis. Close the following areas to wilding permits:</p> <ul style="list-style-type: none"> • WSAs; • ACECs; • SRMAs: ◦ Bangs and o North Fruita Desert; • Lands managed for wilderness characteristics; • Occupied threatened and endangered plant habitat; and • Occupied special status plant species habitat. <p>Prohibit firewood harvest (in riparian areas), except where appropriate to allow for removal of undesirable invasive species.</p> <p>Action (A1): Allow harvest of forest and woodland products in portions of the following forestry zones that are determined suitable for harvest in activity-level plans or site-specific analyses:</p> <ul style="list-style-type: none"> • Pinyon-juniper: o Bangs Canyon (59,100 acres) ◦ Glade Park (67,100 acres); o Gateway (194,300 acres); o Book Cliffs (214,300); o Plateau Valley (66,800 acres); o Grand Mesa Slopes (60,700 acres); and o Roan Creek (243,300 acres). <p>Action (A2): Close the following areas (approximately 231,200 acres) to wood product sales and/or harvest (not including Christmas tree harvest). (Figure 2-79, Appendix A). Additional areas may be found as unsuitable for harvest in the site specific forest/woodland management plans:</p> <ul style="list-style-type: none"> • The Palisade municipal watershed; • Known lynx habitat; • VRM Class I areas; • WSAs; • Lands managed for wilderness characteristics; and • ACECs. <p>Exception: Allow wood product sales and/or harvest to meet desired resource conditions.</p> <p>Action (A3): Allow Christmas tree cutting in annually delineated tree cutting areas. Close the following areas to Christmas tree cutting, except when tree removal supports the objectives of the following areas:</p> <ul style="list-style-type: none"> • Areas identified as being over harvested; • ACECs; • Lands managed for wilderness characteristics; and • WSAs. <p>Action (A7): Discourage clear cuts in small, isolated, and tall conifer stands and/or mature pinyon-juniper woodlands under 160 acres, unless such practices meet other resource objectives.</p> <p>Implementation Action (A9): Based upon tribal and public demand, allow collection of unconventional forest products. Limit permitted use of vegetal collection of commonly available renewable resources (e.g., seeds, cones, wildlings, berries, mushrooms, nuts) for non-commercial use to the following amounts consistent with other resource goals/objectives:</p> <ul style="list-style-type: none"> • Boughs, All Coniferous Species: 50 pounds per person per year • Cones – Ornamental: two bushels per person per year (one bushel is equal to 9 gallons or 35 liters) • Cones – Nuts: one bushel per person per year • Medicinal: one bushel per person per year (collection prohibited within WSAs and ACECs)

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>Mushrooms: five gallons per species per person per year • Wildlings: 15 meters (50 feet) per species per person per year (collection prohibited within WSAs and ACECs) • Traditional, religious, or ceremonial plants that are not widely available may be harvested for personal use by Native American tribal members and would not be offered as wilding plants for the general public.</p> <p>Implementation Action (A9): Based upon tribal and public demand, allow collection of unconventional forest products. Limit permitted use of vegetal collection of commonly available renewable resources (e.g., seeds, cones, wildlings, berries, mushrooms, nuts) for non-commercial use to the following amounts consistent with other resource goals/objectives:</p> <ul style="list-style-type: none"> • Boughs, All Coniferous Species: 50 pounds per person per year • Cones – Ornamental: two bushels per person per year (one bushel is equal to 9 gallons or 35 liters) • Cones – Nuts: one bushel per person per year • Medicinal: one bushel per person per year (collection prohibited within WSAs and ACECs) • Mushrooms: five gallons per species per person per year • Wildlings: 15 meters (50 feet) per species per person per year (collection prohibited within WSAs and ACECs) • Traditional, religious, or ceremonial plants that are not widely available may be harvested for personal use by Native American tribal members and would not be offered as wilding plants for the general public. <p>GUNNISON RMP 1993</p> <p>Suitable commercial forest lands and woodlands will be managed for sustained yield production within the allowable cut restrictions and guidelines determined by the Timber Production Capability Classification (TPCC). Special emphasis will be placed on the harvest of over-mature and pest-killed trees. Approximately 41,347 acres of suitable commercial forest lands, and 23,615 acres of suitable woodlands in several Management Units will be available for harvest. Approximately 1,200 MBF of commercial timber, 490 cords of fuelwood, 400 wildlings, and, on average, 300 Christmas trees could be considered for harvest annually on a sustained yield basis. No commercial timber harvesting will occur in riparian areas, or in a 30-foot area either side of riparian areas, unless riparian or wildlife values will be improved.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>The practice of taking woodland products within the CCNCA will be discontinued. The option of allowing some cutting to facilitate clearing trees for trails, recreation projects, land health initiatives, and wildlife projects will be considered.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>Forested areas within other emphasis areas will also be available for a full range of forest management activities; plans will be modified to be compatible with the management emphasis areas. Firewood harvesting will be permitted on most accessible forest land available for harvesting forest products. Provide intensive timber management on</p>

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		<p>approximately 10,960 acres. Estimated allowable harvest would be 6.5 MMBF per decade. An additional 42,130 acres would be managed to provide woodland products (firewood, posts, poles, etc.).</p> <p>SAN LUIS RMP 1991</p> <p>San Luis Area #1: I-15: Meet crucial thermal and cover requirements for wildlife during harvest of productive forest lands and operable woodlands.</p> <p>San Luis Area #1: I-16: Allow small timber operations (i.e., 80 acres or less) during the winter months provided there will be only minimal impacts to wintering big game herds.</p> <p>San Luis Area #1:I-17: Harvest 477 cords of fuelwood (11,992 acres of productive operable woodlands) during the life of the plan or 53 acres annually. San Luis Area #1: I-9: Allow harvesting in any area consistent with activity plans and RMP decisions.</p> <p>UNCOMPAHGRE BASIN RMP 1989</p> <p>Suitable commercial forest lands and pinyon-juniper woodlands will be managed for sustained yield production within the allowable cut restrictions determined by the Timber Production Capabilities Classification (TPCC) inventory. In Management Unit 2 (Southern Uncompahgre Plateau): The management unit will be available for woodland product harvests. On 37,007 acres of crucial deer and elk winter range, seasonal restrictions on harvest may be necessary from December 1 through April 30 to reduce stress on wintering deer and elk. Woodland harvest will be designed to increase forage production and will be compatible with wildlife habitat management objectives.</p>
115	Special Status Species	<p>CANYONS OF THE ANCIENTS NM RMP 2010</p> <p>Authorize, without permit, the gathering of up to 22.5 pounds of pinyon pine nuts for personal and/or traditional use. Prohibit the gathering of pinyon nuts for commercial purposes. Authorize, on a case-by-case basis, the removal of products not aforementioned for research and/or for traditional purposes.</p> <p>DOMINGUEZ-ESCALANTE NCA DRAFT RMP 2013</p> <p>Allow for the authorized collection of plant materials (including firewood) within the D-E NCA, where doing so helps achieve biological and/or cultural resource objectives. Evaluate yearly and designate as-needed firewood collection areas in order to conserve, protect or enhance biological and/or cultural resources, while maintaining the recreational value of this traditional use. Designate Christmas tree cutting areas where doing so helps meet goals and objectives established for biological resources in the D-E NCA, and evaluate such areas on yearly basis.</p> <p>GRAND JUNCTION FO RMP 2015</p> <p>Make 830,500 acres available for wildling permits. Issue commercial seed permits on a case-by-case basis. Close the</p>

R O W	PROGRAM AREA	NO ACTION ALTERNATIVE A
		<p>following areas to wilding permits: • WSAs; • ACECs; • SRMAs: o Bangs and o North Fruita Desert; • Lands managed for wilderness characteristics; • Occupied threatened and endangered plant habitat; and • Occupied special status plant species habitat. Prohibit firewood harvest (in riparian areas), except where appropriate to allow for removal of undesirable invasive species.</p> <p>Action (A1): Allow harvest of forest and woodland products in portions of the following forestry zones that are determined suitable for harvest in activity-level plans or site-specific analyses: • Pinyon-juniper: o Bangs Canyon (59,100 acres) o Glade Park (67,100 acres); o Gateway (194,300 acres); o Book Cliffs (214,300); o Plateau Valley (66,800 acres); o Grand Mesa Slopes (60,700 acres); and o Roan Creek (243,300 acres).</p> <p>Implementation Action (A9): Based upon tribal and public demand, allow collection of unconventional forest products. Limit permitted use of vegetal collection of commonly available renewable resources (e.g., seeds, cones, wildlings, berries, mushrooms, nuts) for non-commercial use to the following amounts consistent with other resource goals/objectives: • Boughs, All Coniferous Species: 50 pounds per person per year • Cones – Ornamental: two bushels per person per year (one bushel is equal to 9 gallons or 35 liters) • Cones – Nuts: one bushel per person per year • Medicinal: one bushel per person per year (collection prohibited within WSAs and ACECs) • Mushrooms: five gallons per species per person per year • Wildings: 15 meters (50 feet) per species per person per year (collection prohibited within WSAs and ACECs) • Traditional, religious, or ceremonial plants that are not widely available may be harvested for personal use by Native American tribal members and would not be offered as wilding plants for the general public.</p> <p>Implementation Action (A9): Based upon tribal and public demand, allow collection of unconventional forest products. Limit permitted use of vegetal collection of commonly available renewable resources (e.g., seeds, cones, wildlings, berries, mushrooms, nuts) for non-commercial use to the following amounts consistent with other resource goals/objectives: • Boughs, All Coniferous Species: 50 pounds per person per year • Cones – Ornamental: two bushels per person per year (one bushel is equal to 9 gallons or 35 liters) • Cones – Nuts: one bushel per person per year • Medicinal: one bushel per person per year (collection prohibited within WSAs and ACECs) • Mushrooms: five gallons per species per person per year • Wildings: 15 meters (50 feet) per species per person per year (collection prohibited within WSAs and ACECs) • Traditional, religious, or ceremonial plants that are not widely available may be harvested for personal use by Native American tribal members and would not be offered as wilding plants for the general public.</p> <p>MCINNIS CANYONS NCA RMP 2004</p> <p>The practice of taking woodland products within the CCNCA will be discontinued. The option of allowing some cutting to facilitate clearing trees for trails, recreation projects, land health initiatives, and wildlife projects will be</p>

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		<p>considered.</p> <p>SAN JUAN/SAN MIGUEL RMP 1985</p> <p>Forested areas within other emphasis areas will also be available for a full range of forest management activities; plans will be modified to be compatible with the management emphasis areas. Firewood harvesting will be permitted on most accessible forest land available for harvesting forest products. Provide intensive timber management on approximately 10,960 acres. Estimated allowable harvest would be 6.5 MMBF per decade. An additional 42,130 acres would be managed to provide woodland products (firewood, posts, poles, etc.).</p>
WILDLIFE		
116	Wildlife	No similar action.
117	Wildlife	No similar action.
118	Wildlife	No similar action.
119	Wildlife	No similar action.
120	Wildlife	No similar action.
AREAS OF CRITICAL ENVIRONMENTAL CONCERN		
121	ACECs	<p>GUNNISON GORGE NCA RMP 2004</p> <p>Public lands in the Management Unit 4 (22,200 acres) will be designated and managed as the GUSG ACEC/IBA. Management and protection of the GUSG and its habitat will be emphasized in this management unit.</p>

TABLE 2.7 - ACTION ALTERNATIVES: B, C, AND SUB-ALTERNATIVES D₁/D₂Table 2.7 - Action Alternatives B, C, and D (consisting of Sub-Alternatives D₁ and D₂)

R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
TRAVEL AND TRANSPORTATION					
GOAL: Travel and transportation are managed to avoid, minimize, or compensate for activities that 1) disrupt GUSG or 2) fragment GUSG Habitat.					
		OBJECTIVE: Travel and transportation are managed to: 1) reduce mortality from vehicle collisions, 2) avoid, minimize, and compensate for habitat fragmentation, 3) limit the spread of invasive species, and 4) limit disruptive activity associated with human access.			
		OBJECTIVE: A travel management plan (TMP) is completed or amended to address management of GUSG Habitat for each BLM field office in the planning area.			
1	Travel	When conducting travel management planning, reduce route densities to improve Occupied Habitat.	In Occupied Habitat, evaluate for potential reductions in route density in order to improve habitat conditions and adjust, as applicable, through the travel management planning process.	No Action.	Same as Alternative C.
2	Travel	In Unoccupied Habitat, evaluate for potential reductions in route density in order to improve habitat conditions and adjust, as applicable, through the travel management planning process.	Same as Alternative B.	No Action.	Same as Alternative B.
3	Travel	Evaluate routes in Non-	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		Habitat Areas for potential reductions in route density in order to enhance connectivity and eliminate activities disruptive to GUSG and adjust, as applicable, through the travel management planning process.			
4	Travel	Designate Occupied Habitat as closed to motorized travel, except for access required by law or for emergency services or administrative or permitted activities.	Designate Occupied Habitat as limited. Where designation through a TMP does not yet exist, limit to existing routes. Where routes have been designated through a TMP, limit to designated routes. Areas currently designated as closed to motorized travel will remain so and not be changed by this RMP Amendment.	Same as Alternative C.	Same as Alternative C.
5	Travel	Prohibit upgrades to existing routes in Occupied Habitat.	Prohibit upgrades to existing routes in Occupied Habitat unless necessary for motorist safety or to eliminate the need for construction of a new road. Require mitigation of impacts using methods demonstrated	Allow for upgrades to existing routes after documenting that the upgrade would not adversely affect GUSG populations due to habitat loss or disruptive activities in Occupied Habitat.	Same as Sub-Alternative D, ₁ .

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			to be effective in offsetting the loss of GUSG Habitat.	Require mitigation in accordance with the Mitigation Plan (in Appendix J).	
6	Travel	Subject to valid existing rights, prohibit any upgrade to an existing route in Unoccupied Habitat that would change the route category (from a trail to a primitive road or road or from a primitive road to a road) or increase capacity, unless the upgrade is necessary for motorist safety or to eliminate the need to construct a new road and determined through quantitative analysis to have minimal impact on GUSG Habitat.	Allow for upgrades to existing routes in Unoccupied Habitat after documenting that the upgrade would not adversely affect the recovery of GUSG populations due to habitat loss or disruptive activities. Require mitigation in accordance with the Mitigation Plan (in Appendix J).	Allow for upgrades to existing routes after documenting that the upgrade would not adversely affect the recovery of GUSG populations due to habitat loss or disruptive activities in Unoccupied Habitat. Require mitigation in accordance with the Mitigation Plan (in Appendix J).	Same as Sub-Alternative D ₁ .
7	Travel	Do not allow upgrades to existing routes in Non-Habitat Areas if the upgrade would be disruptive to GUSG or act as an impermeable barrier to connectivity between populations or sub-populations.	No similar action.	No similar action.	No similar action.
8	Travel	Prohibit new routes in	Limit route construction in	Allow for realignments in	Allow for realignments in

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		Occupied Habitat.	<p>Occupied Habitat to the realignment of existing designated routes necessary for safety or to eliminate the need to construct a new route if realignment is determined to have a minimal impact on GUSG Habitat.</p> <p>Require mitigation in accordance with the Mitigation Plan (in Appendix J).</p>	<p>CCA-designated Tier 1 habitat for agency purposes requiring new road or trail construction and/or re-openings and allow for new roads and trails in CCA-designated Tier 2 habitat, as outlined in Section 4.3.2 of the CCA.</p> <p>A separate minimum set of GUSG conservation measures is proposed for three geographic areas identified as Highly Managed Urban Interface Recreation Areas to meet current and future recreation needs. (Refer to CCA Appendix B.)</p>	<p>Occupied Habitat for agency purposes requiring new road or motorized trail construction and/or re-openings and non-motorized trail realignments if:</p> <ul style="list-style-type: none"> • The realignment or reopening would conserve or enhance GUSG Habitat; and • The resulting decommissioned road/trail segments would be reclaimed; and • Standard minimization measures would be applied. <p>Allow for new routes if:</p> <ul style="list-style-type: none"> • The new routes would consolidate existing designated and user-created routes; and • Consolidation would be accomplished by decommissioning and reclaiming the replaced routes per the mitigation plan; and • Standard minimization measures would be applied.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
9	Travel	<p>Limit route construction in Unoccupied Habitat to the realignment of existing designated routes necessary for safety or to eliminate the need to construct a new route if realignment is determined to have a minimal impact on GUSG Habitat.</p> <p>Require mitigation in accordance with the Mitigation Plan (in Appendix J).</p>	<p>Prior to completion of a TMP, limit route construction to routes that will not adversely affect GUSG populations due to habitat loss or disruptive activities in Unoccupied Habitat.</p> <p>Require mitigation in accordance with the Mitigation Plan (in Appendix J).</p>	Same as Alternative C.	Same as Alternative C.
10	Travel	Prior to completion of a TMP, limit route construction in Non-Habitat Areas if routes have the potential to be disruptive to GUSG or act as an impermeable barrier to connectivity between populations and sub-populations.	No similar action.	No similar action.	No similar action.
11	Travel	<p>Use existing roads or realignments as described above to access valid existing rights that are not yet developed in Occupied Habitat.</p> <p>If valid existing rights cannot be accessed via existing</p>	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		roads, then allow for a new road constructed to the absolute minimum standard necessary and apply effective mitigation necessary to offset the resulting loss of GUSG Habitat.			
I2	Travel	No similar action.	Prioritize and conduct the restoration of closed routes in Occupied Habitat identified as most critical for GUSG success.	When implementing route closures in Occupied Habitat in the Gunnison Basin in accordance with the 2010 Gunnison Basin TMP: <ul style="list-style-type: none"> • Prioritize CCA-designated Tier I habitat for reclamation work to the extent feasible. • Use the Habitat Prioritization Tool and/or a route density map to compare reclamation options for optimizing the size of intact unfragmented CCA-designated Tier I habitat patches (CCA Section 5.2.1). 	Same as Alternative C.
I3	Travel	Actively conduct restoration of all closed routes in Unoccupied Habitat.	Prioritize and conduct the restoration of closed routes in Unoccupied Habitat as time and resources allow.	Same as Alternative C.	Same as Alternative C.
I4	Travel	Timing Limitation:	Timing Limitation:	Timing Limitation:	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		During the lek season from March 15 through May 15, implement seasonal closures for motorized routes in Occupied Habitat.	During the lek season from March 15 through May 15, implement seasonal closures for motorized routes in Occupied Habitat where a conflict has been identified.	During the lek season from March 15 through May 15, implement seasonal closures to motorized travel in Occupied Habitat in the Gunnison Basin, in accordance with the 2010 Gunnison Basin TMP and as outlined in Section 5.2.2 of the CCA. From December 1 through March 31, implement closures when necessitated by severe winter conditions, in accordance with guidance in Section 5.2.2.B of the CCA.	
15	Travel	Timing Limitation: During the lek season from March 15 through May 15, implement seasonal closures for mechanized routes in Occupied Habitat.	Timing Limitation: During the lek season from March 15 through May 15, implement seasonal closures for mechanized routes in Occupied Habitat in any area where a conflict has been identified and within 1.0 mile of a lek.	No similar action.	Same as Alternative C.
16	Travel	Timing Limitation: From March 1 through May 15, implement seasonal closures to human entry in	Timing Limitation: From March 15 through May 15, implement seasonal closures to uses in Occupied	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		Occupied Habitat.	Habitat where a conflict has been identified.		
RECREATION					
GOAL: Recreation is managed to avoid, minimize, or mitigate activities that 1) disrupt GUSG, 2) fragment GUSG Habitat, or 3) spread invasive species.					
OBJECTIVE: Disruptive recreational activities are reduced in GUSG Habitat.					
OBJECTIVE: Fragmentation of GUSG Habitat due to recreational activities is reduced based upon site potential, current scientific research, and RCP guidelines.					
17	Recreation	Do not designate new RMAs (SRMAs or ERMAs) in Occupied Habitat. While not emphasizing recreation, allow for recreation uses and activities not in conflict with GUSG or GUSG Habitat.	Do not designate new RMAs (SRMAs or ERMAs) in Occupied Habitat where a conflict with GUSG or GUSG Habitat can be identified. While not emphasizing recreation, allow for recreation uses and activities not in conflict with GUSG or GUSG Habitat.	For three areas (Hartman Rocks, Signal Peak, and Van Tuyl Ranch) that sustain the majority of recreational use within GUSG Habitat in the Gunnison Basin, implement actions as outlined in Appendix B of the CCA. In order to compensate for new route and facility development in these areas, observe GUSG conservation measures (such as seasonal closures to minimize disturbance to leks), but do not require compliance with the off-site mitigation standards outlined in sections 4.3, 4.4, 5.2, and 5.3 of the CCA.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
18	Recreation	In Occupied Habitat, prohibit new developed recreational infrastructure and remove all existing recreational infrastructure.	In Occupied Habitat, allow for new developed recreational infrastructure only when it functions to minimize the effects of recreation on GUSG and Occupied Habitat. Remove existing infrastructure that does not serve this function. Require mitigation in accordance with the Mitigation Plan (in Appendix J).	In Occupied Habitat in the Gunnison Basin, permit additional small-scale infrastructure (such as signs, kiosks, vault toilets, vehicle barriers, concentrated parking areas, culverts, gates, cattle guards, enclosures, and water developments) in CCA-designated Tier 1 and Tier 2 habitat, as outlined in CCA Section 4.4.4 and Section 4.2. For activities outside of CCA guidelines, follow Alternative C.	Same as Alternative C.
19	Recreation	In Unoccupied Habitat, prohibit new developed recreational infrastructure and remove all existing recreational infrastructure.	In Unoccupied Habitat, authorize developed recreational infrastructure only if it serves to minimize the effects of recreation in Occupied Habitat and any portion of Unoccupied Habitat that currently exhibits or has the potential to exhibit the Primary Constituent Elements (PCEs) of GUSG Habitat. Remove existing infrastructure that does not serve this function. Require mitigation of	Same as Alternative C.	Same as Alternative C

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
			recreational impacts in accordance with the Mitigation Plan (in Appendix J).		
Special Recreation Permits (SRPs)					
20	Recreation	Do not authorize new SRPs or renew expiring SRPs in Occupied Habitat.	Authorize only those SRPs that have neutral or beneficial effects to Occupied Habitat. Where possible, transfer currently permitted uses to areas outside of Occupied Habitat.	In Occupied Habitat in the Gunnison Basin, authorize SRPs for recreation events, guides, and outfitters as outlined in CCA Section 5.2.3. Identify and provide limited opportunities for specific activities not locatable outside of sagebrush habitat. (CCA)	Do not allow SRPs with the potential to adversely affect GUSG or GUSG Occupied Habitat. Where possible, transfer currently permitted uses to areas outside of Occupied Habitat.
21	Recreation	Authorize only those SRPs that have neutral or beneficial effects to Unoccupied Habitat.	Do not allow SRPs with the potential to adversely affect Unoccupied Habitat.	Same as Alternative B.	Same as Alternative B.
22	Recreation	In Non-Habitat Areas, do not allow SRPs with the potential to cause activity disruptive to GUSG or that acts as an impermeable barrier to connectivity between populations and sub-populations.	No similar action.	No similar action.	No similar action.

R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
23	Recreation	Do not identify any lek viewing areas.	Work with state agencies to identify lek viewing sites as necessary and appropriate.	Same as Alternative C.	Same as Alternative C.
LANDS AND REALTY MANAGEMENT					
GOAL: The Lands and Realty program is managed to avoid, minimize, and compensate the loss of habitat and habitat connectivity through the authorizations of ROWs (including other land use authorizations), land tenure adjustments, proposed land withdrawals, agreements with partners, and incentive programs.					
OBJECTIVE: Impacts to habitat from ROWs are reduced.					
Rights-of-Way (ROWs) including Wind and Solar Energy Development					
24	Lands & Realty—Exclusion and Avoidance Areas	Designate Occupied Habitat as ROW exclusion areas, with the following exceptions: <ul style="list-style-type: none"> • Designated West-wide Energy Corridors (per Section 368 of the Energy Policy Act of 2005) • Designated utility corridors • The 100-foot buffer from the center line (or up to 100 feet from the edge of the ROW if not feasible) of county roads and highways (which would be managed as ROW avoidance areas). 	Designate Occupied Habitat as ROW avoidance areas. <p>When authorizing new ROWs, require that the following guidelines are met:</p> <ul style="list-style-type: none"> • In all cases, timing limitations, ground disturbance limitations, and applicable BMPs will be applied. • Authorizations are mitigated in accordance with the mitigation plan. 	Designate Occupied Habitat as ROW avoidance areas. <p>When authorizing new ROWs, the CCA guidelines (in Section 4.4.1) would apply to ROWs for new roads, power lines, phone lines, and pipelines only if the following conditions are met:</p> <ul style="list-style-type: none"> • Permitted area would be less than 5.0 acres; • Permitted area width for a utility ROW would be less than 25 feet; and • Aboveground infrastructure (not including buried utilities and pipelines) would be 	Designate Occupied Habitat within 0.6 mile of a lek as a ROW exclusion area, with the following exceptions: <ul style="list-style-type: none"> • Designated West-wide Energy Corridors (section 368 corridors) • Designated utility corridors • 100-foot buffer from the center line (or up to 100 feet from the edge of the ROW if not feasible) of county roads and highways (which would be managed as ROW avoidance areas). Designate Occupied Habitat more than 0.6 mile from a lek

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
				<p>less than 0.5 mile.</p> <p>For any ROW authorization outside of the guidelines for the CCA, follow Alternative D₂.</p>	<p>as a ROW avoidance area using the guidelines for avoidance in Alternative C.</p>
25	Lands & Realty—Road ROWs	<p>When evaluating applications for road ROWs or reopenings to access valid existing rights and/or non-federal inholdings in Occupied Habitat:</p> <ul style="list-style-type: none"> • Do not authorize a new ROW if other reasonable access is available. • If a new ROW is determined to be necessary, then require that the ROW be built to the absolute minimum standard necessary and mitigation be performed. • Prohibit upgrades to existing routes. • Locate utilities within a 50-foot buffer of access roads, unless an exception would reduce impacts to GUSG habitat. Require mitigation. • Limit public access whenever possible. 	<p>When evaluating applications for road ROWs or reopenings to access valid existing rights and/or non-federal inholdings in Occupied Habitat:</p> <ul style="list-style-type: none"> • Do not authorize a new ROW if other reasonable access is available. • Prior to authorizing, document that the ROW would not adversely impact GUSG due to habitat loss or disruptive activities, except when such a restriction would make accessing valid existing rights and/or non-federal inholdings impracticable. • Require that ROWs on existing roads administered by the BLM be maintained in their current condition, unless an upgrade: <ul style="list-style-type: none"> ◦ Would better protect 	<p>When evaluating applications for new road ROWs or reopenings to access valid existing rights and/or non-federal inholdings in Occupied Habitat:</p> <ul style="list-style-type: none"> • Only authorize a new ROW after determining that the proposed access route is the only feasible option and no reasonable alternative access route is available. • Require offsite compensatory mitigation at a ratio of greater than 1.0 acre reclaimed for every 1.0 acre disturbed. • Require that standard minimization measures be applied (in accordance with Section 4.2 of the CCA). 	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, 1	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, 2
			<ul style="list-style-type: none"> GUSG habitat o Is necessary for motorist safety, or o Would eliminate the need to construct a new road. • Require that impacts are mitigated using methods demonstrated to be effective in offsetting the loss of GUSG habitat. • Allow for route maintenance unless it would change the route category upward or increase the route capacity. • Locate utilities within a 50-foot buffer of access roads, unless an exception would reduce impacts to GUSG habitat. • Limit public access wherever possible. 		
26	Lands & Realty—Power and Phone Lines	No similar action.	<p>When authorizing a power or phone line in Occupied Habitat:</p> <ul style="list-style-type: none"> • Avoid Occupied Habitat to the maximum extent feasible and demonstrate full consideration of this 	<p>When authorizing a ROW for a power or phone line through CCA-designated Tier 1 or Tier 2 habitat, require that the CCA standards in Section 4.4.I A and B are met.</p>	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			<p>alternative.</p> <ul style="list-style-type: none"> • If unable to avoid, then co-locate new utility line on existing overhead lines to the maximum extent feasible. • If unable to co-locate on existing overhead lines, then: • Bury line (vertical structure avoided) and, • Co-locate within existing comparable development footprints (i.e. roads) to the maximum extent feasible. • If unable to bury utility line, then install the most effective perch deterrents available on all poles for the proposed segment. 	Apply standard minimization measures (CCA Section 4.2).	
27	Lands & Realty—Communication Sites	No similar action.	<p>When authorizing communication sites, meteorological towers, and comparable infrastructure in Occupied Habitat, require the proponent to:</p> <ul style="list-style-type: none"> • Co-locate new equipment on an existing communication tower or other comparable 	<p>When authorizing communication sites, meteorological towers, and comparable infrastructure in Occupied Habitat in the Gunnison Basin, require the proponent to:</p> <ul style="list-style-type: none"> • Co-locate new equipment on an existing communication tower or 	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
			<p>structure, and/or visually conceal structure in a forested area;</p> <ul style="list-style-type: none"> • If unable to co-locate on comparable structure, then co-locate within existing comparable development footprint (proximal to other vertical infrastructure) and/or forested area; and • Incorporate the mitigation measures outlined in the FWS Interim Guidelines on the Siting, Construction, Operation and Decommissioning of Communication Towers (or other updated guidance). <p>When authorizing associated access routes and utilities to communication sites, meteorological towers, and comparable infrastructure in Occupied Habitat, require proponent to:</p> <ul style="list-style-type: none"> • Use impacted areas to the maximum extent feasible: utilize system roads and non-system roads; 	<p>other comparable structure, and/or visually conceal structure in a forested area;</p> <ul style="list-style-type: none"> • If unable to co-locate new equipment on a comparable structure, then co-locate within an existing comparable development footprint (proximal to other vertical infrastructure) and/or forested area; and • Incorporate the mitigation measures outlined in the FWS Interim Guidelines on the Siting, Construction, Operation and Decommissioning of Communication Towers (or other updated guidance). <p>When authorizing associated access routes to communication sites, meteorological towers, or comparable infrastructure, require proponent to:</p> <ul style="list-style-type: none"> • Use impacted areas (including system and non-system roads) to the 	

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			<ul style="list-style-type: none"> • If no existing access is available, demonstrate that the proposed access route is the only reasonable, feasible option, and no sufficient alternative access is available. • Mitigate in accordance with the Mitigation Plan (outlined in Appendix J). 	maximum extent feasible. When a new access route is proposed, require the proponent to: <ul style="list-style-type: none"> • demonstrate that the proposed access route is the only reasonable, feasible option, and no sufficient alternative access is available; and • Apply offsite mitigation standards for new access routes consistent with CCA Section 4.3.1, Motorized Roads; and • Apply standard minimization measures (CCA Section 4.2). 	
28	Lands & Realty	When authorizing new ROWs or amending existing ROWs for new disturbance areas in Occupied Habitat, require that the following guidelines are met: <ul style="list-style-type: none"> • In all cases, timing limitations, ground disturbance limitations, and applicable BMPs will be applied. • Authorizations are mitigated in accordance 	Same as Alternative B.	When authorizing new ROWs or renewing or amending existing ROWs in Occupied Habitat, require that the grant holder follow CCA guidelines and apply standard minimization measures (CCA Section 4.2). If the action is outside of CCA guidelines, then follow Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, SUB-ALTERNATIVE D ₂	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
		<p>with the mitigation plan.</p> <ul style="list-style-type: none"> • Co-locate new ROWs within existing ROWs or where best minimizes GUSG impacts. <p>When amending or renewing existing ROWs in Occupied Habitat, timing limitations, ground disturbance limitations, and applicable BMPs will be applied.</p>			
29	Lands & Realty—Exclusion and Avoidance Areas	<p>Designate Unoccupied Habitat as ROW exclusion areas, with the following exceptions:</p> <ul style="list-style-type: none"> • Designated West-Wide Energy Corridors (per Section 368 of the Energy Policy Act of 2005) • Designated utility corridors • A 100-foot buffer from the center line (or up to 100 feet from the edge of the ROW if not feasible) of county roads and highways (to be managed as a ROW avoidance area). 	<p>Designate Unoccupied Habitat as ROW avoidance areas with guidelines as shown for Occupied Habitat.</p>	Same as Alternative C.	Same as Alternative C.
30	Lands & Realty	For ROWs within Non-Habitat Areas, include	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		stipulations or conditions to avoid disruptive activities.			
31	Lands & Realty	Prohibit the RMP designation of new ROW corridors in Occupied Habitat.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
32	Lands & Realty	In Occupied and Unoccupied Habitat, un-designate existing RMP-designated ROW corridors that do not contain an authorized ROW.	Within Occupied Habitat, un-designate existing RMP-designated ROW corridors that do not contain an authorized ROW.	No similar action.	Same as Alternative B.
33	Lands & Realty	No similar action.	When feasible, require the placement of new facilities and upgrades to existing facilities within designated corridors or areas with previous disturbance and existing facilities and ensure compatibility with other resource values.	Same as Alternative C.	Same as Alternative C.
34	Lands & Realty	Require the placement of new facilities and upgrades to existing facilities within designated corridors or areas with existing facilities if present, if there is the potential to be disruptive to GUSG, and ensure compatibility with other resource values.	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
35	Lands & Realty	When granting new or amending/renewing existing ROWs, require compliance with applicable timing and ground disturbance limitations and mitigation standards. [Timing limitations would not apply to snow plowing and/or emergency maintenance of U.S. and state highways.]	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
36	Lands & Realty	Require that power lines be maintained in compliance with standards identified by the Avian Power Line Interaction Committee (following current GUSG guidelines and best available science determined in coordination with the FWS).	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
37	Lands & Realty	When permitting ROWs in Occupied Habitat, implement breeding seasonal closures for motorized and non-motorized routes from March 15 through May 15, except for access to private property and for emergencies.	Same as Alternative B.	In seasonally Occupied Habitat in the Gunnison Basin, implement seasonal restrictions on construction, maintenance, and access (including by the public), except for emergency maintenance. (See Figure 2 in the CCA.) Currently implemented	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
				<p>closure: Lekking period (observed from approximately March 15 through May 15). Closed to motorized travel, with the following exceptions:</p> <ul style="list-style-type: none"> • Permittees • Access to private property • Hartman Rocks Recreation Area, north of powerline • Emergency maintenance. <p>Excepted travel is encouraged after 9 a.m. where possible.</p> <p>If research indicates that additional restrictions are necessary to sustain GUSG populations, then seasonal restrictions may be applied in identified seasonal habitat in order to minimize disturbance during the following critical biological periods for GUSG: nesting, brood-rearing, and winter use. (CCA)</p>	
RANGE MANAGEMENT					
<p>GOAL: Manage the range program to avoid and minimize adverse impacts to GUSG Habitat to the extent practical under the law and BLM jurisdiction.</p>					

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
<p>OBJECTIVE: Grazing practices are compatible with GUSG RCP guidelines and relevant science</p> <p>OBJECTIVE: Sagebrush habitat and riparian areas with suitable ecological site potential meet RCP guidelines.</p> <p>OBJECTIVE: Range improvements result in no net increase in habitat fragmentation. Measurable impacts to habitat from existing range improvements are reduced and structures modified to minimize habitat avoidance by GUSG.</p> <p>OBJECTIVE: Important grazing management adjustments to accommodate GUSG are prioritized and expedited through the NEPA process, and are based on upland and riparian-wetland land health data that includes GUSG RCP habitat indicators.</p>					
38	Range Management	<p>Close all GUSG Habitat to livestock grazing.</p>	<p>In all GUSG Habitat, incorporate measures to meet RCP Habitat Guidelines into allotment management plans, livestock grazing permits, and the management of grazing allotments.</p> <p>When suitable sagebrush and riparian ecological sites do not meet RCP habitat guidelines or livestock disrupt GUSG, then manage allotments to:</p> <ul style="list-style-type: none"> • Minimize livestock presence in GUSG seasonal use areas during important GUSG use periods • Allocate forage at levels appropriate for the Ecological Site and at stocking rates that result in less than 35% use of 	<p>In all GUSG Habitat in the Gunnison Basin, follow CCA Section 5.4 management guidelines for grazing permit renewals, monitoring, and conservation measures:</p> <ul style="list-style-type: none"> • Continue to incorporate RCP/CCA grazing management guidelines (CCA Appendix D) into all permits and associated allotment management plans and/or coordinated management plans. • Manage allotments and/or pastures containing GUSG Habitat for both breeding and summer/fall herbaceous heights per RCP habitat guidelines. • For each grazing permit wholly/partially within GUSG Habitat, use the Habitat Condition 	<p>In all GUSG Habitat, incorporate measures to meet RCP Habitat Guidelines into allotment management plans, livestock grazing permits, and the management of grazing allotments.</p> <p>When suitable sagebrush and riparian ecological sites do not meet RCP habitat guidelines or livestock disrupt GUSG, then manage allotments to:</p> <ul style="list-style-type: none"> • Minimize livestock presence in GUSG seasonal use areas during important GUSG use periods • Allocate forage at levels appropriate for the Ecological Site and at stocking rates that result in less than 35% use of

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			<ul style="list-style-type: none"> palatable forage species Improve productivity of cool season perennial grasses and forbs where needed to achieve RCP habitat guidelines. 	<p>Assessment (CCA, Section 7.2) to incorporate habitat guidelines for herbaceous heights as a term and condition of the permit.</p> <ul style="list-style-type: none"> For riparian areas, incorporate CCA guidelines for herbaceous heights as a term and condition of the permit. For non-riparian and all other habitat types, incorporate RCP guidelines for herbaceous heights as a term and condition of the permit. Manage grazing in riparian areas, swales, and wet meadows to improve habitat conditions. <p>Develop management strategies to benefit GUSG that are as seamless as possible with respect to actions on public and private lands within BLM grazing allotments, but are not unduly restrictive of private land actions.</p>	<ul style="list-style-type: none"> palatable forage species Improve productivity of cool season perennial grasses and forbs Manage grazing in riparian areas, swales, and wet meadows to improve habitat conditions.
39	Range Management	No similar action.	Require that all permits issued for livestock grazing in	Require that all permits issued for livestock grazing in	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			<p>GUSG Habitat contain terms and conditions that specify measures to meet or exceed RCP guidelines, addressing the following points where applicable:</p> <ul style="list-style-type: none"> • Placement of salt, minerals, and supplements to protect riparian-wetland areas and lekking GUSG • Livestock turnout and trailing practices • Allowable stubble heights • Protecting sagebrush height and cover • Adequately resting treatment and burned areas • Changing grazing practices to reduce impacts to GUSG Habitat from drought, flooding or other disruptive environmental events • Requirements for moving livestock between pastures • Criteria for using controlled grazing as a tool for habitat improvement • Sheep bedding practices that avoid damage to 	<p>GUSG Habitat contain terms and conditions that specify measures to meet RCP guidelines, including:</p> <ul style="list-style-type: none"> • RCP guidelines for herbaceous heights in riparian areas • RCP guidelines for herbaceous heights in all other habitat • Adequate rest for treatment and burned areas. 	

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
			GUSG Habitat.		
40	Range Management	No similar action.	<p>When a permittee or lessee voluntarily relinquishes grazing preference on an allotment in Occupied Habitat, reduce overall grazing pressure through one of the following measures:</p> <ul style="list-style-type: none"> • Retire the AUMs and merge with an existing allotment in Occupied Habitat, or • Close the allotment. 	<p>When a permittee or lessee voluntarily relinquishes grazing preference on an allotment in Occupied Habitat in the Gunnison Basin, look for opportunities to alleviate grazing and GUSG conflicts across a broader landscape through one of the following measures:</p> <ul style="list-style-type: none"> • Reissue a permit on the allotment that is consistent with meeting RCP habitat guidelines • Convert the allotment to a reserve allotment that will remain available for occasional use by permittees on other allotments in the Occupied Habitat on a temporary, non-renewable basis to benefit GUSG Habitat; • Close the allotment; or • Merge with an existing allotment and retire the AUMs. 	<p>When a permittee or lessee voluntarily relinquishes grazing preference on an allotment in Occupied Habitat in a satellite population area, look for opportunities to alleviate grazing and GUSG conflicts across a broader landscape through one of the following measures:</p> <ul style="list-style-type: none"> • Reissue a permit on the allotment that is consistent with meeting RCP habitat guidelines • Convert the allotment to a reserve allotment that will remain available for occasional use by permittees on other allotments in the Occupied Habitat on a temporary, non-renewable basis to benefit GUSG Habitat; • Close the allotment; or • Merge with an existing allotment and retire the AUMs.
41	Range	No similar action.	When a permittee or lessee	When a permittee or lessee	Same as Sub-Alternative D ₁ .

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
	Management		<p>voluntarily relinquishes grazing preference on an allotment in Unoccupied Habitat, reduce overall grazing pressure through one of the following measures:</p> <ul style="list-style-type: none"> • Retire the AUMs and merge with an existing allotment in Occupied or Unoccupied Habitat; or • Exchange with an existing allotment in Occupied Habitat., or • Close the allotment. 	<p>voluntarily relinquishes grazing preference on an allotment in Unoccupied Habitat, look for opportunities to alleviate grazing pressure and GUSG conflicts across a broader landscape through one of the following measures:</p> <ul style="list-style-type: none"> • Reissue a permit on the allotment that is consistent with meeting RCP habitat guidelines • Convert the allotment to a reserve allotment that will remain available for occasional use by permittees on other allotments in the Occupied Habitat on a temporary, non-renewable basis to benefit GUSG Habitat; • Close the allotment; • Merge with an existing allotment and retire the AUMs. 	
42	Range Management	No similar action.	Develop drought contingency plans at the appropriate landscape unit level that provide for a consistent and appropriate grazing	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			management response. Plans should establish policy for addressing ongoing drought and post-drought recovery for GUSG Habitat objectives.		
Range Improvements					
43	Range Management	Prohibit new structural range improvements in all GUSG Habitat.	Require that new structural range improvements in all GUSG Habitat conserve, enhance, or restore the habitat.	For new large-scale structural range improvements in all GUSG Habitat, same as Alternative C. Allow for additional small-scale infrastructure, such as gates, cattle guards, exclosures, and water developments as outlined in CCA Section 4.4.4. Apply standard minimization measures (CCA Section 4.2).	Same as Alternative C.
44	Range Management	Remove structural range improvements from Occupied Habitat.	In Occupied Habitat, evaluate existing structural range improvements and access to improvements to determine whether modifications are necessary to maintain GUSG populations or reverse a downward population trend caused by habitat loss. Modify, relocate, or remove	Require that access to and maintenance or removal of structural range improvements follow the standards outlined in General Management Section 4.2 of the CCA.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			<p>projects and access for these as necessary.</p> <p>Utilize BMPs for GUSG when accessing, removing, reconstructing, or performing maintenance on structural range improvements.</p>		
45	Range Management	Remove structural range improvements from Unoccupied Habitat.	<p>In Unoccupied Habitat, evaluate existing structural range improvements and access for these to determine if modifications are necessary to improve habitat for or remove barriers to GUSG occupation.</p> <p>Modify, relocate, or remove projects and access for these as necessary.</p> <p>Utilize BMPs for GUSG when accessing, removing, reconstructing, or performing maintenance on structural range improvements.</p>	<p>In Unoccupied Habitat, require that access to and maintenance, removal, or new construction of structural range improvements follow the standards outlined in General Management Section 4.2 of the CCA.</p>	Same as Alternative C.
46	Range Management	Prohibit new water developments for diversion from spring or seep sources in Occupied Habitat.	<p>In Occupied Habitat, allow for new water developments for diverting spring or seep sources only when GUSG Habitat would benefit from the development.</p>	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			Require that new spring developments be designed to minimize changes to in-channel water flow.		
47	Range Management	In Unoccupied Habitat, prohibit new developments for diverting water from spring or seep sources.	In Unoccupied Habitat, allow for the development of new water diversions from spring or seep sources that would not have an adverse impact on GUSG or GUSG Habitat. Design new spring developments to minimize changes to in-channel water flow.	Same as Alternative C.	Same as Alternative C.
48	Range Management	In all GUSG Habitat, remove water developments damaging to riparian and wetland areas and restore natural flow patterns to seeps and springs.	In all GUSG Habitat, analyze seeps, springs, riparian areas, and associated water developments to determine if modifications are necessary to improve GUSG habitat and modify projects as necessary to restore applicable habitat.	In all GUSG Habitat in the Gunnison Basin, allow for access to maintain water developments. Require standard minimization measures (consistent with CCA Section 4.2) as terms and conditions of the permit, including: <ul style="list-style-type: none">• Timing restrictions for access and construction consistent with spring seasonal closures for the general public (with an exception for emergency	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
				<p>maintenance); and</p> <ul style="list-style-type: none"> • Integrated weed prevention practices are used for all construction and maintenance activity. (See CCA Appendix A.) 	
49	Range Management	<p>In Occupied Habitat:</p> <ul style="list-style-type: none"> • Prohibit the construction of new fences. • Remove existing fences within 0.6 mile of active leks. • Remove existing fences beyond 0.6 mile of a lek if risk of collision exists. • Mark remaining fences. 	<p>In Occupied Habitat, require that new fences are:</p> <ul style="list-style-type: none"> • Located in areas demonstrated to have low collision risk • Marked for visibility • Constructed to general wildlife standards. <p>Evaluate existing fences for collision risk and prioritize fences in high and moderate risk areas for marking, relocation, or removal.</p>	<p>In Occupied Habitat, allow for the construction of new fences when necessary to improve habitat conditions for GUSG and built to general wildlife standards recommended by CPW.</p> <p>Require standard minimization measures consistent with CCA Section 4.2.</p>	Same as Alternative C.
50	Range Management	<p>In GUSG Habitat, remove existing water developments identified as contributing to the spread of West Nile Virus.</p> <p>Prohibit new water developments with the potential to contribute to the spread of West Nile Virus.</p>	<p>When developing, modifying, or maintaining water developments in GUSG Habitat, follow BMPs and current science for minimizing potential impacts from West Nile Virus.</p>	<p>When developing, modifying, or maintaining water developments in GUSG Habitat, adhere to CCA Section 5.3.2.</p>	Same as Alternative C.
51	Range	When developing, modifying,	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, 1	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, 2
	Management	or maintaining water developments in Non-Habitat Areas, follow BMPs and current science for minimizing potential impacts from West Nile virus.			
FLUID MINERALS					
GOAL: Manage fluid minerals to avoid, minimize, and compensate: 1) direct disturbance, displacement or mortality of GUSG, 2) direct loss of habitat, and 3) cumulative landscape-level impacts.					
		OBJECTIVE: Energy and mineral development activities identified as disruptive to GUSG life cycles or limiting GUSG populations have been decreased.			
		OBJECTIVE: Impacts from fragmentation from energy and mineral development have been reduced.			
		OBJECTIVE: Where fluid mineral development projects on an existing lease could adversely affect GUSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, reduce, or mitigate adverse impacts to the extent compatible with valid existing rights.			
52		Existing withdrawals, including those for NMs and NCAs, would remain in effect.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Unleased Fluid Minerals					
53	Fluid Minerals	Close Occupied Habitat to fluid mineral leasing. Prohibit the issuance of new leases upon expiration or termination of existing leases.	Apply NSO stipulation to Occupied Habitat.	Same as Alternative C.	Same as Alternative C. In addition, maintain Occupied Habitat in the Piñon Mesa population area as closed to fluid mineral

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
					leasing.
54	Fluid Minerals	Close Unoccupied Habitat to fluid mineral leasing. Prohibit the issuance of new leases upon expiration or termination of existing leases.	Apply CSU to protect sagebrush and riparian habitat quality and connectivity in Unoccupied Habitat.	Same as Alternative C.	Same as Alternative C.
55	Fluid Minerals	No similar action.	Allow for Exceptions, Waivers, and Modifications.	Allow for Exceptions, Waivers, and Modifications with concurrence from the BLM State Director.	Same as Alternative D ₁ .
56	Fluid Minerals	No similar action.	If an Exception, Waiver, or Modification is granted on a lease stipulation, then apply appropriate ground disturbance and mitigation standards and timing limitations.	Same as Alternative C.	Same as Alternative C.
57	Fluid Minerals	Prohibit geophysical exploration within Occupied Habitat.	Allow for geophysical exploration within Occupied Habitat. Require the use of low impact methods (helicopter-portable drilling, wheeled or tracked vehicles on existing roads, or other approved methods) and adherence to applicable timing limitation, ground disturbance, noise, and mitigation standards.	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
58	Fluid Minerals	Prohibit geophysical exploration within Unoccupied Habitat.	<p>Allow for geophysical exploration within Unoccupied Habitat:</p> <ul style="list-style-type: none"> • Require low impact methods (helicopter-portable drilling, wheeled or tracked vehicles on existing roads, or other approved methods). • Apply applicable timing limitation, ground disturbance, and mitigation standards. • Apply CSU to protect sagebrush and riparian habitat quality and connectivity. 	Same as Alternative C.	Same as Alternative C.
59	Fluid Minerals	When geophysical exploration activities in Non-Habitat Areas have the potential to be disruptive to GUSG, apply management prescriptions similar to those identified for Unoccupied Habitat.	No similar action.	No similar action.	No similar action.
60	Fluid Minerals	No similar action.	Require a Master Development Plan in lieu of Applications for Permit to Drill (APD)-by-APD processing for all but wildcat wells.	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
61	Fluid Minerals	In Non-Habitat Areas, require a Master Development Plan in lieu of APD-by-APD processing for all but wildcat wells where activities have the potential to be disruptive to GUSG.	No similar action.	No similar action.	No similar action.
62	Fluid Minerals	Require the same COAs, stipulations, and conservation measures for developing fluid minerals on split estate lands (where the Federal Government owns the mineral estate and surface ownership is non-federal) that are applicable to the development of federal mineral estate under BLM-administered surface lands within that management area, to the maximum extent permissible under existing authorities and in coordination with the landowner.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
63	Fluid Minerals	Prohibit the siting of pipeline compressors in GUSG Habitat.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
64	Fluid Minerals	In Non-Habitat Areas, prohibit the siting of pipeline	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		compressors when there is a potential for activity disruptive to GUSG.			
Leased Fluid Minerals					
65	Fluid Minerals	Upon expiration or termination of existing leases, prohibit issuance of new leases in GUSG Habitat.	Upon expiration or termination of existing leases, consider issuance of new leases in GUSG Habitat.	Same as Alternative C.	Same as Alternative C.
66	Fluid Minerals	Prohibit geophysical exploration within Occupied Habitat.	Allow for geophysical exploration within Occupied Habitat and require: <ul style="list-style-type: none"> • The use of low impact methods (including helicopter-portable drilling, wheeled or tracked vehicles on existing roads, and other approved methods) • Adherence to applicable timing limitations and ground disturbance and mitigation standards. 	Same as Alternative C.	Same as Alternative C.
67	Fluid Minerals	Prohibit geophysical exploration within Unoccupied Habitat.	Allow for geophysical exploration within Unoccupied Habitat and require: <ul style="list-style-type: none"> • The use of low impact methods (including helicopter-portable drilling, 	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, 1	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, 2
			wheeled or tracked vehicles on existing roads, and other approved methods) • Adherence to applicable timing limitations and ground disturbance and mitigation standards.		
68	Fluid Minerals	Allow for the use of conservation measures not identified in this document following analysis in a site-specific NEPA document consistent with language in Interior Board of Land Appeals Yates Petroleum Corp., 176 IBLA 144 (2008) and William P. Maycock, 177 IBLA 1 (2009) cases.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
69	Fluid Minerals	Require a Master Development Plan in lieu of APD-by-APD processing for all but wildcat wells on existing leases.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
70	Fluid Minerals	In Non-Habitat Areas, require a Master Development Plan in lieu of APD-by-APD processing for all but wildcat wells on existing leases where	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		activities have the potential to be disruptive to GUSG.			
71	Fluid Minerals	Require the same COAs, stipulations, and conservation measures for developing fluid minerals on split estate lands (where the Federal Government owns the mineral estate and surface ownership is non-federal) that are applicable to the development of federal mineral estate under BLM-administered surface lands within that management area, to the maximum extent permissible under existing authorities and in coordination with the landowner.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
72	Fluid Minerals	For authorization of development actions for individual APDs or Master Development Plan proposals, coordinate with the FWS (consistent with requirements under ESA), CPW (consistent with the Colorado Oil & Gas Conservation Commission MOU), UDWR, local	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		governments as appropriate, and industry experts regarding management actions designed to minimize impacts to GUSG and their habitat, including COAs applicable to future APDs (as described in WO IM 2014-100).			
73	Fluid Minerals	Apply appropriate timing limitations and ground disturbance and mitigation standards.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
SOLID MINERALS					
GOAL: Manage the Solid Minerals Program to avoid, minimize, and compensate adverse impacts to GUSG Habitat to the extent practical under the law and BLM jurisdiction.					
OBJECTIVE: Mineral development activities identified as disruptive to GUSG life cycles or limiting GUSG populations are decreased.					
OBJECTIVE: Impacts from fragmentation from mineral development are reduced.					
OBJECTIVE: Where development projects with valid existing rights could adversely affect GUSG populations or habitat, the BLM works with the lessees, operators, or other project proponents to avoid, reduce, and mitigate adverse impacts to the extent compatible.					
74	Solid Minerals	Existing withdrawals, including those for NMs and NCAs, would remain in effect.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Locatable Minerals					
75	Locatable	Recommend lands in	Consider petitioning for	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
	Minerals	Occupied Habitat for withdrawal from mineral location and entry.	<p>withdrawal from mineral location and entry lands in Occupied Habitat based on risk to GUSG and GUSG Habitat from locatable mineral potential and development.</p> <p>Recommend lands for withdrawal from mineral location and entry where it is the only method available to minimize or mitigate adverse impacts to GUSG Habitat.</p>		
76	Locatable Minerals	Recommend lands in Unoccupied Habitat for withdrawal from mineral location and entry.	<p>Consider petitioning for withdrawal from mineral location and entry lands in Unoccupied Habitat based on risk to GUSG and GUSG Habitat from locatable mineral potential and development.</p> <p>Recommend lands for withdrawal from mineral location and entry where it is the only method available to minimize or mitigate adverse impacts to GUSG Habitat.</p>	No Action.	No Action.
77	Locatable Minerals	Initiate validity exams in areas withdrawn or segregated from mineral location and	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		entry when appropriate under 43 CFR 3809.100 and BLM Surface Management Handbook H-3809-1.			
78	Locatable Minerals	<p>On lands segregated pending review of a withdrawal petition, and until such time as the recommended withdrawal is approved, or in the absence of such segregation or approval:</p> <ul style="list-style-type: none"> • In plans of operations required prior to any proposed surface-disturbing activity, include where appropriate effective mitigation for conservation in accordance with existing policy (BLM Washington Office Instruction Memorandum 2008-204, or as updated) per regulations at 43 CFR 3809. • Apply seasonal restrictions if deemed necessary to prevent unnecessary or undue degradation. • Require mitigation in accordance with the Mitigation Plan (in 	<p>On lands segregated pending review of a withdrawal petition, and until such time as the recommended withdrawal is approved, or in the absence of such segregation or approval:</p> <ul style="list-style-type: none"> • In plans of operations required prior to any proposed surface-disturbing activity, include where appropriate effective mitigation in accordance with existing policy (BLM Washington Office Instruction Memorandum 2008-204, or as updated) per regulations at 43 CFR 3809. • Apply seasonal restrictions if deemed necessary to prevent unnecessary or undue degradation. • Require mitigation in accordance with the Mitigation Plan (in 	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		Appendix J).	Appendix J).		
79	Locatable Minerals	Apply appropriate timing limitations and ground disturbance and mitigation standards.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
Salable Minerals					
80	Salable Minerals	Close Occupied Habitat to mineral material sales.	Allow for mineral material sales in Occupied Habitat subject to provisions set forth in the mitigation framework.	Same as Alternative C.	Same as Alternative C.
81	Salable Minerals	Close sagebrush and riparian Unoccupied Habitat to mineral material sales.	Allow for mineral material sales in Unoccupied Habitat subject to provisions set forth in the mitigation framework.	Same as Alternative C.	Same as Alternative C.
82	Salable Minerals	Apply appropriate timing limitation, ground disturbance, and mitigation standards.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
83	Salable Minerals	Restore salable mineral pits no longer in use to meet GUSG Habitat conservation objectives. Require the reclamation or restoration of GUSG Habitat as a viable long-term goal for	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		improving habitat conditions.			
Non-Energy Leasable Minerals					
84	Non-Energy Leasable Minerals	In Occupied Habitat, grant no new solid mineral leases (including for expansion of an existing mine), prospecting permits, or exploration licenses. Upon expiration or termination of existing leases, close Occupied Habitat to new leases.	Apply NSO to Occupied Habitat, including for new leases to expand an existing mine.	Same as Alternative C.	Same as Alternative C.
85	Non-Energy Leasable Minerals	In Unoccupied Habitat, grant no new solid mineral leases, prospecting permits, or exploration licenses. Upon expiration or termination of existing leases, do not accept nominations or expressions of interest for parcels within Unoccupied Habitat.	In Unoccupied Habitat, apply CSU to protect sagebrush and riparian habitat quality and connectivity. Require mitigation in accordance with the Mitigation Plan (in Appendix J).	Same as Alternative C.	Same as Alternative C.
86	Non-Energy Leasable Minerals	No similar action.	Apply appropriate timing limitations and ground disturbance and mitigation standards.	Same as Alternative C.	Same as Alternative C.
87	Non-Energy Leasable	Where applicable in Non-Habitat Areas, apply the same	No similar action.	No similar action.	No similar action.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
	Minerals	stipulations to the leasing of non-energy leasable minerals as for fluid minerals when an activity disruptive to GUSG is identified.			
Split Estate					
88	Split Estate	No Similar Action.	For APDs on split estate (where the Federal Government owns the mineral estate and surface ownership is non-federal), require the same COAs, stipulations, and conservation measures applicable to the development of federal mineral estate under BLM-administered surface lands within that management area, to the maximum extent permissible under existing authorities and in coordination with the landowner.	Same as Alternative C.	Same as Alternative C.
WILDLAND FIRE, FUELS MANAGEMENT, AND FIRE REHABILITATION					
GOAL: Manage the wildland fire, fuels, and fire rehabilitation program to avoid GUSG Habitat loss, enhance contiguous sagebrush habitat, restore damaged habitats, and address post-wildfire threats to GUSG Habitat.					

CHAPTER 2 - ALTERNATIVES

R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
OBJECTIVE: Reduce loss of habitat to wildfire.					
OBJECTIVE: Rehabilitate damaged lands to prevent weed infestation.					
OBJECTIVE: Implement fire as a management tool to increase suitable habitat and create corridors.					
Fuels Management					
89	Fire, Fuels, Rehabilitation	Prohibit non-fire fuels treatments in GUSG Habitat. Treat fuels in Non-Habitat Areas adjacent to Occupied Habitat to reduce the risk of wildfire spreading into Occupied Habitat.	Allow for non-fire fuels treatments in GUSG Habitat. Design and implement treatments in accordance with RCP guidelines to: <ul style="list-style-type: none"> • Reduce the risk of wildfires spreading to and within Occupied Habitat; and • Minimize degradation of existing sagebrush or riparian habitat. 	Same as Alternative C.	Same as Alternative C.
90	Fire, Fuels, Rehabilitation	Prohibit prescribed fire in GUSG Habitat.	Allow for prescribed fire in GUSG Habitat when: <ul style="list-style-type: none"> • The prescription, including any necessary post-fire revegetation, is designed to restore sagebrush habitat; • The potential for GUSG Habitat loss or degradation is minimized. 	Same as Alternative C.	Prohibit prescribed fire in Occupied Habitat, except for the burning of slash piles. Same as Alternative C for Unoccupied Habitat.
Wildfire					
91	Fire, Fuels, Rehabilitation	In Occupied Habitat, prioritize fire suppression to	In Occupied Habitat, manage wildfires to promote	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		prevent damage to or loss of GUSG Habitat immediately after protection of life and property, recognizing that protection of human life is the single, overriding priority.	conversion of other non-forested habitat types to sagebrush where the potential exists, while conserving existing sagebrush and riparian habitat as much as possible, immediately after protection of life and property, recognizing that protection of human life is the overriding priority.		
92	Fire, Fuels, Rehabilitation	In Unoccupied Habitat, prioritize fire suppression to prevent damage to or loss of GUSG Habitat immediately after protection of life and property, recognizing that protection of human life is the overriding priority.	In Unoccupied Habitat, manage wildfires to help meet the connectivity needs of GUSG through conversion of other non-forested habitat types to sagebrush where the potential exists, while also minimizing damage to existing sagebrush and riparian areas, recognizing that protection of human life is the overriding priority.	Same as Alternative C.	Same as Alternative C.
Emergency Stabilization and Rehabilitation					
93	Fire, Fuels, Rehabilitation	In GUSG Habitat, limit Emergency Stabilization and Rehabilitation activities to the restoration of GUSG Habitat.	In GUSG Habitat, replace sagebrush, grasses, forbs, and riparian components as quickly as possible where such techniques are demonstrated to be effective.	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			Implement the following post-wildfire activities: <ul style="list-style-type: none">• Wildfire management activity damage repair (suppression repair)• Emergency Stabilization• Burned Area Rehabilitation.		
94	Fire, Fuels, Rehabilitation	Monitor and control invasive vegetation following fire, stabilization and rehabilitation.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
95	Fire, Fuels, Rehabilitation	No similar action.	Rest burned or treated areas from grazing for two full growing seasons unless vegetation recovery dictates otherwise.	Same as Alternative C.	Same as Alternative C.
96	Fire, Fuels, Rehabilitation	Require the use of native plant seeds for vegetation treatments based on availability, adaptation (site potential), probability for success, and vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		stability and hydrologic function objectives as well as vegetation and GUSG habitat objectives.			
SPECIAL STATUS SPECIES					
GOAL: GUSG Habitat exhibits the desired mix of vegetative types, structural states, and landscape and riparian functions.					
		OBJECTIVE: Landscapes are created and maintained to benefit GUSG.			
		OBJECTIVE: Vegetation management is conducted in accordance with RCP guidelines.			
		OBJECTIVE: Vegetation management, including Integrated Vegetation Management (BLM Handbook H-1740-2), is used as a tool to restore, improve, create, and/or maintain landscapes that benefit GUSG.			
		OBJECTIVE: The BLM Sage-grouse Habitat Assessment Framework (HAF), <i>Assessment, Inventory, and Monitoring Strategy</i> (AIM) or Gunnison Basin CCA is used to evaluate GUSG Habitat per RCP habitat guidelines (appendix H). Adjustments to RCP habitat guidelines or known suitability are accomplished through plan maintenance based on best available science.			
97	Special Status Species—GUSG Lek/Breeding Habitat	Timing Limitation: From March 1 through May 15, prohibit activities disruptive to GUSG in Lek/Breeding Habitat.	Timing Limitation: From March 15 through May 15, avoid activities disruptive to GUSG in Lek/Breeding Habitat.	Same as Alternative C.	Same as Alternative C.
98	Special Status Species—GUSG Nesting/Early Brood-Rearing Habitat	Timing Limitation: From March 15 through July 15, prohibit activities disruptive to GUSG in Nesting/Early Brood-Rearing Habitat.	Timing Limitation: From April 15 through June 30, avoid activities disruptive to GUSG in Nesting/Early Brood-Rearing Habitat.	Same as Alternative C.	Same as Alternative C.
99	Special Status Species—GUSG Winter	Timing Limitation: From October 1 through February 28, prohibit	Timing Limitation: In Winter Habitat, avoid activities disruptive to GUSG	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
	Habitat	activities disruptive to GUSG in Winter Habitat.	from December 1 through March 14.		
100	Special Status Species—GUSG Occupied and Unoccupied Habitat	Prohibit surface disturbance within 4.0 miles of a lek.	Prohibit surface disturbance within 1.0 mile of a lek. Avoid occupancy: <ul style="list-style-type: none">• Restrict energy development to a maximum of one well pad within 1.2 miles of a lek.• Construct tall structures at least 1.4 miles from leks.	Prohibit surface disturbance within 0.6 mile of a lek. Avoid occupancy: <ul style="list-style-type: none">• Restrict energy development to a maximum of one well pad within 1.2 miles of a lek.• Construct tall structures at least 1.4 miles from leks.• Site linear features at least 1.0 mile from leks.	Same as Sub-Alternative D ₁ .
101	Special Status Species	During the breeding season, prohibit activities that would produce noise levels 10 dBA above the ambient noise level measured at the perimeter of a lek at sunrise.	During the breeding season, prohibit new noise sources with the potential to negatively impact GUSG leks.	Same as Alternative C.	Same as Alternative C.
102	Special Status Species	Do not allow Exceptions, Waivers, or Modifications.	Allow for Exceptions, Waivers, and Modifications.	Allow for Exceptions, Waivers, and Modifications with concurrence from the BLM State Director.	Same as Alternative D ₁ .
103	Special Status Species	Require compliance with the mitigation hierarchy of first avoiding impacts to the degree possible, second minimizing impacts, and third providing compensatory	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		<p>mitigation to offset residual impacts.</p> <p>Require mitigation in accordance with the Mitigation Plan (in Appendix J).</p> <p>In compensatory mitigation sites, require site-specific relocation of any activity not compatible with GUSG mitigation goals.</p>			
104	Special Status Species	In Occupied Habitat, do not treat pinyon-juniper encroachment onto sagebrush ecological sites.	<p>In Occupied Habitat, treat pinyon-juniper encroachment onto sagebrush ecological sites through the use of hand cutting, mechanical mulching/removal, or chemical treatments.</p> <p>Prioritize treatment of areas in the early stages of tree encroachment over sites with later stages of encroachment.</p>	Same as Alternative C.	Same as Alternative C.
105	Special Status Species	In Unoccupied Habitat, do not treat pinyon-juniper encroachment onto sagebrush ecological sites.	<p>In Unoccupied Habitat, treat pinyon-juniper encroachment onto sagebrush ecological sites through the use of hand cutting, mechanical or chemical treatments, prescribed fire, and managed</p>	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
			wildfires to meet resource objectives. Prioritize treatment of areas in the early stages of tree encroachment over sites with later stages of encroachment, where appropriate.		
106	Special Status Species	In GUSG Habitat, prohibit active habitat treatment of seeps, springs, and riparian zones in order to prevent potential negative impacts.	In GUSG Habitat, implement active treatments and techniques to restore seeps and springs, increase riparian zones, and raise the water table in order to reestablish native riparian grasses and shrubs for brood-rearing.	Same as Alternative C.	Same as Alternative C.
107	Special Status Species	In GUSG Habitat, prohibit habitat treatments in sagebrush stands in order to prevent potential negative impacts.	In GUSG Habitat, treat sagebrush stands not meeting objectives for GUSG seasonal habitat: <ul style="list-style-type: none">• Treat only those sites with the ecological potential to meet RCP habitat guidelines;• Follow RCP treatment standards;• Utilize treatment approaches (including mechanical, chemical, grazing, or prescribed fire where authorized) most	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
			likely to trigger new sagebrush growth and improve sagebrush quality and age diversity, as well as the understory.		
108		No similar action.	Require the use of native plant seeds for vegetation treatments based on availability, adaptation (site potential), probability for success (Richards et al 1998), and vegetation management objectives for the area covered by the treatment. Where probability of success or native seed availability is low, use species that meet soil stability and hydrologic function objectives as well as vegetation and GRSG habitat objectives (Pyke 2011).	Same as Alternative C.	Same as Alternative C.
109	Special Status Species	No similar action.	In Occupied Habitat, make the reestablishment of sagebrush and desirable understory plant cover (relative to site potential) the highest priority for upland restoration efforts, but consider GUSG habitat requirements in conjunction with all resource values.	In Occupied Habitat, make the reestablishment of sagebrush and desirable understory plant cover (relative to site potential) the highest priority for upland restoration efforts.	Same as Alternative D ₁ .

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
I10	Special Status Species	No similar action.	In Unoccupied Habitat, make the reestablishment of sagebrush and desirable understory plant cover (relative to site potential) the highest priority for upland restoration efforts, but consider GUSG habitat requirements in conjunction with all resource values.	In Unoccupied Habitat, make the reestablishment of sagebrush and desirable understory plant cover (relative to site potential) the highest priority for upland restoration efforts.	Same as Alternative D ₁ .
I11	Special Status Species	Actively treat all invasive weeds that threaten sagebrush and riparian habitat quality in GUSG Habitat through the use of integrated weed management practices with minimal ground disturbance.	Actively treat state-listed noxious weeds that threaten sagebrush and riparian habitat quality in GUSG Habitat through the use of integrated weed management practices with minimal ground disturbance.	Same as Alternative B.	Same as Alternative B.
I12	Special Status Species	Prioritize weed treatments in Occupied Habitat before Unoccupied Habitat.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
I13	Special Status Species	Require weed management BMPs for all projects and management activities in all GUSG Habitat.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
I14	Special Status Species	In Occupied Habitat, prohibit the commercial or public collection or harvest of vegetative materials in sagebrush or riparian/wetland	In Occupied Habitat, allow for the commercial and public collection and harvesting of vegetative materials.	Same as Alternative C.	Same as Alternative C.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		habitat.			
I15	Special Status Species	In Unoccupied Habitat, prohibit commercial or public collection or harvest of vegetative materials in sagebrush or riparian/wetland habitat.	In Unoccupied Habitat, prohibit commercial or public collection or harvest of vegetative materials in sagebrush or riparian/wetland habitat.	Same as Alternative C.	Same as Alternative C.
WILDLIFE					
GOAL: Threats and disturbances to GUSG are reduced.					
OBJECTIVE: Areas where wild ungulate use is limiting the ability of a site to meet GUSG Habitat guidelines are identified and corrective prescriptions are implemented in coordination with state wildlife agencies.					
OBJECTIVE: In coordination with state wildlife agencies, management prescriptions are identified, strategies and actions are developed, and an interagency MOU is signed to address wild ungulate conflicts in Occupied Habitat.					
I16	Wildlife	In Occupied Habitat, support the control of predators. Consider options for predator control with APHIS during annual MOU reviews. Cooperate in predation research in collaboration with other partners.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
I17	Wildlife	Collaborate with state wildlife agencies to mitigate wild ungulate impacts to Occupied Habitat. Where Occupied Habitat overlaps with mapped elk winter range	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, D₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D ₂
		and when sagebrush or riparian zones within Occupied Habitat do not meet, at a minimum, RCP Habitat Guidelines (as determined by monitoring that follows from RCP and/or AIM based methodologies, or most recent direction by the BLM) and if the failure to meet RCP Habitat Guidelines is determined to be caused by elk, then the BLM will notify and work with the appropriate state wildlife agency to mitigate impacts.			
118	Wildlife	Participate in state of Colorado and Utah elk and mule deer management reevaluation of Data Analysis Unit (DAU) plans for managing specific populations of wild ungulates and in Utah statewide elk and deer management plans: <ul style="list-style-type: none"> • In Colorado, DAU reevaluation will occur consistent with state and federal laws and regulations and established protocols, including 	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.

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R O W	PROGRAM AREA	ALTERNATIVE B	ALTERNATIVE C	GUNNISON BASIN PREFERRED SUB-ALTERNATIVE D, ₁	SATELLITE POPULATIONS PREFERRED SUB-ALTERNATIVE D, ₂
		<p>Wildlife Commission review.</p> <ul style="list-style-type: none"> In Utah, continue BLM participation in statewide elk and deer management planning, following existing protocols. 			
I19	Wildlife	Implement strategies and prescriptions to draw ungulates away from conflict and treatment areas to allow proper habitat recovery.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
I20	Wildlife	Implement strategies and prescriptions to enhance the capability of habitats to meet the needs of GUSG and wild ungulates.	Same as Alternative B.	Same as Alternative B.	Same as Alternative B.
AREAS OF CRITICAL ENVIRONMENTAL CONCERN					
GOAL: Potential ACECs for conserving, enhancing, and restoring GUSG Habitat are identified, evaluated, and considered for designation.					
OBJECTIVE: ACEC prescriptions include management practices that conserve, enhance, and restore GUSG Habitat.					
I21	ACECs	Designate all BLM-administered surface lands within GUSG Habitat as an ACEC.	No similar action. Existing ACECs shall remain in force.	Same as Alternative C.	Same as Alternative C.

TABLE 2.8 - SUMMARY COMPARISON OF ENVIRONMENTAL CONSEQUENCES

Table 2.8 - Summary Comparison of Environmental Consequences

AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
SPECIAL STATUS SPECIES					
Surface Disturbance Activities in Occupied and Unoccupied Habitat	Restrictions vary by RMP: Five RMPs restrict surface disturbance within 0.6 mile of a lek, while Grand Junction RMP has a 4.0-mile NSO.	Would prohibit surface disturbance within 4.0 miles of a lek, the most restrictive of the alternatives.	Would prohibit surface disturbance within 1.0 mile of a lek, more restrictive than Alternative A and sub-alternatives D ₁ and D ₂ .	Would prohibit surface disturbance within 0.6 mile of a lek.	Impacts would be the same as under Alternative C.
Comparison of Surface Area Protections	Across the decision area, approximately 42,127 acres would continue to be covered by a prohibition on surface-disturbing activities.	Would provide the highest level of surface protection, with approximately 8 times more protected acreage than under Alternative A.	Would provide surface protection for nearly 2.4 times more acreage than Alternative A.	Impacts would be the same as under Alternative C, with the exception of a 0.6-mile lek buffer within which surface-disturbing activities would be prohibited. Protections would be about 1.8 times greater than under Alternative A.	Impacts would be the same as under Alternative C.
FISH AND WILDLIFE					
Big Game and Common Raven	Direct disturbance impacts from road traffic, recreation,	The most protective alternative for wildlife, with prohibitions on	The level of disturbance and activity would be less than under	Impacts to wildlife would be similar to those under Alternative	Impacts to wildlife would be similar to those under Alternative

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	lands and reality, range management, and mineral development would be mitigated by a number of protections from the array of RMPs across the decision area.	surface disturbance and timing restrictions that would benefit elk and deer during critical seasons by reducing human disturbance.	Alternative A, but greater than under Alternative B.	C.	C.
SOIL RESOURCES					
Soil Stability	Soil disturbance from human development and activity occurs on about 1% of BLM lands in the region, but as RMP revisions are completed, restrictions would protect soil stability. Other impacts include those resulting from livestock grazing and wildfire.	Would provide the highest level of protection to soil stability of all the alternatives, with surface restrictions in Occupied and Unoccupied Habitat and Non-Habitat areas safeguarding soil from development and construction disturbances.	In Occupied and Unoccupied Habitat, a greater proportion of BLM surface lands would be under surface disturbance restrictions than Alternative A, but less than Alternative B.	Would provide higher level of protections to soil stability than under Alternative A, but less than alternatives B and C.	Within the satellite populations, would protect soil stability from surface disturbances across a similar area as Alternative C, but with a higher level of protection than C.
TERRESTRIAL VEGETATION					
Vegetation Types	The extent of unvegetated areas, sagebrush, and pinyon-juniper would increase slightly, while grass-forb and mountain	Impacts would be similar to those under Alternative A.	In Occupied and Unoccupied Habitat, increases in grass-forb and sagebrush and reductions in pinyon-juniper vegetation types	Vegetative impacts would be similar to those under alternatives A, B, and C, although small differences could occur	Impacts would be similar to those under Alternative C in satellite population areas and similar to those under the other

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	shrub communities would decrease.		would be greater than under alternatives A and B. Impacts to four-mile Non-Habitat Areas would be about the same as under alternatives A and B.	that would not be readily detectable.	alternatives overall.
Vegetation Condition	About 60% of Occupied and Unoccupied Habitat and 42% of the Non-Habitat Areas would be protected from surface disturbance.	The extent and rate of improvement in vegetative conditions would be higher than under Alternative A, with the elimination of livestock grazing in Occupied and Unoccupied Habitat.	Surface and vegetative disturbances would be less than under Alternative A, but more than Alternative B. Grazing management would be maintained, but monitored and managed to achieve long-term ecological standards.	Restrictions on surface disturbance in the Gunnison Basin population area would provide increased protection compared to Alternative A, but less than alternatives B and C.	Similar to Alternative C in the satellite population areas.

RIPARIAN AREAS AND WETLANDS

Riparian and Wetland Area Presence and Distribution	Continuation of current management, which requires low utilization levels to maintain riparian and watershed cover and function in greater than 70% of BLM surface in Occupied and Unoccupied	Domestic grazing impacts in riparian areas in Occupied and Unoccupied Habitats would be eliminated. Habitat treatments and damaging water development projects would be prohibited. This is the most	Grazing impacts would be limited and essentially the same as under Alternative B. Adverse impacts from habitat treatments and water developments would be less than Alternative A, but greater than Alternative	Grazing impact levels would be similar to alternatives B and C, and less than Alternative A. Adverse impacts from habitat treatments and water developments would be similar to Alternative C.	Similar impact levels as Alternative C.
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CHAPTER 2 - ALTERNATIVES

AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	Habitat.	protective alternative.	B.		
Stream and Riparian Condition	Existing RMPs have been amended to include Public Land Health Standards and Guidelines for Livestock Grazing. Current conditions along riparian areas would continue in Occupied and Unoccupied Habitats, but may decline in other areas outside of these protections.	Would eliminate most surface disturbance along riparian areas in Occupied and Unoccupied Habitat.	Surface disturbance in Occupied and Unoccupied habitats would be less than that under Alternative A, but more than Alternative B. Reclamation on closed routes would be greater than Alternative A but less than Alternative B.	Surface disturbance impacts would be between that under alternatives A and B or C. Impacts from grazing and habitat improvements in Occupied and Unoccupied habitats would be similar to Alternative C.	Similar impact levels as Alternative C.

INVASIVE SPECIES

Vegetation Treatments	Vegetation treatments would be allowed on most BLM lands.	Weeds that threaten sagebrush and riparian habitats could be treated, but in general vegetation treatments on BLM lands in Occupied and Unoccupied habitats would not be allowed.	Higher levels of vegetation treatments than alternatives A and B.	Would provide the same level of protection as Alternative C.	Impacts would be similar to those under Alternative C.
Risk of Weed Introduction and Spread	Some protections occur in Occupied and Unoccupied Habitat and the 4-mile Non-	Greater extent of surface protection, thus the risk of weed introduction and spread	More surface protections than Alternative A, but less than Alternative B.	Similar risks as alternatives A and C.	Similar to Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	Habitat Areas. These lands are at lower risk from disturbance and weed invasion.	would be decreased compared to Alternative A.			
WILDLAND FIRE					
Amount Burned and Fire Frequency	About 4% of Occupied and Unoccupied Habitat and 8% of four-mile Non-Habitat areas have burned in the past 30 years. There are some surface disturbance restrictions in GUSG habitat through current RMPs.	Fire frequency would decrease but acreage by wildfire could increase compared to Alternative A.	Would limit fire frequency in Occupied and Unoccupied Habitat, and the impacts would be less than Alternative A, but more than Alternative B.	Fire frequency would be reduced in comparison to Alternative A, but total acreage could increase. Would allow for greater levels of surface disturbance (including fire protection) than alternatives A, B, and C.	Impacts would be similar to those under Alternative C.
Fuels Condition	VCC 2 is the dominant fire class, with VCC 1 and 3 about equally distributed. These conditions would be continued under Alternative A.	Would employ aggressive fire suppression, and more acres would be in VCC2 and VCC3 classification than Alternative A.	Fuel treatments and prescribed fire would reduce VCC class compared to alternatives A and B. More acres would be VCC 1 and fewer in VCC 2 and 3 compared to alternatives A and B.	Would have similar management to Alternative C, but there would be fire suppression in Unoccupied Habitat. VCC would be reduced compared to Alternative A, but more than Alternative B.	Would be similar to Alternative C, although prescribed burning would be limited to slash piles in Occupied Habitat. VCC would be reduced less than Alternative A, but more than Alternative B.
LIVESTOCK GRAZING					
Permitted	Permitted forage	All GUSG habitat	Would allow for	Impacts would be	Impacts would be

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
Forage	allocations are >36,000 AUMs but this could decrease over the long term.	would be closed to livestock grazing in Occupied and Unoccupied Habitat.	livestock grazing in Occupied and Unoccupied Habitat, although AUMs could be reduced where RCP guidelines are not met.	similar to those under Alternative C.	similar to those under Alternative C.
Acres with Active Grazing Allocations	Almost 580,000 acres are grazed within Occupied and Unoccupied Habitat, and 86,000 acres are within the 4 mile Non Habitat area. These acreages would decrease over time.	There would be no active grazing allotments in Occupied and Unoccupied Habitats.	The acreage of allotments used for grazing would be less than under Alternative A because some allotments may be voluntarily closed.	Impacts would be similar to those under Alternative C.	Would be the same as Alternative C.
Land Health	Livestock grazing would continue over 90% of BLM Occupied and Unoccupied Habitat. Conditions would improve on portions of Occupied and Unoccupied Habitat (up to 41%) and within the 4-mile Non-Habitat Areas (up to 26%).	Improvements to Land Health Ecological Fundamental Status would occur more rapidly than under Alternative A, although the Occupied and Unoccupied Habitat proportions would remain about the same.	Would constrain surface-disturbing activities in Occupied and Unoccupied Habitat, with more rapid improvements in Land Health than under Alternative A.	Would constrain surface disturbance more than Alternative A, but less than alternatives B and C.	Same as Alternative C.
Constraints on Range	The extent and scope of constraints on	Range improvements would not be allowed.	New developments would be required to	Constraints on range improvements	Impacts would be similar to Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
Improvements	development of range infrastructure would increase over time.		conserve, enhance, or restore Occupied Habitat and would not be allowed to degrade Unoccupied Habitat.	infrastructure would be less than Alternative C, but more than Alternative A in the Gunnison Basin population area.	
RECREATION					
Targeted Beneficial Outcomes	Would have the least impact to RMAs in the decision area.	Would be the most restrictive, with no new RMAs and a loss of new recreational services.	Would be less restrictive than Alternative B, if recreation is compatible with GUSG and GUSSG Habitat.	Management would default to the interagency Candidate Conservation Agreement (CCA), which is designed to protect and enhance the recovery of GUSG.	Same as Alternative C.
Unstructured Recreational Opportunities	Would have the least impact to unstructured recreational opportunities.	Would be the most restrictive on unstructured recreational activities.	Would allow for some development if mitigations (such as seasonal road closures and spatial restrictions) were imposed. Would be less restrictive than Alternative B, but more than Alternative A.	Management in Occupied Habitat would default to the CCA, and small-scale infrastructure could be developed.	Restrictions in Unoccupied Habitat would be similar to alternatives B, C, and D ₁ .
Special Recreation Permits	Would have the least impact to recreation and visitor services related to SRPs.	Would avoid issuance of new SRPs and eliminate SRPs in GUSG Habitat.	Would only allow for issuance of new SRPs that minimize impacts to GUSG and GUSG	Would follow CCA guidelines in Occupied Habitat, otherwise management would be	Would allow for issuance of new SRPs on a case-by-case basis that minimize impacts

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
			Habitat.	similar to Alternative A.	to Occupied and Unoccupied Habitat.
TRAVEL MANAGEMENT					
Allowable Uses	Would allow for the greatest diversity of uses on existing or designated travel routes.	Would be the most restrictive for allowable uses.	Would be less restrictive than Alternative B, as long as designations are compatible with GUSG and GUSG Habitat.	Designations would comply with the Gunnison Basin Federal TMP and the interagency CCA.	If transportation uses in a field office TMP are compatible with GUSG conservation, then the No Action Alternative would apply; if not, then the TMP would be amended.
Travel Management Designations	38,114 acres of Occupied and Unoccupied Habitat would continue to be closed to motorized travel.	Would be the most restrictive, including closing Occupied Habitat (totaling 597,006 acres) to motorized travel.	Same as Alternative A, closing 38,114 acres of Occupied and Unoccupied Habitat to motorized travel.	Same as Alternative A, closing 38,114 acres of Occupied and Unoccupied Habitat to motorized travel.	If transportation uses in a field office TMP are compatible with GUSG conservation, then the No Action Alternative would apply; if not, then measures would be the same as under Alternative A.
New Route Development	Would have the least impact to new route development.	Route densities would be reduced and there would be no new development in GUSG Habitat.	Would be less restrictive than Alternative B if travel routes are compatible with GUSG and GUSG Habitat.	Management actions in Occupied Habitat would comply with the Gunnison Basin Federal TMP and the interagency CCA.	Same as Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
LEASABLE FLUID MINERALS					
Areas Open or Closed for Leasing	96,600 acres would continue to be closed and 899,600 acres open to fluid mineral leasing.	The entire decision area would be closed to fluid mineral leasing.	Occupied Habitat would be open to leasing with NSO stipulation and Unoccupied Habitat would be subject to a CSU leasing, with 25,460 acres more open than under Alternative A. Existing withdrawals, including those for NMAs and NCAs, would remain in effect.	Same as Alternative C, except that the Piñon Mesa population area in the Grand Junction FO would be closed.	Same as Alternative C, except that the Piñon Mesa population area in the Grand Junction FO would be closed.
LEASABLE SOLID MINERALS					
Areas Open or Closed for Leasing	96,600 acres would continue to be closed and 899,600 acres open to solid mineral leasing.	The entire decision area would be closed to solid mineral leasing.	Occupied Habitat would be open to leasing with NSO stipulation and Unoccupied Habitat would be subject to a CSU leasing, with 25,460 acres more open than under Alternative A. Existing withdrawals, including those for NMAs and NCAs, would	Same as Alternative C.	Same as Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
			remain in effect.		
LOCATABLE MINERALS					
Areas Open or Closed for Leasing	The Canyon of the Ancients NM, Gunnison Gorge NCA, Dominguez Escalante NCA, and McInnis Canyons NCA and wilderness areas, plus approximately 61,000 additional acres would be withdrawn. About 952,600 acres would remain open to staking.	The entire decision area would be recommended for withdrawal from mineral location and entry.	Withdrawals would be assessed based on risk of conflict between mineral development and GUSG and GUSG Habitat. Impacts to locatable minerals would be greater than under Alternative A, but less than Alternative B. Existing withdrawals, including those for NM and NCAs, would remain in effect.	Same as Alternative C, except that no withdrawals would be recommended in Unoccupied Habitat. Impacts would be greater than under Alternative A, but less than alternatives B and C.	Same as Alternative C, except that no withdrawals would be recommended in Unoccupied Habitat. Impacts would be greater than under Alternative A, but less than alternatives B and C.
SALABLE MINERALS					
	The Canyon of the Ancients NM, Gunnison Gorge NCA, Dominguez Escalante NCA, and McInnis Canyons NCA and wilderness areas, plus approximately 106,700 additional acres would be withdrawn.	All Occupied Habitat and sagebrush and riparian habitat in Unoccupied Habitat would be closed to mineral sales.	Mineral material sales would be allowed throughout the area, subject to mitigation. Impacts would be greater than under Alternative A, but less than Alternative B. Existing withdrawals, including those for NM and NCAs, would	Same as Alternative C.	Same as Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	About 899,300 acres would remain open to staking.		remain in effect.		
LANDS AND REALTY					
Rights-of-Way	Approximately 305,306 acres would be ROW exclusion areas and 89,028 acres would be designated as ROW avoidance areas, with the remaining area open to ROWs that could include stipulations.	The entire area would be designated as a ROW exclusion area, with some exceptions.	The entire area would be designated as a ROW avoidance area, with guidelines for protection if a ROW could not be avoided. Impacts to ROWs would be more than under Alternative A, but less than Alternative B.	Would implement the CCA for actions in Occupied Habitat, same as D ₂ in Unoccupied Habitat, and minerals development would be like Alternative C. Impacts would be similar to Alternative C, although costs might be higher due to mitigation.	Similar to Alternative C, but with a 0.6-mile ROW exclusion area around leks.
SOCIOECONOMICS					
Grazing	In the decision area, the grazing industry supports approximately 81 jobs, \$1.26 million in labor, and \$6.0 million in output.	Impacts could include the loss of 33 jobs, \$493,000 in labor, and over \$3 million in output.	Employment, labor income, and output would be midpoint between alternatives A and B.	Economic impacts to grazing would be similar to Alternative C.	Economic impacts to grazing would be similar to Alternative C.
Recreation	In the decision area, the recreation industry supports approximately 164	Would limit recreational use, route construction, and SRPs. While overall economic	Would implement some restrictions, but not as extensive as under Alternative B.	Would implement some restrictions, but not as extensive as under Alternative B.	Economic impacts to recreation would be similar to alternatives C and D ₁ .

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
	jobs, \$5.5 million in labor, and \$12.1 million in output.	activity would not change, compensatory uses in less restrictive areas would increase.	Activities and values would not decrease overall, but would be displaced.	Activities and values would not decrease overall, but would be displaced.	
Oil and Gas Leases	Would continue current oil and gas production levels in the decision area, with about 68 wells generating approximately 2,800 barrels per year.	Would be expected to reduce employment, labor income, and output-related development and extraction.	If operators are able to access oil reserves, then impacts would be similar to those under Alternative A and if unable to access reserves, then impacts would be similar to those under Alternative B.	Same as Alternative C.	Same as Alternative C.
Other Minerals	Would continue current designation of approximately 95,564 acres closed to mineral leasing and 899,645 acres open and support the highest employment, income, and economic output levels of the alternatives.	The entire decision area would be closed to solid minerals leasing.	All Occupied Habitat would be open to leasing with a NSO stipulation. All Unoccupied Habitat would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat. Would generate lower employment and economic income and value levels than under Alternative A, but more than Alternative B.	Same as Alternative C.	Same as Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
Land and Realty	Approximately 305,306 acres are designated as ROW exclusion areas, and 89,028 acres as ROW avoidance areas.	The entire decision area would be designated as a ROW exclusion area, with some exceptions. BLM lands in Non-Habitat Areas would be designated as ROW avoidance areas, and would require additional management such as timing limitations and reclamation requirements.	The entire decision area would be designated as a ROW avoidance area, and would require additional management such as timing limitations and reclamation requirements. Similar to Alternative A, but infrastructure development would be lower and costs would be higher.	Similar to Alternative C, but some infrastructure development under Alternative D ₁ would require additional offsite mitigation, thus adding to the cost.	Similar to Alternative C
Non-Market Values	Would be less likely to support non-market values related to protection of wildlife and quality of water and soil, but would provide more opportunities for livestock grazing and recreation.	Would decrease soil erosion and improve stream and wetland habitat. Wildfire fighting would be more expensive and difficult due to limited access.	Would allow for ecosystem restoration, but continued grazing would impact soil erosion and riparian health. Wildfire risk would be reduced.	Similar to Alternative C.	Similar to Alternative C.
ENVIRONMENTAL JUSTICE					
Impacts to Environmental Justice Populations	Would not adversely affect environmental justice populations.	Would reduce livestock grazing opportunities by 85% in Saguache County, CO and by	Grazing would be allowed, but costs would be higher than under Alternative A.	Similar to Alternative C.	Similar to Alternative C.

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AFFECTED RESOURCE OR USE	No Action ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	Gunnison Basin Preferred SUB-ALTERNATIVE D ₁	Satellite Populations Preferred SUB-ALTERNATIVE D ₂
		about 26% in San Juan County, UT, as well as oil and gas and mining, resulting in potential adverse economic impacts.	NSO and CSU stipulations would increase costs and there could be subsequent economic impacts to segments of the environmental justice population.		

2.3. MONITORING, EVALUATION, ADAPTIVE MANAGEMENT, & MITIGATION

BLM planning regulations (including 43 CFR 1610.4-9) require that land use plans establish intervals and standards for monitoring and evaluation, based on the sensitivity of the resource decisions involved.

2.3.1. EVALUATION

Evaluation is the process of reviewing the RMP and determining whether decisions and NEPA analysis are still valid and whether the RMP is being adequately implemented. The BLM Land Use Planning Handbook (H-1601-1; BLM 2005a) directs that RMPs should be evaluated at a minimum period of every five years.

Specifically, RMPs are evaluated to determine whether:

- Decisions remain relevant to current issues;
- Decisions are effective in achieving (or making progress toward achieving) desired outcomes;
- Any decisions should be revised;
- Any decisions should be dropped from further consideration; and
- Any areas require new decisions.

Data collected during RMP implementation helps to inform the RMP evaluation.

2.3.2. MONITORING

Land use plan monitoring is the process of tracking the implementation of land use plan decisions (implementation monitoring) and collecting data/information necessary to evaluate the effectiveness of land use plan decisions (effectiveness monitoring) in meeting the purpose and need of the plan, or in this case the plan amendment.

Monitoring strategies for GUSG Habitat and populations must be collaborative, as habitat occurs across jurisdictional boundaries. Therefore, efforts will continue to be conducted in partnership with federal and state fish and wildlife agencies. The BLM and other partners will use the resulting information to guide implementation of conservation activities.

In accordance with BLM's Land Use Planning Handbook, BLM, with their partners, will develop a monitoring plan as a part of the implementation plan. The monitoring

plan will describe the process BLM will use to monitor implementation and effectiveness. The monitoring plan will include methods, data standards, and intervals of monitoring; analysis and reporting methods; and the incorporation of monitoring results into future management actions.

More specifically, the plan will discuss how the BLM will monitor and track implementation and effectiveness of planning decisions. To monitor habitats, the BLM will measure and track attributes of Occupied Habitat and Unoccupied Habitat and attributes of habitat availability.

During implementation of this RMP Amendment, population trends will be monitored by BLM, FWS, CPW, and UDWR biologists. This monitoring would evaluate the effects to GUSG Habitat and populations due to BLM permitted activities and make recommendations for changes in management. Monitoring would also evaluate the effectiveness of restoration activities and mitigation (to include compensatory mitigation) associated with permitted activities.

2.3.3. ADAPTIVE MANAGEMENT

ADAPTIVE MANAGEMENT

Adaptive Management is a decision process that promotes flexible resource management decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes advances scientific understanding and helps with adjusting resource management directions as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. On February 1, 2008, the DOI published its Adaptive Management Implementation Policy (522 DM 1). The adaptive management strategy presented within this EIS complies with this policy.

In relation to the BLM GUSG Planning Strategy, adaptive management will help identify whether GUSG conservation measures presented in this EIS contain the needed level of certainty for effectiveness. If principles of adaptive management are incorporated into the conservation measures in the plan (to ameliorate threats to or respond to recovery of a species), then there is a greater likelihood that a conservation measure or plan will be effective.

ADAPTIVE MANAGEMENT AND MONITORING

As part of plan implementation, a monitoring framework that includes an effectiveness monitoring component will be developed in accordance with Section 2.3.2. The BLM intends to use the data collected through effectiveness monitoring to identify any changes in habitat conditions related to the goals and objectives of the plan and other rangewide conservation strategies. When available, information about population trends will be considered along with effectiveness monitoring data (taking into consideration the lag effect response of populations to habitat changes). The information collected through the monitoring framework will be used by the BLM to determine when adaptive management triggers (discussed below) are met.

ADAPTIVE MANAGEMENT PLAN

The BLM will develop an adaptive management plan to provide certainty that unintended negative impacts to GUSG would be addressed before consequences become severe or irreversible and to provide regulatory certainty to the FWS that appropriate action would be taken by the BLM. Additionally, the adaptive management plan would provide flexibility for BLM resource management decisions when positive improvements achieving recovery objectives occur.

This adaptive management plan will:

- Identify science-based adaptive management triggers within the planning area
- Address how the multiple scale data from the Monitoring Framework will be used to gauge when adaptive management triggers are met, and charter an adaptive management working group to assist with responding to adaptive management triggers.

ADAPTIVE MANAGEMENT TRIGGERS

Adaptive management triggers are essential for identifying when potential management changes are needed or warranted in order to continue meeting GUSG conservation objectives or in response to achieving recovery objectives. The BLM will use a continuum of trigger points, which will enhance the agency's ability to effectively manage GUSG habitat. At a minimum, triggers delineated in the adaptive management plan will:

- Be based upon the best available science
- Take into account the importance of various seasonal habitat types
- Not be limited to a single point in time.

Adaptive management should include multiple triggers. Triggers indicate when the BLM will consider adjustments to resource/resource use management. An adaptive management working group will help identify the causal factors as to what prompted the adaptive management trigger. The group will also provide recommendations to the appropriate BLM authorizing official (decision maker) regarding the applicable management response to address this trigger (e.g. effective mitigation, restoration, reclamation, and in some instances, a land use plan amendment or revision). When organizing the adaptive management working group, the BLM will invite participation from the BLM, FWS, local governments, and applicable state fish and game agencies.

Furthermore, triggers indicate when the BLM will take management action to stop the continued deviation from conservation objectives or respond to recovery of GUSG. These triggers should be linked to specific management actions that address the causal factors and could include, but are not limited to, one or more of the following:

- Coordination with cooperating agencies
- Temporary closures
- Immediate implementation of interim management policies and procedures through the BLM directives system, and
- Initiation of a new LUP Amendment to consider changes to the existing LUP decisions.

GUSG HABITAT

Adjustments to lek locations and boundaries, Occupied or Unoccupied Habitat boundaries, and seasonal habitat will be made as necessary if the BLM determines that conditions warrant such changes to more accurately depict existing or potential GUSG Habitat. Analysis and recommendations regarding such determinations will be prepared and produced by BLM biologists in coordination with Colorado and/or Utah state wildlife agency biologists, FWS biologists, and county/local government biologists. The appropriate planning process (i.e., plan maintenance or plan amendment) would be used to make any necessary changes to RMPs.

PONCHA PASS MANAGEMENT ABSENT GUSG

The Poncha Pass Population has no designated critical GUSG habitat. The BLM's decision to manage the Poncha Pass area for the conservation of GUSG arises from the presence of GUSG, though the population exists solely due to transplantation of birds. The BLM will continue to manage for GUSG in Poncha Pass so long as birds are present. If GUSG are determined to no longer be present in Poncha Pass, then

the BLM will no longer be able to justify the need to manage that area as habitat for GUSG.

The criterion for determining that GUSG are no longer present consists of documenting that the entire population area (Occupied and Unoccupied Habitat and areas within four miles of a lek regardless of habitat) has had no GUSG presence in the past ten years. Documentation of GUSG presence includes telemetry locations, sightings of GUSG or sage-grouse sign, local biological expertise, GIS analysis, or other data sources. The BLM may make a determination to no longer manage the Poncha Pass area as habitat for GUSG if this criterion is met. Analysis and recommendations regarding such determinations will be prepared and produced by BLM biologists in coordination with Colorado and/or Utah state wildlife agency biologists, FWS biologists, and county/local government biologists. The appropriate planning process (i.e., plan maintenance or plan amendment) would be used to make any necessary changes to a RMP(s).

INCORPORATION OF A FWS RECOVERY PLAN OR AN UPDATED RCP

The BLM may make a determination to incorporate all or part of a FWS-published GUSG recovery plan and/or an updated and signed RCP, if either where to become available. Analysis and recommendations regarding such determinations would be prepared and produced by BLM interdisciplinary staff in coordination with Colorado and/or Utah state wildlife agencies, the FWS and other federal agencies, and county/local governments. The appropriate planning process (i.e., plan maintenance or plan amendment) would be used to make any necessary changes to a RMP(s).

INCORPORATION OF A CHANGE TO THE ESA STATUS OF THE GUSG

The BLM may make a determination to incorporate changes necessitated or flowing from a change to the ESA status of GUSG (delisting, designation as endangered, or some other status change). Analysis and recommendations regarding such determinations would be prepared and produced by BLM interdisciplinary staff in coordination with Colorado and/or Utah state wildlife agencies, the FWS and other federal agencies, and county/local governments. The appropriate planning process (i.e., plan maintenance or plan amendment) would be used to make any necessary changes to a RMP(s).

2.3.4. MITIGATION

The mitigation hierarchy for the BLM states that the BLM will first try to avoid impacts. The GUSG RMP Amendment focuses on avoidance of impacts followed by

minimization techniques. The intent of the Draft GUSG Rangewide Mitigation Plan is to achieve a net conservation gain for the GUSG. To do so, in undertaking BLM management actions, and, consistent with valid existing rights and applicable law, in authorizing third party actions that result in habitat loss and/or degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the species including accounting for any uncertainty associated with the effectiveness of such mitigation. This will be achieved by avoiding, minimizing, and compensating for impacts by applying beneficial mitigation actions. Actions that result in habitat loss and/or degradation include those identified as threats that contribute to GUSG disturbance as identified by the FWS in its listing decision (FWS 2014).

MITIGATION PLAN

Consistent with valid existing rights and applicable law, in undertaking BLM management actions or authorizing third party actions within GUSG habitat that result in habitat loss and/or degradation, the BLM will require and ensure mitigation that provides a net conservation gain to the GUSG, including accounting for any uncertainty associated with the effectiveness of such mitigation. Mitigation would be required under every alternative and would be achieved by avoiding, minimizing, and compensating for impacts. Mitigation would adhere to CEQ regulations (40 CFR 1508.20; e.g., avoid, minimize, and compensate). If impacts from BLM management actions or authorized third-party actions that result in habitat loss and/or degradation remain following the application of avoidance and minimization measures (i.e., residual impacts), then compensatory mitigation would be used to provide a net conservation gain to the species actions as identified in the Draft GUSG Rangewide Mitigation Plan (in Appendix J). Any compensatory mitigation would be durable, timely, and in addition to that which would have resulted without the compensatory mitigation.

3. AFFECTED ENVIRONMENT

This chapter documents the existing conditions of and trends for biological, physical, cultural, and human resources in the planning area that could be affected by implementing any of the proposed alternatives described in Chapter Two, *Alternatives*. The affected environment provides the context for assessing the potential impacts described in Chapter Four, *Environmental Consequences*.

The affected environment of planning area resources is described in relation to the following components:

❖ INDICATORS

Indicators are factors selected in order to assess resource conditions, such as ambient pollutant level, visibility, and vegetation. Whenever possible, indicators are quantitative. Indicators can be derived from many potential sources, such as the Standards for Rangeland Health.

❖ EXISTING CONDITIONS

Existing Conditions describe the location, extent, and current condition of resources within the planning area in general and on BLM-administered lands. Conditions can be determined by comparing the value of indicators to an established standard (such as a current plan goal or objective) and/or benchmark.

❖ TRENDS

Trends describe the degree and direction of change in a resource between the present and some point in the past. If change is noted, then the degree and direction of resource change is characterized as moving toward or away from the current desired condition based on specific indicators, and reasons for the change are identified. Trends can be described in quantitative or qualitative terms. Identification of trends is necessary in order to provide an understanding of how BLM management practices influence desired resource conditions over time. Trends for certain resources can be difficult to analyze, as changes to the resource often occur due to factors beyond BLM control.

3.I. SPECIAL STATUS SPECIES

Only species for which the proposed action might substantially change conditions to an extent that analysis in an EIS is necessary are addressed in this document. Due to the conservation-focused nature of the RMP Amendment, special status species in the planning area would receive residual protection and benefit from any alternative analyzed outside of the No Action Alternative.

No increase in surface-disturbing activities would be authorized under any of the action alternatives above what is permitted in existing land use plans. In no scenario under the Draft RMP Amendment would disturbance to a plant or animal species increase. Under the RMP Amendment, special status plant and animal species would receive additional protections in areas where their range overlaps with GUSG.

Management actions to protect GUSG and their habitat would benefit other special status species as well. The RMP Amendment would not remove any protections for a species that are identified in an existing land use plan. Current management actions that require the survey and avoidance of special status plant and animal species would remain in place.

3.I.I. GUNNISON SAGE-GROUSE (*CENTROCERCUS MINIMUS*) AND HABITAT

INDICATORS

Special Status Species within Occupied and Unoccupied Habitat are described in terms of:

- Acres of sagebrush habitat
- Direct and Indirect disturbance to GUSG.

EXISTING CONDITIONS

Based on population trends since 1996, five of the seven GUSG populations are in decline. The Gunnison Basin Population has been stable to increasing throughout the same period, with variation evident over the years (CPW 2014). GUSG populations have been identified as cycling over many years. The general trend over multiple years—including population peaks and valleys—is necessary to determine the trend for any population.

Table 3.9 - GUSG Population, Three-year Average 1998–2005 (CPW 2014)

POPULATION	1998	1999	2000	2001	2002	2003	2004	2005
Cerro Summit-Cimarron-Sims Mesa	no data	no data	28	39	43	43	36	31
Crawford	232	245	260	216	196	154	150	146
Gunnison Basin	3,135	3,357	3,346	3,390	3,216	2,991	2,641	3,220
Monticello-Dove Creek	283	344	429	453	381	273	206	182
Piñon Mesa	119	128	144	152	149	136	132	144
Poncha Pass	no data	no data	no data	15	21	31	39	39
San Miguel	307	316	319	301	352	342	296	280
Total	—	—	—	4,566	4,358	3,969	3,501	4,041

Table 3.10 - GUSG Population, Three-year Average 2006–2014 (CPW 2014)

POPULATION	2006	2007	2008	2009	2010	2011	2012	2013	2014
Cerro Summit-Cimarron-Sims Mesa	38	36	31	28	18	25	29	43	57
Crawford	173	168	137	96	65	47	54	83	121
Gunnison Basin	4,137	4,862	4,497	4,034	3,714	3,738	3,826	3,995	4,073
Monticello-Dove Creek	183	211	227	227	190	162	147	144	122
Piñon Mesa	154	147	128	101	83	69	62	90	128
Poncha Pass	43	38	31	23	20	18	16	11	10
San Miguel	322	345	306	234	167	126	129	150	188
Total	5,050	5,807	5,360	4,749	4,263	4,188	4,266	4,516	4,701

Surface disturbances were mapped across the range of GUSG using National Agriculture Imagery Program (NAIP) imagery. For the purpose of this analysis, surface disturbances have been categorized as either impacting sagebrush availability or causing habitat degradation. Actions that impact sagebrush availability include agricultural conversion, urbanization, wildfire, conifer encroachment, sagebrush treatments, and invasive species. Sagebrush availability can be impacted by anthropogenic surface-disturbing activities (such as agricultural conversion or urbanization) or through natural processes that do not result in surface disturbance (such as pinyon-juniper encroachment or fire).

According to a 2015 BLM greater sage-grouse monitoring strategy, features on the landscape related to habitat degradation include, but are not limited to, energy development (oil and gas wells and development facilities), geothermal, mining, roads, power lines, communication towers, other vertical structures, and other

developed ROWs. Habitat degradation is always associated with surface-disturbing activities resulting from anthropogenic development of an area.

Rangewide, surface disturbance has impacted approximately 12% (114,478 acres) of Occupied Habitat and 22% (161,356 acres) of Unoccupied Habitat.

Table 3.11 - Surface Disturbance within GUSG Habitat by Land Status

HABITAT TYPE/ LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCES	% HABITAT DISTURBED
ALL OCCUPIED HABITAT	114,478	—	12%
BLM	4,014	4%	0%
Local	1,272	1%	0%
NPS	182	0%	0%
Private	107,887	94%	11%
State	446	0%	0%
USFS	676	1%	0%
ALL UNOCCUPIED HABITAT	161,356	—	22%
BLM	2,230	1%	0%
NPS	141	0%	0%
Private	158,245	98%	21%
State	371	0%	0%
USFS	369	0%	0%

GUSG habitat was mapped using LANDFIRE Existing Vegetation Type data (2010). GUSG habitat includes those areas identified as capable of supporting GUSG life functions. Rangewide in the decision area, 63% of Occupied Habitat is classified as capable of supporting GUSG, 28% as non-habitat (does not include agriculture), and 9% as agricultural development. Rangewide in the decision area, 35% of Unoccupied Habitat is mapped as habitat capable of supporting GUSG, 49% as non-habitat, and 16% as agricultural development. The following habitat types capable of supporting GUSG were identified in the decision area.

Table 3.12 - LANDFIRE Habitat Types in the Planning Area Capable of Supporting GUSG

GUSG HABITAT
<i>Artemesia tridentata</i> ssp. <i>vaseyana</i> Shrubland Alliance
Colorado Plateau Mixed Low Sagebrush Shrubland
Inter-Mountain Basins Big Sagebrush Shrubland
Inter-Mountain Basins Big Sagebrush Steppe
Inter-Mountain Basins Montane Sagebrush Steppe
Inter-Mountain Basins Semi-Desert Shrub Steppe
<i>Quercus gambelii</i> Shrubland Alliance
Rocky Mountain Gambel Oak-Mixed Montane Shrubland
Rocky Mountain Lower Montane-Foothill Shrubland

Of the leks in Occupied Habitat rangewide, 99 are active, 18 are inactive, 5 are unknown, and 36 are historic (CPW 2015 data request). Four known historic leks have been identified in Unoccupied Habitat. A historic lek is defined in the RCP as a formerly active lek that has not been utilized for display or breeding within the last 10 years. The unoccupied habitat classification was developed by the FWS in order to distinguish types of critical habitat and is largely based on RCP habitat categories (occupied, vacant/unknown, and potentially suitable).

Surface ownership within Occupied Habitat rangewide is comprised of 43% private surface and 41% BLM-administered public lands. Surface ownership within Unoccupied Habitat is 58% private surface and 31% BLM-administered lands. As shown in Table 3.13, Occupied Habitat for the satellite populations is 65% private surface and 27% BLM-administered lands.

Table 3.13 - Surface Ownership in the Satellite Population Areas

LAND STATUS	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	ACRES	% OF HABITAT	ACRES	% OF HABITAT
Total Acres	350,536	—	606,266	—
BLM	93,439	27%	163,910	27%
Local	12,693	4%	5	0%
Private	227,394	65%	376,174	62%
NPS	4,764	1%	7,029	1%
USFS	7,409	2%	57,517	9%

LAND STATUS	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	ACRES	% OF HABITAT	ACRES	% OF HABITAT
State	4,837	1%	1,605	0%
Other	—	0%	25	0%

Outside of mapped Occupied Habitat and Unoccupied Habitat, lands within four miles of all active, inactive, unknown, and historic GUSG leks were also identified in order to analyze potential impacts to the leks. Labeled as Non-Habitat Areas within Four Miles of a Lek (Non-Habitat Areas), these areas extend outside of current mapping for GUSG by 419,541 acres. Surface ownership of lands within the Non-Habitat Areas is identified in Table 3.14. Public lands managed by the BLM comprise approximately 30% of this area.

Table 3.14 - Surface Ownership within the Four-Mile Non-Habitat Areas

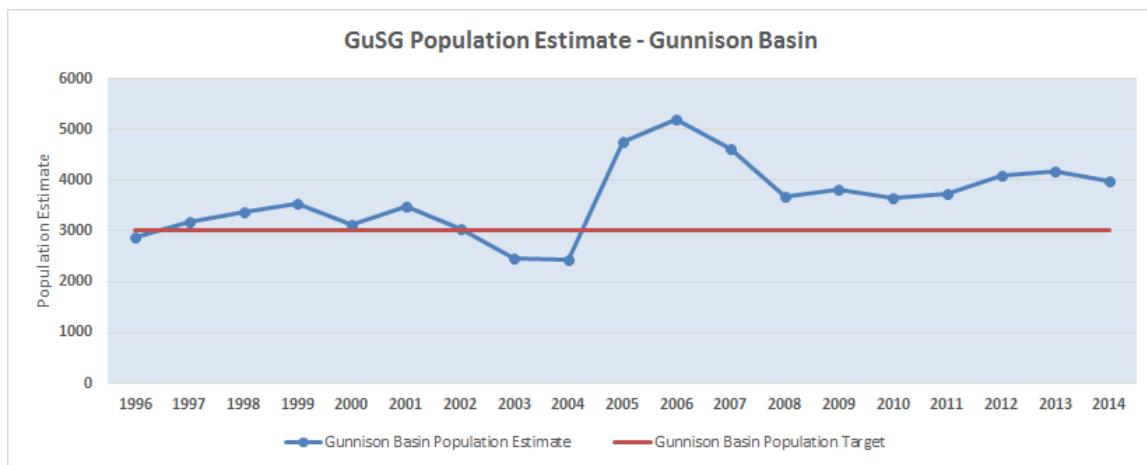
POPULATION	OWNER/MANAGER	ACRES
Cerro Summit-Cimarron-Sims Mesa	BLM	11,425
	Local	2,696
	NPS	4,132
	Private	53,333
	USFS	369
Crawford	BLM	1,481
	NPS	5,907
	Private	380
Gunnison Basin	BLM	12,007
	Local	2,643
	NPS	3,671
	Private	23,252
	State	747
	USFS	38,586
Monticello-Dove Creek	BLM	25,400
	Other	4
	Private	32,239
	State	235
	USFS	896
Piñon Mesa	BLM	26,629

POPULATION	OWNER/MANAGER	ACRES
	Private	19,992
	State	916
	USFS	11,594
Poncha Pass	BLM	763
	Private	541
	USFS	14,945
San Miguel Basin	BLM	40,689
	Local	329
	Private	58,752
	State	3,519
	USFS	21,469
Total BLM Non-Habitat Acreage		118,394
TOTAL NON-HABITAT ACREAGE		419,541

Using LANDFIRE data, vegetation was classified as either capable of supporting GUSG, non-habitat, or agricultural. Within four miles of a lek outside of Occupied Habitat or Unoccupied Habitat, 93,484 acres (22%) are capable of supporting GUSG, 304,654 acres (73%) are non-habitat, and 21,362 acres (5%) are classified as agricultural development.

Gunnison Basin Population

The Gunnison Basin GUSG Population is located in Gunnison and Saguache counties across 605,026 acres of Occupied Habitat. Of this area, 50% is BLM-administered public land totaling approximately 302,024 acres. The majority of GUSG habitat within the Basin receives less than 12 inches of precipitation a year. The main vegetation types in the Gunnison Basin include mountain big sagebrush, Wyoming big sagebrush, and black sage. Mountain big sagebrush occurs at higher elevations and at lower elevations containing moist sites. Wyoming big sagebrush is typically found at lower elevations and on drier sites. A hybrid of Wyoming and mountain big sagebrush occurs in transition areas between the two. Black sage is also found on dry gravel soils at lower elevations. Figure 3.2 provides GUSG population estimates for the Gunnison Basin Population from 1996 to 2014 (CPW 2015 data request). The population has been exceeding objectives set in the RCP since 2005.

Figure 3.2 - Gunnison Basin GUSG Population, 1996–2014

There are 95 known leks in the Gunnison Basin, of which 68 are classified as active, 8 as inactive, 4 as unknown, and 15 as historic (CPW 2015 lek data request). The high lek count in 2015 was 974 birds, with a 2015 population estimate of 4,306. Over a ten-year period, the population averaged 4,169 birds, which is 1,169 over the 3,000 population goal identified in the RCP (2014 Gunnison Basin lek report). 387 birds have been removed from the Gunnison Basin to augment sub-populations (CPW 2015 data request).

Based on LANDFIRE data, 411,843 acres of habitat are capable of supporting GUSG in Occupied Habitat in the Gunnison Basin. Cultivated cropland occurs on 5% or 30,441 acres of Occupied Habitat. The rest of Occupied Habitat in the Gunnison Basin falls into other habitat types totaling approximately 162,742 acres.

Table 3.15 - Gunnison Basin GUSG Habitat based on LANDFIRE Data

GUNNISON BASIN	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
Habitat	411,843	68%	51,876	38%
Non-habitat	162,742	27%	83,477	61%
Agricultural	30,441	5%	1,656	1%

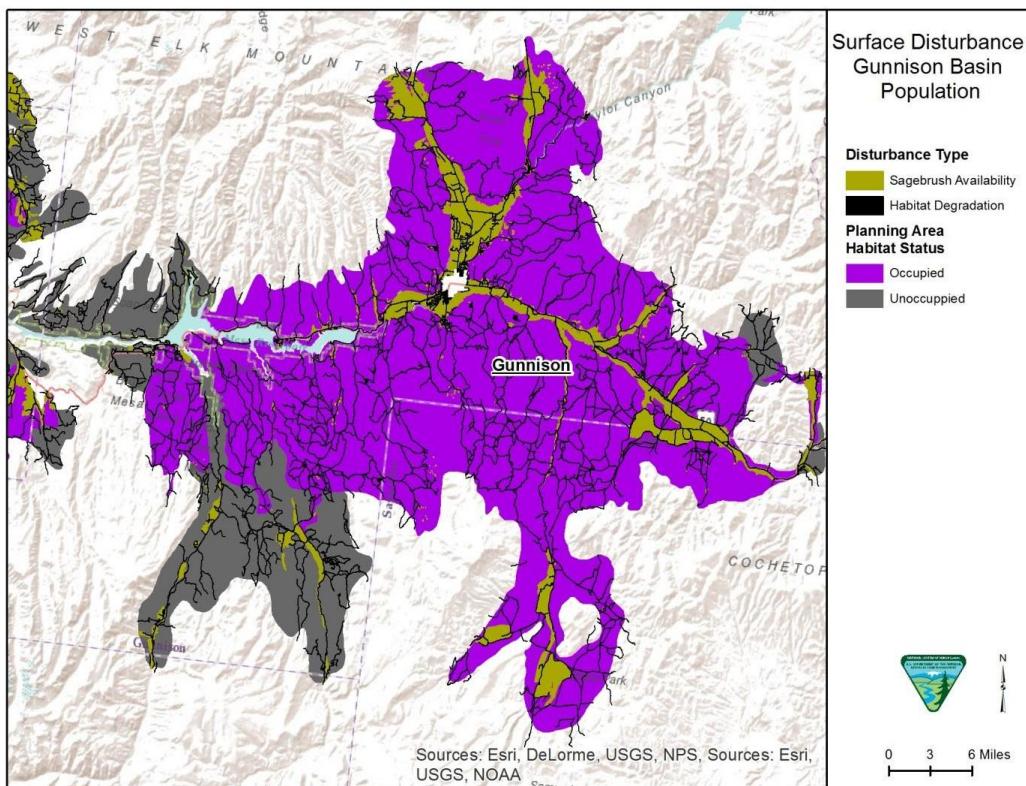
Table 3.16 - Land Status for the Gunnison Basin Population Area

STATUS	OWNERSHIP	ACRES	% OF HABITAT
Occupied Habitat (605,026 acres)	BLM	302,024	50%
	Private	187,761	31%
	USFS	92,724	15%
	Local	9,880	2%
	NPS	9,430	2%
	State	3,205	1%
Unoccupied Habitat (137,009 acres)	BLM	63,972	47%
	Private	53,034	39%
	USFS	12,181	9%
	NPS	7,407	5%
	State	414	0%

Overall surface disturbance in the Gunnison Basin does not exceed 10% of Occupied Habitat and approximately 4% of Unoccupied Habitat. Most surface disturbance impacts sagebrush availability and is primarily attributed to agricultural development and urbanization. Roads, energy development, and other infrastructure in Occupied Habitat cover 5,297 acres and includes less than 1% of Occupied Habitat.

Table 3.17 - Surface Disturbance in the Gunnison Basin Population Area

GUNNISON BASIN			
LAND OWNERSHIP	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCES	% HABITAT DISTURBED
OCCUPIED HABITAT			
Total Occupied Habitat	59,132	—	10%
BLM	3,222	5%	0.53%
Local	1,035	2%	0.17%
Private	53,896	91%	8.91%
State	351	1%	0.06%
USFS	629	1%	0.10%
UNOCCUPIED HABITAT			
Total Unoccupied Habitat	6,221	—	4%
BLM	879	14%	0.64%
NPS	15	0%	0.01%
Private	5,006	80%	3.65%
State	180	3%	0.13%
USFS	141	2%	0.10%

Figure 3.3 - Surface Disturbance in the Gunnison Basin Population Area

For the purpose of this EIS, surface disturbance was mapped using NAIP imagery and classified by disturbance type. Disturbances were grouped based on relationships identified in the Greater Sage-Grouse Monitoring Framework. Disturbances mapped as agriculture, urbanization, or wildfire were classified as disturbances that impact sagebrush availability. Disturbances such as energy development, mining, roads and other infrastructure were classified as habitat degradation.

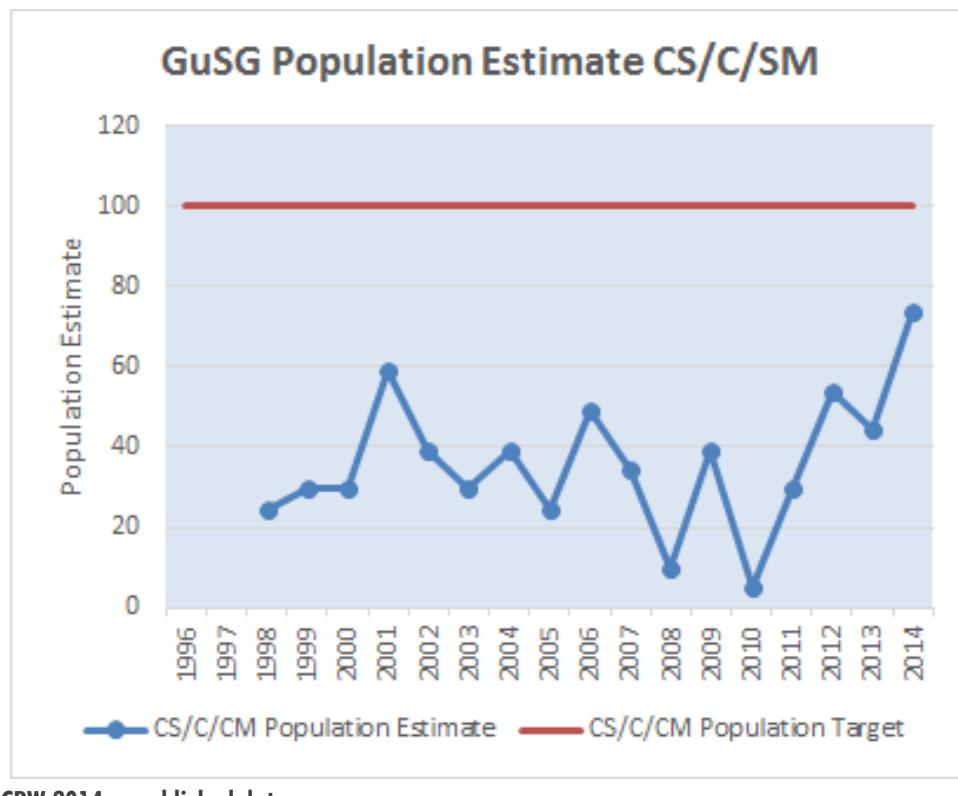
In the Gunnison Basin population area, there are 80,907 acres outside of Occupied or Unoccupied Habitat within 4 miles of a lek. 75% of leks in the Gunnison Basin are within 4 miles of Occupied Habitat, including 46 active leks. Surface ownership within 4 miles of a lek outside of Occupied and Unoccupied Habitat is identified in Table 3.14. Public lands managed by the BLM make up 19% of the area.

Within this area, 15% (12,506 acres) of the area provides habitat capable of supporting GUSG, while 83% (67,408 acres) is non-habitat, and less than 1% (993 acres) is classified as agricultural development.

Cerro Summit-Cimarron-Sims Mesa Population

The Cerro Summit and Cimarron GUSG sub-populations are located 15 miles east, and the Sims Mesa sub-population is 7 miles south, of Montrose, Colorado. The entire population covers approximately 37,142 acres of Occupied Habitat and 19,370 acres of Unoccupied Habitat. Predominant uses of BLM lands in the area include livestock grazing, recreation, and hunting. This population is heavily fragmented by pinyon-juniper stands and cultivated cropland. No population augmentation has been done in the Cerro Summit-Cimarron-Sims Mesa Population. There are six known leks in the area, of which two are active and four are historic (CPW 2015 Lek Data Request). Peak male attendance was 11 birds in 2015, 15 birds in 2014, and 9 in 2013. In 2015, the estimated population was 54 birds.

Figure 3.4 - Cerro Summit-Cimarron-Sims Mesa GUSG Population, 1998–2014



Occupied Habitat covers 37,142 acres. Occupied Habitat is 76% private surface (28,064 acres). BLM-administered public lands make up about 12% of the area or 4,380 acres. Local and state government lands include 12% of Occupied Habitat or 4,336 acres. Agricultural land makes up 5% of Occupied Habitat covering 2,039 acres. Habitat able to support GUSG is 64% of Occupied Habitat and other habitat—mostly pinyon-juniper—is 31% or 11,381 acres (LANDFIRE 2010).

Table 3.18 - Cerro Summit-Cimarron-Sims Mesa GUSG Habitat based on LANDFIRE Data

CERRO SUMMIT-CIMARRON-SIMS MESA	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
Habitat	23,722	64%	10,045	52%
Non-Habitat	11,381	31%	9,192	47%
Agricultural	2,039	5%	132	1%

Unoccupied Habitat for the Cerro Summit-Cimarron-Sims Mesa population area encompasses 19,370 acres. Unoccupied Habitat is 74% private surface (14,353 acres) and 26% BLM-administered public lands (5,011 acres). Agricultural land makes up 132 acres of Unoccupied Habitat. Habitat capable of supporting GUSG makes up 52% (10,045 acres) and other habitats—mostly pinyon-juniper woodlands—make up the remaining 47% (9,192 acres).

Table 3.19 - Land Status for the Cerro Summit-Cimarron-Sims Mesa Population Area

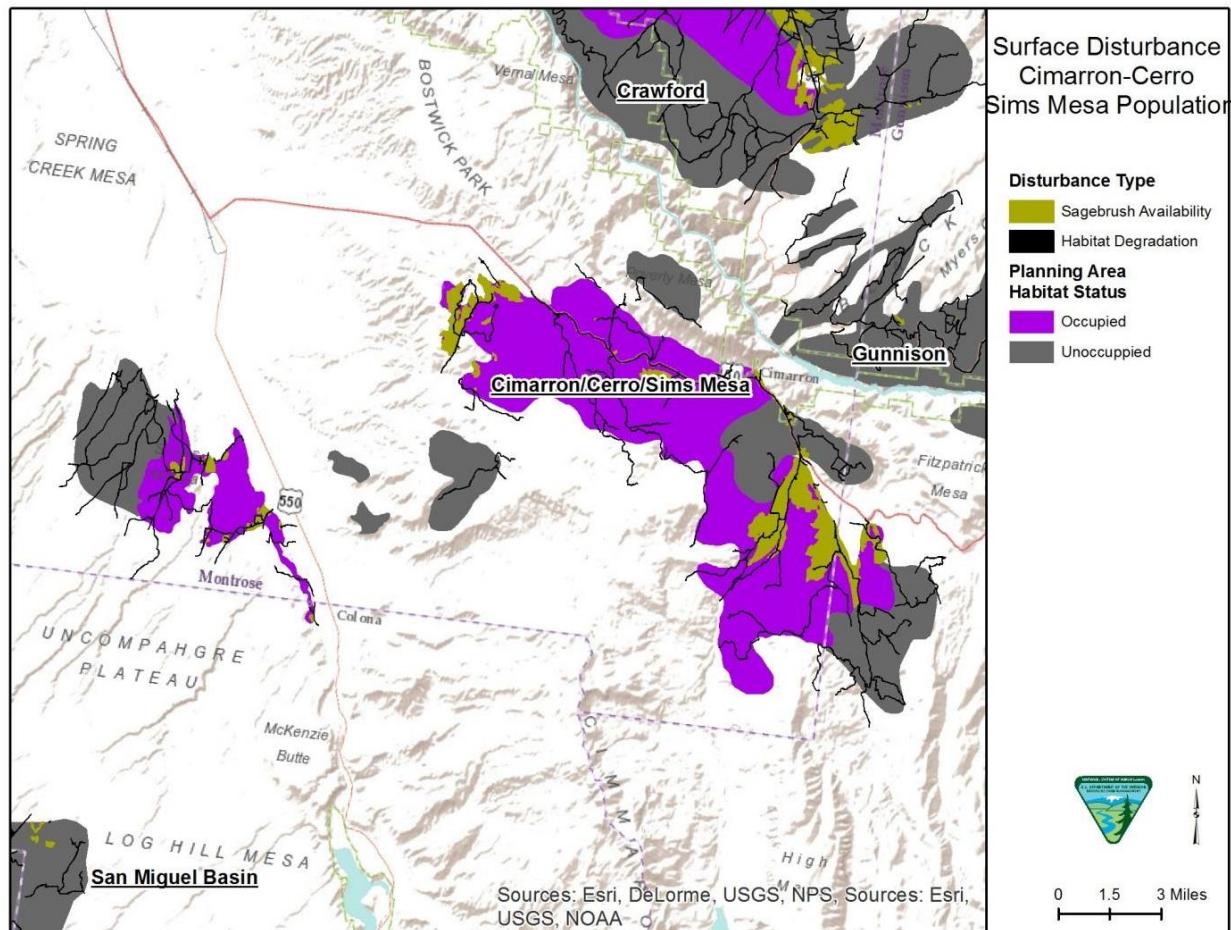
STATUS	OWNERSHIP	ACRES	% OF HABITAT
Occupied Habitat (37,142 acres)	Private	28,030	75%
	BLM	4,776	13%
	Local	4,336	12%
Unoccupied Habitat (19,370 acres)	Private	14,353	74%
	BLM	5,016	26%

Overall surface disturbance in the Cerro Summit-Cimarron-Sims Mesa population area is present on approximately 12% of Occupied Habitat and 1% of Unoccupied Habitat. Most surface disturbance impacts sagebrush availability and is primarily agricultural development. Roads, energy development, and other infrastructure in Occupied Habitat covers less than 1% (286 acres) of Occupied Habitat.

Table 3.20 - Surface Disturbance in the Cerro Summit-Cimarron-Sims Mesa Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
OCCUPIED HABITAT			
Total Occupied Habitat	4,428	—	12.3%
BLM	63	1.0%	0.2%
Local	42	1.0%	0.1%
Private	4,323	98.0%	12.0%

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
UNOCCUPIED HABITAT			
Total Unoccupied Habitat	215	—	1.2%
BLM	50	23.0%	0.3%
Private	165	77.0%	0.9%

Figure 3.5 - Surface Disturbance in the Cerro Summit-Cimarron-Sims Mesa Population Area

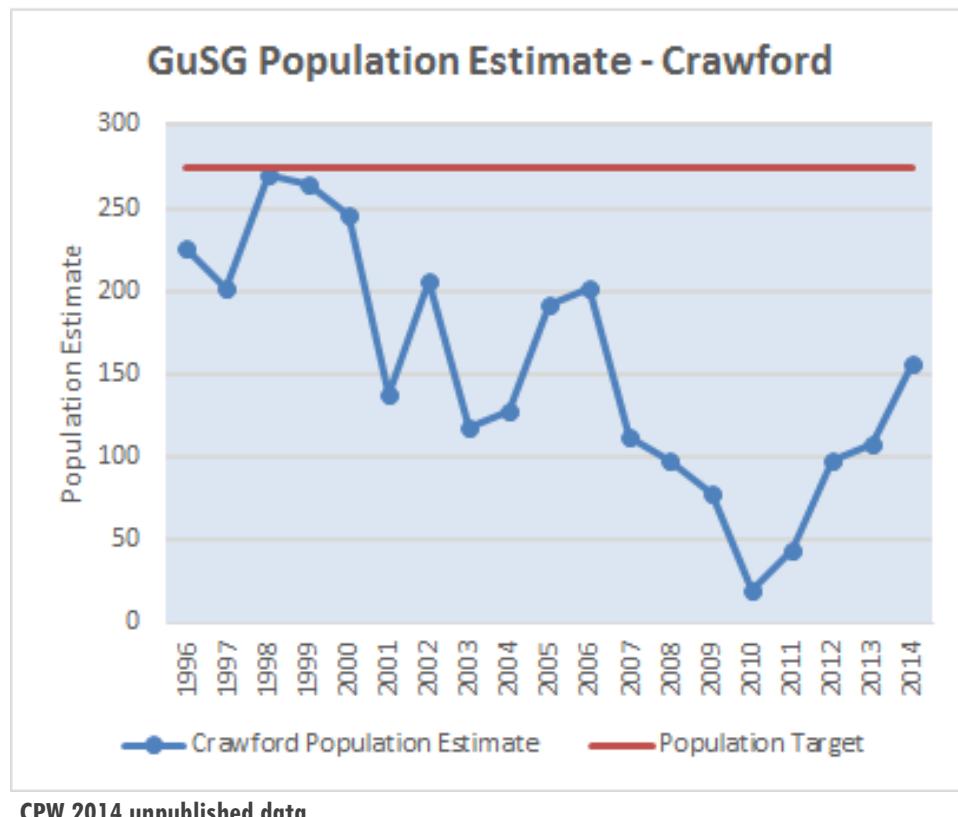
In the Cerro Summit-Cimarron-Sims Mesa population area, 71,955 acres is outside mapped Occupied and Unoccupied Habitat and within four miles of a lek. The population area is just over four miles wide at its widest point, meaning that no location is more than two miles from the edge of Occupied Habitat. Surface ownership for the area outside Occupied and Unoccupied Habitat is identified in Table 3.6. Public lands managed by the BLM make up 21% of the area.

Within four miles of a lek and outside of Occupied and Unoccupied Habitat, 31% of the area (22,474 acres) provides habitat capable of supporting GUSG, 57% (40,780 acres) is non-habitat, and 12% (8,700 acres) is classified as agricultural development.

Crawford Population

The Crawford Population of GUSG is located eight miles southwest of the town of Crawford, Colorado. The area consists of rocky drainages, pinyon-juniper woodlands, and uplands dominated by big and mountain sagebrush. Predominant uses of BLM-managed lands in the area include livestock grazing, recreation, and hunting. The area contains ten known leks, of which five are active, one is inactive, and four are historic (CPW 2015 Lek Data Request). Peak male attendance was 31 in 2015, 32 in 2014, 22 in 2013, and 11 in 2012. GUSG population trends in the area were declining from 2000 through 2012, with increases in 2013, 2014, and 2015. In 2011, the population was augmented by 27 birds from the Gunnison Basin. In the springs of 2011, 2012, and 2013, 72 birds were translocated from the Gunnison Basin to Crawford to help stabilize the population (from personal communication with CPW regarding comments on wild ungulate analysis 2015). The 2015 population estimate was 152 birds.

Figure 3.6 - Crawford GUSG Population, 1996–2014



Occupied Habitat supporting the Crawford Population encompasses approximately 34,996 acres. Of this, roughly 63% is comprised of BLM-administered public lands totaling 22,150 acres, 24% (8,444 acres) is private surface, 3% (4,402 acres) is NPS-administered land. In Occupied Habitat, 3% (1,211 acres) is agricultural land. The vast majority (67%) 23,280 acres of Occupied Habitat is habitat that supports GUSG. Other habitat types make up the remaining 30% or 10,505 acres.

Table 3.21 - Crawford GUSG Habitat based on LANDFIRE Data

CRAWFORD POPULATION AREA	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
Habitat	23,280	67%	32,815	41%
Non-Habitat	10,505	30%	32,592	41%
Agricultural	1,211	3%	14,867	19%

Unoccupied Habitat in the Crawford population area covers 80,274 acres. Of this, approximately 76% (60,738 acres) of the surface land is private, while 13% (10,324 acres) is administered by the BLM, 9% (7,023 acres) by the NPS, and 3% (2,190 acres) by the USFS. Agricultural lands cover 19% (14,867 acres) of Unoccupied Habitat. There are 32,815 acres of habitat capable of supporting GUSG or 41% of Unoccupied Habitat. Other habitat types make up the remaining 41% (32,592 acres) of Unoccupied Habitat in the Crawford population area.

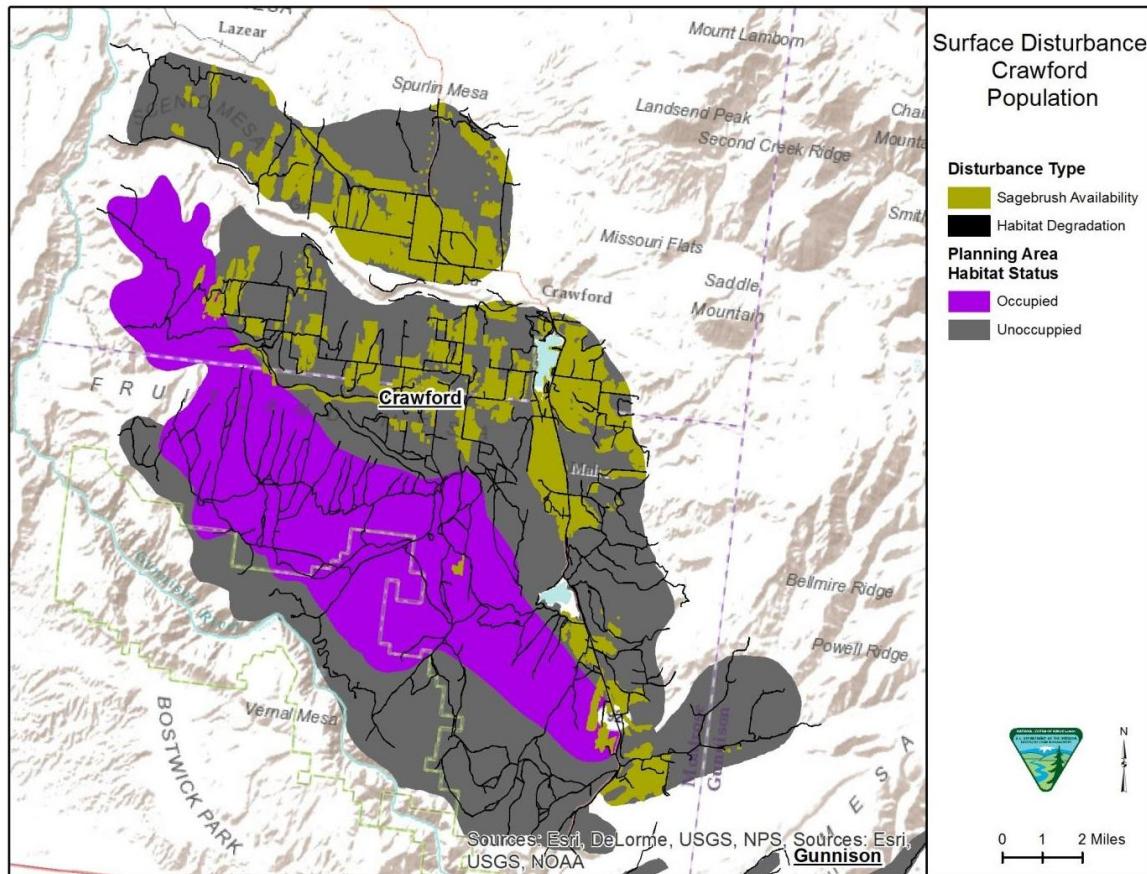
Table 3.22 - Land Status for the Crawford Population Area

STATUS	OWNERSHIP	ACRES	% OF HABITAT
Occupied Habitat (34,996 acres)	BLM	22,150	63%
	Private	8,444	24%
	NPS	4,402	13%
Unoccupied Habitat (80,274 acres)	Private	60,738	76%
	BLM	10,324	13%
	NPS	7,023	9%
	USFS	2,190	3%

Overall surface disturbance in the Crawford population area includes approximately 2% of Occupied Habitat and 23% of Unoccupied Habitat. Most surface disturbance impacts sagebrush availability and consists primarily of agricultural development. Roads in Occupied Habitat cover 324 acres totaling less than 1% of Occupied Habitat.

Table 3.23 - Surface Disturbance in the Crawford Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
OCCUPIED HABITAT			
Total Occupied Habitat	850	—	2.0%
BLM	238	28.0%	0.7%
NPS	31	4.0%	0.1%
Private	580	68.0%	1.7%
UNOCCUPIED HABITAT			
Total Unoccupied Habitat	18,158	—	22.7%
BLM	145	1.0%	0.2%
NPS	37	—	0.1%
Private	17,963	99.0%	22.4%
USFS	13	—	<0.1%

Figure 3.7 - Surface Disturbance in the Crawford Population Area

In the Crawford population area, 5,842 acres are outside of mapped Occupied Habitat and Unoccupied Habitat and within 4 miles of a lek. At its widest point, the population area is just over 5 miles, meaning that no place within Occupied Habitat is further than 2.5 miles from the edge of Occupied Habitat. Surface ownership for the area outside of Occupied Habitat and Unoccupied Habitat is identified in Table 3.6. Public lands managed by the BLM make up 19% of the additional area.

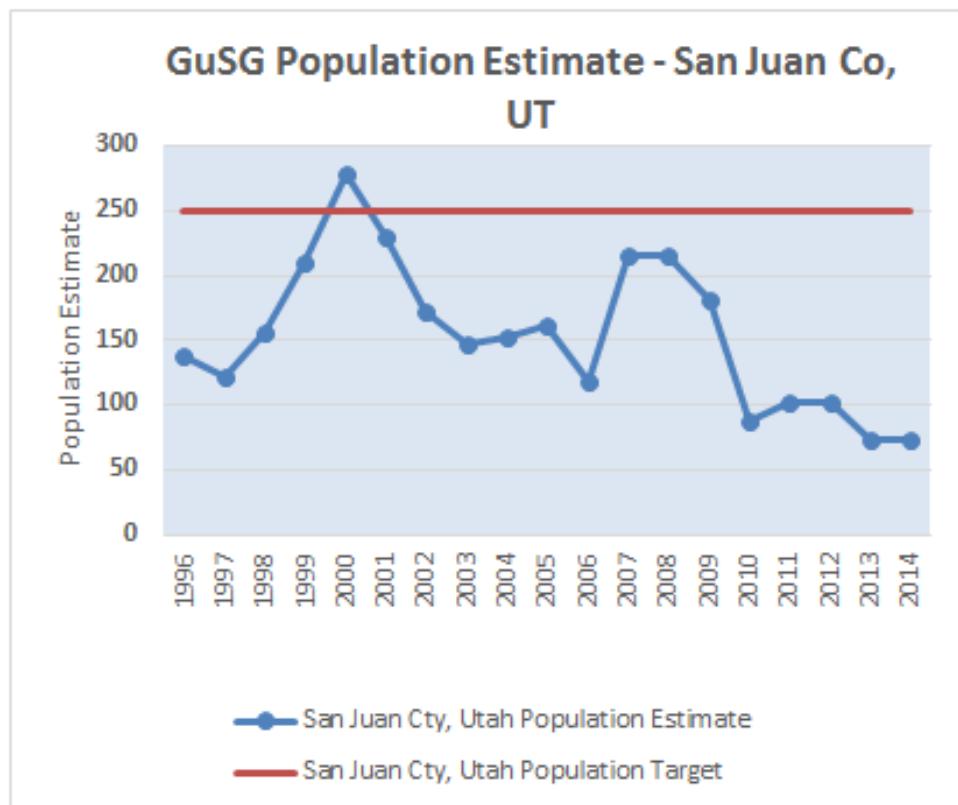
Within four miles of a lek and outside of Occupied Habitat and Unoccupied Habitat, 75% (5,842acres) of the area contains habitat capable of supporting GUSG, while 25% (1,926 acres) is classified as non-habitat.

Monticello-Dove Creek Population

The Monticello-Dove Creek Population of GUSG is divided into two distinct sub-populations (79 CFR 69192). This split is largely due to political boundaries and management by state agencies. UDWR is responsible for population and habitat monitoring in Utah.

Monticello Sub-Population

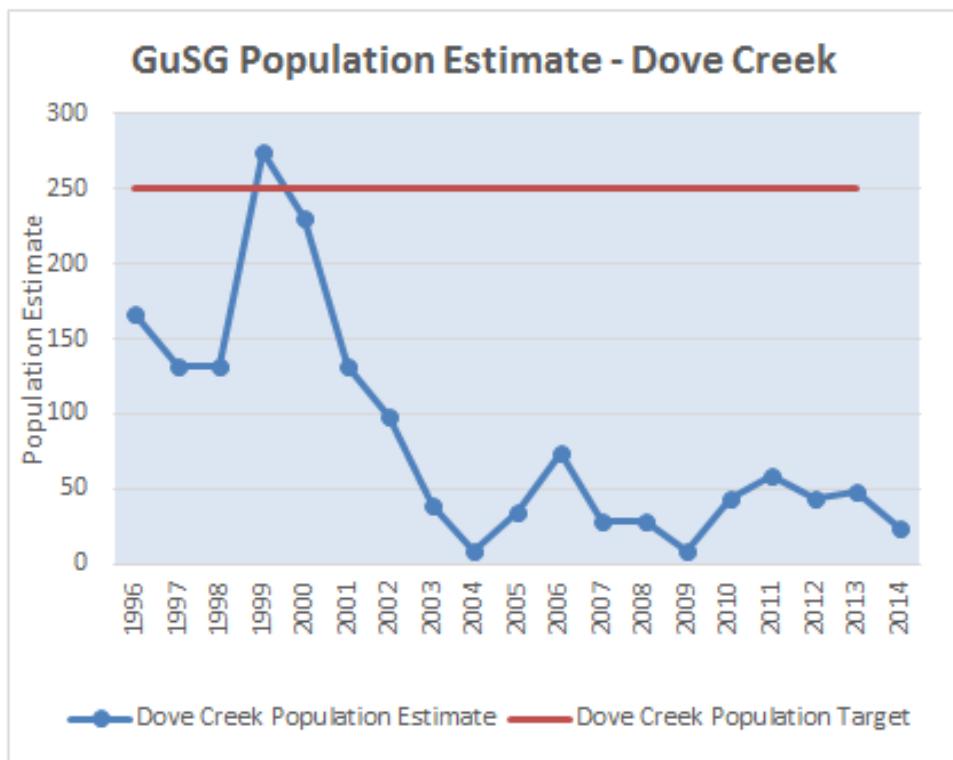
Located near the town of Monticello in the southeastern corner of Utah in San Juan County, the Monticello sub-population is the larger of the two sub-populations. According to the RCP, “Gunnison sage-grouse in the area occupy a broad, relatively flat plateau on the northeast side of the Abajo Mountains. This area is characterized by large grass pastures, and agricultural fields interspersed with fragmented patches of Wyoming sagebrush and black sagebrush” (RCP 2005). There are eight known leks in the Monticello sub-population area. Based on RCP lek definitions for small populations, two leks are active, two are inactive, and four are historic (UDWR 2015 lek data request). The high male lek count in 2015 was 12 and in 2014 was 11. One inactive lek is located on BLM lands, while the other leks are on private surface. The population estimate in 2015 was 59 birds.

Figure 3.8 - Monticello GUSG Sub-Population, 1996–2014

CPW 2014 unpublished data

The Dove Creek sub-population is located in western Dolores County, north and west of Dove Creek, Colorado (79 FR 69192). Habitat north of Dove Creek is characterized as mountain shrub habitat, dominated by oakbrush interspersed with sagebrush, while habitat to the west is largely sagebrush steppe.

There are ten known leks in the Dove Creek sub-population area, of which four are classified as active, two as inactive, and four as historic (CPW 2015 Lek Data Request). Peak male attendance at any lek has not been above 10 birds in the last ten years, which was only for one lek. The Wheatfield Lek had the most consistent attendance, with peak male attendance at 10 in 2006. The high male lek count in 2014 was 5. The high male count in 2015 was 1. In 2015, the population estimate for Dove Creek was 5 birds. In an effort to stabilize the GUSG population, population augmentation was conducted in the Monticello-Dove Creek population area. Since 2000, 42 birds have been introduced to the Dove Creek Population.

Figure 3.9 - Dove Creek GUSG Sub-Population, 1996–2014

In the Monticello-Dove Creek population area, 92% (102,864 acres) of Occupied Habitat is private surface. Occupied Habitat encompasses 11,269 acres. BLM surface ownership in Occupied Habitat is 8% (8,483 acres). BLM lands are not contiguous in these populations. The area is heavily fragmented by agricultural development. In Occupied Habitat, 27% (30,738 acres) is cultivated cropland. Habitat capable of supporting GUSG makes up 49% (55,397 acres) of Occupied Habitat. The configuration of the habitat is heavily fragmented. Other habitats—primarily pinyon-juniper woodlands—make up 23% (26,133 acres).

Table 3.24 - Monticello-Dove Creek GUSG Habitat based on LANDFIRE Data

MONTICELLO-DOVE CREEK	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
Habitat	55,397	49%	60,529	26%
Non-Habitat	26,133	23%	85,904	36%
Agricultural	30,738	27%	89,444	38%

Unoccupied Habitat in the Monticello-Dove Creek population area covers approximately 236,877 acres. Private surface accounts for 85% (199,918 acres) of

Unoccupied Habitat. Public lands managed by the BLM make up the remaining 15% (35,904 acres) of Unoccupied Habitat. Unoccupied Habitat is 38% (89,444 acres) cultivated cropland. Habitat capable of supporting GUSG makes up 26% (60,529 acres) of Unoccupied Habitat and the remaining 36% (85,904 acres) is largely pinyon-juniper woodlands (53,907 acres).

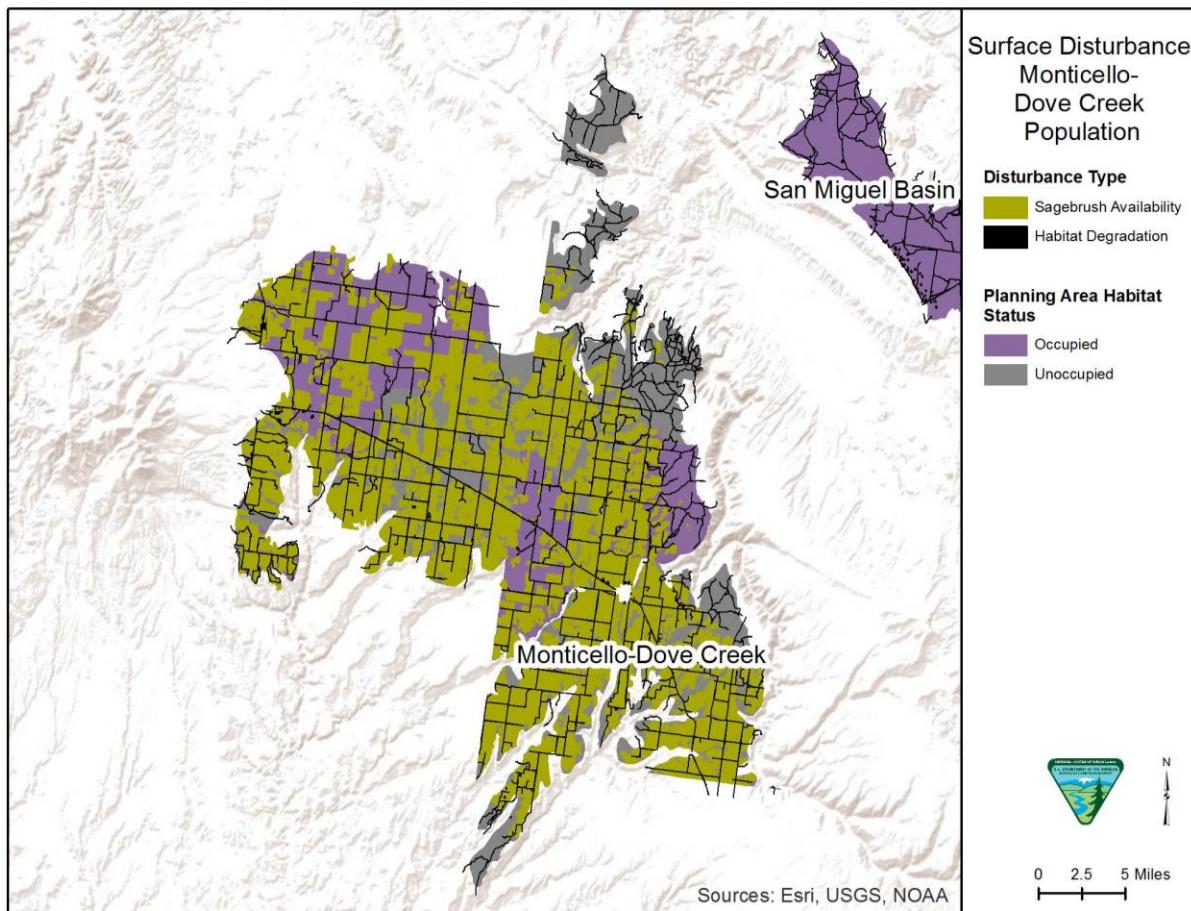
Table 3.25 - Surface Ownership in the Monticello-Dove Creek Population Area

STATUS	OWNERSHIP	ACRES	% OF HABITAT
Occupied Habitat (112,269 acres)	Private	102,864	92%
	BLM	8,483	8%
	State	922	1%
Unoccupied Habitat (236,877 acres)	Private	199,918	85%
	BLM	35,904	15%
	USFS	48	0%
	Local	5	0%

Overall surface disturbance in the Monticello-Dove Creek population area is approximately 41% of Occupied Habitat and 56% of Unoccupied Habitat. Most surface disturbance is from agricultural development. Roads, energy development, and other infrastructure in Occupied Habitat cover 966 acres totaling less than 1% of Occupied Habitat.

Table 3.26 - Surface Disturbance in the Monticello-Dove Creek Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
OCCUPIED HABITAT			
Total Occupied Habitat	45,745	—	41%
BLM	118	0%	0%
Private	45,617	100%	41%
State	10	0%	0%
UNOCCUPIED HABITAT			
Total Unoccupied Habitat	131,592	—	56%
BLM	815	1%	0%
Private	130,776	99%	55%
USFS	1	0%	0%

Figure 3.10 - Surface Disturbance in the Monticello-Dove Creek Population Area

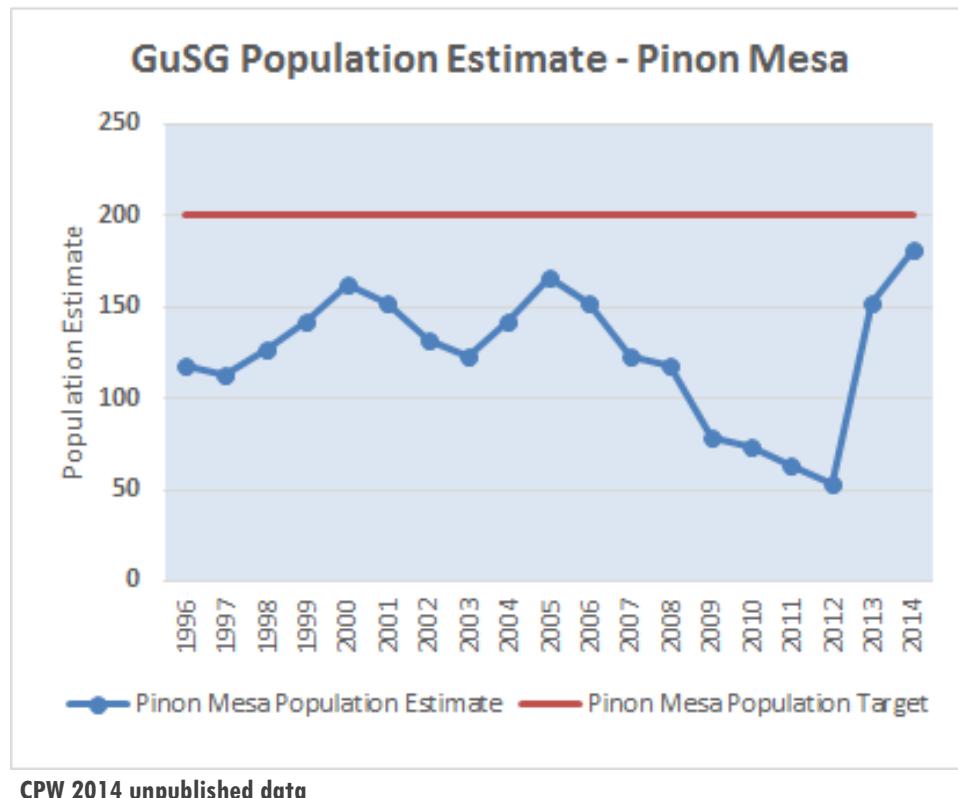
In the Monticello-Dove Creek population area, 58,774 acres are outside of mapped occupied or unoccupied habitat and within 4 miles of a lek. Surface ownership for the area outside of Occupied Habitat and Unoccupied Habitat is identified in Table 3.6. Public lands managed by the BLM make up 43% of the additional area. Within four miles of a lek and outside of Occupied Habitat and Unoccupied Habitat, 24% (13,967 acres) is capable of supporting GUSG, 63% (36,785 acres) is non-habitat, and 14% (7,971 acres) is classified as agricultural development.

Piñon Mesa Population

The Piñon Mesa Population of GUSG is located about 22 miles southwest of Grand Junction, Colorado. While almost entirely within Colorado, the population area does include approximately 6,000 acres of Unoccupied Habitat in southeast Utah. The interior portions of the area are composed of mesas and canyons. At lower elevations, saltbush, sagebrush, and greasewood are common. Higher elevations are dominated by oakbrush, with sagebrush and snowberry in openings (RCP 2005).

Predominant uses of BLM lands in the area include livestock grazing, recreation, and hunting. There are 21 known leks, of which 11 are active, 2 inactive, and 8 historic (CPW 2015 lek data request). Peak male attendance was 35 in 2015 and 36 in 2014. Between 2000 and 2013, the Piñon Mesa Population was augmented with 92 birds from the Gunnison Basin, 44 of which were introduced in 2010–2011 (CPW 2015 data request). The 2015 population estimate was 172 birds.

Figure 3.11 - Piñon Mesa GUSG Population, 1996–2014



Occupied Habitat in the Piñon Mesa area covers approximately 44,104 acres. Occupied Habitat is 70% (30,689 acres) private surface. Public lands managed by the BLM make up approximately 29% (12,686 acres) of Occupied Habitat. 1,391 acres of Occupied Habitat is agricultural land. About 74% (32,710 acres) of Occupied Habitat on Piñon Mesa is capable of supporting GUSG, while the remaining 23% (10,004 acres) consists of aspen stands, pinyon-juniper, and other habitat types.

Table 3.27 - Piñon Mesa GUSG Habitat based on LANDFIRE Data

PIÑON MESA	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
HABITAT	32,710	74%	71,171	35%
NON-HABITAT	10,004	23%	122,203	61%
AGRICULTURAL	1,391	3%	7,990	4%

Unoccupied Habitat on Piñon Mesa encompasses 201,363 acres. BLM-administered lands cover 49% (97,795 acres) of Unoccupied Habitat, with 6,023 acres located in Utah. Private surface makes up 30% (63,845 acres) of Unoccupied Habitat, while USFS-managed lands make up 21% (42,698 acres). Agricultural land makes up 4% (7,990 acres) of Unoccupied Habitat. Approximately 35% (71,171 acres) of Unoccupied Habitat is capable of supporting GUSG, while 122,203 acres or 61% is non-habitat consisting mostly of woodlands, including pinyon-juniper and ponderosa pine.

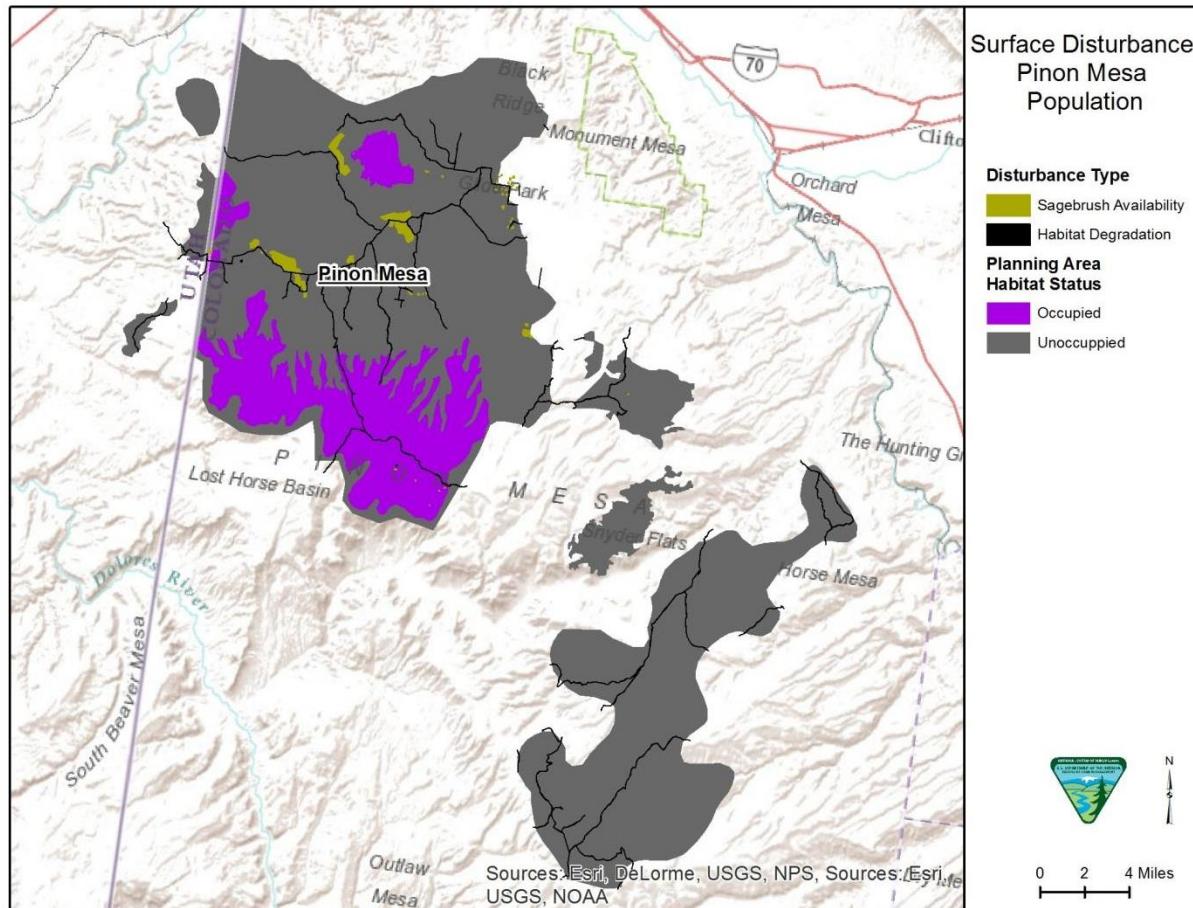
Table 3.28 - Surface Ownership in the Piñon Mesa Population Area

STATUS	OWNER/MANAGER	ACRES	% OF HABITAT
Occupied Habitat (44,104 acres)	Private	30,689	70%
	BLM	12,686	29%
	USFS	729	2%
Unoccupied Habitat (201,364 acres)	BLM	97,795	49%
	Private	60,845	30%
	USFS	42,698	21%
	Other	25	0%

Overall surface disturbance in the Piñon Mesa population area is almost non-existent in Occupied Habitat and affects approximately 1% of Unoccupied Habitat. Surface disturbance consists primarily of roads. Roads and other infrastructure cover less than 0.1% (40 acres) of Occupied Habitat.

Table 3.29 - Surface Disturbance in the Piñon Mesa Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
All Occupied Habitat	92	—	< 1.0%
BLM	3	4%	<0.1%
Private	88	96%	0.2%
All Unoccupied Habitat	2,110	—	1.0%
BLM	225	11%	0.1%
Private	1,765	84%	0.9%
USFS	120	6%	<0.1%

Figure 3.12 - Surface Disturbance in the Piñon Mesa Population Area

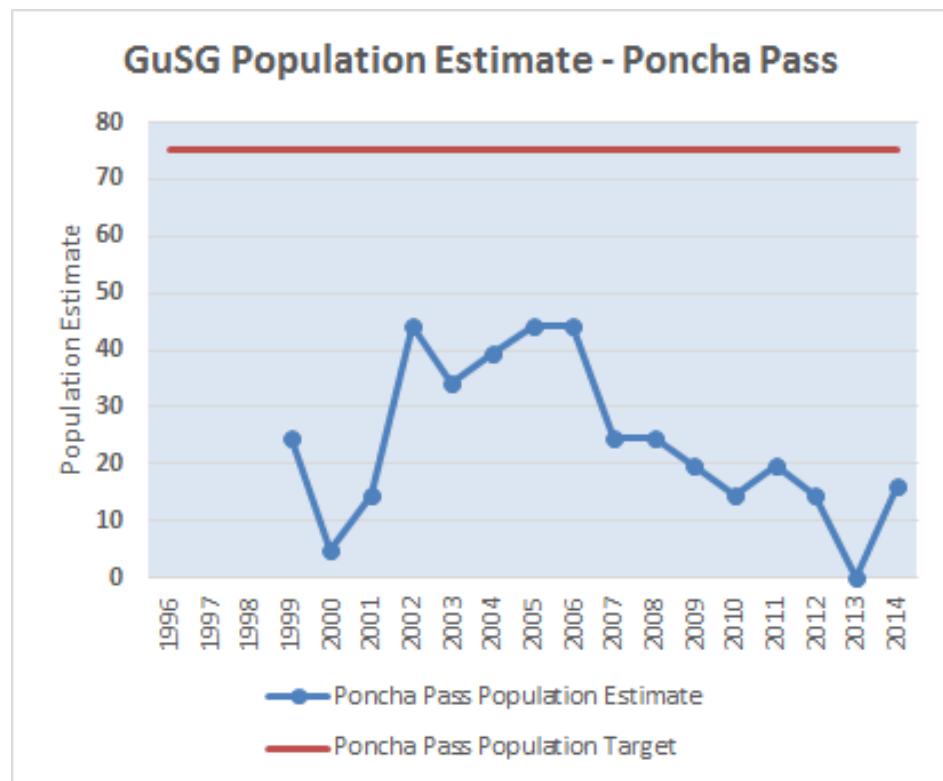
In the Piñon Mesa population area, 59,131 acres are outside of mapped Occupied Habitat and Unoccupied Habitat and within 4 miles of a lek. At its widest point, Occupied Habitat in the area is just over 4 miles wide, meaning that no point is further than 2 miles from the edge of Occupied Habitat. Surface ownership for the area outside of Occupied Habitat and Unoccupied Habitat is identified in Table 3.6. Public lands managed by the BLM make up 45% of the area.

Within four miles of a lek and outside of Occupied Habitat and Unoccupied Habitat, 32% of the land (18,753 acres) provides habitat capable of supporting GUSG, 67% (39,873 acres) is non-habitat, and less than 1% (504 acres) is classified as agricultural development.

Poncha Pass Population

The Poncha Pass Population of GUSG is located about 10 miles northwest of Villa Grove in Saguache County, Colorado. Occupied Habitat extends over approximately 20,428 acres. Proposed critical habitat for the Poncha Pass Population was not designated by the FWS in its final determination of November 2014. Sagebrush in the area is contiguous, with little fragmentation (RCP 2005).

There are four known leks in the area, of which three are active and one is inactive. Peak male attendance was 10 in 2014 (CPW 2015 Lek Data Request). The 10 individuals were translocated from the Gunnison Basin. While 3 males were seen on leks in 2011, none were observed in 2013. Due to the absence of birds in 2013, no population estimate was provided for the Poncha Pass Population in 2014. The population number for 2014 consisted of the translocated birds. In 2015, the high lek count was 6 birds. Between 2000 and 2013, the Poncha Pass Population was augmented with 41 birds from the Gunnison Basin. In the fall of 2013, 17 birds were released, with 10 more in the spring of 2014. The 2015 population estimate was 29 birds.

Figure 3.13 - Poncha Pass GUSG Population, 1998–2014

CPW 2014 unpublished data

Occupied Habitat in the Poncha Pass area covers roughly 20,428 acres, with 48% (9,860 acres) consisting of public lands managed by the BLM. USFS-managed lands make up 26% (5,214 acres) of Occupied Habitat, followed by 24% private surface (4,875 acres) and 2% State of Colorado lands (478 acres). Only 123 acres of Occupied Habitat is agricultural land. Habitat capable of supporting GUSG makes up 53% (10,839 acres) of Occupied Habitat, while other habitat types make up 46% (9,466 acres). Other habitats include grasslands, lodgepole forests, and aspen forests.

Table 3.30 - Poncha Pass Sage-Grouse Habitat based on LANDFIRE Data

PONCHA PASS	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
HABITAT	10,839	53%	15,253	55%
NON-HABITAT	9,466	46%	11,690	42%
AGRICULTURAL	123	1%	952	3%

Unoccupied Habitat on Poncha Pass encompasses approximately 27,894 acres. BLM-managed lands cover 53% of Unoccupied Habitat totaling 14,877 acres. Private surface makes up 40% of Unoccupied Habitat totaling 11,225 acres. State of Colorado and USFS lands make up the remaining 6% and 1% respectively. Agricultural land makes up 3% or 741 acres of Unoccupied Habitat. About 55% (15,253 acres) of Unoccupied Habitat in the area is capable of supporting GUSG. The remaining 42% (11,690 acres) consists of other habitat types, predominated by subalpine grasslands.

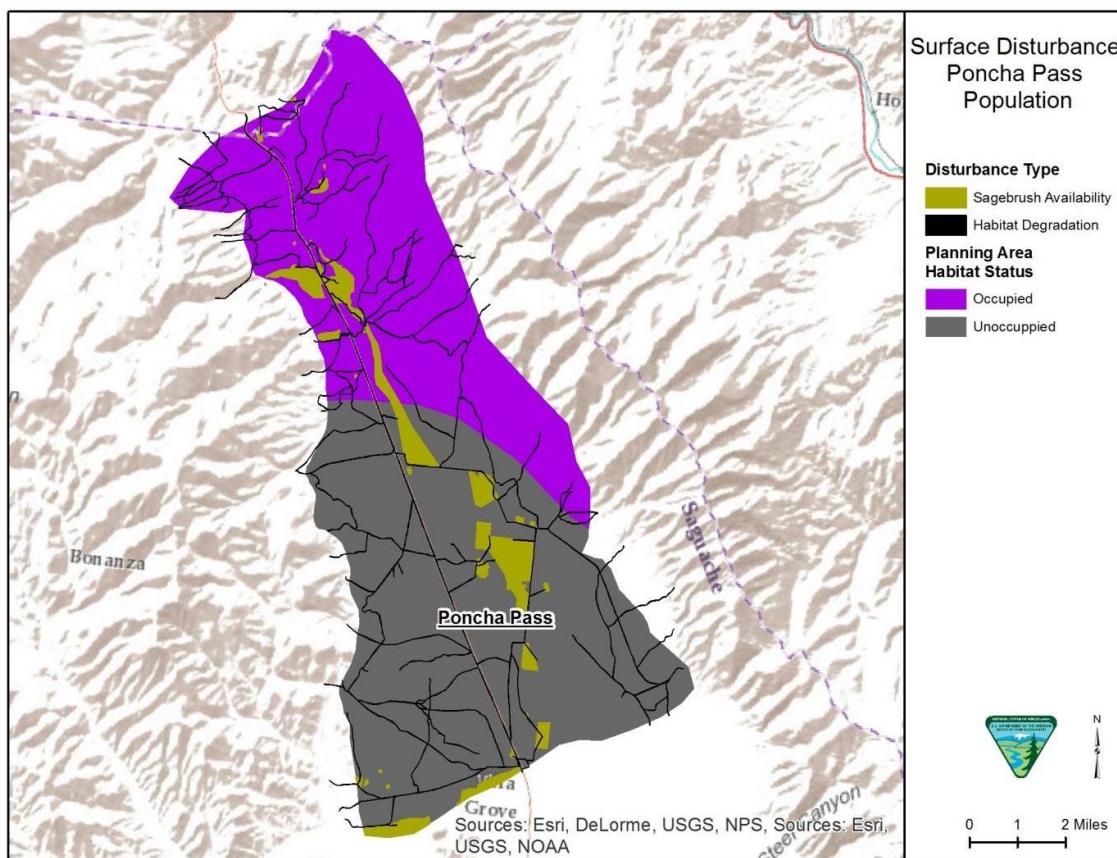
Table 3.31 - Surface Ownership in the Poncha Pass Population Area

HABITAT TYPE	OWNER/MANAGER	ACRES	% OF HABITAT
Occupied Habitat (20,428 acres)	BLM	9,860	48%
	USFS	5,214	26%
	Private	4,875	24%
	State	478	2%
Unoccupied Habitat (27,894 acres)	BLM	14,877	53%
	Private	11,225	40%
	State	1,605	6%
	USFS	187	1%

Overall surface disturbance in the Poncha Pass population area is roughly 5% in Occupied Habitat and approximately 7% of Unoccupied Habitat. Most surface disturbance is categorized as agricultural development. Roads and other infrastructure cover approximately 1% (211 acres) of Occupied Habitat.

Table 3.32 - Surface Disturbance in the Poncha Pass Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
OCCUPIED HABITAT			
Total Occupied Habitat	973	—	4.8%
BLM	134	14%	0.7%
Private	751	77%	3.7%
State	60	6%	0.3%
USFS	27	3%	0.1%
UNOCCUPIED HABITAT			
Total Unoccupied Habitat	2,029	—	7.3%
BLM	171	8%	0.6%
Private	1,666	82%	6.0%
State	190	9%	0.7%
USFS	1	—	—

Figure 3.14 - Surface Disturbance in the Poncha Pass Population Area

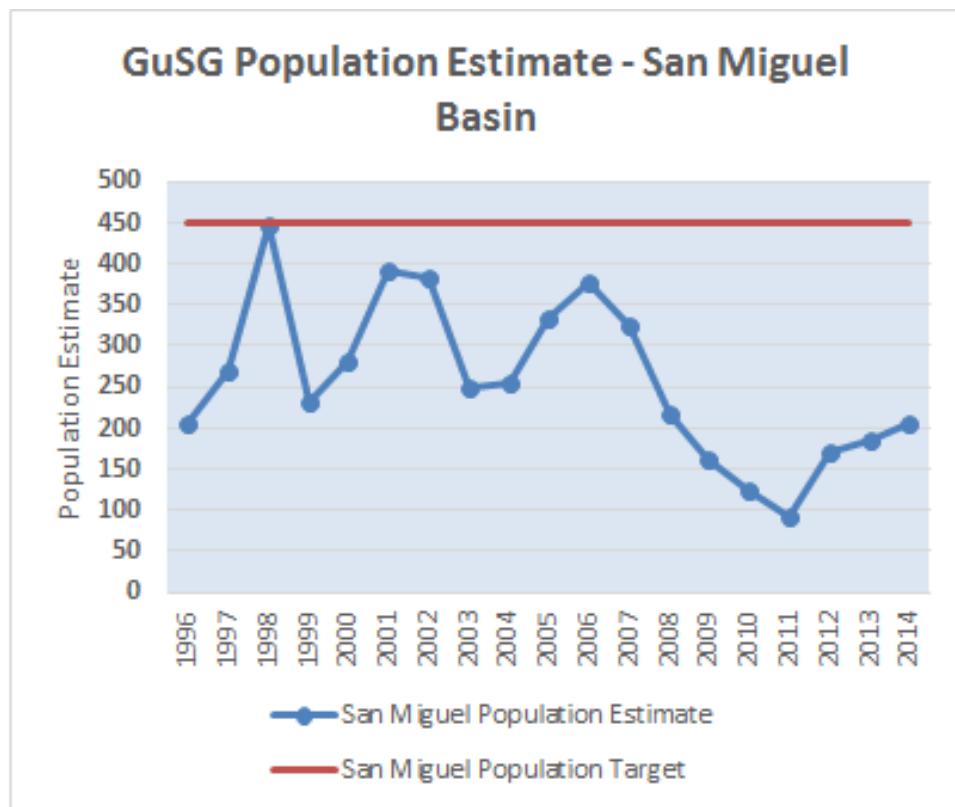
In the Poncha Pass population area, 16,249 acres is outside of mapped Occupied Habitat and Unoccupied Habitat and within 4 miles of a lek. Occupied Habitat in the Poncha Pass population area is just over 5 miles wide at its widest point. This means that no point within Occupied Habitat is more than 2.5 miles from the edge of Occupied Habitat. Surface ownership for the area outside of Occupied and Unoccupied Habitat is identified in Table 3.31. Public lands managed by the BLM make up 5% of the additional area.

Within four miles of a lek and outside of Occupied and Unoccupied Habitat, 21% (3,484 acres) of the land surface is capable of supporting GUSG, with 78% (12,725 acres) classified as non-habitat.

San Miguel Basin Population

The San Miguel Basin Population of GUSG is located in Montrose and San Miguel counties, Colorado and is made up of six small sub-populations (Dry Creek Basin, Hamilton Mesa, Miramonte Reservoir, Gurley Reservoir, Beaver Mesa, and Iron Springs) (RCP 2005). GUSG in the San Miguel Basin are thought to have once moved widely between populations and it is believed that the basin was once a migratory corridor between the Cerro Summit-Cimarron-Sims Mesa Population and the Monticello-Dove Creek Population (79 FR 69192).

The San Miguel Population supports thirteen leks, of which six are active, five are inactive, and two are historic. Four of these leks are found in Dry Creek Basin, none in Hamilton Mesa, two in Miramonte Reservoir, two in Gurley Reservoir, three in Beaver Mesa, and two in Iron Springs (CPW 2015 Lek Data Request). The high male lek count was 59 in 2015 and 42 in 2014. The 2015 population was estimated at 289 individuals. Between 2000 and 2013, 51 birds were transplanted into the San Miguel Basin Population. Overall, 112 birds have been translocated from the Gunnison Basin to the San Miguel Population.

Figure 3.15 - San Miguel Basin GUSG Population, 1996–2014

The majority of habitat (64%) for the San Miguel Population is in the Dry Creek Basin. The proposed rule for GUSG cites the San Miguel Basin Sage-grouse Working Group as stating that the Dry Creek Basin has some of the poorest habitat and smallest individual GUSG populations (79 FR 69192). Dry Creek Basin consists of 57% (35,252 acres) BLM, 30% (18,474 acres) private, 12% (7,544 acres) local government, and 1% (734 acres) State of Colorado lands.

Hamilton Mesa is mostly private surface (85%, 4,081 acres). The State of Colorado is the next largest surface management agency (11%, 527 acres), followed by the BLM with 4% of the area (177 acres). Miramonte Reservoir is mostly private (73%, 8,544 acres) and State of Colorado (14%, 1,672 acres). Gurley Reservoir and Beaver Mesa are mostly private surface with 91% and 99% private surface respectively. Gurley reservoir has 152 (2%) acres of State of Colorado and 185 acres (3%) of BLM surface. Surface ownership in Iron Springs is 73% private surface (34,824 acres) followed by USFS with 27% of the surface (12,752 acres) and the remaining 1% is State of Colorado.

In Occupied Habitat in the San Miguel Basin population area, 47,482 acres or 47% is capable of supporting GUSG. Agricultural lands make up 16% of habitat and lands

classified as not GUSG habitat make up 37% (37,997 acres) of lands in Occupied Habitat.

Table 3.33 - San Miguel Basin GUSG Habitat based on LANDFIRE Data

SAN MIGUEL BASIN	OCCUPIED HABITAT		UNOCCUPIED HABITAT	
	Acres	Percent	Acres	Percent
Habitat	47,482	47%	19,607	47%
Non-Habitat	37,997	37%	21,710	52%
Agricultural	16,119	16%	171	0%

Unoccupied Habitat in the San Miguel population area is mostly (52%, 21,720 acres) habitat that does not support GUSG. Habitat capable of supporting GUSG makes up 47% or 19,607 acres. Agricultural lands make up 171 acres of Unoccupied Habitat.

Table 3.34 - Surface Ownership in the San Miguel Population Area

STATUS	OWNERSHIP	ACRES	% OF HABITAT
Occupied Habitat (101,597 acres)	Private	52,458	52%
	BLM	35,879	35%
	Local	8,357	8%
	State	3,437	3%
	USFS	1,466	1%
Unoccupied Habitat (41,488 acres)	Private	29,094	70%
	USFS	12,393	30%

Overall surface disturbance in the San Miguel Basin population area is roughly 3% of Occupied Habitat and approximately 2% of Unoccupied Habitat. Most surface disturbance is categorized as agricultural development. Roads, energy development, and other infrastructure in Occupied Habitat covers 1,081 acres and is approximately 0.11% of Occupied Habitat.

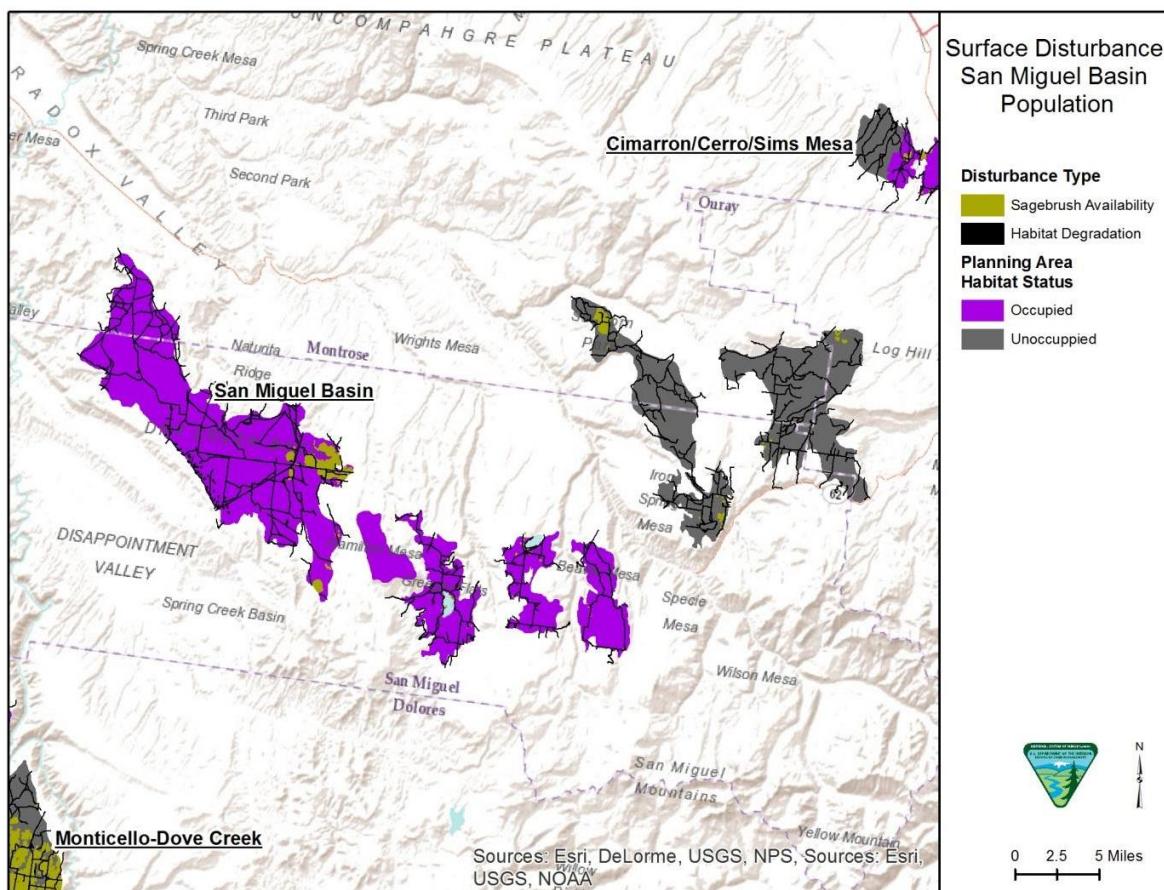
Table 3.35 - Surface Disturbance in the San Miguel Population Area

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
OCCUPIED HABITAT			
Occupied Habitat	3,258	—	3.0%
BLM	386	12%	0.4%

CHAPTER 3 - AFFECTED ENVIRONMENT

LAND STATUS	ACRES OF SURFACE DISTURBANCE	% OF ALL DISTURBANCE	% OF HABITAT DISTURBED
Local	194	6%	0.2%
Private	2,632	81%	2.6%
State	26	1%	<0.1%
USFS	20	1%	<0.1%
UNOCCUPIED HABITAT			
Unoccupied Habitat	1,031	—	2.0%
Private	903	88%	2.2%
USFS	128	12%	0.3%

Figure 3.16 - Surface Disturbance in the San Miguel Basin Population Area



In the San Miguel Basin population area, 124,757 acres is outside of mapped Occupied Habitat and Unoccupied Habitat and within four miles of a lek. At its widest point, the Occupied Habitat is just over 6 miles wide, meaning that no point in Occupied Habitat is further than 2.5 miles from the edge of Occupied Habitat.

Surface ownership for the area outside Occupied Habitat and Unoccupied Habitat is identified in Table 3.6. Public lands managed by the BLM make up 33% of the additional area.

Within four miles of a lek and outside Occupied Habitat and Unoccupied Habitat, 18% (22,971 acres) is capable of supporting GUSG, 79% (96,643 acres) is non-habitat, and less than 3% (3,142 acres) is agricultural development.

TRENDS

Trend data for the Gunnison Basin indicates that the Gunnison Basin Population is stable to increasing. Trend data for the satellite populations must be interpreted with caution. Population augmentation could substantially confound population estimates in the satellite populations. In addition, once a population is below the minimum viable population, the rate of decrease in the population will slowly increase, leading to a steady downward trend, regardless of management in the area.

Sagebrush loss appears to have stopped in 1993. As more sagebrush is being planted through various U.S. Department of Agriculture programs, this trend could be changing direction. Mapping of surface disturbance for the RMP Amendment identified a 16% loss of habitat through loss of sagebrush availability or habitat degradation (Table 4.3). This corresponds with the loss estimated by Oyler-McCance. Based on the Oyler-McCance data from 1993 and data from the GUSG disturbance mapping, little or no habitat has been lost since 1993.

3.2. FISH & WILDLIFE

INTRODUCTION

This section describes the existing conditions for wildlife resources within the decision area, including terrestrial animal species and their habitats. The Utah Department of Wildlife Resources (UDWR) and Colorado Parks and Wildlife (CPW) have primary authority for the management of fish and wildlife species, while the BLM is responsible for managing habitat on public lands.

Two big game species are carried forward for analysis primarily due to concerns about potential impacts to GUSG habitat and the potential for overlapping benefits and restrictions from mineral leasing and development in the alternatives. The common raven is carried forward primarily due to recent concerns related to the predation of GUSG. We recognize that there are multiple predators of sage-grouse, however ravens have been identified as the primary predator where they occur (Coates et al 2008, Lockyer et al 2013). Ravens have also been identified as actively seeking (targeting) sage-grouse nests (Howe and Coates 2015). Most all other predators of sage-grouse are opportunistic and have not been identified to have near the impact of ravens.

Only species that could impact GUSG or their habitat to the extent of influencing conservation measures and alternative development to conserve GUSG are addressed in this document. Due to the conservation-focused nature of the plan amendment, wildlife in the decision area would receive residual protection and may have additional benefits from any alternative analyzed outside of the No Action Alternative. Under the No Action Alternative, there would be no change outside of what has already been analyzed in existing land use plans. No issues were identified for any other species during internal or external scoping. Issues point to environmental effects and as such, can help shape the proposal and alternatives.

Table 3.36 - Fish and Wildlife Species of Primary Interest in the Decision Area

SPECIES	RATIONALE FOR PRIORITY DESIGNATION
MAMMALS	
Elk (<i>Cervus Canadensis</i>)	Big game species; potential for habitat alteration; high economic and recreational value
Mule Deer (<i>Odocoileus hemionus</i>)	Big game species; potential for habitat alteration; high economic and recreational value
BIRDS	
Common Raven (<i>Corvus corax</i>)	Predator; high interest associated with concern for decrease in GUSG nest success; protected by law

3.2.1. ELK (*CERVUS CANADENSIS*)

Elk winter range overlaps with almost all Occupied and Unoccupied Habitat. Elk are primarily grazers and in high concentrations may have substantial impacts on the habitat components identified for GUSG in the Rangewide Conservation Plan.

INDICATORS

Wildlife status in Occupied and Unoccupied Habitat is described in terms of:

- Elk population estimates
- Number of elk per square mile
- Mule deer population estimates
- Number of mule deer per square mile
- Surface disruptive activities on the landscape

EXISTING CONDITIONS

Biomass production is extremely variable throughout the decision area both spatially and annually. Deer and elk are typically migratory, largely overlapping with GUSG habitat in the winter months (November through March). Even during that period, deer and elk spend only a portion of time in specific areas important to GUSG. Where big game concentrates in the winter in GUSG habitat, big game could impact the habitat, including the ability of the site to meet RCP habitat guidelines.

Sagebrush is frequently cited as one of the most important shrub resources for mule deer out of a list of over 17 species, though shrub consumption varies seasonally from approximately 20% of mule deer diet in the spring-early summer up to 80% during the fall months. Most sagebrush species are identified as moderately valuable to elk during the fall and winter seasons, and low value in spring and summer months.

For this document, critical winter range is the combination of CPW Elk Winter Concentration Areas and UDWR Elk Crucial Winter Range data. This term is used in an effort to reflect a common analysis approach for the two different states.

Within the decision area, there are ten elk Data Analysis Units (DAUs) in Colorado and two elk management units in Utah. The combined elk units in both states cover approximately 11,174,736 acres and the 2014 population estimate for elk throughout all units was 68,648. In 1988, CPW estimated the elk population to be around 70,843. The elk population increased to an estimated 82,000 in 1999-2000, and has since declined to fewer than 65,000. In Utah, the population is estimated to be around 3,550 elk.

The twelve elk units contain approximately 1,314,734 acres of critical winter range for elk. Critical winter range was determined using a combination of CPW Elk Winter Concentration Areas and UDWR Elk Crucial Winter Range data. Approximately 276,457 acres of critical winter range is identified as GUSG Occupied Habitat and 97,603 acres as Unoccupied Habitat. Roughly 20% of elk critical winter range occurs in Occupied Habitat.

CPW defines winter range as that part of the overall range where 90% of the elk use is located during a mild winter. Winter concentration areas are that part of the winter range where densities are at least 200% greater than the surrounding winter range density in the average five winters out of ten. Based on CPW mapped winter ranges, winter concentration areas and winter range definitions, elk densities for each game unit in the decision area are identified in the write-up for each game unit.

COLORADO ELK UNITS

E-II (GMU 82) - Sand Dunes

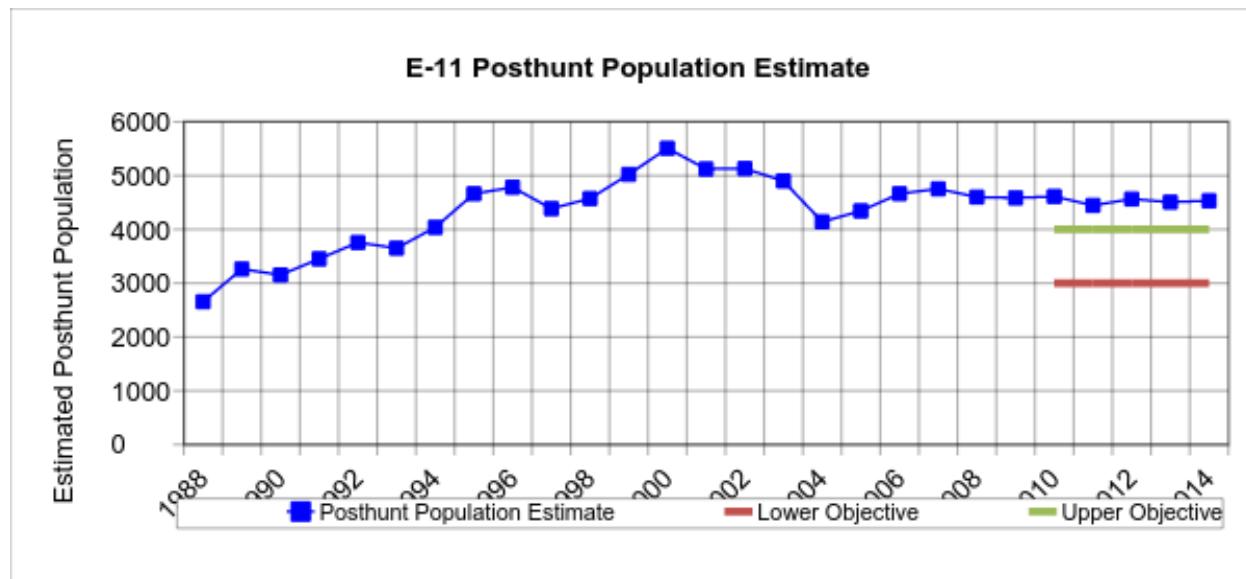
Sand Dunes elk have been modeled since 1988. The population increased in the 1990s, to a high of 5,500 elk. The population declined with the 2002 drought, but has increased since then and leveled off. The elk population is currently estimated at 4,500. The population objectives were set in 2010 at 3,000-4,000 elk. Elk Unit EII is 1,088 square miles in size and is bordered by the crest of the Sangre de Cristo Mountains to the east, the Alamosa/Costilla county line and U.S. Highway 160 to the south, Colorado Highway 17 and U.S. Highway 285 to the west, and the divide between the Arkansas drainage and the San Luis Valley to the north.

The overall range of elk encompasses the range of GUSG at Poncha Pass. Elk summer and winter range overlap most of the Poncha Pass GUSG range. An elk summer concentration area is on the east side of Poncha Pass GUSG range, with an elk production area adjacent to the eastern edge of this GUSG range. An elk highway corridor transects part of the north side of the Poncha Pass GUSG range. No winter concentration areas or severe winter range for elk intersects GUSG range at Poncha in EII.

Winter range can be limiting for the elk population. Elk tend to concentrate on winter range and disperse to higher elevations during summer. The relatively low overlap of elk and GUSG during critical winter months likely reduces any significant impacts of elk herbivory on GUSG habitat. These species have coexisted for many centuries and face similar challenges. Building development on private land can fragment habitat for elk. This type of land development also can affect GUSG. Focus on conservation of sustainable and diverse sagebrush habitat will benefit multiple species, including GUSG and elk.

Elk densities based on CPW winter range definitions and population estimates could be as high as 31 elk per square mile in winter concentration areas. There is no winter concentration area for this unit in Occupied Habitat.

Figure 3.17 - Sand Dunes Elk Unit (E-11) Post-Hunt Population Estimate, 1988–2014



CPW

E-19 (GMU 40) - Piñon Mesa

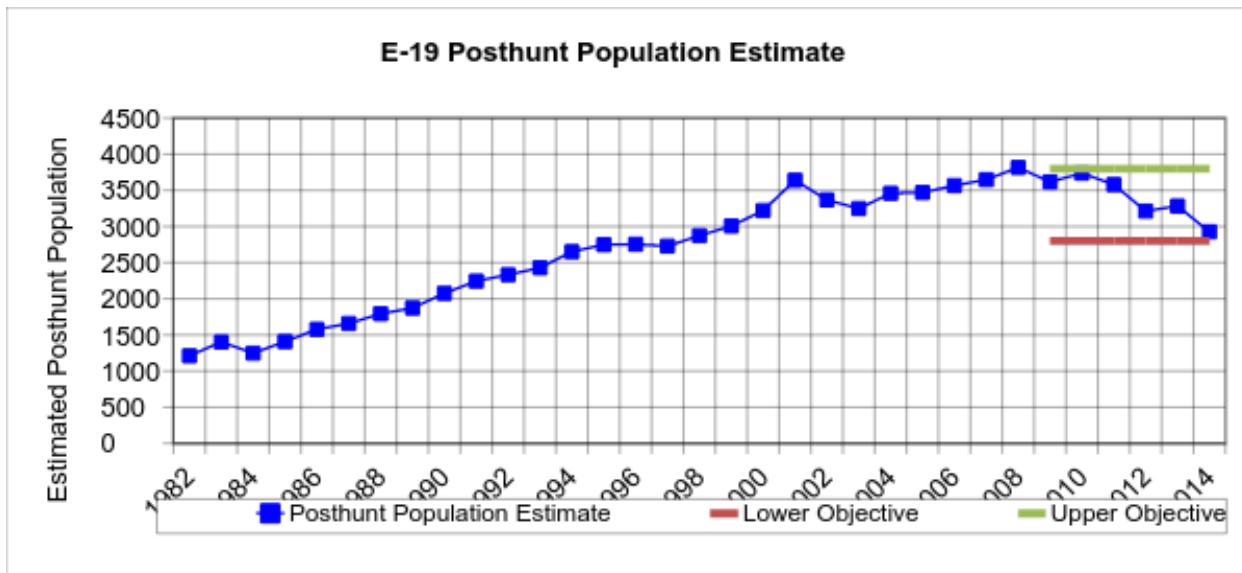
The Piñon Mesa elk herd, known as DAU E-19, grew dramatically through the 1980s and 1990s. Since the early 2000s, the population size has leveled off at approximately 3,500 elk as a result of a significantly increased and targeted harvest. The herd management plan was approved in 2009 and designates a post-hunt population size of 2,800–3,800 elk, so the population is currently within the objective range.

GUSG on Piñon Mesa have two relatively distinct use areas; a northern, lower elevation area including Fish Park and Glade Park, and a southern, higher elevation area including Luster Basin, Snyder Flats, Timber Ridge, and Payne Mesa.

Elk and GUSG occur together across much of both the high and low elevation sage-grouse ranges on Piñon Mesa, but they are seasonally distinct as elk migrate in response to forage and snow conditions. Elk summer range, summer concentration areas, and production areas overlap with the upper elevation sage-grouse overall range and production areas. Elk winter range overlaps all of the lower elevation sage-grouse areas and portions of the high elevation areas. The winter ranges are almost entirely on BLM lands. Fish Park is used by sage-grouse in winter and is also an elk winter concentration area. Elk densities based on CPW winter range definitions and population estimates could be as high as 23 elk per square mile in

winter concentration areas. Approximately 4% (1,536 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.18 - Piñon Mesa Elk Unit (E-19) Post-Hunt Population Estimate



CPW

E-20 (GMUs 61 & 62) - Uncompahgre

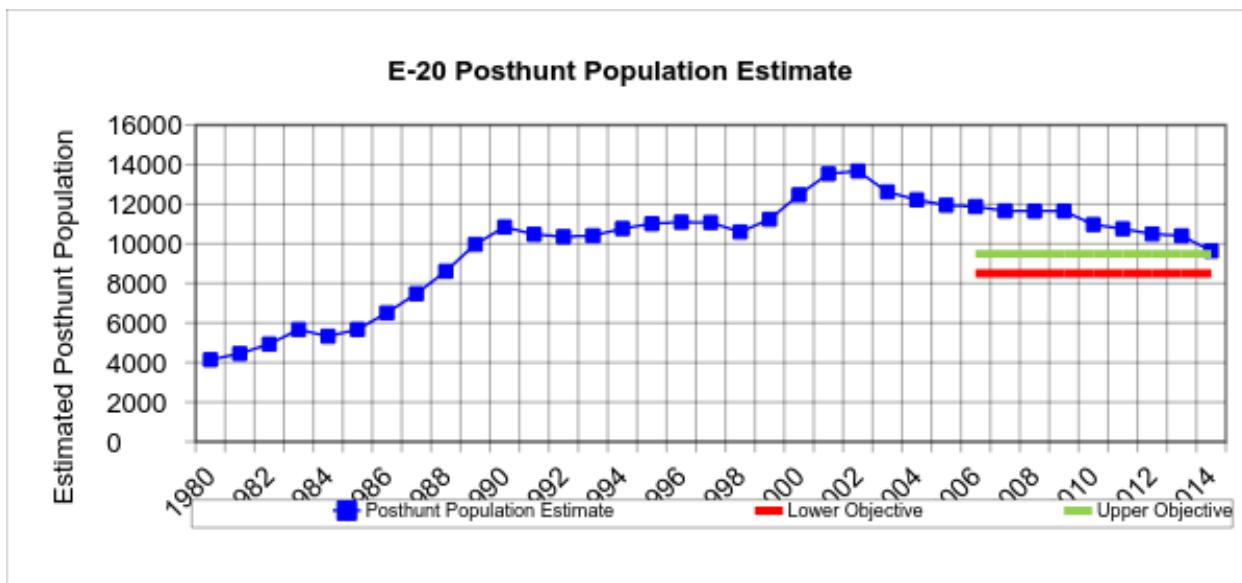
The elk population on the Uncompahgre has increased from the early 1980's, yet has decreased from its highest estimate in the early 2000's towards the objective of 9,500 (Figure 3). The herd management plan was approved in 2006. Elk distribution has been a concern for this population, due to the split harvest management between game management units and emphasized recreation on the east side of the Uncompahgre pushing elk to winter at high densities on the west side of the Uncompahgre. In addition to the distribution issue, declining cow-calf ratios are a big concern for the population as well as other elk populations across southwest Colorado.

The Uncompahgre elk DAU overlaps the San Miguel GUSG Population on Iron Springs Mesa, which lies on the southwest corner of the Uncompahgre Plateau. Elk use on Iron Springs Mesa is year round, yet most use occurs during migration, calving, and summer. Winter use is mostly bulls, but on mild winters some cow/calf herds remain on Iron Springs as well. The Uncompahgre DAU also overlaps historic leks/vacant habitat in the Sims Mesa area, southwest of Montrose, as well as in the Ridgway and Nucla areas. These historic grouse use areas would have been primarily used by elk as winter range and severe winter range, when snow pushed elk off the upper elevations of the Uncompahgre Plateau. Recently, GUSG use has also been documented on the north end of the Uncompahgre in the upper end of the Big Dominguez drainage which had been classified as vacant habitat. Active leks

have not been identified in the area, but collared and non-collared grouse have been observed in the area during the winter months. This area is primarily transition range, calving, and summer range for elk, however, during mild winters elk reside in the area as well.

Elk densities based on CPW winter range definitions and population estimates could be as high as 15 elk per square mile in winter concentration areas. Approximately 2% (6,263 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.19 - Uncompahgre Elk Unit (E-20) Post-Hunt Population Estimate, 1980–2014



CPW

E-24 (GMUs 70, 71, 72, 73 & 711) - Disappointment

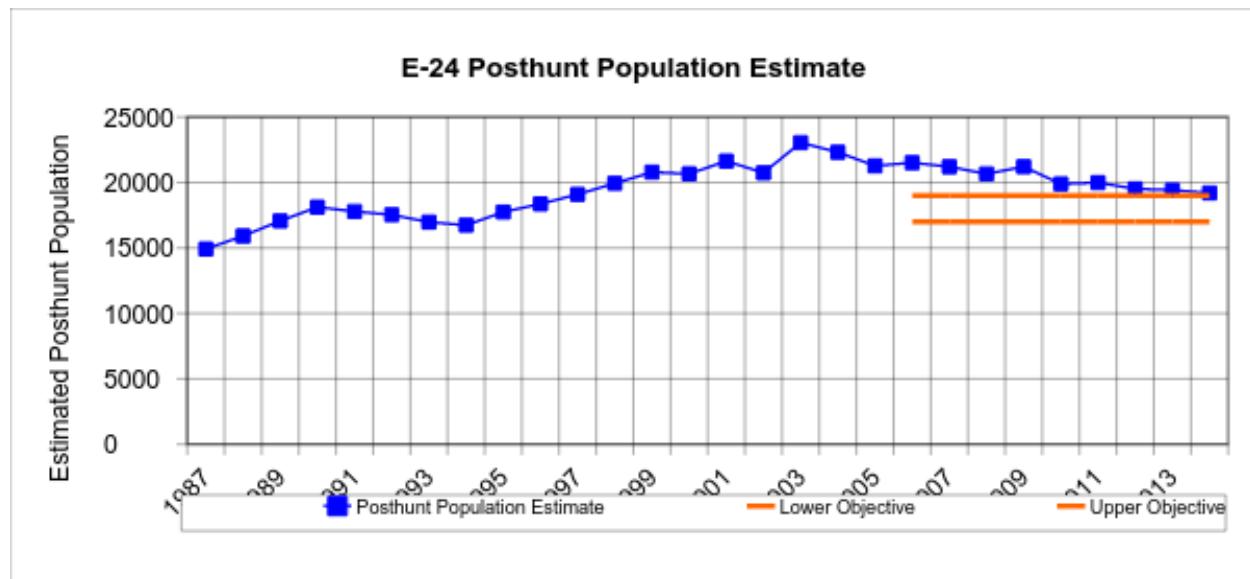
The Disappointment elk herd increased in size from 14,900 in 1987 (the first year captured in the model) and peaked at 23,000 in 2003. Since that time the population has decreased to the current estimate of 19,200 due to increased hunting pressure. The population objective is 17,000 to 19,000 established in the 2006 DAU plan.

The entire DAU is considered overall range for elk. There is overlap between elk winter range and most of the GUSG overall range. The exception is the GUSG range west of Dove Creek. Elk winter concentration areas are found on approximately 1/3 of the GUSG overall range and severe winter range on approximately half of the GUSG overall range. There is less than 20% of the GUSG overall range shared with elk summer range and no commonality with elk summer concentration areas and GUSG overall range.

Elk DAU E-24 includes Game Management Unit 70. GMU 70 overlaps the majority of the San Miguel Basin population area. The upper elevation leks around

Miramonte, Cone Reservoir, and Beaver Mesa are used by elk in the winter and summer months, as well as during transition. The Dry Creek Basin area is used by elk as winter range, winter concentration, and severe winter range. Minimal summer use occurs in Dry Creek by elk. Elk densities based on CPW winter range definitions and population estimates could be as high as 24 elk per square mile in winter concentration areas. Approximately 10% (30,633 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.20 - Disappointment Elk Unit (E-24) Post-Hunt Population Estimate, 1987–2013



CPW

E-25 (GMUs 66 & 67) - Powderhorn

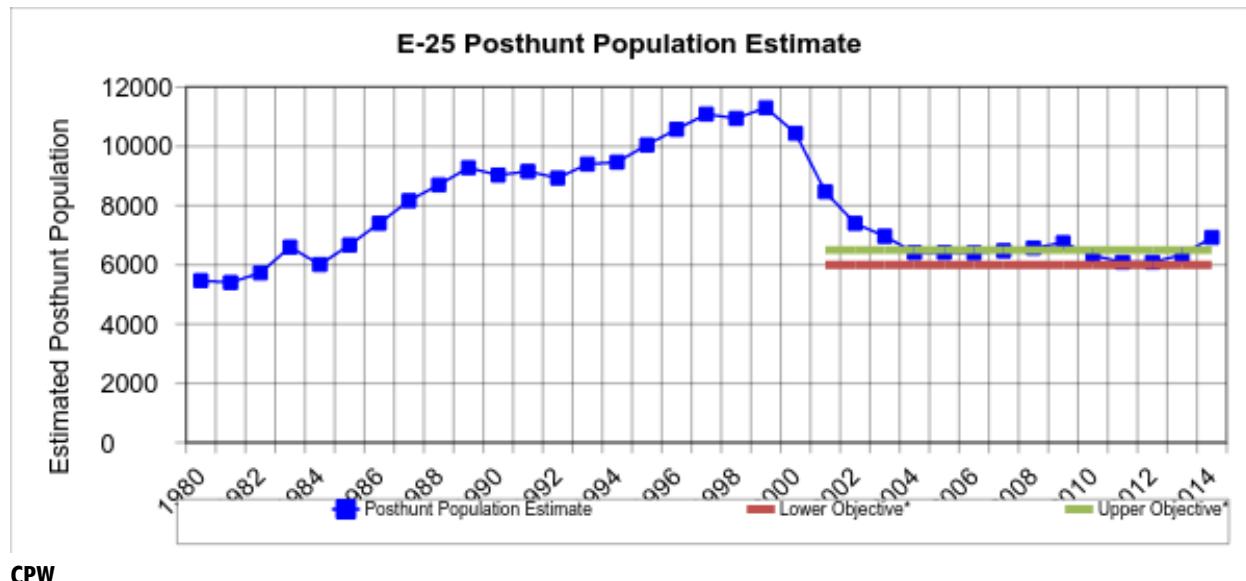
The DAU Plan for E25 was written in 2001 and contained a population objective of 3500-4500 elk. At that time, the population estimate was about 7800. The result was the public and federal land management agencies felt a significant herd reduction was acceptable, or even necessary. In 2006, population models were significantly changed, in many cases adding about 10-20% more elk to the current estimate, though the objectives were not concurrently changed. Based on the updated model, the estimate in 2001 would have been about 8500. For a few more years, the herd was reduced another 20%, and since has been managed for a stable herd size 6000-6500 elk. A new herd management plan is in preparation now.

Like many places in the Rocky Mountain west, spring and summer ranges in E-21 (as well as E41 and E43 also in the Gunnison Basin, following) are much more expansive than the limited winter range. Summer ranges for elk are mostly discrete from GUSG occupied ranges. Most winter range, where overlap with grouse does exist, occurs many miles from summer range and can only be reached following lengthy migrations. Public land managers have expressed concerns about the condition of

big game winter ranges (CPW 2001c). According to Colorado Parks and Wildlife (CPW 2001c) overall habitat condition in E-25 may have declined over the last several decades. Sagebrush stands are tending to become more decadent and forbs are being lost in the understory. Long-term soil erosion has caused productivity to decline, and some riparian systems may be deteriorating. The combined effects of these are bound to be having some effect on big game.

Winters may be severe in the Gunnison Basin and the quantity and quality of winter habitat is arguably the primary limitation for herd productivity and sustainability in this region. In E25, E41, and E43, elk typically begin arriving on winter ranges during late November where they remain until the following April. Winter habitats in the Gunnison Basin consist of sagebrush dominated systems interspersed with other key forage species such as aspen, serviceberry, mountain mahogany, bitterbrush, chokecherry, snowberry, rabbitbrush, and occasionally scrub oak. Winter ranges generally receive lower annual precipitation than higher elevation sites and contain less productive soil types. These conditions result in systems that are slow to recover from excessive herbivory and/or climatic stress. A reduction in the quantity and quality of winter range forage across the landscape will ultimately result in declining productivity for local mule deer herds. Degradation of sagebrush systems is also of concern to wildlife managers with regard to GUSG, and other sage obligate species. Elk densities based on CPW winter range definitions and population estimates could be as high as 32 elk per square mile in winter concentration areas. Approximately 77% (67,728 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.21 - Powderhorn Elk Unit (E-25) Post-Hunt Population Estimate, 1980–2014



CPW

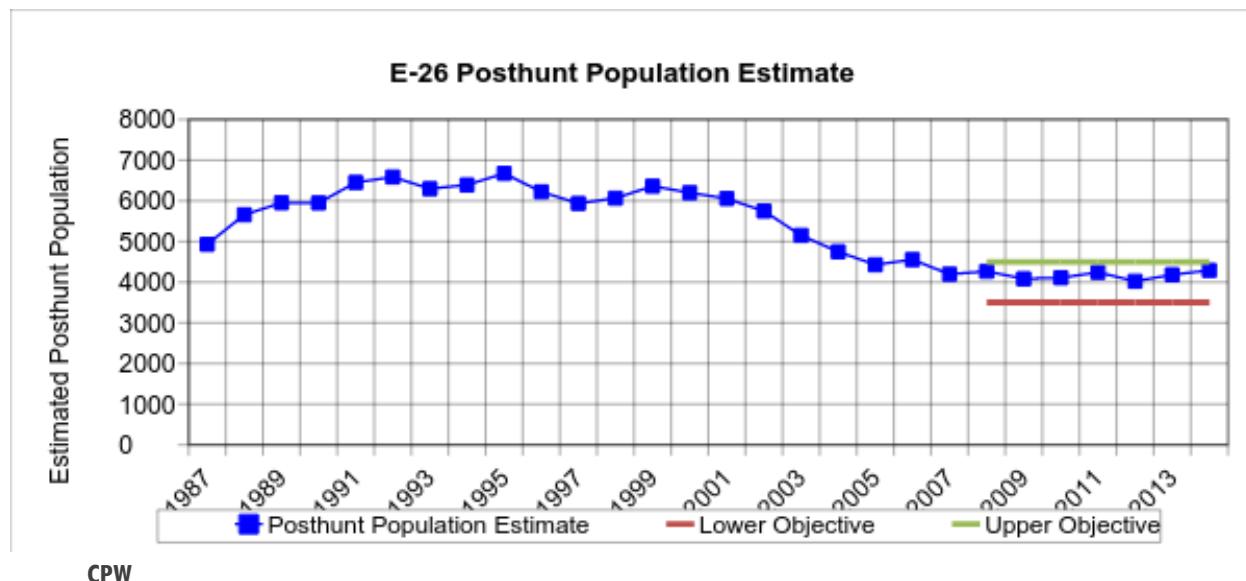
E-26 (GMUs 68 & 681) - Saguache

DAU E-26 is 1,047 square miles in size and is bounded on the north and west by the continental divide, on the south by Saguache Creek\Rio Grande divide and County Road G, and on the east by Colorado Highway 285.

Saguache elk have been modeled since 1987. The population increased in the late 1980s and early 1990s to a high of 6,700 elk in the mid-1990s. The population declined in response to the 2002 drought, but has leveled off and increased since then. The population is currently estimated at 4,300. In 2010, population objectives were set at 3,500-4,500 elk.

The overall range for elk encompasses the overall range for GUSG at Poncha Pass. Elk summer and winter ranges overlap most of the Poncha Pass GUSG range. An elk highway corridor transects part of the north side of the Poncha Pass GUSG range. An elk winter concentration site is on a minor southwest side of Poncha Pass GUSG range. No elk summer concentration areas, production areas, or severe winter range intersect GUSG range in E-26.

Winter range can be limiting for the elk population. Elk tend to concentrate on winter range and disperse to higher elevations during summer months. Relatively low overlap of elk and GUSG during critical winter months likely reduces any significant impacts of elk herbivory on GUSG habitat. Winter range, particularly severe winter range, is the limiting factor for elk populations in this DAU (CPW 2008a). The two species have coexisted for many centuries and face similar challenges. Building development on private land can fragment habitat for elk and can also affect GUSG. A focus on conservation of sustainable and diverse sagebrush habitat will benefit multiple species, including GUSG and elk. There is no mapped winter concentration area for this unit in Occupied Habitat.

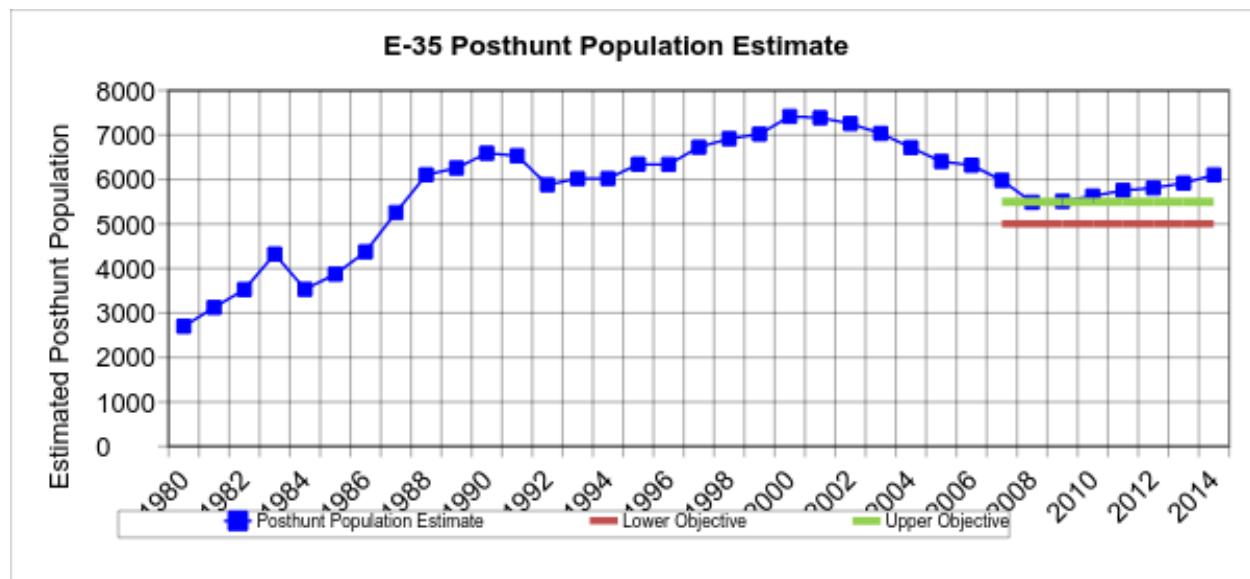
Figure 3.22 - Saguache Elk Unit (E-26) Post-Hunt Population Estimate, 1987–2013

CPW

E-35 (GMUs 64 & 65) - Cimarron

The Cimarron elk herd experienced growth beginning in the early 1980s and, like the Uncompahgre elk herd, reached its peak in the early 2000s. Figure 3.23 illustrates the increase through the 1980s and the subsequent decrease during the early 2000s to a more stable to slightly increasing trend in recent years. After the population was pushed toward objective, wildlife specialists and the public concurred that the objective was set too low. Private landowners and hunters have been primarily satisfied with current population levels. While the Cimarron population has experienced a declining cow-calf ratio, it has not been to the extent of the Uncompahgre and other southwest elk herds.

The Cimarron elk DAU overlaps the Cerro Summit-Cimarron-Sims Mesa GUSG Population. Two active leks (Hairpin and Cimarron) occur within the population area. Both leks are within elk summer and winter range, with most elk use occurring during winter months. The lek areas are within elk winter concentration areas and severe winter range. The Hairpin lek area experiences significant elk use during transition and calving periods as well. Historic habitat in Bostwick Park falls within elk winter concentration areas and severe winter ranges. In addition, unoccupied (historic vacant/unknown) habitat in the Waterdog area would include elk winter range, concentration areas, and severe winter range. Based on CPW winter range definitions and population estimates, elk densities could be as high as 23 elk per square mile in winter concentration areas. Approximately 14% (13,757) of the winter concentration area for this unit is within Occupied Habitat.

Figure 3.23 - Cimarron Elk Unit (E-35) Post-Hunt Population Estimate, 1980–2014

CPW

E-41(GMU 54)- Sapinero

The DAU Plan for E41 was written in 2001 and contained a population objective of 3000-3500 elk. At that time, the population estimate was about 4500, indicating the public and agencies felt a significant herd reduction was acceptable, or even necessary. In 2006, population models were significantly changed, in many cases adding about 10-20% more elk to the current estimate, though the objectives were not concurrently changed. Based on the updated model, the estimate in 2001 would have been about 5600. Since 2005, aggressive cow harvest has reduced the herd to just over 3000 elk and is now being stabilized. A new herd management plan is in preparation now.

The Sapinero elk DAU overlaps GUSG range. While elk summer range lies well above GUSG range, elk winter range and especially elk winter concentration ranges overlap with sage-grouse. The concern about condition of wildlife seasonal ranges, especially winter ranges is significant and has been mentioned by several individuals (CPW 2001b). Dr. Roy Roth with the range science department at Colorado State University offers the following observations. The wildlife winter range is unable to support the current numbers of wildlife without substantial risk to the populations. The shrub component clearly indicates that transitional and winter ranges are being over-browsed. Damage to resources can result in long-term loss of the habitat's ability to support grazing animals (CPW 2001b).

BLM personnel offered the following comments. Numbers of big game in excess of herd objectives from 1987 to 1996 have contributed to the degraded vegetation conditions on critical winter range. The intensity and frequency of big game use has

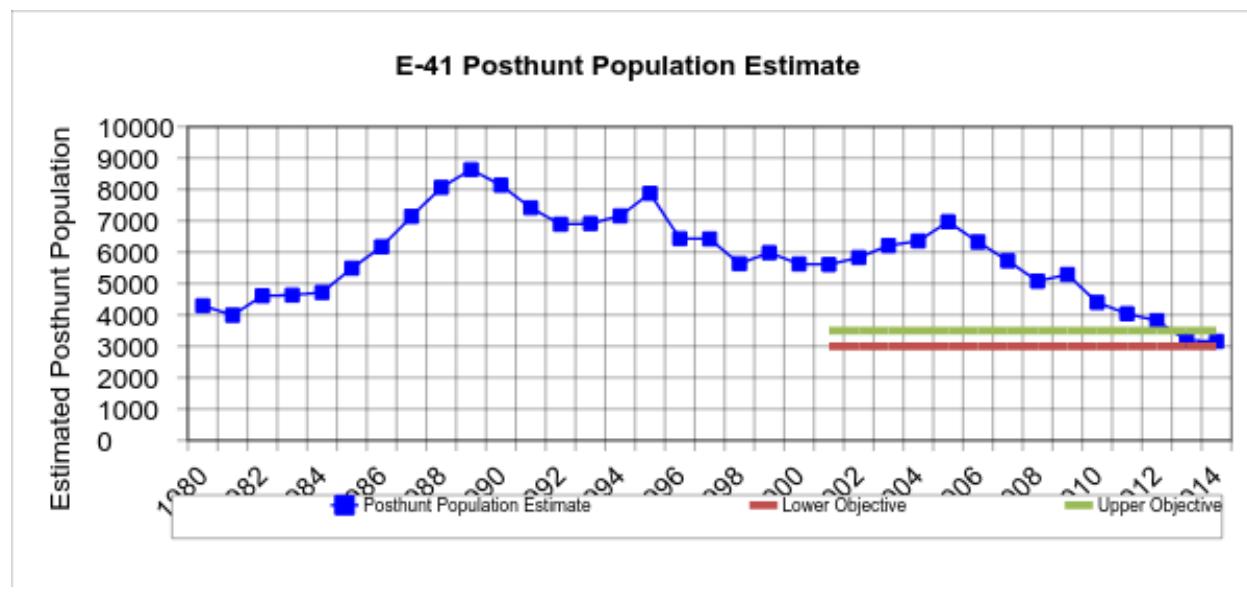
resulted in plant communities which cannot support current populations without continued degradation. Because of this the carrying capacity has been greatly reduced. The capacity of the winter range to support herd objective no longer exists. Both elk and deer need to be reduced to improve winter range and transition range (CPW 2001b).

Winter range in the study area is not in good shape. The vegetation is dominated by over-used and decadent sage plants that have stunted growth and low production. This condition has resulted from a long time of over use from grazing herbivores. The key long-term risk, as we see it, is continued and/or accelerated damage to range resources (CPW 2001b).

Sagebrush stands are tending to become more decadent and forbs area being lost in the understory. Long-term soil erosion has caused productivity to decline, and some riparian systems may be deteriorating. The combined effects of these are bound to be having some effect on big game (CPW 2001b).

Elk densities based on CPW winter range definitions and population estimates could be as high as 12 elk per square mile in winter concentration areas. Approximately 71% (61,735 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.24 - Sapinero Elk Unit (E-41) Post-Hunt Population Estimate



CPW

E-43 (GMUs 55 & 551) - Fossil Ridge

The DAU Plan for E43 was written in 2001 and contained a population objective of 3000-3500 elk. At that time, the population estimate was about 4600, indicating the public and agencies felt a significant herd reduction was acceptable, or even necessary. In 2006, population models were significantly changed, in many cases

adding about 10-20% more elk to the current estimate, though the objectives were not concurrently changed. Based on the updated model, the estimate in 2001 would have been about 6,400. Since the early 1990s, cow harvest has reduced the herd to just over 4,000 elk and is now being stabilized. A new herd management plan is in preparation now.

The Fossil Ridge elk herd overlaps GUSG range during the winter months. Elk winter range and especially winter concentration areas overlap grouse range. Elk migrate out of sage-grouse range in late spring and move to summer ranges at higher elevations. According to the CPW (2001a):

Elk densities on winter range are 8 to 10 times greater than densities found on summer range. Public land managers believe the habitat, especially winter range, has been degraded by big game over-use. They recommend reduction in population size from present levels to allow vegetation to recover. A Colorado State University range scientist says 'the wildlife winter range is unable to support the numbers of wildlife without substantial risk to the populations.'

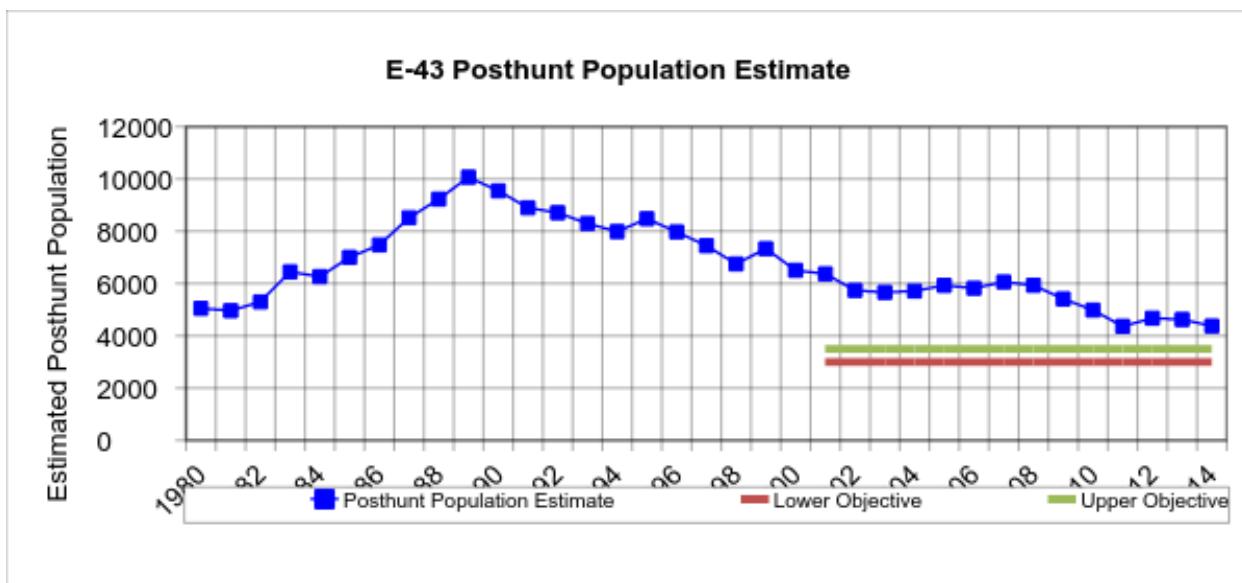
The concern about condition of wildlife seasonal ranges, especially winter ranges is significant and has been mentioned by several individuals. Dr. Roy Roth with the range science department at Colorado State University offers the following general comments. The wildlife winter range is unable to support the current numbers of wildlife without substantial risk to the populations. The shrub component clearly indicated that transitional winter ranges are being over browsed. Damage to resources can result in long-term loss of the habitat's ability to support grazing animals.

BLM personnel offered the following comments. Numbers of big game in excess of herd objectives from 1987 to 1996 have contributed to the degraded vegetation conditions on critical winter range. The intensity and frequency of big game use has resulted in plant communities which cannot support current populations without continued degradation. Because of this the carrying capacity has been greatly reduced. The capacity of the winter range to support herd objective no longer exists. Both elk and deer need to be reduced to improve winter range and transition range.

The Gunnison Basin Habitat Assessment Project reported on habitat conditions in portions of DAU E-43. A report released in January 1999 concluded: "Winter range in the study area is not in good shape. The vegetation is dominated by over-used and decadent big sage plants that have stunted growth and low production. This condition has resulted from a long time of over use from grazing herbivores. The key long-term risk, as we see it, is continued and/or accelerated damage to range resources."

Elk densities based on CPW winter range definitions and population estimates could be as high as 19 elk per square mile in winter concentration areas. Approximately 89% (77,179 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.25 - Fossil Ridge Elk Unit (E-43) Post-Hunt Population Estimate, 1980–2014



CPW

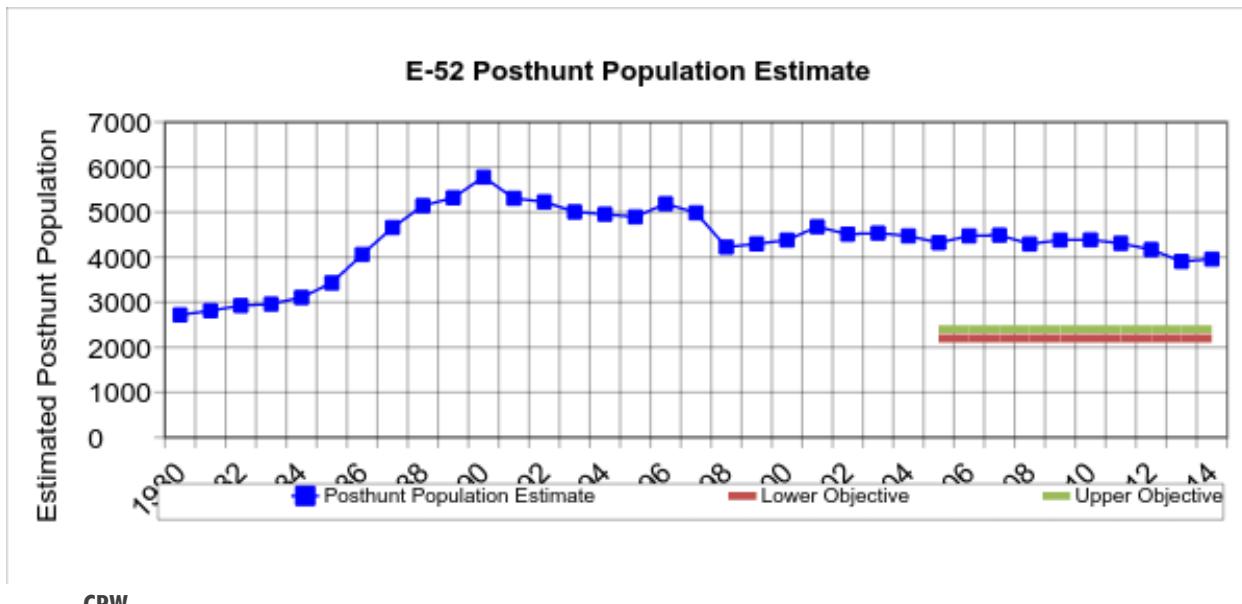
E-52 (GMUs 53 & 63) - Coal Creek/Fruitland Mesa

The DAU Plan for E52 was written in 2005 and contained a population objective of 2,200-2,400 elk. At that time, the population estimate was about 2,700, indicating the public and agencies felt a herd reduction was acceptable, or even necessary. In 2006, population models were significantly changed, in many cases adding about 10-20% more elk to the current estimate, though the objectives were not concurrently changed. Based on the updated model, the estimate in 2001 would have been about 4,700. Since the early 1990s, cow harvest has reduced the herd to just below 4,000 elk and is now being stabilized. A new herd management plan will be prepared in the next few years.

Only the southern portion of this DAU overlaps with GUSG. The public land portion of the DAU (generally eastern side) is very popular with hunters, creating a high density of hunters and roads, and it is generally accepted elk migrate westerly onto private and BLM lands earlier than might be caused by weather alone to avoid hunters and road traffic. This has created distribution issues of elk concentrating for longer periods of time on private and NPS lands, while also using the intermixed BLM lands used by GUSG. These issues are being addressed with special private land only seasons. Wildlife/livestock conflict areas are discussed in the Gunnison Basin Big Game Distribution Management Plan (DMP) (November 1992). Public land managers have expressed concerns about the condition of big game winter ranges (CPW 2005).

Elk densities based on CPW winter range definitions and population estimates could be as high as 25 elk per square mile in winter concentration areas. Approximately 32% (17,626 acres) of winter concentration area for this unit is in Occupied Habitat.

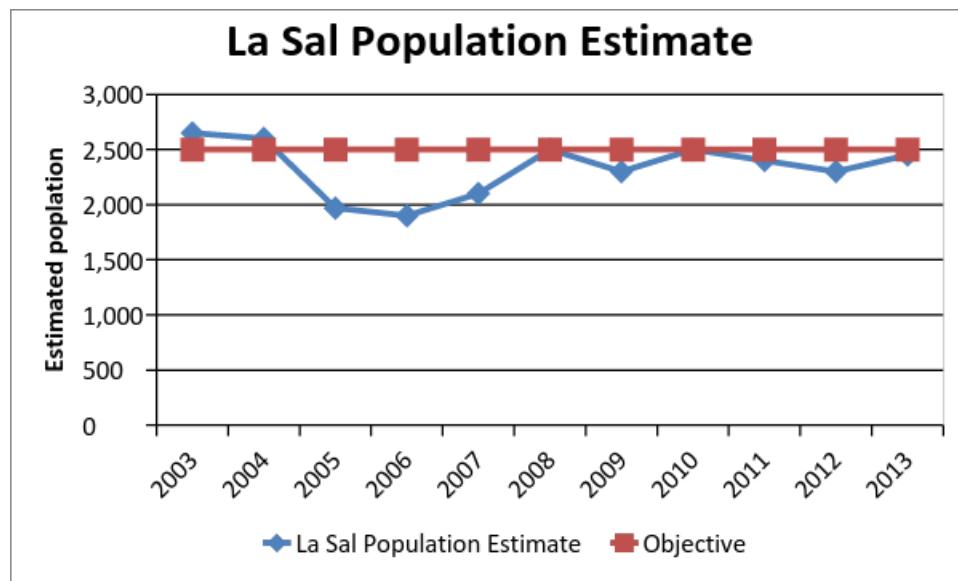
Figure 3.26 - Coal Creek/Fruitland Mesa Elk Unit (E-52) Post-Hunt Population Estimate, 1980–2014



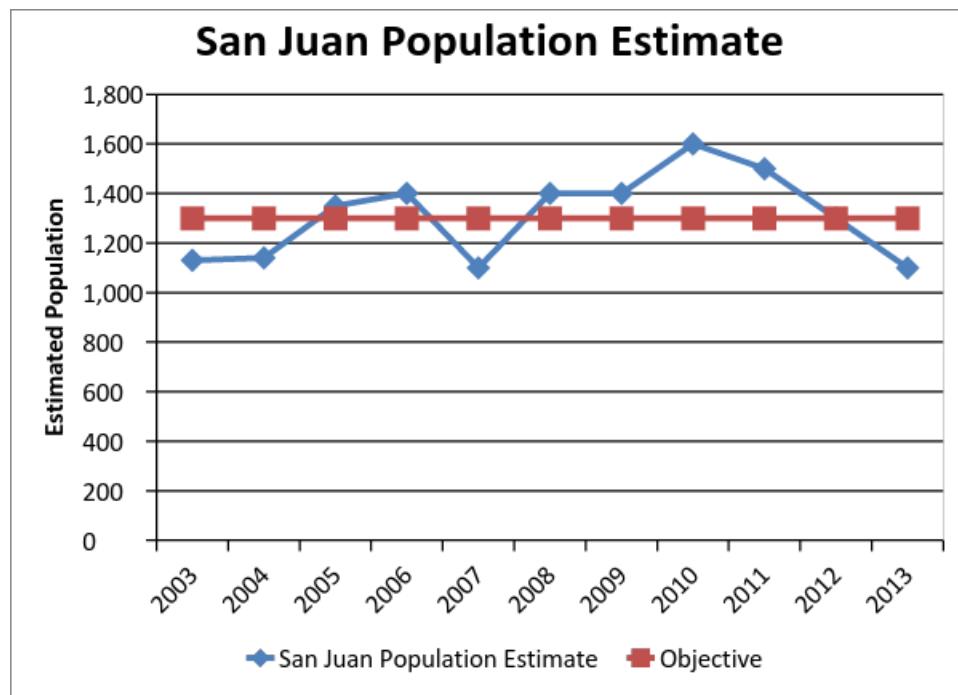
UTAH ELK UNITS

E-13 La Sal

The population objective for the La Sal Unit is 2,500 elk. The La Sal Unit covers approximately 116,126 acres and contains 70,222 acres of critical winter range. There are no crucial winter ranges for this unit in Occupied Habitat.

Figure 3.27 - Utah La Sal Elk Unit Population Estimate, 2003–2013**E-14 San Juan**

The population objective for the San Juan Unit is 1,300 elk. The San Juan Unit covers approximately 1,338,227 acres and contains 118,028 acres of critical winter range. There are no crucial winter ranges for this unit in Occupied Habitat.

Figure 3.28 - Utah San Juan Elk Unit Population Estimate, 2003–2013

3.2.2. MULE DEER (*Odocoileus hemionus*)

Across the decision area, there are eleven mule deer units in Colorado and two in Utah. In 1988, CPW estimated the population to be around 149,533 deer. The mule deer population has been in decline since. The current Colorado population of mule deer within the decision area is estimated to be just over 81,000 deer. Mule deer have declined almost 45% in Colorado in the range of GUSG since 1988. In Utah, the population is estimated to be around 332,900 statewide, with approximately 20,350 mule deer in the decision area.

The mule deer units contain approximately 1,782,980 acres of mule deer critical winter range. Mule deer critical winter range was determined using a combination of CPW Mule Deer Critical Winter Range and UDWR Mule Deer Crucial Winter Range. There are 312,712 acres of critical winter range in Occupied Habitat and 139,825 acres in Unoccupied Habitat. Roughly 18% of critical winter range for all units is in Occupied Habitat.

CPW defines winter range as that part of the overall range where 90% of the deer use is located during a mild winter. Winter concentration areas are that part of the winter range where densities are at least 200% greater than the surrounding winter range density in the average five winters out of ten. Based on CPW mapped winter ranges, winter concentration areas, and winter range definitions, mule deer densities for each game unit in the decision area are identified throughout this section.

COLORADO DATA ANALYSIS UNITS

D-18 (GMU 40) - Piñon Mesa

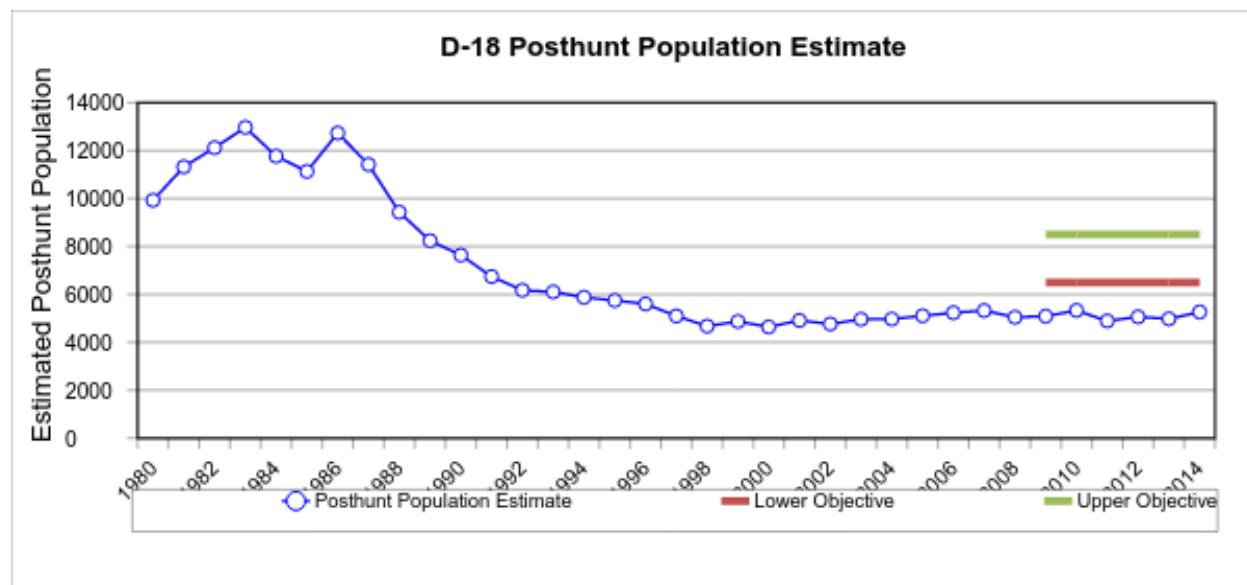
The Piñon Mesa mule deer herd, known as DAU D-18, declined dramatically through the 1980s and early 1990s. Since the mid-1990s, the population size has leveled off at approximately 5,100 deer. The herd management plan was approved in 2009 and designates a post-hunt population size of 6,500–8,500 mule deer, so the population is currently well below the objective range.

GUSG on Piñon Mesa have two relatively distinct use areas; a northern, lower elevation area including Fish Park and Glade Park, and a southern, higher elevation area including Luster Basin, Snyder Flats, Timber Ridge, and Payne Mesa.

Mule deer and GUSG use the same area across both the high and low elevation GUSG ranges on Piñon Mesa, but they are seasonally distinct as deer migrate in response to forage and snow conditions. Mule deer summer range overlaps with the upper elevation sage-grouse overall range and production areas. Mule deer winter range overlaps all of the lower elevation GUSG areas and portions of the high elevation areas. Fish Park, the Reservation Country, and Snyder Flats are used

by GUSG in winter and are also mule deer winter concentration areas. Fish Park and the Reservation Country also provide sever winter range to mule deer. "There is some concern, primarily within the CDOW [now CPW], that doe-fawn ratios are not as high as would be expected. It is possible this is due to density-dependence related to winter range declines." (CPW 2010b). "A significant impact to habitat condition in DAU D-18 is the fragmentation and destruction of habitat as a result of residential development, causing direct habitat loss" (CPW 2010b). Direct removal of winter range will result in higher densities of mule deer in habitat that remains undeveloped. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 27.9 mule deer per square mile in winter concentration areas. Approximately 10% (8,302 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.29 - Piñon Mesa Mule Deer Unit (D-18) Post-Hunt Population Estimate



CPW

D-19 (GMUs 61 & 62) - Uncompahgre

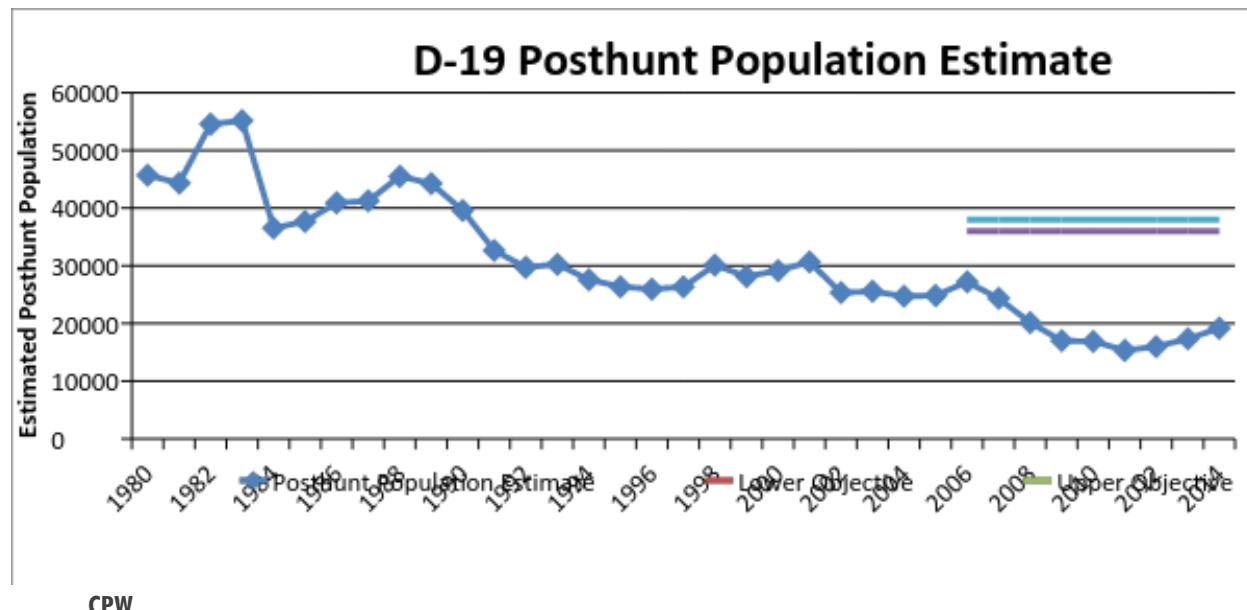
The Uncompahgre mule deer herd is estimated to be considerably smaller now at 19,170 than in the early 1980s when the population was estimated to exceed 50,000 (as shown in Figure 3.30). A herd management plan (also known as a Data Analysis Unit plan) was approved in 2006 with a set population objective of 36-38,000 mule deer. The current population is well below that objective, based on changes in population models and prolonged effects from the winters of 2007-2009 with poor fawn to doe ratios. The population appears to have hit bottom and is now rebounding based on better fawn to doe ratios, high over-winter fawn survival (74.8% in 2013-14, 94% to date this winter) and high annual doe survival (90.7% in 2013-14, 97.8% to date this winter). A new herd management plan is being

developed. Revised population objectives will probably be somewhere between 20,000-28,000, pending public and internal input.

The Uncompahgre DAU overlaps the San Miguel GUSG Population on Iron Springs Mesa, which lies on the southwest corner of the Uncompahgre Plateau. Mule deer use is limited to fawning, summer, and early fall, as mule deer migrate to lower elevations north and west in the winter. The Uncompahgre DAU also overlaps historic leks and vacant habitat in the Sims Mesa area, southwest of Montrose, as well as in the Ridgway and Nucla areas. These historic GUSG use areas would have been primarily used by mule deer during winter months, as concentration areas, when snow pushed deer off the upper elevations of the Uncompahgre Plateau.

Recently, GUSG use has also been documented on the north end of the Uncompahgre in the upper end of the Big Dominguez drainage which had been classified as vacant habitat. Active leks have not been identified in the area, but collared and non-collared GUSG have been observed in the area during the winter months. This area is primarily summer and transition range for mule deer, however, during mild winters mule deer reside in the area as well. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 30.2 mule deer per square mile in winter concentration areas. Approximately 2% (5,227 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.30 - Uncompahgre Mule Deer Unit (D-19) Post-Hunt Population Estimate, 1980–2014

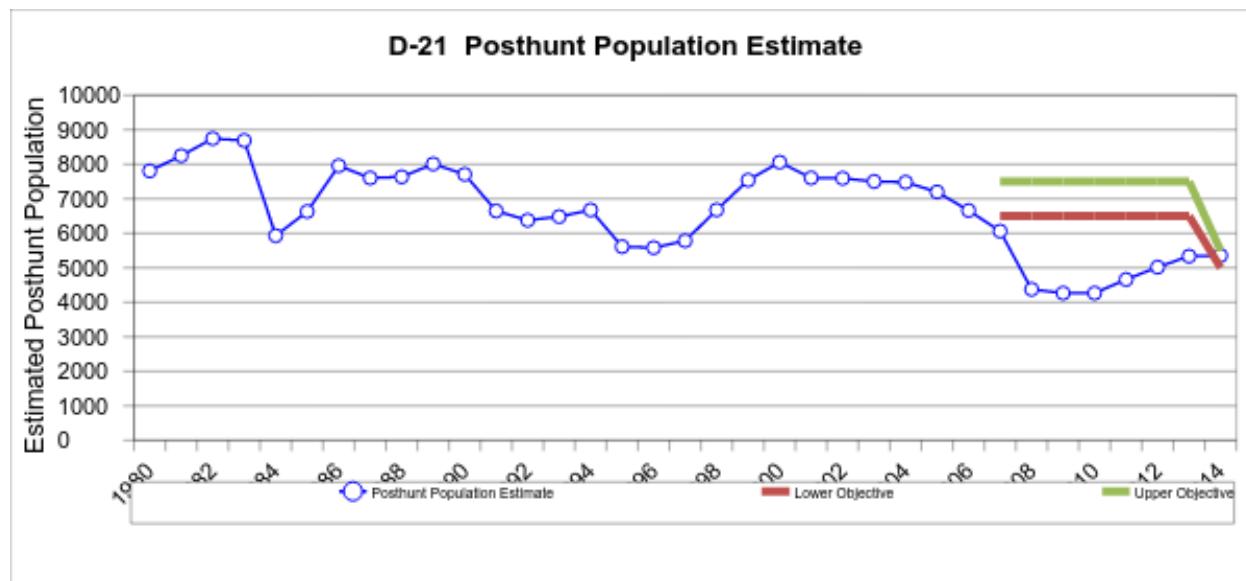


D-21(GMU 54) - West Elk

The current model estimates suggest that there was a larger deer population in D-21 during the early 1980s, which declined as a result of the severe winter of 1983–84. Although not as high as pre-1983–1984 levels, the mule deer population in D-21 increased to over 8,000 estimated animals during the late 1980s before experiencing a gradual decline during the first half of the 1990s. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-21 increased substantially. More recently, the population in D-21 declined considerably as a result of the severe winter of 2007–2008 and lingering effects since. Prior to that winter, the population had hit a recent high and was actively being reduced through sustained antlered and antlerless harvest. Since 2008, the allocation of hunting licenses has remained extremely conservative, with no antlerless hunting occurring. The 2013 post-hunt population estimate for D-21 was approximately 5,200 mule deer on a moderately increasing trend, within the objective range established in 2013 of 5,000–5,500 mule deer.

Like many places in the Rocky Mountain West, spring and summer ranges in D-21 (as well as D22 and D25, following) are much more expansive than the limited winter range. Summer ranges for mule deer are mostly discrete from GUSG occupied ranges. Most winter range, where overlap with GUSG does exists, occurs many miles from summer range and can only be reached following lengthy migrations. Winters can be severe in the Gunnison Basin and the quantity and quality of winter habitat is arguably the primary limiting factor for herd productivity and sustainability in this region.

In D-21, D-22, and D-25, mule deer typically begin arriving on winter ranges during late October or early November, where they remain until the following May. Winter ranges generally receive lower annual precipitation than higher elevation sites and contain less productive soil types. These conditions result in systems that are slow to recover from excessive herbivory and/or climatic stress. A reduction in the quantity and quality of winter range forage across the landscape will ultimately result in declining productivity for local mule deer herds. Degradation of sagebrush systems is also of concern to wildlife managers with regard to GUSG, and other sage obligate species. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 38.7 mule deer per square mile in winter concentration areas. Approximately 81% (40,000 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.31 - West Elk Mule Deer Unit (D-21) Post-Hunt Population Estimate, 1980–2014

CPW

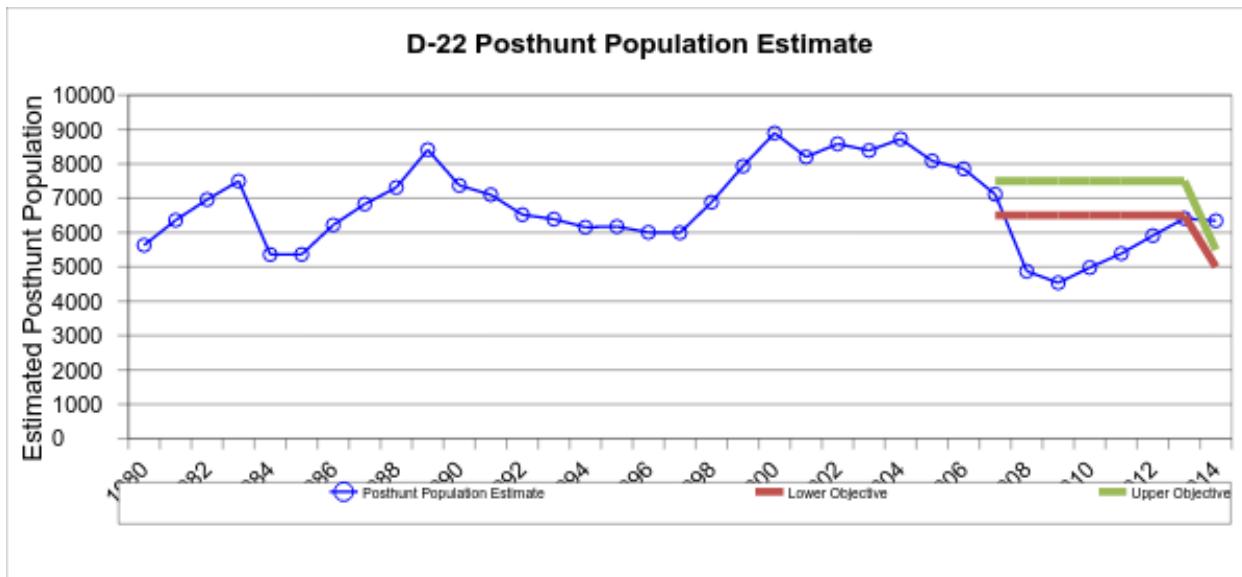
D-22 (GMUs 55 & 551) - Taylor Park

Current model estimates suggest that this population has experienced several population peaks; one during the late 1980's, and one more recently during the early 2000s. Several significant population declines are evident; one following the severe winter of 1983–84, and one following the winter of 2007–08. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-22 increased substantially. More recently, the population in D-22 declined as a result of the severe winter of 2007–2008. Prior to that winter, the population was actively being reduced through sustained antlered and antlerless harvest. Since 2008, hunting license allocation has remained extremely conservative, with no antlerless hunting occurring. The 2013 post-hunt population estimate for D-22 was approximately 6,400 animals on a moderately increasing trend, exceeding the objective range established in 2013 of 5,000-5,500 mule deer. Antlerless hunting was implemented for the 2015 seasons to manage the population toward objective.

In D-22, mule deer overlap the GUSG range year-round. While a low density of mule deer does overlap GUSG range in the summer months, the majority of mule deer summer at elevations above the GUSG range. The majority of overlap occurs during the winter months. All of the winter range classifications for D-22 overlap GUSG range. Concern for browsing pressure on sagebrush occurs during the winter. The concern is greatest when snow is deep and temperatures are cold during severe winters, which is when the heaviest browsing pressure occurs. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 41.1 mule deer per square mile in winter concentration areas.

Approximately 97% (56,349 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.32 - Taylor Park Mule Deer Unit (D-22) Post-Hunt Population Estimate, 1980–2014



CPW

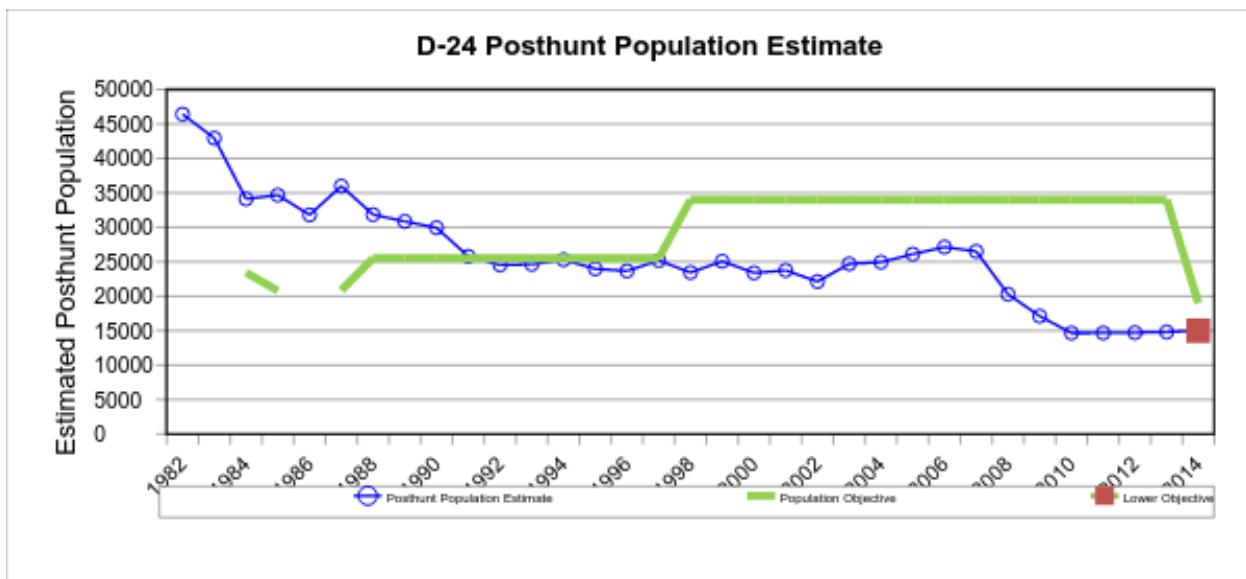
D-24 (GMUs 70, 71 & 711) - Groundhog

The post hunt population estimate for D-24 in 2013 was 14,800. For the past four years, the population has been around 14,600 to 14,800, which are the lowest estimates dating back to 1982, the first year in the model. The high in the population was 46,000 in 1982, three times the current population, and the population has been on a decline since that time. For the past few years, the population has been stable at its current size. The D-24 management plan was updated in 2014 with a population objective of 15,000 to 19,000. The objective was 34,000 prior to that.

All of the DAU is considered overall range for mule deer, so there is overlap between mule deer and GUSG. This overlap is limited. In the Dove Creek area as well as in Disappointment Creek, there is some overlap between mule deer winter range and overall GUSG range. Of the areas of overlap, perhaps half of that is considered winter concentration areas or severe winter range for mule deer. The overall range of GUSG near the Utah border is outside of any wintering mule deer activity as well as a portion of GUSG range on the western extent of their range in Disappointment Creek. There is not any overlap between mule deer concentration areas and GUSG range. Less than half of GUSG overall range falls within mule deer summer range.

Deer DAU D-24 includes GMU 70. GMU 70 overlaps the majority of the San Miguel Basin population area. Mule deer use is limited in the winter, but gets used by mule deer more as transition range and summer range. The Dry Creek Basin area is used by mule deer as winter range, winter concentration, and severe winter range. Minimal summer use occurs in Dry Creek by mule deer. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 19.2 mule deer per square mile in winter concentration areas. Approximately 13% (38,887 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.33 - Groundhog Mule Deer Unit (D-24) Post-Hunt Population Estimate, 1982–2014



CPW

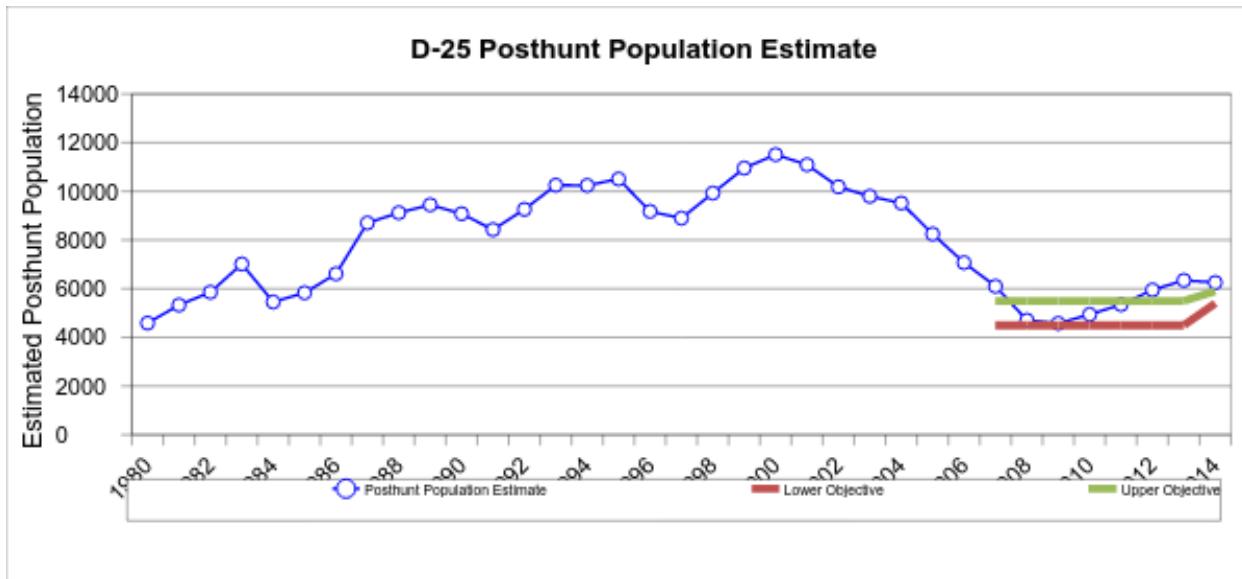
D-25 (GMUs 66 & 67) - Powderhorn

Similar to other deer herds in the Gunnison area, the D-25 population declined following the severe winter of 1983-84, increased during the late 1980s, and then remained stable or increasing during much of the 1990s. Following statewide license limitation in 1999 and a series of exceptionally mild winters, the mule deer herd in D-25 increased substantially, and current model estimates suggest the population peaked during the early 2000s. The population in D-25 declined as a result of the severe winter of 2007-2008. Prior to that winter, the population was actively being reduced through sustained antlered and antlerless harvest. Since 2008, hunting license allocation has remained extremely conservative, with no antlerless hunting occurring. The 2013 post-hunt population estimate for D-25 was approximately 5,800 animals on a moderately increasing trend, within the objective range established in 2013 of 5,400-5,900 deer; antlerless hunting was established in 2014.

The Powderhorn mule deer do overlap GUSG year-round, yet similar to most mule deer populations, the majority of deer migrate to higher elevations outside of

sagebrush habitat during the summer months. Most overlap of deer and grouse range occurs during the winter months when mule deer are concentrated in the lower elevation sagebrush winter ranges in the northern portions D-25. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 44 mule deer per square mile in winter concentration areas. Approximately 84% (41,529 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.34 - Powderhorn Mule Deer Unit (D-25) Post-Hunt Population Estimate, 1980–2014



CPW

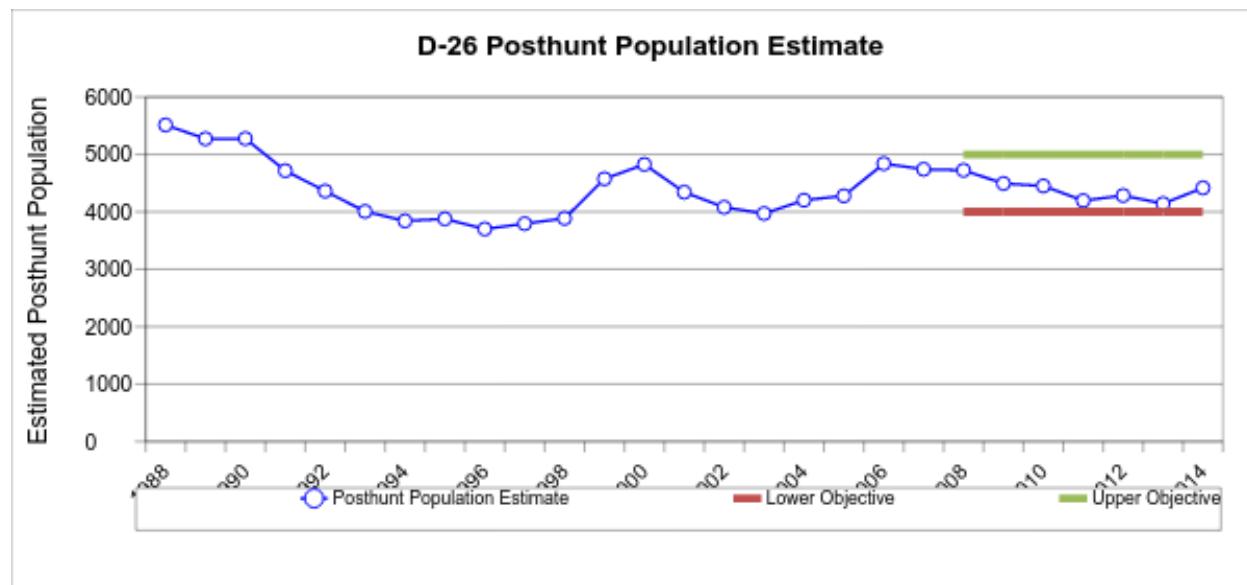
D-26 (GMUs 68, 681 & 682) - Saguache

Mule deer in Saguache have been modeled since 1988. The population declined in the early 1990s. Once deer licenses were limited in 1999, the population increased. The population declined during a drought in 2002, then increased again until a harsh winter in 2007–2008 and periods of drought. The mule deer population fluctuated from increasing to decreasing in numbers during the mid-1990s and 2000s. In the past few years, the population has become more stable. The most recent population estimate is 4,400 mule deer. In 2008, the population objective was set at 4,000-5,000 deer. D-26 is 1,047 square miles in size and is bounded on the north and west by the Continental Divide, on the south by the Saguache Creek\Rio Grande Divide and County Road G, and on the east by Colorado Highway 285.

Mule deer overall range encompasses Gunnison sage grouse overall range at Poncha Pass. Mule deer summer range overlaps most of the Poncha Pass GUSG range except a relatively small piece in the south. Mule deer winter range includes a small piece on the south side of Poncha Pass GUSG range. Mule deer migration patterns are observed on the edge of Poncha Pass GUSG range. No known overlap occurs

between mule deer concentration area, winter concentration, or severe winter range and GUSG range at Poncha Pass in D26. Winter range can be limiting for this mule deer population. Relatively low overlap of mule deer and GUSG during critical winter months likely reduces any significant impacts of mule deer herbivory on GUSG habitat. These species have coexisted for many centuries and face similar challenges. Building development on private land can fragment habitat for mule deer. This type of land development also can affect GUSG. Focus on conservation of sustainable and diverse sagebrush habitat will benefit multiple species including GUSG and mule deer. There are no winter concentration areas for this unit in Occupied Habitat.

Figure 3.35 - Saguache Mule Deer Unit Post-Hunt Population Estimate, 1988–2014



CPW

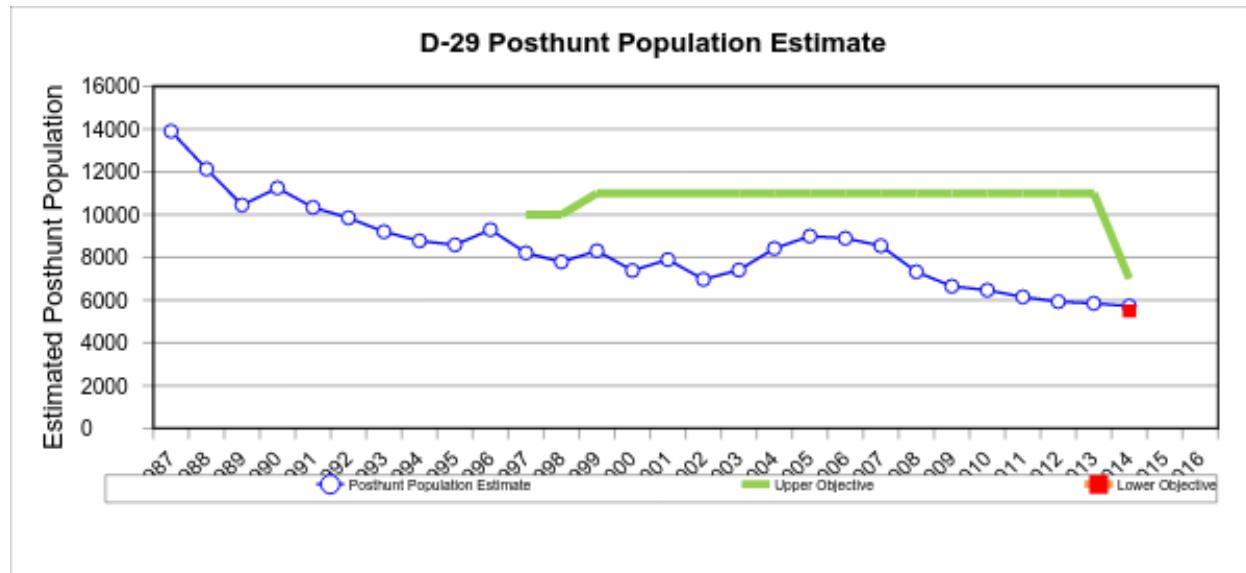
D-29 (GMUs 72 & 73) - Mesa Verde

The D-29 population is at its lowest point since 1987, the first year of the model. The 2013 post hunt population estimate is 5,800. The highest population estimate for the same time period was in 1987 at 13,900. The population has been on a decreasing trend over this time period. The D-29 management plan was revised in 2014 and a new population objective was set with a range of 5,500 to 7,000. The prior plan had a population objective of 11,000.

There is only a small portion of mapped overall range for GUSG in the northwest corner of the DAU, west of Dove Creek. This falls within mule deer overall range which is found in the entire unit. Within the GUSG overall range there is only a sliver of mule deer severe winter range and winter concentration area. No other mapped mule deer use in Species Activity Mapping overlaps the GUSG overall range in this DAU. Mule deer densities based on CPW winter range definitions and

population estimates could be as high as 25.2 mule deer per square mile in winter concentration areas. Approximately 1% (733 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.36 - Mesa Verde Mule Deer Unit (D-29) Post-Hunt Population Estimate, 1987–2016



CPW

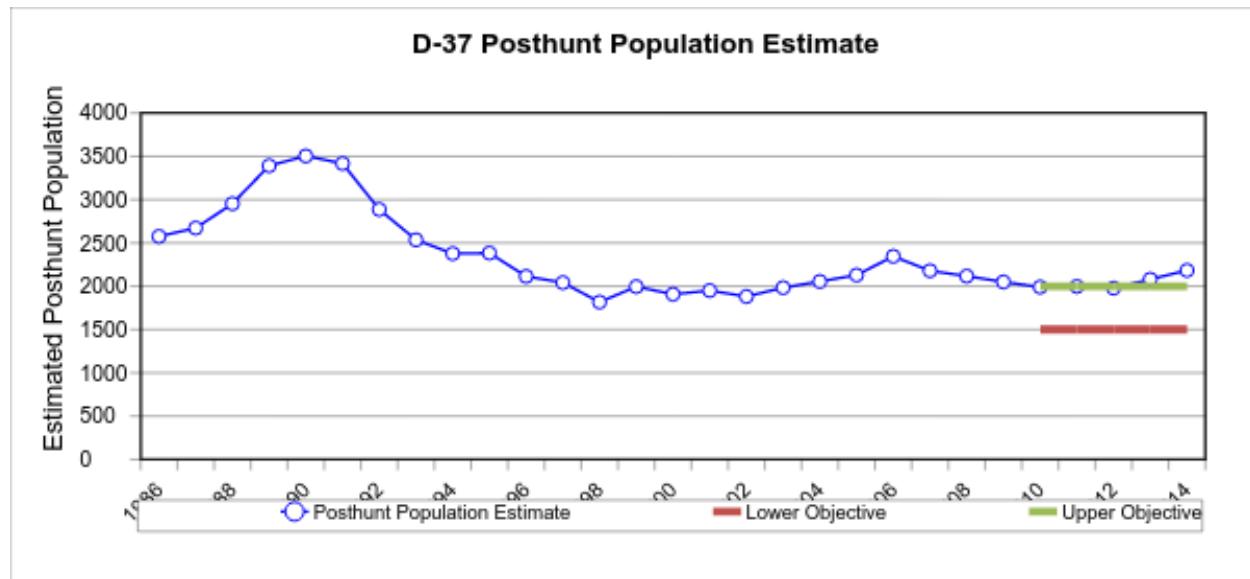
D-37 (GMU 82) - Villa Grove

Deer in the Villa Grove area have been modeled since 1986. The population increased until the early 1990s, and then it declined. When deer licenses were limited in 1999, the population stabilized. This population grew some, but the heavy winter of 2007-2008 brought some decline. Since the drought of 2012 passed, the population increased. The population is currently estimated at 2,200. The population objectives were set in 2010 at 1,500-2,000 deer. D-37 is 1,088 square miles in size and is bordered by the crest of the Sangre de Cristo Mountains to the east, the Alamosa/Costilla county line and U.S. Highway 160 to the south, Colorado Highway 17 and U.S. Highway 285 to the west and the divide between the Arkansas drainage and the San Luis Valley to the north.

Mule deer overall range encompasses Gunnison sage grouse overall range at Poncha Pass. Mule deer summer range overlaps most of the Poncha Pass GUSG range except a relatively small piece in the south. Mule deer winter range includes a small piece on the south side of Poncha Pass GUSG range. Mule deer migration patterns are observed on the edge of Poncha Pass GUSG range. No known overlap occurs between mule deer concentration area, winter concentration, or severe winter range and GUSG range at Poncha Pass in D-37. Winter range can be limiting for this mule deer population. Relatively low overlap of mule deer and GUSG during critical winter months likely reduces any significant impacts of mule herbivory on

GUSG habitat. These species have coexisted for many centuries and face similar challenges. Building development on private land can fragment habitat for mule deer. This type of land development also can affect GUSG. Focus on conservation of sustainable and diverse sagebrush habitat will benefit multiple species including GUSG and mule deer. There are no winter concentration areas for this unit in Occupied Habitat.

Figure 3.37 - Villa Grove Mule Deer Unit (D-37) Post-Hunt Population Estimate, 1986–2014

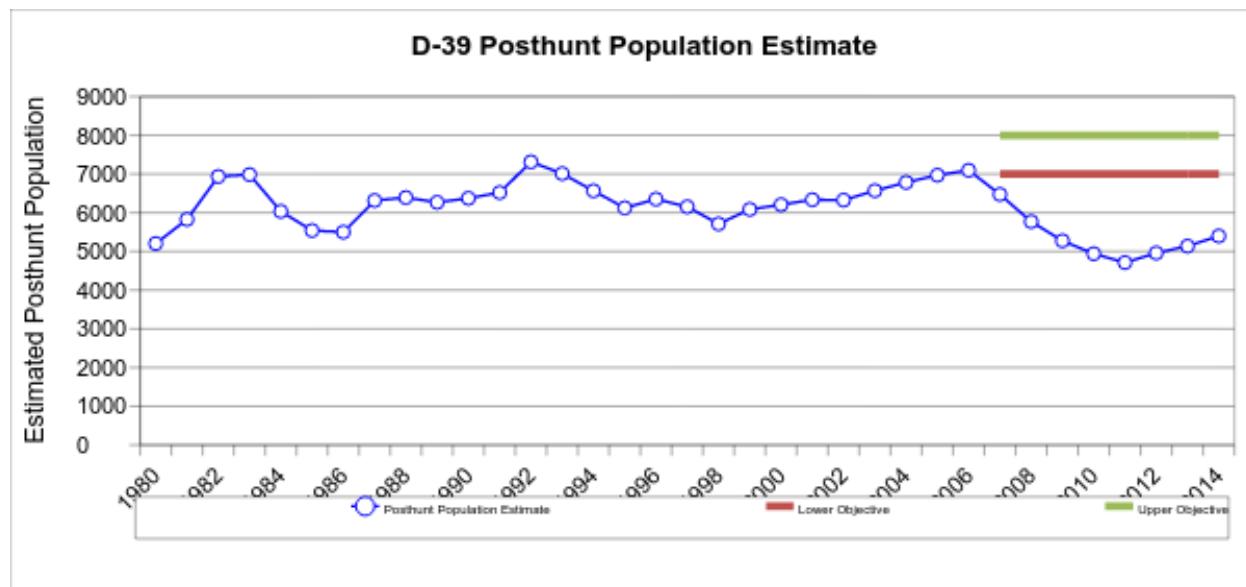


CPW

D-39 (GMU 63) - Fruitland Mesa

The DAU Plan for D-39 was written in 2007 and contained a population objective of 7000-8000 deer. At that time, the population estimate was about 8,400, indicating the public and agencies felt a herd slight reduction was acceptable. Since then, population models were significantly changed, in many cases subtracting about 10-20% deer from the estimate, though the objectives were not concurrently changed. Based on the updated model, the estimate in 2007 would have been about 6,500. From 1980 through 2007, the herd fluctuated between 6,000 and 7,000 mule deer and has since declined to about 5,000.

Mule deer in the Fruitland Mesa DAU overlap GUSG during all seasons. However, the majority of overlap occurs during the winter months when deer migrate to the lower elevation sagebrush winter ranges where the Crawford Population of GUSG resides. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 35.3 mule deer per square mile in winter concentration areas. Approximately 14% (11,623 acres) of winter concentration area for this unit is in Occupied Habitat.

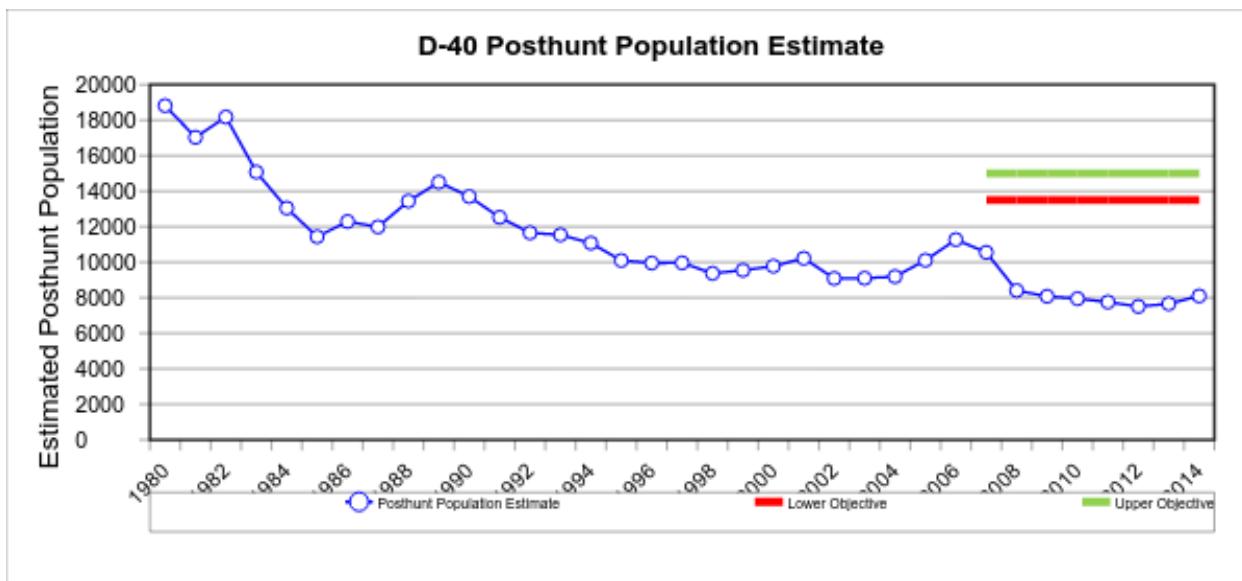
Figure 3.38 - Fruitland Mesa Mule Deer Unit (D-39) Post-Hunt Population Estimate, 1980–2014

CPW

D-40 (GMUs 64, 65) - Cimarron

The Cimarron mule deer population has experienced similar declines to most of the deer populations in southwest Colorado. In 1980, the Cimarron population was estimated at approximately 18,800, however, now the population is estimated at about 8,100. The population is currently below objective based on changes to population model and prolonged effects from the winter of 2007-08 with poor fawn to doe ratios. However, the population appears to have stabilized and is now slightly growing.

The Cimarron DAU overlaps the Cerro Summit-Cimarron-Sims GUSG Population. Two active leks occur within this population, the Hairpin Lek and the Cimarron Lek. Both leks are within mule deer summer and winter range, but most mule deer use occurs during the winter. The lek areas are within mule deer concentration areas and at least partly within mapped severe winter ranges. The historic habitat in Bostwick Park falls within mule winter concentration areas and severe winter ranges. In addition, historic vacant and unknown habitat in the waterdog area would include year round use by deer with most use occurring during the winter. The Waterdog Lake area includes general winter range, winter concentration, and severe winter ranges. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 39.8 mule deer per square mile in winter concentration areas. Approximately 12% (13,421 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.39 - Cimarron Mule Deer Unit (D-40) Post-Hunt Population Estimate, 1980–2014

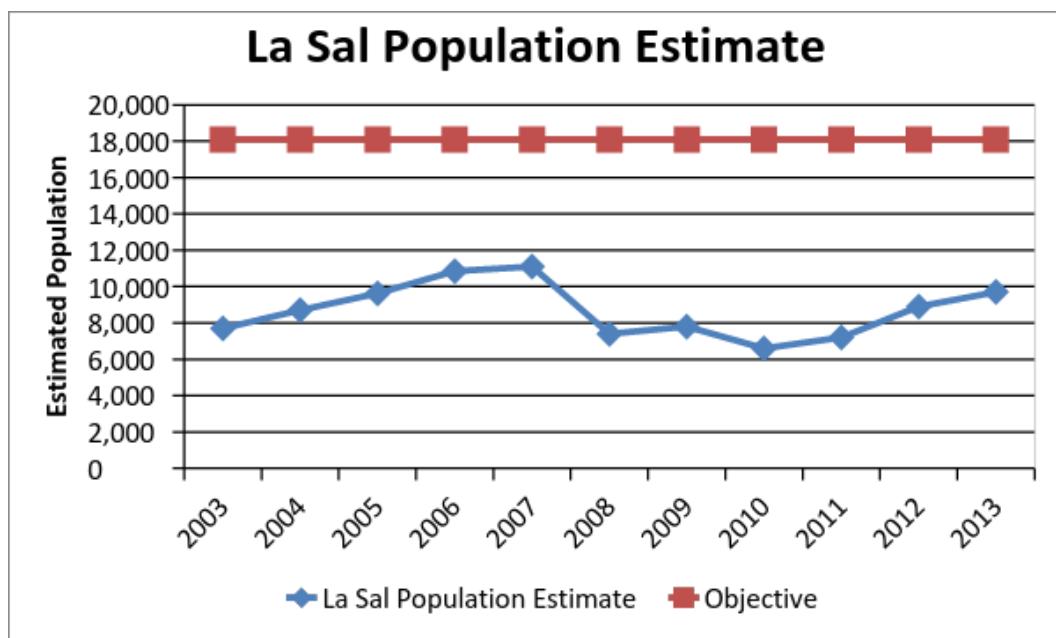
CPW

UTAH MULE DEER UNITS

In 2013, the mule deer population in Utah was estimated to be 332,900. The long-term population objective for Utah is 425,000 deer (Utah Mule Deer Statewide Management Plan). The mule deer population in Utah has had an annual growth rate of 1.6% for the last 20 years. Portions of two of Utah's deer units are in GUSG habitat.

E-13 - La Sal

The population objective for the La Sal unit is 19,400 deer. The La Sal Unit covers approximately 116,126 acres and contains 100,803 acres of critical winter range. The La Sal unit is divided into two areas the La Sal Mountains and the Dolores Triangle. There is no crucial winter range for this population in Occupied Habitat.

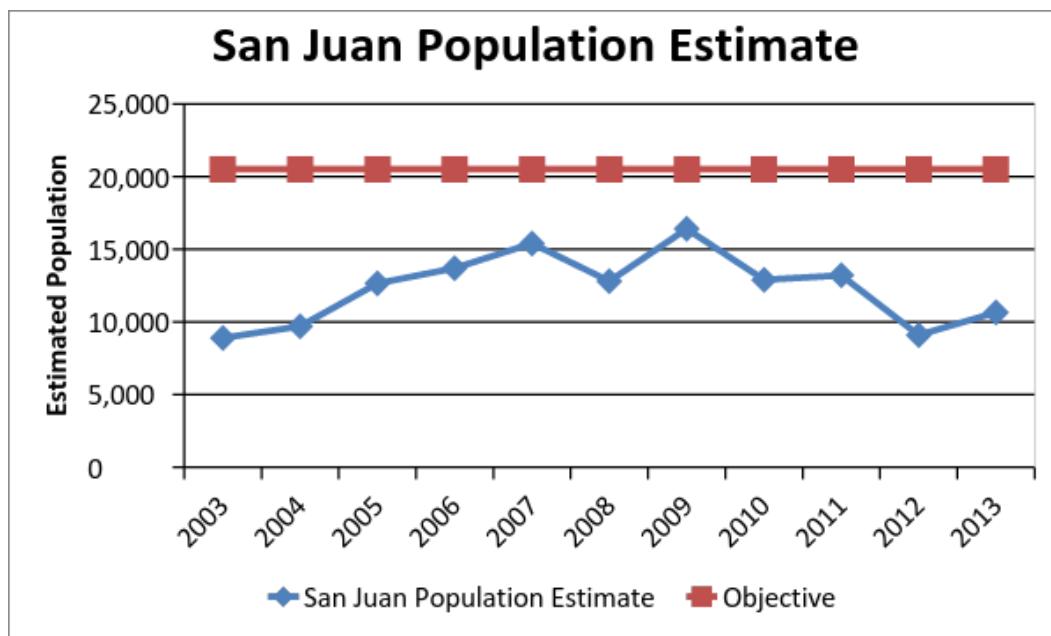
Figure 3.40 - Utah La Sal Mule Deer Unit Population Estimate

CPW

No change has been recommended for the La Sal Mountains mule deer herd as habitat monitoring indicates that range trend monitoring conditions are on the upper end of fair. A 20% reduction is recommended for the Dolores Triangle due to poor range conditions in 2006.

E-14 - San Juan

The population objective for the San Juan Unit is 20,500 mule deer. The San Juan Unit covers approximately 1,338,227 acres and contains 549,466 acres of critical winter range. UDWR monitors range trend conditions. Based on UDWR monitoring, mountain big sagebrush was the most common species sampled in browse studies and increased in density and cover from 1999 to 2004 (UDWR 2012). According to the UDWR deer management plan, the proportion of summer range to winter range appears to be the limiting factor, high quality summer range representing only a small percentage of the Elk Ridge sub-unit. Mule deer densities based on CPW winter range definitions and population estimates could be as high as 7.4 mule deer per square mile in winter concentration areas. Approximately 19% (102,381 acres) of winter concentration area for this unit is in Occupied Habitat.

Figure 3.41 - Utah San Juan Mule Deer Unit Population Estimate

3.2.3. COMMON RAVEN (*CORVUS CORAX*)

The common raven is found throughout the planning area. Common ravens are protected under the Migratory Bird Treaty Act. Raven numbers have quadrupled in the U.S. over the last 40 years (Sauer et al 2011). Christmas Bird Count data for Colorado identified 179 common ravens in 1971 and 3,362 in 2013, a 1,778% increase (National Audubon Society 2010). In some areas, common raven populations are expected to increase as a result of the presence of anthropogenic resources (Webb et al 2004).

Common ravens nest opportunistically and will take advantage of isolated trees and anthropogenic structures (Dunk et al 1997, Howe et al 2014, Webb et al 2009, Coates et al 2014a, Bui 2009). Ravens exhibit strong site fidelity and breeding pairs are territorial (Roth et al 2004). Non-breeding pairs are typically nomadic and follow the food supply, with many juveniles congregating at a communal point subsidy (Webb et al 2009, Roth et al 2004). Ravens are omnivores and their diets have been described as consisting of “anything edible, alive or dead, that it can catch kill, disable, or pick up” (Knight and Call 1980).

Multiple studies have identified common ravens as preying upon sage-grouse nests (Bui et al 2010, Coates and Delehanty 2010, Coates et al 2008, Lockyer et al 2013, Schroeder and Baydack 2001) and broods (Bui et al 2009,). Mammals have been identified as the main food supply for common ravens, with eggs being second, and avian parts third (Knight and Call 1980). Common ravens differ from other sage-

CHAPTER 3 - AFFECTED ENVIRONMENT

grouse predators due to their adaptability and learned food-gathering strategies (Knight and Call 1980). Other predators of sage-grouse, nests, and broods are typically opportunistic in nature. Ravens have been documented to be the most common predator of sage-grouse nests (Coates et al 2008, Lockyer et al 2013). Ravens have learned to search for sage-grouse nests and cache eggs from multiple nests (Howe and Coates 2014). Multiple studies have documented common ravens responding to the presence of sage-grouse nests and broods (Bui et al 2010, Bui et al 2009).

3.3. SOIL RESOURCES

INDICATORS

Existing and potential for surface and vegetation disturbance, expressed in terms of:

- Areas of disturbance
- Areas of vegetation manipulation including vegetation treatments, prescribed burns, and wildfire
- Areas open to surface disturbing activities
- Areas with active livestock grazing allotments.

EXISTING CONDITIONS

3.3.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

Across the region, soils are largely undeveloped, dominated by Aridisols and Entisols soil orders, and formed from sedimentary rocks for areas falling in the Colorado Plateau ecoregion, and from igneous rocks for areas in the Southern Rocky Mountain ecoregion (Bryce 20120, USDA 1975). While there are a number of exceptions such as on some of the deeper soils in the Gunnison Basin population area, many of these soils are generally shallow, with low organic content and variable vegetation cover. In addition, many of the soils are on slopes with high to very high runoff classifications. All of these factors increase soil vulnerability to erosion. Erosion results from both natural processes and human activities which disturb the soil surface, reduce protective vegetation cover and biological soil crusts, and thereby expose soil to the erosive forces of wind and water.

Soil types, characteristics, and conditions vary widely across BLM surface in Occupied and Unoccupied Habitat. Some soil characteristics such as soil erodibility, salinity and accelerated erosion are of special concern to land managers across the region, however they are not affected by, nor do they affect GUSG. Because of its relationship to vegetation cover and productivity, soil stability is one soil characteristic that is relevant to GUSG and can also be affected by land management practices associated with GUSG conservation. Soil stability reflects the resistance of soils to wind and water erosion, and is considered a terrestrial function of high ecological value across the GUSG range (BLM 1991b, Bryce 2012). Much of this stability is due to biological soil crusts (Chaudhary 2009). Land uses which disturb

the soil surface, biological soil crust and the protective plant cover reduce soil stability (Bryce 2012, BLM 1991b).

Several different indicators are used to address soil stability on BLM surface in Occupied and Unoccupied Habitat. These include past disturbance, present sources of disturbance, and protections from future disturbances for activities where data sets are relatively complete (as shown in Table 3.37). Vegetation treatments have been mapped over the past several decades and most of these included scraping, turning or disking the soil surface to varying degrees. Agriculture, mining, and other types of development have been mapped using satellite imagery, which captures the larger soil and vegetation disturbances across BLM surface in Occupied and Unoccupied Habitat (LANDFIRE 2015). Soils on over 10% of the land area in Occupied Habitat and Unoccupied Habitat have been affected by mechanical vegetation treatments, but less than 1% of the land area is classified by satellite imagery as modified by agriculture, mining and other types of development. Within non-habitat areas, these impacts have occurred on 2% and 1% of the land area respectively.

Active livestock grazing allotments are included as an indicator for current vegetation removal and small-scale soil disruption through trampling (Anderson 1982, Neff 2005). Although elk, deer and other wildlife can cause similar effects to soil stability as livestock, their distribution across the landscape is not controlled, so they are not considered an indicator for soil stability. Protections from future surface disturbances are indicated by RMP or other planning level designations which greatly restrict surface disturbance, surface occupancy, and associated vegetation removal. These include Wilderness Areas, Wilderness Study Areas, and areas with Right of Way Exclusion or No Surface Occupancy (NSO) stipulations, and areas withdrawn from mineral leasing or development.

Most of the BLM land in Occupied and Unoccupied Habitat falls into active livestock grazing allotments (as shown in Table 3.37 and Table 3.38). While many allotments contain areas that are inaccessible to livestock or are not grazed for other reasons, as a whole they are subject to more vegetation removal and trampling—with associated implications for soil stability—than areas outside of the allotments. The distribution of livestock grazing is similar across BLM surface in Occupied and Unoccupied Habitat, with over 70% of each population area in an active grazing allotment. Somewhat less BLM land in Non-Habitat Areas is within active grazing allotments, at 56% of the area (as shown in Table 3.38).

Soil stability across most of the BLM lands in the planning area is currently protected by RMP-level surface disturbance restrictions (shown in Table 3.37). However, 39% is not under this level of surface protection, and surface protections vary across BLM surface in Occupied and Unoccupied Habitat. The Crawford, Piñon Mesa, and San Miguel Basin population areas are most protected by surface use restrictions,

while the Poncha Pass and Cerro Summit-Cimarron-Sims Mesa population areas have the least amount protected. Within Non-Habitat Areas, 61% of BLM land lacks RMP-level surface disturbance restrictions.

Table 3.37 - Soil Indicators on BLM Lands across GUSG Habitat

GUSG POPULATION AREA	VEGETATION TREATMENTS		LARGE-SCALE SURFACE DISTURBANCE		AREAS WITHOUT SURFACE DISTURBANCE RESTRICTIONS		ACTIVE LIVESTOCK GRAZING ALLOTMENTS	
	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT
Rangewide	63,369	10%	3,098	<1%	240,467	39%	577,198	93%
Cerro Summit-Cimarron-Sims Mesa	1,032	11%	113	1%	8,126	87%	8,433	90%
Crawford	7,328	23%	176	1%	11,669	36%	31,772	98%
Gunnison Basin	12,198	3%	1,210	0%	160,233	44%	339,621	93%
Monticello-Dove Creek	10,362	23%	859	2%	30,745	69%	32,812	74%
Piñon Mesa	21,947	20%	127	0%	5,482	5%	105,085	95%
Poncha Pass	30	0%	533	2%	23,379	95%	24,099	97%
San Miguel Basin	10,471	29%	79	0%	832	2%	35,375	99%

Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat.

Table 3.38 - Soil Indicators on BLM Lands within Non-Habitat Areas

GUSG POPULATION AREA	VEGETATION TREATMENTS		LARGE-SCALE SURFACE DISTURBANCE		AREAS WITHOUT SURFACE DISTURBANCE RESTRICTIONS		ACTIVE LIVESTOCK GRAZING ALLOTMENTS	
	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT
Rangewide	2,580	2%	1,096	1%	71,955	61%	66,797	56%
Cerro Summit-Cimarron-Sims Mesa	92	1%	126	1%	11,406	100%	7,201	63%
Crawford	3	0%	0	0%	2	0%	1,481	100%
Gunnison Basin	74	1%	0	0%	8,763	73%	7,514	63%
Monticello-Dove Creek	1,115	4%	603	2%	18,183	72%	12,186	48%
Piñon Mesa	563	2%	32	0%	6,236	23%	20,285	76%
Poncha Pass	0	0%	0	0%	763	100%	556	73%
San Miguel Basin	734	2%	335	1%	26,603	65%	17,573	43%

Percentages are calculated against the total BLM surface in the Non-Habitat Area outside of Occupied and Unoccupied Habitat.

TRENDS

Where information is available from management units across BLM surface in Occupied and Unoccupied Habitat, additional surface disturbance is anticipated to accrue at current rates and increase in some areas (BLM 2005a, 2005e, 2006, 2009b, 2010a, 2011g). Growing levels of recreation use and requests to develop ROWs and energy projects, along with increasing rates of wildfire, are all cited as factors decreasing soil stability. This appears to be a pattern across the GUSG range despite the mitigating effects anticipated with travel management, route closure and rehabilitation.

Expected increases in frequency and severity of drought associated with climate change are also likely to reduce protective soil cover and complicate soil recovery from surface disturbance. This is anticipated to occur as hotter, drier conditions and more erratic weather make seed germination and establishment more difficult and reduce overall plant vigor.

3.4. TERRESTRIAL VEGETATION (INCLUDING WOODLANDS)

INDICATORS

Vegetation status across BLM surface in Occupied and Unoccupied Habitat is described in terms of:

- Vegetation types expressed as acreage of each major plant community on BLM surface
- Vegetation conditions expressed in terms of acreage achieving or not achieving the Land Health Ecological Fundamental.

EXISTING CONDITIONS

3.4.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

Vegetation throughout the two ecological regions, which support the GUSG, is affected by both natural drivers and human land uses. Montane shrubland, sagebrush, and pinyon-juniper woodland make up the primary vegetation types of the mid-elevations. Forested communities are generally at higher elevations and are not considered GUSG habitat in this plan. Natural drivers include drought, wet periods, insect and animal herbivory, and fire (Bryce 2012). These drivers influence the distribution and prevalence of vegetation communities across the landscape, and the relative dominance of the different plant species within each community.

Past and current human impacts in these mid-elevations include conversion of native communities to agriculture, urban or residential use. Most native plant communities across the region have been altered to some degree by livestock grazing which has been widespread at substantial levels since the late 1800s (Grahme 2002).

Aggressive fire suppression over the last 70 years has affected fire frequency and contributed to the expansion of woody vegetation, through impacting vegetation structure, composition, and vegetation successional patterns (Bryce 2012). Human-caused fragmentation of native vegetation communities has taken place with the development of energy resources and infrastructure, recreation and range management infrastructure, and habitat and range improvement projects (Bryce 2012). It has also been fueled by growing OHV use, road construction and rural home development. These activities have broken formerly large patches of native

plant communities into smaller, often damaged fragments with reduced functionality and resilience.

A variety of upland vegetation communities occur on BLM lands in Occupied and Unoccupied Habitat (as shown in Table 3.39 and Table 3.40). For the purposes of this discussion, discrete vegetation assemblages from LANDFIRE Existing Vegetation Types data have been grouped into broader vegetation groups. This data was derived from satellite imagery, predictive models, and ground truthing (LANDFIRE 2015). As with most remotely sensed data, the maps are likely to contain some imprecision pertaining to vegetation classification and the amount of acreage covered by each vegetation type. However, the data are sufficiently accurate to provide an overview of vegetation types across BLM surface in Occupied and Unoccupied Habitat.

Although sagebrush communities are the most frequently referenced GUSG habitat components, grass and forb dominated vegetation, montane shrubland, and pinyon-juniper woodland are also prominent vegetation types in and around GUSG habitat. While forested lands with aspen, pine, spruce, and fir also occur within BLM surface in Occupied and Unoccupied Habitat, these vegetation types are not considered to be potential habitat and are not evaluated in depth.

Within Occupied Habitat, montane shrubland is the most common vegetation type—making up nearly half of the area—while sagebrush shrubland constitutes a third, forested lands nearly 10%, and pinyon-juniper woodland and grass-forb vegetation make up just over 5% each (as shown in Table 3.39). Unoccupied Habitat generally has a different composition on BLM lands, with pinyon-juniper woodlands making up nearly 40% of the area, sagebrush shrublands over 20%, forested lands at nearly 20%, and small components of montane shrubland and grassland. Vegetation on BLM lands in Non-Habitat Areas is dominated by pinyon-juniper woodland, followed by forested types, sagebrush, grass-forb vegetation, and finally, montane shrubland.

Vegetation composition also varies across the GUSG population areas. Within Occupied Habitat, sagebrush constitutes anywhere between a low of 31% of the total vegetation in the Gunnison Basin population area, to a high of 52% for the San Miguel population area. Montane shrubland ranges from being nearly absent in areas supporting the San Miguel Population to a high of 51% for the Gunnison Basin Population. Pinyon-juniper vegetation is lowest in the Gunnison Basin population area at 1% and highest in the Monticello-Dove Creek and Crawford population areas at 27%. The variability of vegetation composition across the GUSG range indicates not only the unique distribution of vegetation in each region, but also the range of vegetation types within which GUSG are found.

The primary sagebrush communities within GUSG habitat are dominated by the drier Inter-mountain Basins Big Sagebrush Shrubland, with Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and the wetter Inter-Mountain Basins Montane Sagebrush Steppe, characterized by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*). Three other sagebrush communities are smaller constituents: Artemisia tridentata ssp. vaseyana Shrubland Alliance, Colorado Plateau Mixed Low Sagebrush Shrubland, and Inter-Mountain Basins Big Sagebrush Steppe. These and the following communities are more completely described in the Colorado Plateau Rapid Ecoregional Assessment (Bryce 2012), the NatureServe database (NatureServe 2014), and BLM planning documents (BLM 1989, 1991, 2003, 2005e, 2006, 2009a, 2011g, 2013c).

Montane shrublands on BLM surface in Occupied and Unoccupied Habitat are mostly Rocky Mountain Lower Montane-Foothill Shrubland. This shrubland is characterized by mountain mahogany and usually associated with rocky substrates, and dry conditions which limit trees and Gambel oak. Both Wyoming and mountain big sagebrush can occur in this shrubland as co-dominants. The other important montane shrubland type across Occupied and Unoccupied Habitat is the Gambel Oak Shrubland Alliance. This shrubland contains many associations dominated by Gambel oak, some with sagebrush as a co-dominant.

The pinyon-juniper woodland falls into the broad category of Colorado Plateau Pinyon-Juniper Woodland, which includes numerous pinyon-juniper associations. Of particular relevance for GUSG habitat are those associations that occur on flat to gentle slopes and contain a shrub understory dominated by mountain or Wyoming big sagebrush.

The grass-forb vegetation is primarily made up of two vegetation subcategories. The Introduced Upland Vegetation-Annual Grassland—most often dominated by cheatgrass—makes up 3% of Occupied and Unoccupied Habitat on BLM surface. The Cerro Summit-Cimarron-Sims Mesa, San Miguel, and Piñon Mesa population areas have the highest levels of cheatgrass, although all population areas with the exception of Poncha Pass have over 500 acres of the cheatgrass vegetation type. The Southern Rocky Mountain Montane-Subalpine Grassland is the other most common subcategory. It is dominated by a variety of associations containing upland montane perennial grass species, and is most widespread in the Gunnison Basin population.

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Table 3.39 - Vegetation Types on BLM Lands in Occupied and Unoccupied Habitat

GUSG POPULATION	SAGEBRUSH		MONTANE SHRUBLAND		PINYON-JUNIPER		GRASS-FORB		FORESTED	
	ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%
OCCUPIED HABITAT										
Rangewide Occupied Habitat	134,431	34%	169,778	43%	23,294	6%	23,599	6%	32,160	8%
Cerro Summit-Cimarron-Sims Mesa	2,066	47%	361	8%	912	21%	572	13%	39	1%
Crawford	8,096	37%	5,516	25%	6,071	27%	1,649	7%	390	2%
Gunnison Basin	94,123	31%	155,222	51%	3,050	1%	12,723	4%	28,942	10%
Monticello-Dove Creek	4,213	50%	808	10%	2,255	27%	529	6%	135	2%
Piñon Mesa	4,241	33%	4,247	33%	2,630	21%	966	8%	441	3%
Poncha Pass	3,087	31%	3,463	35%	176	2%	63	1%	1,976	20%
San Miguel Basin	18,604	52%	161	0%	8,200	23%	7,096	20%	237	1%
UNOCCUPIED HABITAT										
Rangewide Unoccupied Habitat	44,509	20%	18,437	8%	88,182	39%	9,778	4%	37,230	16%
Cerro Summit-Cimarron-Sims Mesa	1,765	35%	343	7%	2,376	47%	73	1%	49	1%
Crawford	2,145	21%	1,692	16%	3,778	37%	592	6%	404	4%
Gunnison Basin	7,587	12%	10,725	17%	4,208	7%	1,190	2%	32,608	51%
Monticello-Dove Creek	6,943	19%	896	2%	22,458	63%	3,372	9%	867	2%
Piñon Mesa	20,493	21%	3,560	4%	55,190	56%	4,429	5%	3,106	3%
Poncha Pass	5,577	37%	1,221	8%	171	1%	122	1%	195	1%
San Miguel Basin	NA		NA		NA		NA		NA	

Other vegetation types occupy a minor fraction of the area and are not included in this table. Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat.

Table 3.40 - Vegetation Types on BLM Lands within Non-Habitat Areas

GUSG POPULATION	SAGEBRUSH		MONTANE SHRUBLAND		PINYON-JUNIPER		GRASS-FORB		FORESTED	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Rangewide Habitat	14,264	12%	7,267	6%	59,652	50%	3,721	9%	19,105	16%
Cerro Summit-Cimarron-Sims Mesa	2,071	18%	502	4%	6,006	53%	325	3%	848	7%
Crawford	78	5%	26	2%	1,105	75%	0	0%	198	13%
Gunnison Basin	872	7%	2,081	17%	194	2%	769	6%	6,175	51%
Monticello-Dove Creek	2,629	10%	1,151	5%	15,877	63%	140	1%	2,548	10%
Piñon Mesa	3,948	15%	2,356	9%	14,627	55%	367	1%	1,062	4%
Poncha Pass	50	7%	181	24%	3	0%	12	2%	323	42%
San Miguel Basin	4,616	11%	970	2%	21,840	54%	2,108	5%	7,952	20%

Other vegetation types occupy a minor fraction of the area and are not included in this table. Percentages are calculated against the total BLM surface in the Non-Habitat areas outside of Occupied and Unoccupied Habitat.

Conditions can vary within a given vegetation community. BLM uses the Land Health Ecological Fundamental (BLM 2008, 2011b) to address plant community ecological intactness, functionality, and degradation. Indicators, including plant species diversity, presence of noxious plants, and spatial distribution of native species, are used to assess plant community intactness and functionality. Lands that do not achieve this fundamental are determined to have lost a substantial amount of their capacity to support ecological processes and are unlikely to recover naturally from disturbance (Pellant 2005).

Table 3.41 and Table 3.42 show the current determinations for the Land Health Ecological Fundamental across BLM surface in Occupied and Unoccupied Habitat. While this information reflects some inconsistencies in how data was collected, extrapolated, and interpreted and tends to be more representative of the accessible grazable lands, it does provide an indication of how the BLM management units within the planning area view their vegetation status.

Of the BLM surface lands in Occupied and Unoccupied Habitat, slightly more acreage has been identified as not meeting the Ecological Fundamental. The majority of vegetation in Occupied Habitat is rated as not achieving this fundamental. The largest acreages of degraded vegetation are in the Gunnison and San Miguel population areas, while the majority of vegetation in the other populations is rated as achieving the fundamental, within both Occupied Habitat and Unoccupied Habitat. These figures are influenced by variations in data collection and interpretation.

Within BLM surface in Occupied and Unoccupied Habitat, each management unit has been responsible for assessing land health for the lands it manages, and has been allowed flexibility in the data collection and interpretation methodologies. Some management units have extrapolated data from accessible grazed areas to entire allotments, while others have broken out the inaccessible areas. In addition, some determinations were based on comparison of indicators to what would be found in potential natural communities rather than what would be required for basic ecological health (Clements 2015, Austin 2015, West 2015). Given the variability in data collection and interpretation, much of the vegetation across BLM surface in Occupied and Unoccupied Habitat is not in a pristine state, but is probably sustaining basic ecologic functionality. While data is less complete for BLM lands within Non-Habitat Areas, a greater proportion of lands are achieving the Ecological Fundamental than occurs in Occupied Habitat (as shown in Table 3.41).

Table 3.41 - Vegetation Conditions on BLM Lands in Occupied and Unoccupied Habitat

GUSG POPULATION	ACHIEVING ECOLOGICAL FUNDAMENTAL		NOT ACHIEVING ECOLOGICAL FUNDAMENTAL	
	Acreage	Percentage	Acreage	Percentage
OCCUPIED HABITAT				
Rangewide Occupied Habitat	73,626	19%	240,654	61%
Cerro Summit-Cimarron-Sims Mesa	3,048	70%	0	0%
Crawford	18,353	83%	2,293	10%
Gunnison Basin	26,700	9%	203,400	67%
Monticello-Dove Creek	3,007	35%	0	0%
Piñon Mesa	11,922	94%	311	2%
Poncha Pass	9,806	99%	0	0%
San Miguel Basin	790	2%	34,649	97%
UNOCCUPIED HABITAT				
Rangewide Unoccupied Habitat	158,001	69%	17,990	8%
Cerro Summit-Cimarron-Sims Mesa	2,881	57%	1,837	37%
Crawford	7,287	71%	1,786	17%
Gunnison Basin	34,743	54%	8,637	14%
Monticello-Dove Creek	12,503	35%	2,841	8%
Piñon Mesa	85,768	88%	2,889	3%
Poncha Pass	14,821	100%	0	0%
San Miguel Basin	NA	NA	NA	NA

Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat. BLM lands that have not yet been evaluated for this fundamental are not reported in this table, but account for the remaining percentages.

Table 3.42 - Vegetation Conditions on BLM Lands within Non-Habitat Areas

GUSG POPULATION	LANDS ACHIEVING ECOLOGICAL FUNDAMENTAL		LANDS NOT ACHIEVING ECOLOGICAL FUNDAMENTAL	
	Acres	Percentage	Acres	Percentage
Rangewide	46,574	39%	23,171	20%
Cerro Summit-Cimarron-Sims Mesa	8,558	75%	1,307	11%
Crawford	1,352	91%	0	0%
Gunnison Basin	1,141	10%	7,935	66%
Monticello-Dove Creek	2,492	10%	0	0%
Piñon Mesa	12,716	48%	0	0%
Poncha Pass	762	100%	0	0%
San Miguel Basin	19,553	48%	13,929	34%

Percentages are calculated against the total BLM surface in Non-Habitat Areas outside of Occupied and Unoccupied Habitat. BLM lands that have not been evaluated for this fundamental are not reported in this table, but account for the remaining percentages.

Vegetation management includes collection and harvest of vegetation products. Within the pinyon-juniper woodland, products have included fuelwood, fence posts, Christmas trees, pine boughs and cones, wildlings and pinyon nuts. These have historically been harvested at low levels over the decades, with supply far exceeding demand, and little impact on woodland structure or age class. Collection of plants and seed for landscaping or restoration purposes has been a very small component of the vegetation product harvest. The BLM has only recently provided national direction for collection of wildland seed resources, indicating the low levels of this type activity across the BLM lands (BLM 2013e).

Commercial sales of firewood and timber are infrequent within BLM surface in Occupied and Unoccupied Habitat, and typically do not occur in GUSG habitat as they require forested or heavily wooded areas (BLM 1991b). Non-commercial woodland harvests on BLM-administered lands primarily consist of Christmas trees, fuelwood, and posts (BLM 1989, 2005e, 2009b, 2011g). Harvest is at low levels across the management units, and annual sales within a given management unit typically do not exceed more than 500 cords of firewood, 2,000 Christmas trees, and far fewer posts (BLM 1989, 2009b, 2010a).

The collection of other plant materials (including transplants, pinyon nuts, and native plant seed) is allowed in some management units. Demand for collection of such resources is at a much lower level than for fuelwood or Christmas trees (BLM 2006, 2010a, 2013c). The Dominguez-Escalante NCA and Canyons of the Ancients NM RMPs allow for collection permits only when the collection would benefit other vegetation or habitat goals (BLM 2005a, 2011g). Limitations on plant material collections are not identified in any of the other BLM RMPs in the planning area.

TRENDS

For those areas across the GUSG range where information is available, the extent of most native vegetation types has been reduced across the landscape (Bryce 2012). Throughout the Colorado Plateau Ecoregion, an estimated 16-30% of the total area identified as suitable for sagebrush has been converted to agriculture, urban areas, roads, invasive species, and tree encroachment (Bryce 2012, Oyler-McCance 2001). Similar losses have taken place across 28% of montane shrubland, and 16-40% of pinyon-juniper woodland and shrublands (Bryce 2012).

Within the sagebrush types, invasive species followed by pinyon and juniper invasion converted slightly more acreage than did urban and road development and agriculture. Tree invasion was the primary cause of conversion within montane shrubland. Within pinyon-juniper woodland, conversion to uncharacteristic native vegetation (increased stand densities) was identified as resulting from fire exclusion. However, this might not apply broadly to Occupied and Unoccupied Habitat areas, since evidence for frequent low-severity fire in pinyon-juniper vegetation is lacking for southwest Colorado. The rates of pinyon-juniper invasion into shrub communities averaged less than 0.2% per year, providing one estimate of the rate of succession in these communities.

On BLM land within Occupied and Unoccupied Habitat loss of native vegetation including sagebrush is attributed to a variety of factors such as drought, fire, increased recreation and surface- disturbing activities, and pinyon-juniper encroachment. Meanwhile, associated increases in developed or barren areas, and annual-dominated herbaceous communities are occurring (Bryce 2012, BLM 2005e, 2006, 2010a). The Colorado Plateau Rapid Ecoregional Assessment reports more recent trends over the past 20 years. These indicate continued likely losses with fire, mechanical vegetation treatment or other types of disturbances affecting 5–6% of sagebrush types, 5% of montane shrubland, and 2–4% of pinyon-juniper vegetation, recognizing that a portion of the treatments may actually improve or restore natural conditions within these vegetation types (Bryce 2012).

Trends in land health status and condition of sagebrush communities are varied, with a mix of upward, stable and downward trends (BLM 2009b, 2010a). Planning documents reported a predominantly downward trend for perennial cool season grass and increasing weeds in Canyons of the Ancients National Monument declining sagebrush stands in Monticello FO, and increasing noxious and invasive weeds in Grand Junction and Uncompahgre FOs (BLM 2005a, 2005e, 2009b, 2010a).

Demand for fuelwood, posts, and Christmas trees has remained stable in some areas and increased in others (BLM 2005a, 2006, 2010a, 2013c). Demand for collection of other materials such as transplants and native seed has increased in some

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management units as interest in xeriscaping grows, along with an increased need for native seed to restore degraded habitat following wildfires (BLM 2006, 2010a).

3.5. RIPARIAN AREAS & WETLANDS

INDICATORS

Riparian and wetland status throughout BLM surface in Occupied and Unoccupied Habitat is indicated by:

- Mileage of riparian areas on BLM surface
- Acreage of wetlands on BLM surface
- Mileage of streams and riparian habitat on BLM surface in riparian Proper Functioning Condition, Functioning at Risk, and Not Functional categories

EXISTING CONDITIONS

3.5.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

Analysis Area

Past and current land uses have altered the nature of streams and wetlands on BLM surface in Occupied and Unoccupied Habitat. The semiarid conditions within the region naturally lead to highly variable stream flow, affecting the duration or extent of water in many streams (Hughes 2011). Human land uses and impacts including development or dewatering of streams and alteration of watersheds through land use changes, development and road construction have compounded this natural variability such that the majority of streams in the Western US once mapped as permanent now are considered temporary, or have experienced reduced base and flood flows relative to historic levels (Stoddard 2005, Carlisle 2011). Because BLM surface in Occupied and Unoccupied Habitat has been subject to these same types of uses, a similar situation is likely to have occurred.

Activities with the potential to degrade riparian areas, such as altered flow regimes and areas of heavy grazing, have been present throughout the analysis area since the time of European settlement (Belsky 1999, Bryce 2012). While dewatering and degradation has occurred in many areas, humans have created new wetlands and riparian areas where they did not previously exist. This has taken place through irrigation of croplands and hayfields, irrigation return flow, construction of canals and development of livestock ponds. More recently, wet areas have been created by the installation of small rock structures along 10 miles of drainages in the Gunnison population area by the Gunnison Climate Working Group (The Nature Conservancy 2015).

Wet meadow communities are considered an important component of GUSG summer and fall habitats (Gunnison Sage-grouse Rangewide Steering Committee 2005). In GUSG habitat, wet meadows are primarily associated with riparian areas, irrigated hayfields, and the occasional isolated lentic wetland. These wet areas typically have the potential to support a variety of wetland obligate and facultative woody and herbaceous species including cottonwood, alder, willow, and sedge-rush communities (Carsey 2003). They are also considered to be vulnerable to climate change (The Nature Conservancy 2011).

The data in Table 3.43 and Table 3.44 shows the extent and distribution of riparian and wetland habitat on BLM surface throughout Occupied and Unoccupied Habitat. Nearly all of the wetland acreage is found along streams or in drainages and swales. Riverine riparian vegetation, freshwater emergent wetland composed of herbaceous marsh, fen, swale and wet meadows, and freshwater forested/shrub wetlands each comprise nearly one third of the wetland types, and the remainder is categorized as freshwater pond. These wetlands are distributed along nearly 400 miles of perennial or intermittent stream. While streams and wetlands occur in both Occupied Habitat and Unoccupied Habitat for all the populations, they make up a very small proportion of habitat occupying around 0.4% of the land area overall. The Gunnison Basin and Cerro Summit-Cimarron-Sims Mesa population areas have the highest amount of wetland in Occupied habitat, while the lowest amounts occur in Crawford, Monticello-Dove Creek and Piñon Mesa population areas at around 0.2% of the landscape. Wetlands make up around 0.4% of BLM lands within Non-Habitat Areas, and are primarily distributed along 130 miles of streams.

Although some limitations and inaccuracies may exist, these national-level datasets are adequate to provide a large-scale picture of stream and wetland presence on BLM surface in Occupied and Unoccupied Habitat. Data inaccuracies could include miscategorization of some ephemeral channels as intermittent streams (that would increase estimates of riparian habitat), gaps along mapped stream courses (that would shorten stream distance estimates), and inclusion of artificial stock ponds as wetlands (that would inflate lentic wetland acreage estimates).

Table 3.43 - Riparian and Wetland Areas on BLM Lands in Occupied and Unoccupied Habitat

GUSG POPULATION	OCCUPIED HABITAT			UNOCCUPIED HABITAT		
	Riparian Miles	Wetland Acres	%	Riparian Miles	Wetland Acres	%
Rangewide	204	1,595	0.4%	169	894	0.4%
Cerro Summit-Cimarron-Sims Mesa	4	19	0.4%	3	16	0.3%
Crawford	3	37	0.2%	3	70	0.7%
Gunnison Basin	143	1,347	0.4%	51	490	0.8%
Monticello-Dove Creek	9	11	0.1%	7	32	0.1%

GUSG POPULATION	OCCUPIED HABITAT			UNOCCUPIED HABITAT		
	Riparian Miles	Wetland Acres	%	Riparian Miles	Wetland Acres	%
Piñon Mesa	8	26	0.2%	96	259	0.3%
Poncha Pass	19	33	0.3%	8	28	0.2%
San Miguel Basin	19	122	0.3%	NA	NA	NA

Wetland data is derived from the National Wetlands Inventory for Riverine, Freshwater Emergent, Freshwater Forested/Shrub Wetlands and Freshwater Pond categories. Stream data is based on the National Hydrologic Dataset showing only named streams or those categorized as general or perennial streams. Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat.

Table 3.44 - Riparian and Wetland Areas on BLM Lands within Non-Habitat Areas

GUSG POPULATION	NON-HABITAT AREAS		
	Riparian Miles	Wetland Acres	%
Rangewide	130	523	0.4%
Cerro Summit-Cimarron-Sims Mesa	9	43	0.4%
Crawford	0	2	0.1%
Gunnison Basin	8	51	0.4%
Monticello-Dove Creek	30	155	0.6%
Piñon Mesa	35	32	0.1%
Poncha Pass	0	0	0%
San Miguel Basin	49	239	0.6%

Wetland data is derived from the National Wetlands Inventory for Riverine, Freshwater Emergent, Freshwater Forested/Shrub Wetlands and Freshwater Pond categories. Stream data is based on the National Hydrologic Dataset showing only named streams or those categorized as general or perennial streams. Percentages are calculated against the total BLM surface in Non-Habitat Areas outside of Occupied and Unoccupied Habitat.

While GUSG habitat quality guidelines for riparian-wetland areas have not been described in the RCP, the plan does state that current BLM guidelines for managing streams are consistent with GUSG needs and that BLM managers should strive to meet the full potential of any given site. Currently, the BLM manages streams and wetlands for Proper Functioning Condition (PFC), which encompasses the riparian-wetland indicators described under the Standards for Public Land Health (BLM 2008, 2011b).

The PFC classification procedure describes Proper Functioning Condition as a riparian area that possesses adequate vegetation and stream channel characteristics to protect against erosion during floods, and to maintain other important riparian and hydrologic processes. When these processes are in place but vegetation or streambank and channel characteristics are no longer adequate to ensure their

protection, the riparian area becomes vulnerable and is considered to be Functional at Risk. Once a streambank has become degraded and the processes are compromised, the riparian area is classified as Non-functional. While the PFC data is incomplete or missing for some management units within BLM surface in Occupied and Unoccupied Habitat and incorporates some ephemeral reaches in others--incorrectly increasing mileage of nonfunctional streams--it still provides a general picture of regional riparian and wetland condition.

The current riparian PFC dataset is mostly complete across BLM surface in Occupied and Unoccupied Habitat (as shown in Table 3.45 and Table 3.46). The data indicates that portions of riparian areas within Occupied Habitat have either become Nonfunctional (NF, 20%) or are Functioning At Risk (FAR, 38%), with the remaining 42% in Proper Functioning Condition (PFC). There are fewer stream miles in Unoccupied Habitat, and the streams are in better condition, with 63% classified as PFC, 27% as FAR, and 9% as NF. Reported stream condition in the different population areas varies with some areas having the majority of streams showing problems with stream processes while other population areas report few or no problems. While some of the disparities between population areas may be due to differences between different management units' interpretation of the riparian indicators, the PFC evaluations follow a standard protocol and systematically consider the same indicators. A greater percentage of stream miles on BLM land in Non-Habitat Areas are in PFC, although less data is available for streams in these areas.

Table 3.45 - Riparian Conditions on BLM Lands in Occupied and Unoccupied Habitat

GUSG POPULATION	PROPER FUNCTIONING CONDITION		FUNCTIONING AT RISK ¹		NON-FUNCTIONAL	
	Stream Miles	% in Population Area	Stream Miles	% in Population Area	Stream Miles	% in Population Area
OCCUPIED HABITAT						
Rangewide Occupied Habitat	78	42%	70	38%	37	20%
Cerro Summit-Cimarron-Sims Mesa	0	0%	0	0%	1	100%
Crawford	0	0%	0	0%	0	0%
Gunnison Basin	44	43%	34	33%	25	24%
Monticello-Dove Creek ²	5	100%	0	0%	0	0%
Piñon Mesa	0	100%	0	0%	0	0%
Poncha Pass	20	75%	6	23%	1	3%
San Miguel Basin	9	18%	30	60%	11	22%
UNOCCUPIED HABITAT						

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GUSG POPULATION	PROPER FUNCTIONING CONDITION		FUNCTIONING AT RISK ¹		NON-FUNCTIONAL	
	Stream Miles	% in Population Area	Stream Miles	% in Population Area	Stream Miles	% in Population Area
Rangewide Unoccupied Habitat	35	63%	15	27%	5	9%
Cerro Summit-Cimarron-Sims Mesa	0	0%	0	0%	2	100%
Crawford	1	34%	1	48%	0	0%
Gunnison Basin	10	84%	1	11%	1	5%
Monticello-Dove Creek ²	3	51%	1	16%	2	33%
Piñon Mesa	13	65%	7	35%	0	0%
Poncha Pass	9	57%	5	34%	1	9%
San Miguel Basin	NA	NA	NA	NA	NA	NA

Note: Percentages are calculated from total BLM stream miles in the BLM PFC data set in Occupied and Unoccupied Habitat; streams not yet evaluated for PFC are classified as “unknown.”

Mileages and percentages of streams classified as “unknown” are not included in this table.

¹Includes all streams in the Functioning at Risk category irrespective of trend.

²Data not available for the Utah portion of the Monticello Population area.

Table 3.46 - Riparian Conditions on BLM Lands within Non-Habitat Areas

GUSG POPULATION	PROPER FUNCTIONING CONDITION		FUNCTIONING AT RISK ¹		NON-FUNCTIONAL	
	Stream Miles	% in Population Area	Stream Miles	% in Population Area	Stream Miles	% in Population Area
Rangewide	58	77%	15	19%	2	3%
Cerro Summit-Cimarron-Sims Mesa	4	54%	1	12%	2	31%
Crawford	0	0%	0	0%	0	0%
Gunnison Basin	0	0%	0	0%	0	0%
Monticello-Dove Creek ²	11	100%	0	0%	0	0%
Piñon Mesa	17	87%	2	13%	0	0%
Poncha Pass	1	68%	<1	24%	<1	8%
San Miguel Basin	26	70%	11	30%	0	0%

Note: Percentages are calculated from total BLM stream miles in the BLM PFC data set in Non-Habitat Areas; streams not yet evaluated for PFC are classified as “unknown.”

Mileages and percentages of streams classified as “unknown” are not included in this table.

¹Includes all streams in the Functioning at Risk category irrespective of trend.

²Data not available for the Utah portion of the Monticello population area.

TRENDS

BLM field offices across Occupied and Unoccupied Habitat have described different trends for riparian-wetland areas over the past twenty years (BLM 2005a, 2005e, 2009b, 2010a, 2013c). Some areas note increasing levels of weeds—most commonly tamarisk, Russian olive, and Russian knapweed—lowering water tables, and reduced riparian plant vigor associated with drought. Several other offices report general improvements in riparian vegetation and wetland species.

3.6. NOXIOUS WEEDS & INVASIVE SPECIES

INDICATORS

The status of weeds and the level of weed management across BLM surface in Occupied and Unoccupied Habitat is described as follows:

- Vegetation treatment acreage as an indicator of large scale surface disturbance and seeding, since these are often tied with weed introduction and spread
- Risk of invasive species introduction and spread due to presence or absence of surface disturbance restrictions
- Risk of invasive species introduction and spread due to presence or absence of permitted livestock grazing.

EXISTING CONDITIONS

3.6.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

State-designated noxious weeds and other invasive plant species have affected plant communities across the region. According to the Colorado Weed Management Association website (2012), these weeds have been deliberately or unintentionally transported from other continents and spread by animals, humans, water, wind, and soil disturbance. Without the diseases and insects that would normally control them, these non-native plants have been able to thrive in this region. Within the Colorado Plateau—the underlying ecoregion for about half of Occupied and Unoccupied Habitat—about 7% of the total area is estimated to have been significantly altered by the presence of invasive plants (Bryce 2012). Cheatgrass and similar annual invasive grasses make up the majority of large-scale infestations across this area. These invasive grasses are of particular concern because once dominant, they increase fire frequency, which leads to the loss of native vegetation from these areas. According to the Colorado Weed Management Association (2012), other noxious weeds and invasive species pose different threats to vegetation, habitat, range condition, and other natural values and uses in the region. Both Colorado and Utah have noxious weed acts, which identify and categorize weed species, and require their eradication, containment or control. Each county, as well as every BLM management unit, also has a weed management program to implement weed regulations.

A number of invasive species, including Colorado and Utah state-listed noxious weeds, occur across BLM surface in Occupied and Unoccupied Habitat. Invasive species—which are often tied to disturbance, but have the ability to infest and dominate undisturbed native vegetation—are considered to be such a great threat on the Colorado Plateau that they have been identified as a “change agent” along with human development and wildfire (Bryce 2012). As these species expand in distribution and dominance on the landscape, native species and communities become increasingly marginalized, which over time can largely degrade the function of these ecosystems.

Noxious weeds that have been documented in upland areas within BLM surface in Occupied and Unoccupied Habitat include musk thistle, Russian knapweed, spotted knapweed, redstem filaree, cheatgrass, chicory, common mullein, field bindweed, common burdock, jointed goatgrass, hoary cress and halogeton. Weeds associated with riparian areas in BLM surface in Occupied and Unoccupied Habitat include saltcedar, Russian olive, Canada thistle, common burdock and quackgrass (BLM 2005a, 2006, 2009b, 2011g). Management units usually have weed control programs and staff. Because the scope of existing infestations is so great, most units have a strategy that prioritizes how their limited resources will be used. Most units follow a strategy that focuses on early detection and control of new weed invasions, especially for the highest priority state-listed noxious weeds.

While wildlife, wind, and water and many land uses and human activities spread weed seed, this discussion will center on those activities most likely to be affected by the different plan alternatives, and for which there are complete spatial data sets. Table 3.47 and

Table 3.48 cover activities for which there are relatively complete data sets that relate to past and present risk of weed introduction and spread. These are widespread and large-scale conditions and land uses that reflect an increased level of risk. They include past vegetation treatments, areas unprotected by RMP-level surface disturbance constraints, and active grazing allotments.

Ten percent of GUSG habitat has received some type of vegetation treatment. The percentage ranges from higher than 30% for some population areas to less than 1% in others. It is important to recognize that treatment type and location influence the risk and degree of weed introduction and spread (Chambers 2007, Dodson 2006). However, it is reasonable to assume that the treated acres are more likely to contain invasive species at higher levels than the untreated acreage due to soil disturbance, reduced competition from native species, increased resource availability, and introduction of weed seed from equipment and as contaminants in seed mixes (Harrod 2001, Hobbs 1992). Only 2% of BLM lands within Non-Habitat Areas have received any vegetation treatment.

Soil and vegetation disturbance are a common source of weed introduction and spread (Harrod 2001). Many activities that occur on BLM lands incidentally disturb soils and potentially introduce weeds, such as a car parking next to the road, or a horse travelling across open country. The BLM has varying levels of control over sources such as these, but typically more control over larger disturbances that have greater potential for weed introduction and spread. Planning-level decisions that limit surface disturbance include Wilderness and Wilderness Study Area designations, ROW exclusions, mining withdrawals, and NSO stipulations. These reduce the risk of weed introduction and spread as compared to areas that do not have one of these designations.

Currently, 36% of Occupied Habitat and 43% of Unoccupied Habitat are not protected by RMP-level surface disturbance restrictions (as shown in Table 3.47). Occupied Habitat in the Piñon Mesa and San Miguel population areas has nearly complete protection. On the other hand, the Cerro Summit-Cimarron-Sims Mesa and Poncha Pass population areas only have a fraction of land under these protections, increasing vulnerability to weed introduction and spread.

Livestock grazing is another source of weed introduction, movement, and spread, as weed seeds can pass through the digestive tracts and adhere to the coats of livestock (Harrod 2001). Wildlife dispersed throughout Occupied and Unoccupied Habitat also contribute to the spread of weeds, with the BLM having little control over their movements and activity.

The acreage of BLM land within active grazing allotments is a general measure of the presence of livestock across the landscape, although some portions of an allotment might receive little if any livestock use due to topography or other factors. Over

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90% of BLM surface in Occupied and Unoccupied Habitat currently is situated within active grazing allotments, and this percentage was likely higher in the past. These numbers indicate that livestock grazing and management has been and continues to be a source of weed seed introduction and spread in most regions of BLM surface within Occupied and Unoccupied Habitat. Over 50% of the BLM land in Non-Habitat Areas currently falls within active livestock grazing allotments.

Table 3.47 - Noxious and Invasive Species Indicators on BLM Lands within GUSG Habitat

GUSG POPULATION	VEGETATION TREATMENTS		AREAS OPEN TO SURFACE-DISTURBING ACTIVITIES		ACTIVE LIVESTOCK GRAZING ALLOTMENTS	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Rangewide Occupied Habitat	30,471	8%	142,074	36%	367,948	93%
Rangewide Unoccupied Habitat	32,898	14%	98,394	43%	209,250	92%
Cerro Summit-Cimarron-Sims Mesa Occupied Habitat	847	19%	4,057	93%	3,759	86%
Cerro Summit-Cimarron-Sims Mesa Unoccupied Habitat	185	4%	4,068	81%	4,674	93%
Crawford Occupied Habitat	6,913	31%	4,616	21%	22,150	100%
Crawford Unoccupied Habitat	416	4%	7,053	68%	9,622	93%
Gunnison Basin Occupied Habitat	7,851	3%	119,255	39%	279,731	93%
Gunnison Basin Unoccupied Habitat	4,348	7%	40,978	64%	59,890	94%
Monticello-Dove Creek Occupied Habitat	488	6%	3,683	43%	4,949	58%
Monticello-Dove Creek Unoccupied Habitat	9,875	28%	27,062	75%	27,864	78%
Piñon Mesa Occupied Habitat	3,885	31%	111	1%	12,301	97%
Piñon Mesa Unoccupied Habitat	18,062	18%	5,371	5%	92,784	95%
Poncha Pass Occupied Habitat	16	0%	9,519	97%	9,683	98%
Poncha Pass Unoccupied Habitat	13	0%	13,860	93%	14,416	97%
San Miguel Basin Occupied Habitat	10,471	29%	832	2%	35,375	99%
San Miguel Basin Unoccupied Habitat	NA	NA	NA	NA	NA	NA

Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat.

Table 3.48 - Noxious and Invasive Species Indicators on BLM Lands within Non-Habitat Areas

GUSG POPULATION	VEGETATION TREATMENTS		AREAS OPEN TO SURFACE-DISTURBING ACTIVITIES		ACTIVE LIVESTOCK GRAZING ALLOTMENTS	
	Acres	% of Area	Acres	% of Area	Acres	% of Area
Rangewide	2,580	2%	71,955	61%	66,797	56%
Cerro Summit-Cimarron-Sims Mesa	92	1%	11,406	100%	7,201	63%
Crawford	3	0%	2	0%	1,481	100%
Gunnison Basin	74	0%	8,763	73%	7,514	63%
Monticello-Dove Creek	1,115	4%	18,183	72%	12,186	48%
Piñon Mesa	563	2%	6,236	23%	20,285	76%
Poncha Pass	0	0%	763	100%	556	73%
San Miguel Basin	734	2%	26,603	65%	17,573	43%

Percentages are calculated against the total BLM surface in Non-Habitat areas outside Occupied and Unoccupied Habitat.

TRENDS

Invasive species appear to be increasing across much of the BLM surface in Occupied and Unoccupied Habitat. Several BLM management units cite data or provide anecdotal evidence describing an increase in invasive, non-native species such as knapweed, cheatgrass, and annual invasive forbs in upland areas, although some areas are still free of invasive species (BLM 2005a, 2006, 2010a). Some field offices attribute this increase to introduction and spread by livestock, fuels treatments, development, and roads. Aggressive weed control has been effective at reducing or eliminating Russian knapweed and hoary cress in some areas (BLM 2011g).

Across the broader Colorado Plateau Ecoregion, invasive plants have altered an estimated 3%–10% of sagebrush, 1% of montane shrubland, and 4%–22% of pinyon-juniper vegetation types (Bryce 2012). Similar trends are expected to continue within these vegetation types in Occupied and Unoccupied Habitat.

3.7. WILDLAND FIRE ECOLOGY & MANAGEMENT

INDICATORS

Wildland fire ecology and management across BLM surface in Occupied and Unoccupied Habitat is expressed in terms of:

- Amount of land burned by wildfires (acres burned)
- Frequency of wildfire occurrence
- Fuels condition as indicated by Vegetation Condition Class.

EXISTING CONDITIONS

3.7.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

Wildfire frequency and acreage burned vary substantially across the GUSG range. While fire data was not collected in a consistent manner until the 1980s, data since that time is sufficient to indicate patterns and provide an estimate of wildfire numbers and fire size (as shown in Table 3.49 and Table 3.50). Fire has burned in roughly 1% of Occupied Habitat and 7% of Unoccupied Habitat over the past 30 years. Fire frequency across BLM surface in Occupied and Unoccupied Habitat is low, and averages from six fires a year in Occupied Habitat to ten a year in Unoccupied Habitat.

A few wildfires in excess of 1,000 acres have occurred in the Piñon Mesa population area and these account for most of the burned acreage on BLM surface in Occupied and Unoccupied Habitat. Burned area acreage and fire frequency are similar to figures for Unoccupied Habitat on BLM lands in Non-Habitat Areas. (See Table 3.50.) Based on fire occurrence within the management units, a clear pattern of more frequent fire is evident in the western portion of Occupied and Unoccupied Habitat (BLM 1989, 2005e). Lightning is the primary cause of most fires, although human caused fires make up as much as 40% of all fires in some management units (BLM 1989, 1991b, 2003, 2009b, 2011g).

According to BLM management documents, fire is considered important in shaping the natural vegetation in the westernmost management units in Occupied and Unoccupied Habitat including Monticello FO and Canyons of the Ancients National Monument (BLM 2005a, 2005e). Fire is not considered as important for maintaining natural vegetation composition and successional class proportions in eastern

management units such as the San Luis Valley FO, in part due to low incidence of natural ignitions (BLM 1989).

Alternatively, a slightly different picture is presented by remote sensing data, which has been classified into Vegetation Condition Classes (VCC) across BLM surface in Occupied and Unoccupied Habitat (Jones 2013, LANDFIRE 2010). VCC indicates the amount that current vegetation has departed from the simulated historical vegetation reference conditions. VCC is calculated based on changes to species composition, structural stage, and canopy closure. Three condition classes describe low departure (VCC 1), moderate departure (VCC 2), and high departure (VCC 3). This information is interpreted here as an indicator of potential areas where vegetation communities have not burned at their natural rates or severities. However, it only represents an approximate picture of fuel conditions and imbalances.

Currently, 52% of Occupied Habitat is categorized in VCC 2, where vegetation has been moderately altered from historic conditions, and 32% in VCC 3, with significant alteration from the historical range (as shown in Table 3.49 and Table 3.50). VCC 2 also dominates Unoccupied Habitat and BLM lands in Non-Habitat Areas. This data suggests that vegetation and fuels have been altered from historic conditions across most of the landscape, and this situation is mirrored throughout the different population areas as well. If the assumptions behind LANDFIRE and VCC are correct, the data implies that most of the vegetation and therefore the fuels condition on BLM surface in Occupied and Unoccupied Habitat is being affected by altered natural disturbance regimes, which may affect future fire behavior.

Existing RMPs state that management units focus on suppression of wildfires with emphasis on protecting human safety and property first, and resource values as a secondary goal. Cost is also an important factor in fire suppression. Additional fire program components include prescribed fire, fuel reduction, and managed fire for habitat or ecological benefit. Fire management is guided by RMPs and activity-level Fire Management Plans. These plans may include desired future condition objectives for both fuels and fire. Fuels management is a priority in areas of wildland-urban interface (BLM 2010a, 2011g, 2013c). Several existing fire management plans already contain measures to protect or enhance GUSG habitat.

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Table 3.49 - Wildland Fire Management Indicators on BLM Lands in GUSG Habitat

GUSG POPULATION AREA	AVERAGE FIRE FREQUENCY PER YEAR	LAND BURNED BY WILDFIRES	VCC CLASS 1 OR NOT APPLICABLE	VCC CLASS 2	VCC CLASS 3
	NUMBER	ACRES (%)	ACRES (%)	ACRES (%)	ACRES (%)
OCCUPIED HABITAT					
Rangewide Occupied Habitat	6	5,093 (1%)	63,588 (16%)	205,025 (52%)	126,849 (32%)
Cerro Summit-Cimarron-Sims Mesa	<1	0 (0%)	351 (8%)	3,634 (83%)	394 (9%)
Crawford	<1	71 (0%)	5,035 (23%)	16,927 (76%)	188 (1%)
Gunnison Basin	3	983 (0%)	53,476 (18%)	133,450 (44%)	115,098 (38%)
Monticello-Dove Creek	<1	0 (0%)	631 (7%)	3,963 (47%)	3,890 (46%)
Piñon Mesa	<1	3,648 (29%)	1,245 (10%)	8,996 (71%)	2,445 (19%)
Poncha Pass	<1	0 (0%)	795 (8%)	6,165 (63%)	2,900 (29%)
San Miguel Basin	<1	390 (1%)	2,055 (6%)	31,899 (89%)	1,934 (5%)
UNOCCUPIED HABITAT					
Rangewide Unoccupied Habitat	10	15,552 (7%)	67,431 (30%)	135,916 (60%)	24,535 (11%)
Cerro Summit-Cimarron-Sims Mesa	<1	7 (0%)	559 (11%)	4,158 (83%)	293 (6%)
Crawford	<1	<1 (0%)	3,542 (34%)	4,775 (46%)	2,007 (19%)
Gunnison Basin	1	4 (0%)	11,342 (18%)	50,711 (79%)	1,919 (3%)
Monticello-Dove Creek	1	495 (1%)	11,013 (31%)	17,477 (49%)	7,443 (21%)
Piñon Mesa	7	15,045 (15%)	40,844 (42%)	46,533 (48%)	10,419 (11%)
Poncha Pass	<1	0 (0%)	131 (1%)	12,293 (83%)	2,453 (16%)
San Miguel Basin	NA	NA	NA	NA	NA

Percentages are calculated against the total BLM surface in Occupied and Unoccupied Habitat.

Table 3.50 - Wildland Fire Management Indicators on BLM Lands within Non-Habitat Areas

GUSG POPULATION AREA	FIRE FREQUENCY PER YEAR	LAND BURNED BY WILDFIRES	VCC CLASS 1 OR NOT APPLICABLE	VCC CLASS 2	VCC CLASS 3
	AVERAGE	ACRES (%)	ACRES (%)	ACRES (%)	ACRES (%)
Rangewide Occupied Habitat	8	10,715 (9%)	46,246 (39%)	64,127 (54%)	8,021 (7%)
Cerro Summit-Cimarron-Sims Mesa	1	0 (0%)	1,075 (9%)	9,140 (80%)	1,210 (11%)
Crawford	<1	0 (0%)	1,088 (73%)	206 (14%)	188 (13%)
Gunnison Basin	<1	164 (1%)	3,308 (28%)	8,179 (68%)	520 (4%)
Monticello-Dove Creek	2	0 (0%)	8,566 (34%)	13,773 (54%)	3,061 (12%)
Piñon Mesa	2	6,454 (24%)	14,296 (54%)	11,031 (41%)	1,302 (5%)
Poncha Pass	0	0 (0%)	63 (8%)	488 (64%)	212 (28%)
San Miguel Basin	2	4,097 (10%)	17,850 (44%)	21,310 (52%)	1,529 (4%)

TRENDS

On BLM surface within Occupied Habitat and Unoccupied Habitat, drought and insect-killed trees have altered fuels and fuel loading, and increased the likelihood of fire over the short term but reduced it over the longer term (BLM 2005a, 2006). Increasing development adjacent to BLM-administered lands has added to the wildland-urban interface and makes fire and fuels management more challenging (BLM 2010a, 2011g, 2013c). Increased fuels and increased fuel continuity have resulted from weed invasion in some portions of BLM surface in Occupied Habitat and Unoccupied Habitat. Cheatgrass is of particular concern because it can increase fire frequency and size. Fire behavior has also changed with tree invasion into sagebrush sites (BLM 2010a, 2011g, 2013c). Fire suppression has led to increases in fuels (BLM 2006, 2009b). Grazing has altered fine-fuel distribution and amounts and is thought to have affected the natural fire regime where cheatgrass is not prevalent by reducing fire frequency and size (BLM 2006).

3.8. LIVESTOCK GRAZING

INDICATORS

Current livestock grazing on BLM land throughout Occupied Habitat and Unoccupied Habitat is described in terms of:

- Active permitted forage (expressed as Animal Unit Months or AUMs)
- Acres within active livestock grazing allotments
- Acres of BLM lands achieving Land Health Ecological Fundamental, and acres not achieving this fundamental with livestock grazing a significant factor
- Acres of area where there are prohibitions on or limitations to the construction or maintenance of structural and nonstructural range improvements
- Acreage of existing grazing systems on BLM lands.

EXISTING CONDITIONS

3.8.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

Livestock grazing has been present at substantial levels across the region that includes Occupied Habitat and Unoccupied Habitat since development of the railroads in the late 1800s (Grahame 2002). It has been the primary use of much of the non-timbered land since that time, with cattle, horses and sheep being grazed. The intensity of livestock grazing has varied with very heavy, unregulated use that degraded rangelands until the 1930s (BLM 2011a).

Passage of the Taylor Grazing Act in 1934 and Federal Land Policy and Management Act (FLPMA) in 1976 resulted in gradually increased regulation of grazing and reduced grazing pressure by instituting grazing allotments and grazing permits. Over time, grazing permit terms and conditions have generally become more specific and less flexible, with a lower profit margin for permittees (BLM 2011d). This shift has resulted from an increase in conflicting land uses, mandates for environmental protection, and expectations from the public that the BLM minimize livestock impacts on public lands (BLM 2011a).

Livestock grazing is permitted on the majority of BLM lands across Occupied Habitat and Unoccupied Habitat (see tables 3.51 and 3.52). Most of the allotments are grazed by cattle, although a few are grazed by sheep or horses. There are 219

grazing allotments on BLM surface in Occupied Habitat and Unoccupied Habitat that receive regular or periodic livestock use. Over 90% of BLM surface in Occupied Habitat and Unoccupied Habitat falls within these actively grazed allotments, with little difference between Occupied Habitat and Unoccupied Habitat, but greater variability between population areas. A lesser amount—56% of BLM lands in Non-Habitat Areas—is within a grazing allotment.

The BLM manages forage in units known as animal unit months (AUM), whereby one unit is the amount of dry forage required to feed a cow and calf for one month—generally referred to as one AUM. Within most management units, the majority of permitted AUMs are in active status, with additional AUMs held in some type of suspension due to a variety of factors (as shown in Table 3.51) (BLM 2006, 2009b, 2010a, 2011g, 2013c). The active AUMs represent the current grazing levels on BLM range, although the suspended AUMs may be available for use in the future, once analysis and documentation has been made that sufficient forage has become available.

On BLM surface, over 24,000 AUMs of forage are actively permitted each year for livestock grazing in Occupied Habitat and over 12,000 AUMs in Unoccupied Habitat. This represents an average stocking rate of around 15 acres per AUM. In Occupied Habitat, the Gunnison Basin population area produces the majority—75%—the total AUMs, with the other population areas each contributing no more than 6% of the total AUMs. Within Unoccupied Habitat, the Piñon Mesa population area, which is very large at nearly 100,000 acres, produces over 6,000 AUMs, which is the most of all the population areas. Permitted carrying capacities vary across allotments and GUSG populations. The lowest permitted carrying capacity occurs in the San Miguel Basin population area, with a rate of 34 acres per AUM, while the highest is in the Poncha Pass population area, with a rate of 6 acres per AUM on Occupied Habitat.

Grazing systems and seasons of use vary across the allotments. (See Table 3.53.) (BLM 1989, 1991b, 2003, 2005a, 2005e, 2010a, 2011g, 2013c) Higher management grazing systems require more management in the form of planning and involvement by both the BLM and the livestock grazers than lower management systems. Higher management systems can also require more inputs such as fences and water developments. Lower management grazing systems include spring grazing, spring and fall grazing, and season-long grazing. Higher management systems include short duration growing season grazing, deferred grazing, and deferred/rest rotational grazing systems. In Occupied Habitat rangewide, 157 allotments are currently under a type of higher management grazing system. These allotments cover 85% of the active allotment area. The situation in Unoccupied Habitat is similar. Lower management grazing systems are most common on lands supporting the Monticello-Dove Creek and Gunnison Basin populations, but they still represent only a small percentage of the total area at 30% and 14% respectively.

Public land grazing in the Gunnison Basin has recently been addressed by the GUSG Candidate Conservation Agreement (CPW 2013). The agreement lays out a process that provides for continued grazing of public lands in a manner consistent with meeting GUSG habitat requirements. This process is based on the premise that viable ranching operations on private lands are important for GUSG survival, and that public land grazing is an integral part of these ranching operations. The process describes how changes to grazing permits will occur once systematic monitoring for GUSG habitat parameters indicates changes are needed.

A general picture of range conditions within BLM surface in Occupied and Unoccupied Habitat can be gained from looking at the lands achieving or not achieving the Land Health Ecological Fundamental. (See Table 3.41 and Table 3.42.) The Ecological Fundamental requires BLM lands to support and maintain healthy, productive plant and animal communities of native and other desirable species (BLM 2008, 2011b). Lands that do not achieve this fundamental are generally not supporting adequate or appropriate vegetation for sustaining current livestock grazing levels. (See Table 3.51 and Table 3.52) While 61% of the acreage in Occupied Habitat and 8% in Unoccupied Habitat is reported as not achieving the Ecological Fundamental, some of this acreage likely reflects inconsistencies in data interpretation , or includes nonnative seedings and other vegetation treatments which do not function similarly to native communities, but may still be in good range condition. The data does indicate how the different management units view vegetation status on lands under their management, particularly those lands that are accessible for grazing. Within Non-Habitat Areas, 20% of BLM land is reported as not achieving this fundamental.

The land health data is incomplete for some offices and significant factors behind land health conditions have not been identified for Grand Junction, Gunnison, and Moab FOs. Where data has been reported, there are some cases where poor conditions are at least partially due to livestock grazing. (See Table 3.51 and Table 3.52.) The existing land health reporting data for grazing allotments on BLM surface in Occupied and Unoccupied Habitat identifies relatively few acres of land as not achieving the Ecological Fundamental with livestock grazing as a Significant Factor. Only Occupied Habitat for the San Miguel Population has any acreage in this category, and changes to grazing management have recently been made within this population area. Just 2% of Unoccupied Habitat has so far been identified as not achieving the Ecological Fundamental with livestock grazing as a significant factor. On BLM lands in Non-Habitat Areas, 11% of the land has been identified as not achieving the Ecological Fundamental, with livestock grazing as a significant factor.

Table 3.51 - Livestock Grazing Allotments, AUMs and Concerns within BLM GUSG Habitat

GUSG POPULATION	ACTIVE LIVESTOCK GRAZING ALLOTMENTS	PERMITTED ACTIVE AUMS AND CARRYING CAPACITY	ECOLOGICAL FUNDAMENTAL RATING NOT ACHIEVING WITH LIVESTOCK GRAZING A SIGNIFICANT FACTOR
			Acres (% of Total Area)
OCCUPIED HABITAT			
Rangewide Occupied Habitat	367,948 (93%)	24,204 (15 ac/AUM)	33,345 / 8%
Cerro Summit-Cimarron-Sims Mesa	3,759 (86%)	157 (24 ac/AUM)	0 / 0%
Crawford	22,150 (100%)	1,496 (15 ac/AUM)	0 / 0%
Gunnison Basin	279,731 (93%)	18,699 (15 ac/AUM)	0 / 0%
Monticello-Dove Creek	4,949 (58%)	325 (15 ac/AUM)	0 / 0%
Piñon Mesa	12,301 (97%)	920 (13 ac/AUM)	0 / 0%
Poncha Pass	9,683 (98%)	1,555 (6 ac/AUM)	0 / 0%
San Miguel Basin	35,375 (99%)	1,053 (34 ac/AUM)	33,345 / 93%
UNOCCUPIED HABITAT			
Rangewide Unoccupied Habitat	209,250 (92%)	12,743 (16 ac/AUM)	4,257 / 2%
Cerro Summit-Cimarron-Sims Mesa	4,674 (93%)	198 (24 ac/AUM)	0 / 0%
Crawford	9,622 (93%)	509 (19 ac/AUM)	1,416 / 14%
Gunnison Basin	59,890 (94%)	2,555 (23 ac/AUM)	0 / 0%
Monticello-Dove Creek	27,864 (78%)	1,547 (18 ac/AUM)	2,841 / 8%
Piñon Mesa	92,784 (95%)	6,038 (15 ac/AUM)	0 / 0%
Poncha Pass	14,416 (97%)	1,897 (8 ac/AUM)	0 / 0%
San Miguel Basin	NA	NA	NA

Percentages are calculated against the total BLM surface in Occupied Habitat and Unoccupied Habitat.

Table 3.52 - Livestock Grazing Allotments, AUMs, and Concerns in BLM Non-Habitat Areas

GUSG POPULATION	ACTIVE LIVESTOCK GRAZING ALLOTMENTS	LAND HEALTH ECOLOGICAL FUNDAMENTAL RATING OF NOT ACHIEVING WITH LIVESTOCK GRAZING AS A SIGNIFICANT FACTOR
	Acres and % of Total Area	Acres and % of Total Area
Rangewide	66,797 / 56%	13,380 / 11%
Cerro Summit-Cimarron-Sims Mesa	7,201 / 63%	0 / 0%
Crawford	1,481 / 100%	0 / 0%
Gunnison Basin	7,514 / 63%	0 / 0%
Monticello-Dove Creek	12,186 / 48%	0 / 0%
Piñon Mesa	20,285 / 76%	0 / 0%
Poncha Pass	556 / 73%	0 / 0%
San Miguel Basin	17,573 / 43%	13,380 / 33%

Percentages are calculated against the total BLM surface within Non-Habitat areas outside of Occupied Habitat and Unoccupied Habitat.

The infrastructure needed to support grazing systems is an important component of range management. Typically, developed infrastructure and higher management systems of livestock management require more resources, maintenance, and effort from both the grazing permittees and the BLM rangeland management staff in comparison to lower management systems. However, grazing systems are often used to improve livestock distribution, avoid overgrazing, and improve rangeland health (BLM 2011a).

Presently, the majority of active allotment acreage has few if any constraints at the land use plan level on development of range management infrastructure. However, the NEPA process and activity-level plans such as the Candidate Conservation Agreement (CPW 2013) can add additional constraints to infrastructure development (as shown in Table 3.53). Development of range infrastructure is generally more feasible in the unconstrained areas. Only the Occupied Habitat portion of the Crawford Population is substantially affected by construction constraints at the land use plan level.

Table 3.53 - Livestock Grazing Management Indicators on BLM Lands in GUSG Habitat

GUSG POPULATION	ALLOTMENTS WITH MINIMAL CONSTRAINTS ON RANGE INFRASTRUCTURE ACRES/% OF ACTIVELY GRAZED AREA	LOWER MANAGEMENT ALLOTMENTS* NUMBER OF ALLOTMENTS/ % OF ACTIVELY GRAZED AREA)	DEFERRED GRAZING NUMBER OF ALLOTMENTS/ % OF ACTIVELY GRAZED AREA	ROTATION GRAZING NUMBER OF ALLOTMENTS/ % OF ACTIVELY GRAZED AREA	SHORT DURATION GROWING SEASON GRAZING NUMBER OF ALLOTMENTS/ % OF ACTIVELY GRAZED AREA
OCCUPIED HABITAT					
Rangewide Occupied Habitat	348,036	88%	58	12%	38 / 5%
Cerro Summit-Cimarron-Sims Mesa	3,579	86%	465	5%	0 / 0%
Crawford	5,338	24%	0	0%	2 / 23%
Gunnison Basin	279,731	93%	26	14 %	10 / 3%
Monticello-Dove Creek	4,949	58%	7	30%	13 / 30%
Piñon Mesa	9,201	73%	13	5%	3 / 5%
Poncha Pass	9,683	98%	1	5%	4 / 3%
San Miguel Basin	35,375	99%	6	<1%	6 / 4%
UNOCCUPIED HABITAT					
Rangewide Unoccupied Habitat	150,287	66%	80	15%	39 / 5%
Cerro Summit-Cimarron-Sims Mesa	4,674	93%	6	35%	0 / 0%
Crawford	6,544	63%	3	8%	6 / 9%
Gunnison Basin	47,443	74%	9	15%	3 / 2%
Monticello-Dove Creek	27,623	77%	23	25%	16 / 8%
Piñon Mesa	49,588	51%	39	14%	13 / 7%
Poncha Pass	14,416	97%	0	0%	1 / 0%
San Miguel Basin	NA	NA	NA		NA

*Includes allotments with season-long grazing, allotments with little BLM land used in conjunction with larger private land portions, and other undefined grazing systems.

Percentages are calculated against the total BLM surface in Occupied Habitat and Unoccupied Habitat.

TRENDS

Livestock use on BLM lands has generally been stable or declining as a result of market forces, reduced agricultural activity in the surrounding area, drought impacts, and AUM reductions or changes in grazing necessary to meet land health standards (BLM 2003, 2005a, 2013c). In some management units, demand for available permits remains strong with new applicants for every available permit (BLM 2010a). Other uses that compete with or make livestock grazing more difficult have been increasing in some parts of BLM surface in Occupied Habitat and Unoccupied Habitat (BLM 2009b, 2011g). Examples include increased trail-based recreation and elk use of forage. Range condition trends in some management units indicate that range

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conditions cannot be sustained under current total AUM allocations unless higher management grazing systems and more inputs and infrastructure are put into place (BLM 2005e, 2006, 2013c).

Within the Gunnison Basin, the Candidate Conservation Agreement has established a process to make grazing consistent with meeting GUSG RCP habitat guidelines (CPW 2013). As a result, there are likely to be more constraints placed on grazers, and more resources required to monitor grazing levels and vegetation conditions. However, the CCA should bring some predictability and assurance to the public land grazers that they can continue to graze on public lands within GUSG habitat.

3.9. RECREATION

INDICATORS

The following indicators are used to describe the existing condition related to recreation. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on recreation resources:

- Changes in the number of acres where recreationists are unable to achieve targeted beneficial outcomes (specific to SRMAs), and for BLM to achieve and maintain supporting setting characteristics (specific to SRMAs and ERMAs).
- Changes in the number of acres where unstructured recreational opportunities and experiences are reduced or eliminated.
- Changes to the number or types of Special Recreation Permits (SRPs) allowed in GUSG habitat.

EXISTING CONDITIONS

3.9.1. CONDITIONS WITHIN THE PLANNING AREA

Typical recreational activities within the planning area include hiking, camping, horseback riding, mountain biking, off-highway vehicle (OHV) use, and cross-country skiing. Migrating and resident wildlife provide plentiful opportunities for hunting, photography, and observation. Renowned local rivers, streams, and lakes offer boating and cold-water fishing opportunities.

Recreation visitors to the planning area come from national and international locations, the Denver and Salt Lake City metropolitan areas, Colorado's Front Range and Utah's Wasatch Front, and other local communities. For both Colorado and Utah visitors, the region is an easily accessible weekend getaway with a diversity of outdoor activity offerings and recreation settings. Increased visitation to small towns and destination resorts contribute to the increased use of public lands within the decision area.

3.9.2. CONDITIONS ON BLM-ADMINISTERED LANDS

RECREATION POLICY

Recreation Planning and Outcomes-Focused Management

Some form of recreation use and associated recreation resources are typically present on the lands and waters managed by Bureau of Land Management (BLM) field offices, and are consequently allocated through the land use planning process. BLM recreation management focuses on three basic components of recreation opportunities on public lands: 1) types of recreation opportunities and experiences that are provided, 2) the character of recreation setting within which they occur and retaining that character, and 3) services that can be provided by the BLM and its collaborating partners. In the last several decades, there has been a growing recognition of how much recreation contributes to the quality of life, economy, society, and environment.

Changing public values and expectations of land management agencies to meet the demand for diverse recreation uses has created the need for changes in managing Recreation and Visitor Services. These changes and resulting advances in recreation management knowledge and practices have been responsible for the evolution from activity-based management to experience-based management and, recently, benefits-based management. Each transition built on the management framework of the previous. Within the BLM, benefits-based management has further transitioned to outcomes-focused management.

Outcomes-focused management is defined as an approach to recreation management that focuses on the positive outcomes gained from engaging in recreational experiences. Positive recreation outcomes consist of experiences and benefits and are defined by the BLM as:

- Experiences - Immediate states of mind resulting from participation in recreation activities that result in benefits.
- Benefits - The results of a satisfying recreation experience that improve or maintain a desired condition. These accrue from recreation participation, are both short and long term, and are realized onsite and offsite. Benefits are identified in one of four categories and are described as: Personal/Individual Benefits, Social/Community Benefits, Economic Benefits, and Environmental Benefits. The fundamental concept of outcomes-focused management is that benefits endure beyond the onsite recreation experience attained by individuals. Those experiences and onsite benefits stay with the individual when they leave the recreation area and cumulatively lead to offsite beneficial outcomes to communities, economies, and the environment. This linkage

between experiences and outcomes can be viewed as a chain (BLM H-8320-I 2014).

Connecting with Communities Strategy

BLM public lands—once described as “the lands nobody wanted”—are now recognized as America’s Great Outdoors, a “Backyard to Backcountry” treasure. They are uniquely accessible, and their close proximity to varied stakeholders creates many opportunities for the BLM and communities to collaborate, set mutual objectives for proposed recreation opportunities, and pool resources toward shared goals and to better enable communities to achieve their own desired social, economic, and environmental outcomes.

As part of a serious effort to reposition the Recreation and Visitor Services Program to focus on producing community social and economic benefits in support of community values while optimizing benefits for the public, BLM released a national “Connecting With Communities” strategy in 2014.

RECREATION PARTICIPATION

BLM lands constitute nearly 13% of all lands in Colorado at 8,382,959 acres, and about 42% of all lands in Utah at just under 23 million acres (CO and UT SCORP's 2014/2013). In FY 13, BLM reported a total of 61 million visits, 7,218,735 in Colorado and 6,843,098 in Utah (RMIS 2015). Since a low in 2007–2008, which can be attributed to rising gas prices and a declining economy, visitation to BLM lands in both Colorado and Utah steadily recovered through 2012 to just above pre-recession numbers.

Much of the recreation participation within the decision area reflects the predominantly open and undeveloped character (also referred to as the 'dispersed' recreation setting character) of the majority of BLM lands in both states. As reflected by the 2014 Colorado Statewide Comprehensive Outdoor Recreation Plan, 26 of the top 38 outdoor recreation activities are strongly associated with public lands, such as BLM-administered lands. Motorized and non-motorized trail use, water-based activities, and winter-based activities are all well-represented within the planning area. On BLM lands within the decision area, the most popular activities based on number of participants include: OHV riding, Hiking/Walking/Running, Mountain Biking, Driving for Pleasure, Camping, Row/Float/Raft Boating, Photography, Viewing Cultural Sites, Big Game Hunting, and Picnicking (RMIS 2015).

RECREATION PRIORITIES

Recreation priorities on BLM lands will be determined within the decision area through a variety of means. State SCORPs will continue to inform BLM of citizen desires and unmet needs in both states; state-specific strategies of BLM's Connecting with Communities strategy will continue to identify BLM's recreation niche and most important recreation-tourism products, which will vary from place to place. Customer assessments for recreation management areas will provide specific focus for recreation management for those unique allocations of BLM lands. Changing recreation patterns, interests and technologies, and BLM's ability to adapt to them will also determine priorities. Other factors over time, such as population growth or climate change will also, undoubtedly, determine priorities for recreation and other resources on BLM-managed lands in the decision area.

RECREATION MANAGEMENT AREAS

To help effectively manage Recreation and Visitor Services (R&VS), the BLM designates RMAs. Areas are classified as either a special recreation management area (SRMA) or an extensive recreation management area (ERMA). Both types of areas are recognized as producing high quality recreation opportunities and offering beneficial outcomes for recreation participants, recreation-tourism partners, visitor service providers, and communities. R&VS objectives in RMAs are recognized as a primary resource management consideration, and specific management is required to protect the recreation opportunities. The RMA designation is based on recreation demands and issues, Recreation Setting Characteristics (RSCs), resolving use/user conflicts, compatibility with other resource uses, and resource protection needs. RMAs identify where the BLM generally prioritizes the expenditure of funding. There is no requirement to designate all lands as RMAs. However, in public lands not designated as RMAs ('undesignated lands'), addressing visitor health and safety, resource protection, and use and user conflicts may be of equal or greater importance (H-8320-I 2014).

Designating lands as an RMA is not an either/or determination between managing for recreation resources or any other resource, such as for the conservation of GUSG and its habitat. Among several other considerations, management objectives and actions in RMAs are required to consider resource protection issues as they relate to the recreation resource (H-8320-I 2014).

Special Recreation Management Areas

An SRMA is an administrative unit where existing or proposed recreation opportunities and Recreation Setting Characteristics (RSCs) are recognized for their unique value, importance, and/or distinctiveness, especially as compared to other areas used for recreation. RSCs are derived from the recreation opportunity

spectrum, and are categorized as physical, social, and operational components and are further subdivided into specific characteristics (attributes). These characteristics are categorized across a spectrum of classes that describe a range of qualities and conditions of a recreation setting, for example primitive to urban.

An SRMA is managed to protect and enhance a targeted set of activities, experiences, benefits, and desired RSCs. Within an RMP, an SRMA may be subdivided into recreation management zones (RMZs) to further delineate specific recreation opportunities. Within an SRMA, R&VS management is recognized as the predominant RMP focus, where specific recreation opportunities and RSCs are managed and protected on a long-term basis (H-8320-1 2014).

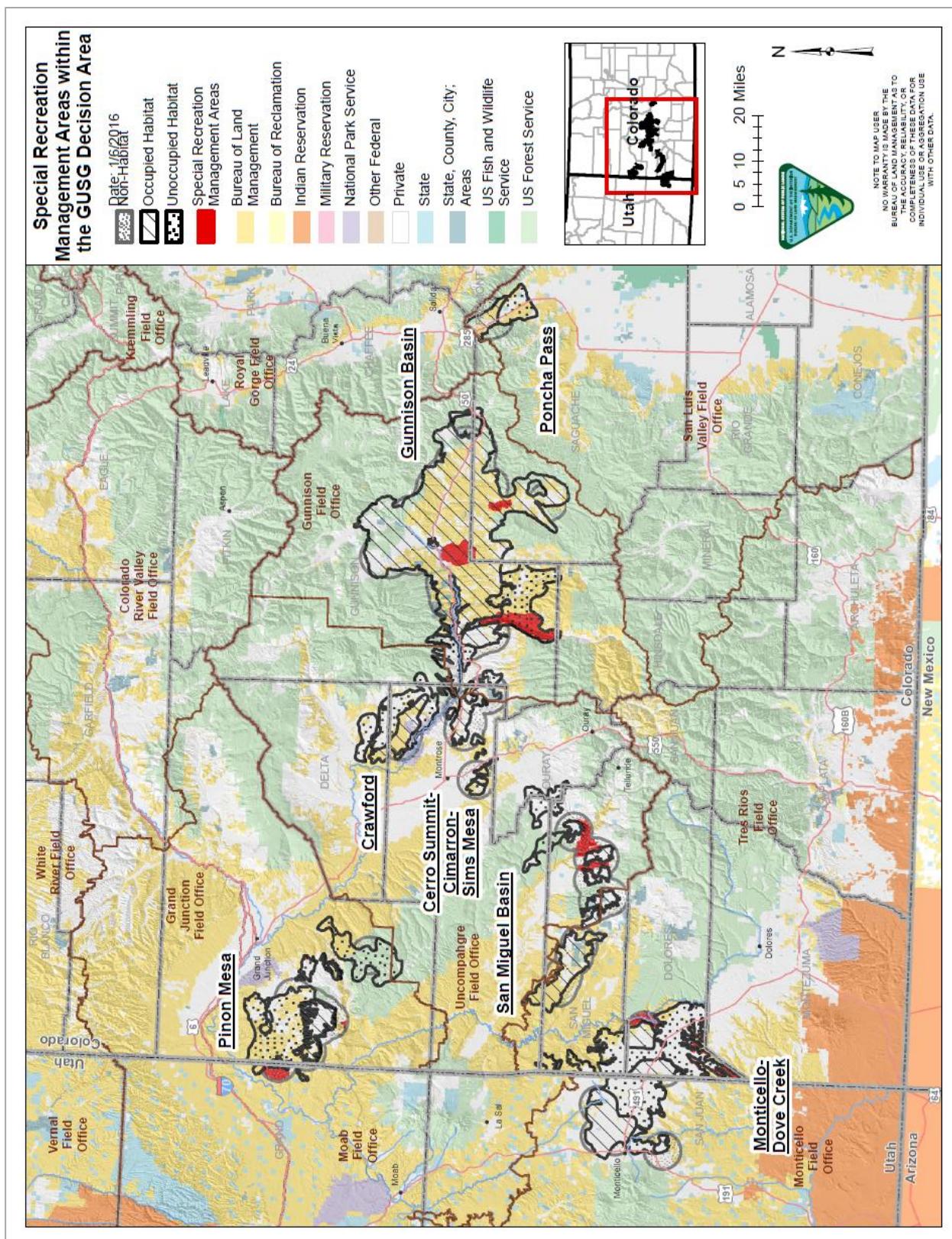
There are ten SRMAs in the decision area that overlap portions of GUSG habitat (as shown in Table 3.54 and Figure 3.42), including:

- Alpine Triangle: provides sightseeing and motorized recreation along the Alpine Loop Scenic and Historic Byway.
- Bangs Canyon: provides motorized and non-motorized trail systems in a setting of high desert canyons and plateaus.
- Cochetopa: provides a scenic canyon with great fishing and watchable wildlife opportunities.
- Dolores River: provides water-based recreation and hiking in one of southwest Colorado's most scenic canyons.
- Gateway: provides motorized and non-motorized recreation in unparalleled geologic formations, and associated with the Gateway Canyons Resort.
- Hartman Rocks: provides community-based recreation in Gunnison, CO and features a non-motorized and motorized singletrack trail system, rock climbing/bouldering, and cross-country skiing.
- Gunnison and North Fork Rivers: provides an ideal location for non-technical boating within the Gunnison Gorge NCA.
- San Miguel River: provides world-class boating and fishing opportunities in Southwest Colorado.
- Two Rivers: provides boating and camping in the popular Westwater Canyon of the Colorado River.
- Squaw-Cross Canyons: provides remote backpacking, camping, and exploring in the Canyons of the Ancients NM.

Table 3.54 - Acreage of BLM Special Recreation Management Areas by Population

POPULATION/HABITAT TYPE	ACRES
Crawford Population	43
Unoccupied Habitat	43
Gunnison Gorge NCA	43
Uncompahgre FO	0
Gunnison Basin Population	30,593
Occupied Habitat	17,304
Gunnison FO	17,304
Unoccupied Habitat	13,288
Gunnison FO	13,288
Monticello-Dove Creek Population	11,557
Non-Habitat	7,298
Tres Rios FO	7,298
Occupied Habitat	35
Tres Rios FO	35
Unoccupied Habitat	4,223
Canyons of the Ancients NM	4,031
Tres Rios FO	192
Piñon Mesa Population	9,124
Non-Habitat	8,700
Grand Junction FO	344
Moab FO	8,356
Unoccupied Habitat	424
Grand Junction FO	270
Moab FO	154
San Miguel Basin Population	14,693
Non-Habitat	14,494
Uncompahgre FO	14,494
Occupied Habitat	199
Uncompahgre FO	199
Total Acreage	66,010

Figure 3.42 - BLM Special Recreation Management Areas in the Decision Area



Extensive Recreation Management Areas

An ERMA is an administrative unit that requires specific management consideration in order to address recreation use, demand, or R&VS program investments. An ERMA is managed to support and sustain principal recreation activities and associated qualities and conditions. Management of ERMAs is commensurate with the management of other resources and resource uses. While generally unnecessary, ERMAs may be subdivided into RMZs to ensure R&VS are managed commensurate with other resources and resource uses (H-8320-1 2014). The decision area includes six ERMAs containing GUSG habitat (as shown in Table 3.55 and Figure 3.43):

Table 3.55 - BLM Extensive Recreation Management Areas by Population

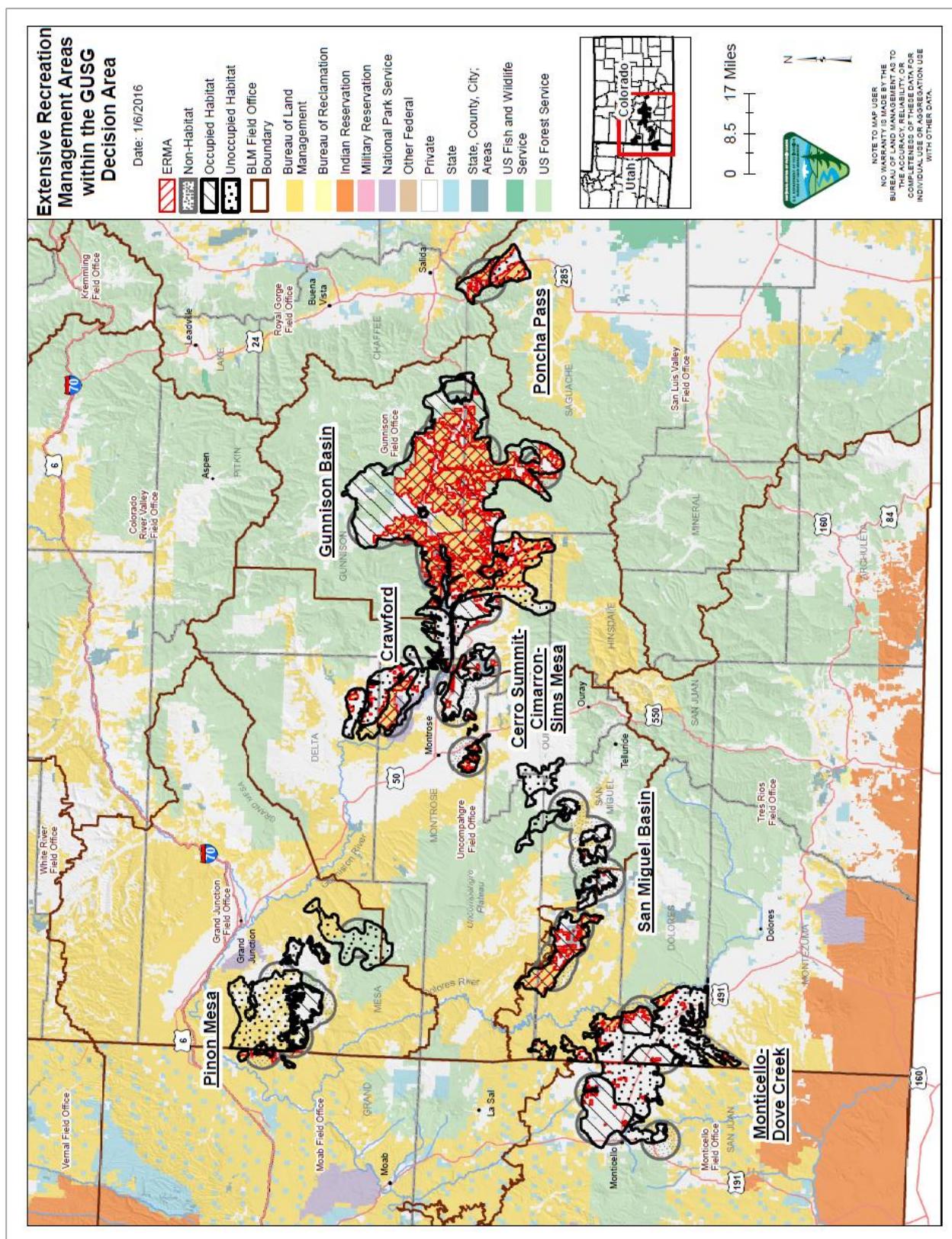
POPULATION	ACRES
Cerro Summit-Cimarron-Sims Mesa	11,099
Non-Habitat	1,384
Gunnison FO	1,394
Occupied Habitat	4,704
Gunnison FO	649
Uncompahgre FO	4,055
Unoccupied Habitat	5,010
Gunnison FO	1,073
Uncompahgre FO	3,937
Crawford	25,789
Occupied Habitat	16,761
Gunnison Gorge NCA	16,760
Uncompahgre FO	1
Unoccupied Habitat	9,028
Gunnison Gorge NCA	4,196
Uncompahgre FO	4,831
Gunnison Basin	343,269
Non-Habitat	12,007
Gunnison FO	12,007
Occupied Habitat	285,127
Gunnison FO	285,127
Unoccupied Habitat	46,136
Gunnison FO	46,090
Uncompahgre FO	46
Monticello-Dove Creek	40,118
Occupied Habitat	8,477
Monticello FO	3,233

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POPULATION	ACRES
Tres Rios FO	5,244
Unoccupied Habitat	31,641
Canyons of the Ancients NM	0
Moab FO	7
Monticello FO	1,744
Tres Rios FO	29,890
Piñon Mesa	9,267
Non-Habitat	5,168
Moab FO	5,168
Unoccupied Habitat	4,099
Moab FO	4,099
Poncha Pass	24,619
Occupied Habitat	9,742
San Luis Valley FO	9,742
Unoccupied Habitat	14,877
San Luis Valley FO	14,877
San Miguel Basin	35,679
Occupied Habitat	35,679
Uncompahgre FO	625
Tres Rios FO	35,054
Total Acreage	489,840

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Figure 3.43 - BLM Extensive Recreation Management Areas in the Decision Area



Public Lands Not Designated as Recreation Management Areas

BLM field offices with land use plans older than 2011 previously designated all acres of the field office not allocated as an SRMA as one or more ERMAs. Current policy now allows for a third consideration relative to Recreation and Visitor Services allocations, “Public Lands Not Designated as Recreation Management Areas.”

Public lands that are not designated as RMAs (undesignated lands) are managed to meet basic Recreation and Visitor Services (R&VS) and resource stewardship needs. Recreation is not emphasized on these lands; however, recreation activities may occur, except on those lands closed to public use. The R&VS are managed to allow recreation uses that are not in conflict with the primary uses of these lands.

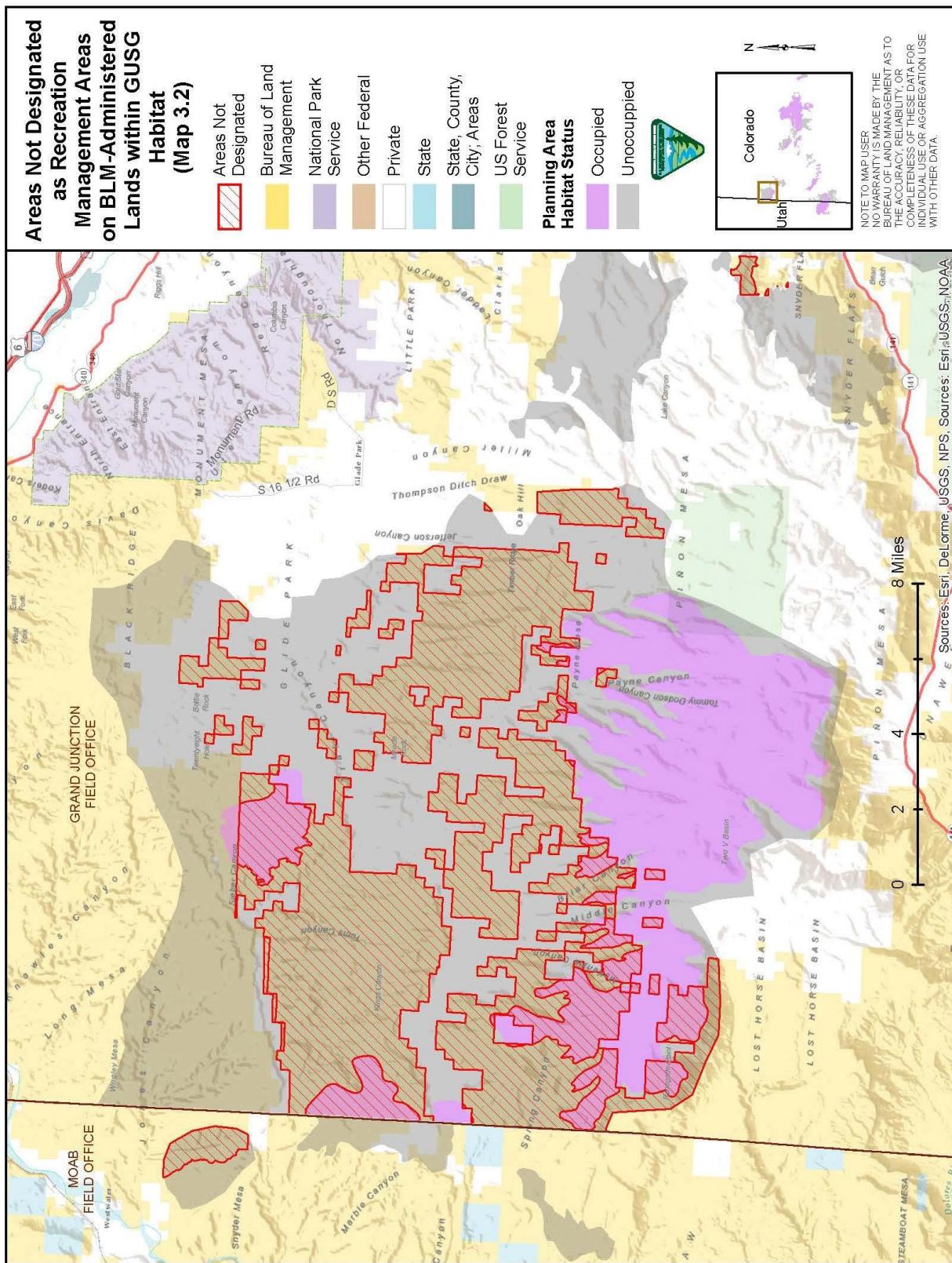
While there are currently only 63,298 acres of undesignated lands in the decision area, future RMPs associated with the decision area would likely increase that number. Table 3.56 and Figure 3.44 illustrate the current undesignated lands in the Moab FO (which are located within a Wilderness area) and undesignated lands in the Grand Junction FO.

Table 3.56 - BLM Lands with GUSG Habitat Not Designated as Recreation Management Areas

BLM UNIT	ACRES TOTAL
GRAND JUNCTION FO	62,190
Occupied Habitat	10,521
Unoccupied Habitat	51,669
MOAB FO	1,108
Unoccupied Habitat	1,108
Total	63,298

Note: Acres are rounded to the nearest whole number.
Source: BLM 2015

Figure 3.44 - BLM Lands with GUSG Habitat Not Designated as Recreation Management Areas



SPECIAL RECREATION PERMITS

Special Recreation Permits (SRPs) are authorizations that allow specific recreational uses of the public lands and related waters. SRPs are issued under the authority of the Federal Lands Recreation Enhancement Act. They are issued as a means to:

- Support recreation planning goals to provide experience and beneficial outcomes to the public.
- Manage visitor use and reduce user conflicts.
- Protect natural and cultural resources.
- Provide for public health and safety.
- Educate and communicate with the public.
- Provide a mechanism to accommodate commercial recreation uses, and
- Obtain a fair value and return for the commercial use of public land.

The objective of the BLM recreation permitting system is to satisfy recreational demand within allowable use levels in an equitable, safe, and enjoyable manner while minimizing adverse resource impacts and user conflicts. By issuing SRPs, BLM authorizes permittees the use of public lands and/or related waters for specific recreational purposes; a privilege that is subject to the terms and conditions of the permit. Recreation permits are administered in a manner that is consistent with management objectives determined in RMPs, Recreation Area Management Plans, or in their absence, through recreation management objectives resulting from analysis of resources and visitor use in each area (H-2930-1, 2014).

SRPs are issued for various commercial, competitive, and organized non-commercial activities on BLM-administered lands. Within the decision area, SRPs are issued for such things as guided hunting and fishing, off-road vehicle tours, mountain bike tours, horseback rides, races, vendors, river outfitting, and numerous other activities. (See Table 3.57.) The greatest number and variety of SRPs in GUSG habitat are in the Gunnison FO. Within the satellite populations, the most common type of SRP issued in GUSG habitat is for Big Game hunting. No SRPs have been issued on BLM-administered lands related to GUSG viewing.

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Table 3.57 - Special Recreation Permits in the Decision Area

SPECIAL RECREATION PERMIT TYPES											
Decision Area BLM Unit	Big Game Hunting	Mountain Lion Hunting	Mountain Biking	Horse- back Riding	Hiking/ Foot Racing	Rock Climbing	Fishing	Education	OHV Touring	Photogra- phy	Row/ Float/ Raft
Gunnison FO	10	4	9	6	8	10	6		2	1	2
Grand Junction FO	3	5	N/A	N/A	N/A	4	N/A	1	N/A	N/A	N/A
San Luis Valley FO	1	2	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Uncompahgre FO	8*	6*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tres Rios FO	6	7	1	2	N/A	N/A	N/A	1	1	N/A	N/A
Monticello FO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Moab FO	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Canyons of the Ancients NM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dominguez-Escalante NCA	2	4	1	N/A	N/A	1	N/A	2	1	N/A	N/A
McInnis Canyons NCA	2	5	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A	N/A
Gunnison Gorge NCA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source BLM

****13 SRPs in Uncompahgre FO are for both big game and mountain lion hunting.**

TOURISM

Some of the fastest-growing segments of the travel and tourism industry—outdoor recreation, nature, adventure, and heritage tourism—are also key components of BLM-managed public lands. Recreation and tourism are significant economic drivers, and are identified together as one of the top three industries in the twelve western states where the vast majority of BLM public lands are located.

The BLM works with the tourism industry and gateway communities to:

- Encourage development of sustainable travel and tourism within gateway communities and support community-based conservation;
- Emphasize BLM outdoor recreation, National Conservation Lands, and heritage tourism attractions that influence the social, economic, and environmental interests of gateway communities;
- Improve BLM relationships with community, state, and individual travel and tourism partners to stimulate public involvement with the public lands; and
- Sustain social, economic, and environmental viability of rural communities, including communicating a sustainable stewardship message to those communities and their visitors.

BLM involvement with the tourism industry is important to enhancing the quality of life within communities, where there is interest in expanding outdoor recreation-based tourism, nature-based tourism, and heritage-based tourism. Working with tourism partners, in turn, can help protect natural and heritage resources on public lands, as well as provide critical economic opportunities in local communities.

Home to the principal GUSG population, the Gunnison Basin annually hosts tourists associated with a GUSG festival, which attracts birders and other enthusiasts for wildlife watching (especially the GUSG's unique lek display behavior), as well as educational forums and other activities (Sisk-a-dee website 2015).

DEVELOPED RECREATION FACILITIES

Within the decision area and GUSG habitat, developed recreation sites and facilities have been constructed in order to enhance recreational opportunities, protect resources, manage activities, and reduce user conflicts. These developments range from campgrounds, to trailheads with simple bulletin boards, to developed river access sites. Many of these developments are located within SRMAs, where the BLM has made a commitment to the unique values, importance, and distinctiveness of the recreational opportunities in those areas.

There are 15 developed recreation sites located in GUSG habitat on BLM-managed lands (as shown in Table 3.58 and Figure 3.45).

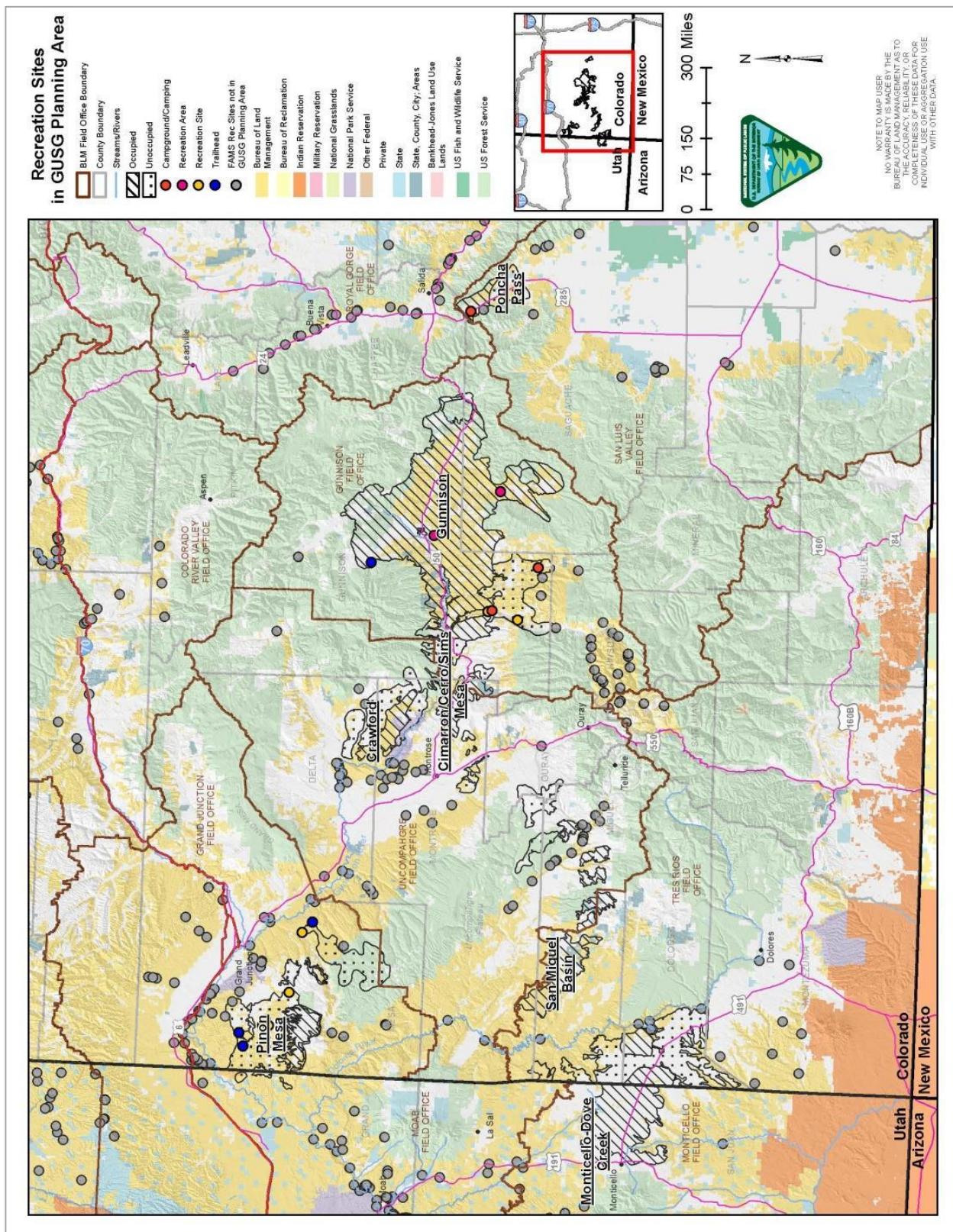
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Table 3.58 - BLM Recreation Sites in the Decision Area

POPULATION AREA/ HABITAT TYPE/SITE	NUMBER OF SITES
GUNNISON BASIN – 7	
Occupied Habitat	3
Recreation Areas	2
• Cochetopa Canyon Recreation Area	
• Hartman Rocks Recreation Area	
Trailheads	1
• Mill Creek Trailhead (North)	
Unoccupied Habitat	4
Campgrounds/Camping	2
• Cebolla Creek Campground	
• Red Bridge Campground	
Recreation Sites	2
• Gateview Recreation Site	
• The Gate Recreation Site	
PIÑON MESA – 7	
Unoccupied Habitat	7
Recreation Sites	4
• Cactus Park Recreation Site	
• Miracle Rock Recreation Site	
• Mud Springs Recreation Site	
• Pot Holes Recreation Site	
Trailheads	3
• Cactus Park Wilderness Trailhead	
• Jones Canyon Trailhead	
• Knowles Canyon Trailhead	
PONCHA PASS – 1	
Occupied Habitat	1
Campgrounds/Camping	1
• Dorsey Creek Parking & Camping	
Total Recreation Sites	15

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Figure 3.45 - BLM Recreation Sites in or Adjacent to the Planning Area



TRENDS

Nationally, people enjoy all the benefits available from our federal public lands, but the way that society recreates is changing. Across the country, fewer and fewer two week vacations are being taken. Instead, people are opting for closer and shorter “weekend” getaways that offer opportunities to experience these natural wonderlands (FICOR website 2015).

One of the top reasons people choose to live in Colorado and Utah are both states' clean environment, access to public lands and outdoor recreation opportunities, and residents' ability to maintain a healthy, outdoor lifestyle. Considering population growth projections, and the likelihood of new residents sharing these same outdoor-focused priorities, land managers will face trade-offs between promoting recreational opportunities while managing natural resources to maintain their integrity (CO SCORP 2014).

COMMUNITY-BASED RECREATION

An increasing number of people are living near, or seeking out, BLM-administered lands for a diversity of recreational opportunities characterized by the “mountain resort or outdoor lifestyle.” Because the planning area is a year-round place to live and work, BLM-administered lands are experiencing an increase in demand for recreational use.

Visitation and use near local communities is expected to continue to grow. Many local communities in the planning area are bordered by public lands, which are used as “backyard” recreation areas by local residents. As urbanization increases, so too does expansion into the Wildland Urban Interface, which may pose increased threats for GUSG conservation efforts from increased outdoor recreation use and other resource concerns characteristic of the Wildland Urban Interface, such as loss of habitat and habitat fragmentation.

RECREATION PARTICIPATION

The decision area consists primarily of the central Colorado mountain region. According to the 2014 Colorado SCORP, most Colorado residents stay within their region of residence to recreate, however, there is an increasing willingness of Coloradans to travel. Most overnight visits within the state come from residents in the major cities of the Front Range. This region is expected to see the largest population growth in the decades ahead, which will also affect the public lands within the decision area (CO SCORP 2014).

Participation in outdoor recreation on public lands within the planning and decision areas will likely increase at a greater rate than national averages, due partially to

higher-than-average population growth in the mountain west, combined with the increasingly popular outdoor lifestyle that the planning area is renowned for. In Colorado, for example, a majority of residents expect to greatly increase their outdoor recreation participation over the next five years (CO SCORP 2014). On BLM-managed lands in the planning area, recreational use has steadily increased in recent years and that trend is expected to continue. Local residents, and visitors alike, will continue to seek easy access to public lands for shorter use periods (such as after-work trail runs or bike rides and weekend getaways, etc.), combined with increasing interest in lower-elevation, community-based recreation on public lands. Trends can also be seen for some of the more common recreational pursuits on BLM lands in the planning area, including:

OHV Riding

The most popular recreational activity on BLM-managed lands in the planning area is Off-Highway Vehicle riding, with over 26 million participants in Colorado alone over the last 15 years (RMIS 2015). OHV use has steadily increased, especially for All-Terrain Vehicles (ATV'S) and Off-Highway Motorcycles. The one exception to an increase in OHV use is for snowmobiling, which continues a decade-long decline in participation (CO SCORP2014). The Colorado Off-Highway Vehicle Coalition (COHVC) reported that OHV registrations increased 145% between 2001 and 2008. In 2008, they reported that over 184,000 resident households likely participated in some sort of motorized recreation in the 2007-08 season in Colorado and nearly 30,000 non-resident households also traveled to Colorado to participate in motorized recreation. (COHVC 2009).

Hiking/Walking/Running

The second most popular activity on BLM-managed lands in the planning area is non-motorized/mechanical trail use (RMIS 2015). Trails in the planning area are a stated necessity, especially in Colorado, and seeking greater connectivity between communities and associated public lands will continue for the foreseeable future.

Mountain Biking

The mountain west is the epicenter of mountain biking popularity. Nationally, there are more than 40 million participants in this region alone (IMBA website 2015). Mountain biking ranks as the 17th most common pursuit of adults in Colorado, and biking of all types is the #1 recreational activity of youth in Colorado aged 6-18 (CO SCORP). On BLM-managed lands in the planning area, mountain biking ranks as the 3rd most common activity in Colorado. Mountain biking has the 17th largest amount of outdoor recreation participation (which also includes water-based recreation), according to the 2014 CO SCORP.

According to Singletracks.com (2015), as of 2012, Colorado had more miles (over 5 thousand) of mountain bike trail, more than any other state in the nation. Other places in the planning area, such as Moab, Utah are international destinations for mountain biking opportunities.

Big Game Hunting

Though still very popular on BLM lands within the planning area, big game hunting has generally declined since a high in 1998 for license holders in Colorado. That decline can be attributed to a couple of reasons; one being a reduction in available licenses themselves, which recognizes that there is more demand than supply available for that use. The second reason is that a majority of hunters are between the ages of 47 and 57 years old, and as hunters age and stop hunting, there continues to be less recruitment of younger hunters to replace them. That said, the majority of big game hunting in Colorado takes place within the planning area, where 53 percent of the state's big game hunting activity takes place on the western slope, and another 24 percent occurs in the South Central region. A similar trend is seen with wildlife viewing. (CPW strategic plan 2015).

Other Outdoor Recreation Pursuits in the Planning Area

Nationally, horseback riding remains steady in the number of user days, but has fallen slightly with actual numbers of participants nationwide. Wildlife watching, viewing scenery, and experiencing the heritage/history/culture of lands associated with the planning area are expected to increase, especially with the aging of the population.

RECREATION PRIORITIES

According to the 2014 Utah and Colorado SCORPs, in southeastern Utah citizens reported the greatest need for more OHV riding areas. In Colorado, dirt trails were identified as extremely important and a primitive setting with basic amenities was preferred over highly developed recreation areas. It is expected that priorities will be responsive to population changes over time, the needs of communities and the associated network of service providers, and evolving outdoor recreation pursuits and technologies.

Changing Technologies

The current revolution in outdoor recreation-related innovation is unlikely to stop any time soon, if ever. Emerging technologies in recent years are challenging land managers to characterize new uses and technologies through traditional definitions, such as 'motorized', 'non-motorized', 'mechanized', 'quiet use' 'solitude', etc. So-called 'typical' or 'traditional' recreation uses of BLM lands are rapidly expanding to include such things as all-terrain Segway's, electric motorcycles that make essentially

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no sound, hikers with robotic-assisted exoskeletons, electric-motor bicycles, extreme jeeps, fat-tire bicycles that can travel on all types of terrain (including snow), zorbing (rolling down a mountainside in a giant transparent plastic ball), miniature airplanes, squirrel suits, jet packs, and the list continuously grows.

3.10. TRAVEL & TRANSPORTATION MANAGEMENT

INDICATORS

The following indicators are used to describe the existing condition related to travel and transportation management. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on the travel and transportation management systems:

- Change in the types of allowable uses occurring on transportation routes in GUSG habitat.
- Change in the number of acres designated as open, limited, or closed to motorized travel.
- Change in the number of acres where new route development would be allowed.

EXISTING CONDITIONS

3.10.1. CONDITIONS WITHIN THE DECISION AREA

Travel management is integral to many activities taking place on public lands. Consideration of a comprehensive travel and transportation network involves all aspects of road and trail system planning and management; taking into account road and trail locations, system users, and other natural resource management objectives. The transportation system in the decision area consists of federal and state highways, paved and unpaved local roads, as well as unpaved primitive roads and trails. As a side-effect of travel management planning, and because they still represent some level of impact, closed routes are also identified in the decision area. Many, if not most, primitive roads are inherited, user-created routes (versus engineered or designed and constructed routes). These routes may be sustainable or not and maintenance actions and frequency of maintenance likely contribute to that sustainability. There are no railroads or backcountry airstrips located on BLM-administered lands within the decision area.

The largest contiguous concentration of GUSG habitat is located in the Gunnison Basin. GUSG habitat areas in the remainder of the decision area are generally smaller and less contiguous. Transportation routes are mainly concentrated around communities, recreation areas, or where surface activities (such as energy development or other extractive uses) require access. Parts of the decision area are

remote and rugged, with limited opportunity for travel on roads and trails in those areas.

Table 3.59 through Table 3.62 display data compiled by the BLM that provides a relatively coarse estimate of road and trail mileage and acreage on BLM-managed lands within the decision area by population both within GUSG Occupied Habitat and Unoccupied Habitat and Non-Habitat Areas outside of GUSG habitat.

Figure 3.46 through Figure 3.52 graphically illustrate roads on BLM-managed lands within the decision area. ‘Closed’ roads and trails are those that have been inventoried in a Travel Management Plan and have been determined to not be necessary for the transportation system. Roads and trails categorized as ‘unauthorized’ are non-system routes (either missed in a previous inventory, or more likely recently created) that have been identified outside of a Travel Management Planning process. Roads and trails categorized as ‘unknown’ are linear features that exist on the ground, however the data collector (BLM or typically some other local, state, or other federal agency) did not characterize the road or trail by type or jurisdiction in GIS). Unknown roads are assumed to be open to the public.

Table 3.59 - Miles of Road on BLM-Administered Lands within GUSG Habitat by Population

POPULATION/HABITAT TYPE/ ROAD TYPE	MILES OF ROAD
Cerro Summit-Cimarron-Sims Mesa	110
Non-Habitat Area	26
Open	26
Occupied Habitat	37
Closed	2
Open	34
Unoccupied Habitat	48
Administrative Use Only	0
Closed	9
Limit-Type	3
Open	36
Crawford	159
Occupied Habitat	111
Open	111
Unoccupied Habitat	49
Open	49
Gunnison Basin	2,329
Non-Habitat Area	16
Closed	0
Open	16
Occupied Habitat	1,994
Administrative Use Only	29
Closed	1,102
Open	862
Unoccupied Habitat	320
Administrative Use Only	7
Closed	168
Open	144
Monticello-Dove Creek	524
Non-Habitat Area	40
Open	40
Occupied Habitat	26
Open	26
Unauthorized	0

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POPULATION/HABITAT TYPE/ ROAD TYPE	MILES OF ROAD
Unoccupied Habitat	459
Open	459
Piñon Mesa	289
Non-Habitat Area	27
Open	9
Unknown	18
Occupied Habitat	29
Open	0
Unknown	29
Unoccupied Habitat	232
Open	127
Unknown	106
Poncha Pass	131
Non-Habitat Area	3
Closed	0
Open	3
Occupied Habitat	60
Closed	21
Limit-Type	2
Open	33
Unauthorized	4
Unoccupied Habitat	69
Closed	9
Open	46
Unauthorized	13
San Miguel Basin	464
Non-Habitat Area	88
Open	88
Occupied Habitat	377
Open	377
Total Miles	4,008

Note: Miles are rounded to the nearest whole number.

Source: BLM 2015

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Table 3.60 - Acres of Road on BLM-Administered Lands within GUSG Habitat by Population

POPULATION/HABITAT TYPE/ ROAD STATUS	ACRES ¹ OF ROAD
Cerro Summit-Cimarron-Sims Mesa	424
OCCUPIED HABITAT	244
Closed	4
Open	240
UNOCCUPIED HABITAT	180
Administrative Use Only	0
Closed	14
Limit-Type	4
Open	162
Crawford	905
OCCUPIED HABITAT	211
Open	211
UNOCCUPIED HABITAT	694
Open	694
Gunnison Basin	9,283
OCCUPIED HABITAT	7,537
Administrative Use Only	54
Closed	2,135
Open	5,348
UNOCCUPIED HABITAT	1,745
Administrative Use Only	12
Closed	305
Open	1,429
Monticello-Dove Creek	3,285
OCCUPIED HABITAT	1,099
Open	1,098
Unauthorized	1
UNOCCUPIED HABITAT	2,186
Open	2,186
Piñon Mesa	1,159
OCCUPIED HABITAT	190
Open	190
UNOCCUPIED	969
Open	969
Poncha Pass	384
OCCUPIED HABITAT	169
Closed	39

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POPULATION/HABITAT TYPE/ ROAD STATUS	ACRES¹ OF ROAD
Limit-Type	4
Open	112
Unauthorized	14
UNOCCUPIED HABITAT	216
Closed	16
Open	176
Unauthorized	23
San Miguel Basin	1,503
OCCUPIED HABITAT	1,261
Open	1,261
UNOCCUPIED HABITAT	242
Open	242
Grand Total	16,943

¹Assumes an approximate footprint of 240 feet for interstate highways, 80 feet for primary and secondary highways, 40 feet for county roads, and 12 feet for BLM roads.

Note: Miles are rounded to the nearest whole number.

Source: BLM 2015

Figure 3.46 - Roads within GUSG Habitat: Cerro Summit-Cimarron-Sims Mesa Population

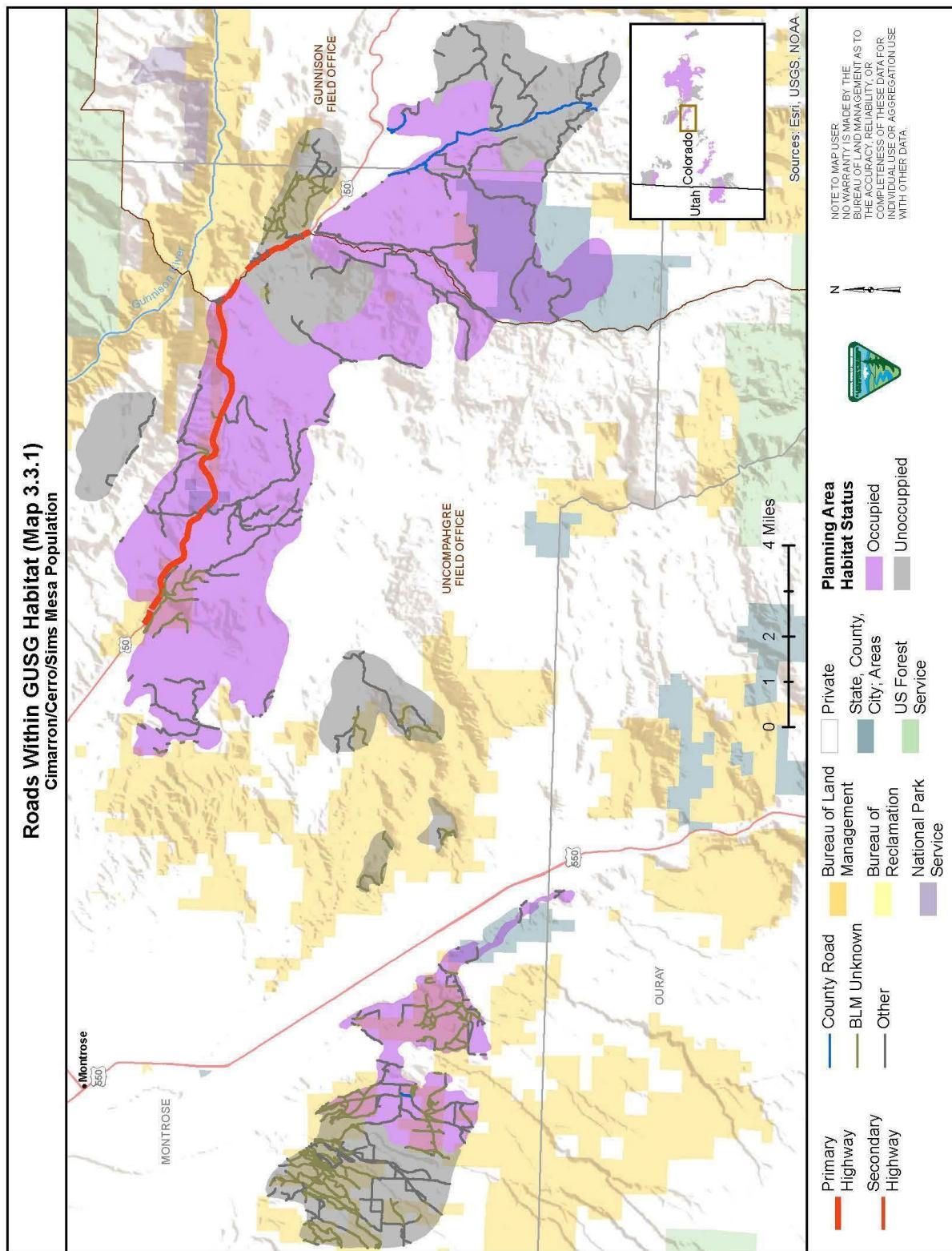
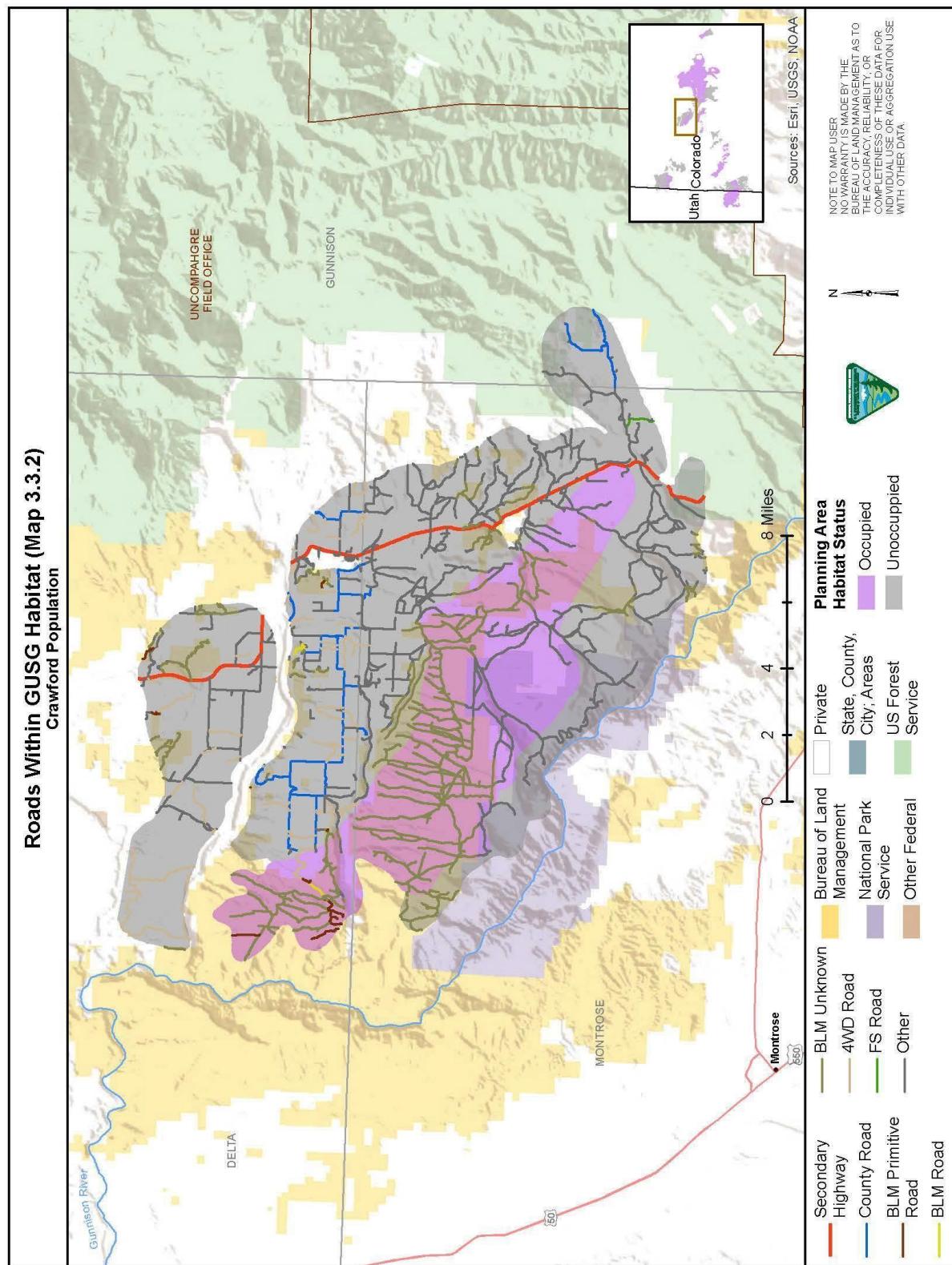


Figure 3.47 - Roads within GUSG Habitat: Crawford Population

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Figure 3.48 - Roads within GUSG Habitat: Gunnison Basin Population

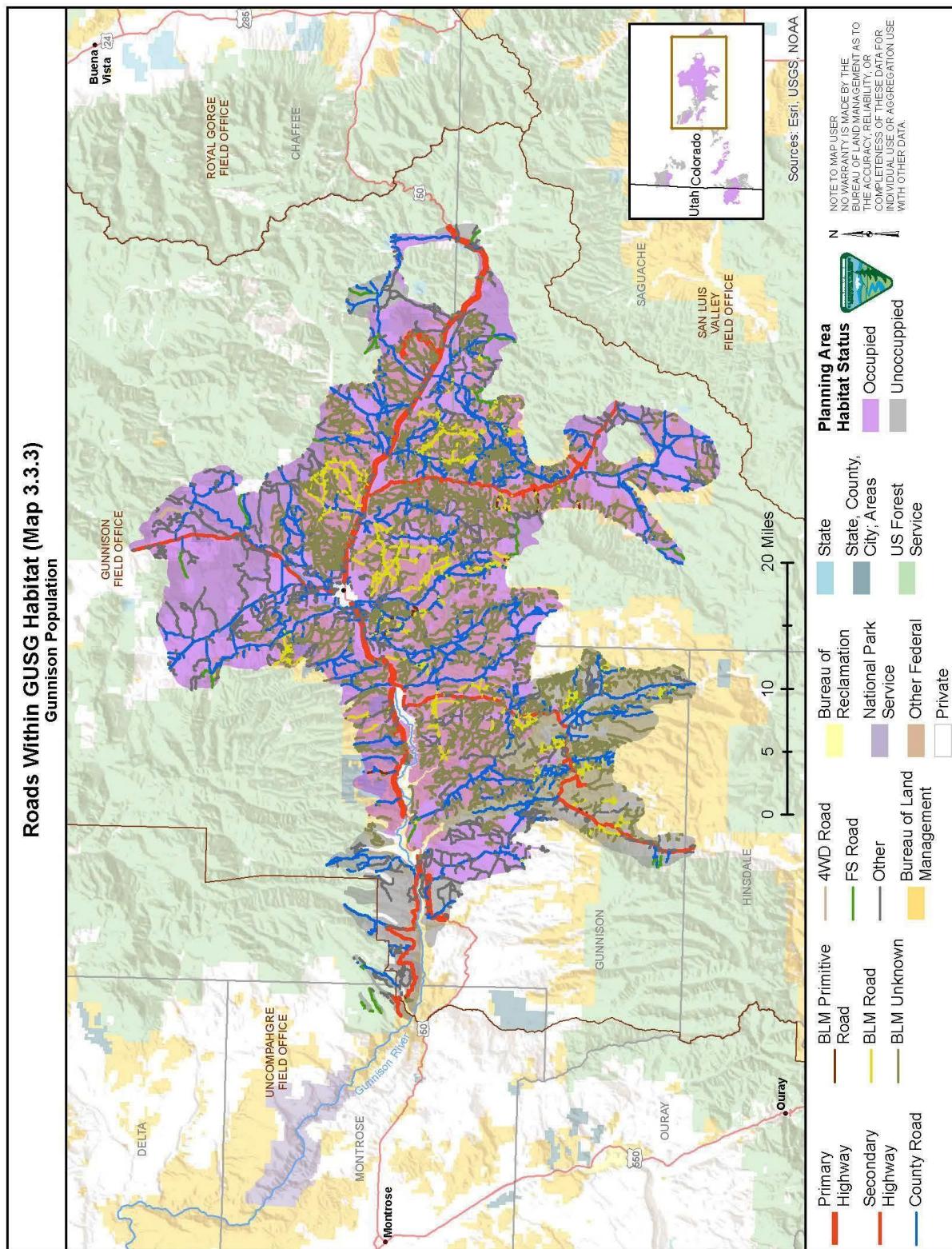


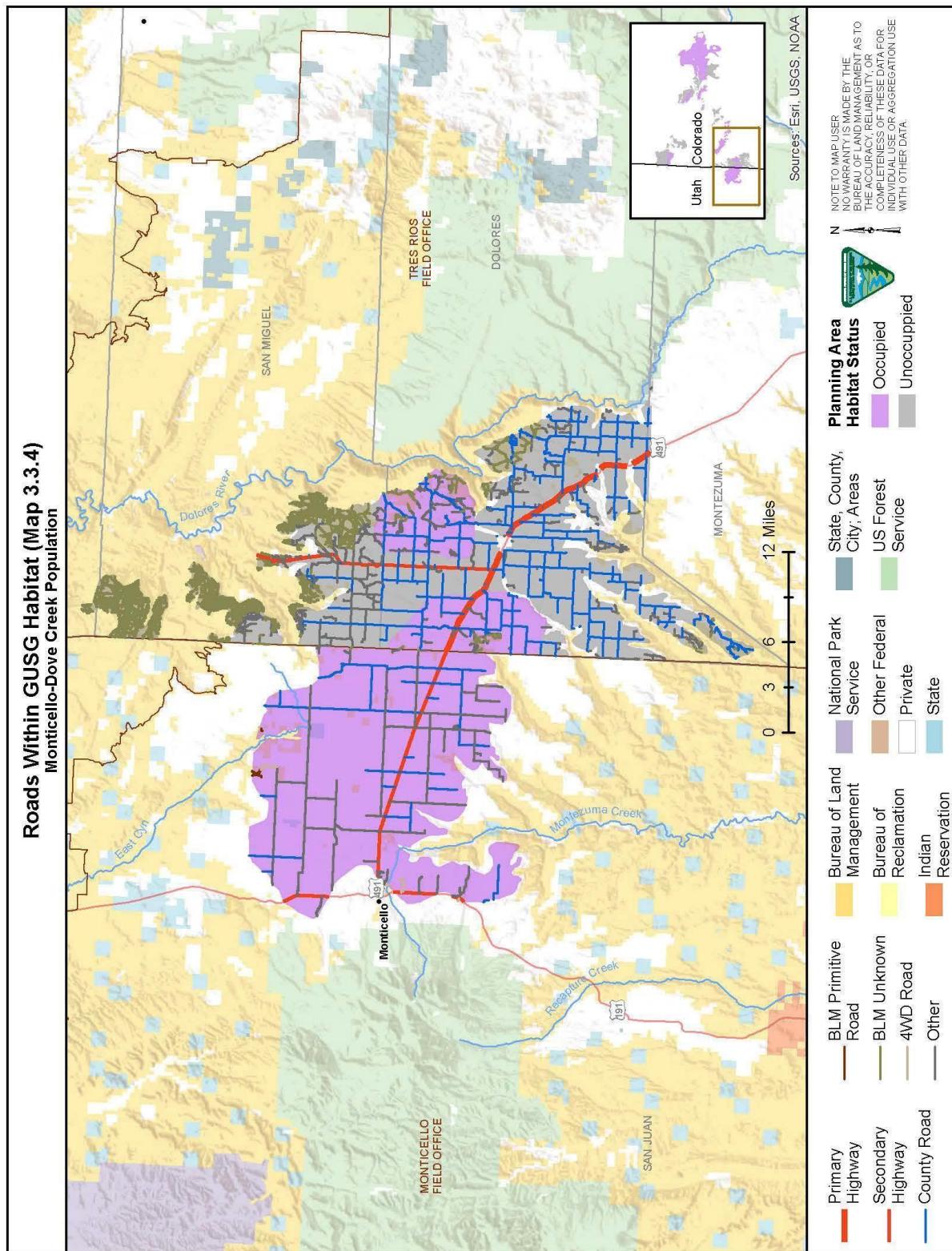
Figure 3.49 - Roads within GUSG Habitat: Monticello-Dove Creek Population

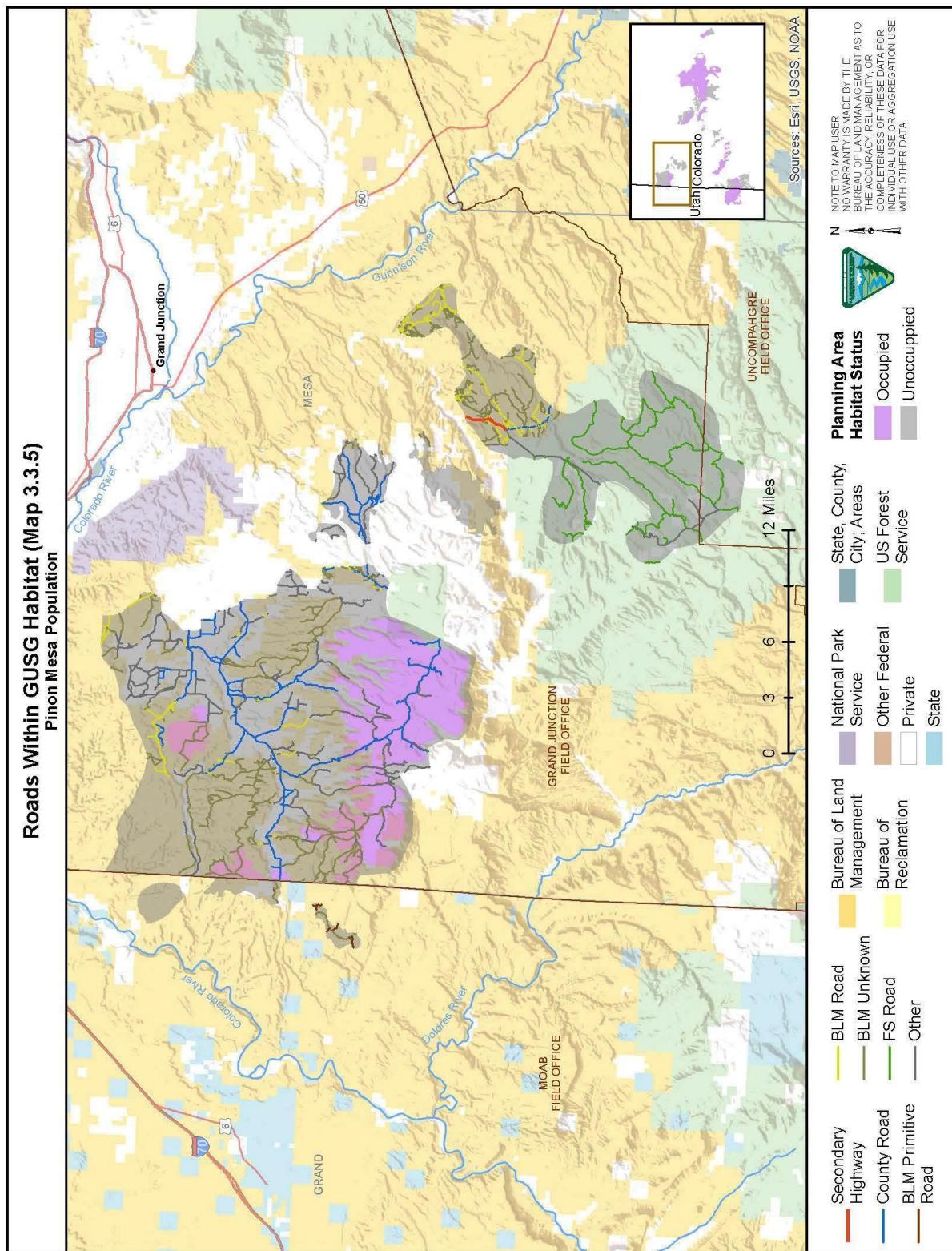
Figure 3.50 - Roads within GUSG Habitat: Piñon Mesa Population

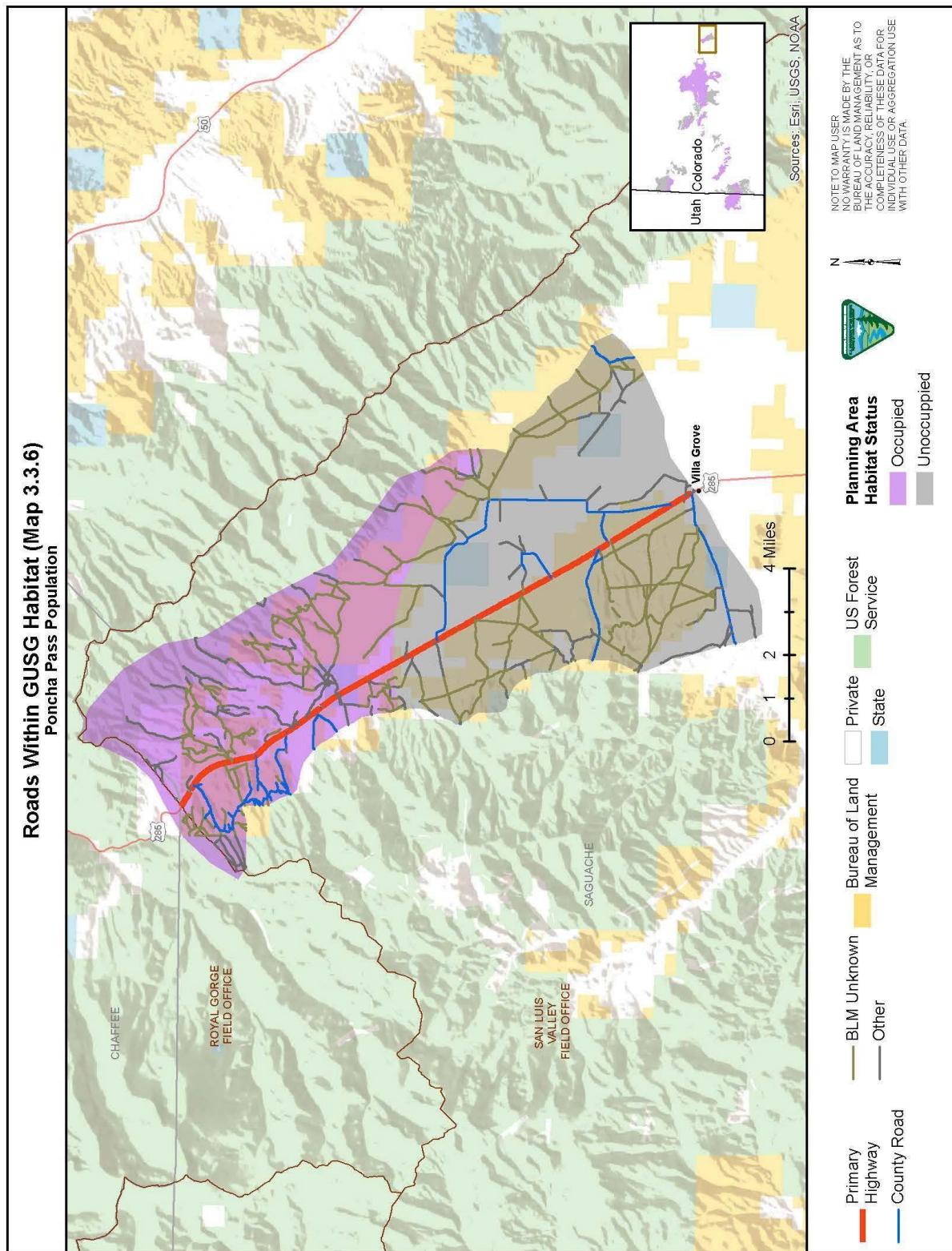
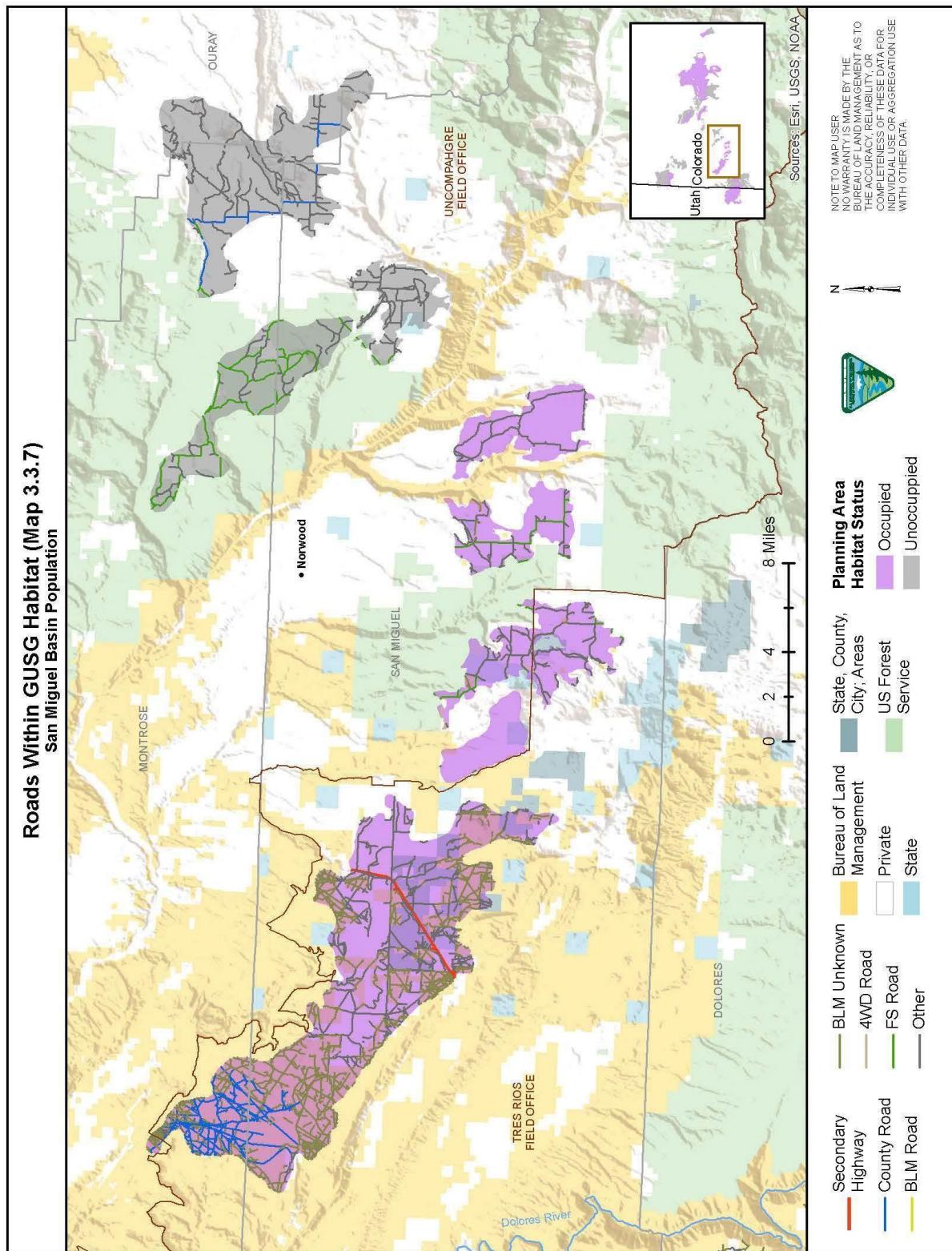
Figure 3.51 - Roads within GUSG Habitat: Poncha Pass Population

Figure 3.52 - Roads within GUSG Habitat: San Miguel Basin Population

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Table 3.61 - Miles of Trail on BLM-Administered Lands by GUSG Population Area

POPULATION/HABITAT TYPE/TRAIL TYPE	TRAIL MILES
Cerro Summit-Cimarron-Sims Mesa	2
Unoccupied Habitat	2
Bicycle	2
Gunnison Basin	53
Occupied Habitat	50
Bicycle	9
Foot Only	2
Motorcycle	39
Trail-Unknown Use	1
Unoccupied Habitat	2
Foot Only	2
Horseback/Foot	1
Piñon Mesa	72
Occupied Habitat	2
Trail-Unknown Use	2
Unoccupied Habitat	70
ATV	6
Bicycle	7
Foot Only	21
Horseback/Foot	10
Motorcycle	3
Trail-Unknown Use	22
Poncha Pass	2
Occupied Habitat	2
ATV	1
Trail-Unknown Use	1
San Miguel Basin	0
Unoccupied Habitat	0
Horseback/Foot	0
TOTAL MILES	128

Note: Miles are rounded to the nearest whole number.

Source: BLM 2015

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Table 3.62 - Acres of Trail on BLM-Administered Lands by GUSG Population Area

GUSG POPULATION/HABITAT/TRAIL USE	ACRES ¹ OF TRAIL
Cerro Summit-Cimarron-Sims Mesa	0
UNOCCUPIED HABITAT	0
Bicycle	0
Gunnison Basin	13
OCCUPIED HABITAT	12
Bicycle	2
Foot Only	0
Motorcycle	9
Trail-Unknown Use	0
UNOCCUPIED HABITAT	1
Foot Only	0
Horseback/Foot	0
Piñon Mesa	19
OCCUPIED HABITAT	0
Trail-Unknown Use	0
UNOCCUPIED HABITAT	18
ATV	3
Bicycle	2
Foot Only	5
Horseback/Foot	3
Motorcycle	1
Trail-Unknown Use	5
Poncha Pass	1
OCCUPIED HABITAT	1
ATV	0
Trail-Unknown Use	0
San Miguel Basin	0
UNOCCUPIED HABITAT	0
Horseback/Foot	0
TOTAL ACREAGE	32

¹ Assumes an approximate footprint of 2 feet for singletrack trails and 4 feet for ATV trails.

Note: Miles are rounded to the nearest whole number.

Source: BLM 2015

3.10.2. CONDITIONS ON BLM-ADMINISTERED LANDS

GUSG Habitat and Non-Habitat Areas within four miles of a lek are generally accessible on BLM-administered lands via an extensive network of roads and trails. Travel surfaces range from paved roads, to primitive dirt roads only accessible by high clearance four-wheel drive vehicles and Off-Highway Vehicles (OHVs), to single-track trails accessible by foot, bike, horseback, and motorcycles.

OHV DESIGNATIONS

Executive Order 11644 and CFR (43 CFR Part 8340) both require the BLM to designate all BLM lands nationally as open, closed, or limited for OHV use. Per the BLM's regulations for OHV management, all BLM lands must be designated in one of three OHV categories; open, limited or closed.

Open areas are those where cross-country travel by OHV is allowed.

Limited areas are those where the BLM imposes certain restrictions on motorized use, such as to existing roads and trails, designated roads and trails, particular types of vehicles, or specific seasons of use.

Closed areas are those where OHV use is prohibited.

With the exception of three BLM units currently in the final stages of land use plan revisions (Grand Junction FO, Uncompahgre FO, and Dominguez-Escalante NCA), all of the units within the planning area have completed the task of designating travel areas.

Table 3.63 summarizes the acreage of open, limited, and closed OHV areas in GUSG habitat by population for each of the eleven BLM units, including the National Landscape Conservation System (NLCS) areas within the units. As shown in this table, the vast majority of BLM-administered lands with GUSG habitat in the decision area are available for OHV use under the 'limited' designation. Only a small portion of BLM-administered lands within GUSG habitat are available as 'open' or 'closed' to OHV use.

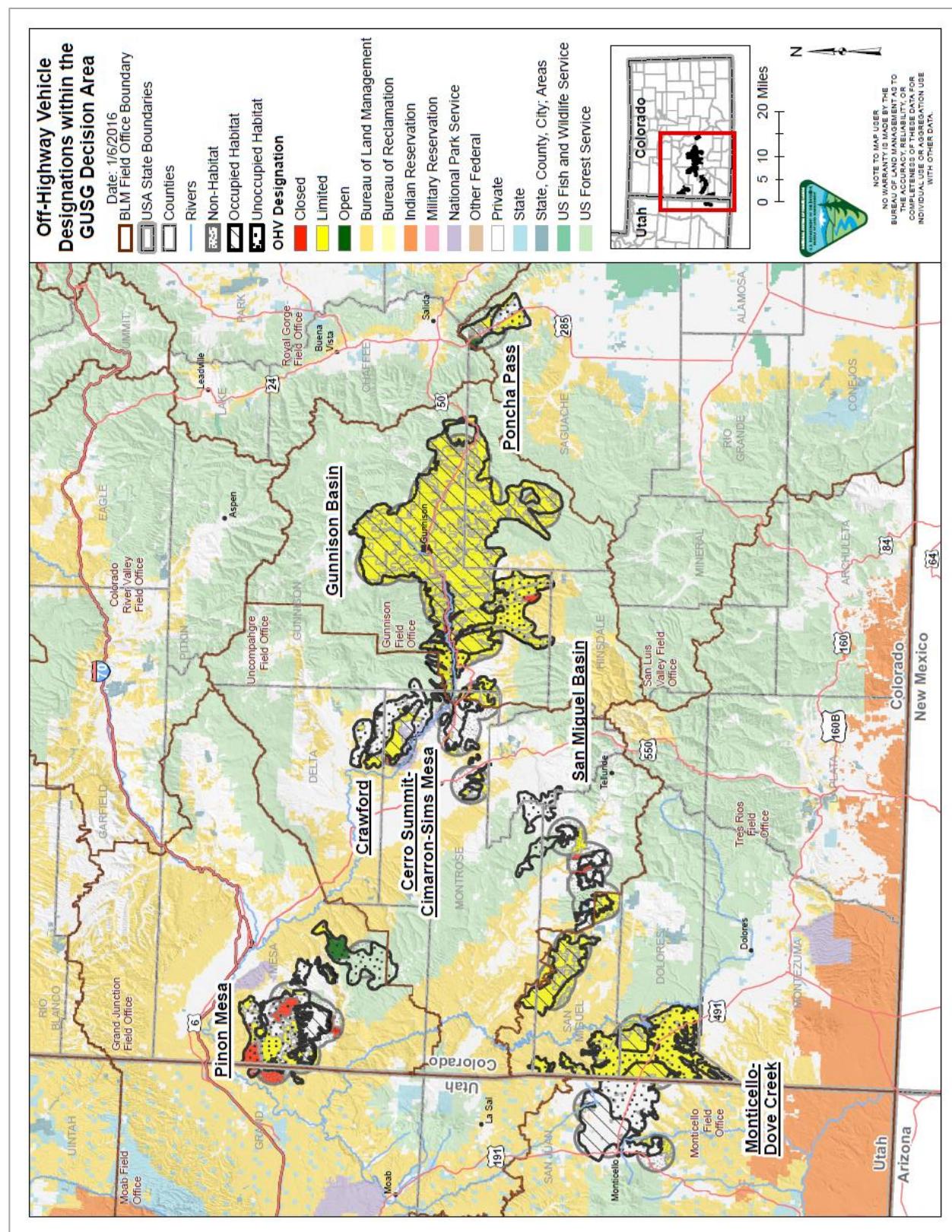
Table 3.63 - OHV Travel Designations in the Decision Area by GUSG Population

POPULATION/HABITAT TYPE/ AREA DESIGNATION	OHV DESIGNATION IN ACRES	PERCENT OF POPULATION TOTAL
Cerro Summit-Cimarron-Sims Mesa	20,700	3%
Non-Habitat	11,373	55%
Closed	23	0%
Limited	11,349	100%
Occupied Habitat	4,376	21%
Limited	4,376	100%
Unoccupied Habitat	4,951	24%
Limited	4,951	100%
Crawford	25,608	4%
Non-Habitat	5	0%
Limited	5	100%
Occupied Habitat	16,761	65%
Closed	0	0%
Limited	16,761	100%
Unoccupied Habitat	8,842	35%
Limited	8,842	100%
Gunnison Basin	378,003	55%
Non-Habitat	12,007	3%
Closed	272	2%
Limited	11,735	98%
Occupied Habitat	302,024	80%
Closed	747	0%
Limited	301,277	100%
Unoccupied Habitat	63,972	17%
Closed	5,023	8%
Limited	58,949	92%
Monticello-Dove Creek	64,736	9%
Non-Habitat	25,087	39%
Closed	2,120	8%
Limited	22,967	92%
Occupied Habitat	8,059	13%
Limited	8,059	100%
Unoccupied Habitat	31,590	48%
Closed	12	0%

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POPULATION/HABITAT TYPE/ AREA DESIGNATION	OHV DESIGNATION IN ACRES	PERCENT OF POPULATION TOTAL
Limited	31,590	100%
Piñon Mesa	94,547	14%
Non-Habitat	24,579	26%
Closed	13,734	56%
Limited	10,846	44%
Open	0	0%
Occupied Habitat	12,240	13%
Closed	146	1%
Limited	12,093	99%
Unoccupied Habitat	57,728	61%
Closed	13,635	24%
Limited	44,093	76%
Open	0	0%
Poncha Pass	25,143	4%
Non-Habitat	736	3%
Limited	487	66%
Open	248	34%
Occupied Habitat	9,617	38%
Limited	6,915	72%
Open	2,678	28%
Unknown	24	0%
Unoccupied Habitat	14,790	59%
Limited	14,768	100%
Unknown	21	0%
San Miguel Basin	76,442	11%
Non-Habitat	40,629	53%
Closed	6,821	17%
Limited	33,809	83%
Occupied Habitat	35,812	47%
Closed	205	1%
Limited	35,607	99%
Total Acreage	685,178	100%

Figure 3.53 - Off-Highway Vehicle Designations within the Decision Area



TRAVEL MANAGEMENT PLANNING

Within the BLM, travel management planning can be considered to take place in three phases: inventory, designation, and implementation. During the inventory phase, the BLM completes an inventory of all routes within a planning area. During the designation phase, the BLM designates a route system within a planning area through a NEPA process. The implementation phase includes route rehabilitation (including restoration of closed or unauthorized routes), signing, and enforcement. Within the planning area, one of the eleven BLM units is solely engaged in inventory (Tres Rios FO), one is solely engaged in designation (Dominguez-Escalante NCA), two units are engaged in a combination of designation and implementation (Uncompahgre and Grand Junction FOs), and seven units are in the implementation phase (McInnis Canyons and Gunnison Gorge NCAs, Canyons of the Ancients NM, and Gunnison, San Luis Valley, Moab, and Monticello FOs).

TRENDS

The BLM is currently in the process of moving away from an ‘open-system’ of travel management in favor of a Comprehensive Travel and Transportation Management system (CTTM). CTTM planning has become a major priority for the BLM, since extensive cross-country travel can impact natural and cultural resources, and can fragment habitat. CTTM is the proactive management of public access, natural resources, and regulatory needs to ensure that all aspects of road and trail system planning and management are considered. This includes resource management, road and trail design, rehabilitation, and recreation and non-recreation uses of the roads and trails. CTTM will address all resource aspects and accompanying modes and conditions of travel on the public lands. One implication of CTTM is the potential reduction in current access to public lands by mere volume of routes. Through the CTTM planning process, the relative significance of that change in public access will be determined by a number of factors, including: duplication of routes, route density, and natural and cultural resource concerns (BLM 2015).

Consistent with statewide trends, the overall trend for travel and transportation management on BLM-administered lands includes an increase in general visitation, OHV riding, hiking, and mountain biking use as populations increase within the planning area, and within the region.

Construction of new routes for development (energy and ROWs, etc.) is also expected to increase. Previously constructed roads could also require upgrading, relative to ROWs. Recreationists will likely use these routes, even though they are not designed to optimize recreation experiences.

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Private property adjacent to BLM-administered lands will likely continue to be subdivided. Subdivision of private property has dramatically increased the number of adjacent property owners, and increased the number of new access routes to public lands within the planning area. The result is expected to be continued unauthorized creation of unmanaged user-created routes that impact other resources. However, because of the remoteness of many areas within GUSG habitat on BLM-administered lands, these areas have not yet experienced significant changes in travel routes and are not expected to in the near future.

3.11. MINERALS

The BLM manages all federally-owned minerals that lie beneath both BLM, other federal, and non-federal lands (with the exception of Department of Energy uranium leases, discussed below). There are over one million acres of federal minerals within the decision area. However, under this RMP Amendment, the BLM is not making decisions on federal minerals beneath surfaces managed by other federal agencies (USFS and NPS), which includes 17% (175,890 acres) of the federal minerals in the decision area. The decisions and/or recommendations for mineral development under lands managed by the USFS are analyzed and made by that agency. The NPS units within the planning area are withdrawn from mineral exploration and development. In addition, there are approximately 646,060 acres of non-federal minerals within the decision area. Non-federal minerals in the planning area are typically owned by private entities and/or by the State of Colorado. Only federal minerals beneath BLM, private, and other non-federal surface are discussed in Chapters 3 and 4 as being subject to decisions from this analysis.

Federal mineral resources are managed under three categories with differing sets of laws and regulations for leasable, locatable, and salable minerals. In all cases, any activities related to the exploration or development of any kind of mineral on public lands must comply with other federal and state laws where applicable. These include laws such as the Clean Water Act, the Clean Air Act, the National Historic Preservation Act, and the Endangered Species Act. Where open to the public, the rights to access, explore, and develop locatable minerals are guaranteed by the Mining Law of 1872. Rights to leasable and salable minerals are granted through a process of leases, permits, and contracts.

As shown in Table 3.64, the amount of federal minerals compared to non-federal minerals varies within each GUSG population.

Table 3.64 - Mineral Estate in GUSG Habitat and Non-Habitat by Population Area

SURFACE OWNERSHIP/ MANAGEMENT	MINERAL OWNERSHIP	TOTAL ACRES	ACRES IN OCCUPIED HABITAT	ACRES IN UNOCCUPIED HABITAT	ACRES IN NON-HABITAT AREAS
Cerro Summit-Cimarron-Sims Mesa Population Area					
Total Minerals		128,500	37,142	19,400	72,000
Total Federal Minerals ¹ (56%)		71,400	18,554	11,400	41,400
BLM	federal	20,700	4,400	5,000	11,400
Split Estate (non-federal surface)	federal	45,800	13,800	6,400	25,600
Other Federal (USFS, NPS)	federal	4,900	400	10	4,500
Total Non-federal Minerals (44%)		57,100	18,600	8,000	30,500
BLM	non-federal	100	0	100	100
Non-BLM	non-federal	26,500	18,600	7,900	30,500

¹Includes 3,100 acres of coal only, 300 acres of oil and gas only, and 100 acres of oil, gas, and coal only.

Crawford Population Area					
Total Minerals		123,000	35,000	80,300	7,800
Total Federal Minerals ² (59%)		73,000	31,800	33,400	7,800
BLM	federal	33,900	22,100	10,300	1,500
Split Estate (non-federal surface)	federal	22,700	8,400	13,900	400
Other Federal (USFS, NPS)	federal	19,500	4,400	9,200	5,900
Total Non-federal Minerals (41%)		50,000	3,200	46,800	10
BLM	non-federal	10	0	10	0
Non-BLM	non-federal	50,000	3,200	46,800	10

²Includes 0 acres of coal only, 100 acres of oil and gas only, 50 acres of oil, gas, and coal only.

Gunnison Basin Population Area					
Total Minerals		822,900	605,000	137,000	80,900
Total Federal Minerals ³ (78%)		641,400	460,100	112,600	68,700
BLM	federal	364,000	288,400	63,600	12,000
Split Estate (non-federal surface)	federal	116,100	71,500	29,700	15,000
Other Federal (USFS, NPS)	federal	161,300	100,200	19,300	41,700
Total Non-federal Minerals (22%)		181,600	145,000	24,400	12,200
BLM	non-federal	14,000	13,600	300	10
Non-BLM	non-federal	167,600	131,400	24,100	12,200

³Includes 600 acres of coal only, 700 acres of oil and gas only, and 0 acres of oil, gas, and coal only.

Monticello-Dove Creek Population Area					
Total Minerals		406,900	112,300	235,900	58,800
Total Federal Minerals ⁴ (29%)		119,300	23,200	63,800	32,400
BLM	federal	67,700	6,900	35,600	25,200
Split Estate (non-federal surface)	federal	50,600	16,300	28,100	6,300
Other Federal (USFS, NPS)	federal	900	0	50	900

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SURFACE OWNERSHIP/ MANAGEMENT	MINERAL OWNERSHIP	TOTAL ACRES	ACRES IN OCCUPIED HABITAT	ACRES IN UNOCCUPIED HABITAT	ACRES IN NON-HABITAT AREAS
Total Non-federal Minerals (71%)		287,700	89,100	172,100	26,400
BLM	non-federal	2,100	1,600	300	200
Non-BLM	non-federal	285,500	87,500	171,800	26,200

⁴Includes 300 acres of coal only, 31,100 acres of oil and gas only, and 0 acres of oil, gas, and coal only.

Piñon Mesa Population Area					
Total Minerals		304,600	44,100	201,400	59,100
Total Federal Minerals ⁵ (76%)		230,800	25,800	158,600	46,400
BLM	federal	133,400	11,900	95,500	25,900
Split Estate (non-federal surface)	federal	42,500	13,200	20,500	8,900
Other Federal (USFS, NPS)	federal	54,900	700	42,600	11,500
Total Non-federal Minerals (24%)		73,800	18,300	42,700	12,800
BLM	non-federal	3,700	800	2,300	700
Non-BLM	non-federal	70,100	17,500	40,500	12,100

⁵Includes 0 acres of coal only, 200 acres of oil and gas only, and 0 acres of oil, gas, and coal only.

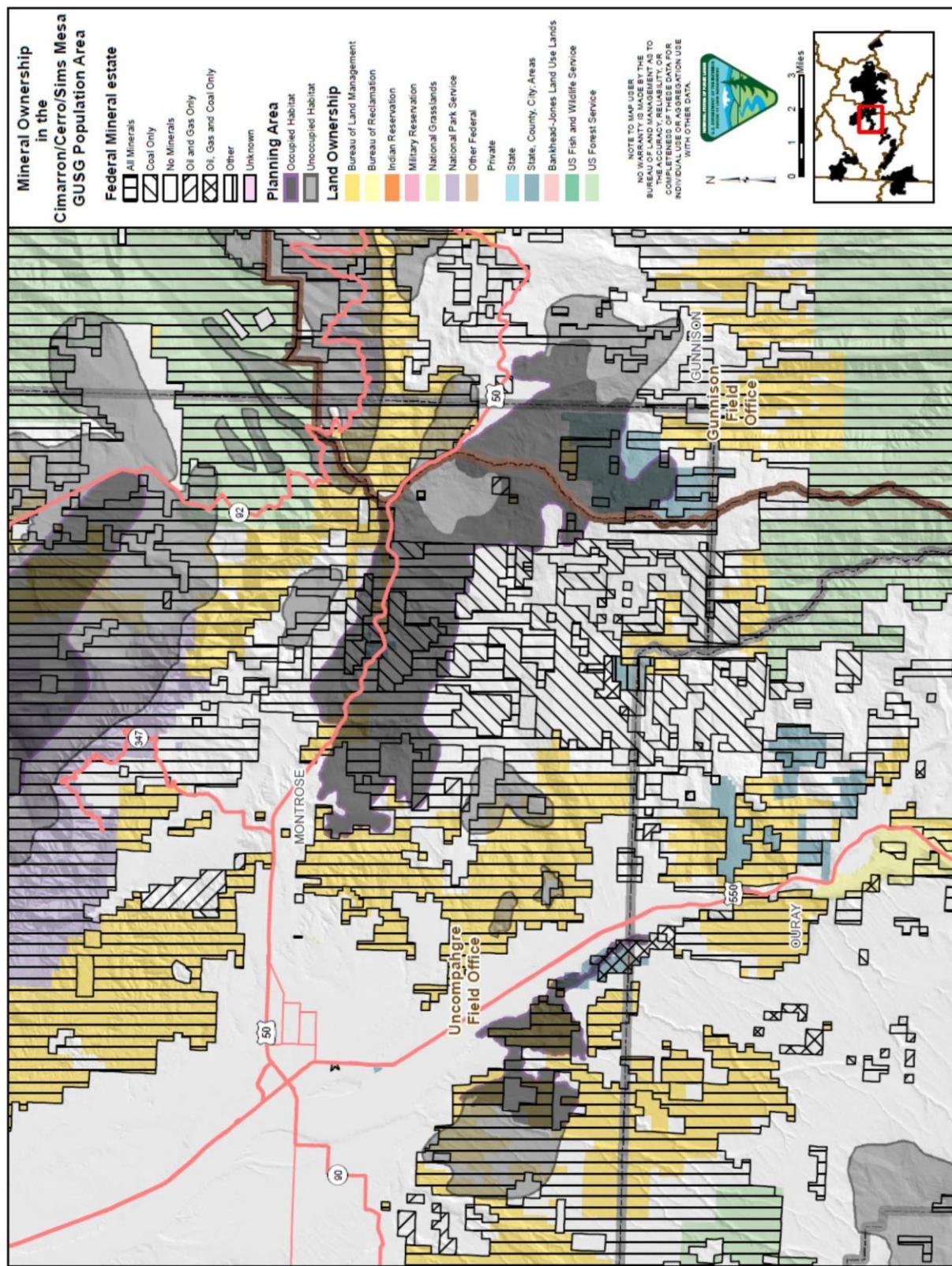
Poncha Pass Population Area					
Total Minerals		65,600	20,400	27,900	16,200
Total Federal Minerals ⁶ (73%)		48,000	15,800	15,800	15,700
BLM	federal	24,900	9,300	14,900	800
Split Estate (non-federal surface)	federal	2,700	2,000	800	0
Other Federal (USFS, NPS)	federal	20,300	5,200	200	14,900
Total Non-federal Minerals (27%)		16,600	4,000	12,100	600
BLM	non-federal	600	600	20	0
Non-BLM	non-federal	16,000	3,400	12,100	600

⁶Includes 0 acres of coal only, 0 acres of oil and gas only, and 0 acres of oil, gas, and coal only.

San Miguel Basin Population Area					
Total Minerals		267,800	101,600	41,500	124,800
Total Federal Minerals ⁷ (62%)		165,300	66,700	13,600	84,900
BLM	federal	76,300	35,800	0	40,500
Split Estate (non-federal surface)	federal	55,400	29,500	1,200	24,600
Other Federal (USFS, NPS)	federal	33,600	1,400	12,400	19,900
Total Non-federal Minerals (38%)		102,600	34,800	33,700	39,900
BLM	non-federal	300	40	0	200
Non-BLM	non-federal	102,300	34,800	27,900	39,600

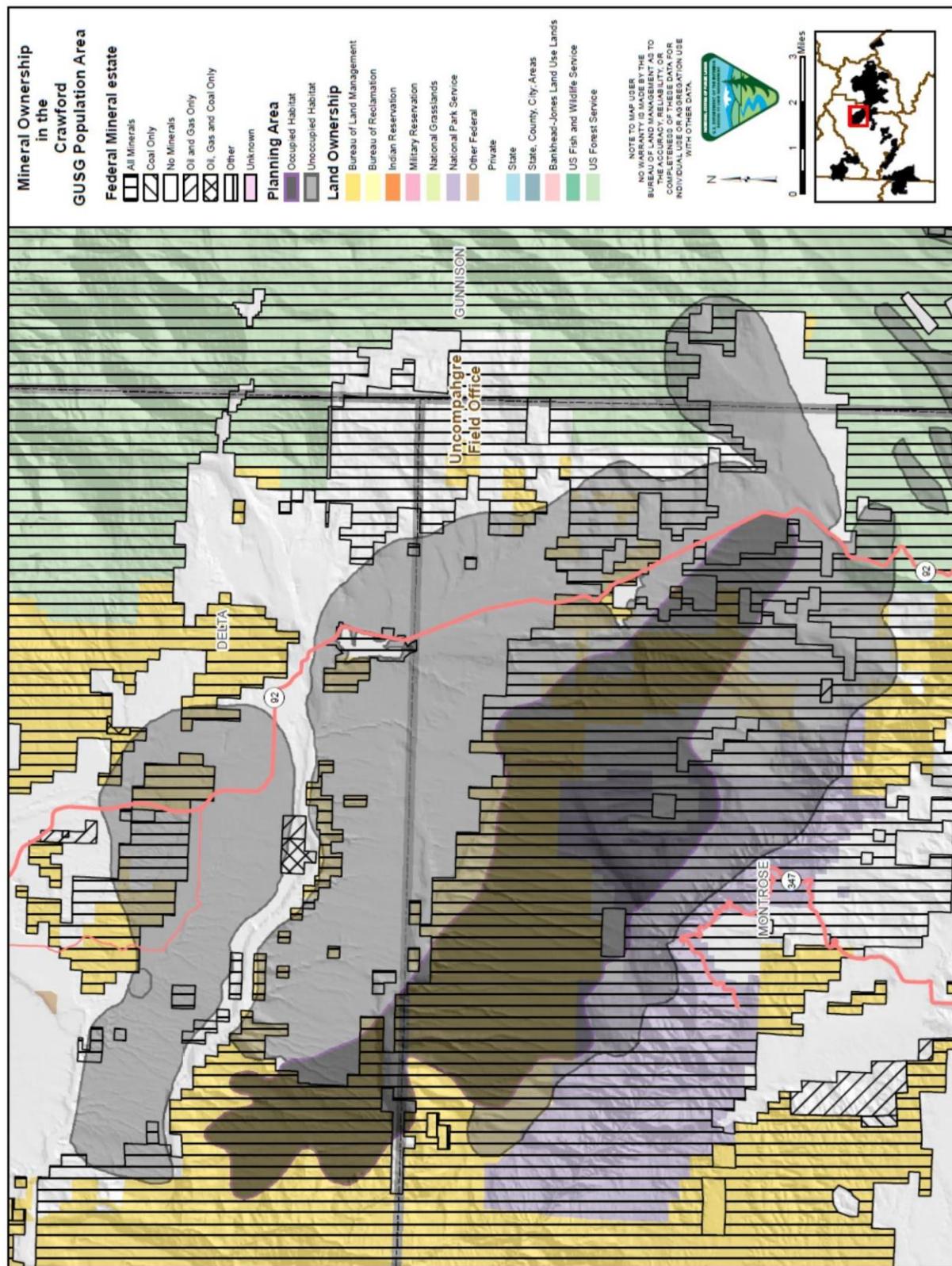
⁷Includes 0 acres of coal only, 1,300 acres of oil and gas only, and 0 acres of oil, gas, and coal only.

Figure 3.54 - Mineral Ownership in Cerro Summit-Cimarron-Sims Mesa Population Area



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Figure 3.55 - Mineral Ownership in the Crawford Population Area



CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.56 - Mineral Ownership in the Gunnison Basin Population Area

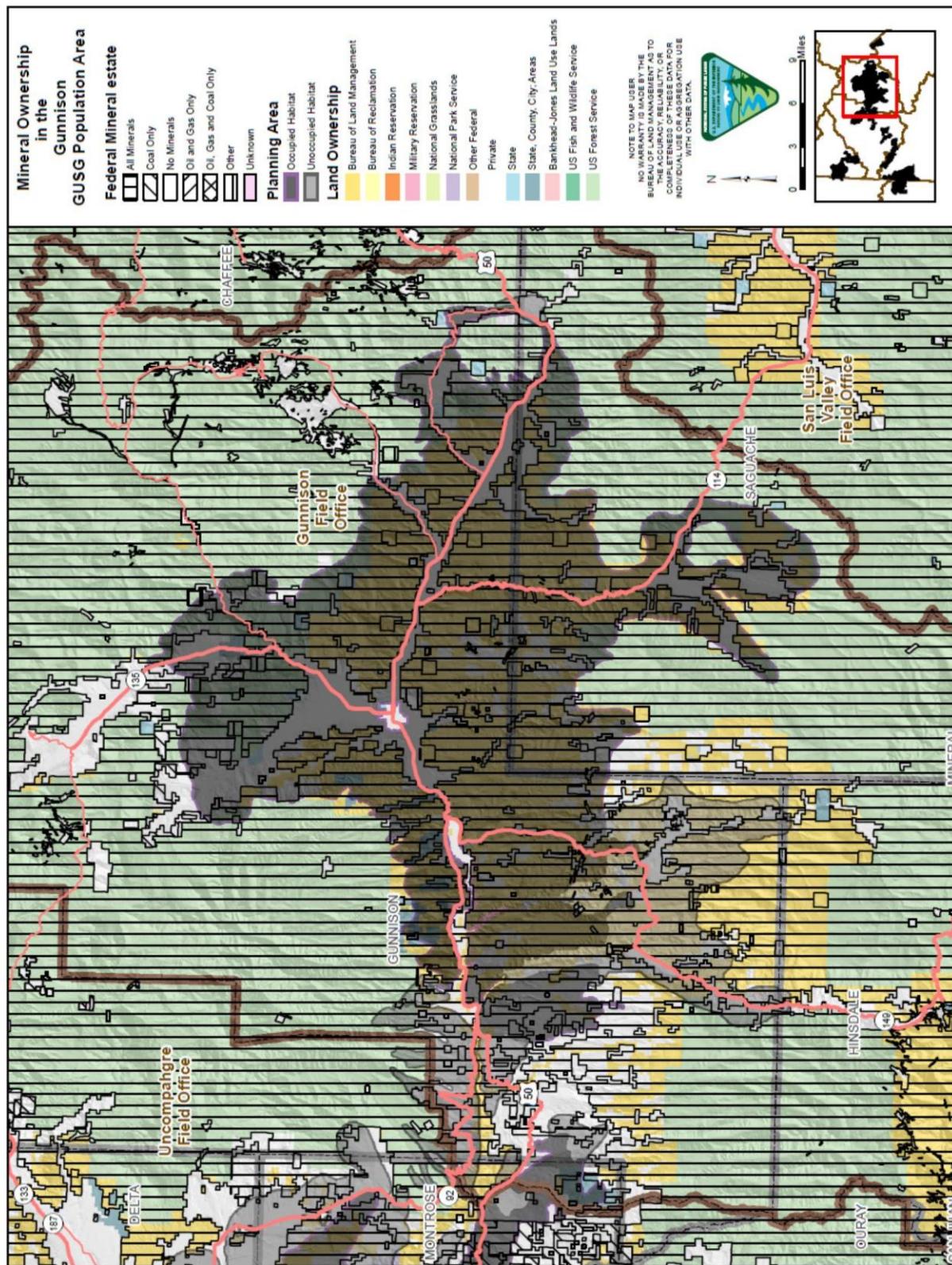
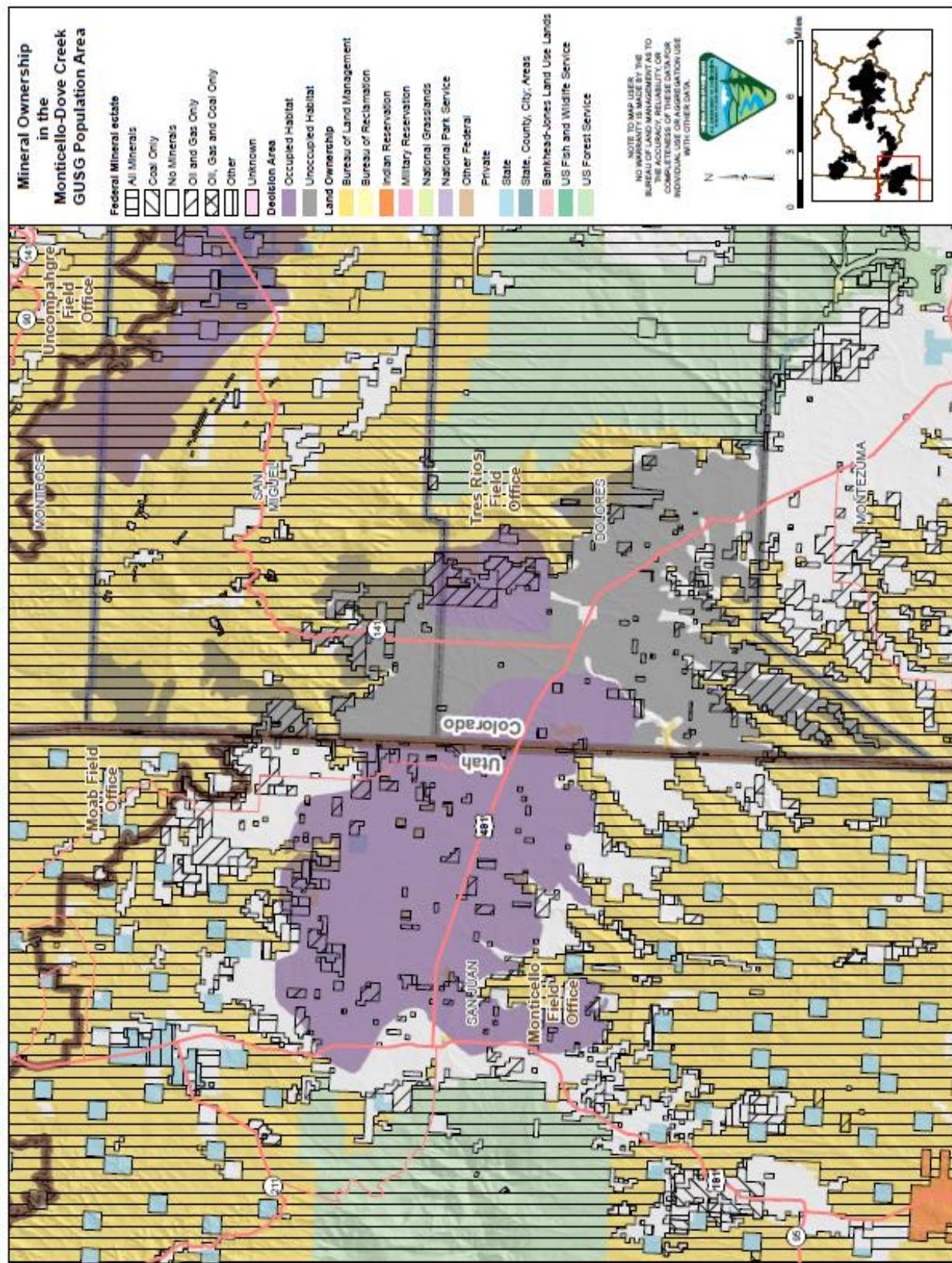
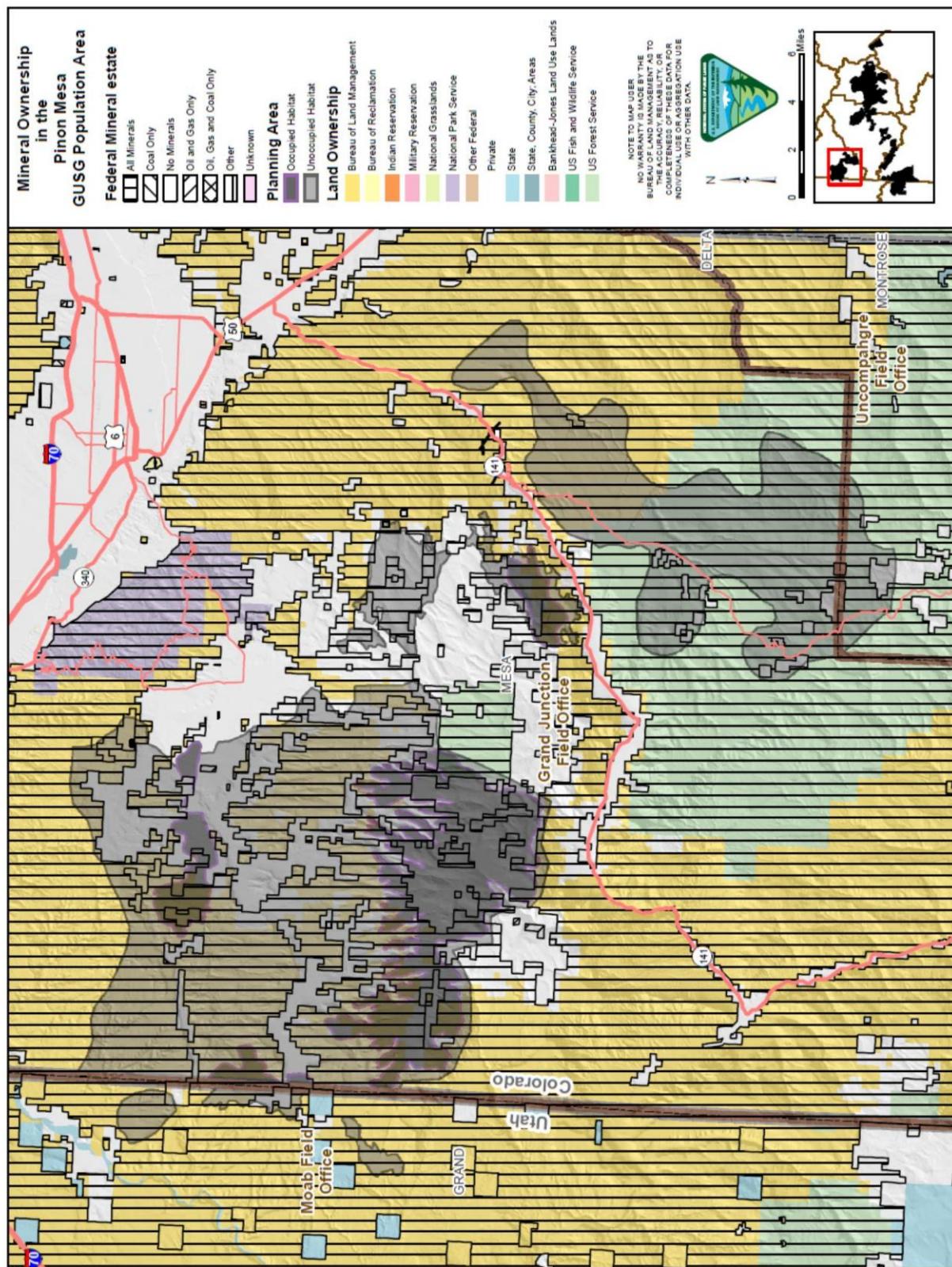


Figure 3.57 - Mineral Ownership in the Monticello-Dove Creek Population Area



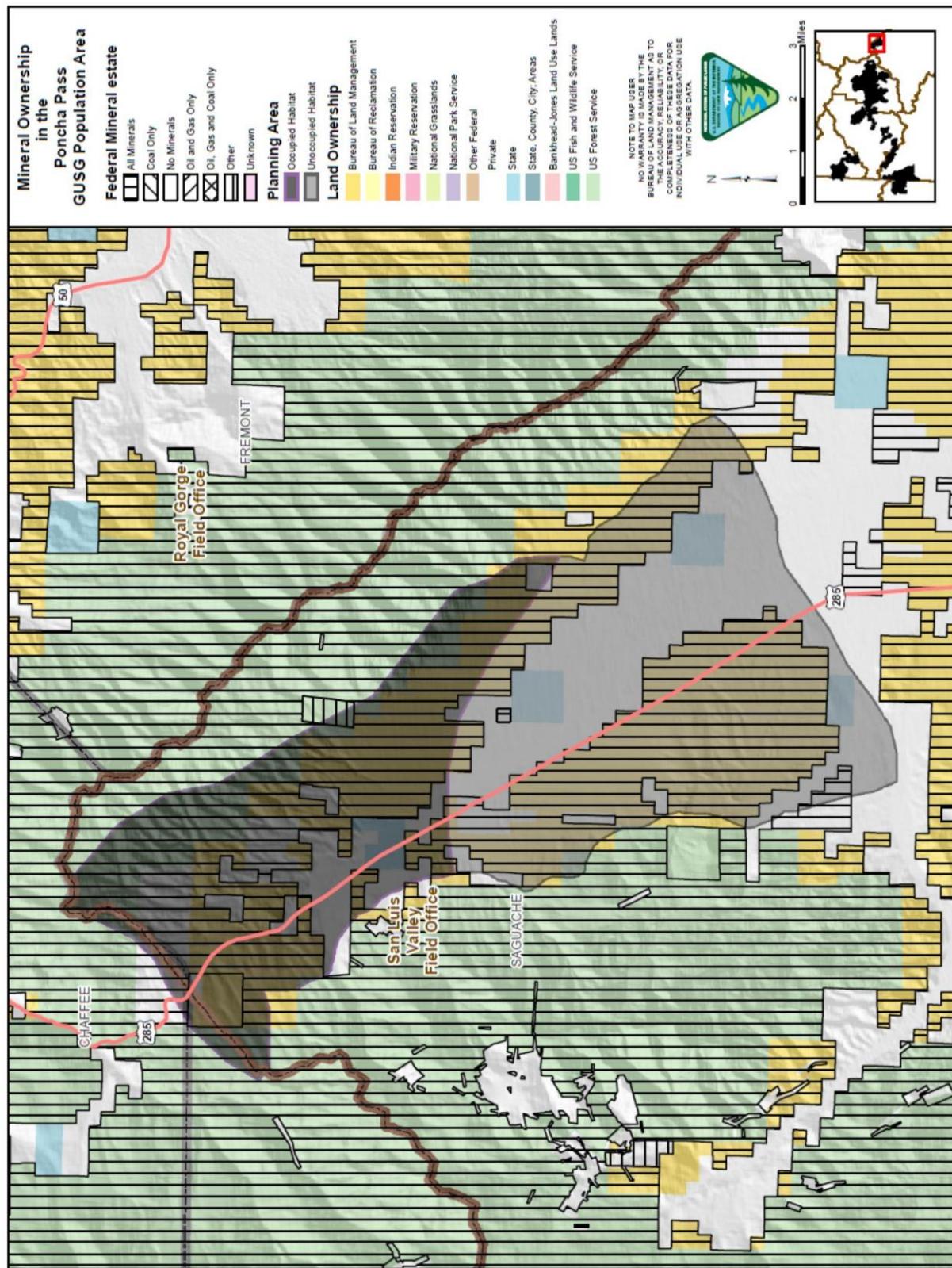
CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.58 - Mineral Ownership in the Piñon Mesa Population Area



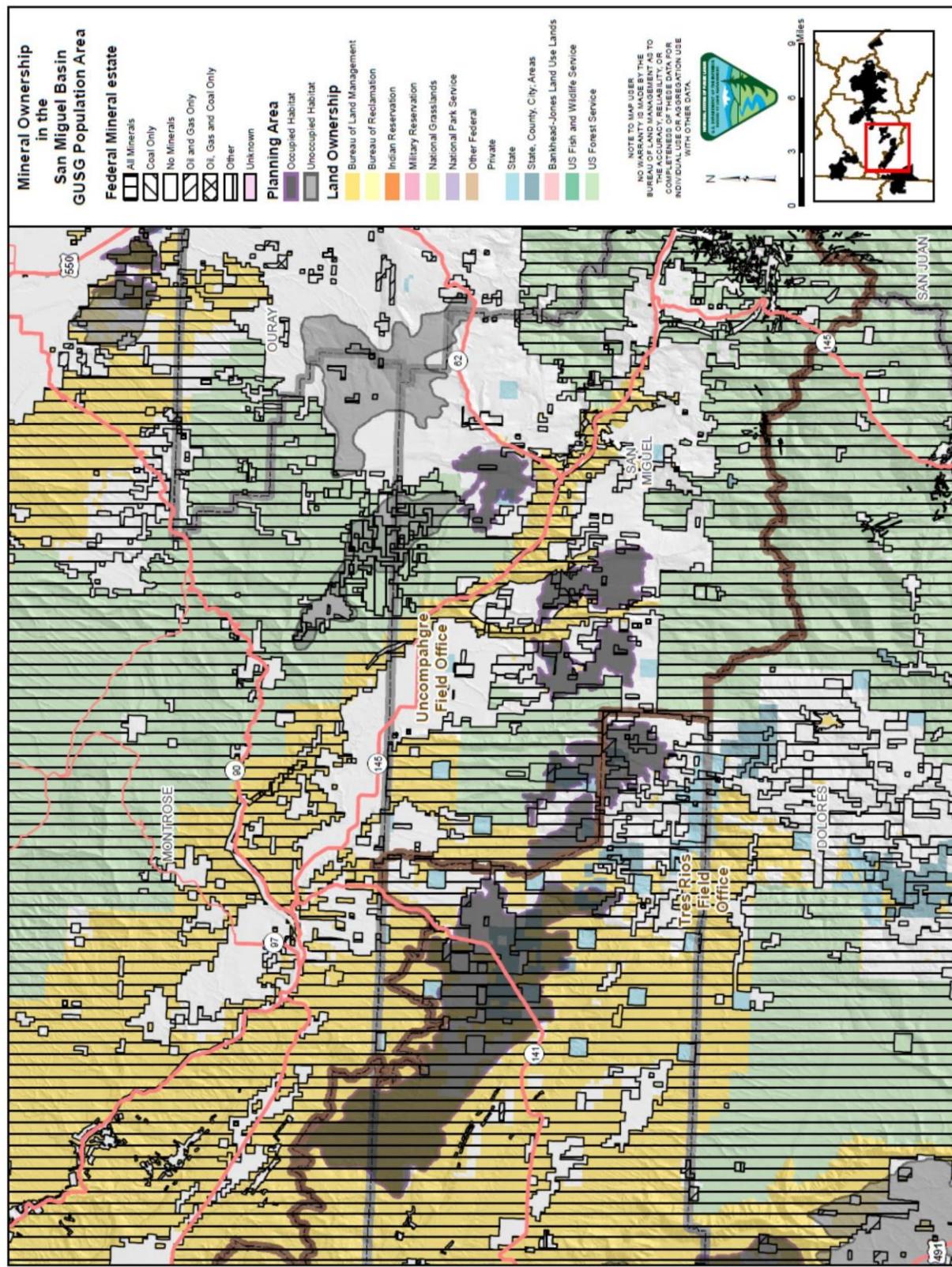
CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.59 - Mineral Ownership in the Poncha Pass Population Area



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Figure 3.60 - Mineral Ownership in the San Miguel Basin Population Area



3.11.1. LEASABLE MINERALS

Leasable minerals consist of leasable fluid and solid minerals, as defined by the Mineral Leasing Act of 1920 as amended, and 43 CFR 3000-3599. Leasable fluid minerals include oil, natural gas (including methane, coalbed natural gas, and carbon dioxide), and geothermal resources. Geothermal leasing is authorized in accordance with the Geothermal Steam Act of 1970. Leasable solid minerals include coal, oil shale, and tar sands. Leasable solid minerals also include non-energy minerals, such as phosphate, potash, and sodium. Hard rock minerals—minerals that would otherwise be locatable (such as gold, silver, copper, etc.) on acquired lands (lands acquired by the federal government, rather than typical public domain lands) could also be subject to leasing depending on the authority by which lands were acquired. Uranium is not a leasable mineral as defined by the Mineral Leasing Act, but can be leased under the authority of the Department of Energy (DOE) Uranium Lease Program in specific areas on public land (see discussion later in this section).

OIL & GAS

INDICATORS

The following indicators are used to describe the existing condition related to oil and gas leasing. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal oil and gas resources:

- Acres of federal minerals leased for oil and gas
- Acres of federal minerals closed to oil and gas leasing
- Acres of federal minerals open to oil and gas leasing
- Acres subject to NSO stipulation
- Acres subject to Controlled Surface Use (CSU), Timing Limitations (TL), and/or standard stipulations
- Acres of ROW exclusion and avoidance areas (described in Section 3.13, Lands and Realty)

EXISTING CONDITIONS

The existing conditions for oil and gas leasing across the decision area are summarized in the following tables. The conditions related to oil and gas leasing vary between BLM field offices and between GUSG populations, and are described in detail later in this section.

Two GUSG population areas (San Miguel Basin and Monticello-Dove Creek) have moderate to high oil and gas development potential. About 17% (148,000 acres) of the decision area has moderate to high potential. The remaining populations are classified as low or none (BLM 2015a).

Table 3.65 - Oil and Gas Development Potential in the Decision Area

HABITAT TYPE	OIL AND GAS DEVELOPMENT POTENTIAL (ACRES)				
	High	Moderate	Low	None	Total¹
Total Decision Area - All Minerals	352,900	241,300	471,700	29,700	2,118,300
Occupied Habitat	137,200	61,900	72,900	400	965,600
Unoccupied Habitat	136,900	56,500	277,400	22,800	743,300
Non-Habitat	78,800	95,900	121,400	6,500	1,336,300
Total Decision Area - Federal Minerals	78,800	150,200	278,900	27,600	1,336,300
Occupied Habitat	66,200	22,700	39,900	400	638,900
Unoccupied Habitat	40,200	19,800	169,300	21,100	408,900
Non-Habitat	53,000	62,600	69,700	6,100	288,500

¹Includes areas identified as “not recorded”; 927,800 acre total includes 663,200 acres of federal minerals.
BLM 2015

The areas where potential was “not recorded” are primarily within the Gunnison and San Luis Valley FOs, the NCAs, and the National Monument. The San Luis Valley and Gunnison FOs have not had recent evaluations of oil and gas development potential, as the RMPs for those area were completed in the early 1990s. The portions of those field offices within the decision area have not had any leasing or exploration activity in the past twenty years or more.

In addition, there are approximately 288,500 acres of federal minerals located within 4 miles of GUSG leks, but outside the Occupied Habitat and Unoccupied Habitat of the decision area. Similar to the decision area, most of these Non-Habitat Areas have been identified as having low to no potential for oil and gas development. Only the Non-Habitat in proximity to the Monticello-Dove Creek and San Miguel Basin populations (less than 40%) include federal minerals within areas that have been identified as having moderate to high potential.

The BLM has decisions in place in current RMPs that allocate which areas are closed and open to leasing, and if open, under what conditions.

CHAPTER 3 - AFFECTED ENVIRONMENT

Table 3.66 provides a summary of federal mineral acres open and closed to leasing, acres currently leased within the open areas, and how much of the leased acreage is held by production (meaning currently being developed and/or producing).

Table 3.66 - Federal Fluid Mineral Acreage Closed, Open, and Leased for Oil and Gas

HABITAT TYPE	ACRES CLOSED TO LEASING ¹	ACRES OPEN TO LEASING	ACRES LEASED	LEASED ACRES HELD BY PRODUCTION
Total Decision Area - Federal Minerals	238,500	802,400	69,700	30,300
Occupied Habitat	81,900	444,700	11,900	5,000
Unoccupied Habitat	125,100	200,000	24,400	15,600
Non-Habitat	31,500	157,700	33,500	9,700

¹Includes areas administratively unavailable for leasing, such as Wilderness Areas, Wilderness Study Areas, and certain withdrawn lands.

Oil and gas leases are issued for a ten-year period and continue for as long thereafter as oil or gas is produced in paying quantities. Leases expire at the end of their primary term—the tenth year—unless they are held by production, meaning that one of the following conditions exists:

- diligent drilling operations are in progress on or for the benefit of the lease
- the lease contains a well capable of producing oil or gas in paying quantities
- the lease is receiving or is entitled to receive an allocation of production under the terms of an approved communitization agreement or unit agreement.

Currently there are oil and gas leases on federal minerals in the Monticello-Dove Creek and San Miguel Basin population areas, one lease in the Crawford population area, and no leases in the other population areas.

In 2014, San Miguel County (which includes parts of the Monticello-Dove Creek and San Miguel Basin population areas) ranked 12th out of 38 Colorado counties in natural gas production and 28th out of 39 in oil production (COGCC 2015).

Dolores County (which includes parts of the Monticello-Dove Creek population area) ranked 24th out of 38 Colorado counties in natural gas production and 23rd out of 34 in oil production (COGCC 2015). San Juan County (which includes part of the Monticello-Dove Creek population area) ranked 4th out of 9 Utah counties in natural gas production and 3rd of 10 in oil production (State of Utah 2015).

Colorado ranks 6th in the nation for natural gas production and 7th for crude oil production, while Utah ranks 10th for natural gas and 11th for crude oil (US EIA 2015).

Areas designated as open to leasing in an RMP may be leased under standard lease terms on the lease sale contract, which set general parameters for development of a lease. If additional restrictions are required to protect certain resources, lease stipulations may be added to the standard lease terms. Lease stipulations include

No Surface Occupancy (NSO), timing limitations (TL), and controlled surface use (CSU), defined as follows:

NSO - Prohibits any occupancy or other use of the surface that results in ground-disturbing activities.

TL - Prohibits occupancy or other use of the surface during a specified season or other period. For oil and gas, this applies to construction, drilling, and completion activities, but does not apply to production and maintenance activities.

CSU - Allows the BLM to apply special requirements, such as those related to location, design, reclamation, and monitoring of proposed facilities.

Lease stipulations are applied at the time of lease issuance. New stipulations required under a planning decision would apply only to new leases. Existing leases are subject to the lease stipulations attached to them at the time of lease issuance. Together, the written stipulations in the RMPs and any mapped geographic information system (GIS) layers describe the lands where stipulations apply. These mapped areas can change based on the most current information at the time of the leasing analysis. More than one stipulation can apply to a particular land area. For example, an area might have a CSU stipulation applied for one particular purpose and a TL applied to address another resource purpose. Some resources are not mapped or are only partially mapped. Resources not mapped or partially mapped would be applied on a case by case basis where applicable.

Most stipulations have circumstances, described in the RMP, for granting a waiver, exception, or modification to the stipulation. A waiver is a permanent exemption from a lease stipulation. An exception is a one-time exemption for a particular site within a lease. A modification is a change to the provisions of a stipulation, either temporarily or for the term of the lease.

The BLM has the authority and is required by law to review a request from an operator and to grant, if warranted, waivers, exceptions, or modifications to oil and gas lease stipulations and associated permitting activities. Based on a site-specific analysis—which includes consideration of any new information or changed circumstances—protections may be increased or decreased to address resource concerns.

Waivers, exceptions, and modifications are rarely authorized. For example, in the last ten years in BLM Colorado, no modifications or waivers have been authorized. Exceptions have been granted on approximately 7% of APDs (B. Sterling, personal communication, May 29, 2015). Exceptions have been approved primarily for big game winter range TL stipulations.

SPLIT ESTATE

In split estate situations, the surface rights and subsurface mineral rights for a piece of land are owned by different parties. For this analysis, the discussion of split estate applies to federal minerals managed by the BLM that underlie non-federal land surfaces. The BLM works to encourage coordination and cooperation among all parties that have rights and responsibilities in split estate situations.

The mineral owner and lessee must show due regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate. For example, if intending to conduct operations on private land, a lessee/operator is encouraged to contact the surface owner as early as possible when operations are contemplated. The lessee is required to certify that a good faith effort has been made to negotiate a surface use agreement with the surface owner. If a good faith effort by the lessee/operator cannot be reached, the lessee/operator still has the right to enter upon the lands to perform these activities. The lessee/operator can post a Surface Owner Damages Bond to protect the surface owner against reasonable and foreseeable losses or damages.

During permit review, the surface owner is entitled to the same level of resource protection provided on federally owned estate. The BLM is responsible for ensuring that authorized mineral development meets all statutory and regulatory requirements. Activities and use of the surface are not subject to FLPMA planning requirements, and the BLM does not have authority under FLPMA over use of the surface by the surface owner. BLM management authority on split estate lands is limited to activities (both surface and subsurface) related to exploration and development of the minerals. However, the BLM is required to analyze in land use planning and NEPA documents the impacts to surface resources, uses, and users from any BLM-authorized mineral development. Stipulations for surface protection will be applied where regulatory lease terms and conditions are not adequate to protect those resources. To accommodate development preferences identified at the onsite meeting with the surface owner, exceptions, modifications, and waivers may be granted if appropriate.

An operator or lessee must also follow Colorado Oil and Gas Conservation Commission (COGCC), Utah Division of Oil, Gas, and Mining, and applicable county regulations.

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Table 3.67 - Oil and Gas Leasing Allocation Decisions and Current Leases by GUSG Population

BLM RMP	ALLOCATIONS (ACRES)					LEASE STIPULATIONS (ACRES) ¹		
	CLOSED TO LEASING	CLOSED TO PROTECT GUSG	OPEN TO LEASING	CURRENTLY LEASED	UNLEASED	NSO	CSU	TL
GUNNISON BASIN POPULATION								
Gunnison RMP	9,100	0	556,000	0	556,000	302,000	107,400	30,700
Uncompahgre Basin RMP	0	0	7,000	0	7,000	300	0	100
CERRO SUMMIT-CIMARRON-SIMS MESA POPULATION								
Uncompahgre Basin RMP	0	0	22,700	0	22,700	0	0	45,100
Gunnison RMP	0	0	4,100	0	4,100	300	200	30
CRAWFORD POPULATION								
Uncompahgre Basin RMP	0	0	31,800	20	31,800	0	0	0
Gunnison Gorge NCA RMP	8,400	0	33,100	0	33,100	17,700	6,900	59,000
MONTICELLO-DOVE CREEK POPULATION								
Tres Rios RMP	53	0	63,919	26,135	37,784	14,884	257,656	95,606
Canyons of the Ancients NM RMP	0	0	4,079	2,320	1,759	4,079	0	0
Monticello RMP	0	0	18,545	1,254	17,291	0	4,124	0
PIÑON MESA POPULATION								
Grand Junction RMP	25,500	25,500	110,700	0	110,700	52,700	43,300	12,300
McInnis Canyons NCA RMP	20,900	0	0	0	0	N/A	N/A	N/A
Dominguez-Escalante NCA RMP	17,700	0	0	0	0	N/A	N/A	N/A
Uncompahgre Basin RMP	0	0	5,600	0	5,600	200	0	100
Moab RMP	2,500	0	5,300	0	5,300	40	0	0
SAN MIGUEL BASIN POPULATION								
Tres Rios RMP	0	0	53,300	6,530	0	64,300	322,300	179,600
San Juan/San Miguel RMP	0	0	11,400	0	0	1,600	0	UTD ²
Uncompahgre Basin RMP	0	0	1,067	0	0	0	0	0
PONCHA PASS POPULATION								
San Luis RMP	500	0	31,700	0	15,600	900	0	57,900

¹ There are overlapping stipulations, so acres may be accounted for in NSO, CSU, and/or TL.

² Unable to Determine: Stipulation applies to resource not currently mapped (e.g. GUSG winter habitat).

Gunnison Basin Population

Lands supporting the Gunnison Basin Population are identified as not recorded or as having low oil and gas development potential (BLM 2015a). The Final EIS for the Gunnison RMP (1992) noted that the likelihood for occurrence was low to nominal, and the development potential was also low to nominal. According to the Gunnison RMP, the most reasonably foreseeable level of oil, gas, and geothermal development is a maximum of one or two APDs during the life of the RMP, with an estimated total of ten acres of surface disturbance (BLM 1993). The last lease in the population area was on split-estate lands and expired in 1994. No wells have been drilled on federal leases in the population area (BLM 1991b). Currently there are no leases for oil and gas development on lands supporting the Gunnison Basin Population (BLM 2015a).

Within the Gunnison Basin population area, the Gunnison FO administers approximately 560,700 acres (76%) of minerals and the Uncompahgre FO administers approximately 7,000 acres (1%) of minerals.

The 1993 Gunnison RMP provides for NSO within 0.6 mile of a GUSG lek and CSU for other habitat. The Uncompahgre Basin RMP does not include any lease stipulations specifically prescribed to protect GUSG or GUSG habitat.

Cerro Summit-Cimarron-Sims Mesa Population

The Cerro Summit-Cimarron-Sims Mesa Population is within an area with low oil and gas potential (BLM 2015a). Currently no federal lands are leased in the population area (BLM 2015a).

The Uncompahgre FO administers approximately 25,793 acres (46%) of minerals on lands supporting the Cerro Summit-Cimarron-Sims Mesa Population. The Gunnison FO administers approximately 4,149 acres (7%). RMP guidance for the area is the same as that for the Gunnison Basin Population (discussed in the previous section).

Crawford Population

Lands supporting the Crawford Population are in an area with low potential for oil and gas development (BLM 2015a). The most reasonably foreseeable level of oil, gas, and geothermal development in the decision area, from the 2004 Gunnison Gorge NCA RMP, would involve a maximum of one to ten APDs during the life of the RMP, with an estimated total of from 10 to 30 acres of surface disturbance. There is one authorized federal lease (BLM 2015a) that includes 24 acres (<0.1 %) of the Crawford population area.

The 2004 Gunnison Gorge NCA RMP provides for NSO within 2.0 miles of GUSG leks and TLs for winter range and nesting. The Gunnison Gorge Wilderness and the Gunnison Gorge NCA are closed to mineral leasing. The existing Uncompahgre Basin RMP does not include any lease stipulations specifically prescribed for protection of GUSG or GUSG habitat.

Monticello-Dove Creek Population

The Monticello-Dove Creek Population is in an area of moderate to high oil and gas development potential (BLM 2015a). There are 112 federal leases that include 29,700 acres (8.5 %) of the population area (BLM 2015a).

Canyons of the Ancients NM administers approximately 4,100 acres (1%) of minerals on lands supporting the Monticello-Dove Creek GUSG Population, the Tres Rios FO administers approximately 63,400 acres (18%), and the Monticello FO administers approximately 18,855 acres (5%).

Currently approximately 80 percent (about 131,000 acres and 125 wells) of the entire Monument is leased for fluid mineral development, including oil and gas and carbon dioxide (CO₂). Most of these leases are unitized and held by production. Production of CO₂ is a major economic driver in Montezuma County, which borders Dolores County and the population area to the south, and is expected to continue for up to 50 years. However, oil and natural gas production is declining. It is anticipated that there will be up to 150 wells (81 oil and natural gas wells and 69 CO₂ wells) on up to 121 new locations over the life of the Canyons of the Ancients NM RMP. New oil and gas leases will be allowed up to 880 acres for drainage purposes only. Based upon the reasonably foreseeable development scenario, up to 2 new well pads in 20 years may be permitted on new leases.

In the Colorado portion of the population area, NSO is applied to all Occupied Habitat. Within the Tres Rios FO, CSU stipulations may also be applied to Unoccupied Habitat, as well as to address noise impacts. A lease notice may also be applied to notify lessees of the need to protect GUSG populations and habitat quality. In the Utah portion of the population area, no surface-disturbing activities are allowed within 0.6 mile of an active GUSG lek and a CSU Stipulation would be applied to protect other GUSG habitat.

Piñon Mesa Population

The potential for oil or gas development in this area is none to low (BLM 2015a). No oil and gas wells or authorized federal leases occur on lands supporting the Piñon Mesa Population (BLM 2015a).

The Dominguez-Escalante NCA administers approximately 17,700 acres (7 %) of minerals on lands supporting the Piñon Mesa GUSG Population and the McInnis Canyons NCA administers approximately 20,800 acres (8 %). Both NCAs are closed to mineral leasing.

The Grand Junction FO administers approximately 135,900 acres (55 %) of minerals on lands supporting the Piñon Mesa GUSG Population. All GUSG critical habitat is closed to leasing.

The Uncompahgre FO administers approximately 5,600 acres (2%) and the Moab 3057 FO administers approximately 5,300 acres (2%). The current San Juan/San Miguel Oil and Gas RMP Amendment (1991) provides for NSO within 0.6 mile of a GUSG lek, CSU for other GUSG habitat, and a TL for winter and breeding habitat. The Moab RMP also provides for no surface-disturbing activities within 0.6 mile of a GUSG lek. The existing Uncompahgre Basin RMP does not include any lease stipulations specifically prescribed for protection of GUSG or GUSG habitat.

Poncha Pass Population

The San Luis RMP Draft EIS (1989) identified the field office planning area as having low and nominal potential. The entire Poncha Pass population area is within the San Luis Valley FO. The San Luis Valley FO manages 31,550 acres (66%) of minerals in the Poncha Pass population. Under the current San Luis RMP (1991), there are no lease stipulations prescribed for protection of GUSG or GUSG habitat. The RMP described that based on past exploration and future projections concerning fluid mineral activity, the reasonably foreseeable level of development within the planning area would involve a maximum of ten APDs and seven geophysical notices of intent (NOIs) per year. That level of activity would result in an estimated 40 acres of surface disturbance per year (BLM 1989). Since 1991, there have been no leases sold within the Poncha Pass population area.

San Miguel Basin Population

The oil and gas development potential ranges from low to high across the population area (BLM 2015a). Most of the Occupied Habitat is rated as moderate to high development potential, and the Unoccupied Habitat as low to moderate. Within Occupied Habitat, there are currently 29 leases, 18 of which are held by production. The leases include 6,528 acres, (4.6 %) of the Occupied Habitat, 4,994 acres of which are under production. Currently 25 gas wells are active within Occupied Habitat of the San Miguel Basin, and an additional 18 active wells occur immediately adjacent to Occupied Habitat (BLM 2015a). All of these wells are in or near the Dry Creek sub-population.

The Tres Rios FO administers approximately 54,544 acres (38%) of minerals in the San Miguel Basin population area. The Uncompahgre FO administers approximately 25,675 acres (18 %) of minerals.

In the Tres Rios FO, NSO is applied to all Occupied Habitat. CSU stipulations may also be applied to Unoccupied Habitat and to address noise impacts. A lease notice may also be applied to notify lessees of the need to protect GUSG populations and habitat quality.

The current San Juan/San Miguel Oil and Gas RMP Amendment (1991) provides for NSO within 0.6 mile of a GUSG lek, CSU for other GUSG habitat, and a TL for winter and breeding habitat. Under the current Uncompahgre Basin RMP (1989), there are no lease stipulations prescribed for protection of GUSG or GUSG habitat.

TRENDS

The U.S. Energy Information Administration estimates that over the next 25 years both demand and prices for oil and gas will increase (USEIA 2015c). These circumstances would likely result in continued industry emphasis on increasing production of known reservoirs and searching for additional reservoirs. The NSO stipulation for Occupied Habitat in the Tres Rios FO, which has been implemented for new leases since February 2015, will limit potential exploration and development in the Monticello-Dove Creek and San Juan Basin populations. The rest of the population areas within the decision area have low to no development potential for oil and gas.

GEOTHERMAL RESOURCES

INDICATORS

The following indicators are used to describe the existing condition related to geothermal leasing. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal geothermal resources:

- Acres of federal minerals leased for geothermal
- Acres of federal minerals closed to geothermal leasing
- Acres of federal minerals open to geothermal leasing
- Acres subject to NSO stipulation
- Acres subject to CSU, TL, and/or standard stipulations
- Acres of ROW exclusion and avoidance areas (described in Section 3.12, Lands and Realty)

The decision area does not include areas with high potential for geothermal development. As described below, all RMPs in the planning area contain the same allocations and stipulations for geothermal leasing and oil and gas leasing except for the Gunnison and San Luis RMPs, both of which identify separate allocation decisions specific to geothermal leasing.

EXISTING CONDITIONS

In 2008, the BLM and the USFS completed an EIS for geothermal leasing in the western United States. The BLM issued its Record of Decision (ROD) and Approved RMP Amendments for Geothermal Leasing in the Western United States in December 2008. Although specific to geothermal leasing, the RMP Amendments were consistent with existing fluid mineral leasing allocation decisions and/or with proposed fluid mineral leasing allocation decisions in RMPs being revised at that time. The ROD amended all of the existing RMPs within the GUSG RMP Amendment planning area in Colorado, with the exception of the San Luis RMP. The San Luis RMP was subsequently amended for geothermal leasing decisions in 2013. In Utah, the Moab and Monticello RMPs were not amended for geothermal leasing, as the RMPs had been developed concurrently with the Geothermal EIS and incorporated geothermal direction in the RMPs. In 2010, the Gunnison RMP was also amended for consistency with the geothermal leasing amendments for a specific area within the field office.

The planning area does not include areas with high potential for geothermal development. The 2008 Geothermal EIS included a Reasonably Foreseeable Development Scenario analysis of geothermal development in the western United States. Within the decision area, there is no potential for geothermal development in the Moab or Monticello FOs. Colorado was identified as one of four western states with the lowest development potential for geothermal electrical generation. However, projected development for federal geothermal resources in the state was 20 megawatts by 2015, and 50 megawatts by 2025. Ten areas with the highest potential for geothermal electrical generation in Colorado were identified, two of which are in the decision area: Waunita and Poncha (BLM 2008). The Waunita area is in the Gunnison FO and the Poncha area is in the San Luis Valley FO.

In the decision area, there is one geothermal lease located in the Gunnison FO. This lease was sold in 2010 and has not yet had any applications for exploration or development activities.

Gunnison Basin Population

Gunnison FO

The Gunnison FO administers approximately 560,669 acres (76%) of minerals in the Gunnison Basin Population area. The Waunita area identified in the 2008 Geothermal EIS was the subject of a 2010 geothermal leasing analysis and subsequent Gunnison RMP Amendment. In the Reasonably Foreseeable Development Scenario, it is anticipated that the area has the potential for development of one geothermal resource project that could culminate in a working commercial binary-cycle geothermal power plant likely sized to 5-10 megawatts. Once operational, the project as a whole would likely be limited to an area no larger than two sections, with approximately 100 dispersed acres of surface disturbance (BLM 2010). In addition to allocation decisions in the existing Gunnison RMP, the following stipulations for the Waunita area were amended:

- NSO - within a 0.6-mile radius of GUSG leks of active, inactive, historic, and unknown status.
- TL - Construction or drilling activities will not be allowed in Occupied Habitat between March 15 and May 15.
- TL - Routine operations, maintenance, and other activities in Occupied Habitat will be allowed between 9:00 a.m. and 4:00 p.m. during the period between March 15 and May 15.
- CSU - GUSG mapped summer-fall habitat CSU stipulation (G-25)

Poncha Pass Population

San Luis Valley FO

The 2013 San Luis Valley Geothermal Leasing RMP Amendment provided additional stipulations for the protection of GUSG and habitat. There have not yet been any nominations of lease parcels in this area.

- NSO - GUSG leks and Occupied Habitat
- TL - GUSG
- Sensitive Species Stipulation - For agency-designated sensitive species (e.g., GUSG), a lease stipulation (NSO, CSU, or TL) would be imposed for those portions of high value/key/crucial species habitat where other existing measures are inadequate to meet agency management objectives.

TRENDS

The U.S. Energy Information Administration estimates that over the next 25 years production and consumption of electricity from geothermal development will

increase (USEIA 2015c). In the decision area, only one geothermal lease has been sold in over 30 years. Although there has been more interest in geothermal development nationally, there have been no exploration activities in the decision area. Other areas within the western U.S. have higher potential and are being actively developed.

DOE URANIUM LEASE TRACTS

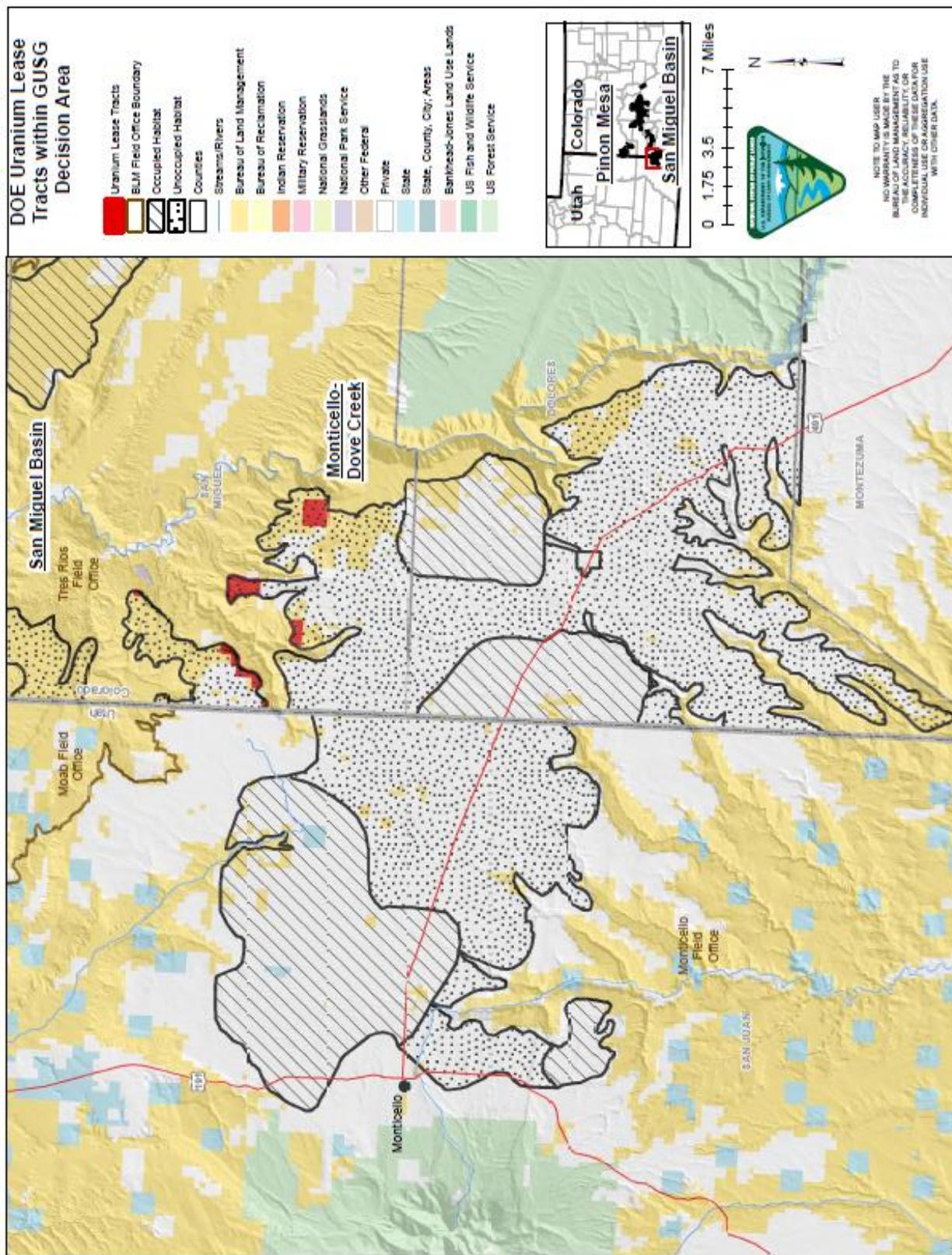
After World War II, the Atomic Energy Commission was given the authority to withdraw federal lands for uranium leasing and development through a variety of Congressional Acts and secretarial orders. Ultimately, this became what today is known as the Department of Energy (DOE) Uranium Leasing Program. Those lands have been withdrawn from locatable mineral entry, but may be leased by the DOE for uranium and vanadium development. Surface resources continue to be managed by the BLM, and the lands remain open to mineral leasing and mineral material sales, so long as they do not interfere substantially with uranium leases and/or development. DOE is the authorized agency responsible for uranium leasing, with the BLM acting as a cooperating agency.

The Uranium Leasing Program administers 31 tracts of land covering an aggregate of approximately 25,000 acres in Mesa, Montrose, and San Miguel Counties in western Colorado for exploration, mine development and operations, and reclamation of uranium mines. There are currently 29 existing leases; two of the lease tracts are not leased (DOE 2014). Several lease tracts (Lease Tracts 10, 11, 11A, 12, 15A, 16, and 16A) are partly or wholly within the decision area. A total of 1,855 acres of these leases are in the decision area, all in Unoccupied Habitat within the Monticello-Dove Creek population area.

As plans for exploration, mine development and operation, or reclamation are submitted by the lessees to the DOE for approval, further NEPA analyses will be prepared for each plan and tiered to the analysis contained in the DOE 2014 Final Uranium Leasing Program Programmatic Environmental Impact Statement. Because it is not a leasable mineral as defined by the Mineral Leasing Act of 1920, and the BLM does not have final authority over how it is leased and developed (BLM 2013c), uranium is not discussed as a leasable mineral in this EIS. For public lands in the planning area not withdrawn under the DOE Uranium Leasing Program and for which the BLM has authority to administer exploration and development, uranium is addressed as a locatable mineral within the Locatable Minerals section of this chapter.

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Figure 3.61 - DOE Uranium Lease Tracts within the Decision Area



OTHER SOLID LEASABLE MINERALS

Other solid leasable minerals include most chlorides, sulfates, carbonates, borates, silicates, or nitrates of sodium or potassium (potash) and related products, phosphate and related minerals, and gilsonite (including all vein-type solid hydrocarbons). Rarely, hard rock minerals that would otherwise be locatable (such as gold, silver, copper, and uranium, etc.) may also be subject to leasing on certain lands acquired by the federal government (rather than typical public domain lands). These typically locatable minerals are discussed in the Locatable Minerals section. Solid leasable minerals are extracted by a broad array of methods, including surface, underground, and solution mining methods.

While classified as solid leasable minerals, coal and oil shale and tar sands are not discussed here as they are considered beyond the scope of this RMP Amendment. (See Section 1.2.5.)

INDICATORS

The following indicators are used to describe the existing condition related to solid minerals leasing and to analyze the impacts of the preferred alternative and other alternatives on the availability of and access to federal solid mineral resources:

- Acres of federal minerals leased for solid minerals
- Acres of federal minerals closed to solid minerals leasing
- Acres of federal minerals open to solid minerals leasing
- Acres subject to NSO stipulation
- Acres subject to CSU, TL, and/or standard stipulations
- Acres of ROW exclusion and avoidance areas (described in 3.12 Lands and Realty).

EXISTING CONDITIONS

There are solid leasable minerals activities authorized in the Monticello-Dove Creek population area. The other population areas have no current activity and no identified potential for solid minerals.

Table 3.68 - Federal Mineral Estate Closed and Open to Leasing and Leased for Solid Minerals

HABITAT TYPE	ACRES CLOSED TO LEASING ¹	ACRES OPEN TO LEASING	ACRES UNDER PROSPECTING PERMITS	ACRES LEASED
Total Decision Area - Federal Minerals	238,500	764,400	19,000	0
Occupied Habitat	81,900	432,200	6,000	0
Unoccupied Habitat	125,100	178,700	13,000	0
Non-Habitat	31,500	153,500	0	0

¹Includes areas administratively unavailable for leasing, such as Wilderness Areas, Wilderness Study Areas, and certain withdrawn lands.

In addition, there are approximately 281,500 acres of federal minerals located within four miles of GUSG leks, but outside of Occupied and Unoccupied Habitat in the decision area. Similar to the decision area, there are eight pending potash prospecting permits that overlap a portion of the Non-Habitat in proximity to the Monticello-Dove Creek Population. There is no current activity and no identified potential for solid minerals in proximity to the other population areas. Approximately 10% of the Non-Habitat Areas are located in areas closed to leasing, primarily within Wilderness, WSAs, NCAs, or the Canyons of the Ancients NM.

Gunnison Basin Population

Gunnison FO

No areas within the Gunnison FO have been identified as having development potential for leasable solid minerals and there is no mention of leasable solid minerals in the Gunnison RMP. Solid minerals leases would be managed under the same stipulations as those applicable to fluid mineral leases. Those stipulations are discussed in the Fluid Minerals section of this chapter.

Uncompahgre FO

No areas in the Uncompahgre FO portion of the Gunnison Basin population area have been identified as having development potential for leasable solid minerals.

Under the current Uncompahgre Basin RMP (1989), there are no lease stipulations prescribed for protection of GUSG or GUSG habitat.

Cerro Summit-Cimarron-Sims Mesa Population

Uncompahgre and Gunnison FOs

The mineral potential and RMP guidance for BLM lands supporting the Cerro Summit-Cimarron-Sims Mesa GUSG Population are the same as that for the Gunnison Basin Population.

Crawford Population

Gunnison Gorge NCA

The Gunnison Gorge NCA and the Gunnison Gorge Wilderness are withdrawn from mineral leasing. While there is no specific mention of leasable solid minerals management in the Gunnison Gorge RMP, solid mineral leases outside of the NCA and Wilderness would be managed under the same stipulations as those applicable to fluid mineral leases. Those stipulations are discussed in the Fluid Minerals section of this chapter.

Uncompahgre FO

No areas in the Uncompahgre FO portion of the Gunnison Basin population area have been identified as having potential for leasable solid minerals.

Under the current Uncompahgre Basin RMP (1989), there are no special stipulations prescribed for protection of GUSG or GUSG habitat.

Monticello-Dove Creek Population

Canyons of the Ancients NM

All federal lands and interests in lands are withdrawn from solid mineral leasing.

Tres Rios FO

There is high potential for the occurrence of a variety of solid leasable minerals, primarily sodium and potash (BLM 2013c). In 2013, the Tres Rios FO prepared an EA in which six of 19 potash prospecting permit applications were analyzed. Five of the applications were authorized, four of which were in Unoccupied Habitat. The sixth application, located in Occupied Habitat, was deferred. There are 13 additional prospecting permit applications, which include 2,579 acres in Occupied Habitat and 10,298 acres in Unoccupied Habitat.

Under the Tres Rios RMP, the same or similar surface use restrictions may be applied to solid leasable minerals as those applied to fluid leasable minerals (BLM 2015b). Those stipulations are discussed in the Fluid Minerals section of this chapter.

Monticello FO

Within the Monticello FO, no areas with solid mineral potential have been identified in the decision area. Neither of the two Known Potash Leasing Areas are within GUSG habitat. The Moab and Monticello FOs are developing a Master Leasing Plan for oil and gas and potash leasing. The analysis area for the Master Leasing Plan is generally west of the GUSG decision area and does not include any GUSG habitat.

There are six pending prospecting permit applications, which include 2,513 acres in Occupied Habitat.

Piñon Mesa Population

Dominguez-Escalante NCA and McInnis Canyons NCA

As specified in the enabling legislation, both NCAs are withdrawn from mineral leasing.

Grand Junction FO

Under the Grand Junction RMP (2015), Occupied Habitat and Unoccupied Habitat are closed to leasing. Although there is moderate occurrence potential for potash within the population area, no interest in exploration activities has been expressed (BLM 2015c).

Uncompahgre FO

Within the Uncompahgre FO, no lands supporting the Piñon Mesa Population have been identified as having potential for leasable solid minerals (BLM 2010a).

Under the existing Uncompahgre Basin RMP, no lease stipulations are prescribed for protection of GUSG or GUSG habitat.

Moab FO

Under the Moab RMP, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable) to the extent possible. Leasable solid minerals include coal and potash (BLM 2008e). Although three areas within the Moab FO fall within known potash leasing areas, none of the areas overlap with GUSG habitat.

San Miguel Basin Population

Tres Rios FO

The decision area holds potential for a variety of solid leasable minerals subject to lease under the Mineral Leasing Act of 1920, as amended. The same or similar surface use restrictions would apply to solid leasable minerals as those for fluid leasable minerals (BLM 2015b).

Uncompahgre FO

Within the Uncompahgre FO, no lands supporting the San Miguel Basin Population have been identified as having potential for leasable solid minerals.

Under the current Uncompahgre Basin RMP (1989), there are no special stipulations prescribed for protection of GUSG or GUSG habitat.

Poncha Pass Population

San Luis Valley FO

There is no mention of leasable solid minerals in the San Luis RMP. As with direction in the other RMPs, any leases for solid minerals would be managed under the same stipulations as those applicable to fluid mineral leases.

TRENDS

Along with other natural resources, potash and soda ash have experienced a rise in commodity prices to historic levels. With high demand for sodium and potassium deposits expected to continue, soda ash and potash exploration activity in the planning area is projected to increase over the next ten to fifteen years (BLM 2008c).

The U.S. is the largest consumer of potash and imports about 80 percent of the potash used mainly from Canada. About 85 percent of U.S. potash sales are to the fertilizer industry and the principal use of potash worldwide is as an agricultural fertilizer. A growing world population and corresponding increased need for food will require continued growth in both potash production and consumption (BLM 2014f).

Growing demand for potash in association with the sharp rise in potash prices in 2008 (\$900 per ton) and continuing high prices through 2012 (\$470 per ton) have sparked a renewed interest in the potash resources of the Paradox Basin in both Colorado and Utah. Though the price of potash dropped to \$470 per ton in 2012 and has slowly declined and hovered near \$387 per ton, the interest in potash resources within the Paradox Basin has remained high. The Paradox Basin contains over 25 percent of the known potash resources in the United States (BLM 2014f). Presently only exploration and prospecting has been proposed for potash. However, if viable deposits are proved up by exploration, leasing and development could occur in the future.

3.11.2. LOCATABLE MINERALS

The right to explore or develop locatable minerals on federal lands is established by the location (or staking) of lode, placer, tunnel, or millsite mining claims and is authorized under the General Mining Law of 1872, as amended. Locatable minerals include metallic minerals such as gold, silver, copper, lead, zinc, molybdenum,

uranium, and non-metallic minerals such as fluorspar, asbestos, talc, and mica. Within a mining claim, the surface lands remain open to the public for other uses.

The BLM may recommend closures to mineral entry (a land use planning decision) by petitioning the Secretary of the Interior to withdraw areas from further location of mining claims or sites. BLM lands subject to existing mineral withdrawals are summarized in Table 3.69.

Areas not withdrawn are open to location and are subject to surface management regulations (43 CFR 3809). The regulations are nondiscretionary and require the claimant to prevent unnecessary or undue degradation of the land. For operations other than casual use, the claimant is required to submit a notice or a plan of operations. Casual use means activities ordinarily resulting in no or negligible disturbance of the public lands or resources. BLM surface management regulations at 43 CFR 3809.11(c)(6) require that in GUSG habitat (areas with federally listed threatened species or their designated critical habitat), an operator must submit a plan of operations regardless of whether the proposed activities would otherwise be subject to a notice.

The plan would be reviewed, including an environmental analysis under NEPA, to be sure that the required performance standards (43 CFR 3809.420) would be met. Performance standards include such things as land use plan compliance, actions to protect public lands, (such as, to prevent adverse impacts to threatened or endangered species and their habitat which may be affected by operations), concurrent reclamation, and full reclamation requirements. In addition, the BLM would require a bond or financial guarantee that would cover the estimated costs of reclamation.

INDICATORS

The following indicators are used to describe the existing condition related to the exploration and development of locatable minerals. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal locatable mineral resources, particularly in the context of the potential for such mineral resources:

- Acres of current mining claims
- Acres of federal minerals withdrawn from mineral entry
- Acres of federal minerals proposed for withdrawal from mineral entry.

EXISTING CONDITIONS

Within the decision area, there are some areas with moderate to high locatable mineral potential (primarily for uranium and vanadium). These areas are in the Monticello-Dove Creek population area. The existing conditions for locatable mineral claims and withdrawals across the decision area are summarized in Table 3.69 and are depicted in Figures 3.62–3.68. Note that the acres of active claims in Table 3.69 are actual acres reported in BLM Land & Mineral Legacy Rehost 2000 System (LR2000) records. However, the active claims shown on the maps are mapped to the nearest quarter-section (usually about 160 acres) and so illustrate the distribution of active claims rather than actual acres. The conditions related to locatable mineral claims vary between BLM field offices and between GUSG populations, and are described in detail later in this section.

In addition, there are approximately 284,400 acres of federal minerals located within four miles of GUSG leks, but outside of Occupied Habitat and Unoccupied Habitat in the decision area. Similar to the decision area, only the Non-Habitat Areas in proximity to the Monticello-Dove Creek Population (less than 10% of Non-Habitat) have been identified as having moderate to high potential for uranium and vanadium. There are about 22 active mining claims within Non-Habitat Areas in proximity to the San Miguel Basin Population, 1 in proximity to the Piñon Mesa Population, and 5 in proximity to the Monticello-Dove Creek Population.

Table 3.69 - Status of Locatable Minerals in the Decision Area

POPULATION	HABITAT TYPE	ACRES WITHDRAWN ¹	ACRES OPEN TO LOCATION	ACTIVE CLAIMS (AC)
Gunnison Basin	Occupied	17,750	449,100	3,190
	Unoccupied	9,420	100,200	7,830
	Non-Habitat	0	68,380	230
Cimarron/Cerro/Sims Mesa	Occupied	70	14,700	0
	Unoccupied	940	10,300	0
Crawford	Occupied	6,860	26,100	0
	Unoccupied	1,540	31,700	0
	Non-Habitat	1,310	0	0
Monticello-Dove Creek	Occupied	0	23,170	0
	Unoccupied	5,930	57,770	2,090
	Non-Habitat	0	32,550	60
Piñon Mesa	Occupied	380	25,800	0
	Unoccupied	36,800	133,500	21
	Non-Habitat	310	45,780	0
San Miguel Basin	Occupied	380	65,500	520

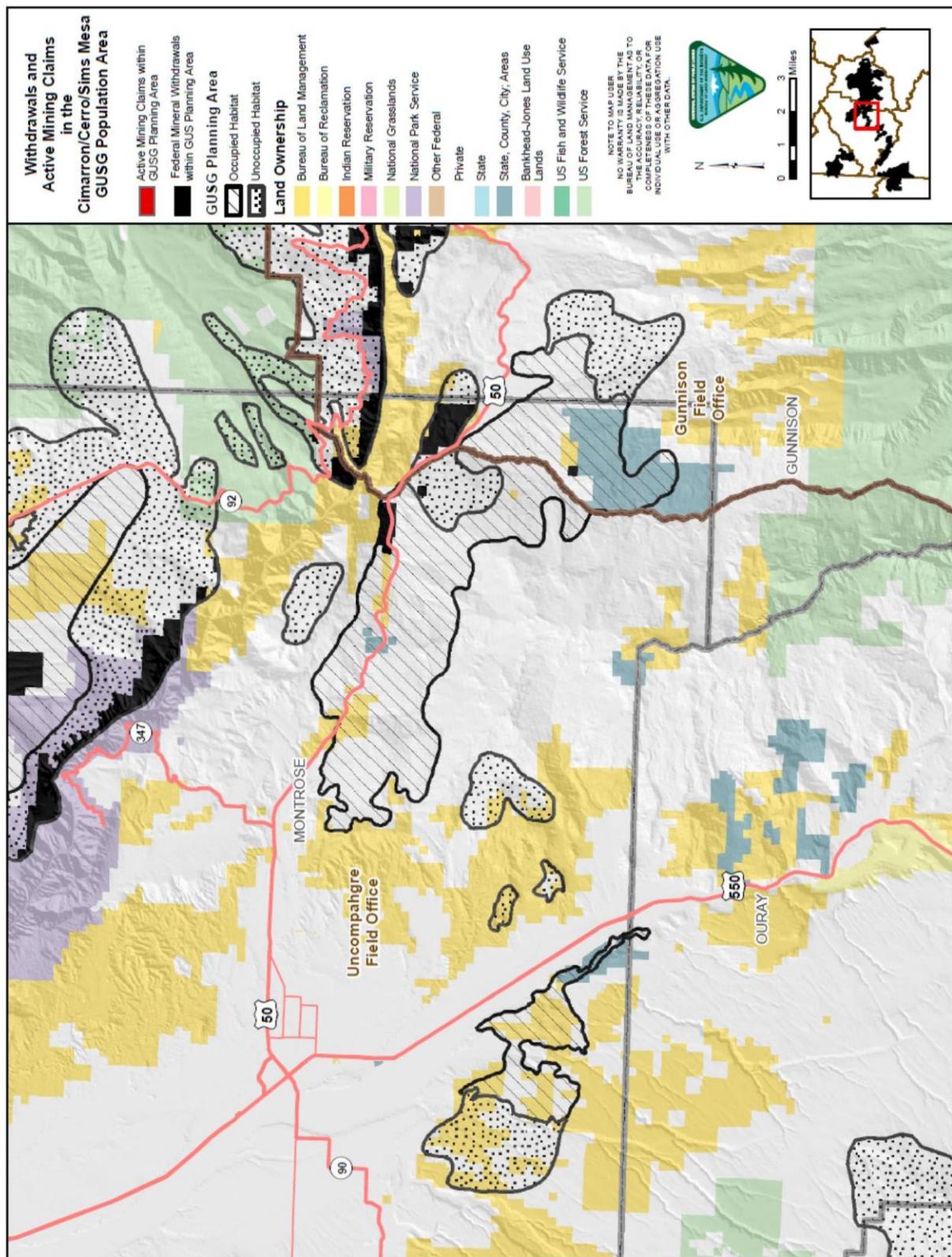
CHAPTER 3 - AFFECTED ENVIRONMENT

POPULATION	HABITAT TYPE	ACRES WITHDRAWN¹	ACRES OPEN TO LOCATION	ACTIVE CLAIMS (AC)
Poncha Pass	Unoccupied	0	13,600	0
	Non-Habitat	0	83,800	770
	Occupied	220	16,500	0
	Unoccupied	130	15,800	0
TOTAL	Non-Habitat	310	45,780	0
	Occupied	25,640	614,900	3,710
	Unoccupied	54,820	337,700	9,940
	Non-Habitat	1,620	282,800	1,060

¹ Includes Wilderness Canyons of the Ancients NM, NCAs, and other withdrawn lands.
BLM 2015, queried July 16, 2015.

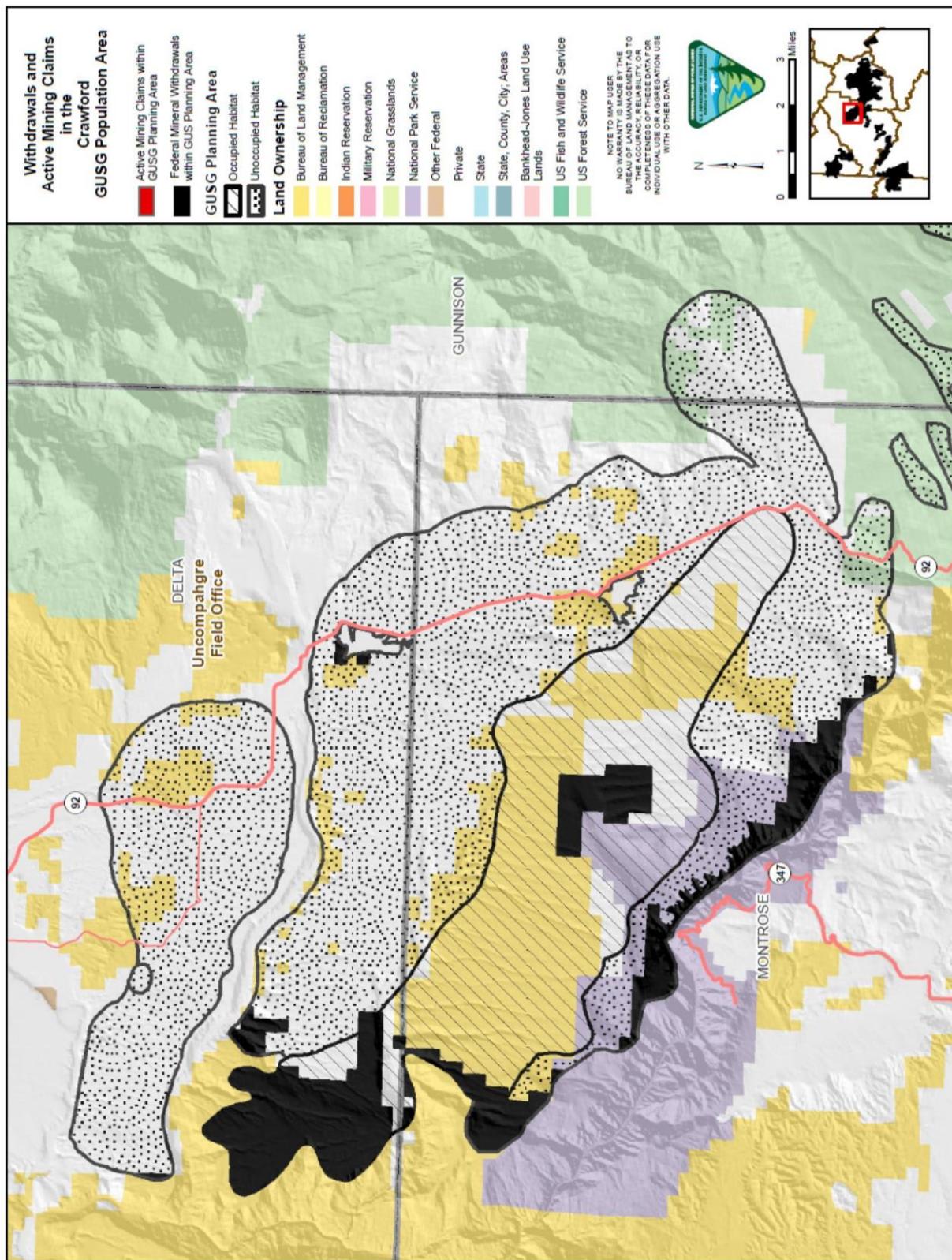
CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.62 - Withdrawals and Active Claims in Cerro Summit-Cimarron-Sims Mesa Population Area



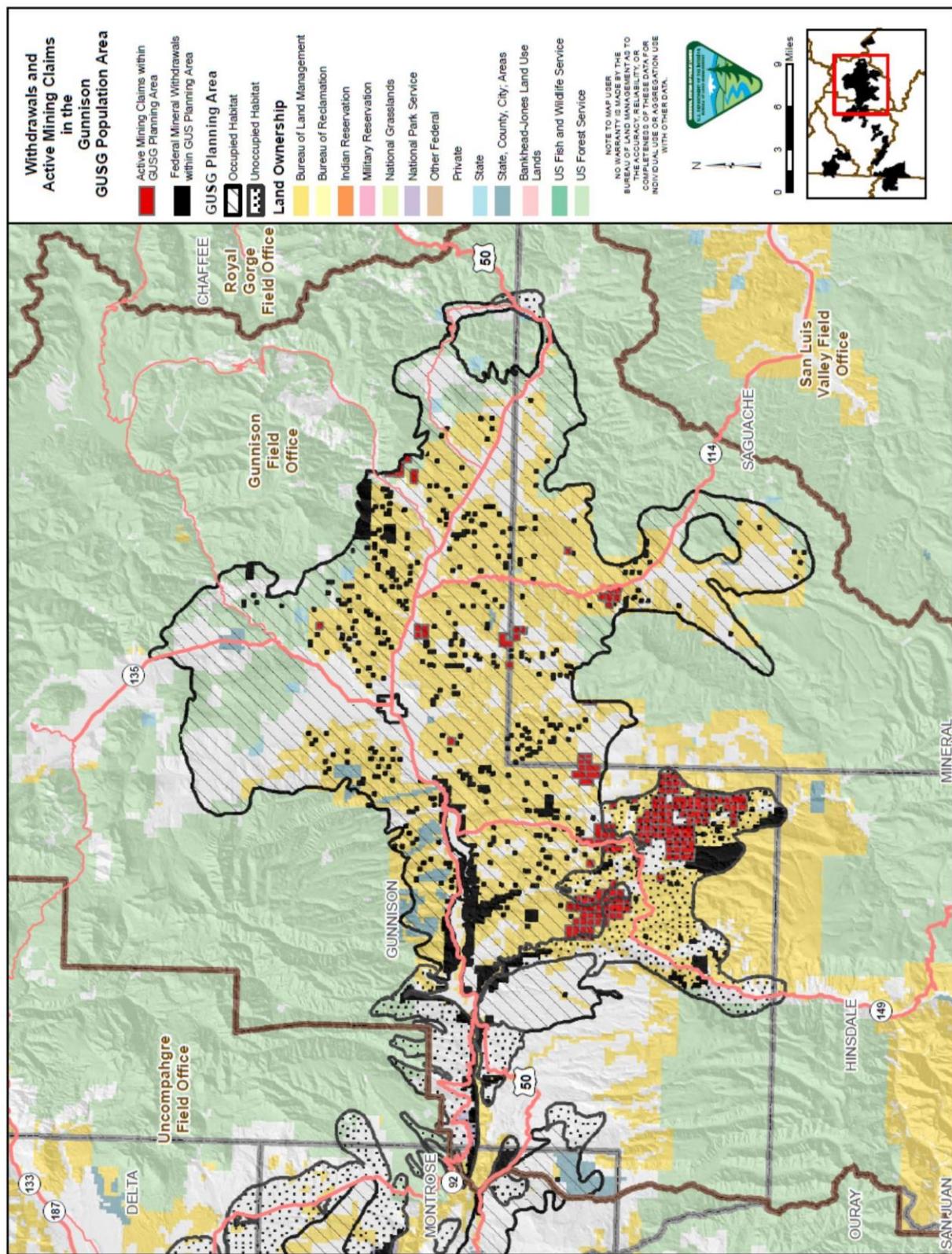
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Figure 3.63 - Withdrawals and Active Mining Claims in the Crawford Population Area



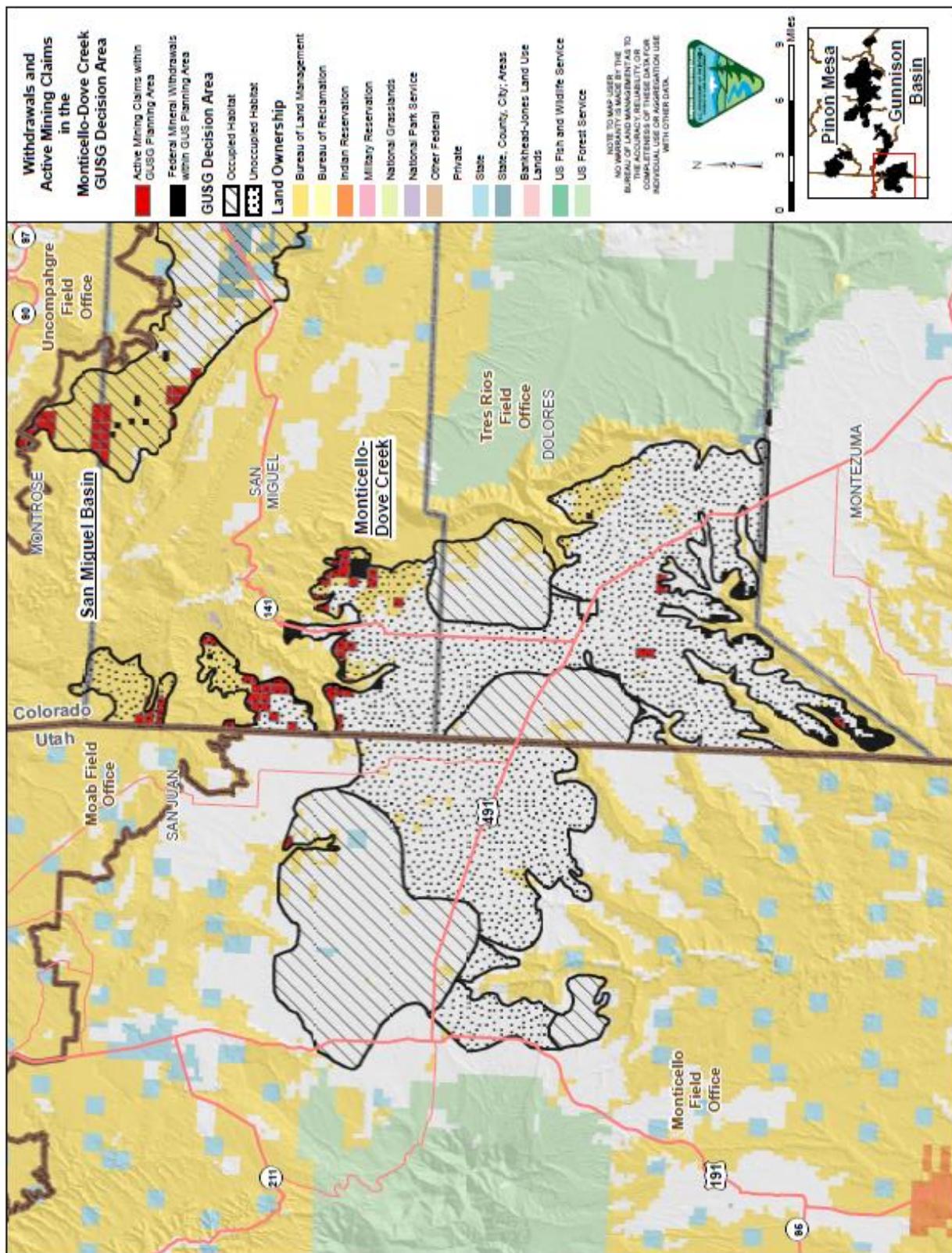
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Figure 3.64 - Withdrawals and Active Mining Claims in the Gunnison Basin Population Area



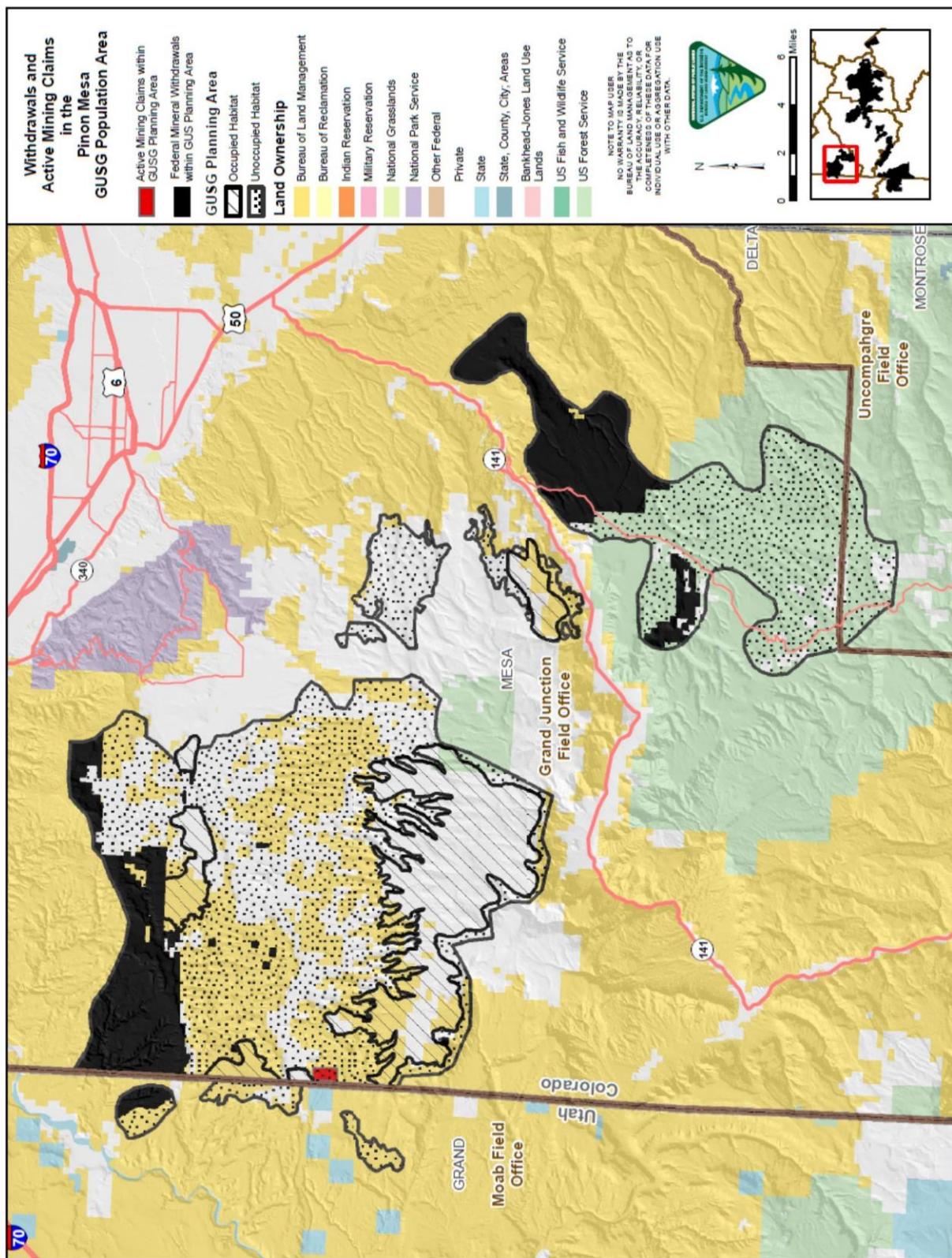
CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.65 - Withdrawals and Active Mining Claims in Monticello-Dove Creek Population Area



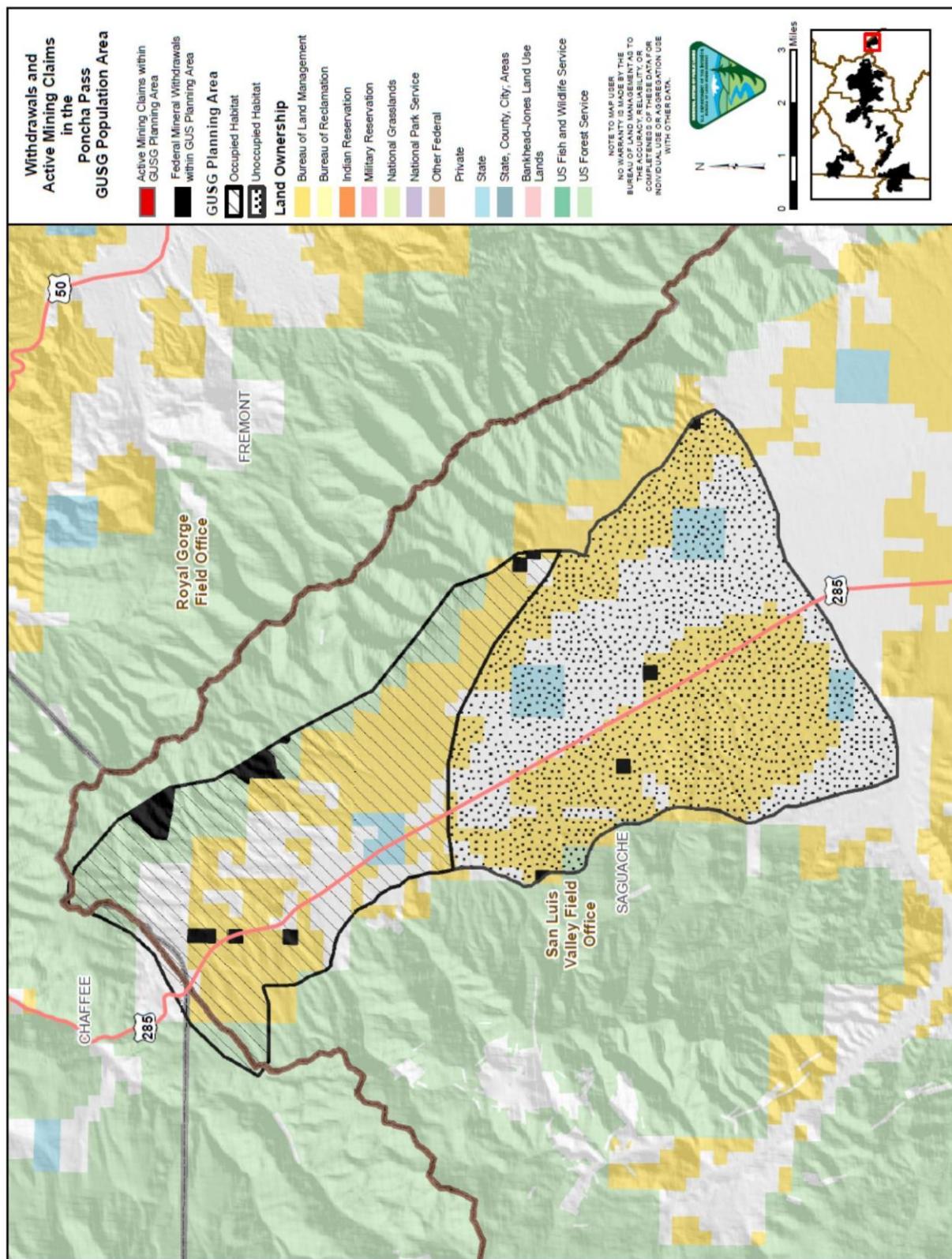
CHAPTER 3 - AFFECTED ENVIRONMENT

Figure 3.66 - Withdrawals and Active Mining Claims in the Piñon Mesa Population Area



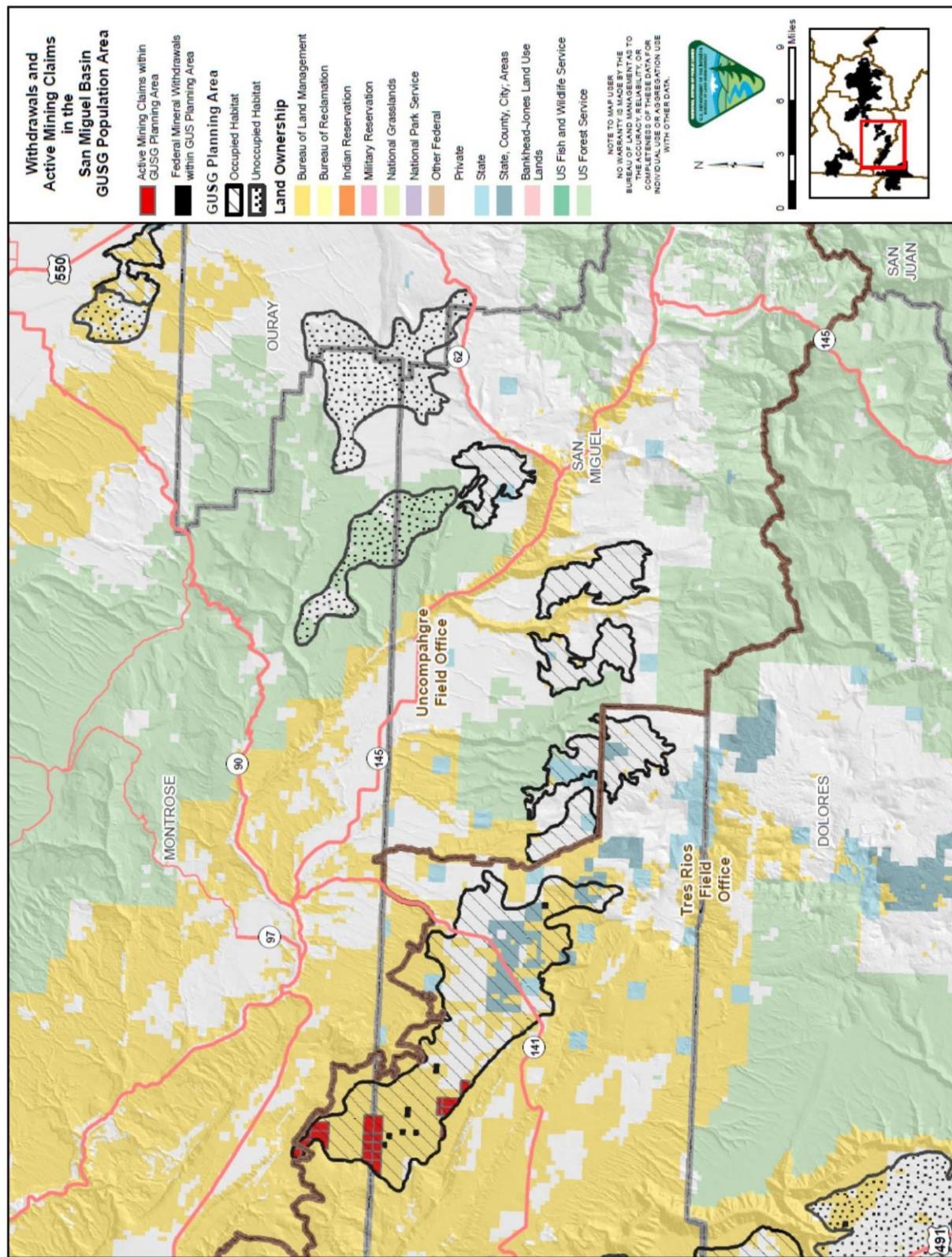
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Figure 3.67 - Withdrawals and Active Mining Claims in the Poncha Pass Population Area



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Figure 3.68 - Withdrawals and Active Mining Claims in the San Miguel Basin Population Area



Gunnison Basin Population

Within the Gunnison Basin population area, 27,200 acres are withdrawn from location of mining claims, along with an additional 19,610 acres withdrawn from location of claims for nonmetallic minerals only. The remainder of the area is open to locating claims. There are 540 mining claims in this population area, which account for 11,027 acres (1.9 % of the area) (BLM 2015a). An additional 358 claims not fully within the decision area includes up to 7,373 acres.

Of the active claims in the decision area, only 309 acres are under a pending plan of operations, meaning that a plan has been submitted to, but has not yet been approved by, the BLM.

Gunnison FO

Historically within the Gunnison FO, metallic mineral resources have been produced from the Gunnison Gold Belt, which lies within the Colorado Mineral Belt. The Iron Hill area near Powderhorn contains mineral deposits with a good potential for production of rare earth metals, such as titanium (BLM 1991b). The White Earth Mining District of the Iron Hill Carbonatite Complex near Powderhorn contains a massive carbonatite stock that forms the core of the Iron Hill carbonatite complex. The carbonatite stock is enriched in rare earth elements, niobium, and thorium, while the adjacent pyroxenite unit is enriched in these same elements, as well as substantial amounts of titanium (Long et al 2010).

Uncompahgre FO

No potential for locatable minerals has been identified in the portion of the Uncompahgre FO supporting the Gunnison Basin Population (BLM 2010a).

Cerro Summit-Cimarron-Sims Mesa Population

Uncompahgre FO and Gunnison FO

There are 1,020 acres withdrawn from location of mining claims in the Cerro Summit-Cimarron-Sims Mesa population area, including 40 acres withdrawn from location of claims for nonmetallic minerals only. The rest of the area is open to locating claims.

No potential for locatable minerals has been identified (BLM 1991b, BLM 2010a) and no mining claims occur within the population area (BLM 2015a).

Crawford Population

Within the Crawford population area, 7,240 acres are withdrawn from location of mining claims, while an additional 1,310 acres are withdrawn in Non-Habitat areas.

The rest of the area is open to locating claims. There are no mining claims in this population area (BLM 2015a).

Gunnison Gorge NCA

There is little development related to locatable minerals in the NCA area. Federal mineral estate in areas outside of the NCA and Wilderness and not under withdrawal is open to entry and location under the general mining laws, including recreational panning. Plans of operation will be required for proposed locatable mineral activity authorized by the BLM's surface management regulations on the following lands: 1) lands closed to OHV travel and 2) lands within designated ACECs. Within the Gunnison Sage-Grouse ACEC (MU 4), a plan of operation will be required for locatable mineral activities that would result in surface disturbance.

Uncompahgre FO

No potential for locatable minerals has been identified in this part of the Uncompahgre FO (BLM 2010a).

Monticello-Dove Creek Population

Within the Monticello-Dove Creek population area, 5,970 acres are withdrawn from location of mining claims, including about 1,710 acres withdrawn as lease tracts to the Department of Energy Uranium Leasing Program. (See Figure 3.70.) An additional 280 acres are withdrawn from location of claims for nonmetallic minerals only. The rest of the area is open to locating claims. There are 101 mining claims totaling 2,087 acres (3.8 % of the population area) (BLM 2015a). An additional 258 claims that includes up to 5,351 acres are not fully within the decision area.

Tres Rios FO

There is a high potential for the occurrence of uranium and vanadium, as well as some potential for copper, along the Colorado-Utah border in the Uravan Mineral Belt (BLM 2013c).

Monticello FO

The primary locatable minerals with potential for development are uranium and vanadium, often located along with copper. There is a high potential for the occurrence of uranium and vanadium deposits in historic mining areas. Where the Chinle and Morrison formations are present outside of these areas, there is a moderate potential for occurrence and a low to moderate potential for occurrence of copper. The copper deposits throughout the Monticello FO are low-grade and sparse, making development unlikely (BLM 2005d).

Canyons of the Ancients NM

When Canyons of the Ancients NM was established, the law specified that all federal lands and interests in lands within the boundaries of the monument were appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws. The establishment of the Monument, and concurrent withdrawal, were subject to valid existing rights. There are two existing unpatented uranium mining claims located in the Monument (BLM 2009).

Piñon Mesa Population

There is moderate potential for the occurrence of uranium and vanadium in the Piñon Mesa population area (BLM 2015a). There are 37,200 acres withdrawn from location of mining claims in this population area, including 6,180 acres withdrawn from location of claims for nonmetallic minerals only. An additional 310 acres are withdrawn in Non-Habitat areas. The rest of the population area is open to locating claims. There is one mining claim within the area that accounts for 21 acres (less than 0.1% of the area) (BLM 2015a). Another two claims consisting of up to 41 acres are not fully within the decision area.

McInnis Canyons NCA

As specified in the McInnis Canyons NCA enabling legislation (Public Law 106-353), subject to valid existing rights, all federal land within the McInnis Canyons NCA, and all land and interests in land acquired for the NCA or associated Wilderness Area by the U.S. are withdrawn from location, entry, and patent under the mining laws.

Grand Junction FO

There are no approved mining operations in this area, but the public has been collecting gemstones from a few abandoned underground mines along Highway 141 southwest of Whitewater. There is no other discussion of any potential for locatable minerals in the Piñon Mesa population area in the Grand Junction FO (BLM 2015c).

Uncompahgre FO

There is no discussion of any potential for locatable minerals in the Piñon Mesa population area in the Uncompahgre FO (BLM 2010a).

Dominguez-Escalante NCA

As specified in the Dominguez-Escalante NCA enabling legislation (Omnibus Public Lands Management Act of 2009), subject to valid existing rights, all federal land within the NCA and associated Wilderness Area and all land and interests in land

acquired by the U.S. within the NCA or associated Wilderness Area are withdrawn from location, entry, and patent under the mining laws.

Moab FO

The primary locatable minerals in the decision area include copper, uranium and vanadium. While no mining activity has occurred within GUSG habitat in the Moab FO, most of the lands are open for location. To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable).

Poncha Pass Population

San Luis Valley FO

The portion of the decision area in the San Luis Valley FO was identified as having low to moderate potential for locatable minerals.

In the Poncha Pass population area, 350 acres are withdrawn from location of claims for nonmetallic minerals only. The rest of the area is open to locating claims. There are currently no mining claims in this population area (BLM 2015a).

San Miguel Basin Population

Tres Rios FO and Uncompahgre FO

There is a high potential for the occurrence of uranium and vanadium in the Uravan Mineral Belt along the Colorado-Utah border, as well as some potential for copper (BLM 2013c).

In the San Miguel population area, 360 acres are withdrawn from location of claims for nonmetallic minerals only, while the rest of the area is open to locating claims. There are currently 25 mining claims totaling 517 acres (0.6 % of the population area) (BLM 2015a). There are another 119 claims totaling up to 2,413 acres that are not fully within the decision area.

Of the active claims, only 41 acres in the Uncompahgre FO are under an authorized plan of operations (for uranium mining).

TRENDS

The demand for mineral resources is driven by price, which, in turn, is governed by improvements in technology of exploration, production, refining, transportation, manufacture, and use; changes in lifestyle; changes in regulation and availability of land and access; changes in patterns of supply and demand (both domestically and

internationally); and changes in national policy areas (including military conflict, security, and strategic reserves). The planning area has reserves of precious metals used for industrial, cosmetic, and investment purposes, as well as base metals (copper, lead, zinc, molybdenum, tin, tungsten, bismuth, and tellurium) used for a variety of industrial purposes. Exploration drilling of these deposits is a distinct possibility.

The planning area contains uranium resources used for domestic power generation, medicine, and weapons, as well as vanadium used in steel production and batteries. Currently, important locatable mineral interests within the decision area are limited to uranium and vanadium (in the Monticello-Dove Creek area). The increasing interest in nuclear power generation, as well as the need for vanadium (a byproduct of uranium development), for modern energy, air, space, power, and weapons technology could rapidly increase the demand for uranium exploration, development, and processing.

Although higher gold prices have increased the number of mining claims in the area, no substantial gold mining or exploration projects on public lands have come to fruition in the recent past, but continued high prices would likely translate into increased exploration and development in the near future. Demand for limestone for use as a chemical scrubber for coal-fired power plants could also increase.

3.11.3. SALABLE MINERALS

Salable minerals (also referred to as mineral materials) include common varieties of construction materials and aggregates, such as, sand, gravel, limestone aggregate, building stone, cinders (clinker), moss-covered rock (moss rock), roadbed, decorative rock, clay, and ballast material. Mineral materials are sold or permitted under the Mineral Materials Sale Act of 1947, as amended and regulated under 43 CFR 3600. The sale of mineral materials is discretionary.

Sand and gravel, as construction aggregate, is an extremely important resource. The extraction of the resource varies directly with the amount of development nearby—road building and maintenance, and urban development—as sand and gravel is necessary for that infrastructure development. The proximity of both transportation and markets are key elements in the development of a deposit.

Mineral materials are sold at a fair market value or made available through free use permits to governmental agencies. Local government agencies and nonprofit organizations may obtain these materials free of cost for community purposes. The BLM can make mineral materials available to the public through small sales contracts and may designate areas called “community pits” or “common use areas” for these small sales.

INDICATORS

The following indicators are used to describe the existing condition related to the development of salable minerals. These indicators will also be used to analyze the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal salable mineral resources:

- Acres of currently permitted salable mineral sites
- Acres of federal minerals open to salable mineral development
- Acres of federal minerals closed to salable mineral development
- Acres of federal minerals proposed for withdrawal from mineral disposal.

EXISTING CONDITIONS

Unlike most locatable minerals, deposits of common variety mineral materials occur everywhere, by default. Common sites for natural concentrations of small to large amounts of such materials are canyon walls, stream channels, talus slopes, landslides, ancient river terraces, glacial moraines, and floodplains. Road cuts, quarries, and pits increase the amount of material available for extraction. Areas with known resources, or areas that are favorable for resources of sand and gravel, may contain materials that are ready for use or that are suitable for screening, washing, or crushing in order to meet size or fine-material requirements.

The existing conditions for salable minerals across the decision area are summarized in the following tables. The conditions related to salable minerals vary between BLM field offices and between GUSG populations, and are described in detail later in this section.

Approximately 281,500 acres of federal minerals are located within four miles of GUSG leks, but are outside of Occupied or Unoccupied Habitat in the decision area. No mineral material sites within the Non-Habitat Areas overlap with the decision area. Approximately 10% of the Non-Habitat Areas are in locations closed to mineral material sales, primarily within wilderness areas, WSAs, NCAs, or Canyons of the Ancients NM.

Table 3.70 - Salable Minerals Status in the Decision Area

POPULATION AREA	ACRES CLOSED TO MINERAL MATERIAL SALES	ACTIVE AND PENDING MINERAL MATERIAL SALES/FREE USE PERMITS ¹ (ACRES)	
		Sand and Gravel	Stone
Gunnison Basin	13,300	134	173
Cerro Summit-Cimarron-Sims Mesa	0	0	0
Crawford	13,620	10	0
Monticello-Dove Creek	4,080	0	0
Piñon Mesa	41,080	0	0
Poncha Pass	520	0	0
San Miguel Basin	0	0	33
TOTAL ACRES	72,600	144	206

¹ Free Use Permits are issued for federal, state, and local government uses.

Gunnison Basin Population

There are 5,100 acres currently authorized for free use permits and/or mineral material sales in this population area. Of that, 5,030 acres are in Occupied Habitat. Within Non-Habitat Areas, 110 acres are closed to mineral material sales.

Gunnison FO

Mineral materials disposal is subject to the following additional restrictions:

- No surface-disturbing activities will be permitted within 0.6 mile of all sage grouse leks during the strutting season to prevent disturbance to mating sage grouse.
- MU 8 (South Beaver Creek ACEC): Disposal of mineral materials on 4,540 acres of federal mineral estate within the unit will not be authorized in order to protect populations of skiff milkvetch.
- MU 9 (Dillon Pinnacles ACEC): Disposal of mineral materials on 530 acres of the federal mineral estate in the unit will not be permitted in order to prevent potential deterioration of scenic, recreation, and other natural values.
- MU 14 (riparian areas containing important sage grouse brood-rearing areas): Disposal of mineral materials on about 2,440 acres of federal mineral estate in the unit will not be authorized, from June 15 through July 31 to prevent disturbance to sage grouse during the brooding period.

Uncompahgre FO

Under the current Uncompahgre Basin RMP (1989), the field office is open to mineral material disposal.

Cerro Summit-Cimarron-Sims Mesa Population

Uncompahgre FO and Gunnison FO

There are currently no authorized free use permits and/or mineral material sales in this population area. The management situation for salable minerals in this population area is the same as for the Gunnison Basin population area, with the exception that Gunnison RMP management guidance related to MU 8 and 9 do not apply in this population area.

Crawford Population

There are 41 acres currently authorized for a free use permit in Occupied Habitat in the Crawford population area. Within Non-Habitat Areas, 6,700 acres are closed to mineral material sales.

Gunnison Gorge NCA

Public lands in Flat Top-Peach Valley OHV Recreation Area (MU2) and in the Gunnison and North Fork Rivers SRMA (MU3) outside of the NCA are not available for mineral material sales.

Uncompahgre FO

Under the current Uncompahgre Basin RMP (1989), the field office is open to mineral material disposal.

Monticello-Dove Creek Population

No free use permits and/or mineral material sales are currently authorized in the Monticello-Dove Creek population area.

Tres Rios FO

The following standards specific to protection of GUSG and GUSG habitat apply to mineral material disposals in the decision area:

- Management activities must not occur from March 1 to June 30 within Occupied Habitat suitable for nesting to allow for breeding and December 1 to March 15 for known winter habitat.

- New structural improvements or surface disturbance must not occur within known winter concentration area or within a 0.6-mile radius of known GUSG leks.

The following guidelines specific to protection of GUSG and GUSG habitat apply to mineral material disposals:

- New noise sources resulting from management activities should not contribute to noise levels that negatively impact sage-grouse leks during the active lek season (March 1 to June 30) based on best available science.
- Projects in Occupied Habitat should be designed to mitigate or avoid the direct or indirect loss of habitat necessary for maintenance of the local population or reduce to acceptable levels the direct or indirect loss of important habitat necessary for sustainable local populations. Projects will incorporate special reclamation measures or design features that accelerate recovery and/or re-establishment of affected sage-grouse habitat as much as possible.

Applicable BMPs should be applied to all mineral proposals as Conditions of Approval within Occupied Habitat to provide for adequate effective habitat and breeding, nesting, and wintering habitat.

Monticello FO

Management conditions for disposal of mineral materials correspond respectively to the oil and gas leasing stipulations developed in the Monticello RMP. Areas with standard lease terms are available for disposal of mineral materials subject to standard conditions. Areas with a TL and/or CSU stipulation are available subject to special conditions. Areas designated as NSO are unavailable for disposal of mineral material, but there are no such areas in the decision area.

Canyon of the Ancients NM

Mineral materials disposal is prohibited in national monuments.

Piñon Mesa Population

No free use permits and/or mineral material sales are currently authorized in the Piñon Mesa population area. In Non-Habitat Areas, 14,870 acres are closed to mineral material sales.

Dominguez-Escalante and McInnis Canyons NCAs

Both NCAs are closed to mineral material disposal.

Grand Junction FO

Public lands not otherwise closed are open for consideration for mineral material disposal on a case-by-case basis (BLM 2015c).

Uncompahgre FO

Under the current Uncompahgre Basin RMP (1989), the Uncompahgre FO is open to mineral material disposal.

Moab FO

To the extent possible, the stipulations developed for oil and gas leasing are applicable to all mineral activities (leasable, locatable, and salable) in the Moab FO.

Poncha Pass Population

San Luis Valley FO

There are currently no authorized free use permits and/or mineral material sales in this population area. In Non-Habitat Areas, 4,840 acres are closed to mineral material sales.

Federal minerals in the entire planning area are open to mineral materials disposal, except for within riparian areas. The area was identified as having low to moderate potential for sand and gravel (BLM 1989).

San Miguel Basin Population

There are 160 acres currently authorized for free use permits and/or mineral material sales in this population area.

Tres Rios FO

The management situation for mineral material disposal in this population area is the same as that for the Monticello-Dove Creek Population.

Uncompahgre FO

Under the current Uncompahgre Basin RMP (1989), the field office is open to mineral material disposal.

TRENDS

With the continued increase in the human population in the planning area, the need for additional sand and gravel resources for road improvements and other construction related activities will likely increase. Increasing construction in all area communities will likely create a growing demand for aggregate and fill materials, as

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well as for decorative and landscaping stone. The building of new roads and the maintenance and improvement of existing roads may create increasing demand for aggregate for asphalt and cement and gravel for road surfaces. The competition for gravel and aggregate, may likely result in more development of quarries and pits within the decision area, on public lands as well as on adjacent private lands.

3.12.LANDS & REALTY

3.12.1. LAND USE AUTHORIZATIONS & UTILITY CORRIDORS

Land use authorizations include granting right-of-ways (ROWs), permits, and leases. A ROW grant is an authorization to use a specific piece of public land for a certain project, such as roads, pipelines, transmission lines, and communication sites. A ROW grant authorizes rights and privileges for a specific use of the land for a specific period of time. Generally, a BLM ROW is granted for a term appropriate for the life of the project and typically for a maximum of a 30-year term.

Broad policy concerning the granting of ROWs for roads and trails across public land is to provide access to applicants who do not have access to their private property, cannot gain access across nonfederal land, and cannot exercise existing rights of access across nonfederal land. ROW grants are authorized for uses such as oil and gas development, water pipelines, electric transmission and distribution lines, roads, and communication lines such as telephone or cable. An ROW authorizes the holder to construct, operate, maintain, and/or terminate a new or existing facility over, under, upon, or through public lands. The majority of ROWs granted are authorized under Title V of the FLPMA and under the Mineral Leasing Act.

Leases and permits are issued for purposes such as commercial filming, advertising displays, apiaries, livestock holding or feeding areas not related to grazing permits and leases, temporary or permanent facilities for commercial purposes (does not include mining claims), residential occupancy, ski resorts, construction equipment storage sites, assembly yards, or oil rig stacking sites. The regulations for the processing of leases and permits are found at 43 CFR 2920. Permits are short term (generally not to exceed three years) revocable authorizations to use the lands for specified purposes. Leases are usually long-term authorizations requiring a significant capital investment.

In RMPs, areas identified as unsuitable for surface disturbance or occupancy are generally identified as avoidance or exclusion areas for ROWs. Restrictions and mitigation measures could be modified on a case-by-case basis for avoidance areas, depending on impacts on resources, while exclusion areas are strictly prohibited from ROW development.

Utility corridors, developed to concentrate the effects of utility lines in manageable locations on public lands, often provide suitable locations for utility transmission lines. The corridors may contain power lines, transcontinental fiber-optic

communication cables, and trans-state gas pipelines. Identifying corridors does not necessarily mandate that transportation and transmission facilities would be located within the corridor, especially if they are not compatible with other resource uses, values, and objectives in and near the corridors, or if the corridors are already at maximum capacity with existing structures.

INDICATORS

The following indicators are used to describe the existing condition related to land use authorizations, as well as to analyze the impacts of the preferred alternative and other alternatives on the availability of BLM-administered lands for ROWs. The term “ROW” is generally used to refer to all land use authorizations, including ROWs, land use permits, leases, and communication use leases, unless otherwise specified in the discussion. This includes authorizations for solar and wind energy developments:

- Acres of ROW exclusion areas
- Acres of ROW avoidance areas
- Acres of designated utility corridors
- Acres of BLM ROWs
- Powerlines/Phone Lines
 - Overhead
 - Buried
- Roads
- Pipelines
- Acres of communication site leases/ROWs
- Acres of other leases and permits

EXISTING CONDITIONS

In current RMPs, the BLM has allocation decisions in place designating which areas are:

- ROW exclusion areas not available for location of ROWs under any condition
- ROW avoidance areas to be avoided but potentially available for location of ROWs with additional stipulations
- Areas open to ROWs and under what conditions.

In addition, the current RMPs indicate designated ROW corridors, which are specific areas identified as preferred locations for existing and future ROW facilities.

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Table 3.7I provides acreages of ROW exclusion areas, avoidance areas, and open areas, ROW corridors, and currently authorized ROWs (including ROWs, leases, permits, and communication sites) in the decision area.

Table 3.7I - ROWs and Other Land Use Authorizations in the Decision Area

HABITAT TYPE	ROW EXCLUSION AREAS (ACRES)	ROW AVOIDANCE AREAS (ACRES)	OPEN TO ROWS (ACRES)	ROW CORRIDORS (ACRES)	AUTHORIZED ROWS (ACRES ¹)
Total Decision Area					
Occupied Habitat	5,800	15,900	389,700	93,100	15,400
Unoccupied Habitat	44,900	28,700	183,000	31,000	6,400
Non-Habitat	32,200	8,400	86,200	0	0
Gunnison Basin Population Area					
Occupied Habitat	3,300	300	298,700	54,000	11,900
Unoccupied Habitat	4,600	2,400	59,400	5,600	3,100
Cerro Summit-Cimarron-Sims Mesa Population Area					
Occupied Habitat	0	0	4,400	6,000	700
Unoccupied Habitat	0	0	5,000	7,000	400
Crawford Population Area					
Occupied Habitat	200	0	22,000	1,000	700
Unoccupied Habitat	200	40	10,200	7,500	700
Non-Habitat	1,300	0	0	0	0
Monticello-Dove Creek Population Area					
Occupied Habitat	0	0	10,200	22,500	200
Unoccupied Habitat	2,000	0	32,200	100	900
Piñon Mesa Population Area					
Occupied Habitat	100	24,100	12,600	0	0
Unoccupied Habitat	4,000	86,700	93,800	100	700
Non-Habitat	18,500	5,900	8,100	0	0
Poncha Pass Population Area					
Occupied Habitat	0	0	9,900	7,100	300
Unoccupied Habitat	0	0	14,900	10,500	600
San Miguel Basin Population Area					
Occupied Habitat	200	0	35,700	2,500	1,600
Unoccupied Habitat	0	0	0	200	0
Non-Habitat	13,000	0	27,700	0	0

¹Includes total acres encumbered by one or more ROWs; there may be overlapping ROWs, e.g. a phone line within a road ROW.

Table 3.72 provides a summary of the designated ROW exclusion and avoidance areas within the decision area. Timing limitations that apply to all ground disturbances, apply in areas otherwise open to ROWs and other land use authorizations.

There are about 118,400 acres of BLM lands in Non-Habitat Areas, of which approximately 28% are within ROW exclusion areas and 5% within ROW avoidance areas.

Wilderness Areas are administered to preserve wilderness character and so are generally ROW exclusion areas with some specific allowances for access to inholdings and for valid existing rights, as described in BLM Manual 6340.

Wilderness Study Areas are managed so as not to impair the suitability of such areas for preservation as wilderness, and so are also generally ROW exclusion areas, with some specific allowances as described in BLM Manual 6330.

Table 3.72 - ROW Exclusion and Avoidance Areas in the Decision Area

RMP	ROW EXCLUSION ¹	ROW AVOIDANCE
Canyons of the Ancients NM	Allow no new ROWs to be permitted in Squaw/Cross Canyon SRMA, except for access to private land.	Include all surface-use stipulations (including NGD/NSO, TL, and protective considerations for cultural resources) on new ROWs.
Draft Dominguez-Escalante NCA	ROW exclusion area, except to allow for: <ul style="list-style-type: none"> • Reasonable access and utilities to non-federal property and existing ROW facilities. • Upgrades or modifications to existing facilities. 	N/A
Grand Junction	Within 0.6-mile of a lek.	Occupied Habitat; areas within 4-mile radius of a lek.
Gunnison	MU9 (Dillon Pinnacles ACEC)	No above-ground utilities in MU1 (Alpine Triangle SRMA) and MU3 (Cochetopa Canyon SRMA). In MU1, public lands north of the south line of Sections 16 and 17, T47N, R3W, NMPM, avoidance area for all other ROWs.
Gunnison Gorge NCA	N/A	MU3 (Gunnison and North Fork Rivers SRMA)
McInnis Canyons NCA	N/A	N/A
Moab	N/A	NSO areas: within 0.6-mile of a lek
Monticello	N/A	NSO areas: within 0.6-mile of a lek
San Luis	N/A	N/A
Tres Rios	N/A	N/A
Uncompahgre Basin	N/A	N/A

RMP	ROW EXCLUSION ¹	ROW AVOIDANCE
¹ In addition to wilderness areas and wilderness study areas.		

It is a BLM objective to grant ROWs to any qualified individual, business, or government entity and to control and direct the use of ROWs on public land so as to:

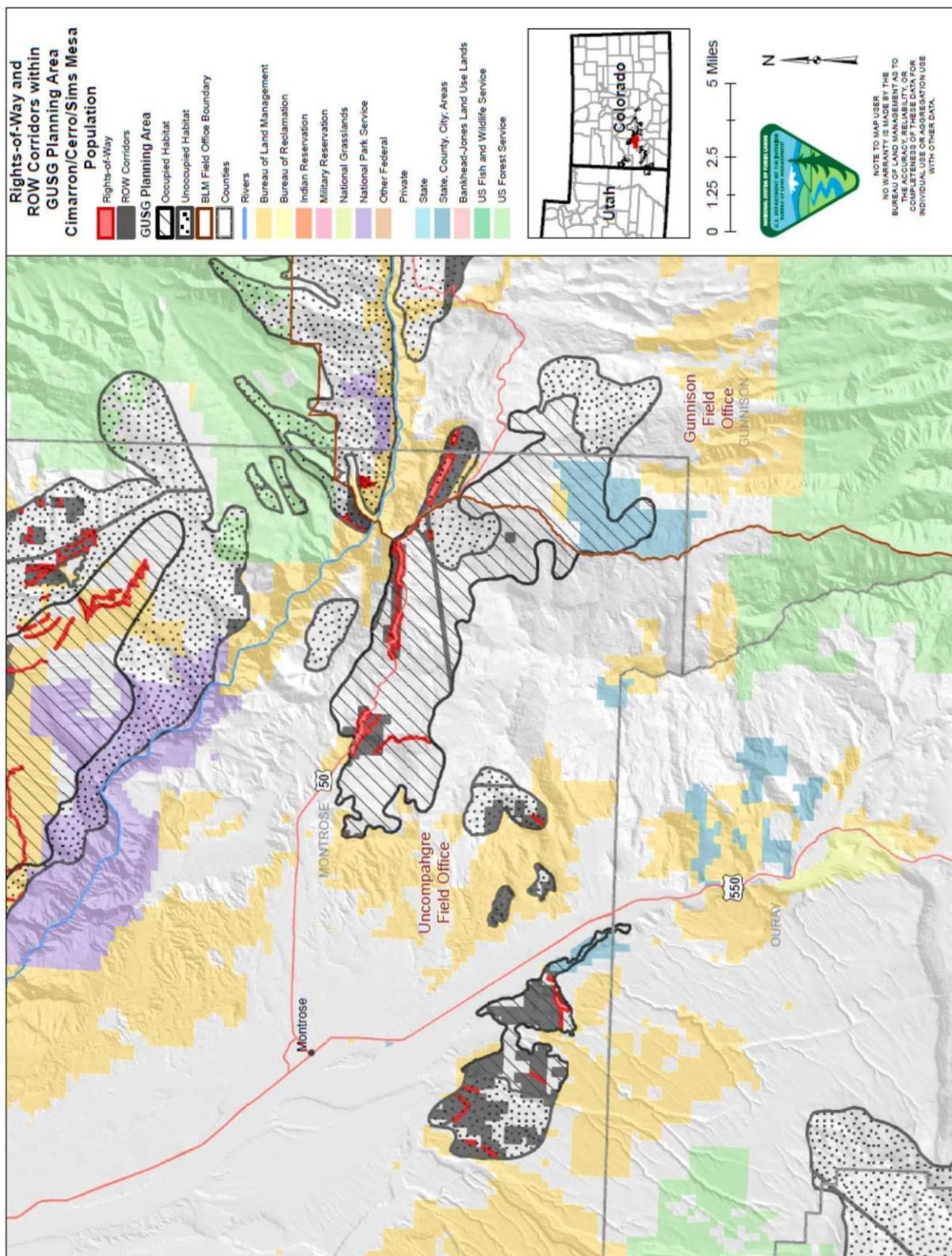
- Protect the natural resources associated with public lands and adjacent lands;
- Prevent unnecessary or undue environmental damage to the lands and resources;
- Promote the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and,
- Coordinate, to the fullest extent possible, with state and local governments and interested parties (43 CFR 2801.2 and 2881.2).

ROW corridors are designated in accordance with FLPMA, which requires that the use of ROWs in common shall be required to the extent practical in order to minimize adverse environmental impacts and the proliferation of separate ROWs. Corridors may be suitable to accommodate more than one type of ROW use or facility. Designated corridors are often already occupied by at least one existing facility.

In addition to field office-specific corridors, the BLM in January 2009 issued the Approved RMP Amendment/ROD for Designation of Energy Corridors on Bureau of Land Management Administered Land in the 11 Western States (West Wide Energy Corridors) in accordance with the Energy Policy Act of 2005. The ROD amended four RMPs in the GUSG planning area to designate ROW corridors specific to energy, such as pipelines and transmission lines. As a result of subsequent litigation and a settlement agreement, 36 of the 119 corridors were designated as Corridors of Concern, with additional review requirements. Applications for a new ROW in a utility corridor must still undergo site-specific NEPA analysis before a ROW can be granted.

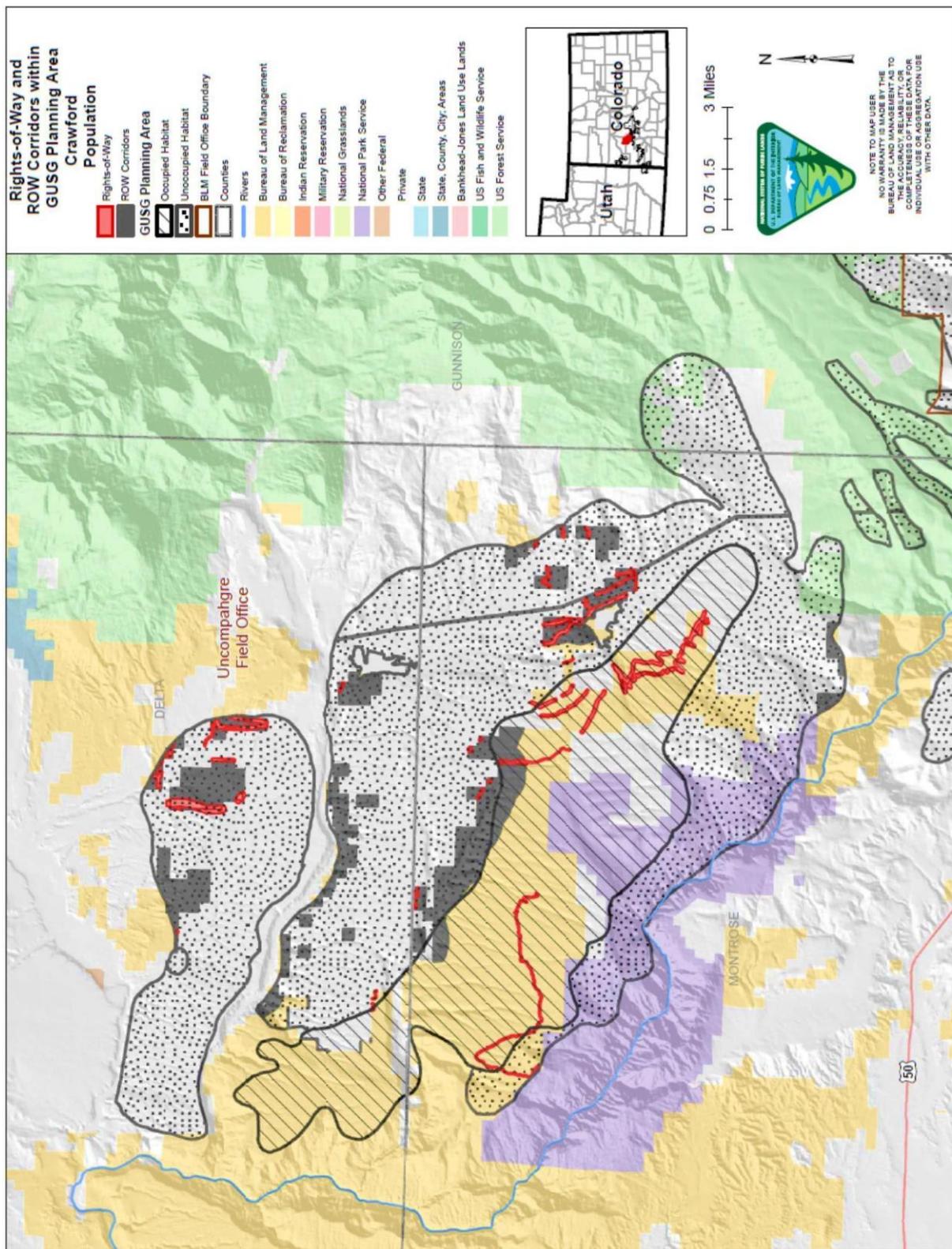
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Figure 3.69 - ROWs and ROW Corridors in Cerro Summit-Cimarron-Sims Mesa Population Area



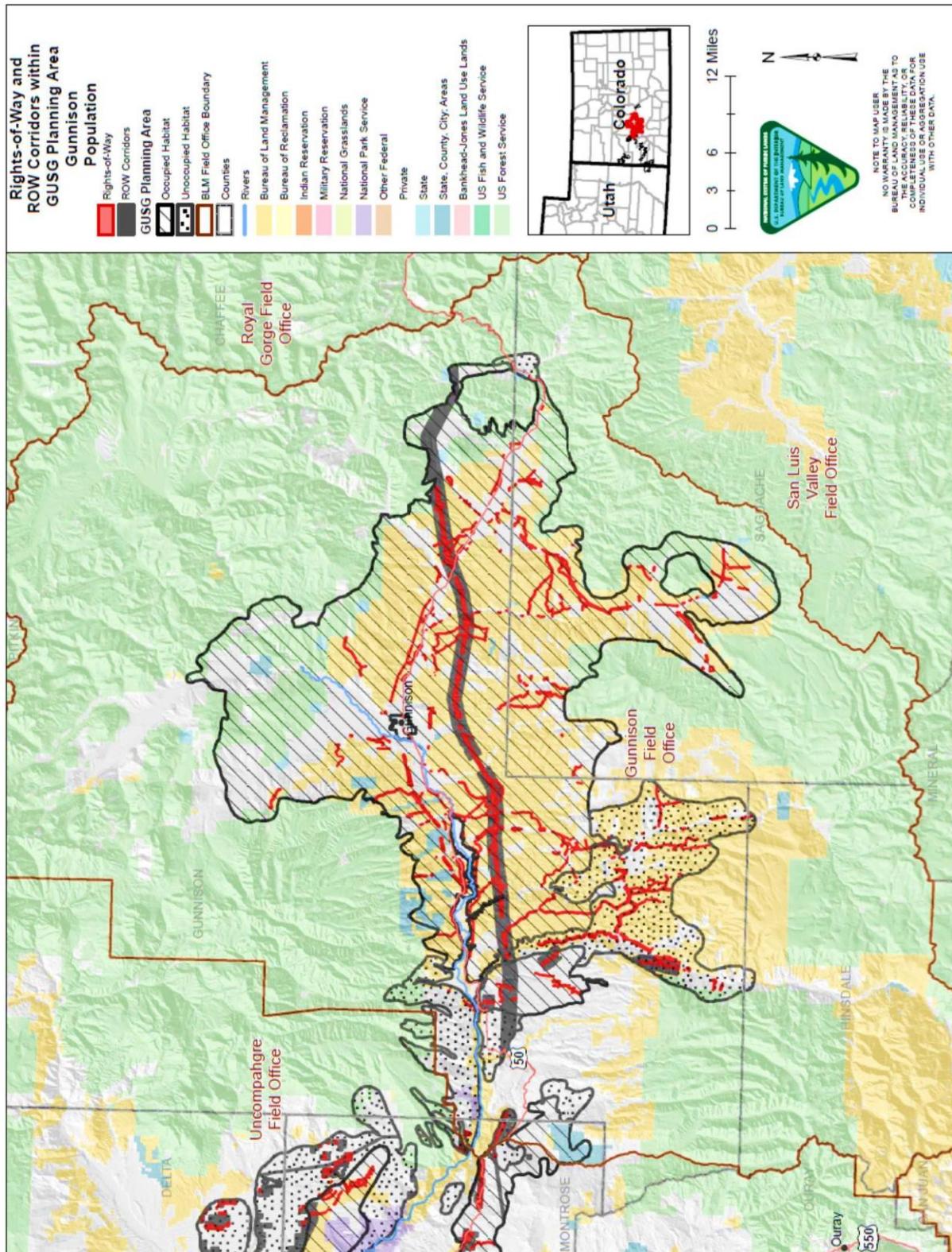
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Figure 3.70 - ROWs and ROW Corridors in the Crawford Population Area



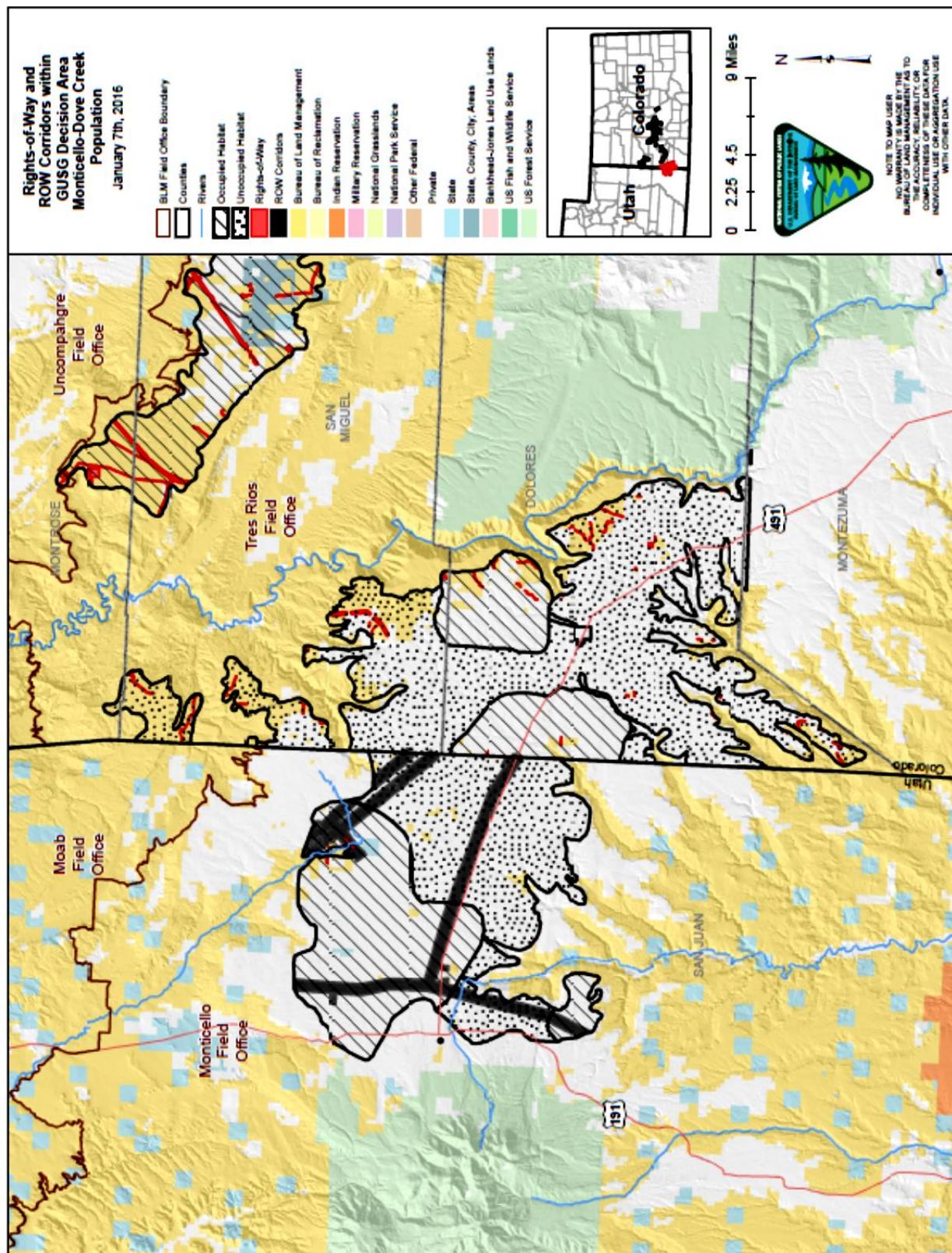
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Figure 3.71 - ROWs and ROW Corridors in the Gunnison Basin Population Area



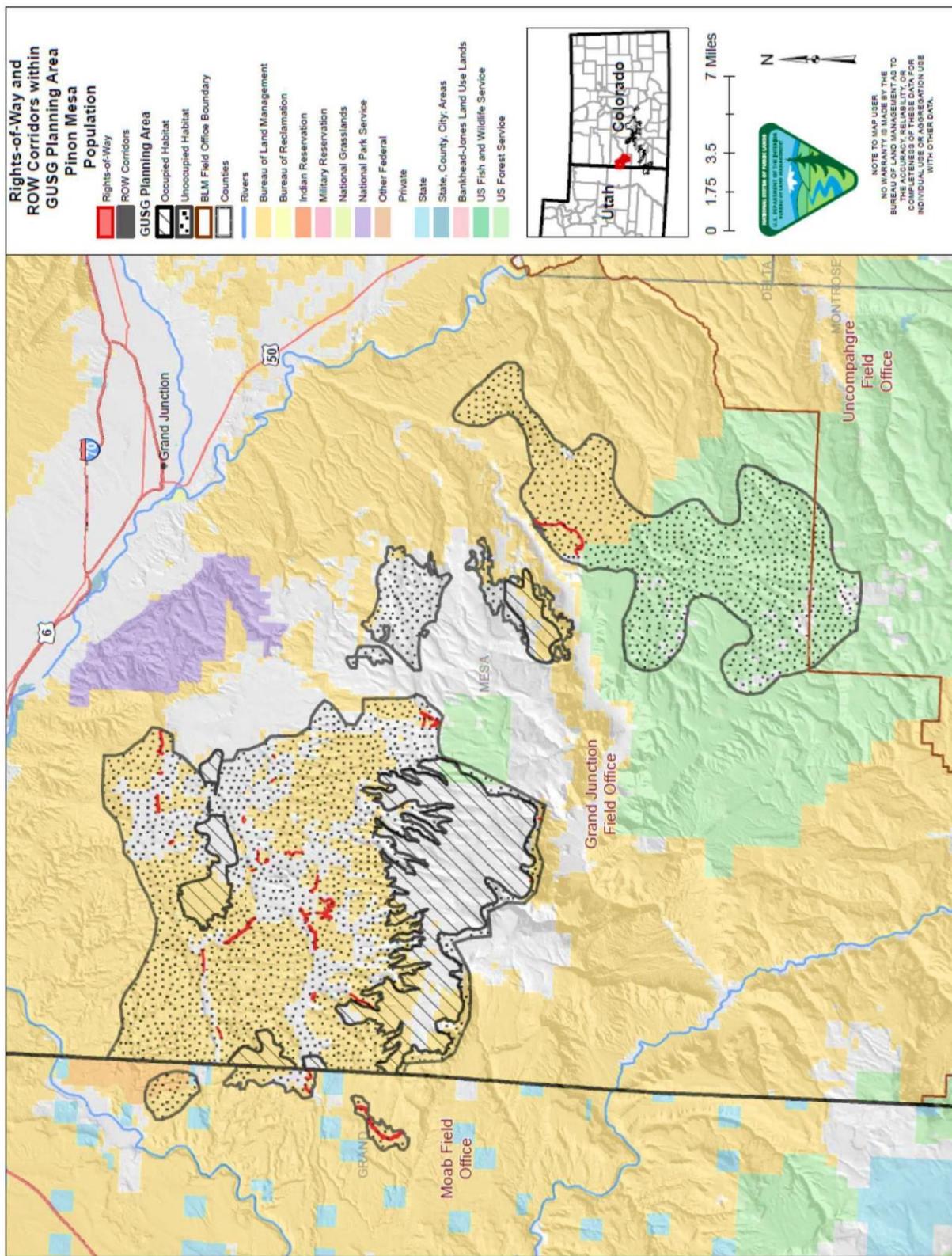
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Figure 3.72 - ROWs and ROW Corridors in the Monticello-Dove Creek Population Area



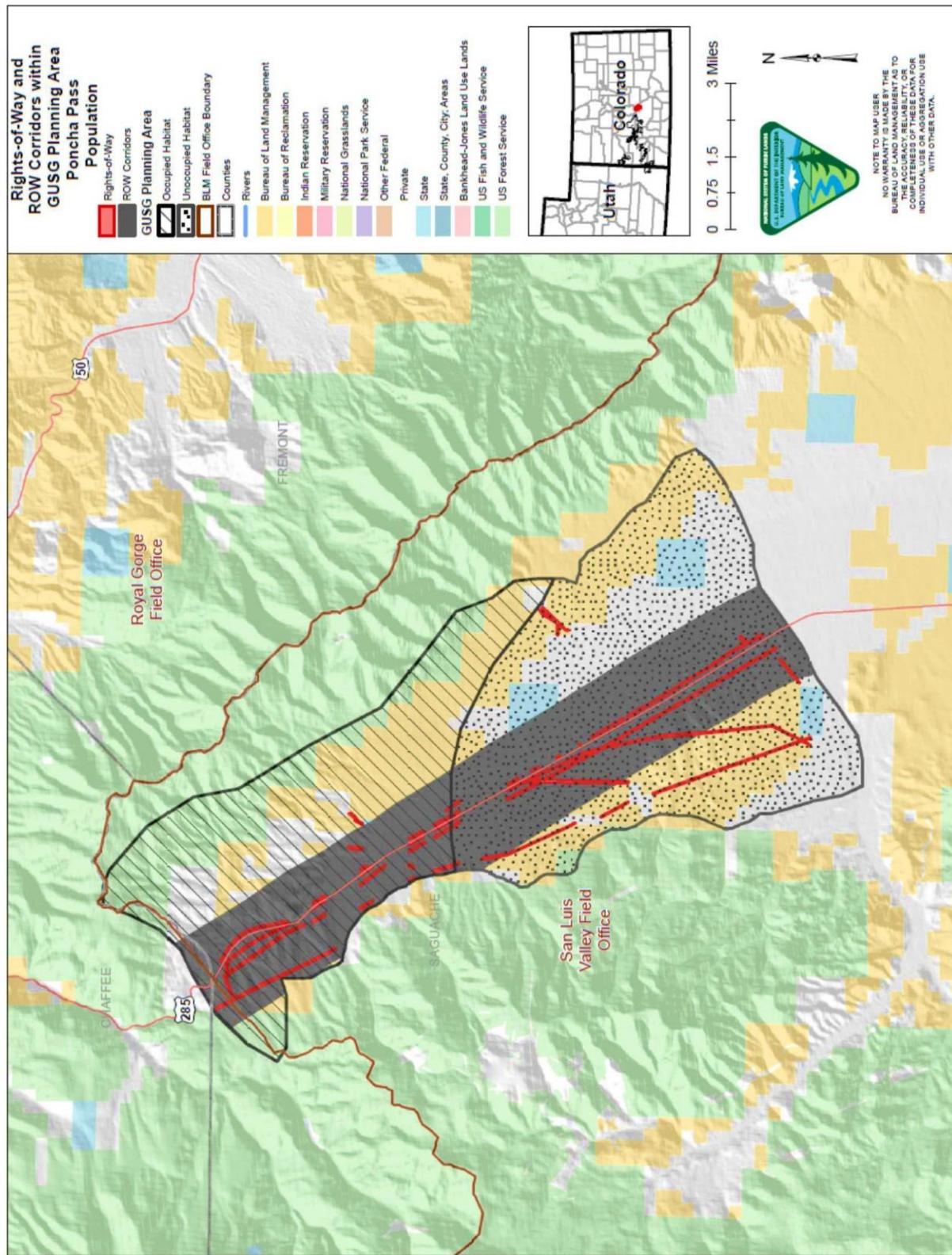
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Figure 3.73 - ROWs and ROW Corridors in the Piñon Mesa Population Area



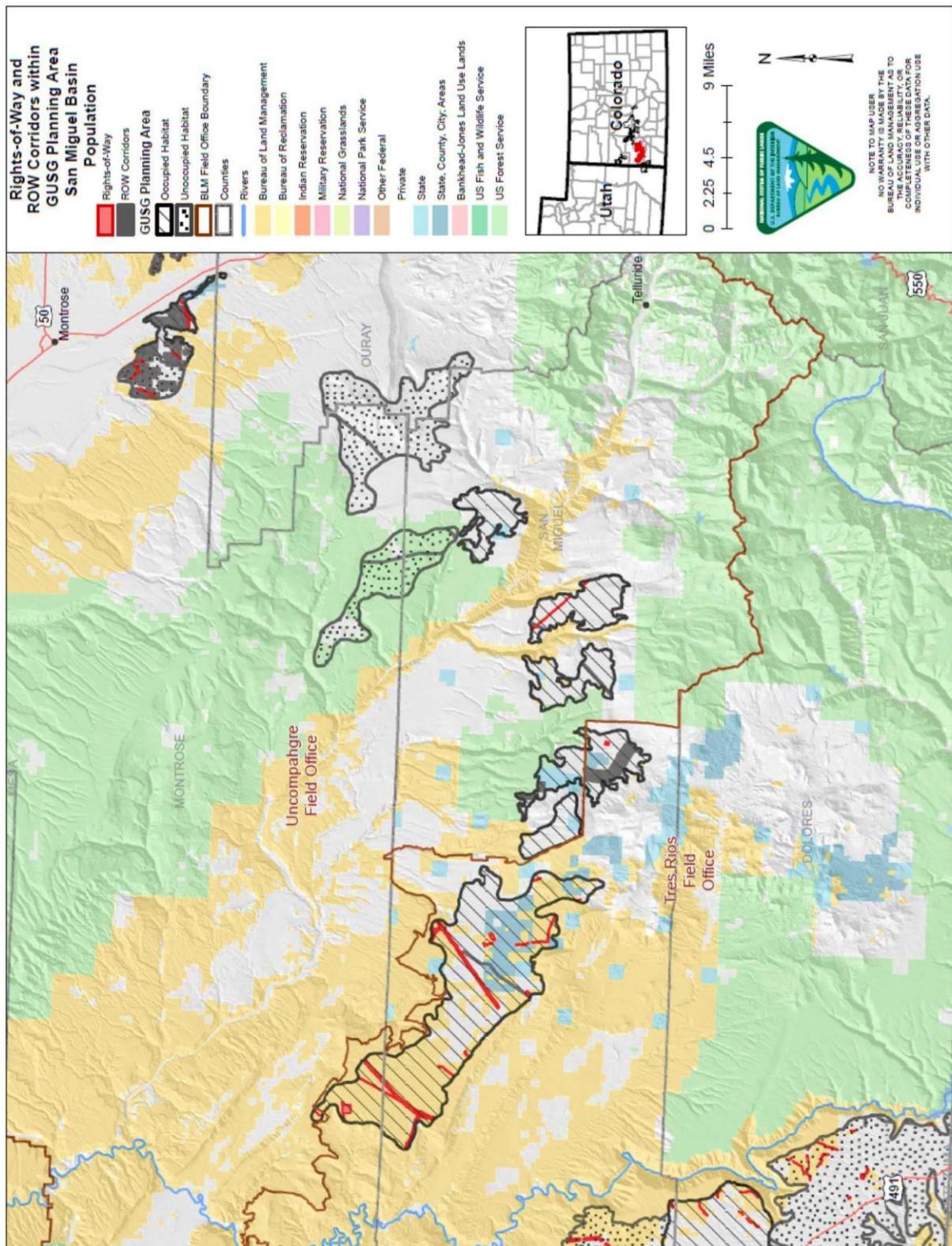
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Figure 3.74 - ROWs and ROW Corridors in the Poncha Pass Population Area



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Figure 3.75 - ROWs and ROW Corridors in the San Miguel Basin Population Area



The BLM authorizes a wide range of uses and facilities through ROWs, leases, and permits, from interstate electric transmission lines to local electric distribution lines; from major highways to two-track dirt roads accessing private property parcels and/or energy facilities; and various facilities related to energy development that are not authorized as part of mineral lease development. Table 3.73 summarizes the current land use authorizations in the decision area.

Table 3.73 - Land Use Authorizations in the Decision Area

HABITAT TYPE	POWER AND PHONE LINES			ROADS AND HIGHWAYS	PIPELINES	COMMUNICATION SITES	WATER-RELATED AND OTHER ¹
	Overhead	Buried	Unknown				
Occupied Habitat	6,900	260	1,800	6,200	1,500	800	1,300
Unoccupied Habitat	2,000	100	600	3,600	600	100	640
Total Decision Area	8,900	400	2,400	9,700	2,000	900	2,000
GUNNISON BASIN POPULATION AREA							
Occupied Habitat	6,700	200	1,300	5,100	20	500	300
Unoccupied Habitat	600	10	200	2,400	0	10	50
CERRO SUMMIT-CIMARRON-SIMS MESA POPULATION AREA							
Occupied Habitat	0	0	200	800	100	0	180
Unoccupied Habitat	400	0	30	40	0	0	40
CRAWFORD POPULATION AREA							
Occupied Habitat	0	0	100	0	0	300	600
Unoccupied Habitat	0	0	200	300	100	100	400
MONTICELLO-DOVE CREEK POPULATION AREA							
Occupied Habitat	10	20	0	200	40	0	10
Unoccupied Habitat	100	0	0	400	500	0	100
PIÑON MESA POPULATION AREA							
Occupied Habitat	0	0	0	0	0	0	0
Unoccupied Habitat	400	30	0	300	0	0	100
PONCHA PASS POPULATION AREA							
Occupied Habitat	200	40	0	20	0	0	0
Unoccupied Habitat	500	100	0	20	0	0	0
SAN MIGUEL BASIN POPULATION AREA							
Occupied Habitat	10	0	200	200	1,300	10	200
Unoccupied Habitat	0	0	0	0	0	0	0

¹ "Water-Related and Other" includes ditches, irrigation facilities, water facilities, water plants, and other

TRENDS

Within the planning area, the demand for ROWs will continue to increase. About 10% of the existing acres occupied by ROWs are for ROWs that were granted in the past ten years. Recent demand has included all types of ROWs, including access roads, electric and phone lines, pipelines, and communication sites. The rate of the increased demand is tied to the rate of population growth and associated private land development, access needs, and utilities development. Demand for ROWs is also tied to minerals development and associated infrastructure development and access needs.

3.12.2. WITHDRAWALS

EXISTING CONDITIONS

Withdrawals are formal lands actions that set aside, withhold, or reserve federal land by statute or administrative public land order for public purposes. Withdrawn lands are specific areas of federal land reserved and set aside from disposal, location, or entry under some or all of the general land laws. These lands are established for the purpose of limiting activities under the laws in order to maintain other public values or to reserve the area for a particular public purpose or program. The segregative effects of withdrawals can vary depending upon the particular resource being protected, and a withdrawal can be modified or eliminated through revocation.

Withdrawals are established for a wide variety of purposes such as Federal Energy Regulatory Commission power site reserves; Department of Defense military reservations; administrative sites; recreation sites; national parks; national forests; Bureau of Reclamation projects such as reservoirs; wild and scenic rivers; and wilderness areas. Withdrawals are most often used to preserve sensitive environmental values and major federal investments in facilities or other improvements, to support national security, or to provide for public health and safety. Withdrawals can be designated by Congress through a public land order or statute, or be processed administratively by the BLM through FLPMA and 43 CFR 2300.

In the decision area, 82,060 acres (including 1,610 acres in Non-Habitat) are currently withdrawn from mineral entry and there are no pending withdrawals. The existing withdrawals include wilderness areas, WSAs, NCAs, Canyons of the Ancients NM, various water power and storage withdrawals, and various administrative withdrawals. Refer to the Locatable Minerals section for a further

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discussion of withdrawals and to Table 3.69 in that section, which summarizes the current withdrawals in the decision area.

3.13. AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Areas of Critical Environmental Concern (ACEC) are the only special designation category brought forward for analysis in this amendment. (See Section 1.2.5 for a complete list of issues identified and considered but not further analyzed.) The BLM uses the ACEC designation to highlight areas where special management attention is necessary to protect and prevent irreparable damage to important historic, cultural, and scenic values; fish or wildlife resources; or other natural systems or processes [43 CFR 1610.7-2(b)]. ACEC designation may also be used to protect human life and safety from natural hazards.

INDICATORS

- The presence or absence of an ACEC is indicated by a designation within a BLM RMP.

EXISTING CONDITIONS

3.13.1. CONDITIONS WITHIN OCCUPIED AND UNOCCUPIED HABITAT

One ACEC in the decision area has been designated expressly for the purpose of protecting GUSG habitat. The 22,000-acre Gunnison Sage Grouse ACEC/Important Bird Area is located within the Gunnison Gorge NCA decision area. These lands contain a population of GUSG that is managed under the Gunnison Sage-Grouse Conservation Plan, Crawford Area, Colorado (Crawford Sage-Grouse Partnership 1998). At the time of designation, the ACEC was believed to include 100 percent of the Occupied Habitat in the NCA planning area.

The Gunnison Gorge NCA RMP (2004) sets forth management of the ACEC as follows:

Public lands in the Management Unit 4 (22,200 acres) are designated and managed as the Gunnison Sage Grouse ACEC/Important Bird Area. Management and protection of the GUSG and its habitat will be emphasized in this management unit.

For 22,000 acres within the Gunnison Sage-Grouse ACEC, the following lease stipulations for GUSG and GUSG habitat protection apply:

- NSO within 2 miles of GUSG leks
- NSO stipulation within riparian areas
- TL within GUSG winter range, November 15 through April 30
- CSU stipulation for other GUSG habitat.

A lease notice could be attached to oil and gas leases containing GUSG nest sites that would prohibit surface-disturbing activities or require other special mitigation on leases from March 1 through June 30 to prevent disturbance to nesting GUSG.

TRENDS

ACECs are an administrative designation analyzed solely through the RMP process. ACEC designation is determined by the planning schedule and does not exhibit an identifiable future trend beyond that.

3.14.SOCIAL & ECONOMIC CONDITIONS

This section evaluates existing demographic and economic conditions in and around GUSG Habitat and assesses the economic role of activities that rely on BLM-managed resources in the region. Additional species conservation measures may affect these activities and, therefore, socioeconomic conditions. These consequences are addressed in Chapter 4.

The GUSG populations are spread across nine Colorado counties and two Utah counties: Delta, Dolores, Gunnison, Hinsdale, Mesa, Montrose, Ouray, Saguache, and San Miguel counties in Colorado and Grand and San Juan counties in Utah. Most of the demographic and economic data are presented at the county level, with reference to statewide conditions and trends for context. While county-level data often masks variation within counties, community-level data, particularly in rural areas, is scarce and typically contains large margins of error. Therefore, county-level data is considered the best available for analysis.

The economic contribution analysis relies on functional economic areas—defined by labor market linkages—rather than the political boundaries of a county. The economic analysis groups the 11 counties into three areas. Area One includes Delta, Gunnison, Hinsdale, Montrose, Ouray, and Saguache counties in Colorado, Area Two includes Mesa County, Colorado, and Area Three includes Dolores, and San Miguel counties in Colorado and Grand and San Juan counties in Utah. Although Mesa County, Colorado and Grand County, Utah share one of the critical habitat units, the economic linkages between these counties are weak. Therefore, these counties are addressed separately in the socioeconomic analysis.

INDICATORS

The following are indicators of socioeconomic effects resulting from management actions related to the protection of Gunnison Sage-Grouse within the decision area:

- Employment, labor income, and output associated with economic activities affected by management alternatives
- Number of jobs
- Dollar value of output and labor income
- Qualitative assessment of additional costs to the use of public lands and resources
- Grazing allotment infrastructure and management costs

- Restrictions on mineral development and extraction, including fluid mineral leasing stipulations (e.g., NSO) and ROW exclusion and avoidance designations
- Recreation site access
- Interest groups and communities of place
- Qualitative assessment of effects to quality of life
- Qualitative assessment of non-market values
- Environmental Justice
- Qualitative assessment of disproportionately high and adverse human health and environmental impacts

3.14.1. DEMOGRAPHIC AND ECONOMIC CONDITIONS

Area I

The Gunnison Basin contains the largest population of GUSG (approximately 4,000 birds or 80% of the total population). The occupied portions of this Gunnison Basin area extend across portions of Gunnison and Saguache counties. Other habitat areas include the Cerro Summit-Cimarron-Sims Mesa area (mostly in Montrose County), the Crawford area (Delta, Gunnison, and Montrose counties) and the Poncha Pass area (mostly in Saguache County).

As indicated in Table 3.74, most of the counties in Area I grew more slowly than the State of Colorado between 2000 and 2012. Montrose County, which is also the most populous county, and Ouray County slightly exceeded Colorado's population growth rate over this period. All other counties in this area experienced population growth rates that were substantially slower than statewide population growth.

Table 3.74 - Area I Population Change, 2000–2012

COLORADO COUNTY	2000 POPULATION	2012 POPULATION	POPULATION GROWTH 2000-2012
Delta County	27,824	30,432	9.4%
Gunnison County	14,000	15,475	10.5%
Hinsdale County	792	810	2.3%
Montrose County	33,438	40,725	21.8%
Ouray County	3,747	4,530	20.9%
Saguache County	5,904	6,304	6.8%
State of Colorado	4,302,086	5,187,582	20.6%

Source: U.S. Census Bureau 2000 and 2012b

Population growth can put pressure on existing housing stock and drive new residential development when vacancy rates are low. New residential development in these counties may result in habitat loss and fragmentation (IEc 2013). However, the counties with the largest shares of habitat (Gunnison and Saguache counties) have some of the lowest population growth rates in the area. This decreases the likelihood of conflict between population growth and GUSG habitat.

In all counties except Ouray, a minority of land is privately owned. Public land provides natural amenities, open space, recreation opportunities, and other benefits to nearby residents. High levels of public land ownership can also constrain development. Throughout the West, high shares of public lands increase the potential for land management actions to influence local economic conditions. Table 3.75 shows the large share of BLM-managed public lands in Delta, Gunnison, Hinsdale, Montrose, and Saguache counties. The high percentage of BLM lands underscores the potential for changes in BLM GUSG conservation measures to affect social and economic activity.

Table 3.75 - Area I Land Ownership

COLORADO COUNTY	PRIVATE LAND	BLM
Delta County	43.2%	30.1%
Gunnison County	18.5%	17.3%
Hinsdale County	4.5%	17.5%
Montrose County	31.0%	42.7%
Ouray County	52.9%	7.5%
Saguache County	26.0%	16.9%

COLORADO COUNTY	PRIVATE LAND	BLM
State of Colorado	56.7%	12.6%
Source: USGS 2012		

Industry composition may influence the relationship between habitat conservation and regional economic activity. Several counties in this area have large shares of employment in the agricultural sector (see Appendix E). Livestock grazing in critical habitat areas may require modification to prevent conflict with the GUSG. In Delta County, cattle ranching and farming is the largest agricultural sector in the county, with 464 jobs (approximately 3 percent of all employment in the county). Montrose County also has a large share of employment in cattle ranching and farming, with 483 jobs (2 percent of total employment in the county). More than one-third of employment in Saguache County is in the agricultural sector. Seventy jobs in the county are in cattle ranching and farming subsector, which is approximately 3 percent of all employment in the county (IMPLAN 2012). While BLM allotments often provide a small portion permittees' forage, public land forage complements ranching operations that also occur on adjacent National Forest System lands and private lands.

Mineral and energy development activities may be affected by GUSG conservation measures. Delta, Gunnison, and Montrose counties have large shares of employment in the mining sector (7.9%, 7.4%, and 4.7%, respectively; see Appendix E). Restrictions on surface occupancy and disturbance, for example, could affect the prevalence of mining activity in the region.

Habitat conservation measures may also affect outdoor recreation opportunities on public lands. More than twenty percent of employment in Gunnison County is in tourism-related sectors (arts, entertainment, and recreation and accommodation and food services), which reflects the importance of outdoor recreation to local economic activity in the county (IMPLAN 2012). Appendix E provides details on sector-level employment for all counties in the planning area. The economic analysis discusses the economic role of grazing, recreation, mineral extraction, and energy development on BLM-managed public lands in the area.

Table 3.76 displays median household income for each of the Area I counties.

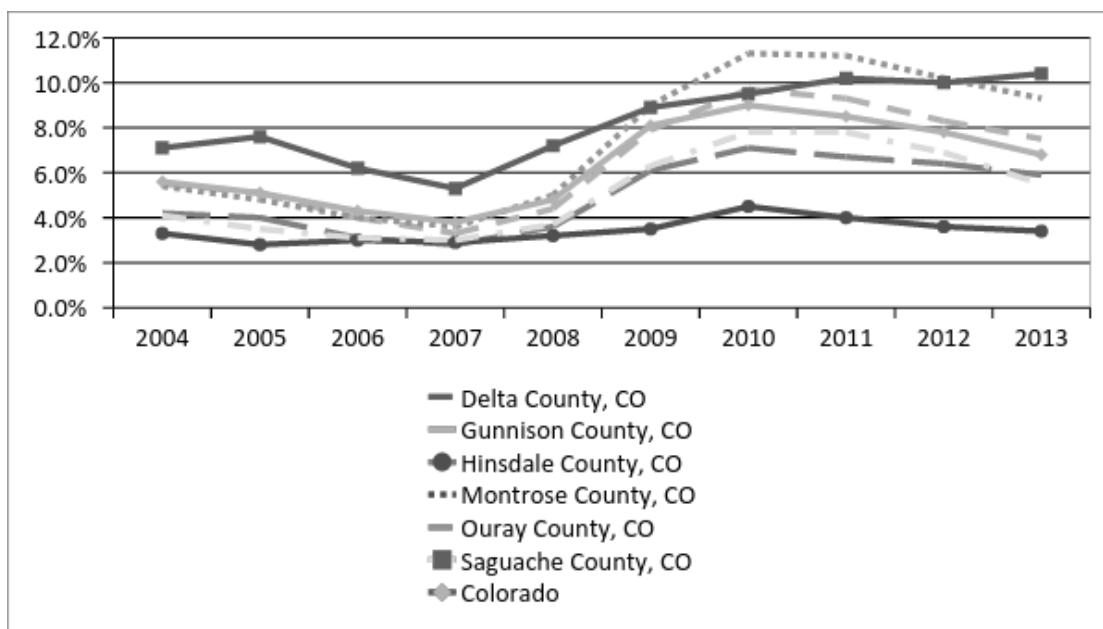
Table 3.76 - Area I Median Household Income

COLORADO COUNTY	MEDIAN HOUSEHOLD INCOME
Chaffee County	\$45,713
Delta County	\$42,786
Gunnison County	\$50,091
Hinsdale County	\$54,844
Montrose County	\$47,139
Ouray County	\$66,474
Saguache County	\$32,429
State of Colorado	\$58,244

Source: U.S. Census Bureau 2012a

Most counties in the area are less affluent than the state as a whole. Only Ouray County has higher median household income than the state. Saguache County has the lowest median household income in the area. Low household income can increase vulnerability to social and economic change, as people have access to fewer resources. In addition to having the lowest household income in the area, Saguache County also has the highest unemployment rate.

Figure 3.76 displays the 10-year trend for unemployment in Area I. While unemployment spiked throughout the area during the recession, only Saguache County continues to experience unemployment above 10 percent. Montrose County also has a high unemployment rate compared to the state. Montrose County experienced the most severe unemployment during the recession. All other counties in the area have unemployment rates similar to, or below, the unemployment rate in the state.

Figure 3.76 - Unemployment Trends, Area I

Source: BLS 2014

Discussions with county officials in this area indicated that residents value open space, outdoor recreation opportunities, and recognition of their historical – and in some cases continued – reliance on resource-based industries for employment. Communities in this area offer a wealth of natural amenities, which make communities appealing places to live that positively contribute to quality of life. In some communities in this area, natural amenities also drive second-home ownership (Gunnison County 2014). Out-of-county property owners bring outside money into counties, which can create jobs and improve local services. Second-home ownership can also increase housing costs, which make it more difficult for low-wage workers to live near their place of work (Gunnison County 2014). County officials also noted the importance of multiple use management on public lands in the area to local economic activity.

Area 2

The majority of the Piñon Mesa GUSG Population inhabits areas to the southwest of Grand Junction and Fruita in Mesa County, Colorado. Grand Junction is the largest city in Mesa County and the largest city between Denver and Salt Lake City. As a regional economic center, the county is economically diverse. Other communities in the county rely on agriculture and oil and gas extraction for local employment and income. Public land amenities, including recreational opportunities and open space, attract residents to the area. Mesa County has grown substantially over the past 50 years, but has also experienced a number of boom and bust cycles. BLM-managed

public lands in the county contribute to local employment and income through energy development, recreation, and livestock grazing (BLM 2012).

As shown in Table 3.77, Mesa County added more than 30,000 residents between 2000 and 2012. The population growth rate in the county exceeds the statewide population growth rate. Population growth can strain infrastructure, housing supply, and community relations. New residential development may lead to habitat loss and fragmentation (IEc 2013). Therefore, population growth may also complicate the conservation of GUSG critical habitat.

Table 3.77 - Population Change in Area 2, 2000–2012

COLORADO COUNTY	2000 POPULATION	2012 POPULATION	POPULATION GROWTH, 2000-2012
Mesa County	116,939	147,848	26.4%
State of Colorado	4,302,086	5,187,582	20.6%

Source: U.S. Census Bureau 2000 and 2012b

As shown in Table 3.78, nearly half of the land in Mesa County is managed by the BLM. As a result, BLM management actions have the potential to meaningfully influence social and economic conditions in the county. Federal land management decisions may affect water quality, recreation opportunities, and resource extraction. The social and economic influence of public land management decisions increases where the majority of land is publicly owned.

Table 3.78 - Area 2 Land Ownership

COLORADO COUNTY	PRIVATE LAND	BLM LANDS
Mesa County	25.9%	46.6%
State of Colorado	56.7%	12.6%

Source: USGS 2012

Habitat conservation measures may affect livestock grazing, outdoor recreation opportunities, and mineral activities on public lands. Mesa County has a large share of employment (5.1%) in the mining sector compared to Colorado overall (1.8%). The relative economic specialization in the mining sector suggests that GUSG conservation measures could affect economic activity on BLM-managed lands in the county. Appendix E provides further details on sector-level employment for the county.

Table 3.79 displays median household income in Mesa County and the State of Colorado.

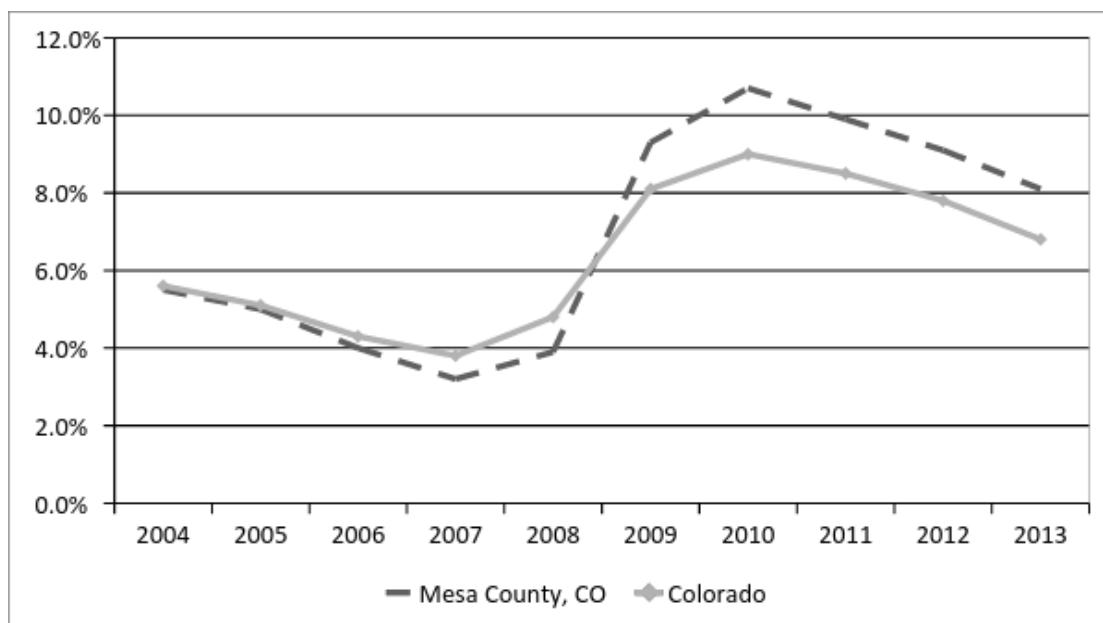
Table 3.79 - Area 2 Median Household Income

COLORADO COUNTY	MEDIAN HOUSEHOLD INCOME
Mesa County	\$51,029
State of Colorado	\$58,244

Source: U.S. Census Bureau 2012a

Household income in Mesa County is lower than median household income in the state, although it is higher than many counties in Area 1. Additionally, Figure 3.86 shows that the unemployment rate in Mesa County has exceeded the statewide unemployment rate since 2009. While the unemployment rates have tracked closely over much of the past decade, the unemployment rate in the county is currently about 1 percentage point higher than Colorado's unemployment rate.

Figure 3.77 - Unemployment Trends, Area 2



Source: BLS 2014

Area 3

Most of the GUSG habitat in this area is near the communities of Dove Creek in Dolores County, Colorado and Monticello in San Juan County, Utah. This habitat area also covers a large portion of San Miguel County, Colorado.

Discussions with county officials in the area indicate that much of the area in proximity to the critical habitat remains reliant on agriculture, mineral extraction, and other natural resource-based economic activities. In Dolores County, for instance, 64% of tax revenue was generated from oil and gas activities (Julie Kibel, personal communication, September 25, 2014). The counties in this area also attract many recreation visitors and other tourists. Natural amenities in the area encourage public land recreation and contribute to residents' quality of life. Balancing economic development with the preservation of natural amenities is a key interest of county officials (Dolores County 2014).

As shown in Table 3.80, all of the counties in Area 3 grew more slowly than other counties in each state between 2000 and 2012. Relatively slow population growth suggests that these counties are not attracting significant numbers of new residents from other states and counties. The counties are also predominantly rural. The most densely populated county in the area—San Miguel (CO)—has fewer than 6 people per square mile, compared to approximately 50 people per square mile in the State of Colorado (U.S. Census Bureau 2012b). Slower population growth may reduce incentives for new residential development, which may limit potential conflict between private land development and GUSG habitat.

Table 3.80 - Population Change in Area 3, 2000–2012

COUNTY/STATE	2000 POPULATION	2012 POPULATION	POPULATION GROWTH 2000-2012
Dolores County, CO	1,844	1,994	8.1%
San Miguel County, CO	6,593	7,580	15.0%
Grand County, UT	8,407	9,328	11.0%
San Juan County, UT	14,389	14,965	4.0%
State of Colorado	4,302,086	5,187,582	20.6%
State of Utah	2,233,183	2,855,287	27.9%

Source: U.S. Census Bureau 2000 and 2012b

In all counties, a minority of land is in private ownership. As indicated in Table 3.81, all of the Area 3 counties have lower rates of private land ownership than their respective states. The BLM manages a particularly large share of lands in San Miguel (CO), Grand (UT), and San Juan (UT) counties. Due to large shares of public land ownership, BLM management actions related to habitat conservation may affect social and economic conditions in these counties.

Table 3.81 - Area 3 Land Ownership

COUNTY/STATE	PRIVATE LAND	BLM LANDS
Dolores County, CO	33.6%	14.8%
San Miguel County, CO	35.9%	38.9%
Grand County, UT	4.3%	66.0%
San Juan County, UT	8.2%	41.3%
State of Colorado	56.7%	12.6%
State of Utah	23.5	42.2%

Source: USGS 2012

Habitat conservation measures may affect livestock grazing, outdoor recreation, and mineral activities on BLM-managed lands. Dolores County, Colorado and San Juan County, Utah have relatively large shares of employment in the agricultural sector. Appendix E provides details on sector-level employment for all counties in the planning area. In Dolores County, cattle ranching and farming is the largest agricultural sector in the county, with 64 jobs (approximately 6 percent of all employment in the county). San Juan County also has a large share of employment in cattle ranching and farming, with 155 jobs (2.5 percent of all employment in the county) (IMPLAN 2012).

In comparison, just 0.5% of jobs in Colorado and 0.1% of jobs in Utah are in the cattle ranching and farming sector (IMPLAN 2012). Therefore, a resident of San Juan County, Utah is 25 times more likely to work in cattle ranching and farming than a resident of their state overall. A resident of Dolores County, Colorado is 12 times more likely to work in this sector. This indicates that Area 3 is specialized in cattle ranching and farming relative to the regional economy.

San Juan County also has a large mining sector, accounting for 7.8% of jobs in the county. Mining-related employment only accounts for 1% of employment statewide in Utah; therefore, San Juan County is also specialized in mining relative to the broader economy (IMPLAN 2012).

Tourism-related sectors (arts, entertainment, and recreation and accommodation and food services) are among the largest sectors in San Miguel County, Colorado and Grand County, Utah. More than one-third of employment in San Miguel County and approximately 30% of employment in Grand County is in tourism-related sectors (IMPLAN 2012). In Colorado, tourism-related sectors account for about 10% of employment. In Utah, those sectors account for 9% of employment (IMPLAN 2012). Therefore, San Miguel (CO) and Grand (UT) counties are specialized in tourism-related sectors relative to the regional economy. However, Telluride in eastern San Miguel County (CO) is responsible for driving much of the

tourism-related employment in the county. Telluride is physically separate from the decision area and will not be affected by proposed habitat conservation measures.

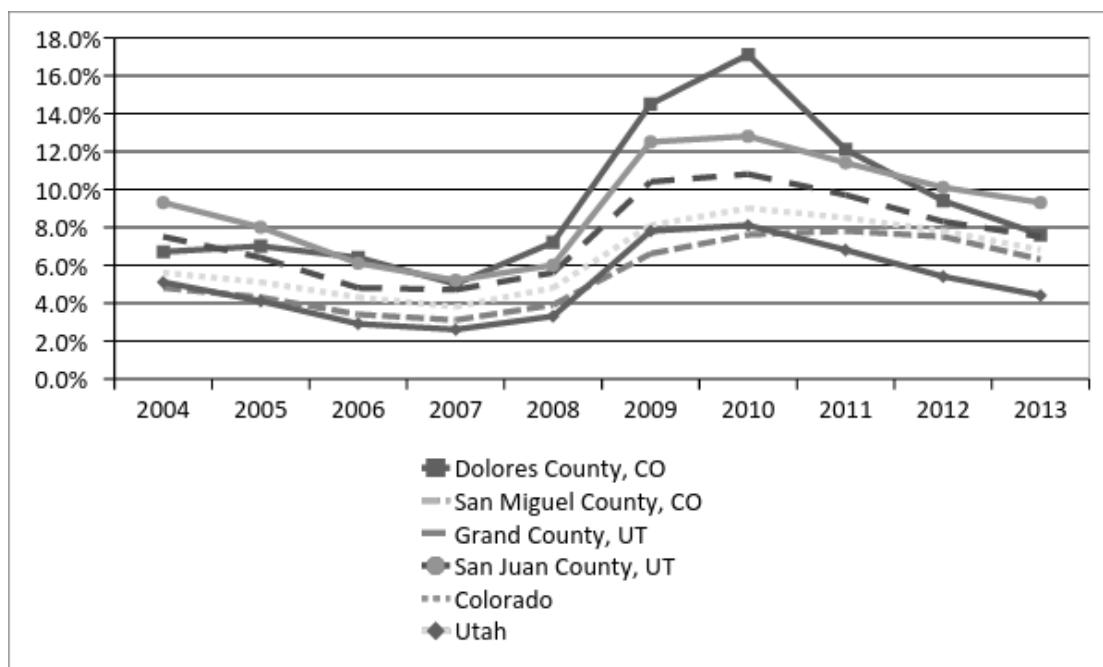
Table 3.82 displays the median household income in the area. All counties except San Miguel County, Colorado have lower household incomes than their respective states. Low household income can indicate socioeconomic vulnerability. Vulnerable individuals and communities may be less resilient to social and economic change.

Table 3.82 - Area 3 Median Household Income

COUNTY/STATE	MEDIAN HOUSEHOLD INCOME
Dolores County, Colorado	\$43,098
San Miguel County, Colorado	\$63,766
Grand County, Utah	\$42,208
San Juan County, Utah	\$40,186
State of Colorado	\$58,244
State of Utah	\$58,164

Source: U.S. Census Bureau 2012a

In addition to having lower median household incomes, most counties in this area have higher unemployment rates than Colorado and Utah overall. Unemployment in Dolores County, Colorado spiked during the recession, but is again in line with other counties in the region. San Juan (UT), Dolores (CO), and Grand (UT) counties have higher unemployment rates than Colorado and Utah.

Figure 3.78 - Unemployment Trends, Area 3

Source: BLS 2014

3.14.2. ENVIRONMENTAL JUSTICE

In 1994, President Clinton issued Executive Order 12898 mandating that all federal agencies analyze the potential for their actions to affect minority and low-income populations disproportionately. The Council on Environmental Quality (CEQ) issued supplemental guidance to assist agencies' compliance (CEQ 1997). The CEQ suggests the following criteria for identifying potential environmental justice populations:

- “Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis...”
- “Low-income population: Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census’ Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.”

The emphasis of environmental justice is on health effects and the benefits of a healthy environment. The CEQ has interpreted health effects with a broad definition: “Such effects may include ecological, cultural, human health, economic or social impacts on minority communities, low-income communities or Indian Tribes …when those impacts are interrelated to impacts on the natural or physical environment” (CEQ 1997).

Table 3.83 displays the share of minority populations in each planning area county and their respective states. Table 3.84 lists the poverty rate in the counties and states. These conditions are used to evaluate the presence of environmental justice populations in the decision area.

Table 3.83 - Race and Ethnicity in the Planning Area by County

COUNTY/STATE	WHITE ALONE	BLACK OR AFRICAN AMERICAN ALONE	AMERICAN INDIAN OR ALASKA NATIVE ALONE	ASIAN ALONE	NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER ALONE	SOME OTHER RACE	TWO OR MORE RACES	HISPANIC OR LATINO*
State of Colorado	84.2%	4.0%	1.0%	2.7%	0.1%	4.7%	3.3%	20.6%
Delta County	94.4%	1.0%	0.6%	0.6%	0.0%	2.1%	1.3%	14.0%
Dolores County	96.6%	0.0%	1.1%	0.2%	0.1%	0.0%	2.0%	3.8%
Gunnison County	95.3%	0.8%	0.4%	0.7%	0.0%	1.5%	1.3%	8.3%
Hinsdale County	99.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	2.4%
Mesa County	90.2%	0.7%	1.1%	0.7%	0.1%	4.6%	2.7%	13.3%
Montrose County	91.0%	0.6%	0.8%	0.6%	0.1%	3.8%	3.1%	19.6%
Ouray County	97.7%	0.0%	0.3%	0.6%	0.0%	0.0%	1.4%	2.0%
Saguache County	81.0%	0.5%	1.5%	0.2%	0.1%	10.4%	6.4%	41.3%
San Miguel County	96.6%	0.2%	0.4%	1.6%	0.0%	0.2%	1.0%	8.9%
State of Utah	89.1%	1.1%	1.1%	2.0%	0.9%	3.4%	2.3%	12.9%
Grand County	93.2%	0.4%	4.7%	0.5%	0.2%	0.2%	0.8%	9.4%
San Juan County	48.2%	0.1%	48.7%	0.5%	0.4%	0.4%	1.7%	4.9%

*Hispanic or Latino is an ethnicity and Hispanic/Latino individuals can be of any race.

Source: U.S. Census Bureau 2012a

San Juan County, Utah has a large share of Native American residents. Nearly half of county residents identify as Native American. Saguache County (CO) also has a large share of minority residents, with more than 40 percent of people reporting Hispanic or Latino heritage. Saguache County is the only county that has a larger share of Hispanic/Latino residents than the state overall.

Table 3.84 - Percentage of People with Income below the Poverty Level

COUNTY/STATE	POVERTY RATE
State of Colorado	12.9%
Delta County, Colorado	14.9%
Dolores County, Colorado	13.9%
Gunnison County, Colorado	16.3%
Hinsdale County, Colorado	5.1%
Mesa County, Colorado	13.4%
Montrose County, Colorado	13.8%
Ouray County, Colorado	6.0%
Saguache County, Colorado	24.8%
San Miguel County, Colorado	7.3%
State of Utah	12.1%
Grand County, Utah	13.6%
San Juan County, Utah	27.9%

Source: U.S. Census Bureau 2012a

Delta, Dolores, Gunnison, Mesa, Montrose, and Saguache counties in Colorado and Grand and San Juan counties in Utah have poverty rates above the rates in their respective states. Saguache and San Juan counties have the highest poverty rates in the decision area, with approximately one-quarter of residents living in poverty.

San Juan and Saguache counties have large shares of minority residents. These counties also have the highest poverty rates in the decision area. These conditions increase the likelihood that individuals in these counties may experience disproportionately adverse consequences from economic changes. The environmental consequences analysis will evaluate if GUSG conservation measures disproportionately affect the environmental justice populations identified here.

3.14.3. ECONOMIC CONTRIBUTION ANALYSIS

Public land uses, including recreation, energy and mineral development, and livestock grazing contribute to economic activity across the twelve counties. The economic contribution analysis estimates the number of jobs and amount of labor income attributable to activities on BLM-managed lands in the study area. GUSG conservation measures are expected to affect energy and mineral development, recreation, and livestock grazing on BLM-managed lands in the decision area. While

public land management contributes to economic activity in other ways—e.g., through payments-in-lieu-of-taxes—other contributions are not expected to be measurably affected by GUSG conservation measures.

The economic contribution analysis uses IMPLAN Professional version 3.0, with 2012 data. IMPLAN is an input-output model that estimates the economic consequences of changes in an industry, event, or policy. IMPLAN captures direct, indirect, and induced economic contributions. Direct contributions occur in the immediately affected industry. For example, public land forage directly contributes to employment, income, and output in the cattle ranching sector. Indirect contributions result from directly affected individuals and firms buying goods and services to support their business. Ranchers buying hardware to repair a fence is an example of an indirect contribution. Induced contributions result from employees of the directly and indirectly affected sectors spending household income in the regional economy (e.g., on housing).

Appendix F details the assumptions and methodology used in the economic contribution analysis.

Oil and Gas

While federal oil and gas production occurs in all three socioeconomic areas, there is limited overlap with GUSG habitat. BLM-managed oil and gas wells exist in the Crawford (Area 1), Monticello-Dove Creek (Area 3), and San Miguel Basin (Area 3) population areas. Because the only producing wells that overlap with GUSG habitat are in the Monticello-Dove Creek and San Miguel Basin population areas, the economic contribution of BLM-managed oil and gas is analyzed only for Area 3. For context, countywide oil and gas production from all ownership is disclosed for the three socioeconomic areas.

Energy price volatility complicates the economic contribution analysis. The latest IMPLAN data available for this analysis is from 2012, a year when a barrel of crude oil sold for approximately \$100. As of this writing (August 2015), a barrel of crude oil is approximately \$45 (USEIA 2015). The dramatic reduction in oil prices likely means that the employment, income, and output data contained in IMPLAN likely differ from current conditions. Natural gas prices have not followed the same downward trend. In 2012, the wellhead price for a Mcf of natural gas was \$2.66, which is similar to current prices (EIA 2014).

Area 1 has the lowest levels of oil and gas production among the three socioeconomic areas. Table 3.85 and Table 3.86 display production of federal minerals and production of oil and gas from all ownerships, respectively. Only Delta and Gunnison counties produced oil and gas in 2012 and 2013. Federal minerals accounted for approximately half of natural gas production and 5% of oil production in Area 1.

CHAPTER 3 - AFFECTED ENVIRONMENT

Table 3.85 - Area I Federal Mineral Production, Fiscal Year 2013

COLORADO COUNTY	OIL (BBL ¹)	GAS (MCF ²)
Chaffee County	—	—
Delta County	70	—
Gunnison County	65	1,041,628
Hinsdale County	—	—
Montrose County	—	—
Ouray County	—	—
Saguache County	—	—

¹ bbl = barrels of oil

² Mcf = thousand cubic feet

Source: ONRR 2014

Table 3.86 - Countywide Oil and Gas Production, Area I, 2012–2014

COLORADO COUNTY	2012 PRODUCTION		2013 PRODUCTION		2014 PRODUCTION	
	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)
Delta County	113	61,468	3,044	152,834	1,149	300,803
Gunnison County	986	1,974,284	231	1,476,566	1,608	3,610,345
Hinsdale County	—	—	—	—	—	—
Montrose County	—	—	—	—	—	—
Ouray County	—	—	—	—	—	—
Saguache County	—	—	—	—	—	—

Source: COGCC 2014

Between 2012 and 2014, Area I counties produced an average of 2,377 barrels of oil and 2.5 million Mcf of natural gas annually. No oil and gas was produced from BLM-managed wells in GUSG habitat zones in Area I. Therefore, an oil and gas economic contribution analysis is not conducted for Area I.

Area 2 has higher oil and gas production than Area I, with approximately \$1.9 million worth of oil and \$58.2 million worth of natural gas extracted from federal sources in fiscal year 2013. Between 2012 and 2014, Area 2 produced an average of 64,180 barrels of oil and 40 million Mcf of natural gas annually. However, like Area I, Area 2 has no BLM-managed wells in GUSG habitat zones. Therefore, an oil and gas economic contribution analysis is not conducted for Area 2.

Table 3.87 - Area 2 Federal Mineral Production, Fiscal Year 2013

COLORADO COUNTY	OIL (BBL)	GAS (MCF)
Mesa County	20,528	21,890,286
¹ bbl = barrels of oil		² Mcf = thousand cubic feet
Source: ONRR 2014		

Table 3.88 shows annual production of oil and gas across all mineral ownerships in Mesa County. This data reveals that approximately one-third of oil production and one-half of natural gas production in Mesa County comes from federal minerals.

Table 3.88 - Countywide Oil and Gas Production, Area 2, 2012–2014

COLORADO COUNTY	2012 PRODUCTION		2013 PRODUCTION		2014 PRODUCTION	
	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)
Mesa County	72,330	46,587,232	54,399	37,111,263	65,811	36,311,889
Source: COGCC 2014						

Area 3 has the highest production of oil and gas in the decision area. Each county in the area reported production of oil and gas. Total federal production in Area 3 accounts for \$113.5 million in oil output and \$18.7 million in natural gas output. Between 2012 and 2014, Area 3 produced an average of 5.5 million barrels of oil and 51 million Mcf of natural gas annually. Area 3 is the only socioeconomic area in the decision area that has BLM-managed oil and gas producing wells in GUSG habitat zones.

Table 3.89 - Area 3 Federal Mineral Production, Fiscal Year 2013

COUNTY	OIL (BBL)	GAS (MCF)
Dolores County, Colorado	18,810	264,816
San Miguel County, Colorado	5,498	2,331,571
Grand County, Utah	768,057	2,807,041
San Juan County, Utah	414,861	1,612,013
¹ bbl = barrels of oil		² Mcf = thousand cubic feet
Source: ONRR 2014		

Table 3.90 - Countywide Oil and Gas Production, Area 3

COUNTY	2012 PRODUCTION		2013 PRODUCTION		2014 PRODUCTION	
	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)	Oil (bbl)	Gas (Mcf)
Dolores County, CO	26,193	23,272,905	17,472	24,114,726	14,572	48,461,693
San Miguel County, CO	15,272	5,776,642	5,917	4,382,700	2,374	4,437,271
Grand County, UT	363,559	4,148,601	1,094,061	4,341,425	1,341,440	4,469,215
San Juan County, UT	4,403,628	9,491,182	4,571,904	9,781,535	4,575,257	10,650,457

Source: COGCC 2014 and UTDNR 2014

Federal minerals account for a relatively small share of total production in Area 3. Table 3.90 displays the annual production of oil and gas across all mineral ownerships in each county. San Juan County, Utah has the highest levels of oil production and Dolores County, Colorado has the highest levels of natural gas production. These are also the counties with the largest share of GUSG Habitat in Area 3. Extraction of BLM-managed oil and gas in the Monticello-Dove Creek population area averaged 6,177 barrels of oil and 275,588 Mcf of gas during the same period. In the San Miguel Basin population area, these figures were 2,166 barrels of oil and 643,693 Mcf of gas. Therefore, BLM-managed resources within GUSG Habitat account for 0.15% of countywide oil production and 1.8% of countywide gas production.

Extraction of BLM-managed oil and gas in the Monticello-Dove Creek and San Miguel Basin population areas support approximately two jobs, \$95,000 of labor income, and \$630,000 of output on an average annual basis. The economic contribution of oil and gas production may be affected by changes in market conditions. Appendix F describes the assumptions and methodology used to estimate oil and gas economic contributions.

Federal data sources report a varying range of employment in the oil and gas extraction sector. IMPLAN employment estimates, which are derived from several federal sources, exceed the employment numbers reported by the U.S. Census Bureau's County Business Patterns (CBP). In Area 1, IMPLAN reports 859.0 jobs in the extraction of oil and gas, while CBP reports only 4 jobs in 2012. In Area 2, IMPLAN reports 549.7 jobs and CBP reports 99 jobs in 2012. In Area 3, IMPLAN reports 242.7 jobs and CBP reports 90 jobs in 2012 (IMPLAN 2012 and U.S. Census Bureau 2014).

These divergent and conflicting data sets make precise and accurate economic contribution analysis impossible. To reconcile the difference between data sets, the BLM consulted the Colorado State Demography Office and researched the U.S. Census Bureau's County Business Patterns' methodology documents. From this

research, it is likely that CBP data underreports employment due to a number of factors, including under representation of sole proprietors, privacy precautions, and CBP's March acquisition of employment data that occurs when a number oil and gas operations are not active. Accordingly, the BLM utilized IMPLAN employment data, which is aggregated from numerous federal economic and demographic data sources.

Potash

Approximately 19,000 acres of Occupied and Unoccupied Habitat overlap with existing or pending potash prospecting permits. Prior BLM mineral reports have indicated thicknesses of three specific potash seams within this acreage ranging from 14 feet up to 28 feet. Potential potash tonnages within this acreage could be substantial. However, prospecting is needed to determine whether a valuable deposit of potash exists within the lands covered by the prospecting permit applications, and whether these lands are chiefly valuable for potash. Therefore, an estimate of potential production is not possible as of the publication of this document.

In 2014, the market price of potash has been stable near \$300 per metric ton, which is near the five-year low (World Bank 2014). Over the past five years, the market price has fluctuated between \$287 and \$500. Since no potash production is occurring, economic contribution analysis cannot be conducted. However, GUSG conservation measures may affect the potential for future potash mining.

Carbon Dioxide

Enhanced oil recovery may increase the quantity of oil extracted from a reservoir. Enhanced oil recovery injects carbon dioxide (CO₂) to push residual oil to a production well. CO₂ injection has the potential to increase production relative to conventional extraction techniques. The price of CO₂ is tied to oil prices (Cook 2012). In late 2015, the price of a barrel of oil was approximately \$36, which is low relative to recent price trends. Between 2012 and 2014, a barrel of oil was approximately \$100 (EIA 2015). The price of third-party supplied CO₂ is approximately 2.5 percent of the oil price plus \$0.50 per Mcf for transportation costs (van 't Veld and Phillips 2009). At current (late 2015) oil prices, that implies a CO₂ price of \$1.40 per Mcf.

In periods of low oil prices, private investment in CO₂ infrastructure and activities is less likely. There are no current CO₂ developments within Gunnison Sage-Grouse habitat. Although seismic testing for CO₂ has been completed in the Doe Canyon area, which is within GUSG habitat, no proposals have been received for drilling. Since no CO₂ development is occurring, economic contribution analysis cannot be conducted. However, GUSG conservation measures may affect the potential for future CO₂ development in the planning area.

Livestock Grazing

A number of county representatives indicated that livestock grazing is both economically and culturally important to area residents. BLM-managed public lands in the decision area provide forage for livestock. The following analysis describes the economic contribution of livestock grazing in GUSG habitat. GUSG conservation measures may affect livestock grazing in these areas. The analysis is broken out by GUSG population for each of the three socioeconomic areas.

Table 3.91 shows the number of billed animal unit months (AUMs) that overlap with GUSG Habitat in Area 1, including Poncha Pass.

Table 3.91 - Average Number of Billed AUMs within GUSG Habitat in Area 1, 2012–2014

AUM BILLED	CERRO SUMMIT-CIMARRON-SIMS MESA	CRAWFORD	GUNNISON BASIN	PONCHA PASS
Billed Cattle AUMs	368	1,213	11,701	1,319
Billed Horse AUMs	0	0	7	0
Billed Sheep AUMs	710	1,098	1,573	0
Billed Yearling Cattle AUMs	0	0	2,275	0

Source: BLM 2015

Livestock grazing in Occupied Habitat in Area 1 supports approximately 41 jobs and \$744,000 in labor income annually. Livestock grazing in both Occupied and Unoccupied Habitat supports approximately 50 jobs and \$924,000 in labor income annually.

Table 3.92 shows the number of billed AUMs that overlap with GUSG Habitat in Area 2.

Table 3.92 - Average Number of Billed AUMs within GUSG Habitat in Area 2, 2012–2014

AUM BILLED	PIÑON MESA
Billed Cattle AUMs	6,916
Billed Horse AUMs	26
Billed Sheep AUMs	0
Billed Yearling Cattle AUMs	248

Source: BLM 2015

Livestock grazing in Occupied Habitat in Area 2 supports approximately 2 jobs and \$38,000 in labor income annually. Livestock grazing in both Occupied and

Unoccupied Habitat supports approximately 15 jobs and \$270,000 in labor income annually.

Table 3.93 shows the number of billed AUMs that overlap with GUSG Habitat in Area 3. Livestock grazing within GUSG Habitat in Area 3 supports approximately 21 jobs, \$270,000 of labor income, and \$1.7 million of output annually.

Table 3.93 - Average Number of Billed AUMs within GUSG Habitat in Area 3, 2012–2014

AUM BILLED	MONTICELLO-DOVE CREEK	SAN MIGUEL BASIN
Billed Cattle AUMs	5,728	3,719
Billed Horse AUMs	5	3
Billed Sheep AUMs	0	0
Billed Yearling Cattle AUMs	128	0

Source: BLM 2015

Recreation

Public lands in the decision area are valued for a variety of recreational opportunities. Public land recreation opportunities improve quality of life and make communities attractive places to live. Additionally, recreation on BLM-managed public lands attracts visitors from outside the local area. When recreation users spend money in the local economy—on food and lodging, for example—they contribute to employment and income in the area. GUSG conservation measures may affect the quantity and distribution of recreation visits across the decision area. This section assesses the economic contribution of recreation on BLM-managed public lands. Recreation visit estimates are only available by BLM field office and not by county.

Table 3.94, Table 3.95, and Table 3.96 display the number of annual recreation visits in fiscal years (FY) 2013 and 2014 for each field office in the decision area. They also show the share of each field office within Occupied Habitat and Unoccupied Habitat. A detailed description of recreation data and economic contribution methods is available in Appendix F.

The Gunnison FO, San Luis Valley FO, and Gunnison Gorge NCA are primarily within Area 1. Recreation opportunities are most likely to be affected in Area 1 due to the large share of the Gunnison FO and Gunnison Gorge NCA with GUSG Habitat.

Table 3.94 - Area I Recreation Visits

BLM UNIT	VISITS (FY13)	VISITS (FY14)	% OF UNIT WITHIN OCCUPIED HABITAT	% OF UNIT WITHIN UNOCCUPIED HABITAT
Gunnison FO	510,028	501,926	50.8%	11.5%
San Luis Valley FO	461,471	475,972	2.0%	3.0%
Gunnison Gorge NCA	172,688	182,575	23.0%	5.7%

Source: BLM 2014

The average number of visits in FY13 and FY14 are multiplied by the share of each BLM unit within GUSG Habitat in order to estimate the number of visits that could be affected by GUSG conservation measures. The economic contribution analysis relies on this number to estimate the employment and labor income supported by public land recreation in habitat zones.

Table 3.94 shows Area I recreation visits for FY13 and FY14. Non-local recreation visits within GUSG Habitat in Area I are estimated to support approximately 90 jobs, \$2.4 million of labor income, and \$6.5 million of output annually. Local recreation visits support an additional 31 jobs, \$890,000 of labor income, and \$2.3 million of output annually, equivalent to approximately 0.22% of total employment, 0.17% of labor income, and 0.13% of total output in Area I.

The Grand Junction FO, Moab FO, and McInnis Canyons NCA are primarily within Area 2. Because only a small share of these BLM units is within GUSG Habitat, GUSG conservation measures will be less likely to affect the quantity and distribution of public land recreation in Area 2.

Table 3.95 - Area 2 Recreation Visits

BLM UNIT	VISITS (FY13)	VISITS (FY14)	% OF UNIT WITHIN OCCUPIED HABITAT	% OF UNIT WITHIN UNOCCUPIED HABITAT
Moab FO	1,996,520	1,951,315	0.0%	0.2%
Grand Junction FO	817,869	812,896	1.2%	5.1%
McInnis Canyons NCA	295,491	283,063	0.3%	17.5%

Source: BLM 2014

Table 3.95 shows the percentage of recreation visits occurring within GUSG habit in Area 2 in fiscal years 2013 and 2014. In Area 2, non-local recreation visits in GUSG Habitat are estimated to support approximately 34 jobs, \$992,000 in labor income,

and \$2.7 million in output annually. Local recreation visits support an additional 11 jobs, \$376,000 of labor income, and \$1 million of output annually, equivalent to approximately 0.05% of total employment, 0.04% of total labor income, and 0.03% of output in Area 2.

The Monticello FO, Uncompahgre FO, Tres Rios FO, Canyons of the Ancients NM, and Dominguez-Escalante NCA are primarily within Area 3. Similar to Area 2, a relatively small share of each BLM unit is within GUSG Habitat.

Table 3.96 - Area 3 Recreation Visits

BLM UNIT	VISITS (FY13)	VISITS (FY14)	% OF UNIT WITHIN OCCUPIED HABITAT	% OF UNIT WITHIN UNOCCUPIED HABITAT
Monticello FO	245,094	255,807	0.3%	0.0%
Uncompahgre FO	467,803	524,639	0.8%	1.4%
Tres Rios FO	760,569	853,919	8.0%	6.0%
Dominguez-Escalante NCA	98,705	92,567	0.0%	8.5%
Canyons of the Ancients NM	76,252	68,497	0.0%	2.4%

Source: BLM 2014

Table 3.96 shows the percentage of recreation visits occurring within GUSG Habitat in Area 3 in fiscal years 2013 and 2014. Non-local recreation visits within GUSG Habitat are estimated to support approximately 40 jobs, \$1.1 million of labor income, and \$2.9 million of output annually. Local recreation visits support an additional 13 jobs, \$400,000 of labor income, and \$1 million of output annually. This is equivalent to approximately 0.24% of total employment, 0.2% of total labor income, and 0.17% of output in Area 3.

Nonmarket Values

The economic analysis above captures the contributions of public land uses to local economic activity. An economic contribution analysis considers how the money spent on public land uses cycles through an economy to support local employment and labor income. This type of analysis informs our understanding of the role of BLM management actions in supporting economic activity and contributing to local employment and income. However, an economic contribution analysis does not provide complete information relevant to understanding the economic importance of public lands.

Public land has both market and non-market values. Market values include commodity uses of public land resources, such as mineral extraction. The discussion of oil and gas, above, describes the market value and oil and natural gas

extracted from each county in the decision area. Oil and natural gas are traded in markets and their prices are known. However, not all public land resources are traded in markets. These types of values are called non-market. Non-market values may arise from direct use of the resources (e.g., hunting for personal use and subsistence gathering) or from passive use (sometimes called non-use). Passive use captures the value of knowing that the resource(s) exist, whether or not future direct use is intended. Public lands provide numerous values that are often of direct use to humans, even if they are not recognized in economic analyses. Drinking water, clean air, and the research and educational opportunities that unique ecosystems afford are a few of the many ecosystem goods and services whose values are not addressed in many economic analyses.

Many individuals—in the planning area and throughout the nation—value wildlife. More than half of visitors to national forests participate in a wildlife-related activity, with the majority of these visitors engaged in wildlife viewing (White et al 2013). Comparable statistics are not available for the BLM, but it is reasonable to assume that visitor characteristics and preferences are similar across agencies. Furthermore, individuals may value the protection of wildlife even if they have no intention to visit public lands to view wildlife or participate in other wildlife-related activities (such as hunting and fishing). Approximately 15 million Americans are members of environmental and wildlife conservation non-profit organizations, which is one measure of the population holding wildlife-related values (Straughan and Pollak 2008, World Values Survey 2014). The protection of GUSG in the planning area may advance non-market values related to wildlife.

GUSG conservation measures could entail tradeoffs with other non-market values. Many recreation users value the opportunities on public land beyond what they pay traveling to sites. The difference between what recreation users pay (in travel costs and site fees) and what they are willing to pay is called consumer surplus. Motorized recreation use on public lands may conflict with GUSG conservation measures. Deisenroth et al (2009) find that motorized recreation users have a mean consumer surplus of approximately \$89 per person per day (converted from 2007 USD to 2014 USD using BLS 2014a). A reduction in motorized recreation use, therefore, would have both market (loss of economic activity) and non-market (consumer surplus) implications.

Consistent with direction provided in BLM IM 2013-131, the subsequent analysis of environmental consequences will consider non-market goods and services primarily in qualitative terms (BLM 2013). Where appropriate, discussion of how the alternatives may affect non-market values will be presented. However, due to the qualitative nature of these discussions, direct comparisons between changes in market and non-market values are generally not possible. Furthermore, the

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economic impact of each alternative should not be conflated with the economic value of that alternative. These are two distinct economic measures.

4. ENVIRONMENTAL CONSEQUENCES

4.1. INTRODUCTION

4.1.1. PURPOSE AND FORMAT

This chapter presents the direct, indirect, and cumulative impacts on the human and natural environment anticipated to occur from implementing the alternatives presented in Chapter 2, Alternatives. The purpose of this chapter is to describe to the decision maker and the public how the environment could change if any of the alternatives in Chapter 2 were to be implemented. It is meant to aid in the decision of which Resource Management Plan Amendment (RMP Amendment) alternative, if any, to adopt.

This chapter is organized by topic, similar to Chapter 3, Affected Environment. Each topic area includes the following:

- A method of analysis section that identifies indicators and assumptions
- An analysis of impacts for each of the four alternatives (in some sections, the analysis has been broken down by alternative; in other sections, if the impacts are expected to be similar, the analyses have been combined)
- A summary comparison of the alternatives.

This impact analysis identifies impacts that may benefit, enhance, or improve a resource or resource use as a result of management actions, as well as those impacts that have the potential to impair a resource or resource use. Some BLM management actions may affect only certain resources, uses, and alternatives. If an activity or action is not addressed in a given section, either no impacts are expected or the impact is expected to be negligible.

Many management actions proposed in Chapter 2 are planning-level decisions that do not result in direct on-the-ground changes. However, by planning for land use on surface estate and federal mineral estate administered by the BLM over the life of the plan, the analysis focuses on the reasonably foreseeable impacts that may result or impacts that could eventually result in-on-the ground changes.

Some BLM and management actions may affect only certain resources and alternatives. This impact analysis identifies impacts that may benefit, enhance, or improve a resource as a result of management actions, as well as negative impacts. If an activity or action is not addressed in a given section, either no impacts are expected or the impact is negligible, based on BLM analysis.

The BLM manages public lands for multiple use and sustained yield in accordance with the Federal Land Policy and Management Act (FLPMA). FLPMA states:

...the public lands must be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; that will provide for outdoor recreation and human occupancy and use; and that recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands by encouraging collaboration and public participation throughout the planning process.

These decisions can result in trade-offs which are disclosed in this chapter. The projected impacts on land use activities and the associated environmental impacts of land uses are characterized and evaluated for each of the alternatives.

Impact analysis is a cause-and-effect process. The detailed impact analyses and conclusions are based on science and professional applied scientific knowledge and natural resource management knowledge from sources including the following:

- The BLM planning team's professional scientific and resource management knowledge of resources and the project area
- Reviews of existing scientific and resource management and planning literature
- Science and professional resource management and planning information provided by experts in the BLM, other agencies, cooperating agencies, interest groups, and concerned citizens.

The baseline used for the impact analysis is the current condition or situation, as described in Chapter 3. Impacts on resources and resource uses are analyzed and discussed in detail, commensurate with resource issues and concerns identified through the process. At times, impacts are described using ranges of potential impacts or in qualitative terms.

Analysis is based on the Uncompahgre Basin RMP, San Juan/San Miguel RMP, and Draft Dominguez-Escalante NCA RMP for the Uncompahgre FO, and on approved RMPs for the rest of the units: Canyons of the Ancients NM RMP, Dominguez-Escalante NCA RMP, Grand Junction FO RMP, Gunnison Gorge NCA RMP, Gunnison Resource Area RMP, McInnis Canyons NCA RMP, San Luis Resource Area RMP, San Juan/San Miguel RMP, Tres Rios FO RMP, Uncompahgre Basin RMP, and Moab FO RMP and Monticello FO RMP for the Moab FO.

4.1.2. ANALYTICAL ASSUMPTIONS

Several overarching assumptions have been made in order to facilitate the analysis of the project impacts. These assumptions set guidelines and provide reasonably foreseeable projected levels of development that would occur in the decision area during the planning period. These assumptions should not be interpreted as constraining or redefining the management objectives and actions proposed for each alternative, as described in Chapter 2.

The following general assumptions apply to all resource categories. Specific resource assumptions are provided in the methods of analysis section for that resource.

- Sufficient funding and personnel would be available for implementing the final decision.
- Implementing actions from any of the RMP Amendment alternatives would be in compliance with all federal regulations, bureau policies, and other requirements and would respect valid existing rights unless otherwise stated.
- Implementation-level actions necessary to execute land use plan-level decisions in this RMP Amendment would be subject to further environmental review, including that under NEPA, Section 7 of the ESA, Section 106 of the NHPA, and others as appropriate.
- The discussion of impacts is based on best available data. Knowledge of the planning area and decision area and professional judgment, based on observation and analysis of conditions and responses in similar areas, are used for environmental impacts where data are limited.
- Restrictions (such as siting, design, and mitigation measures) would apply, where appropriate, to surface-disturbing activities associated with land use authorizations and permits issued on BLM-administered lands and federal mineral estate. There are approximately 638,000 acres of BLM-administered lands and approximately one million acres of federal mineral estate in the decision area.
- Data from GIS has been used in developing acreage calculations and to generate the figures. Calculations depend on the quality and availability of

data. Acreage figures and other numbers are approximate projections for comparison and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations. Where quantitative data was unavailable, the BLM relied on its resource specialists' judgment to provide qualitative analyses. Impacts were sometimes described using ranges of potential impacts or qualitatively, when appropriate.

4.1.3. GENERAL METHODOLOGY FOR ANALYZING IMPACTS

Potential impacts are described in terms of type, context, duration and intensity, which are generally defined below.

- Types of Impact - Impacts are characterized using the indicators described at the beginning of each resource impact section. The presentation of impacts for key planning issues is intended to provide the BLM decision maker and reader with an understanding of the multiple use trade-offs associated with each alternative.
- Context - This describes the area or location (site-specific, local, planning area-wide, or regional) in which the impact would occur. Site-specific impacts would occur at the location of the action; local impacts would occur within the general vicinity of the action area; planning area-wide impacts would affect a greater portion of decision area lands in Colorado and Utah; and regional impacts would extend beyond the planning area boundary.
- Duration - This describes the duration of an effect, either short term or long term. Unless otherwise noted, short term is defined as anticipated to begin and end within the first five years after the action is implemented; long term is defined as lasting beyond five years to the end of or beyond the life of this RMP Amendment.
- Intensity - This analysis discusses impacts using quantitative data wherever possible, but to add context, or when quantitative information is lacking, the analysis will use qualitative inferences or comparisons among alternatives.
- Direct and Indirect Impacts - Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place; indirect impacts result from implementing an action or alternative, but typically occur later in time or are removed in distance and are reasonably certain to occur.
- Cumulative Impacts - Cumulative impacts result from the incremental direct and indirect impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts

can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts are effects on the environment that result from the impact of implementing any one of the alternatives (Chapter 2) in combination with other actions outside the scope of this plan, either within the planning area or adjacent to it. Cumulative impact analysis is required by Council on Environmental Quality (CEQ) regulations because environmental conditions result from many different factors that act together. The total effect of any single action cannot be determined by considering it in isolation, but must be determined by considering the likely result of that action in conjunction with many other factors. Evaluation of potential impacts considers incremental impacts that could occur from the proposed project, as well as impacts from past, present, and reasonably foreseeable future actions. Management actions could be influenced by activities and conditions on adjacent public and nonpublic lands beyond the planning area boundary; therefore, assessment data and information could span multiple scales, land ownerships, and jurisdictions. These assessments involve determinations that often are complex and, to some degree, subjective.

For ease of reading, the impacts of the management actions for a particular alternative on a specific resource are generally described in comparison to the status quo or baseline for that resource. In order to properly and meaningfully evaluate the impacts under each alternative, the impacts expected under that alternative should be measured against the impacts projected to occur under Alternative A. Because it represents what would be anticipated to occur should no RMP Amendment be implemented, Alternative A serves as a reasonable baseline for comparison of the alternatives.

Irreversible commitments of resources result from actions in which resources are considered permanently changed; irretrievable commitments of resources result from actions in which resources are considered permanently lost.

4.1.4. CUMULATIVE ANALYSIS METHODOLOGY

The cumulative impacts discussions that follow consider the alternatives in the context of the broader human environment. Because of the programmatic nature of the RMP Amendment and cumulative assessment, the analysis tends to be broad and generalized to address potential impacts that could occur from a reasonably foreseeable management scenario combined with other reasonably foreseeable activities or projects. Consequently, this assessment is primarily qualitative for most resources because of lack of detailed information that would result from project-level decisions and other activities or projects. Quantitative information is used

whenever available and as appropriate to portray the magnitude of an impact. The analysis assesses the magnitude of cumulative impacts by comparing the environment in its baseline condition with the expected impacts of the alternatives and other actions in the same geographic area. The magnitude of an impact is determined through a comparison of anticipated conditions against the naturally occurring baseline as depicted in the affected environment (see Chapter 3, Affected Environment) or the long-term sustainability of a resource or social system.

The following factors were considered in this cumulative impact assessment:

- Federal, nonfederal, and private actions
- Potential for synergistic impacts or synergistic interaction among or between impacts
- Potential for impacts across political and administrative boundaries
- Other spatial and temporal characteristics of each affected resource
- Comparative scale of cumulative impacts across alternatives.

The geographic scope for the cumulative impact analysis varies by resource and is described within each resource section. Each resource specific cumulative effects analysis is conducted over an analysis area (geographic scope) that allows for analysis of past, present, and reasonably foreseeable future actions relevant to that resource and its interactions with other resources. These analysis areas may be larger or smaller than the planning area, and sometimes smaller than the decision area. This targeted analysis approach meets the NEPA goal of efficiency and avoids the dilution which could occur if a single cumulative effects analysis area where employed.

Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future actions are considered in the analysis to identify whether and to what extent the environment has been degraded or enhanced, whether ongoing activities are causing impacts, and trends for activities in and impacts on the area. Projects and activities are evaluated on the basis of proximity, connection to the same environmental systems, potential for subsequent impacts or activity, similar impacts, the likelihood a project will occur, and whether the project is reasonably foreseeable.

Impacts of past actions and activities are manifested in the current condition of the resources, as described in the affected environment (see Chapter 3, Affected Environment). Reasonably foreseeable future actions are actions that have been committed to or known proposals that would take place within a 10-year planning period.

Reasonably foreseeable future action scenarios are projections made to predict future impacts – they are not actual planning decisions or resource commitments. Projections, which have been developed for analytical purposes only, are based on

current conditions and trends and represent a best professional estimate. Unforeseen changes in factors such as economics, demand, and federal, state, and local laws and policies could result in different outcomes than those projected in this analysis.

Other potential future actions have been considered and eliminated from further analysis because there is a small likelihood these actions would be pursued and implemented within the life of the plan or because so little is known about the potential action that formulating an analysis of impacts is premature. These potential future actions may have greater capacity to affect resource uses within the planning area; however, until more information is developed, no reasonable estimation of impacts could be developed.

Data on the precise locations and overall extent of resources within the planning area are considerable, although the information varies according to resource type and locale. Furthermore, understanding of the impacts on and the interplay among these resources is evolving. As knowledge improves, management measures (adaptive or otherwise) would be considered to reduce potential cumulative impacts in accordance with law, regulations, and the existing RMPs for the areas included in the analysis.

Relevant Cumulative Actions

This cumulative effects analysis considers the incremental impact of the GUSG Proposed RMP Amendment and alternatives in combination with other past, present, and reasonably foreseeable future federal and nonfederal actions on all lands in the decision area. Where these actions occur within with GUSG habitat, they would cumulatively add to the impacts of BLM authorized activities set forth in the GUSG Proposed RMP Amendment. Relevant cumulative actions occurring in the decision area may occur on federal, state, private, or mixed land ownership.

Table 4.97 identifies reasonably foreseeable future actions within the range of GUSG that, when added to the Proposed RMP Amendment and alternatives, could cumulatively affect GUSG. These actions (including CXs, DNAs, EAs, and EISs) were retrieved from BLM field office online NEPA logs and identified as actions within the decision area with the potential to affect the GUSG or its habitat.

Table 4.97 - Reasonably Foreseeable Actions

TYPE OF ACTION	ADMINISTRATIVE UNIT	POPULATION
Grazing Permit Renewal	Grand Junction FO Monticello FO Uncompahgre FO Gunnison FO	Piñon Mesa Monticello-Dove Creek Crawford and Cerro Summit-Cimarron- Sims Mesa Gunnison Basin

TYPE OF ACTION	ADMINISTRATIVE UNIT	POPULATION
Trailing Permits	Uncompahgre FO San Luis Valley FO Moab FO	Crawford Poncha Pass Piñon Mesa
Fuels Treatment	Grand Junction FO	Piñon Mesa
Habitat Treatment	Grand Junction FO/Moab FO Uncompahgre FO Tres Rios FO	Piñon Mesa Crawford San Miguel
Oil/Gas Development	Tres Rios FO	San Miguel Monticello-Dove Creek
Powerline ROW Construction/ Reconstruction	Uncompahgre FO Gunnison FO San Luis Valley FO	Cimarron-Cerro Summit-Sims Mesa and San Miguel Gunnison Basin Poncha Pass
Travel and Trails	San Luis Valley FO	Poncha Pass
Lands/ROWS	Gunnison FO	Gunnison Basin
Recreation	Gunnison FO San Luis Valley	Gunnison Basin Poncha Pass
Abandoned Minelands	Gunnison FO Tres Rios	Gunnison Basin San Miguel
Weed Control	Moab	Piñon Mesa
Fire Management Plan	NPS - Black Canyon National Park/ Curecanti National Recreation Area	

4.1.5. INCOMPLETE OR UNAVAILABLE INFORMATION

The CEQ established implementing regulations for NEPA, requiring that a federal agency identify relevant information that may be incomplete or unavailable for evaluating reasonably foreseeable significant adverse impacts in an EIS (40 CFR, Part 1502.22). If the information is essential to a reasoned choice among alternatives, it must be included or addressed in an EIS, unless the cost of obtaining such information is exorbitant. Knowledge and information is, and would always be, incomplete, particularly with infinitely complex ecosystems considered at various scales.

The best available information pertinent to the decisions to be made was used in developing the RMP Amendment. The BLM made a considerable effort to acquire and convert resource data into digital format for use in the RMP Amendment, both from the BLM and from outside sources.

Under FLPMA, the inventory of public land resources is ongoing and continuously updated. However, certain information was unavailable for use in developing the

RMP Amendment because inventories were not available or complete. Some of the major types of data that are incomplete or unavailable are the following:

- Comprehensive planning area-wide inventory of wildlife and special status species occurrence and condition
- Site-specific surveys of cultural and paleontological resources.

For these resources, estimates were made concerning the number, type, and significance of these resources based on previous surveys and existing knowledge. In addition, some impacts cannot be quantified, given the proposed management actions. Where this gap occurs, impacts are projected in qualitative terms or, in some instances, are described as unknown. Subsequent site-specific project-level analysis for particular implementation decisions will provide site-specific data and analyses to ensure the implementation decision is consistent with this RMP Amendment. In addition, the BLM and other agencies in the planning area continue to update and refine information used to implement this plan.

4.2. SPECIAL STATUS SPECIES

GUNNISON SAGE-GROUSE & HABITAT

4.2.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Acres of sagebrush habitat
- Direct and indirect disturbance to GUSG

4.2.2. IMPACTS COMMON TO ALL ALTERNATIVES

Of the 135 GUSG leks identified within the decision area, 82 are categorized as active, 17 as inactive, 5 as of unknown status, and 31 as historic. Although for purposes of this Draft RMP Amendment, Unoccupied Habitat is defined as including all FWS critical habitat that is not Occupied Habitat, LANDFIRE vegetation identifies only 35% of Unoccupied Habitat as containing characteristics of GUSG habitat, with the balance consisting of 16% agricultural land and 49% other habitat types. Assessment and analysis of all Unoccupied Habitat would be required in order to determine its potential for restoration to suitable GUSG habitat.

In its final rule published in the Federal Register on November 20, 2014, the FWS identifies 24 threats to the GUSG (listed in Table 4.98). Of these, 17 threats are identified as occurring on public lands managed by the BLM or for which the BLM has regulatory influence. For 7 of the threats (invasive plants, pinyon-juniper encroachment, lek viewing, disease, recreation, pesticides and herbicides, and contaminants), there is no data indicating that their occurrence on BLM-administered lands is widespread. Where they do occur, the impacts are likely to be localized.

Five FWS-identified threats are known to occur on BLM-administered lands: power lines, domestic grazing and wild ungulate herbivory, predation, renewable energy development, and non-renewable energy development. The extent of each of these threats can vary substantially across the decision area.

Roads, fences, and fire are identified as threats with the potential to be widespread on public lands managed by the BLM. No data is currently available on traffic volumes for BLM roads across the decision area. Existing scientific data suggests that impacts from roads are likely to be localized and related to traffic volume.

While fences are a documented source of mortality for Greater Sage-grouse (Stevens et al 2012), current data suggests that fence collisions are a much less significant threat to GUSG. Current data does not indicate a significant impact to GUSG habitat from fire. The few fires occurring on BLM land in the decision area have burned approximately 1.7% of Occupied and Unoccupied Habitat.

Climate change and drought are identified in the FWS ruling as substantial threats to GUSG. Although neither is managed as a separate resource program area, the BLM is given regulatory authority to manage resources and activities with potential influence on and from both climate change and drought. In particular, 43 CFR 4100 authorizes the BLM to manage grazing allotments during times of drought, as well as to address changing climate conditions.

Table 4.98 - FWS Listing Factors and Threat Potential on BLM Lands in the Decision Area

Listing Factor	Threat	Present on BLM Lands or BLM has Regulatory Authority	Threat Classification on BLM Lands
Present or threatened destruction, modification, or curtailment of its habitat or range	Residential Development	N/A	—
	Roads	present	potential
	Power lines	present	yes
	Domestic Grazing and Wild Ungulate Herbivory	present	yes
	Fences	present	potential
	Invasive Plants	present	DSNWT
	Fire	present	potential
	Climate Change	present	RMIP
	Renewable Energy Development	present	localized
	Nonrenewable Energy Development	present	localized
	Pinyon-juniper encroachment	present	DSNWT
	Conversion to agriculture	N/A	—
Overutilization for commercial, recreational, scientific, or educational purposes	Water development—mainly reservoirs	N/A	—
	Hunting	N/A	—
	Lek Viewing	present	DSNWT
Disease and Predation	Scientific research	N/A	—
	Disease	present	DSNWT
Inadequacy of existing regulatory mechanisms	Predation	N/A	Yes
	Local laws and regulations	N/A	—
	State laws and regulations	N/A	—
	Federal laws and regulations	present	RMIP

Listing Factor	Threat	Present on BLM Lands or BLM has Regulatory Authority	Threat Classification on BLM Lands
Other natural or manmade factors affecting its continued existence	Conservation easements	N/A	—
	Genetics and small population size	N/A	—
	Drought	present	RMIP
	Recreation	present	DSNWT
	Pesticides and herbicides	present	DSNWT
	Contaminants	present	DSNWT

DSNWT = Data Suggest No Widespread Threat; RMIP = Regulatory Mechanisms In Place

Roads

Sage-grouse exhibit a clear avoidance of paved high volume traffic roads (Carpenter et al 2010; Aldridge et al 2012) and avoid unpaved roads with high traffic levels (Holloran 2005; Tack 2009; Walker 2007). Road use might be a better predictor of sage-grouse occurrence than road density (Tack 2009). Walker et al (2007) found that roads not associated with oil and gas development received little or no support for their sage-grouse models and hypothesized that it might have been due to limited amounts of traffic.

Recreation

Impacts from recreation vary depending on the activity. Impacts from OHVs are analyzed in the travel management section.

Lands & Realty

Transmission lines fragment the habitat and can attract avian predators. Sage-grouse have been documented to avoid anthropogenic features and select habitat to avoid avian predators (Dinkins et al 2012). Lesser and greater prairie-chickens have been documented to avoid transmission lines by over 3,330 feet for nesting (Pruett et al 2009). While not in the same genus as sage-grouse, lesser and greater prairie-chickens share similar life histories with respect to lekking behavior and predator-prey interactions, and select similar habitat types.

Dinkins et al (2014) found that Greater Sage-Grouse hen survival was negatively associated with power line density. Pruett et al (2009) studied the impacts of power lines and roads on lesser and greater prairie-chickens. Prairie-chickens were found to cross roads more frequently than power lines. While no set avoidance distance was identified for prairie-chickens, 85% of nests were more than 6,600 feet from transmission lines. The closest nest was 663 feet from a power line. Pitman et al (2005) seldom found lesser prairie-chickens within 1,320 feet of transmission lines. The mean nesting distance from transmission lines in Pitman's study was 4,353 feet.

Greater Sage-Grouse have been documented to avoid areas with high levels of avian predator activity (Dinkins et al 2012). Breeding season survival of Greater Sage-Grouse has been shown to be negatively associated with power line density (Dinkins et al 2014).

Common ravens are a common nest predator of Greater Sage-Grouse. Coates and Delehanty (2010) found an increase in common raven density of one raven per 3.86 square miles increased the odds of nest predation by 26%. In a study by Manzer and Hannon (2005) on sharp-tailed grouse in Canada, they found that the odds of a hen having a successful nest was eight times greater in landscapes with less than three corvids per 0.386 square miles when compared with areas with greater than three corvids per 0.386 square miles. Increasing the density of ravens increases the risk of nest predation.

Common ravens have been documented to seek out anthropogenic features for nesting (Coates et al 2014; Howe et al 2014; Bui 2009). Howe found that the odds of raven nesting decreased with every 3,330-foot increase in distance from a transmission line. Increased edge was also found to increase the odds for raven nesting. Breeding ravens hunt live prey an average of 2,333 feet from their nests. Home range sizes vary from 297 acres to 2,323 acres. As common ravens seek out power lines for nesting and hunting then the risk of predation to sage-grouse nests and broods will be higher the closer they are to power lines.

Range Management

The Taylor Grazing Act of 1934 (named after Representative Edward Taylor of Colorado) led to the creation of grazing districts in which grazing use was apportioned and regulated (BLM 2015). Grazing management was initially designed to increase productivity and reduce soil erosion by controlling grazing through both fencing and water projects and by conducting forage surveys to balance forage demands with the land's productivity ("carrying capacity"). But by the 1960s and 1970s, appreciation for public lands and expectations for their management rose to a new level, as made clear by congressional passage of such laws as the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the Federal Land Policy and Management Act of 1976. Consequently, the BLM moved from managing grazing in general to better management or protection of specific rangeland resources, such as riparian areas, threatened and endangered species, sensitive plant species, and cultural or historical objects (BLM 2015f).

Over time, there has been a gradual decrease in the amount of grazing that takes place on BLM-managed land, and that trend continues today. Grazing use on public lands has declined from 18.2 million AUMs in 1954 to 8.5 million AUMs in 2013 (BLM 2015f). While not pristine, range conditions on public lands managed by the BLM have shown steady improvement since the 1950s, mostly as a result of

improved range management practices. Improper grazing may be detrimental to habitat condition where it occurs. As areas of improper livestock grazing are identified through LHA, site visits or compliance checks and it is determined that land health standards are not being met, the BLM is required by regulation to make appropriate changes in grazing management by the next grazing season.

Sage-grouse nest success is correlated with grass height and percentage of cover (Holloran et al 2005), primarily due to loss of nests through predation. Livestock grazing can be a tool to achieve a desired result. Grazing can be used to meet ecological requirements for species such as GUSG that require variability in habitat types (Budd and Thorpe 2009). With respect to nesting habitat quality, indirect impacts include a temporary reduction of herbaceous understory, which could affect food availability and hiding cover. Without sufficient hiding cover, nest success may be compromised. Sage-grouse exhibit high nest site fidelity, with hens often returning to nest in the same general area each year. With reductions in herbaceous cover that fall below RCP habitat guidelines for nesting habitat, nest sites lose concealment and could be more susceptible to predation.

Wild ungulates, particularly elk, have the potential to impact sage-grouse habitat to the point where habitat conditions do not meet RCP guidelines. In areas where elk concentrate in the winter, or areas where large numbers of elk migrate, elk grazing could remove residual cover that sage-grouse use when selecting nest locations. This may limit the ability of the site to meet RCP guidelines for sage-grouse nesting cover.

Properly managed grazing should not reduce the capability of critical habitat to satisfy requirements essential to GUSG. There could be localized, temporary reductions of herbaceous cover that result in isolated areas (such as water and salt locations) falling below the minimum coverage recommended in the RCP. However, sage-grouse have been documented to select for sheep bedding locations and salt locations for establishment of new lek sites (Beck & Mitchell 2000). It is a common misconception that all areas within sage-grouse home ranges must be managed for nesting habitat. Habitat management must be responsive to all stages of GUSG life history.

Sage-grouse require a variety of habitat conditions throughout their home ranges to meet critical life functions. Habitat needs for late brood-rearing habitat would not meet habitat guidelines for nesting GUSG. In late brood-rearing habitat, sage-grouse selected for grazed meadows rather than long-term ungrazed exclosures (Cagney et al 2010). Sage-grouse use of grazed meadows was significantly greater than use of ungrazed meadows in late July and throughout August (Evans 1986). When considering the impacts of grazing on habitat, a management approach that focuses

on the availability of all habitat components is more critical than one that focuses on a single life cycle.

Residual tall grass cover and sagebrush cover are components selected by nesting sage-grouse that have been shown to influence nest success. Incorporating RCP habitat guidelines for herbaceous heights as permit terms and conditions would minimize the extent and occurrence of herbaceous cover being grazed below RCP guidelines to isolated livestock concentration areas. With the implementation of habitat guidelines at the landscape scale, grazed Occupied Habitat would be more likely to meet seasonal habitat guidelines described in the RCP over the long term. Monitoring would serve to ensure compliance with permit terms and conditions.

Grazing can also impact habitat quality via compacted soil, erosion, and the increased probability of the presence and spread of exotic plant species. Each of these impacts would be expected to continue, while not exceeding the current conditions. Positive influences of controlled grazing by domestic animals on rangelands include: loosening of the soil surface during dry periods, incorporation of mulch into the soil profile, recycling of nutrients, trampling of seeds into the ground, maintenance of an optimal leaf area index of plant tissue, and reduction in excessive accumulations of standing dead vegetation and mulch that could chemically and physically inhibit new growth (Holechek 1981).

While some available data identifies nest trampling by livestock, no study has documented the percentage of sage-grouse nests that might be lost due to livestock trampling. In a study of the trampling of nesting grassland passerines in low, moderate, and high stocking rates, Johnson et al (2012) found a daily probability of nest trampling of 0.001 for savannah sparrows and 0.003 for horned larks at moderate livestock grazing rates.. The nesting density of passerines in native grassland is significantly higher than for GUSG. Based on data from Johnson et al (2012) nesting densities for Savannah Sparrows and Horned Larks combined was 0.04348 nests per acre. The Gunnison Basin CCA estimates nesting densities of GUSG as 0.00602 grouse per acre for the Gunnison Basin. Based on trampling probabilities for nesting passerines and density estimates for GUSG, four to twelve of every one-thousand GUSG nests could be trampled over a 28-day incubation period. This most likely overestimates the probability of nest trampling due to the differences in the nesting substrate. As GUSG nesting typically occurs under sagebrush rather than in open grasslands, nests are less likely to be trampled.

Fences have the potential to impact GUSG directly through collisions and indirectly by serving as perches for predators. The collision probability for sage-grouse is influenced by terrain and fence density on the broad scale and by fence construction and distance to leks at the site scale (Stevens et al 2012). This data should be

interpreted with caution as Greater Sage-Grouse habitat is generally flatter and current research on fence collisions suggests that terrain is a factor.

Minerals

Fluid Minerals

Surface-disturbing and disruptive activities could have negative impacts on GUSG and GUSG habitat. Multiple studies have identified the avoidance of oil and gas fields by sage-grouse (Aldridge and Boyce 2007, Carpenter et al 2010, Doherty et al 2006, Dzialak et al 2012, Holloran et al 2010, Holloran and Kaiser 2007) and other studies have identified declines in sage-grouse lek attendance as a result of energy development (Gregory and Beck 2014, Harju et al 2010, Hess and Beck 2012, Holloran 2005, Walker et al 2007).

Wells and other infrastructure located within sagebrush communities result in direct habitat loss. Sage-grouse avoidance of these facilities produces even greater indirect habitat loss. Development exceeding one oil and gas well pad for every 699 acres appeared to negatively influence male lek attendance. Similarly, development within 1.86 to 3.0 miles of a Greater Sage-Grouse lek led to declines in peak male attendance, as well as lek inactivity within three to five years (Holloran 2005). Fluid mineral development is most likely to occur in the Dry Creek Basin of the San Miguel population and in the eastern portion of the Monticello-Dove Creek population area.

Adult female sage-grouse will continue to nest in the same nest areas regardless of the level of development in those areas (Holloran 2005). However, nesting yearling greater sage-grouse were documented to avoid oil and gas development by 0.59 miles (Holloran et al 2010), meaning that one well pad could result in the functional loss of 699 acres of nesting habitat. In addition to the loss of nesting habitat, sage-grouse experience decreased survival, increased predation, and lower fecundity. These factors all lead to observed lek abandonment in natural gas fields (Holloran et al 2007). Walker et al found that leks within coalbed natural gas field development declined 35% per year, as opposed to leks outside of development, which declined at a rate of 3% per year. The time lag between development around a lek and lek disappearance was approximately four years. Walker's overall conclusion was that "...development appeared to have substantial negative effects on sage-grouse breeding populations."

Holloran (2005) noted that as development increased within 3.1 miles of a lek, declines in lek attendance approached 100%. Hess and Beck (2012) observed that the odds of lek abandonment increased by 34% with each additional well pad in a 3,330-foot radius. In the Big Horn Basin of Wyoming, greater sage-grouse lek persistence dropped below 50% when oil and gas well densities in a 3,330-foot radius were greater than two wells per 0.386 mi² (Hess and Beck 2012). Holloran

(2005) determined that drilling had no impact on leks at a distance of 3.9 miles and producing wells had no influence on lek attendance at a distance of 2.9 miles.

Gregory and Beck (2014) found that, to avoid measurable impacts, no more than one well pad should occur within 1.2 miles of a lek, and that, to avoid delayed impacts, fewer than six well pads should be located within 6.2 miles.

Because GUSG are a sagebrush-obligate species, development occurring in winter habitat could be detrimental to populations. Doherty et al (2006) found that the sage-grouse in their study selected winter habitat based on sagebrush cover and coalbed natural gas development. Sage-grouse use increased in areas with a higher percentage of sagebrush cover, unless coalbed natural gas development was present. Sage-grouse were 1.3 times more likely to use suitable habitat if coalbed natural gas development was not present. In Alberta, Canada, sage-grouse were documented to avoid all anthropogenic edges and had no selection within 3,960 feet of a well and limited use between 3,960 feet and 6,270 feet (Carpenter et al 2010). Because suitable nesting habitat is typically associated with suitable winter habitat, the loss of winter habitat would be expected to be similar to the potential loss of nesting habitat.

Solid Leasable and Salable Minerals

Although no studies were found that analyze the effects of geothermal, uranium, potash, or salable mineral development (gravel pits) on sage-grouse, impacts from development of these minerals would be expected to be similar to impacts from oil and gas development and largely based on disturbance footprint, activities on the landscape, and human activity levels. With the exception of geothermal and salable mineral development, the only moderate and high potential for leasable mineral development is in the Tres Rios FO.

All existing RMPs in the planning area contain a NSO stipulation for oil and gas development within 0.6 mile of a lek.

Wildlife and Sensitive Species

GUSG would benefit from management of public lands by the BLM under all alternatives. All plans in the no action have management actions designed to protect sage-grouse from development and disruptive activities. The BLM's management of anthropogenic features would continue under all alternatives.

Predation by common ravens could be one of the greatest limiting factors for GUSG. Multiple studies have documented common ravens as the most common nest predator of sage-grouse nests (Lockyer et al 2013, Bui et al 2010, Bui 2009, Coates and Delehanty 2010, Coates et al 2008) and sage-grouse broods are highly susceptible to predation(Bui et al 2010). Ravens use anthropogenic features for nesting and can use increased fragmentation to move into areas not previously

occupied (Coates et al 2014, Howe et al 2014, Bui 2009, Bui et al 2010). Raven densities are highest near population centers, but ravens can move into fragmented landscapes and establish territories (Bui et al 2010). Even in areas where raven densities are not high, territorial ravens may have a substantial impact on nest and brood success (Bui et al 2010), predating multiple nests per nest pair (Howe et al 2015).

Although sage-grouse habitat in the 1950s was in worse condition than today, based on existing information it is possible that sage-grouse populations were some of the highest estimated. Sage-grouse populations increased in the 1940s and 1950s and started to decline in the 1960s and 1970s, in part, due to the loss of sagebrush (Connelly and Braun 1997). In the range of GUSG, sagebrush was reduced by 20% between 1958 and 1993 (Oyler-McCance et al 2001), with the majority of loss in the Monticello-Dove Creek population area (Table 3.24 and Figure 3.10).

Sage-grouse populations may have experienced artificially high numbers in the 1950s due to extensive predator control throughout the west, as well as the impact of DDT on raptor populations. This could help explain high grouse population numbers at a time when habitat conditions were relatively poor. There is evidence that GUSG populations not experiencing impacts from anthropogenic activities could be declining as a result of a developing equilibrium between predator and prey populations.

Common raven numbers in the United States have quadrupled over the last four decades (Sauer et al 2011). Batterson and Morse (1948) found a 3% sage-grouse nest success rate in an area with common ravens and a 35% nest success rate in an area where common ravens were removed (reference to Batterson and Morse in Schroeder and Baydack 2001). This idea is supported by work conducted by Manzer and Hannon (2005) on work with Sharp-tailed Grouse in Canada, in which they found that the odds of nest success increased by eight times in landscapes with less than three corvids per square kilometer. Coates and Delehanty (2010) determined that an increase in density of one raven per ten square kilometers increased the odds of nest predation by 7.4%. Howe et al (2014) suggests that common ravens can impact small sage-grouse populations in fragmented habitats, leading to hyper-predation even under the best habitat conditions.

None of the alternatives address the direct control of common ravens as a management action. Objective B in BLM Manual 6830, Animal Damage Control (ADC) seeks to ensure that ADC is carried out in a systematic manner which responds to resource protection, human health, and livestock protection needs while protecting public safety, domestic animals, and non-target wildlife.

Schroeder and Baydack (2001) identified predator management as a consistent theme in European management plans for grouse. Schroeder and Baydack (2001)

cite four studies in which predator controls have been shown to increase nest success, juvenile survival, and population size. Management actions that address predation could reduce fragmentation, limit anthropogenic features on the landscape and improve habitat conditions. While not a long-term solution to GUSG recovery, predator control could provide the relief necessary to establish robust populations capable of absorbing the loss of individuals to predation.

Wildland Fire, Fuels Management, and Fire Rehabilitation

Sagebrush recovery from wildland fire varies by sagebrush species. In mountain big sagebrush ecosystems, recovery is estimated to take 35–100 years, while Wyoming big sagebrush recovery is estimated to take 50–120 years (Baker 2006). Fire in sagebrush habitat has the potential for increasing perennial grasses, along with an initial increase in forbs (Beck et al 2009). Undesirable shrubs could increase under wild and prescribed fires, while forbs might have no long-term benefits (Beck et al 2009).

4.2.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

General

Five RMPs restrict surface-disturbing activities within 0.6 mile or more of a lek. The Grand Junction RMP places a No Surface Occupancy (NSO) restriction within 4.0 miles of a lek. The Gunnison Gorge NCA places surface disturbance restrictions in GUSG habitat, Moab has a 0.6-mile NSO, and the Tres Rios RMP uses a 0.6-mile buffer around leks to prohibit surface occupancy and disturbance and identifies all winter concentration areas as NSO. The Gunnison FO currently uses the CCA.

Canyons of the Ancients NM RMP does not have restrictions for GUSG leks, other than for oil and gas development. While there are only limited restrictions within Canyons of the Ancients NM, there is no Occupied Habitat and the majority of Unoccupied Habitat does not contain primary constituent elements as identified by the FWS.

Table 4.99 - Acres of BLM Surface by BLM Unit

BLM UNIT	ACRES WITHIN 0.6 MILE OF A LEK	PROHIBITS SURFACE OCCUPANCY FOR ALL ACTIVITIES IN NON-HABITAT
Grand Junction FO	851	—
Gunnison Gorge NCA	4,276	—
Moab FO	0	0.6 mile
Monticello FO	362	—
San Luis Valley FO	687	—
Canyons of the Ancients NM	0	—
Gunnison FO	44,343	0.6 mile
Tres Rios FO	1,714	0.6 mile
Uncompahgre FO	0	0.6 mile
San Juan FO	21	—
Dominguez-Escalante NCA	0	—
McInnis Canyons NCA	0	—

Data based on CPW 0.6-mile lek buffer available from COGCC website and UDWR lek data.

Despite the absence of management direction pertaining to GUSG and GUSG habitat in some RMPs, the present extent of development is extremely low across the range of GUSG. Energy and mining density has impacted 0.07% of Occupied Habitat in the Gunnison Basin, 0.01% of Occupied Habitat in the Cerro Summit-Cimarron-Sims Mesa, 0.03% of Occupied Habitat in Monticello-Dove Creek, and 0.15% of Occupied Habitat in the San Miguel Basin. No energy or mining development has occurred in Occupied Habitat for any of the other populations. (See surface disturbance levels in Table 3.11.) Similarly, the threat of large-scale sagebrush conversion has also appeared to slow, if not stop altogether. Across the GUSG range, sagebrush was reduced by 20% between 1958 and 1993 (Oyler-McCance et al 2001), with most of the loss occurring in the Monticello-Dove Creek population area. (See Table 3.26 and Figure 3.10.)

Table 4.100 - Sagebrush Decline from 1958 to 1993

STRATUM	SAGEBRUSH AVAILABLE IN 1958 (ACRES)	SAGEBRUSH AVAILABLE IN 1993 (ACRES)	SAGEBRUSH LOST (ACRES / PERCENT CHANGE)
Gunnison Basin	947,951	843,179	104,414 / -11%
All Others	994,481	714,714	279,752 / -28%
Overall	1,942,435	1,557,891	384,512 / -20%

Table adapted from Oyler-McCance 2001

Oyler-McCance et al (2001) did not attempt to map sagebrush or surface disturbance, but developed a stratified random sample to estimate habitat loss in the range of GUSG. In order to quantify surface disturbances in the decision area surface disturbances were mapped for the RMP Amendment. Surface disturbance mapping identified a 16% loss of habitat through loss of sagebrush availability or habitat degradation (as shown in Table 4.100). This corresponds with the loss estimated by Oyler-McCance. Based on the Oyler-McCance data from 1993 and data from the GUSG disturbance mapping, little or no habitat has been lost since 1993.

Management actions that limit surface disturbances around leks vary across the decision area. Some plans require a 0.6-mile no surface-disturbing activity buffer around lek locations, while others extend out from two to four miles. A 0.6-mile buffer encompasses 723.5 acres, whereas a two-mile buffer covers 8,038 acres. Across the decision area, 42,127 acres totaling approximately 7% of BLM-administered public lands are covered by a prohibition on surface-disturbing activities. Timing limitations for disruptive activities during the lek/nesting seasons could be applied on 317,676 acres across the decision area in Occupied and Unoccupied Habitat. This represents 50% of public lands managed by the BLM in the decision area. Winter timing restrictions under No Action Alternative A cover 26,502 acres of BLM-administered public land totaling 4% of the decision area.

Roads

Under all of the action alternatives, motorized vehicles are limited to designated or existing routes. During the lek season, the Gunnison Basin has closures to motorized vehicles for certain areas on BLM and county roads. The Gunnison Gorge NCA and the San Luis Valley have area closures during the lekking season. The Gunnison Gorge NCA has a winter closure for big game that also acts as a winter closure to protect GUSG. The Grand Junction RMP and Moab RMP provide direction to close redundant or duplicative routes.

Avoidance of roads by GUSG is likely to relate to the level of use. Areas with higher levels of use likely have more of an impact on sage-grouse avoidance than roads that see lower levels. No Action Alternative A leaves 53,565 acres open to unrestricted cross country travel, or 9% of Occupied and Unoccupied Habitat on public lands managed by the BLM. 17% of areas open to cross-country travel are in Occupied Habitat. Unrestricted cross-country motorized travel has the potential to cause direct loss of nests if the activity was to occur during the nesting season. Under No Action Alternative A, direct disturbance to GUSG could occur on 9% of public lands managed by the BLM. Indirect disturbances could occur on these lands where high volume roads decrease habitat effectiveness through avoidance.

Impacts from cross country travel are likely to differ from road closures. In areas where cross country travel is open direct take of a nest could occur if a nest were to be run over by an off-road vehicle. This is highly unlikely since sage-grouse nest under taller sagebrush and these areas are not typically preferred areas for off road vehicle use.

In the decision area, 85% of public lands are designated as limited to existing routes. Any road through a lek is likely to result in direct disturbance to GUSG during the lek season. Direct disturbance would be proportional to the level of traffic.

Recreation

Under No Action Alternative A, recreation would occur in the same manner as currently being authorized or managed. Special Recreation Permits would continue to be issued. BLM authority to place conditions of approval on a special recreation permit is not limited to decisions made in land use plans. Special Recreation Permits issued in Occupied Habitat or Unoccupied Habitat would be required to conform to the Endangered Species Act and comply with Section 7 of the Act.

Lands & Realty

Under No Action Alternative A, five RMPs contain management actions that encourage the placement of new ROWs in existing corridors. Only the Grand Junction RMP designates the area within 0.6 mile of a lek as a ROW exclusion area. However, other plans have general management actions that prohibit surface disturbance and occupancy within 0.6 mile of an active lek. The Grand Junction RMP places all lands within 4.0 miles of a lek as an avoidance area for ROWs. Management direction in the Monticello and Moab RMPs require avoidance of power lines within 4.0 miles of a lek.

In the Gunnison Basin, lands in Occupied Habitat are included in the Candidate Conservation Agreement (CCA 2013). The CCA does not make land use plan allocation decisions or direct management actions, but provides a tool to screen

project activities in Tier 1 and Tier 2 Habitat (as defined in the CCA) on federal lands for coverage under streamlined consultation.

Under No Action Alternative A, 5,783 acres of public lands managed by the BLM are exclusion areas for ROWs, or roughly 1% of Occupied Habitat. In Unoccupied Habitat 44,921 acres or 19% of public lands managed by the BLM are exclusion areas for ROWs. Under this alternative, 73,182 acres are designated as utility corridors, approximately 11% of public lands managed by the BLM.

Range Management

Grazing is managed by the BLM and the BLM has the authority to make changes to permits if range conditions are not meeting rangeland health standards. Terms and conditions do not need to be specifically identified in land use plans in order to be applied to grazing permits and leases. In the Gunnison Basin, range management in Occupied Habitat would continue to follow the CCA and resulting FWS biological opinions.

Under No Action Alternative A, impacts to GUSG would be the same as described in the impacts common to all alternatives. Grazing in the decision area would continue on 90% of BLM-administered public lands.

Minerals

Under No Action Alternative A, levels of oil and gas development would remain relatively constant and surface-disturbing activities related to oil and gas development would only occur on existing leases and in Unoccupied Habitat, except in the Monticello portion of the Monticello-Dove Creek Population. There are four existing leases in the Monticello area, none of which is held by production. In the Monticello decision area, 9.4% of the area is federal fluid mineral estate. Within the Grand Junction RMP decision area, Piñon Mesa would remain closed to leasing under No Action Alternative A. In the Moab RMP decision area, most of Piñon Mesa is open for leasing, although development potential is very low.

Minerals have been withdrawn from leasing in the Dominguez-Escalante and McInnis Canyons RMP decision areas, and the Gunnison Gorge NCA. The Tres Rios FO RMP leases with an NSO restriction in Occupied Habitat. In Tres Rios FO, leasing would be open with stipulations if Unoccupied Habitat were to become occupied.

Leasing in the Monticello RMP decision area would remain open, with a 0.6-mile NSO around leks and a timing restriction for nesting habitat within 4 miles of a lek. The impacts from closing to leasing and leasing with NSO would be essentially the same, since under each action no development would occur on the lease. Waivers, exceptions, and modifications may be granted consistent with the requirements of 43 CFR 3101.1-4. However, this is extremely rare. In the last ten years, no

modifications or waivers have been authorized. Exceptions have been granted on approximately 7% of APDs, primarily for big game winter range restrictions. (See the minerals analysis in Chapter 3.) There is potential for development to occur from outside of Occupied and Unoccupied Habitat as technology advances and allows drilling from greater distances.

Under No Action Alternative A, 9% of the federal oil and gas mineral estate would continue to be closed to fluid mineral leasing. In the decision area, 44% of the federal oil and gas mineral estate could be leased with NSO restrictions. In the decision area, 4% of the federal mineral estate would remain closed to mineral material sales and 9% to non-energy mineral leasing. Under this alternative, almost half of Occupied and Unoccupied Habitat could not be developed for fluid minerals due to NSO restrictions.

Fuels Management

Under No Action Alternative A, fuels management would continue to occur in Occupied and Unoccupied Habitat. All fuels treatments would be required to comply with Section 7 of the ESA. Prescribed fire would continue to be allowed in all Occupied and Unoccupied Habitat following consultation with the FWS. The impacts to GUSG habitat from prescribed fire would be the same as identified in the impacts common to all alternatives.

Wildfire

BLM policy is to immediately suppress wildland fires in sage-grouse habitat. The Grand Junction, Moab, Monticello, and Dominguez-Escalante NCA RMPs have provisions to use wildland fire to enhance or protect resources.

Emergency Stabilization & Rehabilitation

Under No Action Alternative A, emergency stabilization and rehabilitation would continue to be handled following the normal emergency stabilization and rehabilitation process. Under the emergency stabilization and rehabilitation program, priority is given to restoration of fires in habitat for listed species and critical habitat.

Wildlife and Sensitive Species

Management actions for sensitive species focus on treating pinyon and juniper that encroach on rangelands. Almost all RMPs provide some direction to use vegetation management treatments to meet sagebrush or resource objectives. Under No Action Alternative A, vegetation treatments would continue to be prioritized by each field office.

Forest and Woodland Products

Under all planning area RMPs, the collection of forest and woodland products is allowed. The BLM has the regulatory mechanisms to control the timing of collection if the collection requires a permit. Issuing firewood and Christmas tree permits could occur in forest and woodland habitats. Seed collection could occur in Occupied Habitat; however, collection for most species would occur outside of the nesting season once seed has set.

Weeds

Under No Action Alternative A, weeds would continue to be treated on public lands managed by the BLM. Currently the BLM prioritizes the treatment of noxious weeds and invasive species. Treatments focus on roadways, other disturbances, and identified infestations. In areas where treatment could occur in nesting habitat, GUSG could be temporarily disturbed by the activity of spraying during the nesting season. Some weed treatments must occur during the spring. Under the ESA, consultation would be required for any treatments in GUSG habitat.

ALTERNATIVE B

General

General guidance for surface-disturbing and disruptive activities under this alternative would prohibit surface-disturbing activities within 4 miles of a lek. This area encompasses approximately 58% (372,117 acres) of BLM surface. Alternative B would place a timing limitation for disruptive activities during the lek/nesting season on 56% (361,482 acres) of BLM-administered lands, while winter timing restrictions would occur on 39% (252,012 acres) of BLM-administered lands.

Under Alternative B, there would be a 14% increase in BLM surface with nesting timing restrictions over Alternative A. Alternative B would increase winter timing restrictions by 851% over Alternative A. Prohibitions on surface-disturbing activities would increase by 690% over Alternative A.

In Occupied Habitat, there are 87 active/unknown, 17 inactive, and 31 historic leks within 4 miles of the edge of Occupied Habitat. The Non-Habitat Areas that extend four miles beyond Occupied and Unoccupied Habitat largely do not contain habitat characteristics for GUSG. Extending management actions beyond the mapped Occupied and Unoccupied Habitat would not benefit GUSG, except to provide protection from potential impacts resulting from projects on the edge of Occupied Habitat of large enough scale to impact GUSG behavior, or in areas where there is habitat to support GUSG and grouse use the areas.

While numerous studies have identified the impacts of development extending miles from a sage-grouse lek (Walker et al 2007, Carpenter et al 2010, Holloran 2005, Dzialak et al 2013, Gregory and Beck 2014, Harju et al 2010, Hess and Beck 2012, Holloran et al 2010, Holloran et al 2007, Johnson et al 2011), these developments occurred within sage-grouse habitat and in areas likely to have been used by individual grouse from an impacted lek; otherwise there would be no impacts to leks miles away. Only 22% of the Non-Habitat Areas are capable of supporting GUSG, and those areas are spread throughout the Gunnison Basin and satellite population areas.

Table 4.101 - GUSG Habitat Characteristics in Non-Habitat

POPULATION	Acres of Habitat Capable of Supporting GUSG (% of Non-Habitat)		
	YES	NO	AGRICULTURAL
Cerro-Summit-Cimarron-Sims Mesa	22,508 (31%)	41,190 (57%)	8,257 (11%)
Crawford	1,937 (25%)	5,831 (75%)	— (0%)
Gunnison Basin	12,526 (15%)	68,236 (84%)	145 (0%)
Monticello-Dove Creek	13,935 (24%)	36,822 (63%)	7,976 (14%)
Piñon Mesa	18,743 (32%)	40,279 (68%)	109 (0%)
Poncha Pass	860 (6%)	14,683 (94%)	— (0%)
San Miguel Basin	23,034 (18%)	101,482 (81%)	— (0%)
Total	93,542 (22%)	308,523 (74%)	16,728 (4%)

Public lands managed by the BLM remain largely undeveloped. Management through the use of a no surface disturbance within four miles of a lek in GUSG habitat would prohibit activity on 62% of the decision area. Alternative B would place more protections on GUSG habitat than Alternative C or sub-alternatives D₁/D₂. Under Alternative B, direct disturbance to GUSG and loss of sagebrush from development would not occur on 62% of the decision area.

Roads

Under Alternative B, routes would be closed in Occupied Habitat. Route closures would be limited to BLM routes in the decision area. County roads and state highways would remain open. The primary use time for BLM routes is during hunting season from September through November. Upgrades to existing BLM routes would not be allowed in Occupied Habitat. A seasonal closure of motorized and mechanized routes would be implemented from March 15 through May 15 in Occupied Habitat.

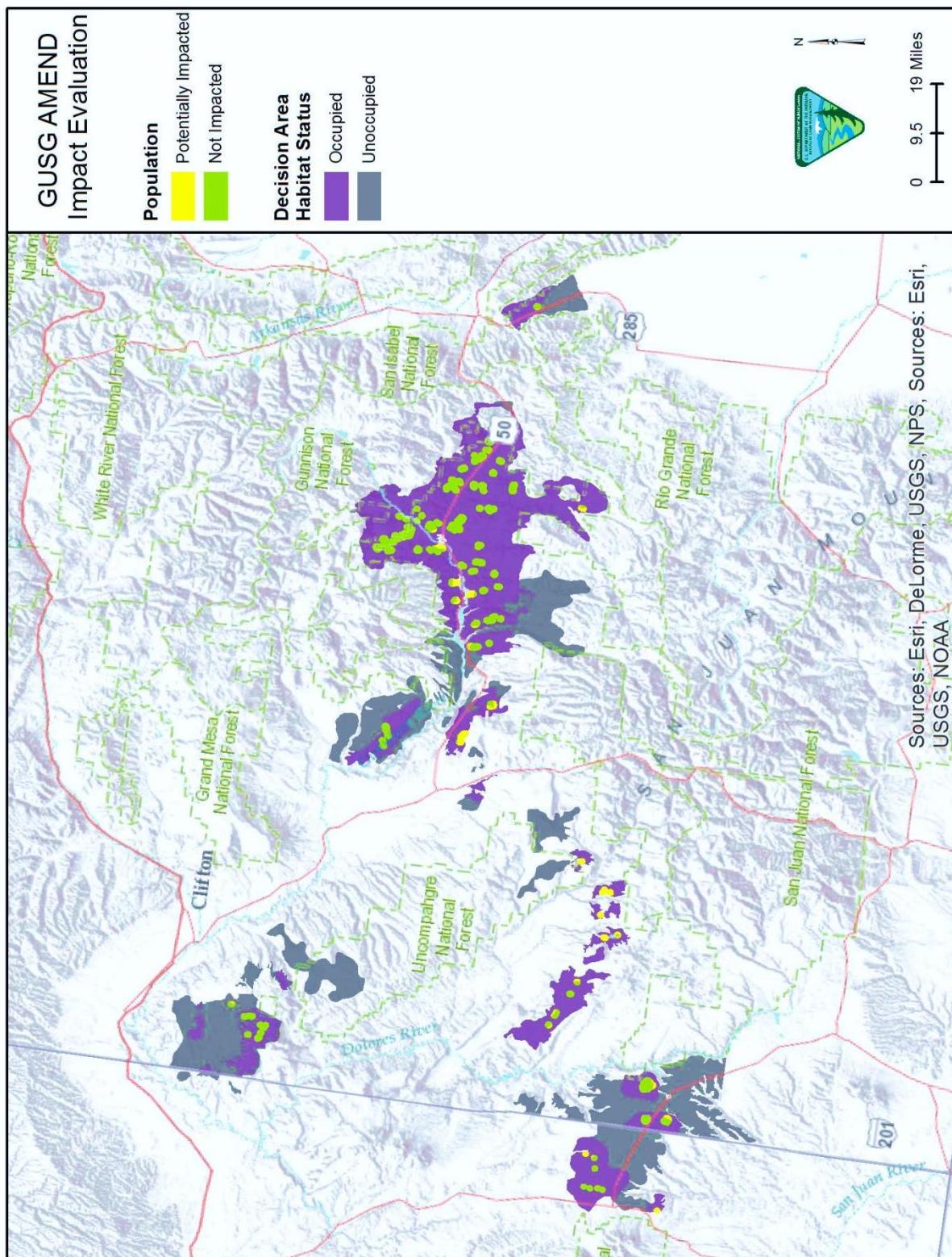
As all motorized routes would be closed under this alternative, a timing restriction on motorized routes would provide no additional benefit to GUSG. While the closure of mechanized routes would reduce disturbance to GUSG nesting along the route, such a closure would not be likely to have a measurable effect on GUSG. New disruptive activities that could influence the use of an area by GUSG would not be permitted during the lek season.

As a result of the decrease in human activity, it can be expected that elk and mule deer would concentrate in the closure areas to a higher level than under current conditions. This may increase the stress on habitat conditions and result in further habitat degradation due to the loss of vegetation.

Outside of Occupied and Unoccupied Habitat, upgrades to any roads would not be allowed if the upgrade would create an impermeable barrier between populations or sub-populations. Outside of Occupied and Unoccupied Habitat, new route construction would only be allowed if the proposed upgrade would not create an impermeable barrier between populations or sub-populations.

Construction or upgrades of new routes in Non-Habitat Areas would most likely have no effect on GUSG or their habitat based on best available science and the lack of documented use by GUSG outside of Occupied and Unoccupied Habitat. The vast majority of the Non-Habitat Areas outside of Occupied and Unoccupied Habitat do not contain GUSG habitat characteristics.

In order for motor vehicles to impact leks, the noise would have to travel from the road to the lek and be of sufficient decibels to impact the lek location. Not factoring in the effects of vegetation and topography on noise attenuation, a project that produces 80 decibels at 50 feet would attenuate to 39 decibels within 1 mile (www.sengpielaudio.com). To determine the potential impact on GUSG leks, areas within 0.6 miles of a lek and within 1 mile of the edge of Occupied Habitat were identified and mapped (as shown in Figure 4.79).

Figure 4.79 - Potential of Leks in the Decision Area to Be Impacted by Roads

There are approximately 19,611 acres of a 0.6-mile lek buffer within 1 mile of the edge of Occupied or Unoccupied Habitat. These areas could potentially be impacted by noise from projects if noise were to reach the edge of the lek (see figure above). This does not take into account to noise impacts already occurring on those leks. Leks within 1 mile of a project that produces 80 dba at 50 feet (i.e., a busy highway) would already be impacted and since noise is not additive, these leks would only experience additional impact if the decibel level from the project was to exceed the existing decibel levels.

Alternative B protects 23,287 acres more than Alternative A of habitat capable of supporting sage-grouse on public lands managed by the BLM outside of Occupied and Unoccupied Habitat. Under Alternative B, project management outside the Occupied and Unoccupied Habitat would focus on projects that are disruptive to GUSG. Under Alternative B, activities disruptive to GUSG from projects outside Occupied and Unoccupied Habitat would not occur. While Alternative B provides more protection, under Alternative A it is extremely unlikely those impacts would occur based on current development and the lack of use of the area by GUSG.

Alternative B implements a 1,563% increase in acres closed to motorized traffic compared to Alternative A. County roads and highways that cross public lands managed by the BLM would remain open and access would to BLM lands would occur in those areas. Under Alternative B, there would be a 100% decrease in areas open to cross country travel. No GUSG or nests would be disturbed by cross country motorized travel.

Recreation

Four developed recreation sites would be removed in Occupied Habitat and eleven developed recreation sites would be removed in Unoccupied Habitat. (See Table 3.58 - BLM Recreation Sites in the Decision Area.) The impact to GUSG of closing the recreation sites would largely depend on access to the sites. Under Alternative B, access to public lands managed by the BLM would be limited to county roads and highways, and would also vary on the type of recreation site. The benefit to GUSG would depend on the habitat at the recreation site, recreation use levels, and the type of use. In general, sites with more recreational activity would have a larger impact than sites with less activity.

No SRPs would be renewed in Occupied Habitat. SRPs make up a small fraction of recreation use on public lands managed by the BLM. Under this alternative all roads would be closed in Occupied Habitat and recreational use would be limited to foot traffic or horseback.

Outside of Occupied and Unoccupied Habitat but in Non-Habitat no SRPs with the potential to adversely affect GUSG or that act as an impermeable barrier between

populations or sub-populations would be allowed. GUSG movements would only be impacted in those areas where habitat is suitable for sage-grouse, mostly in sagebrush patches large enough to support migrating GUSG, and the project development is such that it acts as a barrier to migration. Based on existing SRPs in the decision area, there are no SRPs that would act as a barrier to migration. Disruptive impacts from recreational activities would be limited to areas where GUSG occur, there is no science to suggest recreational impacts reach beyond where the activity occurs. If areas outside of Occupied and Unoccupied Habitat were to be used by GUSG, then Alternative B would limit those recreation permits on 23,287 acres of public lands managed by the BLM or 18% of BLM lands in Non-Habitat. Alternative B protects 23,287 more acres outside of Occupied and Unoccupied Habitat than Alternative A.

Under Alternative B, disturbances to GUSG from permitted recreational activities would not occur in the decision area. Under this alternative, there would be more protection than in Alternative A.

Lands & Realty

Under Alternative B, all Occupied and Unoccupied Habitat would be managed as a ROW exclusion area. Existing RMP designated corridors would be undesignated. Undesignating a corridor does not imply that existing infrastructure would be relocated, just that the area designation would be removed, and any future utilities would be less likely to be placed within Occupied Habitat. While ROWs would be allowed within 100 feet of a county road or highway, if the area is within the 4 mile no surface disturbance buffer, then the project would not be allowed.

ROWs in Non-Habitat Areas would be avoided if the project were to be disruptive to GUSG. If GUSG were found to be using the area, the impacts from ROWs would be the same as those described in impacts common to all alternatives. Based on best available science, GUSG are not using the areas outside of Occupied and Unoccupied Habitat.

Under Alternative B, activities that would be disruptive to GUSG would be avoided on 23,287 acres habitat capable of supporting sage-grouse on public lands managed by the BLM in Non-Habitat. Development would be avoided in habitat not capable of supporting GUSG on 100,300 acres if those impacts would be disruptive. It is highly unlikely that any ROW project would be disruptive to GUSG if the activity occurred in habitat that does not support GUSG, such as forests or woodlands. Only projects in habitat that does not support GUSG (i.e., woodlands and forests) that are immediately adjacent to habitat being used by GUSG has the potential to be disruptive to GUSG. In rare instances, noise from permitted ROW activities could be disruptive to GUSG on lek sites. (See roads analysis for Non-Habitat Areas.)

There is no research that has documented noise impacts to GUSG other than impacts on leks.

This is more than Alternative A that does not require restrictions outside of Occupied and Unoccupied Habitat. Under Alternative B, project management outside the Occupied and Unoccupied Habitat would focus on projects that are disruptive to GUSG. Under Alternative B, ROW activities disruptive to GUSG from projects outside Occupied and Unoccupied Habitat would not occur. Under Alternative A, it is extremely unlikely those impacts would occur based on current development.

Under Alternative B, ROW exclusion areas increase by 6,938% in Occupied Habitat and increase by 417% in Unoccupied Habitat. No new ROWs would be allowed and further fragmentation of GUSG habitat would not occur.

Range Management

Under Alternative B, livestock grazing would not be permitted. Under this alternative, allotments not meeting range land health standards with livestock grazing determined to be a causal factor would likely improve over time. This action could result in improvement of between 37,000 and 258,000 acres (see analysis in CH 4 Livestock Grazing), representing between 6% and 40% of BLM-administered lands in the planning area. The amount of improvement and the time it would take to improve would be dependent upon the current state of the range in a particular area. In some instances, removing grazing might not improve if habitat has transitioned to a state where introducing some form of disturbance is required to reset the system. Other factors, such as increased grazing by wild ungulates, could delay or even offset recovery from the removal of livestock grazing.

Under Alternative B, all BLM-administered public lands would be closed to grazing, a 100% increase over Alternative A. No nests would be trampled as a result of livestock grazing. Modeling created to estimate nest trampling estimated nest trampling under moderate stocking densities at 1.16 nests out of 100.

Minerals

Under Alternative B, Occupied Habitat and Unoccupied Habitat would be closed to fluid mineral leasing. Piñon Mesa is closed to leasing under the No Action Alternative. In the Tres Rios FO RMP, Occupied Habitat is open to leasing with NSO restrictions, while Unoccupied Habitat is open to leasing. However, as there are currently no GUSG in Unoccupied Habitat, impacts to GUSG from closing to leasing and leasing with a NSO restriction would be essentially the same. Tres Rios and Monticello are the only field offices with moderate to high fluid mineral development potential. Closing to leasing would have no measurable impacts, since

Occupied Habitat in the Tres Rios FO is designated as NSO, and under Alternative B, no exceptions, waivers, or modifications would be allowed.

Under Alternative B, Unoccupied Habitat would be closed to leasing and no oil and gas development would be permitted. Unoccupied Habitat with the highest mineral potential is primarily in the Monticello-Dove Creek population area. Habitat in this area is largely agricultural or pinyon-juniper woodlands, with little sagebrush. Precluding development would protect GUSG in sagebrush habitats. In Unoccupied Habitat under Alternative B, no development would occur.

Exploration for and potential development of potash would not continue since the area would be closed to leasing. Uranium lease tracts are present in the decision area would continue to have the potential for development. Current mining of uranium is underground and mining could occur under Occupied Habitat. New ancillary facilities would have to be placed outside of Occupied Habitat.

Under Alternative B, 1,051,846 acres would not be available for leasing, this is a 1,001% increase from Alternative A. However, protections are not proportional to development potential. Across the decision area there are 91,684 acres in Occupied Habitat of federal fluid mineral estate with moderate to high oil and gas potential, and 47,478 acres in Unoccupied Habitat with moderate to high oil and gas development potential. This represents 13% of the federal mineral estate in the decision area. Under Alternative A, 44% (461,614 acres) of the decision area have NSO stipulations. Factoring in NSO stipulations under Alternative A, then Alternative B increases protection by 89% over Alternative A, however under Alternative A, exceptions, waivers, and modifications to lease stipulations are allowed when supported by site-specific NEPA. The 89% increase does not factor in development potential. The vast majority of Occupied Habitat with high or moderate development potential already has NSO stipulations for the entire lease. In Unoccupied Habitat in the Tres Rios FO, a CSU is applied to all leases in Unoccupied Habitat that prohibits development within 0.6 mile of leks and requires timing restrictions for drilling and construction.

In Non-Habitat, a CSU stipulation would be applied to unleased lands for fluid minerals and non-energy leasable minerals to protect sagebrush and riparian areas. In Non-Habitat 71% is oil and gas mineral estate. Approximately 11% of the federal fluid mineral estate is currently leased for oil and gas development. There are only two populations where there are any existing leases in Non-Habitat. In the Monticello-Dove Creek Population 44% of the federal oil and gas estate is currently leased making up approximately 23% of the Non-Habitat. In the San Miguel Basin 22% of the federal oil and gas estate is currently leased making up approximately 15% of the Non-Habitat. Impacts to GUSG from oil and gas development would be the same as described in the section impacts common to all alternatives if

development were to occur in habitat capable of supporting sage-grouse and sage-grouse are using the area. Best available science does not indicate that GUSG are currently using areas outside of Occupied and Unoccupied Habitat. Noise from oil and gas activities could impact GUSG if the noise were to reach lek locations during the lek season. Management actions for salable and locatable mineral development would be limited in Non-Habitat. Management actions that address noise would be implemented for salable and locatable minerals. Noise impacts to GUSG would be the same as those already analyzed.

Management actions would be applied to geophysical exploration and all other mineral activity in Non-Habitat Areas if activities were identified to be disruptive to GUSG. This would apply to 23,287 acres of habitat capable of supporting GUSG on public lands managed by the BLM. Restrictions would only apply if activities were to disrupt GUSG, which would require that sage-grouse be using habitat in the area or if noise from the project were to impact leks during the lek season. Alternative B would protect 23,287 acres of habitat capable of supporting GUSG outside of Occupied and Unoccupied Habitat. Alternative A does not implement any project restrictions outside of Occupied and Unoccupied Habitat. However the BLM is required to comply with the Endangered Species Act and evaluate all projects for impacts to listed species.

The prohibition on siting of line compressors in Non-Habitat is not likely to provide any measurable benefit to GUSG since best available science does not document any use by sage-grouse. The only benefit would be if a proposed compressor is on the edge in continuous sage-grouse habitat. However, this situation is not likely to occur since only 18% of the Non-Habitat could contain GUSG habitat characteristics in the San Miguel Population and only 24% in the Monticello-Dove creek Population. Any compressors placed in the Non-Habitat would have vegetative screening that would substantially buffer any noise. Noise is subject to a restriction to limit noise levels to no more than 10 decibels above ambient at the edge of a lek under Alternative B.

For impacts from compressors to impact leks the noise would have to travel from the compressor to the lek and be of sufficient volume to impact the lek location. Not factoring in the effects of vegetation and topography on noise attenuation, a compressor station that produces 89 decibels at 50 feet would attenuate to 48 decibels within 1 mile (<http://www.sengpielaudio.com/calculator-distance.htm>).

There are approximately 19,611 acres of the 0.6 mile lek that is within 1 mile of the edge of Occupied or Unoccupied Habitat. These areas could potentially be impacted by noise if projects were to reach the edge of the lek. (See Figure 4.79.) This does not take into account to noise impacts already occurring on those leks.

Leks already impacted by noise would only experience additional impact if the decibel level from the project was to exceed the existing levels.

Fuels Management

Under Alternative B, no fuels treatments or mechanical or prescribed fire would occur in GUSG habitat. Fuels would be treated adjacent to Occupied Habitat and Unoccupied Habitat. Pinyon-juniper encroachment would continue in Occupied and Unoccupied Habitat. Impacts to GUSG would vary depending on funding and treatment costs. Although Alternative B would close 100% of the decision area to fuels treatments, the actual impact would occur on no more than 2% of public lands managed by the BLM.

Within Non-Habitat areas, fuels treatments would be designed to meet RCP guidelines. Prescribed fire would be allowed if the proposed treatments are designed to restore habitat to meet RCP guidelines.

Wildfire

Under Alternative B, impacts would be the same as other alternatives and as described in impacts common to all alternatives. Within Non-Habitat areas, wildland fires would be managed to help meet connectivity of GUSG habitat.

Emergency Stabilization and Rehabilitation

Under Alternative B, impacts would be the same as those under other alternatives and as described in impacts common to all alternatives.

Wildlife and Sensitive Species

Under Alternative B, there would potentially be fewer opportunities for ravens to expand their range through the use of anthropogenic features. Alternative B would increase areas closed to surface disturbances by 690% and increase ROW exclusion areas in Occupied Habitat by 6,938% over No Action Alternative A. Limiting the increase in anthropogenic features would benefit GUSG in areas where new anthropogenic features contribute to the expansion of sage-grouse predators, especially common ravens. BLM management actions would be limited to horse and foot traffic. Common ravens could take advantage of pinyon-juniper encroachment for nesting. Under this alternative, treatments for pinyon-juniper encroachment would not be allowed on 639,079 acres of BLM-administered lands. Impacts to GUSG would vary depending on funding and treatment costs. Although Alternative B would close 100% of the decision area to fuels treatments, the actual impact would occur on no more than 2% of BLM-administered lands.

Forest and Woodland Products

Under Alternative B, no vegetative materials would be collected. Native seeds adapted for the area would not be collected and grown, and would therefore not be available for habitat restoration. Alternative B closes 639,079 acres of public lands managed by the BLM to the collection of vegetative materials, which is 639,079 acres more than Alternative A. Disruptions to GUSG from the collection of forest and woodland products would not occur under this alternative. It is not likely that there would be any measurable benefit to sage-grouse due to the limited amount of vegetative materials being collected.

Weeds

Under Alternative B, impacts would be the same as other alternatives and as described in impacts common to all alternatives.

ALTERNATIVE C

General

Under Alternative C, surface-disturbing activity would be prohibited for 1 mile around GUSG leks. Under Alternative C, surface-disturbing activities would be prohibited on 100,034 acres of public lands managed by the BLM. This is a 112% increase over No Action Alternative A.

Under Alternative C, a timing limitation for disruptive activities during the lek/nesting season would be placed on 361,482 acres (56%) of BLM-administered public lands. Winter timing restrictions would occur on 252,012 acres (39%) of BLM lands.

Under Alternative C, there would be a 14% increase in BLM surface with timing restrictions during nesting periods over No Action Alternative A. Alternative B would increase winter timing restrictions by 851% over No Action Alternative A.

Alternative C would provide additional direction for avoidance areas around lek locations. Under Alternative C, oil and gas well development direction would require avoidance of well pads within 1.2 miles of a lek over approximately 180,725 acres (17% of the federal mineral estate). Under No Action Alternative A, no direction for limiting well pad development around leks is provided. However, because lands would be leased with a NSO stipulation under Alternative C, this management direction would apply only to existing leases, subject to valid existing rights. Existing leases within 1.2 miles of a lek cover about 4,415 acres (0.4% of the federal mineral estate).

Under Alternative C, linear features would be avoided within 1 mile of a lek over approximately 100,034 acres (16%) of BLM-administered land. This would be a

112% increase over No Action Alternative A, which prohibits surface disturbance on 47,127 acres around leks.

Under Alternative C, tall structures would be avoided within 1.4 miles of a lek. This covers 153,796 acres of public lands managed by the BLM or 24% of BLM surface. This is a 226% increase over No Action Alternative A, which prohibits surface disturbance on 47,127 acres around leks.

Impacts from noise would be managed under this alternative through direct restrictions on noise levels and indirectly through other management actions. Only the Tres Rios RMP (shown in No Action Alternative A) has management direction for noise to address impacts from noise on GUSG. Timing restrictions in GUSG nesting and winter habitat eliminate noise during the nesting and lekking season.

For long term noise associated with maintenance and operations, noise levels would be required to not have any negative impacts to GUSG. For construction activities and other permitted activities noise is mitigated with timing restrictions.

It should be noted that very little development has occurred on public lands managed by the BLM and little would be expected in the future. In the absence of development, impacts to GUSG under Alternative C would not be measurably different from those under No Action Alternative A.

Roads

Under Alternative C, motorized vehicles would be limited to existing routes where travel management has not been completed and limited to designated routes where travel management planning has been completed. No upgrades would be allowed in Occupied Habitat, except where needed to address safety concerns. Mitigation of impacts in accordance with the mitigation plan would be required for any upgrades. Reclamation of routes would be prioritized. In the sub-population areas, seasonal closures would be implemented where a conflict has been identified and where the BLM has regulatory authority, as recommended by an interagency team of biologists.

Alternative C retains the same closures to motorized traffic as No Action Alternative A. Under Alternative C, there would be a 100% decrease in areas open to cross-country travel. No GUSG or nests would be disturbed by cross-country motorized travel. Under Alternative C, motorized travel on 639,079 acres would be limited to existing roads and trails, which represents an 18% increase over No Action Alternative A.

Recreation

Under Alternative C, new developed recreational sites would be allowed if it minimizes impacts to GUSG from recreation and are mitigated in accordance with the mitigation plan. Special recreation permits would be required to contain criteria

that minimize impacts to GUSG. Minimization techniques could include, but are not limited to, timing restrictions, avoidance of certain areas, limits on the size or duration of an activity, and vehicle washing to prevent the spread of weeds.

Lands & Realty

Under Alternative C, ROWs would be limited due to the designation of Occupied Habitat and Unoccupied Habitat as avoidance areas. Habitat would not be further fragmented by ROWs and any ROWs would be collocated with existing disturbances and mitigated under the mitigation plan.

Under Alternative C, ROW exclusion areas would not increase over No Action Alternative A. Alternative C would designate Occupied and Unoccupied Habitat as avoidance areas. Under Alternative C, 360,882 acres of public lands managed by the BLM in Occupied Habitat would be designated as avoidance areas, which represent a 2,272% increase over No Action Alternative A. In Unoccupied Habitat, 232,044 acres of public lands managed by the BLM would be designated as avoidance areas for ROWs, a 710% increase over No Action Alternative A. GUSG would benefit from the limitation of new anthropogenic features on the landscape.

Range Management

Direct and indirect impacts to sage-grouse from range management activities are described in the impacts common to all alternatives. Under Alternative C, in the sub-populations and Unoccupied Habitat rangewide, the BLM would manage grazing to meet RCP guidelines. Specific grazing permit terms and conditions for managing grazing leases and permits are identified under this alternative. Management would be consistent rangewide for grazing administration. High priority would be given to evaluating range improvements and making modifications based on risks to GUSG. The increased attention to improved range management would be expected to result in improved habitat conditions for GUSG under Alternative C. Improving habitat conditions—specifically grass cover—in areas not meeting requirements for GUSG could increase nest and brood success in those areas.

Minerals

Because of limited mineral development potential and existing protections, impacts under Alternative C would be primarily the same as those under No Action Alternative A, except that mitigation would be required for any activity in Occupied Habitat or Unoccupied Habitat.

Under Alternative C, 95,564 acres would not be available for leasing, which is the same as under No Action Alternative A. Within Occupied Habitat, Alternative C would place NSO restrictions on 650,854 acres of federal fluid mineral estate and increase NSO stipulations for oil and gas development by 41% over No Action

Alternative A. However, the protections are not proportional to development potential. Within Occupied Habitat across the decision area, there are 91,684 acres of federal fluid mineral estate with moderate to high oil and gas potential, totaling approximately 14% of federal mineral estate in Occupied Habitat. However, the only areas with high to moderate oil and gas development potential are within the Monticello FO and Tres Rios FO. All Occupied Habitat not already leased in the Tres Rios FO has a NSO restriction. In the Monticello FO, there is a 0.6-mile NSO for existing leks. The majority of mineral estate in the Monticello decision area is private. The vast majority of Occupied Habitat with high or moderate development potential already has NSO stipulations for the entire lease.

A one-mile NSO stipulation would be applied to all historic leks in Unoccupied Habitat and wherever a lek buffer overlaps from Occupied Habitat. No part of a one-mile lek buffer intersects Unoccupied Habitat within the San Miguel Basin population area, while approximately 2 acres overlap within the Monticello-Dove Creek population area. A one-mile NSO encompasses 1,286 more acres than a 0.6-mile buffer, an increase of 177% per lek over No Action Alternative A. Alternative C would require a CSU stipulation for sagebrush in Unoccupied Habitat.

In Unoccupied Habitat in the Tres Rios FO, a CSU prohibiting development within 0.6 mile of a lek and requiring timing restrictions for drilling and construction would be applied to all leases within Unoccupied Habitat.

Fuels Management

Under Alternative C, fuels treatments would be designed to benefit GUSG, which is not currently required under No Action Alternative A.

Wildfire

Wildfires would be managed to minimize damage to sagebrush.

Wildlife and Sensitive Species

Impacts to Wildlife and Sensitive Species under Alternative C would be the same as those analyzed under impacts common to all alternatives. Under Alternative C, sagebrush treatments would be limited to treating those stands not meeting RCP guidelines. As BLM sagebrush management no longer focuses solely on increasing forage production for livestock, there would likely be no benefit to GUSG. It is highly unlikely that under No Action Alternative A, sagebrush treatments would occur in sagebrush stands meeting RCP guidelines.

Forest and Woodland Products

Impacts under Alternative C would be the same as under the No Action Alternative and as described in impacts common to all alternatives.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

General

Impact from general management actions are the same for Sub-Alternative D₁ as described in Alternative C with the exception of the buffer for the prohibition on surface disturbing activities. Under Sub-Alternative D₁, a 0.6 mile surface disturbance prohibition covers 78,691 acres. This is no change from Alternative A. Under Alternative C, 148,717 acres are covered by a 1 mile surface disturbance prohibition around sage-grouse leks. This is an 88% increase over Alternative A and Sub-Alternative D₁.

Travel and Transportation Management

Under Sub-Alternative D₁, upgrades to existing roads would only be allowed if the upgrade would not have an adverse effect on GUSG populations or habitat. This alternative provides more protection than under the No Action Alternative. Under the no action alternative, any upgrade would be allowed if it is covered by the CCA. Upgrades not covered by the CCA would still be allowed after completion of NEPA and Section 7 consultation under the ESA. The CCA requires mitigation for any road at a rate greater than a 1:1 ratio. This requirement would remain in place for any projects that fall under the CCA. Projects outside the CCA would require greater than a 1:1 ratio.

Range Management

Actions under Sub-Alternative D₁ would be the same as those described for Alternative C.

Minerals

Impacts under Sub-Alternative D₁ would be the same as those described in Alternative C.

Wildland Fire, Fuels Management, and Fire Rehabilitation

Impacts under Sub-Alternative D₁ would be the same as those described in Alternative C.

Special Status Species

Impacts under Sub-Alternative D₁ would be the same as those described in Alternative C.

Wildlife

Impacts under Sub-Alternative D₁ would be the same as those described in Alternative C.

ACECs

Impacts under Sub-Alternative D₁ would be the same as those described in Alternative C.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Impacts under Sub-Alternative D₂ would be the same as under Alternative C, with the exception of special status species, roads, lands & realty, and fuels management.

Special Status Species

Under Sub-Alternative D₂, no surface disturbance would be permitted within 0.6 mile of a lek on BLM-administered lands supporting the satellite populations of GUSG. A 0.6-mile buffer would encompass approximately 7,292 acres within Occupied Habitat and 941 acres within Unoccupied Habitat.

Roads

Under Sub-Alternative D₂, road upgrades would be allowed if there would be no adverse effect to GUSG and if impacts were mitigated in accordance with the mitigation plan.

Lands & Realty

Under Sub-Alternative D₂, all lands within 0.6 mile of a lek would become a ROW exclusion area, a 100% increase over No Action Alternative A.

Fuels

Under Sub-Alternative D₂, prescribed fire would not be allowed on BLM lands supporting the GUSG satellite populations, with the exception of pile burning. The requirement for fuels treatments to meet GUSG habitat objectives would have no impact on the risk of wildland fire. Fuels treatments have focused on pinyon-juniper encroachment and other woodland habitats within the range of GUSG. Sagebrush has not been treated in order to reduce the risk of wildland fire.

4.2.4. CUMULATIVE EFFECTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely to continue to affect GUSG are mineral exploration and development, residential and industrial development (including power lines and other ROWs), grazing, recreation, road construction, weed invasion and spread, prescribed and wildland fires, predation, land planning efforts, vegetation treatments, habitat improvement projects, insects and disease, and drought.

Many of the activities described above can change habitat conditions, which then cause or favor other habitat changes. For example, wildland fire removes habitat, and affected areas are more susceptible to weed invasion, soil erosion, and sedimentation of waterways, all of which degrade habitats. In general, resource use activities have cumulatively caused habitat removal, fragmentation, noise, increased human presence, and weed spread. Land planning efforts and vegetation, habitat, and weed treatments have offset some of these effects by improving habitat connectivity, productivity, diversity, and health.

Climate change could cause an increase or decrease in temperatures and precipitation, which would affect soil conditions, vegetative health, and water flows and temperature. Such changes would alter habitat conditions, potentially creating conditions that could favor certain species or communities, weeds, or pests.

Under all of the action alternatives, impacts to GUSG would be lessened through restrictions, stipulations, closures to mineral exploration and development, recreation, and motorized travel, conditions of approval, and by concentrating development in previously disturbed areas.

This cumulative effects analysis discloses the long-term effects on GUSG from implementing each RMP/EIS alternative in conjunction with other past, present, and reasonably foreseeable future actions. In accordance with Council of Environmental Quality guidance, cumulative effects need to be analyzed in terms of the specific resource and ecosystem being affected (Council of Environmental Quality 1997). As discussed in Chapter I, the purpose for the proposed federal action is to identify and incorporate appropriate conservation measures to conserve, enhance, and restore GUSG habitat by reducing, eliminating, or minimizing threats to GUSG habitat. The RCP delineates six GUSG sub-populations. Therefore, the cumulative effects analysis study area for the GUSG is Occupied and Unoccupied Habitat in the planning area.

This analysis includes past, present and reasonably foreseeable future actions in the range of GUSG, and evaluates the impacts of the GUSG RMP Amendment, by alternative, when added to those actions.

METHODS

The cumulative effects analysis uses the following methods:

- FWS final rule Threatened Status for the GUSG was reviewed to identify the primary threats facing GUSG in each population.
- Predation was included as a threat due to concerns identified in the final listing. The FWS states that "...effects [of predation] may be more

substantial and of greater concern for smaller, declining populations, such as the six satellite populations of Gunnison sage-grouse.”

- The numbers in this cumulative analysis display the number of acres across the entire range and the percentage of those acres are located within the decision area.

ASSUMPTIONS

The cumulative analysis uses the same assumptions and indicators as those established for the analysis of direct and indirect effects on GUSG as discussed in Chapter 4. In addition, the following assumptions have been made:

- The timeframe for this analysis is 20 years.
- The cumulative effects analysis area extends beyond public lands managed by the BLM and the federal mineral estate and encompasses the range of GUSG.
- The magnitude of each threat would vary geographically and may have more or less impact on GUSG in some parts of the range, depending on such factors as climate, land use patterns, and topography.
- A management action or alternative would result in a net conservation gain to GUSG if there is an actual benefit or gain above baseline conditions. Baseline conditions are defined as the pre-existing conditions of a defined area and/or resources that can be quantified by an appropriate metric(s). For purposes of a NEPA analysis, the baseline is considered the affected environment that exists at the time NEPA analysis is initiated, and is used to compare predictions of the effects of the proposed action or a reasonable range of alternatives.
- The cumulative effects analysis quantitatively analyzes impacts on GUSG and their habitat in the range. Impacts on habitat are likely to correspond to impacts on populations, because reductions or alterations in habitat could affect reproductive success through reductions in available forage or nest sites. Human activity could cause disturbance to the birds preventing them from mating or successfully rearing offspring. Human activities also could increase opportunities for predation, disease, or other stressors.

Regional Efforts to Manage Threats to GUSG

Regional Efforts include past, present, and reasonably foreseeable actions conducted by or in cooperation with agencies, organizations, landowners, or other groups in the range of GUSG. The Range of GUSG encompasses portions of Colorado and Utah.

Colorado Statewide Efforts

- Gunnison Sage-Grouse Candidate Conservation Agreement with Assurances
 - Gunnison Basin
- Candidate Conservation Agreement - Gunnison Sage-Grouse Conservation Plan: Dove Creek, Colorado
- Gunnison Sage-Grouse Rangewide Conservation Plan 2005
- Gunnison Sage-grouse Rangewide Steering Committee.
- San Miguel Basin Local Working Group
- Gunnison Basin Sage-grouse Strategic Committee
- Crawford Area Local Working Group
- Dove Creek Local Working Group
- Piñon Mesa Gunnison Sage-grouse Partnership
- Poncha Pass Gunnison Sage-grouse Working Group

Utah Statewide Efforts

- Gunnison Sage-Grouse Rangewide Conservation Plan 2005
- Strategic Management Plan for Sage-Grouse 2002
- San Juan County Gunnison Sage-Grouse Working Group Conservation Plan
- Monticello-Dove Creek Local Working Group
- San Juan County Local Working Group

Natural Resource Conservation Service Sage-Grouse Initiative

With 844,330 acres of GUSG habitat in private ownership in the decision area, a unique opportunity exists for the Natural Resources Conservation Service to benefit GUSG and to ensure the persistence of large and intact rangelands by implementing long-term contracts and conservation easements.

While participation in the Sage-Grouse Initiative (SGI) program is voluntary, willing participants enter into binding contracts to ensure that conservation practices that enhance GUSG habitat, such as fence marking, protecting riparian areas, and maintaining vegetation in nesting areas, are implemented. Participating landowners are bound by a contract (usually 3 to 5 years) to implement, in consultation with Natural Resources Conservation Service staff, conservation practices if they wish to receive the financial incentives offered by the SGI. These financial incentives generally take the form of payments to offset costs of implementing conservation practices and easements or rental payments for long-term conservation.

While potentially effective at conserving GUSG populations and habitat on private lands, incentive-based conservation programs that fund the SGI generally require reauthorization from Congress under subsequent farm bills, meaning future funding is not guaranteed.

ANALYSIS

The cumulative impact analysis area used to analyze cumulative impacts includes the entire decision area. The cumulative effects analysis focuses on the most substantial threats to GUSG habitats rangewide; conversion of sagebrush (agricultural and urban development), mineral development, ROWs, and predation. The analysis presents an overview of populations susceptible to these threats throughout the range of GUSG.

Rangewide, 47% of Occupied Habitat is privately owned and 39% is public lands managed by the BLM. Unoccupied Habitat is 53% private surface and 35% public lands managed by the BLM. In the satellite populations, private surface will play a more substantial role in the conservation and recovery of GUSG, 71% of Occupied Habitat is private surface compared to 22% public lands managed by the BLM. In Unoccupied Habitat, private surface is 57% of the area and public lands managed by the BLM make up 31%.

Conversion of sagebrush to agricultural lands or for urban development may continue, however at a lower rate than has been seen historically. Agriculture makes up 90% of all disturbances in Occupied Habitat rangewide and 91% of all disturbances in Unoccupied Habitat.

The conversion of sagebrush from urban development will largely be managed by the counties. In 2013, eleven counties within the range of GUSG and the governors of Colorado and Utah entered into a Memorandum of Understanding for the management of GUSG and their habitat with the goal of increasing the current abundance, viability and vitality of GUSG and their habitats.

Agricultural conversion from sagebrush to cropland is likely to decline relative to previous rates of development. Rangewide, agricultural conversion accounts for approximately 90% of all surface disturbances. Subsidies from the USDA NRCS Sage-grouse Initiative provide incentives for maintaining and restoring sage-grouse habitat. Areas that were highly desirable for cultivation were most likely converted many decades ago. No sagebrush conversion or urban development would occur on public lands managed by the BLM in the decision area for the duration of the life of the RMP Amendment.

In Occupied Habitat, 96% of all surface disturbances are on private surface.

While mineral development will continue, due to listing and designation of critical habitat, development will most likely occur at a much slower rate. Fluid mineral development will be limited to existing leases and fee/fee mineral estates in Occupied Habitat. Due to the lack of fluid mineral development activity in the last ten years, it is not likely that any measurable impacts from fluid mineral development

will occur in Occupied Habitat under any of the alternatives. Cumulative impacts from new mineral development should not have any measurable variation among the alternatives. Primarily due to existing management in Occupied Habitat that places NSO leasing restrictions in the Tres Rios FO, where the most potential for oil and gas development to occur. There is one existing proposal for a gas well outside of GUSG habitat with access through Occupied Habitat in Dry Creek Basin. The project proponent proposes to connect oil and gas roads in the southwest portion of Dry Creek Basin. This action would remove oil and gas traffic from the middle of Dry Creek Basin and route all traffic to the far edge in the pinyon-juniper/sagebrush interface. Rerouting traffic would substantially reduce impacts to sage-grouse from oil and gas production activities. Salable minerals operations are present throughout the range of GUSG and existing authorizations would be expected to continue.

ROWs will continue to be processed under all alternatives. Occupied Habitat is an avoidance area and could limit the number of ROW approvals. Upgrading of a Tri-State transmission line is being processed and one alternative is to co-locate the power line along the highway in Dry Creek Basin. This action would decrease impacts from the ROW and improve habitat for GUSG in the Basin. The Poncha Pass Electric Transmission Line could impact GUSG in the Poncha Pass and increase habitat fragmentation.

Predation is a natural process and will continue under all alternatives. It is likely that predation rates could decrease on public lands managed by the BLM, through the management of anthropogenic features under all of the action alternatives. Under the No Action Alternative, facility and infrastructure management would not focus on removing nesting and perching opportunities for avian predators. Objective B in the BLM Manual 6830 Animal Damage Control (ADC) is to “Ensure that ADC is carried out in a systematic manner which responds to resource protection, human health, and livestock protection needs while protecting public safety, domestic animals, and non-target wildlife.” While no alternative addresses the direct control of predators, the BLM annually addresses predator control through a MOU with APHIS.

4.3. FISH & WILDLIFE

BIG GAME

4.3.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Elk population estimates
- Number of elk per square mile
- Mule deer population estimates
- Number of mule deer per square mile
- Surface disruptive activities on the landscape

ASSUMPTIONS

- Assume an even distribution of big game across the landscape in the planning area.

METHODS AND DATA

- BLM surface acreage within the decision area within big game critical winter range
- BLM surface acreage that is not restricted under an ROW exclusion, fluid and solid mineral NSO stipulations, or closed to such leases, or protected within Wilderness or Wilderness Study Areas.
- UDWR and CPW 2014 Elk and Deer Population Estimates.

4.3.2. IMPACTS COMMON TO ALL ALTERNATIVES

Elk and Mule Deer

Under all alternatives, big game would continue to react to surface disturbing and disruptive activities in a similar fashion. Direct response of mule deer to development is generally through avoidance of habitat and decreased use of an area. Indirect impacts to mule deer could occur on the population level. Studies have documented declines in mule deer numbers as a result of full field oil and gas development. Population declines associated with large-scale oil and gas development are largely thought to be a result of big game being displaced to

suboptimal habitats. No study has documented a complete abandonment of a developed area. Mule deer would still use lands within and around oil and gas development; however the amount of use would change. Mule deer have been documented to alter their behavior as a response to disturbance; generally this is a non-linear response in habitat use. Reducing traffic from seven or eight vehicles passing per day to three was sufficient for mule deer to perceive less risk and alter their behavior (Sawyer et al 2009).

Deer use areas around development less frequently than areas with no development. Therefore the further an area is from development, the more use it will receive by big game. Sawyer et al (2009) identified that mule deer were not only responding to the loss of habitat through development of well pads, but behavior was influenced by the amount of activity. Mule deer avoided areas with the highest traffic levels by the greatest distance. Mule deer were found closer to areas with the lowest traffic levels (Sawyer 2009). Van Dyke and Klein (1996) found similar results with looking at the response of elk to well drilling and production. Elk avoided human activity twice the distance compared to when there was no activity at the well site. In the winter, elk were selecting landscapes with moderate slopes and away from human activity (Sawyer et al 2007). The impacts of human activity in non-forested environments may be larger than in non-forested environments due the lack of security cover (Sawyer et al 2007).

Human activity levels may have substantial influence on elk distribution in the decision area. Removing or decreasing human activity levels in the decision area could result in an increase in the number of elk winter on public lands managed by the BLM in the decision area. Reducing human activity levels could increase big game use of critical winter range in the decision area based on the decrease in human activity.

There are three potential threats of deer and elk overlapping with GUSG. The first is that they consume herbaceous material that grouse would use as nesting cover, potentially reducing the hiding cover necessary for successful grouse nesting. The second is direct competition for sagebrush, a critical component of grouse diets in the winter. The third is disturbance to nests and nesting hens; since deer and elk have largely migrated away from grouse habitat in May and June, this threat is probably extremely rare. In order to evaluate the first potential threat, the time deer and elk spend in nesting area must be estimated, as well as the biomass of grasses, forbs, and shrubs consumed. These may vary annually, temporally, and by location. The second threat can be addressed by examining food habits of deer and elk and consumption rates within the larger area of deer or elk range overlap with Occupied Habitat.

Multiple studies have estimated elk and mule deer forage requirements. CPW estimates forage requirements for one elk as 0.667 AUMs or 533.6 pounds of forage per month. CPW estimates mule deer monthly forage requirements as 0.2 AUMs or 160 pounds of forage per month (CPW 2015 personal communication).

Based on ecological site descriptions for sagebrush in the decision area, sagebrush habitats can produce a wide range of forage per acre annually. Estimates (provided in Table 4.102 and Table 4.103) of the number of deer and elk that sagebrush can support are based on utilization levels, rangeland productivity, and forage consumption. Estimates were calculated based on a big game winter date range of December 1 through April 30, which corresponds to CPW winter timing restrictions for big game winter concentration areas.

Table 4.102 - Supportable Deer Density Estimates

UTILIZATION	RANGE PRODUCTIVITY 250 POUNDS/ACRE	RANGE PRODUCTIVITY 500 POUNDS/ACRE	RANGE PRODUCTIVITY 750 POUNDS/ACRE
15%	30.42	60.83	91.25
20%	40.56	81.11	121.67
25%	50.69	101.39	152.08
30%	60.83	121.67	182.5
40%	81.11	162.22	243.33
50%	101.39	202.78	304.17

Above table based on mule deer forage requirement of 160 pounds per month and average weight of 200 pounds. Density is reported as deer per square mile.

Table 4.103 - Supportable Elk Density Estimates

UTILIZATION	RANGE PRODUCTIVITY 250 POUNDS/ACRE	RANGE PRODUCTIVITY 500 POUNDS/ACRE	RANGE PRODUCTIVITY 750 POUNDS/ACRE
15%	9.13	18.26	27.39
20%	12.17	24.35	36.52
25%	15.22	30.44	45.65
30%	18.26	36.52	54.78
40%	24.35	48.7	73.05
50%	30.44	60.87	91.31

Above table based on elk monthly forage requirement of 533 lbs. and average weight of 450 lbs. Density is reported as elk per square mile.

Depending on forage production levels sagebrush communities in the decision area can support densities of winter concentrations of elk ranging from 9 to 27 elk per square mile December 1 through April 30 at 15% utilization.

Depending on forage production levels sagebrush in the decision area can support densities of winter concentrations of deer ranging from 30 to 91 deer per square mile December 1 through April 30 at 15% utilization.

Holechek (1988) recommends that utilization levels within sagebrush communities not exceed 30% in order to maintain rangeland productivity. Many herbivores share the range with GUSG. Utilization needs to account for all herbivores, domestic, state managed wild ungulates, and other wildlife. Rabbits can have a substantial impact on vegetation as shown by Ranglack (2015).

All big game management actions in all plans will remain in place for all alternatives. If a particular plan has a timing limitation for big game critical habitat that timing restriction would remain. The impacts to big game are primarily through the level of activity that will be authorized by BLM management actions. Big game will also benefit by sage-grouse timing restrictions that may extend beyond big game restrictions already in place in existing plans. The BLM will collaborate with state Wildlife Agencies to mitigate wild ungulate impact to GUSG Occupied Habitat.

4.3.3. IMPACTS BY ALTERNATIVE

General management actions impose various restrictions across the landscape. These restrictions vary by alternative and may range from area management direction to timing limitations.

ALTERNATIVE A - NO ACTION

Roads

Under No Action Alternative A, there would be no change in impacts to big game from roads. Within Occupied and Unoccupied Habitat, 53,565 acres (9%) of BLM-administered public lands would be open to unrestricted cross-country travel with the potential to result in direct disturbance to big game.

Motorized vehicles would continue to be limited to existing roads and trails on 85% of public lands managed by the BLM in the decision area.

Recreation

Under No Action Alternative A, recreation sites could continue to be developed anywhere in Occupied Habitat or Unoccupied Habitat, provided that no

development occur within 0.6 mile of an active GUSG lek. Outfitter and guide permits would continue to be issued for big game and trophy game animals. Special recreation permits issued by the BLM would be required to enter into Section 7 ESA consultation if the activity would have any effect on GUSG or GUSG habitat.

Lands & Realty

Under No Action Alternative A, anthropogenic features on the landscape would increase at the same rate as predicted in existing land use plans EISs, primarily resulting from a potential increase in ROWs. Under this alternative, no areas are designated as ROW exclusion areas with the exception of a few RMPs that identify areas within 0.6 mile of a lek as an exclusion area. Because they are not biologically tied to GUSG lek locations, this mitigation measure would have no beneficial effects to big game.

The Grand Junction RMP identifies any area within 4 miles of a lek as a ROW avoidance area. In this plan, the impact to big game would be similar to that under the preferred alternative. The Monticello RMP requires avoidance of the construction of new power lines, wind power turbines, or other aboveground structures within 4 miles of a lek. In all other land use plans, big game habitat could be further fragmented by ROWs, more so than under the preferred alternative. Under No Action Alternative A, 5,783 acres in Occupied Habitat and 44,921 acres in Unoccupied Habitat would be a ROW exclusion area on BLM -administered lands. ROWs would be avoided on 15,855 acres in Occupied Habitat and on 28,651 acres of Unoccupied Habitat. Big game would benefit overall all by the co-location of utilities and reduction in habitat fragmentation on the landscape.

Range Management

Under No Action Alternative A, the BLM would continue to make changes to grazing permits if range conditions are not meeting rangeland health standards. Terms and conditions do not need to be specifically identified in a land use plan in order to be applied to grazing permits and leases. BLM 4180 regulations provide the regulatory authority to make changes to grazing permits and leases based on monitoring or rangeland health data. In the Gunnison Basin, range management in Occupied Habitat would continue to follow the CCA and resulting biological opinions from the FWS.

Minerals

Fluid mineral development under No Action Alternative A would not vary from what has already been analyzed under the no action when factoring in development potential. Since 1985, no federal oil or gas wells have been drilled in Occupied Habitat or Unoccupied Habitat outside of the Tres Rios FO. Current management

direction in Occupied Habitat in the Tres Rios RMP is to lease with a NSO restriction.

Under No Action Alternative A, 9% of the federal oil and gas mineral estate would continue to be closed to fluid mineral leasing. In the decision area, 44% of the federal oil and gas mineral estate could be leased with NSO restrictions, 4% of the federal mineral estate is closed to mineral material sales, and 9% is closed to non-energy mineral leasing. Under this alternative, fluid mineral development could not occur within almost one-half of Occupied and Unoccupied Habitat due to NSO restrictions. Big game would respond to mineral development as described in the section on impacts common to all alternatives.

ALTERNATIVE B

Under Alternative B, general guidance for surface-disturbing activities would prohibit surface-disturbing activities within 4 miles of a lek, which is approximately 372,117 acres (58%) of BLM surface in the decision area. Alternative B would place a timing limitation for disruptive activities during the lek/nesting season on 361,482 acres (56%) of BLM-administered lands. Winter timing restrictions for GUSG would occur on 252,012 acres (39%) of public lands managed by the BLM.

These restrictions would benefit big game in the decision area by limiting disruptive activities during critical life functions. GUSG nesting and brood-rearing timing restrictions could benefit elk and mule deer when calving/fawning. Winter timing restrictions for GUSG would benefit big game by removing stresses associated with anthropomorphic activity.

Under Alternative B, there would be a 14% increase in BLM surface with nesting timing restrictions over Alternative A. Winter timing restrictions would increase by 851% and prohibitions on surface-disturbing activities would increase by 690% over No Action Alternative A.

Roads

The effects of roads on big game would be the same as those described for GUSG under Alternative B in Section 4.3.3. Under this alternative, 633,942 acres would be closed to motorized travel—a 1,563% increase over No Action Alternative A, which closes 6% of the decision area to motorized travel. Alternative B would result in an area free from vehicle disturbances to big game. Most of the decision area is winter habitat for elk and mule deer. Removing disturbances, especially during hard winters when animals are physically stressed, could increase overwinter survival and possibly lead to increased populations.

Recreation

Under Alternative B, no outfitter and guide permits would be issued in Occupied Habitat or Unoccupied Habitat. Although hunting would continue to be allowed, the number of hunters could decrease due to a potential lack of access from the closing of BLM roads. Guiding services would no longer be available for hunting in remote areas where pack animals might be necessary. In the absence of activity, big game could concentrate in Occupied Habitat and Unoccupied Habitat at greater densities. Under Alternative B, 633,942 acres in the decision area would be closed to motorized travel, limiting hunter access to BLM-administered lands and reducing disruptive activity in the area. The removal of developed recreation sites could result in increased use by big game. As elk and mule deer concentrate in these areas, more stress could be placed on GUSG habitat.

Lands & Realty

Under Alternative B, Occupied Habitat and Unoccupied Habitat would be designated as exclusion areas for new ROWs. Under this alternative, ROW exclusion areas would increase by 6,938% in Occupied Habitat and by 417% in Unoccupied Habitat. No new ROWs would be allowed and further fragmentation of big game habitat would not occur. Benefits to big game in the form of increased population numbers is not expected to be proportional to the increase in protections from ROWs. In many areas, ROW exclusions might not result in any benefit if the potential for ROW development is low. Big game numbers could increase in areas where ROW development is high, including winter range and winter concentration areas.

Range Management

Under Alternative B, all BLM-administered lands would be closed to domestic livestock grazing, in sharp contrast to No Action Alternative where no lands are closed to grazing. Forage formerly used by livestock would be available to wild ungulates. Big game would no longer compete with livestock for resources. If competition for resources had been a limiting factor on big game in an area, then herd numbers in that area would be expected to increase. In areas where big game concentrate and degrade habitat conditions, continued degradation would be expected, especially if animal concentrations increase due to the lack of human activity in an area.

Minerals

Under Alternative B, no anthropogenic features would be approved, with the exception of valid and existing rights. Occupied Habitat and Unoccupied Habitat would be closed to fluid mineral leasing under this alternative. Tres Rios and Monticello are the only field offices with moderate to high mineral development

potential, primarily for oil and gas, as well as for sodium and potash. Closing Occupied Habitat to leasing under Alternative B would have no measurable impacts over No Action Alternative A since unleased Occupied Habitat in the Tres Rios FO would already have a NSO stipulation.

Under this alternative, Unoccupied Habitat would be closed to leasing and no oil and gas development would occur in Unoccupied Habitat. Unoccupied Habitat with the highest mineral potential is primarily located in the Monticello-Dove Creek population area. Alternative B would close 1,001% more federal mineral estate to leasing than No Action Alternative A, although this does not factor in development potential. In Monticello and Tres Rios FOs, big game could benefit if areas where development might have occurred was critical range or if development would have occurred on a landscape scale.

Fences

Under Alternative B, no new fences would be constructed and fences within 0.6 mile of a lek would be removed. Big game could benefit from the removal of fences in areas where they had been barriers to migratory and other normal movements.

ALTERNATIVE C

Under Alternative C, surface-disturbing activity is prohibited on 100,034 acres of public lands managed by the BLM, a 112% increase over No Action Alternative A. Winter timing restrictions cover 252,012 acres from December 1 through March 14 and breeding/nesting timing restrictions on 361,482 acres from March 15 through June 30. Big game using these habitats would benefit from timing restrictions for disruptive activities, as well as from winter timing restrictions for GUSG. Winter protections under Alternative C would increase by 52,928 acres over No Action Alternative A.

Under Alternative C, linear surface disturbances would be prohibited on 100,034 acres (16%) of BLM-administered lands, a 112% increase over No Action Alternative A. Impacts to big game by surface-disturbing activities are described under impacts common to all alternatives.

Under Alternative C, Occupied Habitat would be designated as a ROW avoidance area. New anthropogenic features would be co-located with existing disturbance.

Land use planning decisions would limit anthropogenic activities and benefit big game. Areas outside big game critical winter range will have GUSG winter timing restrictions. These areas comprise approximately 13% of public lands managed by the BLM in Occupied Habitat and could offer additional protection for big game in the winter on 52,928 acres.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Impacts to big game under Sub-Alternative D₁ would be the same as those analyzed in Alternative C.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Impacts to big game under Sub-Alternative D₂ would be the same as those analyzed in Alternative C.

4.3.4. CUMULATIVE IMPACTS

The cumulative impact analysis area used to analyze cumulative impacts includes the entire decision area. Wild ungulate populations are managed by state wildlife agencies and the BLM manages habitat for all species that occur on public lands managed by the BLM. Under all action alternatives, the BLM will work in coordination with state wildlife agencies to identify areas where wild ungulates may be limiting the habitat's potential to meet RCP guidelines. Under No Action Alternative A, no formal management action would guide the agencies development of an MOU with state wildlife agencies, however BLM Manual 6521 State Agencies, provides basic procedures for cooperative programs with state fish and wildlife agencies. The objective is to obtain maximum cooperation with state agencies whose activities affect fish and wildlife habitat management either directly or indirectly on public lands and waters administered by the BLM. Section 12 Inventories, Studies, Surveys, and Plans states that "where both wildlife and livestock use the same areas, conflicts on vegetation allocations may occur. BLM is responsible for reconciling such conflicts."

COMMON RAVEN

4.3.5. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Anthropogenic features on the landscape.

ASSUMPTIONS

- Juvenile raven densities are highest within 3.0 kilometers of a population center.

- Increased anthropogenic features on the landscape increase nesting opportunities.

METHODS AND DATA

- BLM surface acreage that is not restricted under Right of Way Exclusion, fluid and solid mineral NSO stipulations, or closed to such leases, or protected within Wilderness or Wilderness Study Areas.

4.3.6. IMPACTS COMMON TO ALL ALTERNATIVES

Common raven populations have more than quadrupled in the United States in the last 40 years (Sauer et al 2014). Anthropogenic resources have contributed to increased raven abundance and juvenile survival (Webb et al 2009). Raven densities have been documented to be highest in cities and decrease sharply beyond 1.86 miles (Bui et al 2010). In the decision area 44,744 acres are within 1.86 miles of a population center. Webb et al (2009) found that 69% of dispersal locations for juveniles occurred at a communal point source subsidy, such as a landfill; and anthropogenic food and water sources correspond with juvenile raven movements.

Breeding or territorial ravens use man-made features for nesting (Coates et al 2014, Howe et al 2014, Bui 2009, Slater & Smith 2010, Prather and Messmer 2009) and may act as a conduit for raven movement. Howe et al (2014) noted that the odds of raven nesting decreased the further away one was from a transmission line and the increased edge (fragmentation) in vegetation types increased the odds of raven nesting. Ravens also tend to avoid dense pinyon-juniper habitat, and use more edge habitat (Howe et al 2014, Dunk et al 1997).

New anthropogenic features are the most influential predictor of common raven occurrence on public lands managed by the BLM. Anthropogenic features in the decision area would primarily occur in the form of Rights-of-Way authorizations, mineral development, or recreational sites.

Portions of highways can contribute to raven population growth when acting as a point source subsidy due to the availability of road kill animals. Landfills are a substantial point source subsidy for common ravens, however no landfills are anticipated on public lands managed by the BLM in any of the alternatives. No new highways are anticipated and therefore no new point source subsidies would be created for common ravens.

Fluid mineral development would be the same under all alternatives. Currently the Monticello/ Dove Creek Population has potential for oil and gas development.

Future development in Occupied Habitat would be limited to existing leases in all alternatives. Under all alternatives, areas within Occupied Habitat not leased are either closed to leasing or leased with a NSO stipulation.

4.3.7. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

General

Management actions that limit surface disturbances vary across the decision area. Under Alternative A surface disturbances are prohibited on 47,127 acres or 7% of public lands managed by the BLM. Timing limitations for sage-grouse should not impact common ravens since ravens are highly tolerable to disturbances.

Roads

Under No Action Alternative A, 53,565 acres within the decision area would remain open to unrestricted cross country travel, while 85% of BLM lands would continue to be designated as limited to existing routes.

Recreation

Under this alternative, recreation sites could be developed anywhere in Occupied Habitat or Unoccupied Habitat, provided that no development occurs within 0.6 mile of an active GUSG lek. Developed recreation sites could attract common ravens due to waste generated at these sites acting as a food subsidy.

Lands and Realty

Under No Action Alternative A, 5,783 acres of public lands managed by the BLM in Occupied Habitat are exclusion areas for ROW, or roughly 1% of Occupied Habitat. In Unoccupied Habitat 44,921 acres or 19% of public lands managed by the BLM are exclusion areas for ROWs. Under Alternative A, 73,182 acres are designated as utility corridors and cover approximately 11% of public lands managed by the BLM. As discussed in impacts common to all alternatives, common ravens can use anthropogenic features to expand their range, particularly linear ROWs.

Under this alternative, anthropogenic features on the landscape would increase at the same rate as stated in current BLM RMPs, primarily through a potential for increases in ROWs. No areas are designated as ROW exclusion areas. The primary driver for raven occupation on BLM-administered lands would be through the approval of new overhead power lines.

Minerals

Under No Action Alternative A, 9% of the federal oil and gas mineral estate is closed to fluid mineral leasing. In the decision area, 44% of the federal oil and gas mineral estate could be leased with NSO restrictions, while 4% of the federal mineral estate is closed to mineral material sales, and 9% is closed to non-energy mineral leasing. Under this alternative, almost half of Occupied Habitat and Unoccupied Habitat could not be developed due to NSO restrictions. The expansion of common ravens could be limited or slowed in areas where development is not allowed or is heavily restricted. Bui et al (2010) found that common raven densities in oil and gas fields were higher than in sagebrush.

ALTERNATIVE B

General

Under Alternative B, surface disturbance would be prohibited on 372,117 acres (58%) of BLM surface, a 690% increase over No Action Alternative A. The prohibition of surface-disturbing activities would help to ensure that anthropogenic activities permitted by the BLM would not contribute to the expansion of common ravens on BLM-administered lands.

Roads

Under Alternative B, roads within Occupied and Unoccupied Habitat would be closed. Road closures would be limited to BLM roads in the decision areas. Alternative B would increase areas closed to motorized traffic by 1,563%, decreasing the potential for road-killed animals to act as a subsidy for common ravens.

Recreation

Four developed recreation sites in Occupied Habitat and eleven developed recreation sites in Unoccupied Habitat would be removed under Alternative B. In contrast, no sites would be closed under No Action Alternative A. Sites that might serve as a subsidy for common ravens would be eliminated, causing ravens in the area to seek out other sources of prey or new territories.

Lands and Realty

Under Alternative B, Occupied and Unoccupied Habitat would be managed as a ROW exclusion area. ROWs would be allowed if within 100 feet of a county road or highway, and outside the four-mile no surface disturbance buffer. Under Alternative B, ROW exclusion areas would increase by 6,938% in Occupied Habitat and 417% in Unoccupied Habitat. The potential for ravens to use new ROWs to expand their range would be extremely limited.

Minerals

Under Alternative B, Occupied and Unoccupied Habitat would be closed to fluid mineral leasing. Under Alternative B, 1,051,846 acres would not be available for leasing, a 1,001% increase over No Action Alternative A. However, only 13% of the federal fluid mineral estate has moderate or high development potential. The potential for mineral development to contribute to the expansion of common ravens is only slightly larger than under No Action Alternative A. (See the Minerals analysis under Alternative B for GUSG and Habitat in Section 4.2.3.)

With the exception of valid and existing rights, no anthropogenic features would be approved under Alternative B. Occupied and Unoccupied Habitat would be designated as an exclusion area for new ROWs and would be closed to mineral leasing. The potential for common raven expansion through the use of anthropogenic features would be lower than under No Action Alternative A.

ALTERNATIVE C

General

Under Alternative C, surface disturbance would be prohibited on 100,034 acres of BLM-administered lands, a 112% increase over No Action Alternative A. Alternative C would provide additional direction regarding avoidance areas for tall structures. Tall structures would be avoided on 153,796 acres (24%) of BLM-administered land in the decision area, a 226% increase over No Action Alternative A.

Roads

Under Alternative C, areas closed to motorized traffic would be the same as under No Action Alternative A. Motorized travel would be limited to existing roads and trails on 639,079 acres, an 18% increase over No Action Alternative A.

Recreation

Recreation impacts would be the same as those under No Action Alternative A.

Minerals

Under Alternative C, 95,564 acres would not be available for leasing, a continuation of current management under No Action Alternative A. Alternative C would place NSO restrictions on 650,854 acres of federal fluid mineral estate in Occupied Habitat and would increase NSO stipulations for oil and gas development in Occupied Habitat by 41% over No Action Alternative A. However, these protections would not be proportional to development potential. While across the decision area, 91,684 acres (14%) of federal fluid mineral estate in Occupied Habitat is identified as having moderate to high oil and gas potential, these areas are located

entirely within the Monticello and Tres Rios FOs. The potential for mineral development to contribute to the expansion of common ravens would be only slightly greater than under No Action Alternative A. (See the Minerals analysis under Alternative C for GUSG and Habitat in Section 4.2.3.)

Under Alternative C, Occupied Habitat would be designated as a ROW avoidance area. New anthropogenic features would be co-located with existing disturbance and the potential for raven expansion would be only along existing anthropogenic features.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Impacts under sub-alternatives D₁ and D₂ would be the same as those identified for Alternative C.

4.3.8. CUMULATIVE EFFECTS

The cumulative impact analysis area used to analyze cumulative impacts includes the entire decision area. Cumulative effects to common raven would primarily be changes in available nesting and perching sites. Under No Action Alternative A, facility and infrastructure management would continue to provide nesting and perching opportunities for avian predators. All action alternatives focus on the management of infrastructure to remove and minimize perching and nesting opportunities for common ravens. Common raven populations will likely continue to increase in GUSG habitat regardless of alternative, primarily due to the incredible adaptability of this species to changing environments.

4.4. SOIL RESOURCES

4.4.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

Soil stability expressed in terms of:

- Areas of disturbance
- Areas of mechanical vegetation treatments
- Areas open to surface disturbing activities
- Active livestock grazing allotments.

ASSUMPTIONS

The erosion potential associated with any one disturbance or series of disturbances would be influenced by several factors, including soil fragility, location in the watershed, the type, time, and degree of disturbance, existing vegetation, precipitation, and mitigating actions applied to the disturbance.

Implementation and effectiveness of management actions on soils are directly related to funding, political constraints, workloads, enforcement, compliance, staffing levels, litigation, conflicting priorities and regulations, climate change, and other factors.

Hotter and drier conditions associated with climate change would increase fire frequency (Gordon 2015).

Short-term effects on upland soils would occur over a timeframe of up to ten years and long-term effects could occur from anywhere over 10 years and possibly exceeding several decades.

Soil resources would be managed to meet the Land Health Upland Fundamental (Land Health Upland Fundamental (BLM 2008, 2011e).

METHODS AND DATA

In sagebrush and other plant communities of semi-arid environments, vegetation cover, biological soil crust, and a network of filamentous fungi maintain soil stability and resistance to erosion. Vegetation removal can lead to decreased soil stability and erosion resulting from exposure to raindrop impact, wind, and loss of plant crowns (Weltz 1998). Research indicates that biological soil crust could play an

even larger role in soil stability than vegetation and fungi (Chaudhary 2009). When crust is disturbed or eliminated, underlying soils are exposed to wind and water erosion, causing the soil to lose much of its ability to fix nitrogen, store carbon, capture dust and airborne nutrients, and retain moisture (Bryce 2012, Miller et al 2011). Soil crust populations are damaged or reduced when surface disturbances (such as vehicular traffic, vegetation clearing, or trampling) disturb the soil surface (Belnap 2001).

The potential for soil disturbance is used as an indicator and analyzed between alternatives due to its relationship to soil stability. The analysis contrasts the levels of protection from surface-disturbing activities, which are defined as those activities which modify the soil surface, with the exception of very small scale soil surface modifications such as trampling. Surface-disturbing activities include the development and construction of roads and trails, recreational facilities, minerals, pipelines, and many types of ROWs, as well as the development and maintenance of some types of range improvements. In addition, many types of habitat or vegetation treatments disturb the soil surface. While revegetation of a disturbed site begins the reestablishment of soil stability over the short term, the redevelopment of soil crusts—potentially the greatest source of soil stability—may not occur for decades (Belnap 1993). In this analysis, surface disturbance is considered to reduce short and long term soil stability, and alternatives that prohibit or limit surface disturbing activities are expected to protect soil stability more than alternatives that do not limit these activities.

Vegetation treatments utilize a variety of techniques which range from no disturbance of the soil surface through scraping, breaking up or imprinting the topsoil. However, the levels of revegetation and litter following a vegetation treatment—particularly those that minimize soil surface disturbance—can exceed levels prior to treatment. As a result, the overall short and long-term impacts to groundcover, infiltration rates, runoff and soil erosion after the initial disturbance can be neutral or even beneficial (Brockway 2002, Stednick 2010). Based on this information, the analysis will consider vegetation treatments as neutral to soil stability over both the short and long term.

Since vegetation cover is one factor that influences soil stability, activities that reduce or remove it are also compared between alternatives. Both wildlife and livestock grazing influence the amount and arrangement of vegetation cover (Gifford 1978, Weltz 1998). Livestock trampling has also been shown to degrade Biological Soil Crusts, although some of the studies which report this incorporate data from historic high stocking rates which are no longer the practice on BLM lands. (Anderson 1982, Neff 2005, Warren 2001). Based on the availability of data and the evidence that livestock can impact these important components of soil stability, the acreage of actively grazed allotments is used as another indicator for potentially

decreased soil stability. However, it is important to recognize that this indicator overestimates impacted acres because many allotments contain areas that are not accessible or used by livestock, or are only used very lightly. Alternatives that reduce the amount of land being grazed by domestic livestock would reduce this source of vegetation removal and disruption to Biological Soil Crust along with the associated soil stability impacts.

Wildfires and prescribed fires remove vegetation and surface litter, thereby affecting soil stability (Stednick 2010). They can also reduce biological soil crusts to varying degrees. While recovery can begin within 2-5 years, complete recovery can take as long as 200 years (Callison 1985, Hilty 2004, Johansen 2001). Therefore, alternatives which result in more acreage burned are considered to reduce soil stability more than alternatives with fewer burned acres over the short term, and be neutral to soil stability over the long term as revegetation progresses.

4.4.2. IMPACTS COMMON TO ALL ALTERNATIVES

Wildlife would graze and trample soils throughout the BLM surface in Occupied and Unoccupied Habitat and reduce vegetation cover, thereby reducing soil stability. Wildfires would continue to ignite and burn across this same area—decreasing soil stability within the burned patch for both the short and long term. As the climate warms and successional vegetation changes continue to build up fuels, more acreage is likely to burn and remain in an unvegetated state for a longer duration, reducing overall soil stability across the BLM surface in Occupied and Unoccupied Habitat over the long term.

4.4.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Soil Stability

Alternative A is expected to result in short and long term soil stability conditions similar to those described in Chapter 3. Large-scale surface disturbance would be expected to remain about 1% of BLM surface across the BLM surface in Occupied and Unoccupied Habitat as well as on BLM lands in the four-mile Non-Habitat Areas. These figures are based on past levels of development and current levels of surface disturbance restrictions. These surface disturbance restrictions would remain in place affecting about 60% of the BLM surface in Occupied and Unoccupied Habitat, and 39% of the Non-Habitat. These levels could increase as RMP revisions are completed. If this occurs, soil stability would be protected across more acreage.

Livestock grazing would be expected to continue at roughly the current level of activity across 93% of the BLM surface in Occupied and Unoccupied Habitat and 56% of the four-mile Non-Habitat Areas, over the short term, resulting in little change to soil stability. Over the long term, urbanization of private agricultural lands and associated changes to the livestock industry may reduce the amount of actively grazed lands in this area, which could contribute to increased soil stability on the ungrazed lands.

Wildfires documented over the past several decades have burned 1% of Occupied Habitat on BLM and 7% of Unoccupied Habitat on the BLM surface in Occupied and Unoccupied Habitat, while burning 9% of the Non-Habitat Areas. Only small additions are expected over the short term, but these would accelerate over the long term with anticipated rising temperatures. The additional wildfires and burns would reduce short term soil stability across a growing proportion of these areas. However, data from past burns suggests that only a small proportion of the areas would be impacted, even over the long term.

About 10% of the BLM surface in Occupied and Unoccupied Habitat and 2% of the Non-Habitat Areas has been affected by vegetation treatments. This amount will increase as new treatments are carried out, but with projected neutral impacts to soil stability.

ALTERNATIVE B

Soil Stability

Alternative B places large portions of the BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas under surface disturbance restrictions, which would protect soil stability from development and construction disturbance. This represents an increase in protected area as compared to Alternative A. Furthermore, as vegetation reestablishes in past disturbances, and closed routes are actively reclaimed, soil stability is expected to increase over current levels in these protected areas. This would occur across the BLM surface in Occupied and Unoccupied Habitat, as well as in the Non-Habitat Areas.

Alternative B also eliminates livestock grazing from the BLM surface in Occupied and Unoccupied Habitat, although wildlife grazing would continue. This represents an increase in acreage protected from livestock grazing and associated vegetation removal and trampling impacts to soil stability as compared with Alternative A.

Vegetation treatments would not be allowed under Alternative B within the BLM surface in Occupied and Unoccupied Habitat, but could occur in Non-Habitat Areas. This would result in similar impacts to soil stability as Alternative A because of their neutral short and long term direct effects. However, over the long term, an indirect

outcome is anticipated in the form of increased acreage burned by wildfire on BLM surface in Occupied and Unoccupied Habitat in comparison to Alternative A. This increase is anticipated as fuels build up without any mitigating fuels treatments, climate change increases fire frequency, and travel management restrictions reduce access and efficacy of firefighting. An increase in acreage burned by wildfire would reduce short and long term soil stability in the burned areas as compared to Alternative A.

Based on past wildfire size and frequency, the acreage where soil stability is reduced by wildfire would probably be less than the acreage where soil stability is improved through the elimination of livestock grazing and authorized surface disturbances. The resulting outcome would be a net gain in soil stability across the BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas as compared to Alternative A. This benefit to soil stability would extend through both the short and long terms.

ALTERNATIVE C

Soil Stability

Alternative C places a portion of the BLM surface in Occupied and Unoccupied Habitat under surface disturbance restrictions, which is more than Alternative A, but less than Alternative B. This alternative would result in similar types of impacts to soil stability as listed under Alternative B, but to a lesser extent. Impacts in the Non-Habitat Areas would be the same as Alternative A.

Alternative C maintains livestock grazing across the BLM surface in Occupied and Unoccupied Habitat using appropriate grazing practices to meet GUSG RCP habitat requirements. This would likely result in similar short term impacts to soil stability as Alternative A. Over the long term, this alternative may result in more allotments being closed to livestock grazing because of voluntary relinquishment of grazing preference. In closed allotments, the types of impacts to soil stability would be similar to those under Alternative B; however closed allotments would occupy a smaller proportion of the area.

Vegetation treatments on BLM surface in Occupied and Unoccupied Habitat would be emphasized under Alternative C, with generally similar direct impacts to soil stability as Alternatives A and B. However, increased use of prescribed fire would decrease short term soil stability in the burned area footprint. The vegetation treatments are expected to indirectly increase long term soil stability in contrast to Alternatives A and B because of the anticipated reduction in acreage burned by wildfire. This outcome is anticipated due to reduced fuels from vegetation treatments, and adequate access for effective firefighting.

Over the short and long term, soil stability on BLM surface in Occupied and Unoccupied Habitat is expected to be improved under this alternative relative to Alternative A, but to a lesser degree than under Alternative B. While levels of burned and treated acreage are difficult to predict under this alternative, the scale of past treatments and burns suggests that less acres would be affected by fuels mitigation and wildfire under this alternative than the scale of surface use restrictions and closures to grazing proposed in Alternative B.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Soil Stability

Sub-Alternative D₁ places restrictions on some types of surface-disturbing activities, but allows others to occur with mitigation to protect GUSG and their habitat. A portion of the BLM surface in Occupied and Unoccupied Habitat within the Gunnison Basin Population is covered by these partial restrictions. This portion would be greater than in Alternative A, but less than Alternatives B and C.

Livestock grazing under this alternative is comparable to Alternative C and would have similar soil stability outcomes.

Sub-Alternative D₁ has the same types of vegetation treatment measures as Alternative C, resulting in comparable direct short and long term impacts, as well as similar indirect impacts on acres burned by wildfire.

Under Sub-Alternative D₁, overall soil stability is anticipated to be greater than under Alternative A, but less than Alternatives B and C due to the fewer protections from soil disturbances. Soil stability in the four-mile Non-Habitat Areas is expected to be the same as under Alternative A.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Soil Stability

Sub-Alternative D₂ protects soil stability from surface disturbances across a similar area within the satellite populations as Alternative C, but it includes a greater level of protection than C. For example, fewer Rights of Way and recreation infrastructure developments would be allowed

This alternative also contains range management measures identical to Alternative C, with similar impacts to soil stability.

Although Sub-Alternative D₂ includes similar vegetation treatment measures as Alternative C, it prevents the use of prescribed fire in GUSG Occupied Habitat. This would reduce the direct soil stability impacts from the prescribed fire footprint

along with the risk of escaped fire as compared with Alternative C, resulting in higher soil stability.

Under this alternative, overall soil stability is expected to be greater than Alternative A, but less than Alternative B for the satellite population portion of BLM surface in Occupied and Unoccupied Habitat. It is also expected to be greater than under Alternative C. This would result because of the increased protections to soil stability from more stringent surface disturbance restrictions and reduced risk of wildfire. Soil stability in Non-Habitat Areas would be similar to Alternative A for the satellite population area.

4.4.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect soil and water resources are mineral development, livestock grazing, infrastructure development, vegetation treatments, wildfires, recreation, and travel and transportation activities.

The cumulative impact analysis area used to analyze cumulative impacts on soils includes the entire Occupied and Unoccupied Habitat together with the Non-Habitat Areas. Combined with the proposed management actions, cumulative impacts on soil resources could present challenges to meeting the BLM Land Health Upland Fundamental. Impacts on soil resources would not be as substantial under alternatives B, C, D₁, or D₂ when compared with Alternative A. Management under Alternative B would provide the greatest protection of soil resources, followed by Sub-Alternative D₂, Alternative C, and Sub-Alternative D₁.

Mineral development, including oil and gas, coal, and other minerals, could cause localized impacts on soils. Intensive mechanical vegetation treatments likely have and would continue to impact soil resources locally, but they could increase vegetation cover and thus soil health, over the long term. Past livestock grazing has impacted soil resources. Improved management of grazing allotments has led to improvements in soil health over time in the cumulative impacts analysis area.

An important trend in the region is rapidly increasing recreational use. This growth in recreation on public lands is due to local population growth, as well as the area's reputation as a national and international recreation destination. All forms of recreational activities can increase potential for erosion, sedimentation, gully creation, biologic soil crust damage, and riparian and upland vegetation damage. However, the significance of such impacts varies with the nature and degree of disturbance as well as site specific environmental conditions. Typically larger disturbances represent greater potential to damage soils and vegetation, degrade

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water quality, and impair overall watershed function and condition than smaller disturbances.

4.5. TERRESTRIAL VEGETATION (INCLUDING WOODLANDS)

4.5.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Vegetation types and distribution
- Vegetation conditions

ASSUMPTIONS

Vegetation would be managed to achieve the Land Health Ecological Fundamental, with implementation rates dependent on available budgets and resources.

Methods and projects that help restore watersheds, desirable vegetation communities, or wildlife habitats (including surface disturbance associated with these efforts) would be neutral to or benefit upland vegetation resources over the long term, with the exception of increasing disturbance-related species, including invasive exotic plants.

Increased levels of roads, ROWs, and other development would negatively affect vegetation condition.

The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors, including location in the watershed, the type, time, and degree of disturbance, existing vegetation, precipitation, and mitigating actions applied to the disturbance.

Noxious and invasive weeds would continue to be introduced and spread by vehicle traffic, recreation, wildlife and livestock movements, and activities which disturb the soil surface.

Hotter and drier conditions predicted from climate change models are projected to cause plant stress, and associated plant death, changes in plant species to more drought-tolerant species, and trigger plant community changes (Bryce 2012).

Short-term effects on upland vegetation would occur over a timeframe of up to ten years and long-term effects would occur over longer than ten years.

Fire suppression activities will be effective and keep burned acreage to a minimum level.

METHODS AND DATA

Vegetation Types

Vegetation types are indicated by acreages of the major plant communities on BLM surface in Occupied and Unoccupied Habitat. Anticipated increases or decreases of different vegetation types are described under each alternative. The analysis uses LANDFIRE Existing Vegetation Type data (LANDFIRE 2015).

The analysis of direct impacts is based on those activities which affect vegetation types through damage or removal of some or all of the plant species. Vegetation damage or removal often changes the vegetation type on the disturbed area after an initial unvegetated stage. Within sagebrush or pinyon-juniper vegetation types, recovery of the sagebrush, pinyon and juniper can take many years and result in different vegetation types before the original community returns (Barney 1974, Boyd 2011, Romme 2009). For example, in one study Wyoming big sagebrush shrubs required more than ten years to reestablish and reach preceding canopy cover levels following vegetation clearing (Watts 1996). Prior to recovery, grass-forb vegetation typically dominates once the disturbance has stopped (Barney 1974, Bryce 2012, FEIS 2005). On the other hand, the main species in the mountain shrub vegetation type—Gambel's oakbrush, birchleaf mountain mahogany and Utah serviceberry—have the ability to resprout after top removal, and often quickly regain dominance following disturbance (FEIS 2005).

Surface disturbing activities damage or remove vegetation. These include development and construction of roads and trails, recreational facilities, minerals, pipelines, and many types of ROWs, as well as the development and maintenance of some types of range improvements. Although not considered surface-disturbing, wildfire usually removes most or all of the above-ground vegetation. As a result, surface-disturbing activities and many wildfires—particularly the hot fires—directly reduce existing vegetation types and increase unvegetated ground for the short term. Vegetation treatments such as habitat improvements, some prescribed fires or mechanical fuels reduction—which only remove a portion of the vegetation—directly reduce the levels of woodland types and create shrubland or grass-forb vegetation types from them (Brockway 2002, Stevens 2004). In some cases, they convert shrubland to grass-forb vegetation.

The analysis of indirect impacts considers how management activities influence vegetation drivers. The natural drivers for mid-elevation vegetation communities on the Colorado Plateau include climatic factors, herbivory, and infrequent to very rare mixed severity and stand-replacement fires (Bryce 2012, FEIS 2005). Additional drivers are the successional processes whereby slower-growing, usually woody species establish and out-compete shorter-lived species. This analysis extends these drivers to the remainder of the GUSG range, but with the understanding that rates

and outcomes of the processes are probably modified by the ecoregion and individual ecological sites (Fowler 1986). This analysis focuses on alteration of the natural fire regime and the ongoing process of succession as key factors which create indirect impacts to the amounts and distribution of vegetation types.

The process of succession interacts with management actions to cause indirect impacts to vegetation types by shifting one type to another over time. Actions which directly create unvegetated ground, grass-forb vegetation, or shrub-dominated types could indirectly create more grass-forb, shrub and woodland types respectively over time as succession proceeds, depending on the ecological site potential. Rates of succession-driven transition from one vegetation type to another have been estimated for the purposes of this analysis. Estimation parameters used in this analysis are derived from studies on sagebrush, pinyon-juniper and mountain shrub recovery following disturbance (Boyd 2011, Bryce 2012, Erdman 1970, Wambolt 2001, Watts 1996).

Fire suppression influences the fire regime, indirectly affecting vegetation types. In the absence of fire or other disturbance, succession can proceed within the limits of the ecological site. On some ecological sites, pinyon and juniper trees are able to eventually dominate sagebrush and mountain shrub communities, while on other sites sagebrush or mountain shrubs maintain dominance over the long term (Bryce 2012, Burkhardt 1976, FEIS 2005, Koniak 1985).

Vegetation treatments and the spread of invasive annuals also affect the fire regime and indirectly affect the vegetation type. Vegetation and fuels treatments can reduce fire size and occurrence, particularly over the short term through enhancing fire suppression effectiveness. This would reduce the acres burned and indirectly decrease the amount of grass-forb vegetation. However, vegetation and fuels treatments may not affect burned acreage a detectable amount over the long term, since most acres burned across the West occur during extreme weather events which influence fire behavior more so than fuels (Reinhart 2008).

The spread of invasive annuals including cheat grass has been linked with increased fire frequency in the Great Basin, with a resulting conversion of shrub and tree vegetation to grass dominance (Bryce 2012, Knapp 1996). Close to 3% of the vegetation on BLM surface in Occupied and Unoccupied Habitat has undergone a vegetation type-change to dominance by invasive species (Bryce 2012). The indirect effects of this are likely to be continued dominance by these species over the short and long term, in part due to their influence on the fire regime.

Based on the preceding discussion, alternatives which allow for surface disturbing activities, or encourage the use of wildfire to accomplish habitat goals, or which result in more wildfire across the landscape will be considered to directly increase unvegetated area. This increase will accompany a reduction in grass-forb, sagebrush,

mountain shrub and pinyon-juniper vegetation types. Short and long-term indirect impacts would be increased amounts of grass-forb and mountain shrub types, along with decreased amounts of sagebrush and pinyon-juniper vegetation. Alternatives that restrict surface disturbance and reduce wildfire on BLM surface in Occupied and Unoccupied Habitat would produce the opposite effects for unvegetated, mountain shrub, grass-forb, sagebrush and pinyon-juniper vegetation types.

Alternatives which encourage vegetation treatments including prescribed fire will be expected to directly increase the acreage of grass-forb, sagebrush and mountain shrub vegetation types within the treatment footprint over the short and long term. A reduction in pinyon-juniper vegetation would also result. Short-term reductions in grass-forb types along with increases in pinyon-juniper and sagebrush vegetation would be expected outside of the treatment footprint due to reduced fire size, but these effects would not be expected to continue through the long term.

Vegetation Condition

Analysis of vegetation conditions is based on lands achieving or not achieving the Land Health Ecological Fundamental. This analysis uses Land Health data generated by the BLM management units. It contrasts how management activities under the different alternatives are expected to improve or deteriorate conditions and cause changes to the Ecological Fundamental's rating. Condition indicators include diversity and composition of native species and plant functional groups, amounts of invasive species, plant productivity and plant vigor (BLM 2008, BLM 2011e). The difference between achieving and not achieving the Land Health Ecological Fundamental can be substantial, and it may take many years to move from one category to another. To address this, the BLM has developed subcategories to describe transitional stages, current management, cause of Land Health problems, and trends of the indicators (BLM 2012b).

Surface disturbance directly removes vegetation which can change native species and functional group composition, plant vigor and productivity. Surface disturbance also creates gaps in the existing vegetation and increases available nutrient, moisture and light levels. Invasive plants are able to exploit these resources, and then produce seed to infest the adjacent areas (Huenneke 1990, Burke 1996, Theoharides 2007). On BLM surface, most disturbances associated with construction and development occur on a small footprint, but many small disturbances across a larger area can affect land health indicators within that larger area and alter the land health rating.

Vegetation treatments, prescribed burns and wildfire also affect vegetation condition. While they all tend to increase levels of invasive species, they can also improve some components of vegetation composition and vigor over the long term (Stevens 2004, Barney 1974, Roundy 2014). Rehabilitation of burned areas can

either increase or reduce the likelihood of invasive plant dominance (Getz 2008, Peppin 2010).

Many types of vegetation are adapted to some level of grazing. However, intense or prolonged grazing by livestock and wildlife can lead to changes in functional group composition, plant vigor and production (Holechek 1989, FWS 2010). This can cause a decline of palatable plants and plant groups within a vegetation type along with increases in unpalatable species, affecting several of the Ecological Fundamental indicators (BLM 2008, 2011e). As a result, the presence or absence of livestock grazing and its management can lead to improvements or declines for the indicators and the Land Health rating.

The relationships between vegetation condition and management activities will shape how the alternatives are analyzed. Alternatives that eliminate, limit, or otherwise constrain surface disturbance are projected to maintain the existing Land Health status. Similarly, alternatives with minimal constraints on surface disturbance at the RMP level are expected to maintain present status over the short term, but increase lands not meeting the Ecological Fundamental over the long term as small areas of degraded vegetation accumulate. Because treatments, wildfire, and wildfire rehabilitation have mixed results with respect to the land health indicators, they are expected to be neutral to the land health rating and not affect current status.

Land Health Standards include livestock grazing management guidelines which outline basic criteria to achieve Land Health. Standards and Guidelines have been incorporated into existing RMPs for more than 15 years. Therefore, current management is expected to maintain existing Land Health condition for the short term, and improve it over the long term where the Ecological Fundamental is not being achieved and livestock grazing is a significant factor. Alternatives that remove livestock grazing are projected to improve short and long term Land Health status on these lands, with more rapid improvement resulting from removal of the significant factor. Alternatives which prescribe best management practices for grazing where GUSG habitat requirements are not being met are also projected to improve short and long term Land Health status. Impacts to wildlife grazing from BLM management activities, would be very difficult to predict, so will not be contrasted between the alternatives.

4.5.2. IMPACTS COMMON TO ALL ALTERNATIVES

Vegetation Types

Successional processes would continue within vegetation communities, leading to increasing dominance by woody species over the long term across more of the

landscape. The amount of forested vegetation type would continue at current levels unless reduced by warming temperatures.

Vegetation Condition

Wildlife herbivory would continue and cause declines in some areas for the Land Health Ecological Fundamental indicators. Wildlife use and movement through BLM surface in Occupied and Unoccupied Habitat would also continue to introduce and spread invasive plants.

4.5.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Vegetation Types

The anticipated consequences of the No Action Alternative are small increases in unvegetated area as well as sagebrush and pinyon-juniper vegetation types. The pinyon-juniper type is expected to increase in all but the Gunnison Basin and Poncha Pass population areas based on patterns observed in the Colorado Plateau ecoregion. These increases would be associated with decreases in grass-forb, and mountain shrub vegetation types.

Surface disturbance protections are already in place across 61% of the BLM surface in Occupied and Unoccupied Habitat, leaving only 39% of this area subject to impacts from localized vegetation removal or damage, and 61% of the four-mile Non-Habitat Areas subject to these impacts. On the unprotected lands, surface disturbance is projected to increase unvegetated area and decrease sagebrush and pinyon-juniper vegetation. Associated indirect impacts could be increases in grass-forb and mountain shrub vegetation as a result of successional processes. Since existing large-scale surface disturbance is estimated to be around 1% of BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas, it is likely that additional vegetation type changes due to surface disturbance would continue to around 1% of these areas.

Vegetation successional rates, vegetation treatments and wildfires are expected to continue at rates similar to the past 30 years. BLM fire and treatment records indicate that past rates have averaged roughly 0.7% of the BLM surface in Occupied and Unoccupied Habitat per year, with treatments and prescribed fires responsible for 75% and wildfires making up 25% of the total. Over a ten-year period, the combined effects of treatments, wildfire, and natural succession are projected by this analysis to reduce grass-forb vegetation from 7 to 48% of existing levels. Sagebrush vegetation could stay at current levels or increase by up to 9% over this same time

period, while mountain shrub could decrease from between 1 and 5%. Pinyon-juniper vegetation is projected to increase anywhere between 1 and 10% of existing levels, mainly in the western GUSG population areas. Long term impacts to vegetation are projected to continue along these same trajectories. Similar impacts are expected to occur in the Non-Habitat Areas.

Vegetation Condition

Alternative A constrains surface disturbance on 61% of the BLM surface in Occupied and Unoccupied Habitat and 39% of the four-mile Non-Habitat Areas, so no impacts to the current Land Health status would be expected in the protected areas from surface-disturbing activities. On the remaining 39% of unprotected BLM surface in Occupied and Unoccupied Habitat and 61% in the Non-Habitat Areas, existing Land Health status is expected to be maintained over the short term. Over the long term, lands not achieving the Ecological Fundamental are projected to increase within the unconstrained area.

Livestock grazing is anticipated to continue on over 90% of the BLM surface in Occupied and Unoccupied Habitat, and over 55% of Non-Habitat Areas. It is not expected to influence existing Land Health status for the short term. Over the long term, ratings are expected to improve on acreages currently not achieving the Ecological Fundamental where livestock grazing is a significant factor, and in some areas where significant factors have not been identified yet. Conditions are expected to improve on between 37,000 and 258,000 acres within the BLM surface in Occupied and Unoccupied Habitat and between 13,000 and 23,000 acres within the Non-Habitat Areas.

ALTERNATIVE B

Vegetation Types

Alternative B is likely to result in generally similar impacts to vegetation types as Alternative A. Alternative B would nearly eliminate surface disturbance across the BLM surface in Occupied and Unoccupied Habitat, and reduce it across the four-mile Non-Habitat Areas. This represents an increase in lands protected from surface disturbance as compared with Alternative A. As a result, surface disturbance would not influence vegetation types on these lands. However, at the large scale little change from Alternative A would be detectable, as less than 1% of BLM in Occupied and Unoccupied Habitat or Non-Habitat Areas would be affected under either alternative.

Treatments that manipulate the vegetation type would not be allowed under this alternative, and wildfires would be suppressed, with the exception of those within the Non-Habitat Areas. As a result, succession would be the main influence on the

acresages of each vegetation type on BLM surface in Occupied and Unoccupied Habitat, depending on the ecological site potential. Estimation parameters for successional rates used in this analysis are derived from studies on sagebrush, pinyon-juniper and mountain shrub recovery following disturbance (Boyd 2011, Bryce 2012, Erdman 1970, Wambolt 2001, Watts 1996). While estimates of vegetation shifts include losses of between 17 and 53% of the existing grass-forb vegetation and gains to pinyon-juniper of 6 to 12%, these ranges largely overlap the projected ranges under Alternative A. The projected ranges for sagebrush and mountain shrub vegetation are nearly identical between alternatives A and B. Within the Non-Habitat Areas, greater fire use would probably occur than under Alternative A, resulting in more grass-forb and, mountain shrub vegetation and less pinyon-juniper woodland in this area.

Vegetation Condition

Alternative B is expected to more rapidly improve vegetation conditions relative to Alternative A, and prevent long term degradation across a broader area.

Alternative B would reduce the presence of localized damage to the vegetation indicators and invasive plants by eliminating nearly all surface-disturbing activities across the BLM surface in Occupied and Unoccupied Habitat, which represents an increase as compared with Alternative A. This would occur across Occupied and Unoccupied Habitat, and to a lesser degree in Non-Habitat Areas. Over the short term, no change to land health status would be expected. However, over the long term, this alternative would prevent degradation of Land Health status from development and construction activities.

Livestock grazing would be eliminated on BLM surface in Occupied and Unoccupied Habitat, an increase relative to Alternative A. As a result, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor is expected to improve within ten years. This acreage is anticipated to be between 37,000 and 258,000 acres. The improvement in Land Health status would be sustained into the future as well. Alternative B achieves the same results as Alternative A, but more quickly. Alternative B would have the same vegetation condition impacts from livestock grazing in the Non-Habitat Areas as Alternative A.

ALTERNATIVE C

Vegetation Types

Alternative C would result in more grass-forb, sagebrush, and mountain shrub vegetation, and less pinyon-juniper vegetation than alternatives A and B on BLM surface in Occupied and Unoccupied Habitat over both the short and long term.

Impacts to vegetation types in the four-mile Non-Habitat Areas would be the same as under Alternative A.

Alternative C places more area under surface disturbance restrictions than Alternative A, but less area than Alternative B. This would limit the creation of localized unvegetated patches and associated herbaceous vegetation. At the landscape scale, there would be similar impacts to vegetation types as Alternative A because less than 1% of BLM in the planning would be affected under either alternative.

Vegetation treatments and use of fire to improve GUSG habitat are emphasized under this alternative. However, it is not possible to predict the amount of increase that would occur. Nevertheless the expected declines in grass-forb vegetation resulting from succession could drop below 7%, and sagebrush vegetation could increase beyond the possible 9% level in Alternative A. These changes would be associated with declines in pinyon-juniper that could result in a net reduction of this type across the BLM surface in Occupied and Unoccupied Habitat, despite ongoing vegetation succession. Under this alternative, a net gain in mountain shrub across this same area could take place in contrast with the anticipated losses under alternatives A and B.

Vegetation Condition

Alternative C would constrain surface disturbing activities on a portion of the BLM surface in Occupied and Unoccupied Habitat—an increase in comparison to Alternative A, but a decrease as compared with Alternative B. Over the short term, land health conditions across this area would probably not change as a result of surface disturbance, similar to alternatives A and B. However, long term conditions under Alternative C would be subject to decline from accumulating surface disturbance across less of the area than Alternative A, but more than Alternative B.

Alternative C maintains livestock grazing across the BLM surface in Occupied and Unoccupied Habitat using appropriate grazing practices to meet GUSG RCP habitat requirements. As a result, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor is projected to improve within ten years, similar to Alternative B. This acreage is expected to be between 37,000 and 258,000 acres. Because this alternative institutes specific conservation grazing measures for suitable habitats not meeting RCP guidelines—which is a stricter requirement than Alternative A's requirement to change grazing management on lands not meeting standards—the improvement in Land Health status is projected to occur more rapidly than under Alternative A, and be sustained into the future as well. Impacts to vegetation condition in the four-mile Non-Habitat Areas would be the same as under Alternative A, due to similar surface protections and grazing practices.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Vegetation Types

Sub-Alternative D₁ would be expected to result in little overall change to vegetation types as a result of surface-disturbing activities in comparison to alternatives A, B, and C. This alternative places restrictions on some types of surface-disturbing activities, but allows others to occur with mitigation to protect GUSG and their habitat. A portion of BLM surface in Occupied and Unoccupied Habitat within the Gunnison Basin population area is covered by these partial restrictions. This is more area than Alternative A, but less than alternatives B and C. Over the long term, the acreage of small patches of herbaceous vegetation following development-related disturbance is expected to be less than under Alternative A, but greater than alternatives B and C, though probably not detectable at the plan area scale.

Sub-Alternative D₁ contains vegetation treatment, fuels management, and prescribed burn measures comparable to Alternative C, but wildfire in Occupied Habitat would be managed similar to Alternative B and prioritized for suppression. While it is not possible to accurately predict the acreage affected by future treatments and fire management, a range of possible changes in vegetation types can be projected. In the Gunnison Basin population area, this alternative would reduce the loss of grassland below the 27-91% range of loss that is projected under Alternative A. Under Sub-Alternative D₁, sagebrush would be expected to increase beyond the 3-12% increase under Alternative A, Mountain shrub would be expected to increase beyond the less than 1% increase under Alternative A, while pinyon-juniper woodland would be expected to decline below the 1-3% loss under Alternative A.

Impacts to vegetation types in Non-Habitat Areas would be the same as under Alternative A.

Vegetation Condition

Sub-Alternative D₁ would constrain surface-disturbing activities in a portion of the Gunnison Basin population area—an increase in comparison to Alternative A, but a decrease compared with alternatives B and C. Over the short term, land health conditions would probably not change as a result of surface disturbance, similar to alternatives A, B, and C. However, over the long term, conditions under Sub-Alternative D₁ would be subject to decline from accumulating surface disturbance across a portion of the Gunnison Basin population area.

Sub-Alternative D₁ would maintain livestock grazing across the Gunnison Basin population area using a strategy designed to achieve RCP guidelines. As a result, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor is projected to improve within ten years, similar to Alternative B. Because all causal determinations for land health status are not currently available

within the Gunnison Basin, this acreage could be anywhere between 0 and 211,000 acres. Similar to alternatives B and C, this improvement in land health status would occur more rapidly than under Alternative A, and would be sustained into the future.

Impacts to vegetation condition in the Non-Habitat Areas would be the same as under Alternative A, due to similar surface protections and grazing practices.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Vegetation Types

Sub-Alternative D₂ would place similar constraints on satellite population areas as Alternative C, with identical effects to vegetation types. At the scale of the plan area, little overall difference in vegetation types would occur between alternatives A, B, C, and D₁ as a result of surface-disturbing activities.

This alternative contains vegetation treatment and fuels management measures comparable to Alternative C for the satellite populations, but wildfire and prescribed burning in Occupied Habitat would be managed similar to Alternative B. While it is not possible to accurately predict the acreage affected by future treatments and fire management, general percentage changes in vegetation types can be projected. In the satellite populations area, this alternative could increase the loss of grassland below the 7% maximum loss that is projected under Alternative A. Changes in sagebrush are expected to be similar to Alternative A, with between a 2% loss and a 7% gain projected over a ten-year timeframe. In addition, changes in mountain shrub acreage are anticipated to be similar to Alternative A, with between a 2% loss and a 6% gain predicted within the satellite population area. Pinyon-juniper woodland is also expected to experience little change from Alternative A, with a predicted 2-8% decline from current levels.

Impacts to vegetation types in Non-Habitat Areas would be the same as under Alternative A.

Vegetation Condition

Alternative D₂ shares the same constraints as Alternative C across the satellite populations. Over the short term, land health conditions across this area would probably not change as a result of surface disturbance, similar to Alternatives A, B, and C. Over the long term, conditions under Alternative D₂ would be subject to decline from accumulating surface disturbance across a portion of the satellite populations.

Alternative D₂ maintains livestock grazing across the satellite population areas using a strategy designed to achieve RCP guidelines. Similar results for the land health

Ecological Fundamentals are expected for this area as described under Alternative C. Because not all causal determinations for land health status are readily available for some of the satellite population areas, this acreage could be anywhere between 37,000 and 46,000 acres. Similar to alternatives B and C, the improvement in land health status would occur more rapidly than under Alternative A, and would be sustained into the future.

Impacts to vegetation condition in Non-Habitat Areas would be the same as under Alternative A, due to similar surface protections and grazing practices.

4.5.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect vegetation are mineral exploration and development, livestock grazing, recreation, road construction, ROWs (including large transmission lines or pipelines), weed invasion and spread, prescribed fire and wildfires, land planning efforts, vegetation treatments, habitat improvement projects, insects and disease, and drought. Many of these create conditions that cause or favor other vegetation changes. For example, wildfire causes vegetation removal, which makes affected areas more susceptible to weed invasion and soil erosion, and also triggers changes in vegetation type.

Drought conditions reduce vegetative health, which makes vegetation prone to insect infestation or disease. In general, resource use activities have cumulatively caused vegetation removal, fragmentation, weed spread, soil compaction, and erosion, whereas land planning efforts and vegetation and weed treatments have countered these effects by improving vegetative connectivity, productivity, diversity, and health.

Climate change within the cumulative impact analysis area is predicted to cause an increase in temperatures contributing to drier conditions, which would affect, vegetative health, and water availability (Bryce 2012). Such changes would alter the conditions to which vegetative communities are adapted, potentially creating conditions that could favor certain species or communities, weeds, or pests.

Under the alternatives, impacts on vegetation would be minimized to the extent practical and feasible through restrictions; stipulations; closures to mineral exploration and development, recreation, and motorized travel; and by concentrating development in previously disturbed areas. Vegetative conditions would be improved through restrictions on development, treatments, weed prevention and control, habitat improvements, use of prescribed and wildfire, and grazing practices ranging from no grazing to appropriately managed grazing.

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

In general, management under each alternative would work toward achieving land health but would differ in the time and methods used to reach that goal. Since Alternative A generally includes more resource use and development, impacts on vegetation are more likely to occur under this alternative. As a result, management under Alternative A could significantly contribute to cumulative impacts on vegetation. In contrast, under alternatives B and C and sub-alternatives D₁/D₂, BLM management actions are expected to contribute to positive cumulative impacts on vegetation by placing restrictions on development and implementing restoration and other management actions to improve GUSG habitat quality.

4.6. RIPARIAN AREAS & WETLANDS

4.6.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Mileage of riparian areas on BLM surface
- Acreage of wetlands on BLM surface
- Mileage of streams and riparian habitat on BLM surface in riparian Proper Functioning Condition, Functioning at Risk, and Not Functional categories.

ASSUMPTIONS

Riparian and wetland resources would be managed to meet BLM Land health Riparian Fundamental.

Methods and projects that help restore watersheds, desirable vegetation communities, or wildlife habitats (including surface disturbance associated with these efforts) would benefit riparian vegetation resources over the long term, with the exception of increasing disturbance-related species, including invasive plants.

The degree of impact attributed to any one disturbance or series of disturbances would be influenced by several factors: proximity to drainages and wetlands, location within the watershed, time and degree of disturbance, reclamation potential of the affected area, existing vegetation, precipitation, and mitigating actions applied to the disturbance.

Noxious and invasive weeds would continue to be introduced and spread by vehicle traffic, recreation, wildlife and livestock movements, and vegetation and surface-disturbing activities.

The analysis was conducted assuming hotter and generally drier conditions, greater evaporation earlier snowmelt and earlier spring runoff. This would lead to more plant stress and shorter duration stream flows (Bryce 2012, Cayan 2001, Seager 2007.)

Short-term effects on riparian and wetland vegetation would occur over a timeframe of two years or less and long-term effects would occur over longer than two years.

METHODS AND DATA

Riparian and Wetland Presence and Distribution

Impacts to riparian area presence and distribution are evaluated in terms of stream and riparian mileage on BLM surface in Occupied and Unoccupied Habitat.

Anticipated increases or decreases in stream mileages are described under the different alternatives. This analysis uses the U.S. Geological Survey National Hydrologic Dataset, version 2.2.

Impacts to lentic wetland presence and distribution are evaluated using acreage of lentic wetlands across the BLM surface in Occupied and Unoccupied Habitat.

Expected increases or decreases in wetland size or abundance are described across the different alternatives. The USFWS National Wetland Inventory is used for this analysis.

Within the Colorado Plateau Ecoregion, drivers that shape riparian and wetland systems have been identified which likely apply across the entire GUSG Habitat and four-mile Non-Habitat Areas. Those that are directly impacted by land management include: groundwater, channel geomorphology, stream hydrology, and animal herbivory (Bryce 2012). Groundwater, channel geomorphology, and stream hydrology can be affected by human activities such as water management, diversion, development of facilities and roads. When these actions alter the amount of water or change the timing and intensity of flows, the degradation and even loss of riparian and wetland systems can result (Bryce 2012, Poff 2011). Even activities, such as development or road construction, that modify hydrology in the uplands can have an influence on the stream hydrology (Poff 2011). Heavy animal herbivory in the form of livestock and native wildlife grazing can also result in streambank alteration, compaction, and degraded riparian vegetation through trampling and consumption. (Belsky 1999, Kauffman 1988, Poff 2011). In some cases, damage can lead to vegetation shifts from wetland to upland species and streambank alteration, reducing the extent and riparian characteristics of the site.

This analysis evaluates the management activities that could cause the reduction or addition of miles of stream and associated riparian habitat, along with acres of wetlands not associated with streams. Activities that improve watershed cover, increase water infiltration, reduce erosion and concentrated flow, and restore spring and stream hydrology would be compatible with increasing the mileage of riparian areas and acreage of wetlands (DeBano 1989).

Grazing and wildlife management practices that avoid overgrazing within a watershed leave abundant stubble and groundcover on the range. Such practices result in higher watershed cover compared with grazing practices that remove too much vegetation or trample and compact sensitive areas (Kauffman 1988, Poff 2011).

Removal of grazing has been shown to result in recovery of streambanks and riparian vegetation (Batchelor 2015), while managed grazing can be a compatible use in riparian areas (Kinch 1989). Alternatives that manage grazing to maintain low utilization levels in uplands and riparian areas or that remove grazing from riparian areas and wetlands altogether will be considered compatible with increasing stream and wetland areas.

Vegetation and watershed treatments—both in uplands and along the riparian zone and with appropriate follow up grazing management—can capture sediment and slow runoff, potentially contributing to improved and expanded riparian and wetland areas (DeBano 1989, Zeedyk 2014). The rehabilitation of closed routes that restores the natural hydrology could also contribute to increases in riparian and wetland areas (Trombulak 2000). Therefore, alternatives that encourage route reclamation and habitat treatments with constraints on post-treatment grazing will be considered compatible with increasing stream and wetland areas.

Manipulation of streams and springs for water developments can alter the hydrology and lead to loss of riparian habitat (Husby 2007). Such damage could be mitigated with appropriate design constraints to minimize the loss of wetland area. It is also likely that reestablishing the original hydrology could restore the lost riparian or wetland habitat, although little literature is available on the subject. Alternatives that remove damaging water developments and restore original hydrology will be considered compatible with increasing stream and wetland areas, while alternatives that allow water developments but require that flow be maintained in-channel would be consistent with maintaining current levels of streams and wetlands. Alternatives without such constraints could reduce riparian and wetland area.

Stream and Riparian Condition

Impacts to stream and riparian conditions are analyzed using BLM stream Proper Functioning Condition data. Because information on wetland condition is largely incomplete, wetlands are not included in this discussion, but parallels exist between stream and wetland condition and management impacts. Anticipated changes in stream mileage in the Proper Functioning (PFC), Functional at Risk (FAR) and Nonfunctioning (NF) categories are described for each of the alternatives.

As previously discussed, riparian condition can be degraded by activities such as development and road building within a watershed, particularly on side slopes above streams (Bryce 2012, Poff 2011). Heavy animal herbivory can also result in reduced riparian condition through streambank alteration, soil compaction, increased sedimentation, and diminished riparian vegetation (Belsky 1999, Kauffman 1988). Habitat improvements and road closure and rehabilitation practices that capture sediment and slow runoff can improve riparian conditions (DeBano 1989, Zeedyk 2014).

Analysis of management activities that affect stream hydrology, streambank soils, and riparian vegetation are used to contrast impacts between the different alternatives. Alternatives that place restrictions on new surface disturbance such as mineral development, ROWs, and routes near streams will be considered consistent with sustaining current stream and riparian conditions. Alternatives that do not restrict such developments could contribute to declines in conditions over the long term. Alternatives that eliminate or reduce livestock congregating in riparian areas such that streambank trampling is minimized and low utilization levels are achieved will be considered as maintaining good riparian conditions, and consistent with improving degraded conditions. Alternatives that encourage habitat improvements or road closures and rehabilitation with appropriate follow-up grazing management are expected to improve riparian conditions over the short and long term.

4.6.2. IMPACTS COMMON TO ALL ALTERNATIVES

Riparian and Wetland Area Presence and Distribution

Over the long term, expected warmer and drier climate patterns with earlier snowmelt are likely to reduce stream flows and associated water tables along some channels, reducing the total riparian mileage (Bryce 2012). This is also likely to happen to some wetlands, with associated loss of wetland acreage.

Stream and Riparian Condition

Warming climate conditions (Bryce 2012) are expected to cause declines in riparian plant vigor and abundance, reducing mileage of streams rated as PFC, while increasing mileage of streams in NF and FAR status. Heavy wildlife herbivory would continue in some areas with its associated impacts to riparian plant productivity, vigor and composition. Wildlife use would also continue to introduce, and spread invasive plants. This would be consistent with maintaining NF or FAR condition ratings in these areas.

4.6.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Riparian and Wetland Area Presence and Distribution

Alternative A would continue current management, which in some areas requires low utilization levels that maintain riparian and watershed cover and function. The following land use plans, which cover over 70% of the BLM surface in Occupied and Unoccupied Habitat, already contain such measures: Canyons of the Ancients NM RMP, Tres Rios RMP, Dominguez-Escalante NCA RMP, and Gunnison RMP.

Livestock grazing practices would be consistent with maintaining existing stream mileage and wetland acreage in this area and the four-mile Non-Habitat Areas over the short and long term. Current land use plans from the other management units on the remaining BLM surface in Occupied and Unoccupied Habitat do not contain such direction, and livestock grazing could contribute to reductions from the existing 373 miles of riparian area and 2,489 acres of wetlands in these areas over the long term. Reductions from the current 130 miles and 523 acres of wetlands in the Non-Habitat Areas are also projected to occur.

All current management plans under this alternative allow for vegetation treatment. However, the Dominguez-Escalante NCA, Grand Junction, Gunnison, and Tres Rios RMPs, which cover over 80% of the BLM surface in Occupied and Unoccupied Habitat, specify follow-up grazing practices consistent with maintaining the associated watershed improvements. Treatments in these areas could contribute to improving and expanding riparian and wetland areas over the long term. Treatments in the remaining areas are not projected to contribute to increases. Most existing plans under this alternative do not specify measures to close and rehabilitate routes. As a result, no changes to current stream and wetland areas are anticipated for BLM surface in Occupied and Unoccupied Habitat or the Non-Habitat Areas.

While the development of springs is currently allowed across all of the management units, only Canyons of the Ancients NM—representing a fraction of BLM surface in Occupied and Unoccupied Habitat—requires that water flow be maintained in riparian channels. Within this fraction, spring development practices are expected to sustain current riparian and wetland areas. In the remaining BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas, spring development could contribute to long-term reductions in riparian and wetland areas.

Stream and Riparian Condition

Several land use plans already contain some surface disturbance protections on lands buffering riparian areas. These include RMPs for the Gunnison FO, Grand Junction FO, Moab FO, Monticello FO, San Luis Valley FO, Gunnison Gorge NCA, and Canyons of the Ancients NM, which represent a portion of the BLM surface in Occupied and Unoccupied Habitat. Activities on these lands are more likely to be consistent with maintaining current riparian conditions for the long term, while surface-disturbing activities are more likely to contribute to declining riparian conditions in the remainder of habitat and Non-Habitat Areas.

Current land use plan direction on a portion of the BLM surface in Occupied and Unoccupied Habitat prescribes specific grazing management to protect riparian condition. Each existing RMP has also been amended to include Public Land Health Standards and Guidelines for Livestock Grazing, with suggested grazing measures to

attain riparian PFC. These measures have been in place for more than 15 years, and resulted in current riparian conditions, with 47% of stream miles in Proper Functioning Condition, 36% Functioning at Risk, and 17% Non-Functional on BLM surface in Occupied and Unoccupied Habitat. Current conditions in the Non-Habitat Areas include 77% of miles in Proper Functioning Condition, 19% Functioning at Risk, and 3% Non-Functional. Alternative A is projected to sustain these current riparian conditions over the short term, but contribute to improved conditions over the long term as the required grazing changes take effect. These changes are expected to occur on lands where livestock grazing has been identified as a significant factor. These effects are expected to occur on BLM surface in Occupied and Unoccupied Habitat and the Non-Habitat Areas.

As discussed above, a portion of the BLM surface in Occupied and Unoccupied Habitat and the Non-Habitat Areas is currently covered by land use plans that specify follow-up grazing practices to protect vegetation treatment effectiveness. Across this area, these practices are expected to contribute to improved riparian conditions. Outside of these areas, the lack of consistent land use plan direction for follow-up grazing management could lead to riparian conditions that do not benefit from vegetation treatments and road and route management.

ALTERNATIVE B

Riparian and Wetland Area Presence and Distribution

Alternative B would eliminate the streambank and vegetation removal impacts associated with domestic livestock grazing on a portion of the BLM surface in Occupied and Unoccupied Habitat, which would contribute to increasing stream and wetland area. This represents an increase over similarly affected lands in Alternative A.

Habitat treatments and their associated contributions to riparian and wetland area would not be allowed on the BLM surface in Occupied and Unoccupied Habitat under this alternative, but could occur in the four-mile Non-Habitat Areas.

Additionally, all closed routes would be actively reclaimed across the BLM surface in Occupied and Unoccupied Habitat. In contrast to Alternative A, this would be a reduction in areas where vegetation treatments with appropriate follow up management could benefit riparian and wetland area. However, active reclamation of all closed routes across the BLM surface in Occupied and Unoccupied Habitat would contribute to increased riparian and wetland area under Alternative B, but these activities would not take place under Alternative A.

This alternative also prohibits new water developments and restores natural hydrology where existing water developments have damaged the stream or wetland. This would contribute to increased riparian and wetland area across the entire BLM

surface in Occupied and Unoccupied Habitat in contrast to Alternative A in which water developments could decrease riparian and wetland area across a portion of the BLM surface in Occupied and Unoccupied Habitat. Impacts to riparian miles and wetland acreage in Non-Habitat Areas would be similar to Alternative A.

Stream and Riparian Condition

Alternative B largely eliminates surface disturbance and associated erosion and altered hydrology across the BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas. While Alternative A would perpetuate the current level of surface disturbance restrictions around streams, Alternative B includes more comprehensive restrictions across a larger area. As a result these restrictions would help sustain the current riparian and wetland conditions across more of the BLM surface in Occupied and Unoccupied Habitat than Alternative A. Similar results would be expected in Non-Habitat Areas, but to a lesser degree because the surface protections are less comprehensive.

Alternative B would eliminate livestock grazing across the BLM surface in Occupied and Unoccupied Habitat. This would contribute to sustaining PFC conditions, and improving stream conditions that are currently in FAR or NF status where livestock grazing is a significant factor. Removal of the significant factor—livestock—would likely bring about condition improvements in both the short and long term. While the amount of land affected would not differ from Alternative A, improvements would probably occur more rapidly. Alternative B would result in similar grazing impacts as Alternative A in Non-Habitat Areas.

Alternative B prohibits vegetation treatments but requires active reclamation of all closed routes. Similar results are expected as discussed under the preceding section, whereby active reclamation of all closed routes across the BLM surface in Occupied and Unoccupied Habitat would contribute to improved riparian and wetland condition. In this area however, as compared with Alternative A there would be a reduction in areas where vegetation treatments with appropriate follow up management could benefit riparian and wetland conditions. In the four-mile Non-Habitat Areas, a similar outcome as Alternative A is predicted.

ALTERNATIVE C

Riparian and Wetland Area Presence and Distribution

Alternative C requires grazing practices which are consistent with meeting GUSG RCP habitat requirements. These practices would limit the streambank and vegetation removal impacts associated with domestic livestock grazing across the BLM surface in Occupied and Unoccupied Habitat, which could contribute to

increasing stream and wetland area. This represents an increase over similarly affected lands in Alternative A, and would have the same results as Alternative B.

Habitat treatments and their associated contributions to riparian and wetland area would be encouraged under this alternative, and appropriate follow-up livestock management required. Some closed routes would be actively reclaimed throughout the BLM surface in Occupied and Unoccupied Habitat, depending on GUSG needs. In contrast to Alternative A, this would be an increase in land where vegetation treatments with appropriate follow up management could benefit riparian and wetland area. In addition, active reclamation of some closed routes across this area would contribute to increased riparian and wetland area, an increase over Alternative A which does not require these activities, but reclamation would occur on fewer roads than Alternative B.

This alternative allows new water developments when GUSG habitat would benefit, or would not be damaged, but would minimize changes to in-channel water flow. The alternative also provides for removal or redesign of existing water developments that are exhibiting seep, spring or riparian area damage due to livestock use. These measures would contribute to sustaining and potentially increasing current area of wetlands and riparian habitat throughout the BLM surface in Occupied and Unoccupied Habitat. This approach represents an improvement over the amount of land similarly protected under Alternative A, and management of water developments would result in lesser gains to riparian and wetland area than Alternative B, which requires removal of all water developments which are damaging to riparian and wetland areas.

In Non-Habitat Areas, similar impacts to Alternative A are predicted for riparian miles and wetland acreage.

Stream and Riparian Condition

Alternative C limits surface disturbance, and associated impacts to riparian condition on a portion of the BLM surface in Occupied and Unoccupied Habitat. This represents an increase over Alternative A. In contrast to Alternative B, this alternative would protect stream conditions from surface disturbance impacts on less of the BLM surface in Occupied and Unoccupied Habitat.

Alternative C requires grazing practices which are consistent with meeting GUSG RCP habitat requirements. These practices would contribute toward improving riparian conditions on FAR and NF streams where livestock are a significant factor, and maintaining conditions on PFC streams. While the amount of land affected would not differ from Alternative A, improvements would probably occur more rapidly, but probably not as rapidly, as under Alternative B. More rapid improvement for NF and FAR streams where livestock grazing is a significant factor

would be expected because of the prompt removal of livestock under Alternative B. Alternative C encourages vegetation treatments, requires follow-up grazing management and specifies active reclamation of closed routes where it is important for GUSG. In contrast to Alternative A, this would be an increase in land where vegetation treatments with appropriate follow up management could benefit riparian conditions. In addition, active reclamation of some closed routes across the BLM surface in Occupied and Unoccupied Habitat would contribute to improved riparian conditions, an increase over Alternative A which does not require these activities. However, reclamation would occur on fewer roads than Alternative B, reducing associated improvements to riparian condition.

In the four-mile Non-Habitat Areas, impacts similar to Alternative A are predicted for stream and riparian condition.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Riparian and Wetland Area Presence and Distribution

This alternative requires grazing practices which are consistent with meeting GUSG RCP habitat requirements. These practices would limit the streambank and vegetation removal impacts associated with domestic livestock grazing across the Gunnison Basin population area, which could contribute to increasing stream and wetland area. Within the Gunnison Basin population area, this represents an increase over similarly affected lands in Alternative A, and would have the same results as alternatives B and C.

Alternative D₁ proposes the same habitat treatments with follow-up livestock management for the Gunnison Basin Population as Alternative C. It also proposes similar measures for reclamation of closed routes where needed to improve priority GUSG habitat. These actions would have the same impacts to riparian and wetland area presence and distribution as Alternative C.

This alternative contains the same measures as Alternative C for new water developments within the Gunnison Basin population area, but does not contain similar requirements to minimize livestock impacts from existing water developments. Sub-Alternative D₁ would be less compatible with sustaining current area of wetlands and riparian habitat throughout the BLM surface in Occupied and Unoccupied Habitat than Alternative C. This alternative represents an improvement over the amount of land similarly protected under Alternative A. However, management of water developments would not contribute to increasing riparian and wetland area as would occur under alternatives B and C within the Gunnison Basin population area.

In the four-mile Non-Habitat Areas, impacts similar to Alternative A are predicted for riparian miles and wetland acreage.

Stream and Riparian Condition

Sub-Alternative D₁ allows for surface disturbance under 0.25 acre within the Gunnison Basin population area, with associated hydrologic and erosion impacts to riparian condition. This represents an increase in areas with surface disturbance limitations for the Gunnison Basin population area over Alternative A. Within the Gunnison Basin population area, this alternative would provide lower levels of surface protection across less area than alternatives B and C.

This alternative requires grazing practices which are consistent with meeting GUSG RCP habitat requirements in the Gunnison Basin population area. These practices would result in the same impacts as Alternative C. While the amount of land affected would not differ from Alternative A, improvements would probably occur more rapidly, but not as rapidly as, under Alternative B which would remove the significant factor for NF and FAR streams.

Sub-Alternative D₁ proposes the same habitat treatments with follow-up livestock management for the Gunnison Basin Population as Alternative C. It also proposes similar measures for reclamation of closed routes where needed to improve priority GUSG habitat. These actions would have the same impacts to riparian condition as Alternative C.

In Non-Habitat Areas, impacts similar to Alternative A are predicted for stream and riparian condition.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Riparian and Wetland Area Presence and Distribution

Sub-Alternative D₂ contains similar grazing measures across the satellite populations as Alternative C with similar scope and type of effects to riparian and wetland area.

This alternative has the same measures for vegetation treatments, follow-up livestock grazing management, and route reclamation as Alternative C. The same impacts to riparian and wetlands are anticipated for the satellite populations are as with Alternative C.

Sub-Alternative D₂ has nearly identical measures for water developments as Alternative C. Within the satellite populations the same impacts to riparian and wetlands are anticipated.

In the Non-Habitat Areas, impacts similar to Alternative A are predicted for riparian miles and wetland acreage.

Stream and Riparian Condition

Sub-Alternative D₂ places similar surface disturbance constraints on satellite population areas as Alternative C, with identical impacts to riparian condition.

Sub-Alternative D₂ contains similar grazing measures across the satellite populations as Alternative C with similar scope and type of effects to riparian condition.

This alternative contains the same measures for vegetation treatments, follow-up livestock grazing management, and route reclamation as Alternative C. The same impacts to riparian and wetlands are projected for the satellite populations as with Alternative C.

In Non-Habitat Areas, impacts similar to Alternative A are predicted for stream and riparian condition.

4.6.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area include further water diversion and development, surface-disturbing actions, improper grazing practices, conversion of native rangelands to irrigated agricultural lands or residential development, improper maintenance of transportation facilities, and recreational use. These activities either reduce the amount of water for riparian areas and wetlands, or cause surface disturbance by removing vegetation cover, displacing and compacting soils, and altering soil structure. The result is exposed surfaces that increase the potential for runoff and erosion, and that could have negative effects on stream or wetland function.

Ex-urban growth and development in the region is anticipated to have impacts to riparian and wetland areas. The demand for water is anticipated to increase with development and population growth. Additionally, demand and use of water flowing to BLM lands is expected to continue to rise. Impacts on water quantity would affect riparian areas and wetlands.

Unavoidable water quantity impacts would include water withdrawals for livestock use, oil and gas and other mineral resource exploration, development and production, and watering of roads for dust mitigation. Dust on snow resulting from fugitive dust production outside of the region would continue to impact the timing of melt out and the quantity of water available for downstream users.

Under all alternatives, water resources would be protected due to management in accordance with the Clean Water Act, the Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration, and other applicable state and

federal water quality standards. Site-specific mitigation would further reduce impacts on water resources. Adherence to these standards would reduce many of the impacts from future actions.

Alternative actions that allow the least amount of soil disturbance, loss of vegetation, energy and minerals development, recreational use, and roadway and transportation facilities development would be the least impactful on water resources. Alternative B would cause the fewest cumulative impacts on riparian areas and wetlands, followed by Sub-Alternative D₂, Alternative C, Sub-Alternative D₁, and Alternative A. Management under Alternative A allows the most surface disturbance, least restrictions on livestock grazing and is expected to contribute the most cumulative effects on soil and water resources.

4.7. INVASIVE SPECIES

4.7.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Vegetation treatment acreage as an indicator of large scale surface disturbance and seeding, since these are often tied with weed introduction and spread
- Risk of invasive species introduction and spread due to presence or absence of surface disturbance restrictions
- Risk of invasive species introduction and spread due to presence or absence of permitted livestock grazing.

ASSUMPTIONS

Noxious and invasive weeds would continue to be introduced and spread by vehicle traffic, recreational activities, wildland fire, wildlife and livestock movements, and vegetation and surface-disturbing activities.

Weeds and pests would be controlled in coordination with the appropriate county weed and pest control districts and with owners of adjacent property in an effort to comply with state plans for weed eradication and control.

Short-term effects on invasive species and their management would occur over a timeframe of ten years or less and long-term effects would occur over longer than ten years.

METHODS AND DATA

Vegetation Treatments

Vegetation treatment acreage is used to indicate the most widespread and best documented source of large scale surface disturbance across the BLM surface in Occupied and Unoccupied Habitat. As discussed in Chapter 3, it is reasonable to assume that the treated acres are more likely to contain invasive species at higher levels than the untreated areas. This is due to soil disturbance, reduced competition from native species, increased resource availability for weed growth, and introduction of weed seed from equipment and as contaminants in seed mixes (Davies 2011, Davis 1990, Dodson 2006, Harrod 2001, Hobbs 1992).

This analysis considers vegetation treatment to increase the opportunities for weed introduction, establishment and spread across large treated areas. Alternatives which encourage vegetation treatment are projected to increase treatment-associated weed invasion. Alternatives which prohibit vegetation treatment are projected to maintain current levels of treatment-associated weed invasion, while alternatives which restrict treatment would result in intermediate levels of invasion.

Weed treatments are also considered under this indicator. Alternatives which specify greater range of target species will be considered to reduce weeds more than alternatives with fewer target species. Alternatives which do not provide weed management direction or targeted species will be considered to result in the least weed reduction.

Risk of Weed Introduction and Spread

The risk of weed introduction or spread is also associated with smaller scale disturbances which disrupt soils and vegetation (Hobbs 1992, Huenneke 1990, Burke 1996, Theoharides 2007). Alternatives which restrict surface disturbance will be considered to reduce the risk for weed invasion. Alternatives which do not restrict surface disturbance are anticipated to increase the risk of weed invasion.

As discussed in Chapter 3, livestock and wildlife grazing is another source of weed introduction, movement and spread (Harrod 2001.) While grazing can also reduce expression of weeds in a plant community by consuming weed seed and biomass or reducing litter production, the introduction and spread risks for weed species that are new to an area remains. Because the alternatives do not present wildlife management actions, this part of the analysis will be based on livestock grazing management. Alternatives which eliminate livestock grazing will be considered to have reduced risk of weed invasion with the removal of this source of weed introduction and transport, compared with alternatives which allow livestock grazing.

4.7.2. IMPACTS COMMON TO ALL ALTERNATIVES

Vegetation Treatments

Areas that have already been treated are predicted to maintain higher levels of weeds than areas that have not received vegetation treatment, over both the short and long term. Weed management would continue to be directed by strategic plans that direct limited resources for maximum benefit, and rely heavily on treating new species and infestations as directed by the Early Detection Rapid Response approach.

Risk of Weed Introduction and Spread

Wildlife will continue to introduce, spread, and favor expansion of invasive plants. Casual uses that occur on BLM lands will incidentally disturb soils and potentially introduce weeds. As public land uses increase, weed introductions and invasions will as well.

4.7.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Vegetation Treatments

This alternative places few restrictions on vegetation treatments. The following Land Use Plans encourage vegetation treatments to meet habitat objectives: Dominguez-Escalante, Grand Junction, Monticello, Moab, Canyons of the Ancients, Gunnison Gorge, Gunnison, McInnis Canyons, San Luis, and Tres Rios. No land use plans explicitly prevent vegetation treatments. Treated areas are anticipated to continue to accumulate at current rates approximating 1-3% of the BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas per decade over the short and long term. Total treated area is projected to be nearly 14% of the BLM surface in Occupied and Unoccupied Habitat and over 2% of Non-Habitat Areas in 10 years. These acreages are more likely to have higher levels of weeds as compared with untreated areas.

Most of the current RMPs call for coordinated weed management. The Canyons of the Ancients NM, Dominguez-Escalante NCA, Grand Junction, Moab, McInnis Canyons NCA, Gunnison, and Gunnison Gorge NCA RMPs specify weed control or prevention as a management action. However, all units are engaged in weed management. Under Alternative A, the existing level of weed control would continue across the BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas.

Risk of Weed Introduction and Spread

Most land use plans already contain some surface disturbance protections for BLM surface in Occupied and Unoccupied Habitat and Non-Habitat Areas, associated with wilderness area or wilderness study area status or tied to realty or mineral development. The restrictions cover 61% of the BLM surface in Occupied and Unoccupied Habitat and 39% of the Non-Habitat Areas under Alternative A. Lands under these restrictions are projected to be at lower risk from vegetation and soil disturbance than lands not under these protections.

Livestock grazing is anticipated to continue on over 90% of BLM surface in Occupied and Unoccupied Habitat, and over 55% of the Non-Habitat Areas. The risk for weed invasion from livestock grazing is projected to stay at current levels in grazing allotments, both over the short and long term.

ALTERNATIVE B

Vegetation Treatments

Under Alternative B, vegetation treatments would not be allowed on BLM surface in Occupied and Unoccupied Habitat. This would cap the total acreage of treatments that could be associated with weed invasions at 10% of BLM surface in Occupied and Unoccupied Habitat. While weeds would continue to be introduced from other sources, within ten years, this would represent a 23% reduction in areas subject to treatment-associated weed invasion compared to Alternative A. In Non-Habitat Areas, there would be little difference in treatment-associated weeds between the two alternatives.

Under Alternative B, all weeds that threaten sagebrush and riparian habitat quality could be treated. This direction is more specific than under Alternative A, and would likely result in more intensive weed control and lower levels of invasive plants across BLM surface in Occupied and Unoccupied Habitat compared to Alternative A. There would be little difference in weed management in the Non-Habitat Areas between the two alternatives.

Risk of Weed Introduction and Spread

Alternative B places substantial restrictions on new surface-disturbing activities, which are an important source of weed introduction and spread. These include No Leasing and NSO and ROW exclusion stipulations. As a result, the risk of weed introduction and spread would be reduced in the protected areas. These restrictions would cover a larger portion of the BLM surface in Occupied and Unoccupied Habitat than Alternative A, and also extend into Non-Habitat Areas. As a result, weed infestations associated with surface disturbance are predicted to be lower than under Alternative A.

Alternative B would not allow grazing of domestic livestock on BLM surface in Occupied and Unoccupied Habitat, reflecting a reduction in area compared to Alternative A. With the exception of trespass livestock, the risk of weed introduction and spread associated with livestock grazing would be eliminated. In the Non-Habitat Areas, Alternative B is expected to have the same results for grazing-associated weeds as Alternative A.

ALTERNATIVE C

Vegetation Treatments

Under Alternative C, vegetation treatments would be emphasized. While difficult to accurately predict, it is projected that over 14% of BLM surface in Occupied and Unoccupied Habitat would be subject to treatment-associated weed invasion after 10 years, an increase over alternatives A and B.

Alternative C would require a greater level of weed control than Alternative A. This alternative would likely reduce the level of weeds on BLM surface in Occupied and Unoccupied Habitat over the short and long term in comparison to Alternative A. However, Alternative C would only require management of state-listed noxious weeds that threaten GUSG habitat, which is fewer species than would be controlled under Alternative B. As a result, there could be more weed invasions associated with Alternative C than Alternative B across this area.

Weeds associated with vegetation treatments are expected to be similar to Alternative A for the Non-Habitat Areas.

Risk of Weed Introduction and Spread

Alternative C places more area under surface disturbance restrictions than Alternative A, but less area than Alternative B. These restrictions would limit some of the primary sources of new weed introductions, infestations, and spread in contrast to Alternative A, but would expand them in comparison to Alternative B.

Alternative C would maintain livestock grazing across BLM surface in Occupied and Unoccupied Habitat, using appropriate grazing practices to meet GUSG RCP habitat requirements. This would produce results similar to Alternative A, with similar acreages affected and at risk of weed introduction from livestock grazing.

The risk of weed introduction and spread in Non-Habitat Areas is projected to be similar to Alternative A.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Vegetation Treatment

Sub-Alternative D₁ would provide the same habitat treatments with follow-up livestock management as Alternative C. Within the Gunnison Basin population area, this would result in the same amount of land subject to treatment-associated weed invasion. This alternative proposes the same weed treatment measures as Alternative B. Therefore, the same impacts as under Alternative B are anticipated within the Gunnison Basin population area. Weeds associated with vegetation treatments are expected to be similar to Alternative A for the Non-Habitat Areas.

Risk of Weed Introduction and Spread

Sub-Alternative D₁ would allow for surface disturbance under 0.25 acre, with an associated risk of weed introduction and spread. Within the Gunnison Basin population area, this would result in a decrease in areas at higher risk of weeds resulting from surface disturbance in comparison to Alternative A. Sub-Alternative D₁ would leave more area vulnerable to weeds resulting from surface disturbance than alternatives B or C.

This alternative requires grazing practices that are consistent with meeting GUSG RCP habitat requirements. These practices would result in a similar level of risk of weed introduction and spread from livestock grazing as alternatives A and C.

The risk of weed introduction and spread in Non-Habitat Areas is projected to be similar to Alternative A.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Vegetation Treatment

Sub-Alternative D₂ has the same measures for vegetation treatments and follow-up livestock grazing management as Alternative C. Within the satellite populations, the land area subject to treatment-associated weed invasion would be the same as under Alternative C. Sub-Alternative D₂ would provide the same weed treatment measures and would result in the same impacts within the satellite population areas as Alternative B. Weeds associated with vegetation treatments would be expected to be similar to Alternative A for the Non-Habitat Areas.

Risk of Weed Introduction and Spread

Sub-Alternative D₂ would place similar constraints over surface disturbance as Alternative C, with identical levels of risk for weed introduction and spread in satellite population areas.

This alternative requires grazing practices that are consistent with meeting GUSG RCP habitat requirements. Within the satellite population areas, these practices would result in the same level of risk for weed introduction and spread as alternatives A and C.

The risk of weed introduction and spread in Non-Habitat Areas is projected to be similar to Alternative A.

4.7.4. CUMULATIVE IMPACTS

Within the cumulative impact analysis area, past, present, and reasonably foreseeable future actions and conditions that have affected and will likely continue to affect noxious and invasive weeds are mineral exploration and development, livestock grazing, recreation, road construction, ROWs (including large transmission lines or pipelines), prescribed and wild fires, land use planning efforts, vegetation treatments, habitat improvement projects, insects and disease, and drought. Many of these create conditions that cause or favor weed invasion.

In general, resource use activities have cumulatively caused vegetation removal and fragmentation, and resulting weed spread. Climate change within the cumulative impact analysis area could cause an increase in temperatures and variations in precipitation that could affect soil conditions, vegetative health, and water availability. Such changes would alter the conditions to which vegetative communities are adapted, potentially creating conditions that favor weeds.

In general, management under each alternative would work toward achieving land health, but would differ in the time and methods used to reach that goal. Since existing management under Alternative A emphasizes greater resource use and development, increases in weeds are more likely to occur under this alternative. As a result, management under Alternative A could significantly contribute to cumulative impacts on vegetation. In contrast, BLM management actions under alternatives B and C and sub-alternatives D₁ and D₂ (such as placing restrictions on development and prioritizing weed treatments) would be expected to contribute to positive cumulative impacts on weeds.

4.8. WILDLAND FIRE ECOLOGY & MANAGEMENT

4.8.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Amount of land burned by wildfires
- Frequency of wildfire occurrence
- Fuels condition as indicated by Vegetation Condition Class (VCC).

ASSUMPTIONS

Some VCCs will increase in departure if vegetation treatment actions are not taken and wildfires continue to be aggressively suppressed.

Some types of vegetation treatments would reduce the VCC or maintain it at the desired level.

There will be a growing demand on suppression resources for managing wildfires in the region.

Fire is an important natural disturbance in many of the ecological systems found in the region.

A direct relationship exists between fuel characteristics and potential fire intensity and severity and size in some cases.

Barriers to wildland fire management (such as limited access) will decrease suppression effectiveness, potentially increasing fire size.

Climate change is expected to bring hotter, drier conditions, leading to a longer fire season and more frequent and intense fire over the long term (Archer 2008).

Short-term effects on upland vegetation, fuels and fire would occur over a timeframe of up to ten years and long-term effects would occur over longer than ten years.

METHODS AND DATA

Amount of Land Burned by Wildfires and Fire Frequency

The amount of land burned by wildfire is assessed in terms of acreages and percentages of burned BLM surface in Occupied and Unoccupied Habitat.

Frequency of wildfire is evaluated based on the average annual numbers of wildfires with their points of origin on BLM surface across this area. This analysis is based on how each alternative is projected to affect opportunities for ignition, vegetation and fuel distribution as well as fire management.

Management actions which increase opportunities for ignition are expected to result in increased fire frequency and burned acreage. Literature suggests that fire size and numbers are positively correlated with increasing human access and activity (Cardille 2001, Main 1974, Harrington 1978). This analysis assumes that management actions which increase the numbers and distribution of developments and people across the landscape will increase the opportunities for ignition. Consistent with this assumption, alternatives that close routes and restrict surface disturbance will be considered to reduce opportunities for ignition. Prescribed fire defined as any fire intentionally ignited by management actions in accordance with applicable laws, policies, and regulations to meet specific objectives is another source of human-caused fire across the landscape. Approximately 1% of the prescribed fires before 2005 in the U.S. resulted in near misses or escapes (Dether 2005), so while it is rare, prescribed fire can lead to increased acres burned through wildfire. Consequently, alternatives that restrict prescribed fire will be expected to reduce opportunities for ignition, and the associated burned acreage, although to a small degree.

Vegetation and fuel distribution influences burned acreage. Fuel breaks and vegetation treatments which thin or change the type of vegetation are used to modify fire behavior and help reinforce defensible locations. These treatments are used to facilitate indirect firefighting tactics such as backfiring, and ultimately reduce fire size (Finney 2001). Accordingly, alternatives that encourage fuel treatments will be considered to reduce burned acreage over the short term. However, because most acres across the West have burned during extreme weather events (which influences fire behavior more so than fuel distribution), fuels treatments might not affect burned acreage over the long term (Reinhart 2008).

Extensive reviews of plant species, fire, and flammability show that some types of vegetation are more likely to ignite and carry a wildfire than other types (FEIS 2015). Flammable annual vegetation—particularly cheatgrass—can increase fire frequency and acreage burned (Zouhar, Bryce 2012; Knapp 1996). While just 3% of the vegetation on BLM surface in Occupied and Unoccupied Habitat is currently mapped as dominated by cheatgrass, activities that contribute to the introduction and spread of cheatgrass in other vegetation types will be considered to indirectly contribute to increased burned acreage, particularly over the long term. As discussed in the Invasive Plants section, alternatives that restrict surface disturbance will be considered to reduce the risk for weed invasion and long-term burned acreage, while alternatives that do not restrict surface disturbance are anticipated to result in

the opposite outcome. Because rehabilitation of burned areas can either increase or reduce the likelihood of invasive plant dominance (Getz 2008; Peppin 2010), rehabilitation actions will not be factored into the analysis of burned acreage or fire frequency.

The amount of land burned by wildfires is further influenced by the BLM fire management capability and strategy. Acreage burned is directly linked to fire management strategy, and a policy of suppressing all fires results in fewer acres burned than a policy aimed at managing fires to achieve habitat objectives, particularly over the short term. While long-term impacts associated with suppression leading to increased fuel loading resulting in an increase in the acreage burned by wildfire, when this would occur cannot be predicted. Firefighter access to fire starts and the presence of fire breaks assist with fire suppression and management. The tie between acreage burned and difficulty of access is supported by at least one study showing an increase in fire size in inaccessible areas (Cardille 2001). Based on this information, alternatives which close and rehabilitate routes, and those which restrict fuels projects are considered to contribute to increased burned acreage. Alternatives that manage to suppress all fires are considered to result in fewer burned acres than alternatives that manage fires to achieve resource objectives over the short term.

Fuels Condition

Fuel loading throughout the BLM surface in Occupied and Unoccupied Habitat will be evaluated based on acreage of BLM surface in Vegetation Condition Classes (VCC) 2 and 3. VCC indicates the amount that current vegetation has departed from the simulated historical vegetation reference conditions. VCC is calculated based on changes to species composition, structural stage, and canopy closure. Three condition classes describe low departure (VCC 1), moderate departure (VCC 2), and high departure (VCC 3). This information is interpreted here as an indicator of potential areas where vegetation communities have not burned at their natural rates or severities. However, it only represents an approximate picture of fuel conditions and imbalances because some vegetation types included in VCC2 and VCC3 do not have excessive fuel loading. Altered VCCs typically indicate increased likelihood of more intense or frequent fires, with associated impacts to BLM fire management resources (LANDFIRE 2009). Vegetation management actions have been recommended by some researchers to reduce VCCs toward baseline conditions (Hood 2007, Hann 2003). These could include fuels treatments, the use of prescribed fire, and some habitat treatments. Fire—both prescribed and wildfire—has the effect of reducing fuels and lowering the VCC as a result. Based on this information, alternatives which encourage fuels treatments, and allow the use of prescribed fire will be interpreted as reducing the VCC over the short and long term. Alternatives that restrict these activities would have the opposite effect.

Alternatives that manage wildfires for resource benefit will be considered to reduce the VCC, while those that call for full suppression will be considered to maintain current VCC in the short term but contribute toward advancing VCC over the long term.

4.8.2. IMPACTS COMMON TO ALL ALTERNATIVES

Amount of Land Burned by Wildfires and Fire Frequency

Over the long term, as climate warms and vegetation successional changes continue to build up fuels, more acreage is likely to burn. Fire frequency is also expected to increase over current conditions.

Fuels Condition

Fuels would be decreased in areas that burn. Vegetation would continue along successional trajectories, increasing in age, woody species dominance and fuel loading until old growth status or a disturbance occurs. The successional process would continue to advance Vegetation Condition Class.

4.8.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Alternative A would continue a similar pattern of fire frequency and acreage burned by wildfire as has occurred over the past several decades. Wildland fire suppression cost would continue at current levels adjusting for inflation.

Amount of Land Burned by Wildfires and Fire Frequency

Approximately 4% of the BLM surface in Occupied and Unoccupied Habitat has burned over the past 30 years, and 9% of the four-mile Non-Habitat Areas. This acreage has occurred under management prescribed by existing and past RMPs. Current plans contain some surface disturbance protections which limit human activity and associated opportunities for ignition. These restrictions cover 61% of the BLM surface in Occupied and Unoccupied Habitat, and 39% of the Non-Habitat Areas. On the other hand, most existing plans do not specify measures to reduce route density, which would limit human access and ignition opportunity. This management setting has resulted in a level of human activity on the landscape such that human caused ignitions have increased the number of fire starts on the landscape. It has also contributed to the current levels of burned area and fire frequency. These levels are anticipated to continue over the short and long term.

The use of prescribed fire is specifically permitted in the following management plans: Canyons of the Ancients, Dominguez-Escalante NCA, Grand Junction, Gunnison Gorge NCA, Gunnison, San Luis Valley, Tres Rios, Moab, Monticello and Uncompahgre. Prescribed fire contributed to a higher likelihood of human caused ignitions in these areas. While the prescribed fire data has not been fully analyzed for the area, if there were any past escapes over the past 30 years, they would have been included as a component of the current burned area acreage. This contributing factor to burned acreage is expected to continue in a similar pattern over the short and long term.

Fuels management activities are encouraged in the following RMP: Canyons of the Ancients NM, Dominguez-Escalante NCA, Grand Junction, Moab, Monticello, and Tres Rios. However, other management units have been carrying out fuels treatment projects without specific management plan direction. These actions have contributed to the current distribution of fuels across the BLM surface in Occupied and Unoccupied Habitat and in Non-Habitat Areas, which has factored into the amount of acres burned. This pattern is projected to continue over the short and long term.

Current fire management direction varies across the management units. Canyons of the Ancients NM, Gunnison Gorge NCA, Gunnison, San Luis, and Uncompahgre Basin RMPs place substantial constraints upon or emphasize suppression of natural fire, at least in portions of the area covered under each plan. Grand Junction, Dominguez-Escalante NCA, Moab, Monticello, and Tres Rios RMPs allow for management of natural fire to achieve resource benefits. Fire management plans have added further detail to this direction, and provided for more use of naturally occurring fire for resource benefit. Firefighter access to implement suppression or other fire management has been facilitated by the current route network. This complex of management approaches and firefighter access has also contributed to current burned area acreage. Little change is anticipated in the future under this alternative within the BLM surface in Occupied and Unoccupied Habitat and in Non-Habitat Areas.

Fuels Condition

VCC 2 is the dominant class across the BLM surface in Occupied and Unoccupied Habitat and in Non-Habitat Areas, with the remainder approximately evenly split between classes 1 and 3. Fuels treatments, as discussed in the preceding section, have contributed to the current VCC distribution. Prescribed fire also discussed above, has been used to reduce fuels in many of the management units. Finally, fire management as outlined above has been a factor in the current VCC status.

As discussed in the vegetation section, successional rates appear to be proceeding more quickly than the rate of wildfire, prescribed fire, fuels and other vegetation

treatments. While it is likely that the distribution of VCCs would remain static over the short term, over the long term, a decrease in VCCI and increases in VCC 2 and VCC 3 would be expected, as percent departure from historic reference conditions increases on BLM surface in both Occupied and Unoccupied Habitat and Non-Habitat Areas.

ALTERNATIVE B

Alternative B would reduce fire frequency but could increase acreage burned by wildfire in comparison to Alternative A on both the BLM surface in Occupied and Unoccupied Habitat and the four-mile Non-Habitat Areas. Wildfire suppression cost would probably be greater than Alternative A because of access difficulties, and the greater cost associated with suppressing large fires.

Amount of Land Burned by Wildfires and Fire Frequency

Alternative B places substantial restrictions on new surface disturbing activities which would limit human activity. These restrictions would cover more of the BLM surface in Occupied and Unoccupied Habitat and the four-mile Non-Habitat Areas than Alternative A. This alternative also requires route density reductions during travel management planning which would further limit human access and activity. In addition, prescribed fire would be prohibited under this alternative in this area. Together, these restrictions would reduce the opportunities for human ignition across the BLM surface in Occupied and Unoccupied Habitat, as well as Non-Habitat Areas, in comparison with Alternative A. Associated reductions to fire frequency and burned acreage from these factors are anticipated.

Alternative B prohibits fuels treatments in the BLM surface in Occupied and Unoccupied Habitat with the exception of areas not exhibiting the characteristics of GUSG habitat. It also prioritizes suppression of all fire on BLM surface in Occupied and Unoccupied Habitat to protect GUSG habitat, immediately after protection of life and property. However, firefighter access to implement fire suppression would be more difficult under a reduced route network with reclaimed routes—also mandated under Alternative B. The outcome of this combination of management actions is most likely longer Initial Attack times, and more situations where fires become difficult to control. This would result in increased acreage burned by wildfire in this area—particularly from natural ignitions—as compared with Alternative A. Within Non-Habitat Areas, management of fire to increase connectivity would also increase the area burned by wildfire as compared with Alternative A.

Fuels Condition

Under Alternative B, fuel treatments on BLM surface in Occupied and Unoccupied Habitat would be prohibited and prescribed fire would not be allowed. In addition, aggressive fire suppression would be pursued, although other management actions would reduce its effectiveness. These factors would combine across this area to increase the percent departure from historic reference conditions in comparison to Alternative A, resulting in more acres in VCC 2 and VCC 3. Within Non-Habitat Areas, management of fire to increase connectivity would reduce acreage in VCC 2 and VCC 3 as compared with Alternative A.

ALTERNATIVE C

Alternative C would reduce fire frequency in comparison with Alternative A, but could increase acreage burned by wildfire in comparison to Alternative A. Wildfire suppression cost would probably be greater than Alternative A because of more access difficulties, and the greater cost associated with managing more wildfires for resource benefit. However costs are projected to be less than Alternative B which would have substantially less access, no fuels reduction projects, and more opportunities for wildfire to reach large and costly sizes.

Amount of Land Burned by Wildfires and Fire Frequency

Alternative C limits surface disturbance, and associated human activities on more of the BLM surface in Occupied and Unoccupied Habitat than Alternative A, but less than Alternative B. Alternative C also specifies consideration of route density reductions during travel management planning. These actions could result in reduced human access and associated opportunities for accidental ignition in comparison with Alternative A, resulting in associated reductions in burned area acreage and fire frequency. However, surface disturbance restrictions and route density reduction would be to a lesser extent than Alternative B, resulting in greater ignition opportunities, and more associated fire. This alternative places more restrictions on the use of prescribed fire than Alternative A, with reduced likelihood of escape and a lesser increase in burned area and fire frequency.

Alternative C allows fuels treatments with some design restriction to benefit GUSG across the BLM surface in Occupied and Unoccupied Habitat. It also encourages wildfire management for benefit of GUSG. However, firefighter access to implement fire management activities would be more difficult under a reduced route network with reclaimed routes, which is also included as part of Alternative C. The outcome of this combination of management actions could be longer fire size-up and planning times than Alternative A, and more acreage burned by wildfire. More acreage is projected to be burned under this alternative than under Alternative B as well. The increase in acreage would primarily result from more fuels treatments

which would increase wildfire manageability, and allow for more wildfire incidents to be used to achieve GUSG benefits.

Impacts to acreage burned and fire frequency within Non-Habitat Areas would be similar to Alternative A.

Fuels Condition

Under Alternative C, fuel treatments would be allowed with some restrictions across the BLM surface in Occupied and Unoccupied Habitat, and prescribed fire would also be allowed. In addition, wildfire would be used to achieve GUSG habitat objectives in some vegetation types. These factors would combine to reduce VCC class over both the short and long term as compared with Alternative A and B. More acres would fall into VCC 1 and fewer acres would be in VCC2 and VCC 3 as a result.

Impacts to fuel loading within Non-Habitat Areas would be similar to Alternative A.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Sub-Alternative D₁ would reduce fire frequency in comparison with Alternative A but could increase acreage burned by wildfire in comparison to Alternative A. Wildfire suppression cost would probably be greater than Alternative A because of more access difficulties, and the greater cost associated with managing more wildfires for resource benefit. Costs are projected to be generally similar but less than Alternative C because of similar access, fuels treatment, and wildfire use for resource benefit with the exception of wildfire management in Occupied Habitat.

Amount of Land Burned by Wildfires and Fire Frequency

Sub-Alternative D₁ allows for surface disturbance under 0.25 acre within the Gunnison Basin population area. This represents a decrease in areas at higher risk of ignition and associated increase in fire due to human activities, as compared with Alternative A. Sub-Alternative D₁ would leave more area than alternatives B and C open to surface disturbance, human activities, and associated impacts to fire. Sub-Alternative D₁ proposes no route reduction measures with similar impacts as Alternative A to human access and associated fire. This alternative treats prescribed fire the same as Alternative C with the same expected results to acreage burned by wildfire and fire frequency.

Sub-Alternative D₁ provides the same management actions as Alternative C for fuels treatment and wildfire management within Unoccupied Habitat for the Gunnison Basin population area, with the same anticipated impacts to acreage burned by wildfire. However, it treats wildfire management in Occupied Habitat similar to Alternative B. Higher route densities, fewer reclaimed routes and the presence of

fuels treatments under this alternative would improve firefighter access and fire manageability for more effective suppression than Alternative B, resulting in less acres of Occupied Habitat burned by wildfire. Because wildfire would not be used to achieve resource objectives in Occupied Habitat, Sub-Alternative D₁ would most likely result in fewer acres burned by wildfire than Alternative A within Occupied Habitat.

Impacts to acreage burned and fire frequency within Non-Habitat Areas would be similar to Alternative A.

Fuels Condition

Sub-Alternative D₁ contains the same fuels treatment and prescribed fire measures as Alternative C. While it also has similar measures for use of wildland fire to achieve GUSG habitat objectives in Unoccupied Habitat, it calls for fire suppression within Occupied Habitat. These factors would combine to produce similar results as Alternative C for VCC status in Unoccupied Habitat, but would result in less reduction of VCC in Occupied Habitat. Because of the additional restrictions placed on prescribed fire use and fuels treatments, VCC would be reduced less than under Alternative A. However, it would be reduced more than under Alternative B which prohibits prescribed fire and fuels treatments in habitat areas.

Impacts to fuel loading within the Non-Habitat Areas would be similar to Alternative A.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Sub-Alternative D₂ would reduce fire frequency in comparison with Alternative A but could increase acreage burned by wildfire. Wildfire suppression cost would probably be greater than Alternative A because of more access difficulties, and the greater cost associated with managing more wildfires for resource benefit. Costs are projected to be generally similar but less than Alternative C because of similar access, fuels treatment, and wildfire use for resource benefit with the exception of wildfire management in Occupied Habitat.

Amount of Land Burned by Wildfires and Fire Frequency

Sub-Alternative D₂ places similar surface disturbance constraints and route reduction actions on satellite population areas as Alternative C, and similar measures for prescribed burns in Unoccupied Habitat. The identical impacts to human access and activity, acreage burned by wildfire and fire frequency would be expected in Unoccupied Habitat. Limitations on prescribed fire within Occupied Habitat under Sub-Alternative D₂ are not expected to change the escape fire

possibility at a detectable level, so acreage burned by wildfire and fire frequency in this alternative would also be similar to Alternative C.

Sub-Alternative D₂ provides the same management actions as Alternative C for fuels treatment and wildfire management within Unoccupied Habitat for the satellite population areas, with the same anticipated impacts to acreage burned by wildfire. However it treats wildfire management in Occupied Habitat similar to Alternative B. Higher route densities, fewer reclaimed routes and the presence of fuels treatments under this alternative would improve firefighter access and fire manageability for more effective suppression than Alternative B, resulting in less acres of Occupied Habitat burned by wildfire. Because wildfire would not be used to achieve resource objectives in Occupied Habitat, Sub-Alternative D₂ would most likely result in fewer acres burned by wildfire than Alternative A within Occupied Habitat.

Impacts to acreage burned and fire frequency within the Non-Habitat Areas would be similar to Alternative A.

Fuels Condition

Sub-Alternative D₂ contains the same fuels treatment, fire management and prescribed burning measures as Alternative C in Unoccupied Habitat, but restricts the use of wildfire for resource benefit and prescribed fire is limited to the burning of slash piles in Occupied Habitat. These factors would combine to produce similar results for VCC status as Alternative C in the satellite population area in Unoccupied Habitat. However in Occupied Habitat the management actions would result in less reduction of VCC. Because of the additional restrictions placed on prescribed fire use and fuels treatments, VCC would be reduced less than under Alternative A. However, it would be reduced more than under Alternative B, which prohibits prescribed fire and fuels treatments in habitat areas.

Impacts to fuel loading within Non-Habitat Areas would be similar to Alternative A.

4.8.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely to continue to affect wildland fire ecology and management are the creation of wildland-urban interface areas, creation of recreation areas, fuels treatments, habitat treatments, and livestock grazing.

Past and present management actions and natural events within the cumulative impact analysis area have altered the condition of vegetation and natural fire regimes across the landscape. These include fire suppression, vegetation treatments, grazing,

noxious and invasive weed spread, drought, and insect and disease outbreaks. In some cases, areas have become more prone to large intense fires.

Urban development and recreational activities in the cumulative impact analysis area are expected to increase over the life of the plan amendment, creating additional potential ignition sources and the probability of wildfire occurrence. Of these two factors, urbanization, especially the expansion of residential areas, is expected to be the larger contributor on cumulative wildland fire impacts. Additional wildland-urban interface would increase the need for hazardous fuels projects to reduce the risk of wildfires burning from BLM-administered land into residential areas. Increased wildland-urban interface can also increase costs associated with suppression and is more dangerous to firefighters and the public. Additional fire suppression resources could be needed, including federal, state, and local agency resources.

Changing land use patterns and increased recreation and visitation would also result in the modification of vegetation communities; both trends present new vectors for the introduction of noxious weeds and nonnative vegetation species lacking adequate vegetative cover. These introduced species could eventually alter the fire regime of certain areas and potentially increase the frequency, size, and intensity of wildfires.

Prioritization of fuels treatments and suppression in GUSG Habitat could cumulatively affect areas inside and outside of the cumulative impacts analysis area by placing a lower priority on non-GUSG habitat areas. This prioritization could cause more fires in areas outside of Occupied Habitat and Unoccupied Habitat due to fewer fuels treatments and suppression efforts.

Cumulative impacts on wildland fire ecology and management are expected to be the greatest under Alternative B, because the BLM would place the most restrictions on fire management in the most areas. Management under Alternative A would result in the fewest cumulative impacts on fire management because it would place the fewest restrictions on that program in the fewest areas. Under Alternative C and sub-alternatives D₁ and D₂, the BLM would place more restrictions on fire management across a larger area than Alternative A, but fewer than under Alternative B.

4.9. LIVESTOCK GRAZING

4.9.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

- Active permitted forage (expressed as Animal Unit Months or AUMs)
- Acres within active livestock grazing allotments
- Acres of BLM lands achieving Land Health Ecological Fundamental, and acres not achieving this fundamental with livestock grazing a significant factor
- Acres of area where there are prohibitions on or limitations to the construction or maintenance of structural and nonstructural range improvements.

ASSUMPTIONS

The BLM will continue to bring grazing allotments and their management into compliance with BLM Colorado and Utah Public Land Health Standards.

Many range improvements (e.g., water wells, troughs, catchments, and reservoirs) result in a localized loss of vegetation cover due to livestock concentrating around them.

Range improvements generally lead to improved livestock distribution and vegetation management, which in turn could support long-term vegetation objectives without changes to permitted AUMs or season of use. Loss of the ability to develop, maintain, and use range improvements would result in loss of livestock distribution capabilities, which could decrease the ability to manage the rangelands

Implementation of particular livestock grazing management actions may affect permittees by increasing their operational cost through more intensive livestock management, season-of-use changes, class of livestock changes, modified grazing systems, or decreased AUMs.

All classes of livestock depend on the herbaceous component of a shrub/grass plant community. Some livestock also utilize shrubs, which can be an important forage component during some seasons.

Increases in shrubs or pinyon and juniper are generally adverse to forage production; increases in perennial grasses and forbs are generally beneficial to forage production.

Vegetation treatments, such as prescribed burns or weed control, can enhance the plant community composition and forage availability.

Overutilization can adversely affect plant composition and ground cover.

Water can improve livestock distribution, and areas without available water will have less use than areas with water. Areas very close to water will often have overuse.

Fences are an important tool used to control areas, timing, and intensity of livestock use, and are generally needed to confine grazing to within allotments, particularly where cattle and horses are grazed.

Rates of suburban and rural development will continue, reducing private ranchland and BLM grazing allotments in some cases.

METHODS AND DATA

Permitted Forage

Active permitted Animal Unit Months (AUMs) are estimated for BLM surface in Occupied and Unoccupied Habitat. These estimates are based on the BLM's Range Administration Database and an updated GIS layer of allotment boundaries, supplemented with information from the range staff of BLM field offices in the planning area.

This analysis compares permitted AUM availability between the different alternatives because of its importance to livestock grazers. Management actions closing areas to grazing would directly eliminate AUMs. Actions reducing AUMs or constraining their availability through permit terms and conditions would directly reduce permitted AUMs.

Other management actions also influence forage availability, but with indirect impacts to permitted AUMs. Alternatives encouraging vegetation treatments or providing for the use of wildfire in shrub or tree-dominated vegetation, including follow-up grazing management, are projected to improve range condition and increase forage production and available AUMs (DeBano 1989). Alternatives preventing treatments or suppressing wildfire will be considered to reduce forage availability. Because range improvements can improve livestock distribution and result in better forage utilization, alternatives which prohibit or limit their construction will be considered to indirectly reduce AUMs over both the short and long term.

Designation or development of BLM surface for other land uses could reduce forage availability and permitted AUMs. Management actions designating Special Recreation

Management Areas or allowing for surface occupancy for mineral development are projected to reduce permitted AUMs.

Acres within Active Livestock Grazing Allotments

The alternatives are also analyzed for impacts to the total area permitted for livestock grazing. Management actions with impacts to this indicator are limited to those which close allotments, remove entire allotments or remove portions of allotments from grazing use.

Land Health Ecological Fundamental Status

The Land Health Ecological Fundamental is used here as an indicator of native range condition. Lands not achieving the Ecological Fundamental are considered to be in poor native range condition. This indicator is less effective for indicating condition on ranges with nonnative seedlings, but these make up less than 12% of the decision area.

This analysis also considers areas that are not achieving the Ecological Fundamental with livestock grazing a significant factor. BLM requires that grazing management be adjusted within a year to improve conditions on lands in this category. To this end, the BLM has developed livestock grazing guidelines that are consistent with achieving the Land Health Fundamentals (BLM 2008, 2011e). These include generalized guidelines for appropriate utilization levels, rest, recovery, and completion of lifecycle stages for palatable plants. While current management is subject to this requirement, not all grazing permits and allotment management plans have incorporated these guidelines yet. Therefore, in this analysis, current management is projected to maintain poor range condition where livestock grazing is a significant factor over the short term, and improve it over the long term. Alternatives that incorporate the livestock grazing guidelines or similar range management guidance into grazing permits and grazing management plans will be considered consistent with improving range condition where livestock grazing is a significant factor. This would apply over both the short and long term. Alternatives that remove or close lands in this category to grazing are projected to have the same effect on range condition.

Livestock operators who graze on BLM typically have private land pastures or hayfields as well. In many cases, these private lands also provide GUSG habitat. Over the course of a year, they must balance their livestock forage needs across these different sources. If forage from one source is reduced, other sources must make up the difference in order to maintain their herd. This could be done through increasing stocking rates on non-BLM pastures, which could reduce range condition in these pastures in some cases (Holechek 1989). Based on this, alternatives which reduce or eliminate permitted AUMs from BLM land will be interpreted as

potentially indirectly reducing range condition on non-BLM pastures. Alternatives which do not reduce AUMs will be considered neutral to non-BLM pasture condition.

Constraints on Range Improvements

This analysis is based on acres of area where there are land use plan-level prohibitions on or limitations to the construction or maintenance of structural range improvements. The indicator is used to address cost and complexity of range management. This information is based on the existing land use plans supplemented by a survey of BLM field offices range staff.

Uneven livestock distribution—which is a major challenge in the mountain and desert west—can reduce range condition in some areas, and fail to utilize forage in other areas of an allotment. Well-distributed water sources and fences are important tools to achieve more uniform livestock distribution (Holechek 1989). Therefore, limitations on construction of fences, water sources, and other structural range improvements can increase the cost and complexity of achieving full use of the allotment and its permitted AUMs. Alternatives which prohibit or limit construction of range improvements will be considered to reduce livestock management options more than alternatives which place lesser constraints on their construction. Furthermore, because infrastructure and its maintenance can be costly, alternatives which require redesign, increased maintenance or upgrading of range improvements will be considered to increase the cost and complexity of range management more than alternatives that do not include such constraints.

Grazing Systems

This indicator is also used to evaluate impacts to the cost and complexity of range management, and is based on the acreage of different types of grazing systems on BLM lands. This information has been provided by BLM field offices range staff.

Grazing systems are used to improve livestock distribution and the condition of important forage species (Holechek 1989). As discussed in Chapter 3 and in the Range Improvements section above, higher management systems are likely to be more costly and complex to administer than lower management systems. As a result, alternatives which require implementation of higher management grazing systems will be considered to make range management more costly and complex than alternatives that do not have similar requirements.

4.9.2. IMPACTS COMMON TO ALL ALTERNATIVES

Permitted Forage

Wildlife would continue to graze and browse, reducing the available AUMs across the BLM surface in Occupied and Unoccupied Habitat. Fires, drought, insect outbreaks and similar natural phenomena would also affect the availability of AUMs. Natural vegetation succession would move the vegetation in many areas toward dominance by woody species and reduced forage production. This would reduce AUMs, particularly over the long term.

Land Health Ecological Fundamental Status

Wildlife impacts, fires, drought, insect outbreaks and similar natural phenomena would affect land health indicators and could impact the Ecological Fundamental Status.

4.9.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Permitted Forage

Permitted forage currently exceeds 36,000 AUMs across the BLM surface in Occupied and Unoccupied Habitat and is expected to continue near these levels over the short term. Over the long term, permitted AUMs are likely to decline as management units reduce stocking rates on some allotments to bring them into compliance with Land Health Standards, both on Occupied and Unoccupied Habitat and in the Non-Habitat Areas.

This alternative would place few restrictions on vegetation treatments. The following RMPs encourage vegetation treatments in order to meet habitat objectives: Canyons of the Ancients NM, Dominguez-Escalante NCA, Grand Junction, Gunnison Gorge NCA, Gunnison, McInnis Canyons NCA, Monticello, Moab, San Luis, and Tres Rios. None of the land use plans explicitly prevent vegetation treatments. Treated areas are anticipated to continue to accumulate at current rates approximating 1-3% of the BLM surface in Occupied and Unoccupied Habitat per decade and at a slower rate in Non-Habitat Areas over the short and long term. Forage availability is projected to increase across these areas as a result.

About 12% of BLM surface in Occupied Habitat and 34% in Unoccupied Habitat is currently under some type of planning-level constraint that prevents or complicates development of range infrastructure. This acreage is expected to remain unchanged under Alternative A. The remainder of BLM surface in Occupied and Unoccupied

Habitat currently has fewer restrictions. In these areas, it would be easier to achieve improved livestock distribution and more uniform forage utilization, and therefore indirectly increase forage availability.

Special recreation management areas are expected to increase in number as land use plans are issued or revised. Available forage in these areas is projected to decrease as a result of conflicts between livestock and recreation. Surface protection stipulations currently prevent large-scale development of energy projects across 61% of BLM surface in Occupied and Unoccupied Habitat. If substantial mineral or energy project development were to occur on the remaining 39% open to surface development, then forage availability would be reduced. The amount of land protected from surface disturbance is expected to increase with new and revised land use plans for BLM surface in Occupied and Unoccupied Habitat and the Non-Habitat Areas.

Acres within Active Livestock Grazing Allotments

Nearly 580,000 acres of BLM surface in Occupied and Unoccupied Habitat and 67,000 acres within the Non-Habitat Areas fall within active livestock grazing allotments. This acreage is expected to decline over the short term as new and revised RMPs eliminate some allotments. Similar long-term declines are anticipated as continued population growth and development cause additional allotments to become impractical to graze.

Land Health Ecological Fundamental Status

As previously discussed in the vegetation section, Alternative A constrains surface disturbance on 61% of BLM surface in Occupied and Unoccupied Habitat and 42% within the Non-Habitat Areas, with no anticipated impacts to the current Ecological Fundamental status in these areas. On the remaining 41% of unprotected surface and 60% of the Non-Habitat Areas, existing status is expected to be maintained over the short term. But over the long term, lands not achieving the Ecological Fundamental are projected to increase within the unconstrained area.

Livestock grazing is anticipated to continue on over 90% of BLM surface in Occupied and Unoccupied Habitat and within 56% of the Non-Habitat Areas. It is not expected to influence existing Land Health status for the short term. Over the long term, ratings are expected to improve on acreages currently not achieving the Ecological Fundamental where livestock grazing is a significant factor, and in some areas where significant factors have not been identified yet. Conditions are expected to improve on between 37,000 and 258,000 acres on BLM surface in Occupied and Unoccupied Habitat and between 13,000 and 23,000 acres within the Non-Habitat Areas.

Current conditions on non-BLM pastures would be expected to continue over the short term. Over the long term, conditions could decline if ranchers were to increase stocking rates to adjust for stocking rate reductions on BLM lands. Such reductions are projected to occur in some allotments not achieving the Ecological Fundamental with livestock grazing a significant factor.

Constraints on Range Improvements

About 12% of BLM surface in Occupied Habitat and 34% of Unoccupied Habitat is currently under some type of planning-level constraint which prevents or complicates development of range infrastructure, increasing the cost and complexity of range management. This acreage would be expected to remain unchanged under Alternative A. The remaining BLM surface in Occupied and Unoccupied Habitat currently has fewer restrictions.

Maintenance of existing range developments is subject to general timing constraints to protect wildlife or soils in most land use plans. The extent and scope of these constraints would be expected to increase over the short term as new land use plans and RMP revisions are issued. These constraints would add to the cost and complexity of range management for BLM surface in Occupied and Unoccupied Habitat and in Non-Habitat Areas.

Grazing Systems

Grazing systems would be expected to continue approximately as they are currently—with the majority of allotments and acreage on BLM surface in Occupied and Unoccupied Habitat in some type of higher level management system. This higher level of management is associated with greater cost and complexity than lower levels of management. The cost and complexity would be amplified as range project maintenance is increasingly constrained.

ALTERNATIVE B

Permitted Forage

Under Alternative B, all BLM surface in GUSG habitat would be closed to livestock grazing. In contrast to Alternative A, there would be no permitted AUMs over the short or long term as a result. Indirect impacts to forage availability from vegetation treatments, development of range infrastructure, and conflicts with recreation or mineral development would be irrelevant for livestock grazing. Forage reductions from surface-disturbing activities in the Non-Habitat Areas would be less than under Alternative A.

Acres within Active Livestock Grazing Allotments

With the closure of BLM surface in Occupied and Unoccupied Habitat to livestock grazing, there would no longer be any active allotments, as compared with Alternative A. Impacts to allotted acreage in Non-Habitat Areas would be similar to Alternative A.

Land Health Ecological Fundamental Status

With the elimination of livestock grazing, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor would improve over the short and long term. This acreage would be expected to be between 37,000 and 258,000 acres. Alternative B would achieve the same results more quickly than Alternative A.

Range conditions on non-BLM pastures would be expected to decline over the short and long term as a result of ranchers either increasing stocking rates to adjust for loss of grazing on BLM lands, or converting private lands to more impactful land uses that result in reduced range conditions.

Impacts to land health in Non-Habitat Areas would be similar to those under Alternative A.

Constraints on Range Improvements

Under Alternative B, range improvements would not be needed or allowed in Occupied and Unoccupied Habitat. Within the Non-Habitat Areas, requirements for water developments to comply with West Nile virus minimization measures would add additional costs and complexity to livestock management on BLM lands compared with Alternative A.

Grazing Systems

With closure to livestock, systems for managing grazing would no longer be needed on BLM lands in Occupied and Unoccupied Habitat. Within the Non-Habitat Areas, impacts to grazing systems would be similar to those under Alternative A.

ALTERNATIVE C

Permitted Forage

Alternative C would maintain livestock grazing across much of BLM surface in Occupied and Unoccupied Habitat, but could reduce AUMs in allotments not meeting RCP guidelines or where livestock disrupt GUSG. In addition, the alternative includes an objective that would prioritize expedient action to improve these areas, requiring a short-term reduction of AUMs in contrast to Alternative A. The objective specifies the inclusion of RCP habitat indicators into grazing

management adjustments that would likely result in more of a reduction over the long term than Alternative A. Under Alternative C, grazing permits would be subject to consistent, specific evaluation for GUSG habitat indicators, which is not the case under Alternative A. Forage reductions would be less than under Alternative B.

Vegetation treatments would be emphasized under Alternative C. While not possible to predict the amount of increase over current levels, over 3% of BLM surface in Occupied and Unoccupied Habitat per decade would have more available forage, an increase over forage levels under alternatives A or B.

Alternative C would place constraints on development of new range infrastructure in Occupied and Unoccupied Habitat. New developments would be required to conserve, enhance, or restore Occupied Habitat, and would not be allowed to degrade Unoccupied Habitat. Available forage could increase where such developments are constructed. Because of the constraints, fewer developments and a greater increase in forage availability would be expected in comparison to Alternative A.

Under this alternative, special recreation management areas not in conflict with GUSG would be allowed within Occupied Habitat and would be allowed without restriction within Unoccupied Habitat. Forage availability could be reduced as a result of recreation and livestock conflicts, though the reduction would be less than under Alternative A.

Because of proposed ROW avoidance and mineral leasing NSO stipulations, Alternative C would place a portion of BLM surface in Occupied and Unoccupied Habitat under surface disturbance restrictions, more than under Alternative A, but less than under Alternative B. This alternative would prevent loss of forage to large-scale mining or energy development across more area than Alternative A over both the short and long term.

Within the Non-Habitat Areas, impacts to permitted forage would be similar to those under Alternative A.

Acres within Active Livestock Grazing Allotments

Because Alternative C allows for the potential closure of voluntarily relinquished allotments, the acreage of allotments is projected to be less than under Alternative A, but greater than under Alternative B. Within Non-Habitat Areas, the impacts to allotted acreage would be similar to Alternative A.

Land Health Ecological Fundamental Status

Because of proposed ROW avoidance and mineral leasing NSO stipulations, Alternative C would constrain surface-disturbing activities on a portion of BLM

surface in Occupied and Unoccupied Habitat to a greater extent than Alternative A, but less than Alternative B. Similar to alternatives A and B, conditions over the short term would probably not change as a result of surface disturbance. However, over the long term, conditions under Alternative C would be subject to decline from accumulating surface disturbance across portions of BLM surface in Occupied and Unoccupied Habitat.

Alternative C maintains livestock grazing across BLM surface in Occupied and Unoccupied Habitat using appropriate grazing practices to meet GUSG RCP habitat requirements. As a result, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor is projected to improve within ten years, similar to Alternative B. This acreage is expected to be between 37,000 and 258,000 acres. The improvement in Land Health status would occur more rapidly than under Alternative A, and would be sustained into the future.

Under Alternative C, conditions on non-BLM pastures could decline over the short and long term if ranchers were to increase stocking rates on private pastures to adjust for stocking rate reductions on BLM lands. Such reductions could occur in BLM allotments not achieving the Ecological Fundamental with livestock grazing as a significant factor. The decline would be greater than under Alternative A, but less than under Alternative B.

Within Non-Habitat Areas, impacts to range conditions and land health would be similar to those under Alternative A.

Constraints on Range Improvements

Alternative C would place constraints on the development of new range infrastructure in Occupied and Unoccupied Habitat. New developments would be required to conserve, enhance, or restore Occupied Habitat, and would not be allowed to degrade Unoccupied Habitat, increasing the cost and complexity of range management. Furthermore, Alternative C includes maintenance requirements that would add additional cost over both the short and long term. These constraints are greater than under Alternative A, but less than under Alternative B (which prevents grazing altogether). Within Non-Habitat Areas, constraints on range project development and maintenance would be similar to those under Alternative A.

Grazing Systems

Alternative C requires managing allotments through livestock distribution, stocking rates, and seasonal use considerations when RCP habitat guidelines are not being met or when livestock disrupt GUSG. This would likely require switching to higher management level grazing systems in some instances. Such a switch would represent an increase over Alternative A. Because range project development and maintenance is more heavily constrained under Alternative C, the overall cost and

complexity of implementing higher management level grazing systems would exceed alternatives A and B. Within Non-Habitat Areas, grazing systems would be managed similar to Alternative A, with the same level of associated cost and complexity.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Permitted Forage

Sub-Alternative D₁ is similar to Alternative C in that it maintains livestock grazing across much of the Gunnison Basin population area, and could reduce AUMs in allotments which do not meet RCP guidelines. While slightly less strict than Alternative C in terms of timing and approach, the short and long term outcomes to permitted AUMs would be similar.

Sub-Alternative D₁ proposes the same vegetation treatment approach as Alternative C, with the same outcome to forage availability. This alternative places constraints on development of new range infrastructure across the BLM surface in the Gunnison Basin population area, but to a lesser degree than Alternative C, with associated increases in available forage

Special Recreation Management Areas have been identified for future development under this alternative, which is more than would likely occur under Alternative C. These SRMAs could reduce forage availability as a result of recreation and livestock conflicts. This reduction in available forage would be less than under Alternative A, but more than Alternative C.

Sub-Alternative D₁ places restrictions on some types of surface-disturbing activities, but allows others to occur with mitigation to protect GUSG and their habitat. A portion of the BLM surface within the Gunnison Basin Population is covered by these partial restrictions. This portion would be greater than in Alternative A, but less than Alternatives B and C. As a result, this alternative would prevent loss of forage to large scale mining or energy development across more area than Alternative A, but less than Alternative C.

Within Non-Habitat Areas, impacts to permitted forage would be similar to Alternative A.

Acres within Active Livestock Grazing Allotments

Sub-Alternative D₁ is similar to Alternative C and would have the same impacts to acreage of active grazing allotments. Within Non-Habitat Areas, impacts to allotted acreage would be similar to Alternative A.

Land Health Ecological Fundamental Status

Sub-Alternative D₁ constrains surface disturbing activities on a portion of the Gunnison Basin Population, an increase in comparison to Alternative A, but a decrease compared with alternatives B and C. Over the short term, land health and conditions would probably not change as a result of surface disturbance, similar to alternatives A, B, and C. However, over the long term, conditions under Sub-Alternative D₁ would be subject to decline from accumulating surface disturbance across a portion of the Gunnison Basin population area.

Sub-Alternative D₁ maintains livestock grazing across the Gunnison Basin population area using a strategy designed to achieve RCP guidelines. As a result, the status of lands not achieving the Ecological Fundamental where livestock grazing is a significant factor is projected to improve within ten years, similar to alternatives B and C. Because causal determinations for land health status have not yet been documented within the Gunnison Basin, this acreage could be anywhere between 0 and 211,000 acres. Similar to alternatives B and C, this improvement in Land Health status would occur more rapidly than under Alternative A and would be sustained into the future.

Conditions on non-BLM pastures would be expected to be similar to those under Alternative C, since both alternatives could reduce stocking rates in some allotments on BLM lands.

Within the Non-Habitat Areas, impacts to range condition and land health would be similar to those under Alternative A.

Constraints on Range Improvements

Sub-Alternative D₁ places constraints on development of new range infrastructure across the BLM land in the Gunnison Basin population area, but to a lesser degree than Alternative C. While the cost and complexity of range management is expected to be greater than under Alternative A, it would not rise as much as under Alternative C. Within the Non-Habitat Areas, constraints on range project development and maintenance would be similar to Alternative A.

Grazing Systems

This alternative requires similar grazing management measures as Alternative C, but to a lesser extent. As a result, fewer allotments would require switching to higher management level grazing systems. While this switch represents an increase in range management cost and complexity over Alternative A, it is less than Alternative C. Similarly, this alternative contains constraints on range project development and maintenance that are more restrictive than Alternative A, but less than Alternative C. While this would further increase the cost and complexity of implementing higher management level grazing systems in comparison to Alternative A, the

increases would be less than under Alternative C. Within Non-Habitat Areas, grazing systems would be managed similar to Alternative A, with the same level of associated cost and complexity.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Permitted Forage

Sub-Alternative D₂ is similar to Alternative C and would result in the same level of AUM reduction as Alternative C. This alternative proposes the same vegetation treatment approach as Alternative C, with the same outcome to forage availability. Sub-Alternative D₂ places the same constraints on development of new range as Alternative C, with associated increases in available forage. Alternative C also contains the same SRMA and surface disturbance restrictions, with the same outcomes for forage availability.

Within the Non-Habitat Areas, impacts to permitted forage would be similar to Alternative A.

Acres within Active Livestock Grazing Allotments

This alternative is identical to Alternative C and would have the same impacts to acreage of active grazing allotments. Within the Non-Habitat Areas, impacts to allotted acreage would be similar to Alternative A.

Land Health Ecological Fundamental Status

Sub-Alternative D₂ shares the same constraints as Alternative C across the satellite populations. Over the short term, land health conditions across this area would probably not change as a result of surface disturbance, similar to alternatives A, B and C. Over the long term, conditions under Sub-Alternative D₂ would be subject to decline from accumulating surface disturbance across a portion of the satellite populations.

Sub-Alternative D₂ maintains livestock grazing across the satellite populations area using a strategy designed to achieve RCP guidelines. Similar results for the land health Ecological Fundamental are expected for this area as described under Alternative C. Because causal determinations for land health status have not yet been documented within some of the satellite population areas, this acreage could be anywhere between 37,000 and 46,000 acres. Similar to alternatives B and C, the improvement in Land Health status would occur more rapidly than under Alternative A and would also be sustained into the future.

Conditions on non-BLM pastures are expected to be the same as under Alternative C.

Within the Non-Habitat Areas, impacts to range condition and land health would be similar to Alternative A.

Constraints on Range Improvements

Sub-Alternative D₂ places the same constraints on development of new range infrastructure and on range project maintenance as Alternative C with the same impacts to the cost and complexity of range management. Within the Non-Habitat Areas, constraints on range project development and maintenance would be similar to Alternative A.

Grazing Systems

Sub-Alternative D₂ requires the same grazing management, range development and maintenance measures as Alternative C, and would have the same impacts to grazing systems and the cost and complexity of range management. Within the Non-Habitat Areas, grazing systems would be managed similar to Alternative A, with the same level of associated cost and complexity.

4.9.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect range management are wildfires, surface-disturbing activities, the presence and abundance of grazing wildlife, increased recreational demands, and protections for sensitive resources.

Past actions that have affected livestock grazing include human-caused surface disturbances (mineral development, recreation, prescribed burning, mechanical vegetation treatments, WSAAs and historic grazing practices) and wildland fires that have contributed to current ecological conditions.

Cumulative projects that increase human disturbance in grazing areas could also indirectly impact grazing by increasing weeds and invasive species. Weed invasion can reduce preferred livestock and wildlife forage and increase the chance of weeds being dispersed by roaming livestock. Cumulative projects that increase human disturbance in grazing areas could directly impact grazing by displacing, injuring, or killing animals.

Present actions affecting livestock grazing are mainly those that reduce available grazing acreage, restrict management actions or the level of forage production in those areas. Key examples include wildland fires, motorized vehicle use, recreation, habitat restoration, fuels reduction, and special designations that restrict grazing.

Future actions affecting livestock grazing would be similar to present actions, except

under Alternative B, under which the BLM would close BLM surface across the BLM surface in Occupied and Unoccupied Habitat to livestock grazing.

The cumulative impacts under each alternative would parallel the impacts of the alternatives in the general impact analysis, above. In general, management actions in every alternative would result in short- and/or long-term changes in availability of forage due to treatment activities, other surface-disturbing and disruptive activities, human disturbance, special designations, and the presence of grazing wildlife, threatened, or endangered species. Although forage would increase over the long term under Alternative B if grazing were removed, Alternative B would also have the greatest impact on livestock grazing. Under alternatives A and C and sub-alternatives D₁ and D₂, forage would be utilized annually at various levels relative to the protections provided in the four alternatives. Management under Alternative A would contribute the most cumulative effects to range management by allowing the most surface disturbance, which would cumulatively decrease forage availability.

4.10.RECREATION

4.10.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

Indicators of impacts to recreation are as follows:

- Changes in the number of acres where recreationists are unable to achieve targeted beneficial outcomes (specific to SRMAs), and for the BLM to achieve and maintain supporting setting characteristics (specific to SRMAs and some ERMAs).
- Changes in the number of acres where unstructured recreational opportunities and experiences are reduced or eliminated.
- Changes to the number or types of SRPs allowed in GUSG habitat.

ASSUMPTIONS

The analysis uses the following assumptions:

- Recreation would be managed to achieve the objectives of individual Field Offices.
- Recreation objectives would vary based on the age of a Field Office's Land Use Plan.
- Traditional recreation uses within the decision area would continue, and are anticipated to increase as local populations grow.
- Improved facilities, especially recreation trails, are expected to result in increased use.
- Outside of areas where recreation is the management focus, BLM will mostly manage for dispersed recreation activities, where users participate in activities individually or in small groups.
- Conflicts between motorized users and non-motorized recreationists would increase with increasing use, especially in areas that are open to both.
- Outdoor recreation will continue to be an increasingly important component of local economies.
- Demand for recreation permits will remain steady or gradually increase, but will continue to be issued on a discretionary basis.
- Management actions to preserve GUSG habitat would affect a variety of resources and uses, which would improve some recreation opportunities and

experiences, and potentially degrade other recreation opportunities and experiences.

Impacts on recreation can be direct, indirect, or cumulative. Management actions that alter or prohibit a user's opportunities to access recreation areas or participate in recreation activities would result in a direct impact. Indirect impacts are those that change the physical, social, or administrative settings within which recreation activities take place. In areas where management prescriptions are in place to achieve or maintain desired settings, a change to the setting or availability of recreation opportunities would result in an impact.

Physical, social, and administrative settings are not specifically managed for in areas not identified as recreation management areas, although these areas do still provide intrinsic recreation values and opportunities. The indicator typically used to describe the impact on these areas is the availability of opportunities as described by either acreage restrictions or specific activity prohibitions.

For areas managed as Special Recreation Management Areas (SRMAs), both availability of recreation opportunities (activities and desired outcomes) and changes to physical, social, and administrative settings are used as indicators of impacts. This discussion analyzes the impacts that proposed management decisions would have on managing recreation settings and the targeted outcomes. For areas managed as Extensive Recreation Management Areas (ERMAs), both availability of activity opportunities and changes to the qualities and conditions (settings) are used as indicators of impacts. This discussion also analyzes the impacts that proposed management decisions would have on managing recreation and the prescribed setting character. Since visitor use patterns are difficult to estimate and depend on many factors beyond the scope of management (e.g., recreation trends and economy), qualitative language (such as "increase" or "decrease") is generally used unless quantitative visitor use data is available to describe anticipated impacts.

METHODS AND DATA

Literature reviews were conducted relative to individual resource areas, to include studies from a variety of sources and a review of relevant BLM laws, regulations, and policies. Interviews with local field office subject matter experts were also conducted relative to land status, recreation management area classification, permitted uses, etc. for both Occupied Habitat and Unoccupied Habitat. Finally, geospatial data from the BLM and other authorities was used to help analyze conditions and land use allocations within the decision area, including the presence of SRMAs, ERMAs, and non-RMAs.

4.10.2. IMPACTS COMMON TO ALL ALTERNATIVES

Number of acres where recreationists are unable to achieve targeted beneficial outcomes (specific to SRMAs), and for BLM to achieve and maintain supporting setting characteristics (specific to SRMAs and some ERMAs)

All alternatives involve controlling major ground disturbances and disruption to GUSG and their habitat. For RMAs in GUSG habitat, this could result in a loss of recreational opportunities for people desiring more robust infrastructure and management to achieve their recreational pursuits. However, RMAs (or their Recreation Management Zones (RMZs)) that have objectives related to 'solitude' or 'backcountry' that are essentially undeveloped, would continue to be compatible with GUSG conservation measures.

Number of acres where unstructured recreational opportunities and experiences are reduced or eliminated

Recreation would continue to occur in the unstructured (or dispersed) environment. All alternatives involve controlling human disruption, new ground disturbances, and reclamation of existing ground disturbance for the benefit of GUSG and their habitat. Timing limitations, seasonal closures, and other management actions implemented to protect GUSG and their habitat are not expected to result in significant impacts to recreational opportunities in the unstructured environment.

Number or Types of SRPs Allowed in GUSG Habitat

Recreation permits, where allowed, are administered in a manner that is consistent with management objectives determined in RMPs, Recreation Area Management Plans, or in their absence, through recreation management objectives resulting from analysis of resources and visitor use in each area. SRPs will continue to be issued only at the discretion of local offices and will remain subject to the terms, conditions, and stipulations of the permit, which can be changed at any time to meet resource objectives. SRPs under all alternatives would be managed to reduce or eliminate conflicts from SRP activities to GUSG or their habitat.

This could potentially result in a long-term shift in the way that SRPs are managed in the decision area. SRPs most likely to be affected are those that depend on a primitive or backcountry setting, such as for hunting, outdoor education, equestrian-related activities, wilderness therapy, organized motor vehicle events, etc. It also includes other activities that occur during spring and summer, when they would need to avoid GUSG lekking, nesting and brood-rearing periods. Fall Big Game Hunting outfitters may be less affected because there are fewer sensitive concerns

for GUSG during the fall hunting season than for other types of hunting seasons, such as Mountain Lion, Turkey, and Small Game.

4.10.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Number of Acres with Targeted Beneficial Outcomes for Recreationists and Supporting Setting Characteristics

Alternative A would have the least impact to structured, outcomes-focused recreation management related to RMAs within the decision area. Under Alternative A, the BLM would continue to manage recreation uses in RMAs as identified in the existing RMPs. The BLM would not be restricted in establishing new RMAs under appropriate conditions, and current recreational opportunities in the decision area would continue. There would be no new impacts on recreation under Alternative A.

Number of Acres with Unstructured Recreational Opportunities and Experiences

Alternative A would have the least impact to unstructured recreational opportunities and experiences, with no change in current management. Under Alternative A, the BLM would continue to manage recreation uses as identified in the existing RMPs. Current recreational opportunities in the decision area would continue over the long term, and there would be no new impacts on recreation under Alternative A.

Number or Type of SRPs Allowed within GUSG Habitat

Alternative A would have the least impact to recreation and visitor services related to SRPs, with no change in current management. Under Alternative A, the BLM would continue to manage recreation uses as identified in the existing RMPs. The BLM would continue to review and approve recreation permits on a case-by-case basis. Current recreational opportunities in the decision area would continue, and there would be no new impacts on recreation under Alternative A.

ALTERNATIVE B

Number of Acres with Targeted Beneficial Outcomes for Recreationists and Supporting Setting Characteristics

Alternative B, the most restrictive alternative, would have the greatest impact to structured recreation and visitor services. Under Alternative B, the BLM would not

allow new Recreation Management Areas (RMAs) in either Occupied Habitat or Unoccupied Habitat, but would allow recreation uses and activities to occur in both Occupied Habitat and Unoccupied Habitat that do not conflict with the protection and recovery of GUSG and GUSG habitat.

In addition to denying future RMAs, Alternative B would result in a loss of new opportunities for structured, outcomes-focused recreation management (and the benefits associated with targeted recreation opportunities, settings and experiences), and would potentially degrade beneficial outcomes in existing RMAs currently located within GUSG habitat if restrictions were applied to recreation for the benefit of GUSG recovery. There are 66,010 acres of SRMAs in the decision area that could potentially be eliminated under Alternative B, if they were determined to be in conflict with GUSG conservation.

Number of Acres with Unstructured Recreational Opportunities and Experiences

BLM management under Alternative B would contain the most restrictions on unstructured recreational activities, such as for timing and season of use, ground disturbance limitations, and requires the most reclamation of existing disturbance. Alternative B would not allow for new recreation site development and could potentially require the removal of existing recreation sites and infrastructure, if it was determined to negatively impact GUSG and their habitat. There are currently 14 recreation sites in GUSG habitat from trailheads to campgrounds and other recreation sites. Under Alternative B, BLM would seasonally prohibit motorized and non-motorized recreation from March 15 to May 15 in Occupied Habitat, or in Non-Habitat. This would result in temporary reductions in recreational opportunities and would decrease the area available for recreational opportunities such as camping, mountain biking, hiking, and antler shed hunting. Big Game hunting would largely be unaffected because the restrictions (especially seasonal and timing) would not overlap with big game hunting seasons, however some hunting seasons that do overlap with seasonal closures under Alternative B, such as for Mountain Lion and Wild Turkey, would be impacted in some locations. Specific to GUSG, lek viewing sites would not be established and lek viewing would not be promoted.

In addition to restrictions for recreation resources, Alternative B contains the greatest restrictions on all other resource uses as well, such as lands and realty actions, energy development, livestock grazing, etc. Restrictions on these other resource uses could have a beneficial impact to unstructured recreation by reducing the potential for conflict with recreational access and degradation of physical setting characteristics. On the other hand, human entry closures and other area restrictions would deny recreation access and opportunities for part of the year.

Number or Types of SRPs Allowed within GUSG Habitat

Alternative B, would have the greatest and longest-lasting impact to recreation and visitor services related to SRPs, with an emphasis on avoiding new SRPs and eliminating current SRPs in GUSG habitat over time. Under Alternative B, the BLM would not allow new SRPs in either Occupied Habitat or Unoccupied Habitat, and would also deny existing permits from being renewed in both Occupied Habitat and Unoccupied Habitat. In addition to denying future recreational activities and events that are required to be permitted, Alternative B would result in a loss of new opportunities, and also existing opportunities to continue engaging in current permitted activities and events, which would be eliminated in GUSG habitat over time. There are currently 126 SRPs in the decision area, of which 13 are Mountain Lion hunters that could overlap with critical life function periods of GUSG in March, and 9 other permittees in the Gunnison Field Office and 3 other permittees in the Tres Rios Field Office that could potentially overlap critical time periods of GUSG from March to May, based on their permits being year-round (see Table 4.6).

Non-Habitat

Alternative B also provides management actions for Non-Habitat that would further restrict surface-disturbing activities outside of GUSG habitat, and would affect the types of recreational activities and opportunities available within the Non-Habitat Areas. Impacts to SRPs within the Non-Habitat would be similar to those in Occupied and Unoccupied Habitat, with an emphasis on avoiding or eliminating permitted uses that do not have neutral or beneficial effects to GUSG or their habitat.

ALTERNATIVE C

Number of Acres with Targeted Beneficial Outcomes for Recreationists and Supporting Setting Characteristics

BLM management under Alternative C would contain less restriction than Alternative B on structured recreation and visitor services associated with SRMAs and ERMAs, if recreation is compatible with GUSG and their habitat. Recreation in GUSG habitat would not be emphasized if it was determined to be incompatible with GUSG management objectives, and new RMAs would not be designated in either Occupied Habitat or Unoccupied Habitat where a conflict between recreation and GUSG has been identified.

In addition to the possibility of denying future RMAs, Alternative C would result in a loss of new opportunities for structured, outcomes-focused recreation management (and the benefits associated with targeted recreation opportunities, settings and experiences), and would potentially degrade beneficial outcomes in existing RMAs

currently located within GUSG habitat if restrictions were applied to benefit GUSG recovery that would change the fundamental character of an RMA.

Number of Acres with Unstructured Recreational Opportunities and Experiences

BLM management under Alternative C would contain less restriction on unstructured recreational activities than Alternative B, allowing for some development if mitigations can be applied and the development is located in areas outside of habitat that possesses the Primary Constituent Elements of effective GUSG habitat. Seasonal restrictions, such as road closures from March 15 through May 15, would apply if a conflict between recreational activities and GUSG was identified. Spatial restrictions within 0.6 mile of an active lek would also apply to prevent disturbance to GUSG during critical times of the year for them.

Restrictions designed to mitigate disturbance to GUSG and their habitat would be predictable and temporary, resulting in minimal impacts to unstructured recreation opportunities throughout the decision area. Specific to GUSG, lek viewing and lek viewing sites would be coordinated with state agencies as needed.

Number or Types of SRPs Allowed in GUSG Habitat

Impacts on recreation and visitor services under Alternative C would only allow for new or renewed SRPs in Occupied Habitat that could adhere to the criteria for minimizing impacts to GUSG. New or renewed SRPs would only be allowed in Unoccupied Habitat that would have minimal effects on that portion of habitat that currently exhibits, or has the potential to exhibit the Primary Constituent Elements (PCEs) of GUSG habitat. Under Alternative C, for both Occupied Habitat and Unoccupied Habitat, BLM would attempt to transfer currently permitted uses to other areas outside of GUSG habitat, where possible and when and where it would benefit GUSG conservation most. Similar to Alternative B, restrictions on future recreational activities and events that are required to be permitted, under Alternative C would result in a loss of opportunities to continue engaging in current activities and events if they are found to have adverse effects on GUSG habitat.

Implementing conservation measures, establishing seasonal restrictions, and relocating activities subject to SRPs, and other measures designed to reduce seasonal disturbances to GUSG and their habitat, would likely result in limited impacts on recreation because activities would not be prohibited, due in large part to the type and season of current SRPs in the decision area. However, if mitigations aimed at protecting GUSG and their habitat were ineffective, the BLM may implement seasonal closures of roads and areas, which would limit recreation opportunities in a more general way.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Number of Acres with Targeted Beneficial Outcomes for Recreationists and Supporting Setting Characteristics

Under Sub-Alternative D₁, the Preferred Alternative for Gunnison Basin Occupied Habitat, management actions related to GUSG habitat would default to the interagency Candidate Conservation Agreement (CCA) to protect and enhance the recovery of the GUSG in its core range and habitat. Numerous considerations related to the goal of protecting and enhancing GUSG and their habitat have already been extensively analyzed for the Gunnison Basin, including the protocol for managing existing RMAs or establishing new RMAs.

In Occupied Habitat in the Gunnison Basin, three Urban Interface Recreation Areas have been identified in the CCA, Appendix B (Hartman Rocks, Signal Peak, and Van Tuyl Ranch). The intent of that section is to outline the preferred locations for current, concentrated recreation at the urban interface, and to outline long-term planning for recreation expansion to balance the needs of a growing population and the need to maintain GUSG habitat. A guiding strategy of the CCA Recreation Team has been to balance GUSG and recreation via the concentration of use in preferred areas.

The three areas are generally in close proximity to the City of Gunnison and, especially in the case of Hartman Rocks, capture the vast majority of recreationists in GUSG habitat in the Basin. Although GUSG conservation measures will still be observed in each of these areas, such as seasonal closures to minimize disturbance to leks, the off-site mitigation standards outlined in sections 4.3, 4.4, 5.2, and 5.3 of the CCA would not be required in these areas to compensate for new route and facility development. For efficiency, route reclamation efforts would be best-suited to areas at a greater distance from the urban interface. For each of the areas, a minimum set of GUSG conservation measures is outlined.

Number of Acres with Unstructured Recreational Opportunities and Experiences

Under Sub-Alternative D₁, management actions related to Occupied Habitat would default to the CCA regarding the conditions under which small-scale recreational infrastructure may be developed, and whether or not lek-viewing sites may need to be established through coordination with state agencies, and other factors. (See Chapter 2, Recreation, Alternative D, for specifics pertaining to the CCA.) Similar to aspects of alternatives A through C, in the Gunnison Basin, current recreational opportunities in the decision area would continue, and there would be no new or significant impacts on recreation under Sub-Alternative D₁.

Number or Types of SRPs Allowed within GUSG Habitat

Under Sub-Alternative D₁, management actions related to GUSG Occupied Habitat would default to the CCA's protocol for issuing, denying, or modifying SRPs for the benefit of the GUSG (reflected in Chapter 2, Recreation, Alternative D). Similar to Alternative A, in the Gunnison Basin, current recreational opportunities in the decision area would continue, and there would be no new or significant impacts on recreation under Sub-Alternative D₁.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Number of Acres with Targeted Beneficial Outcomes for Recreationists and Supporting Setting Characteristics

Same as Alternative C.

Number of Acres with Unstructured Recreational Opportunities and Experiences

Under Sub-Alternative D₂, the Preferred Alternative for the GUSG satellite populations and the Gunnison Basin Unoccupied Habitat, BLM management would contain similar restrictions on unstructured recreational activities as elements of alternatives B and C and Sub-Alternative D₁, such as for: timing and season of use, ground disturbance limitations, and reclamation of existing disturbance. Sub-Alternative D₂ acknowledges that decisions related to GUSG and their habitat in satellite populations are potentially more impacting because of their smaller populations, smaller areas of habitat, and decreased linkage to the main Gunnison Basin Population.

Number or Types of SRPs Allowed within GUSG Habitat

Under Sub-Alternative D₂, BLM would only allow SRPs that have minimal effects in Occupied Habitat and Unoccupied Habitat. Similar to Alternative C, BLM would continue to review and approve recreation permits on a case-by-case basis accepting only those uses determined to be neutral or beneficial to GUSG and their habitat, (and when and where it would benefit GUSG conservation most), transferring permits that may cause adverse impacts to the recovery of the GUSG to other areas outside of GUSG habitat. Sub-Alternative D₂ could potentially result in a loss of opportunities to continue engaging in current permitted activities and events, however, that impact to SRPs is expected to be minor.

4.10.4. CUMULATIVE IMPACTS

The area used to analyze cumulative impacts on recreation resources is the planning area. Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected, and will likely continue to affect, recreation are increased visitation (especially from residents within the planning area and those from the surrounding region), urbanization of communities in the planning area, advances in outdoor recreation equipment, management in existing Recreation Management Areas, and energy development.

At the broadest level, the physical, social, and operational recreation setting character of BLM-administered lands are quickly changing from natural to more developed, from less crowded to more contacts with others, and from less restrictive to more rules and regulations. These changes are expected to impact the activity opportunities that can be offered and the recreation experience and benefit opportunities that can be produced.

There is a strong correlation between population growth, visitation, and recreation, in large part because many new residents have moved to the area specifically because of easy access to recreation opportunities on BLM and other public lands. The expanding suburban development footprint has also placed many new neighborhoods directly adjacent to BLM boundaries, resulting in increased trespass onto private property and resource impacts from private property owners accessing public lands from adjoining private land (e.g., social trailing, etc.). Advances in technology are at least partly responsible for increased recreation across the planning area, as motorized and mechanized vehicles are more capable of accessing previously remote areas.

Reasonably foreseeable trends that would result in cumulative impacts on recreation include continued growth patterns in demand for all recreation experiences, increased demand for close-to-home recreation opportunities for local residents, continued and increased visitation from a growing regional population, and increased popularity of adjacent public lands. However, restrictions on development of public lands to protect GUSG and their habitat could cumulatively result in a benefit for GUSG from managed recreation.

Management of recreation-focused areas (SRMAs and ERMAs), unstructured or dispersed recreational opportunities, and the issuance of SRPs would continue as they are currently managed under Alternative A. Under Alternative B, the BLM would place the most restrictions on recreation, resulting in the greatest number of cumulative impacts, such as the potential elimination of RMAs or elimination of new or reissued SRPs. Under Alternative C, BLM would have more flexibility to provide for continued or new recreational opportunities if it could be demonstrated that

GUSG and their habitat would not be negatively impacted. However, the BLM would place some restrictions on recreation, which could cumulatively add to a decrease in this resource use. Under Sub-Alternative D₁, the BLM would manage recreation resources in accordance with the CCA developed for the protection and recovery of the GUSG within its core range and habitat. Under Sub-Alternative D₂, the BLM would manage recreation in the smaller, more vulnerable GUSG satellite populations, using the full suite of management actions available for the protection and recovery of GUSG. Sub-Alternative D₂ would not be less restrictive than Alternative C, but could be more restrictive, if necessary. Under Sub-Alternative D₂, the BLM could place some restrictions on recreation that would result in a cumulative decrease in this resource use.

4.11. TRAVEL MANAGEMENT

4.11.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

Indicators of impacts to travel management are as follows:

- Change in the types of allowable uses occurring on transportation routes in GUSG habitat.
- Change in the number of motorized acres designated as Open (to cross-country motorized travel), Limited (to existing or designated routes for motorized travel), or Closed (to motorized travel altogether).
- Change in the number of acres where new route development would be allowed.

ASSUMPTIONS

The analysis uses the following assumptions:

- Travel management would be managed to achieve the objectives of individual Field Offices and would vary based on the age of a BLM unit's RMP.
- Travel systems are dynamic and will be changed through subsequent implementation level planning efforts in order to respond to the needs of the BLM multiple-use mission. The designation of individual routes as open, closed, or limited for motorized use is an implementation-level process and not considered as part of a RMP (planning-level) process.
- The demand for access to travel routes would continue to increase over the life of the RMPs.
- Traditional travel management uses within the decision area would continue, and are anticipated to increase as local populations grow. Motorized and non-motorized use will continue to increase. The potential for resource and user conflict increases as OHV use increases and becomes more concentrated.
- Implementation of a travel management plan includes: increased public education, notification by use of signs, enforcement, resource monitoring in regard to travel management, and the designation of transportation routes (linear features - roads and trails of varying allowable uses).
- Improved facilities, especially trails, are expected to result in increased use.

- Travel Management will continue to be an increasingly important component of local economies.

METHODS AND DATA

This section discusses impacts on travel and transportation management from proposed BLM management actions. Existing conditions concerning travel and transportation management are described in the Comprehensive Travel and Transportation Management (CTTM) section in Chapter 3. Travel and transportation management supports and helps achieve the objectives of other resource programs. Consequently, travel designations would adhere to the management prescriptions included under each alternative, while following the theme of each alternative.

At the resource management planning level, impacts on CTTM are those that restrict travel, such as managing areas as closed or limited to motorized travel and limiting seasonal travel. New travel and transportation management actions in response to GUSG habitat protection strategies would impact the number of acres where motorized and some non-motorized travel is allowed.

Travel management decisions impact other resources and uses, such as closing routes or limiting travel to protect sensitive resources. As such, impacts of travel management actions on other resources and uses are discussed in the respective resource sections of this chapter. Impacts on CTTM from other program areas do occur and are considered a part of implementation level transportation management planning.

Literature reviews were conducted relative to individual resource areas, to include: studies from a variety of sources (see References for Travel Management-related studies), and a review of BLM's relevant laws, regulations, and policies. Interviews with local field office subject matter experts were also conducted relative to land status, Travel Management Area classification, permitted uses, etc. for both Occupied Habitat and Unoccupied Habitat. Finally, geo-spatial data from BLM and other authorities was used to help analyze conditions and land-use allocations within the decision area, including: the presence of open, limited, and closed Travel Management Areas and the location of roads and trails within GUSG habitat.

4.11.2. IMPACTS COMMON TO ALL ALTERNATIVES

Types of Allowable Uses on Transportation Routes in GUSG Habitat

Applying restrictions to allowable uses for transportation routes in the decision area to protect GUSG, especially during time periods associated with critical life functions, in most cases would only seasonally limit access in certain parts of the decision area. Because the restrictions would mostly be localized and temporary, long-term impacts on allowable uses of the transportation system within the decision area are not expected to be significant.

Number of Acres Open, Limited, or Closed to Motorized Travel

A shift in OHV designations in GUSG habitat under all alternatives would reduce cross-country motorized travel opportunities in the decision area. Nationally, however, BLM is currently in the process of moving away from an 'open system' of travel management in favor of a Comprehensive Travel and Transportation Management (CTTM) system. While some short-term impacts can be expected, long-term impacts for cross-country transportation use are not expected.

Number of Acres Where New Route Development Would Be Allowed

Under all alternatives, travel would be limited to designated routes. Under the action Alternatives B through E, an emphasis would be placed on reducing route densities, especially in Occupied Habitat. Timing limitations and seasonal closures from March 15 to May 15 would also be applied to GUSG habitat.

4.11.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Types of Allowable Uses on Transportation Routes in GUSG Habitat

Compared to the action alternatives, Alternative A would provide for the greatest diversity of allowable uses on existing or designated transportation routes within the decision area, and field office TMPs and RMPs would provide the basis for allowable uses on roads and trails. Under Alternative A, the BLM would continue to manage allowable uses on roads and trails as identified in the existing RMPs, and current Travel Management designations for individual routes would continue over the long term. There would be no new impacts on Travel Management under Alternative A.

Number of Acres Open, Limited, or Closed to Motorized Travel

Compared to the action alternatives, Alternative A would have the least impact to current Travel Management designations. The BLM would continue to manage Travel Management designations as identified in the existing RMPs, and current travel opportunities in the decision area would be maintained over the long term.

Under Alternative A, approximately 53,565 acres (9,317 in Occupied Habitat and 44,248 acres in Unoccupied Habitat) in the decision area would remain open to unrestricted cross-country motorized travel; approximately 543,422 acres (386,025 in Occupied Habitat and 157,397 acres in Unoccupied Habitat) would remain limited to existing routes; and approximately 38,114 acres (10,266 in Occupied Habitat and 27,848 acres in Unoccupied Habitat) would remain closed to motorized use. There would be no new impacts on Travel Management.

Number of Acres Where New Route Development Would Be Allowed

Compared to the action alternatives, Alternative A would have the least impact to potential new route development within the decision area. The BLM would continue to evaluate the need for additional routes, including ROW applications, proposals for new trails, etc. BLM field office TMPs and RMPs would inform the conditions under which new routes may be authorized, and NEPA analysis would be conducted to evaluate the effects of implementation-level decisions on resources, such as GUSG.

ALTERNATIVE B**Types of Allowable Uses on Transportation Routes in GUSG Habitat**

Under Alternative B, greater restrictions on the allowable uses of transportation routes would be applied through a range of management actions for the protection and recovery of the GUSG and its habitat. Some uses, such as motorized or mechanized travel could be eliminated from roads or trails that negatively impact GUSG. Timing limitations, seasons of use, and temporary closures could also be used to protect GUSG, especially during critical times of the year, such as for breeding, nesting, and brood-rearing. Under Alternative B, upgrades to routes in both Occupied Habitat and Unoccupied Habitat would also not be allowed.

Alternative B would also provide for a 4-mile buffer distance from leks outside of habitat, which would further restrict the transportation system within the Non-Habitat Areas, including those routes not in GUSG habitat. Impacts to the transportation system within the Non-Habitat Areas would be similar to those in

Occupied and Unoccupied Habitat, with an emphasis on avoiding or eliminating allowable uses that have negative effects to GUSG or their habitat.

Impacts to the transportation system as a whole are not expected to be significant, however, more significant impacts to transportation and access within GUSG habitat would be expected under Alternative B, with the likely side-effect that transportation use would transfer to other, less restrictive places in the decision area causing greater impacts and user conflict in localized areas within the overall transportation system. Prior to closing routes or access in GUSG habitat, the BLM could elect to employ Section 106 of the National Historic Preservation Act in order to consider new impacts to cultural resources as a result of displaced or increased transportation use to other areas.

Number of Acres Open, Limited, or Closed to Motorized Travel

Under Alternative B, the designation of acres open, closed, or limited to motorized travel would be the most restrictive of any alternative, and would have the greatest impact to public access and CTTM. Under Alternative B, the BLM would conduct travel management planning as part of this RMP Amendment analysis and completely close Occupied Habitat to motorized travel.

Under such a scenario, access would be more restrictive than No Action Alternative A due to the closure of 597,006 acres to motorized travel. Additionally, there would be no opportunities for cross-country travel in the decision area.

Number of Acres Where New Route Development Would Be Allowed

Under Alternative B, the BLM would reduce route densities and would not allow new route development within GUSG habitat. Within Non-Habitat Areas, the BLM would only allow new routes or upgrades to existing routes that are determined to not adversely impact GUSG or their habitat. Seasonal closures in Occupied Habitat would occur from March 15 through May 15 in order to protect GUSG during critical life function time periods. General Management Standards would also apply for timing limitations, ground disturbance and vegetation removal, predation control, climate change, invasive species and disease control, and reclamation procedures.

ALTERNATIVE C

Types of Allowable Uses on Transportation Routes in GUSG Habitat

BLM management under Alternative C would be less restrictive on allowable use designations for roads or trails than Alternative B, provided that the designations are determined to be compatible with GUSG and their habitat. Under Alternative

C, the BLM would have the flexibility to adapt allowable uses on a transportation route to specific conditions or changes over time, if the route is designated as Limited in a current Travel Management Plan. If necessary, restrictions such as timing limitations, season of use, stipulations or limitations for permitted users, and reduction in route densities could be applied for the benefit of GUSG and their habitat. In Occupied Habitat, seasonal closures could be implemented from March 15 through May 15 for all travel management or specific uses if a conflict is identified, either in general or from a particular mode of travel.

In both Occupied Habitat and Unoccupied Habitat, routes would not be upgraded to change the route category or capacity unless that upgrade was necessary for public safety or prevented the construction of a new route. Impacts to the transportation system as a whole would not be significant, but might transfer increased use to other areas causing greater impacts and user conflict in localized areas within the overall transportation system, if restrictions were applied. Most impacts would be beneficial for GUSG and their habitat, and only minor or temporary negative impacts to users of the transportation system.

Number of Acres Open, Limited, or Closed to Motorized Travel

Under Alternative C, BLM management would contain fewer restrictions on travel management designations than Alternative B, if those designations are determined to be compatible with GUSG and GUSG habitat. In both Occupied Habitat and Unoccupied Habitat, areas currently designated as closed to motorized travel would remain so, and generally motorized travel would be limited to existing or designated routes. New cross-country motorized and mechanized travel would be discouraged. Motorized cross-country travel would be allowed to continue in areas previously open to such travel where it has been demonstrated not to have a negative impact to GUSG or their habitat. Travel management planning would be deferred to a later date and conducted by local subject-matter experts, with implementation completed as quickly as time, personnel, and resources allow.

Under Alternative C, there would be no change from No Action Alternative A in the number of acres closed to motorized travel or limited to existing or designated routes for field offices that have conducted travel management planning. Field offices that have not conducted travel management planning would have reduced acreage for cross-country motorized travel when routes in Occupied Habitat are limited to existing routes under Alternative C.

Number of Acres Where New Route Development Would Be Allowed

Alternative C would contain fewer restrictions on new routes determined to be compatible with GUSG and GUSG habitat than Alternative B. For both Occupied

Habitat and Unoccupied Habitat, new routes would primarily be limited to realignments of existing designated routes, especially if the realignments eliminate the need to construct a new route, or are necessary for public safety. Any new route would require mitigation in accordance with the mitigation strategy in order to decrease fragmentation of GUSG habitat. Under Alternative C, there would generally be no significant change to public access and CTTM within the decision area, and localized impacts to transportation routes would likely be beneficial to all resource areas.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Types of Allowable Uses on Transportation Routes in GUSG Habitat

Under Sub-Alternative D₁, management actions related to allowable uses of transportation routes in Occupied Habitat would default to the 2010 Gunnison Basin Federal Land TMP. No new impacts to the Gunnison Basin transportation system are anticipated.

Number of Acres Open, Limited, or Closed to Motorized Travel

Same as Alternative A.

Number of Acres Where New Route Development Would Be Allowed

Under Sub-Alternative D₁, management actions related to Occupied Habitat would default to the 2010 Gunnison Basin TMP. Numerous considerations related to the goal of protecting and enhancing GUSG and GUSG habitat in the Gunnison Basin have already been explored, including conditions under which new routes (roads and trails) could occur. Current travel management opportunities in the Gunnison Basin would continue, with no new or significant impacts expected under Sub-Alternative D₁.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Types of Allowable Uses on Transportation Routes in GUSG Habitat

Under Sub-Alternative D₂, BLM management would vary based on current field office TMPs. If existing allowable uses for transportation routes in a particular field office are compatible with GUSG conservation measures as determined by that field office, then No Action Alternative A would apply. If not, then those TMPs would be amended to agree with the standards defined above in Alternative C.

Number of Acres Open, Limited, or Closed to Motorized Travel

Under Sub-Alternative D₂, BLM management would vary based on current field office TMPs. If existing travel management for a particular field office is compatible with GUSG conservation measures, as determined by the field office, then No Action Alternative A would apply. If not, then those TMPs would be amended to agree with the standards defined above in Alternative C.

Number of Acres Where New Route Development Would Be Allowed

Same as Alternative C.

4.11.4. CUMULATIVE IMPACTS

The area used to analyze cumulative impacts on travel management is the planning area and extends along major roads and trails where management inside the decision area could impact use outside it. Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected, and will likely continue to affect travel management are increased use of the travel system and any new actions that introduce additional traffic or reduce or expand the travel system.

RMPs for BLM-administered lands have areas and routes closed to motorized recreation, causing users to move to other BLM-administered lands (and other public lands) in the planning area. Increasing urban and suburban populations proximate to, and within the planning area, have greatly increased the level of recreational and route use on BLM-administered lands. The combination of the region's growing population and the bounty of desirable recreation settings have combined to greatly increase transportation use in the planning area.

For all alternatives, cumulative impacts on travel management would occur primarily from actions that facilitate, limit, or preclude motorized access, including the closure of areas to certain types of travel or through the designation of routes as part of a future travel management planning process. Cumulative impacts on travel management as a result of these reductions could include congestion on the existing travel route network within, and adjacent to, the decision area, particularly where routes provide access to multiple resource uses. Congestion would impact access and require more active management (including enforcement, signage, and education) by the BLM. Overall, these actions are not expected to influence cumulative impacts because of the large remote character in much of the cumulative impact analysis area. Impacts would be localized, occurring in the vicinity of these new actions and near population centers.

Management of travel management designations for open, limited, and closed OHV areas; allowable uses for existing or designated routes; and the presence of existing seasonal closures, timing limitations, or other current restrictions would be maintained, and the existing travel network would continue as it is currently managed under No Action Alternative A.

Under Alternative B, the BLM would place the most restrictions on travel management, resulting in the greatest number of cumulative impacts. Eliminating all motorized travel in Occupied Habitat would result in a cumulative loss of travel opportunities. Some users would go elsewhere, but other travel systems might be less capable of accommodating extensive new use; the multijurisdictional travel system encompassing the analysis area might be unable to accommodate demand and would likely mean increased impacts from travel and transportation to GUSG habitat outside of BLM lands.

Under Alternative C, the BLM would have greater flexibility to provide for continued or new travel management opportunities, if it could be demonstrated that GUSG and their habitat would not be negatively impacted. However, the BLM would place some restrictions on the transportation system, which could cumulatively add to a decrease in this resource use and public access.

Under Sub-Alternative D₁, the BLM would manage travel and transportation resources in accordance with the 2010 Gunnison Basin Federal Land Travel Management Plan (TMP) and the CCA, developed for the protection and recovery of the GUSG within its core range and habitat. Under Sub-Alternative D₂, the BLM would manage travel management in the smaller, more vulnerable, GUSG satellite populations, using the full suite of management actions available for the protection and recovery of GUSG. Sub-Alternative D₂ would not be less restrictive than Alternative C, but could be more restrictive, if necessary. Since the BLM could place some restrictions on travel management under Sub-Alternative D₂, there could be a cumulative decrease in this resource use and public access.

4.12. LEASABLE FLUID MINERALS

OIL AND GAS

4.12.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following indicators are used to describe the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal oil and gas resources:

- Acres of federal minerals leased for oil and gas
- Acres of federal minerals closed to oil and gas leasing
- Acres of federal minerals open to oil and gas leasing
 - Acres subject to NSO stipulation
 - Acres subject to CSU and/or TL stipulations
- Acres of ROW exclusion and avoidance areas

ASSUMPTIONS

The analysis of impacts on oil and gas exploration and development is based on the following assumptions:

- New stipulations proposed under this RMP Amendment would apply only to new leases.
- Existing stipulations in the RMPs within the planning area would continue to apply. Those stipulations provide for other resource protections, such as riparian areas, that are not specific just to GUSG and habitat.
- Existing fluid mineral leases would be managed to protect valid existing rights and would not be affected by any closures proposed under the preferred alternative or other alternatives.
- Valid existing leases would be managed under the stipulations in effect when the leases were issued. However, new development on existing leases must also comply with the current RMP management direction. This direction is consistent with Interior Board of Land Appeals decisions (*Yates Petroleum Corp.*, 176 IBLA 144 (2008) and *William P. Maycock*, 180 IBLA 1 (2010)) findings that BLM has discretion to modify surface operations to add specific mitigation measures supported by site-specific NEPA analysis undertaken during the development phase on existing leases. Any additional mitigation

measures would need to be justifiable, still provide for lease development and would be incorporated in a site-specific document.

- Fluid mineral operations on existing federal leases, regardless of surface ownership, would be subject to COAs by the BLM Authorized Officer at the time of APD approval. The BLM can deny surface occupancy on portions of leases with COAs to avoid or minimize resource conflicts if this action does not eliminate reasonable opportunities to develop the lease. Existing leases would be developed consistent with applicable laws and valid existing rights, using as many of the surface use limitations and conservation measures as possible while still allowing reasonable access.
- Under all alternatives, reclamation bonds are required, pursuant to 43 CFR 3104, in an amount sufficient to ensure full restoration of lands to the condition in which they were found. In addition, APDs, including drilling plans and surface use plans of operations, would be required under all alternatives in accordance with 43 CFR 3162.
- If an area is leased, it could be developed; however, not all leases would be developed within the life of this plan amendment.
- As the demand for energy increases, so will the demand for extracting energy resources in areas with potential. However, oil and gas operations are sensitive to costs, especially when prices are depressed.
- Technological advancements, such as directional drilling, could lead to changes in levels of fluid mineral development potential throughout the decision area as additional resources become more easily accessible.
- Stipulations apply to fluid mineral leasing on all surface lands overlying federal mineral estate, which includes federal mineral estate underlying BLM-administered and non-BLM-administered surface.

METHODS AND DATA

Where possible, BLM spatial data (GIS) and other data, such as LR2000, were used to describe the impacts quantitatively. All data sets depend on the quality and availability of data, and so acreages and other numbers are approximations for comparison and analytic purposes only. When quantitative data was not available, the impacts are described qualitatively.

4.12.2. GENERAL IMPACTS

The primary planning decisions that could impact the availability of oil and gas resources include: fluid mineral leasing allocations; required fluid mineral leasing stipulations (NSO, TL, and CSU); and, ROW exclusion and avoidance designations.

Allocations of areas open or closed to fluid minerals leasing directly impacts the availability of federal minerals for lease. For areas designated as open to leasing, NSO leasing stipulations would also impact the availability of federal minerals for lease, particularly if lands where wells could be located are too far away to reach the oil and gas resource. Required TL and CSU leasing stipulations could also reduce APDs due to increased costs and decreased efficiency of development from required limitations, such as seasonal restrictions on drilling and other surface-disturbing activities. Indirect impacts include reduced production of oil and gas for the public use and for the generation of lease sale revenues, federal royalties from production, and tax revenues.

Designations of ROW exclusion and avoidance areas could impact the ability to site off-lease ROWs on public land and could increase costs and decrease efficiency of development due to required additional mitigation and project criteria.

It is not possible to state with certainty the degree to which the potential impacts described above would occur.

Until specific lease sales are analyzed, offered, and sold and the BLM receives and adjudicates APDs or other authorizations that includes specific information about a particular project, impacts of actual development that might follow lease issuance are speculative. The location, scope, scale, and timing of potential development, the location of existing roads and utility corridors, proximity to GUSG Occupied and/or Unoccupied Habitat, and proximity to other resources and other seasonally critical habitats that facilities would be required to avoid, and the particular downhole geology of a specific lease (which is important in relation to the potential number of wells reachable from a single well pad) are all factors that would determine the magnitude of impacts.

Refer to Section 4.18 for information regarding expected socioeconomic effects from management actions within each alternative.

4.12.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

No Action Alternative A would provide the largest amount of federal minerals available for fluid mineral leasing in GUSG habitat. Approximately 206,950 acres are designated as closed to leasing, and 644,800 acres are designated as open to leasing. Of the areas open to leasing, 1,589,722 acres are open to leasing with additional stipulations (NSO, CSU, and/or TL), which includes 370,500 acres leased with a NSO stipulation. Due to overlapping stipulations (meaning that acres could be

accounted for in NSO, CSU, and/or TL), there are more acres with stipulations than there are acres to be leased.

The Gunnison Gorge NCA, Dominguez-Escalante NCA, and McInnis Canyons NCA, as well as all Wilderness and Wilderness Study Areas, are withdrawn from mineral leasing. Mineral development throughout much of the decision area is limited for GUSG protections. All Occupied Habitat is closed to mineral leasing under the Grand Junction RMP, and is open to mineral leasing with a NSO stipulation under the Canyons of the Ancients NM and Tres Rios RMPs. The NSO stipulation is applied to areas within 2.0 miles of a lek for the Gunnison Gorge NCA RMP area (outside of the proclaimed NCA), while the rest of the decision area that is open to leasing is subject to a NSO stipulation for areas within 0.6 mile of a lek.

Currently, there are 36,260 acres of federal minerals leased in the decision area. Approximately 20,630 acres of those leases are held by production. The existing leases are located primarily within the Monticello-Dove Creek and San Miguel Basin population areas. The leases held by production are primarily within the Tres Rios FO and Canyons of the Ancients NM. The undeveloped leases are located primarily with the Tres Rios FO (with 92% of the lease acres), followed by the Monticello FO (with 8%), and the Uncompahgre FO and Canyons of the Ancients NM (together totaling less than 1%).

Table 4.104 - Oil and Gas Leasing by Population Area

POPULATION AREA	FEDERAL MINERAL ACRES			
	CLOSED TO LEASING	OPEN TO LEASING	LEASED	HELD BY PRODUCTION
Gunnison Basin	9,100	556,800	0	0
Cerro Summit-Cimarron-Sims Mesa	0	11,100	0	0
Crawford	41,800	23,400	20	0
Monticello-Dove Creek	4,300	75,600	29,700	15,600
Piñon Mesa	123,000	61,400	0	0
San Miguel Basin	13,000	61,700	6,500	5,000
Poncha Pass	0	32,200	0	0

Within the Monticello-Dove Creek and San Miguel Basin population areas, there are few acres subject to ROW exclusion (2,000 acres in Monticello-Dove Creek and 200 in San Miguel Basin) and none designated as ROW avoidance. Therefore, there are few limitations on siting off-lease ROWs for access roads and utilities.

ALTERNATIVE B

Under Alternative B, Occupied and Unoccupied Habitat in the decision area would be closed to fluid minerals leasing. Existing leases would be allowed to expire. No new leases would be issued and unleased federal minerals would no longer be available for oil and gas leasing.

There are currently 36,260 acres of federal minerals leased for oil and gas resources in the decision area. Approximately 20,630 acres of those leases are held by production. As leases expire, any potential future production from those leases would not be realized. Leases expire at the end of the primary term, which is usually 10 years. However, leases may continue if: 1) qualifying drilling operations are in progress; 2) the lease contains a well capable of producing in paying quantities; or, 3) the lease is entitled to receive an allocation of production from an off-lease well. If a lease does not have a producible well, or a producible well attributed to it, it will automatically terminate if annual rental is not paid in full and on time. Leases may also be given up, in part or in total, if the lessee files a written relinquishment.

There would be little to no impact to oil and gas development in the Gunnison Basin, Cerro Summit-Cimarron-Sims Mesa, Piñon Mesa, and Poncha Pass population areas. There is low to no development potential for oil and gas in those areas and no authorized leases.

In the Crawford population area, federal minerals account for approximately 57% of the mineral estate. The projected development of one to ten APDs, with an estimated total of from 10 to 30 acres of surface disturbance, would not occur. Currently, there is one authorized federal lease which includes 24 acres (<0.1 % of the population area) (BLM 2015a).

The Monticello-Dove Creek population area has a moderate to high development potential. Federal minerals account for approximately 25% of the mineral estate in the population area. There are 112 authorized federal leases (BLM 2015a) which include 29,700 acres (8.5 % of the population area). The remaining 57,200 acres of unleased federal minerals would no longer be available for leasing. However, approximately 41,350 unleased acres (72% of the unleased federal minerals and 48% of the total federal minerals) are already subject to leasing with a NSO stipulation.

Federal minerals within the Monticello-Dove Creek Population decision area account for about 2% of the mineral estate in the larger Monticello-Dove Creek Population planning area with high development potential (BLM 2015a). In the high development potential areas, it is projected that within the Monticello FO, approximately 1 to 6 wells per year would be drilled within the entire Paradox Fold and Fault Belt (BLM 2008b). Within the Tres Rios FO, it is projected that about 25

wells per year would be drilled, primarily within the Gothic Shale Gas Play in the Paradox Basin (BLM 2013).

The San Miguel Basin population area has a low to high development potential, with most of the Occupied Habitat rated as moderate to high development potential, and the Unoccupied Habitat as low to moderate. Federal minerals account for approximately 56% of the mineral estate in the population area. There are 29 authorized federal leases (BLM 2015a) which includes 6,500 acres (4.6 % of the population area). The remaining 73,900 acres of unleased federal minerals would no longer be available for leasing. However, approximately 60,250 unleased acres (68% of the federal minerals) are already subject to leasing with a NSO stipulation (BLM 2015b).

Under Alternative B, a total of approximately 78,100 acres of federal minerals in moderate to high development potential areas would be closed to leasing. Under the No Action Alternative, none of the federal minerals in moderate to high development potential areas are closed to leasing, but 54,550 acres are only open to leasing with a NSO stipulation.

Under this alternative, the entire decision area would be designated as a ROW exclusion area with some exceptions. The exceptions would be designated ROW corridors and areas within 100 feet of the centerline (or if not feasible, within 100 feet of the edge of the ROW) of county roads and highways. Therefore, siting of off-lease ROWs for access roads and utilities would be limited to those exceptions. This would result in increased costs and/or decreased ability to locate such ROWs, which would in turn, potentially further decrease oil and gas leasing.

The Non-Habitat Areas would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat. Timing limitations would be applied as COAs, where applicable. Non-Habitat Areas would be designated as ROW avoidance areas with guidance on how and where ROWs could be granted. Master Development Plans would be required for any new leases and for any undeveloped leases, rather than APD-by-APD analyses. These lease and ROW restrictions would result in increased costs and potentially decreased oil and gas leasing. Less than 40% of the Non-Habitat Areas are within areas with moderate to high development potential. Approximately 10% of the Non-Habitat Areas are located in areas closed to leasing, primarily within Wilderness, WSAs, NCAs, or the Canyons of the Ancients NM.

ALTERNATIVE C

Under Alternative C, all Occupied Habitat would be open to leasing with a NSO stipulation and all Unoccupied Habitat would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat. Wilderness areas, Wilderness

Study Areas, and existing mineral withdrawals would still be closed to leasing. There would be 80,820 more acres of federal minerals available for leasing than under No Action Alternative A. However, the additional acres are all in the Piñon Mesa population area, which has no to low development potential. Approximately 128,120 more acres of the federal minerals open to leasing would be subject to NSO stipulation than under No Action Alternative A. Under this alternative, a total of approximately 139,160 acres of federal minerals in moderate to high development potential areas would be open to leasing, of which 87,530 acres would have a NSO stipulation, while the remaining acreage would have a CSU stipulation.

Under Alternative C, the entire decision area would be designated as a ROW avoidance area with guidance on where and how ROWs would be granted. The guidance includes not granting ROWs when there is other reasonable access, requiring timing limitations and applicable BMPs, as well as requiring mitigation measures. Therefore, siting of off-lease ROWs for preferred locations of access roads and utilities would be somewhat limited. In addition, minimization and mitigation measures result in increased costs and/or decreased ability to locate such ROWs, which would in turn, potentially further decrease oil and gas leasing.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Sub-alternatives D₁ and D₂ include the same management actions, so the impacts would be the same across the Gunnison Basin and satellite population areas. The actions are the same as those under Alternative C, except that the Piñon Mesa population area would be closed to leasing within the Grand Junction FO, as it is in the No Action Alternative. The impacts are essentially the same as under Alternative C.

GEOTHERMAL

The analysis of effects of the various alternatives on geothermal leasing is the same as that under oil and gas, except for portions of the No Action Alternative.

Under the No Action Alternative, within the San Luis Valley FO, which includes all of the Poncha Pass population area, Occupied Habitat is open to geothermal leasing with a NSO stipulation.

The Waunita/Tomichi Dome area of the Gunnison FO, within the Gunnison Basin population area, is subject to the Gunnison Geothermal RMP Amendment. The amendment provides that the area is open to geothermal leasing with a CSU stipulation to protect summer-fall habitat, in addition to the existing NSO stipulation within 0.6-mile of a lek and TL stipulations for lekking season (March 15–May 15).

4.13. LEASABLE SOLID MINERALS

4.13.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following indicators are used to describe the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal solid mineral resources (other than coal):

- Acres of federal minerals leased for solid minerals
- Acres of federal minerals closed to solid minerals leasing
- Acres of federal minerals open to solid minerals leasing
 - Acres subject to NSO surface use limitation
 - Acres subject to CSU and/or TL surface use limitations
- Acres of ROW exclusion and avoidance areas.

ASSUMPTIONS

The analysis of impacts on solid minerals exploration and development is based on the following assumptions:

- Existing solid mineral leases would be managed to protect valid existing rights and would not be affected by any closures proposed under the preferred alternative or other alternatives.
- Valid existing leases would be managed under the special stipulations in effect when the leases were issued; new mitigations proposed under this RMP Amendment would apply on new leases and any readjusted leases.
- In addition, prospecting permits or exploration licenses, including exploration plans, would be required under all alternatives in accordance with 43 CFR 3505 and 43 CFR 3506.
- Under all alternatives, reclamation bonds are required, pursuant to 43 CFR 3404.50, in an amount sufficient to ensure full restoration of lands to the condition in which they were found.
- Surface disturbing activities will be mitigated with special stipulations applied to site specific proposals in accordance with 43 CFR 3501.16.
- Surface use limitations apply to solid mineral leasing on all surface operations overlying federal mineral estate, which includes federal mineral estate underlying BLM-administered and non-BLM-administered surface.

METHODS AND DATA

Where possible, BLM spatial (GIS) and other data, such as LR2000, were used to describe the impacts quantitatively. All data sets depend on the quality and availability of data, and so acreages and other numbers are approximations for comparison and analytic purposes only. When quantitative data was not available, the impacts are described qualitatively.

4.13.2. GENERAL IMPACTS

The primary planning decisions that could impact the availability of solid minerals include: solid mineral leasing allocations; solid mineral leasing surface use limitations (NSO, TL, and CSU); and, ROW exclusion and avoidance designations. The management actions under each action alternative are essentially the same as those for fluid minerals leasing. However, surface use limitations are applied as stipulations to fluid mineral leases and as terms, conditions, and/or special stipulations to site-specific solid mineral authorizations, including permit, licenses, and leases.

Allocations of areas open or closed to solid minerals leasing directly impacts the availability of federal minerals for lease. For areas designated as open to leasing, NSO surface use limitations would also impact the availability of federal minerals for lease. Required TL and CSU leasing surface use limitations could also increase costs and decrease efficiency of development from required limitations, such as seasonal restrictions on surface-disturbing activities. Indirect impacts include reduced production of minerals for the public use and for the generation of lease sale revenues, federal royalties from production, and tax revenues.

Designations of ROW exclusion and avoidance areas could impact the ability to site off-lease ROWs on public land and could increase costs and decrease efficiency of development due to required additional mitigation and project criteria.

It is not possible to state with certainty the degree to which the potential impacts described above would occur. The magnitude of those impacts cannot be assessed without project-specific information on where an affected lease is located, its size, and its spatial relationship to other leases.

Until specific permits and leases are analyzed based on information about a particular project, impacts of actual development that might follow lease issuance are speculative. The location, scope, scale, and timing of potential development and the location of existing utility corridors are factors that would determine the magnitude of impacts.

4.13.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Under No Action Alternative A, approximately 206,950 acres would continue to be designated as closed to leasing and 610,920 acres open to leasing. Of the areas open to leasing, 1,470,750 acres are open to leasing with additional surface use limitations, including 362,450 acres leased with a NSO surface use limitation. Due to overlapping limitations, there are more acres with surface use limitations than there are to be leased (meaning that acres may be accounted for in NSO, CSU, and/or TL).

The Canyons of the Ancients NM, Gunnison Gorge NCA, Dominguez-Escalante NCA, and McInnis Canyons NCA, as well as all Wilderness and Wilderness Study Areas, are withdrawn from mineral leasing. Mineral development throughout much of the decision area is limited for GUSG protections. All Occupied and Unoccupied Habitat is closed to mineral leasing under the Grand Junction RMP. The rest of the decision area that is open to leasing is subject to a NSO surface use limitation for areas within 0.6 mile of a lek. The Gunnison RMP, Uncompahgre Basin RMP, San Juan/San Miguel RMP, and San Luis RMP do not specifically address solid minerals leasing as there is no known development potential for solid minerals. However, the same surface use limitations that apply to fluid mineral leasing would apply to any solid mineral leases.

Currently, there are no federal minerals leased in the decision area. However, there are five approved potash prospecting permits in the Monticello-Dove Creek population area. There are 13 pending potash prospecting permit applications.

Table 4.105 - Solid Mineral Leasing on Federal Mineral Estate in Decision Area

HABITAT TYPE	ACRES CLOSED TO LEASING ¹	ACRES OPEN TO LEASING	ACRES UNDER PROSPECTING PERMITS	ACRES LEASED
Total Decision Area – Federal Minerals	206,950	610,920	2,600	0
Occupied Habitat	81,900	432,200	0	0
Unoccupied Habitat	125,100	178,700	2,600	0
Non-Habitat	31,500	153,500	0	0

¹Includes areas administratively unavailable for leasing, such as Wilderness Areas, Wilderness Study Areas, and certain withdrawn lands.

ALTERNATIVE B

Under Alternative B, Occupied and Unoccupied Habitat in the decision area would be closed to solid minerals leasing. Existing leases would be allowed to expire. No new leases, prospecting permits, or exploration licenses would be issued.

There are currently no federal minerals leased for solid mineral resources in the decision area.

There would be little to no impact to solid minerals development in the Gunnison Basin, Cerro Summit-Cimarron-Sims Mesa, Crawford, Piñon Mesa, and Poncha Pass population areas. There is low to no development potential for solid minerals in those areas and no authorized leases.

The Monticello-Dove Creek population area has some development potential. Federal minerals account for approximately 25% of the mineral estate in the population area. There are no authorized federal leases (BLM 2015a). The five authorized potash prospecting permits, which include 2,631 acres, would continue as valid existing rights. The remaining 48,600 acres of unleased federal minerals would no longer be available for leasing.

The San Miguel Basin population area also has some development potential. Federal minerals account for approximately 56% of the mineral estate in the population area. There are no authorized federal leases and no prospecting permits (BLM 2015a). The 73,400 acres of unleased federal minerals in Occupied and Unoccupied Habitat would no longer be available for leasing. However, approximately 65,100 acres (89% of the federal minerals) are already subject to leasing with a NSO surface use limitation (BLM 2015b).

Currently, the potential for development of leasable solid minerals is identified as none to low or is unknown. Under this alternative, no further exploration or prospecting would be allowed, so the development potential would remain unknown. Given the overall lack of potential, this alternative would likely have minimal impact on production of leasable solid minerals compared to the No Action Alternative.

Non-Habitat Areas would be open to leasing with a determination of whether or not disturbance to GUSG and/or habitat would require management restrictions. Increased costs and/or reduced development of solid minerals would be minimal due to the overall lack of potential in the area. There are eight pending potash prospecting permits that overlap some of the Non-Habitat Areas in proximity to the Monticello-Dove Creek Population, and no authorized permits or leases.

ALTERNATIVE C

Under Alternative C, all Occupied Habitat would be open to leasing with a NSO surface use limitation. All Unoccupied Habitat would be open to leasing with a CSU surface use limitation to protect sagebrush and riparian habitat. Wilderness areas, Wilderness Study Areas, and existing mineral withdrawals would still be closed to leasing.

There would be 80,820 more acres of federal minerals available for leasing than under No Action Alternative A. However, the additional acres are all in the Piñon Mesa population area, which has no to low development potential. Approximately 128,120 more acres of the federal minerals open to leasing would be subject to NSO surface use limitation than under No Action Alternative A.

Under this alternative, a total of approximately 84,300 acres of federal minerals in the Monticello-Dove Creek population area (the only area with identified solid leasable mineral development potential) would be open to leasing, of which 13,000 acres of the surface would have a NSO limitation and the remaining acreage would have a CSU limitation.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Because sub-alternatives D₁ and D₂ include the same management actions, the impacts would be the same across the Gunnison Basin and satellite population areas. The actions are the same as those under Alternative C. The impacts would be essentially the same as those under Alternative C.

4.14.LOCATABLE MINERALS

4.14.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following indicators are used to describe the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal locatable mineral resources:

- Acres of current mining claims
- Acres of federal minerals withdrawn from mineral entry
- Acres of federal minerals proposed for withdrawal from mineral entry
- Restrictions, such as surface use limitations and conservation measures, that can be placed on locatable mineral development activities to prevent unnecessary or undue degradation in GUSG habitat as the law allows
- Acres of ROW exclusion and avoidance areas.

ASSUMPTIONS

The analysis of impacts on locatable minerals exploration and development is based on the following assumptions:

- Existing claims would be managed to protect valid existing rights and would not be affected by any withdrawal recommendations proposed under the preferred alternative or other alternatives.
- Valid existing claims and existing approved surface management operations would be managed under the conditions in effect when the Plan of Operations was approved; new restrictions proposed under this RMP Amendment would apply only to new Plans of Operation.
- A plan of operations would be required for new proposed operations, greater than casual use, unless currently under an approved notice, in the decision area in accordance with 43 CFR 3809. Existing active notices would not be extended and a Plan of Operations would be required.

METHODS AND DATA

Where possible, BLM spatial data (GIS) and other data, such as LR2000, were used to describe the impacts quantitatively. All data sets depend on the quality and availability of data, and so acreages and other numbers are approximations for

comparison and analytic purposes only. When quantitative data was not available, the impacts are described qualitatively.

GENERAL IMPACTS

The primary planning decisions that could impact the availability of locatable minerals include: withdrawals and withdrawal recommendations; and, required conservation measures, such as surface disturbing restrictions and timing limitations.

Areas withdrawn from locating mining claims have an obvious direct impact on the availability of locatable minerals. Areas recommended for withdrawal may eventually have the same direct impact if approved by the Secretary or by Congress. Required surface use limitations, such as timing limitations, could result in increased costs and decreased efficiency of development. Indirect impacts include reduced production of minerals for the public use.

Although access and utilities are typically included in a plan of operations, designations of ROW exclusion and avoidance areas could impact the ability to site access and utility ROWs in locations preferred by a claimant. This in turn, could increase costs and decrease efficiency of mining operations due to required additional mitigation and project criteria.

It is not possible to state with certainty the degree to which the potential impacts described above would occur. The magnitude of those impacts cannot be assessed without project-specific information on where mining claims are staked and any details of associated plans of operations.

4.14.2. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

The Canyons of the Ancients NM, Gunnison Gorge NCA, Dominguez-Escalante NCA, and McInnis Canyons NCA, as well as all Wilderness Areas, are withdrawn from mineral entry. There are additional acres withdrawn from mineral entry throughout the analysis area, as shown below.

Table 4.106 - Status of Locatable Minerals in the Decision Area

POPULATION AREA	FEDERAL MINERAL ACREAGE IN OCCUPIED HABITAT AND UNOCCUPIED HABITAT		
	ACRES WITHDRAWN ¹	ACRES OPEN TO STAKING	ACRES IN ACTIVE MINING CLAIMS
Gunnison Basin	22,100	549,300	11,000
Cerro Summit-Cimarron-Sims Mesa	1,400	25,000	0
Crawford	7,200	57,800	0
Monticello-Dove Creek	5,700	49,800	2,100
Piñon Mesa	25,000	159,300	20
San Miguel Basin	0	79,100	500
Poncha Pass	0	32,300	0

¹ Does not include acres withdrawn for nonmetallic locatables.

ALTERNATIVE B

Under Alternative B, all Occupied and Unoccupied Habitat would be recommended for withdrawal from location and entry under the Mining Law of 1872. This recommendation could result in the publication of a notice of proposed withdrawal in the Federal Register. Once such a notice is published, under 43 U.S.C. 1714(b)(1) the lands would be temporarily segregated from location and entry for up to two years while the Secretary considers the proposed withdrawal.

If the lands are ultimately withdrawn, then no new mining claims could be located for the duration of the withdrawal. During the segregation and withdrawal periods, mining-related activities would be governed by 43 CFR 3809.100. Existing claims could be subject to validity exams, and possible contest. Existing claims could potentially be validated, invalidated, or cancelled. Any claims determined to be valid would be managed according to 43 CFR 3809. Pursuant to FLPMA, the Secretary must notify Congress of any withdrawal exceeding 5,000 acres. Approximately 13,650 acres within the decision area are covered by existing mining claims.

In the absence of segregation or an approved withdrawal, the following would apply:

- All mining operations, beyond casual use activities, would require an authorized plan of operations. The plan would be reviewed, including an environmental analysis under NEPA, to be sure that the required performance standards (43 CFR 3809.420) would be met. Performance standards include such things as land use plan compliance, actions to protect public lands, (such as, to prevent adverse impacts to threatened or endangered species and their habitat which may be affected by operations), concurrent reclamation, and full reclamation requirements. In addition, BLM

would require a bond or financial guarantee that would cover the estimated costs of reclamation.

- Apply seasonal restrictions if deemed necessary to prevent unnecessary or undue degradation.

In the Non-Habitat Areas, noise disturbance limitations would be applied, as appropriate, in authorized plans of operation. Approximately 182,400 acres of federal minerals are in Non-Habitat Areas.

These actions would result in impacts on the locatable minerals program through reduced access and increased costs due to requirements for mitigation. Alternative B would have greater impacts on locatable minerals than Alternative A.

ALTERNATIVE C

Under Alternative C, withdrawals would be considered for recommendation based on an analysis of: 1) risk to GUSG and its habitat from conflicting locatable mineral potential and development in Occupied and Unoccupied Habitat; and, 2) on development risk and subsequent risk to the sage-grouse from conflicting locatable mineral potential and development. Any such recommendation(s) would be subject to the procedures described under Alternative B.

These actions would result in impacts on the locatable minerals program through increased costs due to requirements for mitigation. Alternative C would have greater impacts on locatable minerals than Alternative A, but less than under Alternative B.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Because sub-alternatives D₁ and D₂ include the same management actions, the impacts would be the same across the Gunnison Basin and satellite population areas. The actions are the same as those under Alternative C, except that no withdrawals would be recommended in Unoccupied Habitat. The impacts would be essentially the same as those under Alternative C.

Sub-alternatives D₁ and D₂ would have greater impacts on locatable minerals in the Gunnison Basin than Alternative A, but less than under alternatives B or C.

4.15.SALABLE MINERALS

4.15.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following indicators are used to describe the impacts of the preferred alternative and other alternatives on the availability of, and access to, federal salable mineral resources:

- Acres of currently permitted salable mineral sites
- Acres of federal minerals open to salable mineral development
- Acres of federal minerals closed to salable mineral development
- Acres of federal minerals proposed for withdrawal from mineral disposal
- Acres of ROW exclusion and avoidance areas.

ASSUMPTIONS

The analysis of impacts on salable minerals development is based on the following assumptions:

- Existing mineral material operations on federal mineral estate, regardless of surface ownership, could be subject to additional mitigation measures by the BLM Authorized Officer. Under these circumstances, permit and contract modifications would be developed consistent with applicable laws and valid existing rights, using as many of the BMPs and conservation measures as possible while still allowing reasonable access.
- Management actions apply to mineral material activity on surface lands overlying federal mineral estate, which includes all federal mineral estate underlying BLM-administered and non-BLM-administered surface.
- Future demand for mineral materials will vary depending upon market conditions, which differ according to economic conditions and construction activity. Construction projects within approximately 50 miles of mineral materials deposits may lead to development of these deposits. It is expected that mineral materials activity and demand will continue to increase for the life of the RMP Amendment.

METHODS AND DATA

Where possible, BLM spatial data (GIS) and other data, such as LR2000, were used to describe the impacts quantitatively. All data sets depend on the quality and availability of data, and so acreages and other numbers are approximations for comparison and analytic purposes only. When quantitative data was not available, the impacts are described qualitatively.

4.15.2. GENERAL IMPACTS

The primary planning decisions that could impact the availability of salable minerals include: closure of areas to mineral sales; required conservation measures, such as surface disturbing restrictions and timing limitations; and ROW exclusion and avoidance designations.

Areas closed to mineral sales have an obvious direct impact on the availability of mineral materials. Required surface use limitations, such as timing limitations, could result in increased costs and decreased efficiency of development. Indirect impacts include reduced production of minerals for the public use and for the generation of mineral sales revenues.

Designations of ROW exclusion and avoidance areas could impact the ability to site access and utility ROWs on public land and could increase costs and decrease efficiency of development due to required additional mitigation and project criteria.

It is not possible to state with certainty the degree to which the potential impacts described above would occur. The magnitude of those impacts cannot be assessed without project-specific information on where mineral material sites would be located and any details of associated plans of operation.

4.15.3. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

The Canyons of the Ancients NM, Gunnison Gorge NCA, Dominguez-Escalante NCA, and McInnis Canyons NCA, as well as all Wilderness and Wilderness Study Areas, are closed to mineral material sales. There are additional acres closed to mineral entry throughout the analysis area, as shown in Table 4.107.

Table 4.107 - Mineral Estate in GUSG Occupied and Unoccupied Habitat

SURFACE OWNERSHIP/ MANAGEMENT	TOTAL ACRES	ACRES IN OCCUPIED HABITAT	ACRES IN UNOCCUPIED HABITAT	ACRES IN NON-HABITAT AREAS
FEDERAL MINERALS ¹				
BLM	720,900	378,800	224,900	117,200
Private	264,300	116,500	78,900	63,000
State and Local Governments	17,700	12,900	0	4,800
Other Federal (USFS, NPS)	295,500	112,300	83,800	99,400
Total Federal Minerals (64%)	1,298,300	626,400	387,600	284,400
NON-FEDERAL MINERALS				
BLM	20,800	16,600	3,000	1,200
Non-BLM	748,500	296,300	331,100	121,100
Total Non-Federal Minerals (36%)	769,300	312,900	334,000	122,400
TOTAL MINERALS	2,118,400	955,600	743,300	419,600

¹May not include all minerals; occasionally only oil and gas and/or coal are reserved as federal minerals.

ALTERNATIVE B

Under Alternative B, all Occupied Habitat and sagebrush and riparian habitat in Unoccupied Habitat would be closed to mineral material disposals. Applicable timing limitation and vegetative removal standards in General Management Section would be applied to mineral material disposals allowed in Unoccupied Habitat.

In Non-Habitat Areas, noise disturbance limitations would be applied as appropriate.

These actions would result in impacts on the salable minerals program through reduced access and increased costs due to requirements for mitigation. Indirect impacts include potentially pushing development of salable minerals to non-federal lands. In addition, costs for salable minerals could potentially increase as distances to markets and transportation costs increase. Alternative B would have greater impacts on salable minerals than Alternative A.

ALTERNATIVE C

Under Alternative C, mineral material sales would be allowed in the entire analysis area, subject to the provisions of the mitigation framework. Applicable timing limitation, surface disturbance limitation, noise, and mitigation standards in the General Management Section would be applied to mineral material sales.

These actions would result in impacts on the salable minerals program through reduced access and increased costs due to requirements for mitigation. Alternative C would have greater impacts on locatable minerals than Alternative A, but less than under Alternative B.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Under sub-alternatives D₁ and D₂, impacts in the Gunnison Basin and satellite population areas would be the same as under Alternative C.

4.15.4. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect leasable, locatable, salable, and non-energy leasable minerals are: market fluctuations, pipeline capacity, available markets for distribution, regulatory constraints, new technologies, and reservoir/reserve depletion.

The cumulative impact analysis area for leasable, locatable, salable, and non-energy leasable minerals is the planning area, regardless of land ownership. Impacts on the ability to develop and extract mineral resources could cumulatively reduce exploration and production of commodities from BLM-administered lands.

Impacts on mineral resources that are individually minor may cumulatively reduce exploration and production of commodities from BLM-administered lands. The BLM has no control over many of the factors that affect mineral extraction and prospecting. These factors include regulatory policy, public perception and concerns, transportation costs and availability, well spacing, low commodity prices, taxes, and housing and other necessities for workers.

Levels of domestic oil and gas exploration and development follow the swings in oil and gas prices. As price increases, the development of existing leases and the demand for new leases increases, even in areas with less development potential. Restrictions on oil and gas leasing would have a cumulative effect on the ability to develop these resources. Under Alternative A, oil and gas exploration and development is expected to continue as correlated with mineral commodity prices. Under all of the action alternatives (alternatives B and C and sub-alternatives D₁ and D₂), oil and gas production would decrease due to restrictions placed on development. Decreases in production would be greatest under Alternative B, under which the BLM would close all GUSG habitat to fluid mineral leasing.

There is a relatively small amount of moderate to high development potential in the decision area (about 17% or 148,218 acres of federal minerals). Much of that area is

already subject to a NSO stipulation (about 48% of federal minerals in the Monticello-Dove Creek population area and 68% of federal minerals in the San Miguel Basin population area). In comparison to the rest of Colorado and Utah, oil and gas production in counties overlapping the planning area is relatively small. Given those factors, the cumulative impacts of reduced oil and gas production in the planning area would be relatively minor on a statewide or national scale.

Non-energy leasable mineral development is also an ongoing activity in the cumulative impact analysis area and is expected to continue as such under Alternative A. Under all of the action alternatives (alternatives B and C and sub-alternatives D₁ and D₂), non-energy leasable mineral development would decrease due to restrictions placed on development. Decreases in production would be greatest under Alternative B, under which the BLM would close all GUSG habitat to non-energy leasable mineral development. There are currently no authorized leases in the decision area. However, there is demonstrated interest in prospecting for potash resources, with four BLM-authorized potash prospecting permits in the analysis area, one BLM-authorized potash prospecting permit adjacent to the decision area, and at least another 13 pending applications in the decision area.

Locatable mineral development is an ongoing activity in the cumulative impact analysis area and is expected to continue under Alternative A. The level of exploration and development of locatable minerals, particularly gold and uranium, follow the swings in mineral commodity prices. Under all of the action alternatives (alternatives B and C and sub-alternatives D₁ and D₂), locatable mineral development may decrease due to restrictions placed on development. Decreases in production would be greatest under Alternative B, under which the BLM would recommend that all GUSG habitat be withdrawn from mineral entry.

Salable mineral extraction and use is expected to increase, in conjunction with increasing private property and commercial development. As the amount of BLM-administered land available for disposition of salable materials is reduced, it is expected that demand for salable minerals would increase in other areas adjacent to the cumulative impact analysis area. The demand for salable minerals includes the demand for relatively short transportation distances. A reduction of availability on BLM-administered lands would likely push development of salable minerals to nearby non-federal lands. Due to their proximity to the decision area, these lands would likely be within or adjacent to GUSG habitat.

Mineral exploration and development would continue to occur under all alternatives. However, acreages open to exploration and development would vary by alternative. Overall, management under Alternative B would be the most restrictive to mineral development and could result in the greatest amount of cumulative impacts on mineral exploration and development in the cumulative

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impact analysis area. A reduction of availability of mineral resources on BLM-administered lands would likely push development of minerals to nearby non-federal lands with development potential. Due to the proximity to the decision area, these lands would likely be within or adjacent to GUSG habitat.

4.16.LANDS & REALTY

LAND USE AUTHORIZATIONS AND UTILITY CORRIDORS

4.16.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following indicators are used to describe the impacts of the preferred alternative and other alternatives on the availability of BLM lands for land use authorizations, including ROWs, permits, leases, and communication site leases:

- Acres of ROW exclusion areas
- Acres of ROW avoidance areas
- Acres of designated utility corridors
- Acres of BLM ROWs
- Powerlines/Phone Lines
 - Overhead
 - Buried
- Roads
- Pipelines
- Acres of communication site leases/ROWs
- Acres of other leases and permits.

ASSUMPTIONS

The analysis of impacts on lands and realty is based on the following assumptions:

- Existing ROWs would be managed to protect valid existing rights.
- Upon renewal, assignment, or amendment of existing ROWs, additional stipulations could be included.
- The demand for ROWs, communication facilities, and other land uses would increase over the life of the plan.
- Maintaining and upgrading existing ROWs and communication facilities is preferred before constructing new facilities.

METHODS AND DATA

The term “ROW” is generally used to refer to all land use authorizations, including ROWs, land use permits, leases, and communications use leases, unless otherwise

specified in the discussion. This includes authorizations for small-scale solar energy developments and wind energy developments. As discussed in Chapter 3, the decision area is excluded from utility scale (20 megawatt or greater) development proposals. Any proposals for small-scale development would be subject to the same limitations as other ROW proposals.

Where possible, BLM spatial data (GIS) and other data (such as LR2000) were used to describe the impacts quantitatively. All data sets depend on the quality and availability of data, and so acreages and other numbers are approximations for comparison and analytic purposes only. When quantitative data was not available, the impacts are described qualitatively.

The primary planning decisions that could impact the lands and realty program include: ROW exclusion and avoidance designations; timing limitation and other surface use limitation standards and guidelines; travel management limitations; utility corridor designations; withdrawal recommendations; and, allowable mineral development.

Designations of ROW exclusion and avoidance areas could impact the ability to site ROWs on public land and could require additional mitigation and project criteria. Seasonal restrictions on travel, construction, and surface-disturbing maintenance could impact site accessibility, the ability to construct and maintain ROWs, and project costs. Limits on upgrades to existing routes, new route construction, and realignments of existing routes could impact the ability to site ROWs in an applicant's preferred location. Designations of utility corridors could direct future ROWs to preferred locations, while undesignating corridors could impact the ability to site future ROWs. Limitations on mineral development could reduce demand for ROWs for new infrastructure, such as roads and utilities.

4.16.2. IMPACTS BY ALTERNATIVE

ALTERNATIVE A - NO ACTION

Under No Action Alternative A, approximately 47,400 acres are designated as ROW exclusion areas and 119,500 acres as ROW avoidance areas, including 32,800 acres of exclusion and 5,900 acres of avoidance in Non-Habitat Areas. The remainder of the analysis area is open to ROWs with various resource protections applied as stipulations.

The more recently adopted plans (Grand Junction, Moab, Monticello, and Tres Rios RMPs) provide for NSO, no surface disturbance, and/or ROW exclusion within 0.6 mile of a lek. All of the plans (except for the McInnis Canyons NCA RMP, in which

the entire NCA is a ROW exclusion area) include timing limitations to protect GUSG during breeding and/or nesting. The Gunnison Gorge NCA RMP, Tres Rios RMP, and Draft Dominguez-Escalante NCA RMP also include timing limitations for wintering GUSG protection.

There are 248,110 acres in the analysis area designated as utility corridors.

There are no approved or recommended withdrawals specific to protection of GUSG in the analysis area. The Gunnison Gorge NCA, Dominguez-Escalante NCA, and McInnis Canyons NCA, as well as all Wilderness Areas, are withdrawn from mineral entry and mineral leasing. Wilderness Study Areas are withdrawn from mineral leasing.

Mineral development throughout much of the decision area is limited for GUSG protections. All Occupied Habitat is closed to mineral leasing under the Grand Junction RMP, and is open to mineral leasing with a NSO stipulation under the Canyons of the Ancients NM and Tres Rios RMPs, and the San Luis Valley Geothermal RMP Amendment. The rest of the decision area that is open to leasing is subject to a NSO stipulation for areas within 0.6 mile of a lek, with NSO within 2 miles of a lek for the Gunnison Gorge NCA RMP decision area outside of the proclaimed NCA. There are similar protections for mineral sales throughout the decision area. New mineral development in open areas would continue to require new ROWs for related infrastructure.

ALTERNATIVE B

Under Alternative B, Occupied and Unoccupied Habitat in the decision area would be designated as a ROW exclusion area, with some exceptions allowed. Areas subject to the specified exceptions would be managed as ROW avoidance areas. The exceptions would limit any new ROWs to being located within designated utility corridors or within 100 feet of the centerline of highways and county roads (or up to 100 feet from the edge of the ROW if not feasible), or to providing access and utilities to valid existing rights.

Timing limitations, ground disturbance limitations, and mitigation requirements would apply to any new, amended, or renewed authorizations.

Non-Habitat Areas where activities could be disruptive to GUSG would be designated as ROW avoidance areas, and the same guidelines for resource protection would be applied as those described under Alternative C. Noise disturbance limitations would be applied, as appropriate. In addition, whenever feasible new facilities and/or upgrades to existing facilities would be located within designated corridors or other areas with existing facilities.

In Occupied and Unoccupied Habitat, designated utility corridors not containing an authorized ROW would be undesignated. No new corridors would be designated in the decision area.

Withdrawal of the decision area would be recommended. This would require preparation of withdrawal packages to be submitted to the Secretary of Interior.

Occupied and Unoccupied Habitat would be closed to mineral leasing and mineral sales. No new leases would be issued when existing leases expire or terminate and so demand for ROWs would decrease.

All of the actions under Alternative B would lead to a decrease in the demand for and the number of new ROWs granted. It would be more difficult for BLM to accommodate new ROWs, and they would be subject to timing, disturbance, and siting limitations and mitigation requirements that could increase construction costs. New ROWs that could not be accommodated within the exception criteria would likely be diverted to adjacent nonfederal lands or prevented entirely.

ALTERNATIVE C

Under Alternative C, Occupied and Unoccupied Habitat would be designated as a ROW avoidance area, and guidelines for resource protection would be applied if locating a new ROW in Occupied and Unoccupied Habitat could not be avoided. Generally, existing routes subject to a ROW would be required to be maintained in their current condition (width, surface, etc.). Electric and phone lines would be required to be buried, if possible, or if not, then collocated with existing infrastructure where feasible. Perch deterrents would be required for any overhead lines. New communication infrastructure would be collocated with existing infrastructure where possible.

Timing limitations, ground disturbance limitations, and mitigation requirements would apply to any new, amended, or renewed authorization.

No new corridors would be designated in Occupied Habitat. Designated utility corridors in Occupied Habitat that do not contain an authorized ROW would be undesignated.

Withdrawals would be considered for recommendation based on risk to GUSG and its habitat from conflicting locatable mineral potential and development. For areas not withdrawn, seasonal restrictions and other mitigation measures would be applied to mining plans of operation.

Occupied Habitat in the decision area would be open to mineral leasing with a NSO stipulation. Unoccupied Habitat in the decision area would be open to mineral

leasing with a CSU stipulation to protect sagebrush and riparian habitat quality and connectivity. Mineral material sales would be allowed in accordance with the general management action limitations.

The actions under Alternative C would lead to a decrease in the number of new ROWs, but to a lesser degree than under Alternative B. Limitations to mineral development would reduce the demand for new ROWs. It would be more difficult for BLM to accommodate new ROWs, and ROWs would be subject to timing, disturbance, and siting limitations and mitigation requirements that could increase construction costs. There would be fewer new overhead electric and phone lines than would be authorized under the No Action Alternative, due to the requirements to collocate and/or bury new lines where feasible.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Sub-Alternative D₁ would: 1) implement the CCA for specific actions in Occupied Habitat; 2) would include the same actions as Sub-Alternative D₂ for Unoccupied Habitat and for activities not covered by the CCA and not related to minerals; and, 3) would include the same actions related to minerals development as under Alternative C.

ROWs for new facilities that would not be covered by the CCA guidance include proposals for more than 5.0 acres of permitted area, or more than 25 feet of utility ROW permitted area width, or more than 0.5 mile of aboveground infrastructure (not including buried utilities and pipelines). The CCA generally would apply more limitations on development within Tier 1 habitat than within Tier 2 habitat. The additional limitations include offsite mitigation requirements and a prohibition on new infrastructure, outside of existing development footprints, within 0.6 mile of a lek.

The impacts under Sub-Alternative D₁ are similar to those described for Alternative C. However, actions that would require additional offsite mitigation would further increase project costs for proposed ROWs.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

The actions under Sub-Alternative D₂ would be similar to those under Alternative C, with the following differences:

The bulk of the decision area would be designated as a ROW avoidance area. However, areas within 0.6 mile of a lek would be designated as ROW exclusion areas. The same exceptions to ROW exclusion area as allowed under Alternative B

would be applied. Areas subject to the specified exceptions would then be managed as ROW avoidance areas.

The impacts under Sub-Alternative D₂ would be similar to those under Alternative C.

4.16.3. CUMULATIVE IMPACTS

Past, present, and reasonably foreseeable future actions and conditions within the cumulative impact analysis area that have affected and will likely continue to affect the lands and realty program include the demand for new and existing ROWs for projects such as access roads, pipelines, electric and phone lines, and communication sites, related to minerals and renewable energy developments and to development of private lands.

The cumulative impact analysis area used to analyze cumulative impacts on the uses administered by the lands and realty program is composed of the planning area.

Population growth, and the associated increased private land development, access needs, and utilities development, as well as increased minerals development and associated infrastructure development and access needs, is expected to continue placing a greater demand on lands and realty actions. Restrictions on ROWs outlined in the alternatives, combined with restrictions from other management plans in the area, would have a cumulative effect by reducing routing options and possibly increasing project construction or implementation costs.

No additional restrictions were placed on utility-scale wind and solar energy development in the alternatives. None of the decision area has been identified as having potential for future wind energy development. However, there are some proposals for wind farms on private lands in the planning area in San Juan County, Utah. The decision area is already excluded from utility scale solar development. There are currently no wind energy or solar energy ROWs authorized on public lands in the decision area.

Cumulative impacts on lands and realty are expected to be the greatest under Alternative B, since it would place the most restrictions on development. In contrast, management under Alternative A would place the fewest restrictions on the lands and realty program and would therefore be expected to contribute the fewest cumulative impacts on lands and realty. Management under Alternative C and sub-alternatives D₁ and D₂ would also place restrictions on development, but to a lesser extent than under Alternative B.

4.17. AREAS OF CRITICAL ENVIRONMENTAL CONCERN

4.17.1. METHODOLOGY

INDICATORS

- The presence or absence of an ACEC is indicated by a designation within a BLM RMP.

ASSUMPTIONS

- The relevant and important values for which an ACEC is designated are not necessarily uniformly distributed across the entire ACEC.
- Management actions designed to protect GUSG habitat by reducing surface disturbance would benefit those relevant and important values that also occur within sagebrush communities.
- Not all relevant and important values within an ACEC have the same level of protection due to variation in specific management decisions. Management actions designed to protect GUSG habitat by reducing surface disturbance may result in impacts on relevant and important values that occur outside sagebrush communities.
- The designation of an ACEC does not prevent appropriate land uses so long as they are not detrimental to the relevant and important values.
- Proposed management decisions would not replace existing decisions that are more restrictive.
- Designation of an ACEC would not replace existing ACEC designations; GUSG habitat would be added to existing ACECs as another reason for designation and special management attention.

METHODS AND DATA

The analysis of impacts on ACECs is necessarily an analysis of impacts on the relevant and important values that are given special management attention through the designation of ACECs. A complete evaluation of impacts on these values is incorporated into the appropriate impact analysis sections addressing Fish and Wildlife, Special Status Species, Vegetation Management, Soil and Water Resources, Visual Resources, Cultural Resources, and Paleontological Resources. This analysis

will not duplicate those sections. Instead, this analysis will center on a comparison of alternatives based on the inclusion of an ACEC in Alternative B and any additional protections provided as a consequence.

4.17.2. IMPACTS BY ALTERNATIVE

ALTERNATIVE A

All currently designated ACECs would continue without modification. The assumption is that proposed management decisions would not replace existing decisions that are more restrictive. No new ACECs would be designated.

ALTERNATIVE B

Under Alternative B, all Occupied and Unoccupied Habitat would be designated as an ACEC. The special area designation would serve as a reminder to public land users and the BLM that GUSG habitat, both Occupied and Unoccupied, has significant values and resources requiring management with greater restrictions than public lands outside the boundaries of the ACEC.

Recreation and Travel Management

Management actions resulting from ACEC designation would limit travel to existing roads and trails, prohibit designation of new RMAs (SRMAs or ERMAs) and only allow Special Recreation Permits that have neutral or beneficial effects to GUSG and their habitat.

Minerals and Land Use Authorizations

The ACEC would be designated a ROW exclusion area, with exceptions for designated ROW corridors. The ACEC would be closed to fluid mineral leasing and recommended for withdrawal from locatable mineral entry. Designation could trigger additional requirements for avoidance of unnecessary and undue degradation under the general mining laws (43 CFR 3809). Potential solid mineral operators would be required to submit a plan of operations and obtain BLM approval prior to beginning operations that could cause surface disturbance greater than casual use.

ALTERNATIVE C

No new ACECs would be designated. Impacts would be the same as under Alternative A.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

No new ACECs would be designated. Impacts would be the same as under Alternative A.

4.18.SOCIO-ECONOMICS

4.18.1. METHODOLOGY

ATTRIBUTES AND INDICATORS

The following are indicators of socioeconomic effects resulting from management actions related to the protection of GUSG within the decision area:

- Employment, labor income, and output associated with economic activities affected by management alternatives
 - Number of jobs
 - Dollar value of output and labor income
- Qualitative assessment of additional costs to the use of public lands and resources
 - Grazing allotment infrastructure and management costs
 - Restrictions on mineral development and extraction, including fluid mineral leasing stipulations (e.g., NSO) and right-of-way exclusion and avoidance designations
 - Recreation site access
- Interest groups and communities of place
 - Qualitative assessment of effects to quality of life
 - Qualitative assessment of non-market values
- Environmental Justice
 - Qualitative assessment of disproportionately high and adverse human health and environmental impacts.

ASSUMPTIONS

Following are the basic assumptions related to social and economic impact assessment of the alternatives:

- The analysis of economic impacts of management alternatives on grazing assumes billed AUMs represent actual use based on the latest available data. Billed AUMs measure the amount of forage the BLM bills for annually. Billed AUMs may fluctuate year-to-year, but future changes cannot be predicted.
- Recreational expenditures incurred by local visitors to federal lands for recreational purposes are expected to continue to be spent locally if recreational resources on federal lands are no longer available. Expenditures by non-local visitors to federal lands are assumed to no longer be spent in

the planning area if federal lands are no longer available for recreation. Economic impacts are assumed to derive from recreation from non-local visitors.

- The analysis of impacts of management alternatives affecting oil and gas development on federal lands assumes that operators who are unable to drill on federal lands would not access the same oil and gas from nearby private or state lands. To the degree that a shift to private or state lands would occur, the impact estimates would be lower for restrictions on drilling and production on federal lands.
- The economic analysis of fluid mineral leasing for action alternatives B and C and sub-alternatives D₁ and D₂) relies on a qualitative description of added costs due to lease stipulations and access restrictions.

As a landscape level planning effort, none of the alternatives prescribe project-level or site-specific activities on BLM-managed public lands. Furthermore, the agency's selection of an alternative does not authorize funding to any specific project or activity nor does it directly tie into agency budgets as appropriated annually through the federal budget process. As a consequence, agency costs and differences in program costs across alternatives have not been quantified. Information has been presented in several resource impact sections on the types of costs that might be associated with various GUSG conservation measures.

METHODS AND DATA

For the analysis of economic consequences, quantitative estimates are provided where sufficient data or estimates are available on the potential changes in authorized uses of federal lands under each alternative. When quantitative estimates of economic consequences are not possible, a qualitative discussion of the potential economic effects of management actions associated with specific authorized uses is presented. Therefore, the overall economic consequences are a combination of quantitative estimates and qualitative discussion.

The economic contribution analysis uses IMPLAN Professional Version 3.0 with 2012 data. IMPLAN is an input-output model that uses linkages in a regional economy to estimate the economic impact of projects, programs, policies, and economic changes on a region. The economic contribution analysis also uses FEAST, a USFS tool that serves as an interface with IMPLAN. FEAST translates resource inputs (such as AUMs and recreation visits) into economically-meaningful units for use in IMPLAN.

For quantitative estimates, IMPLAN was used to estimate impacts on employment, labor income, and output in the decision area. Direct economic impacts are generated by the activity itself, such as livestock grazing on public lands. Indirect

impacts occur when the directly affected sector purchases supplies and services from other industries. Induced impacts are generated as a result of spending new household income generated by direct and indirect employment. The employment estimated is defined as any part-time, seasonal, or full-time job. In the economic impact tables, direct, indirect and induced contributions are included in the estimated impacts.

The IMPLAN database describes the economy in 440 sectors using federal data from 2012. However, the IMPLAN model is a static model, and it does not capture changes in the industrial composition of a region over time, nor does it capture dynamic effects that may be associated with processes of growth or decline, such as changes in technology or labor productivity. There is, therefore, a degree of uncertainty in the estimates of impacts obtained through the IMPLAN model.

The social analysis considers how proposed management actions may affect quality of life. This analysis incorporates non-market values—goods and services not traded in markets that contribute to human well-being. Due to data limitations, the assessment of non-market values is primarily qualitative. Additionally, the social analysis evaluates the potential for disproportionate effects to minority and low-income populations (Environmental Justice).

Grazing

Economic contributions of public land grazing follow the methodology developed and used by the BLM as part of the annual Department of the Interior economic report. See DOI (2014) for additional information.

Recreation

The recreation section of the economic contribution analysis uses visit estimates from the Recreation Management Information System (RMIS). RMIS is the BLM's official repository for data relating to the recreational use of public lands and waters. Annually, state and field office outdoor recreation planners enter and verify data on the number of recreation visits to each field office. The data contained in RMIS are the best available information on recreational use of BLM-managed public lands. The economic contribution analysis uses the average number of visits to each field office in FY13 and FY14. The average number of visits is multiplied by the share of the field office within GUSG habitat. The resulting number is used as a proxy for the number of visits that occur within the habitat.

The BLM does not collect information on the distribution of recreation visits among local and non-local users and day and overnight use. Therefore, this analysis uses the national recreation visitor segment shares from the Forest Service's National Visitor Use Monitoring (NVUM) program (White et al 2013). Local visitors are

defined as people residing within 50 miles of the recreation site. The NVUM visitor distribution is:

- Local day visitors: 49%
- Local overnight visitors, lodging on public land: 4%
- Local overnight visitors, lodging off public land: 1%
- Non-local day visitors: 10%
- Non-local overnight visitors, lodging on public land: 9%
- Non-local overnight visitors, lodging off public: 14%
- Non-primary visitors: 13%

Non-primary visitors are individuals whose trip purpose is something other than recreation on the public land. In the economic contribution analysis these visits are added to the local day visits category, since this market segment has the lowest expenditures. Therefore, non-primary visits are captured without assuming substantial visitor spending.

These segment shares are applied to the BLM visitation numbers to estimate the distribution of visitor types for each field office. The segment shares are necessary for the economic contribution analysis because visitor spending varies between local and non-local visitors as well as between day and overnight use. Since BLM does not collect national visitor expenditure data, the average Forest Service visitor expenditure estimates are applied to the BLM data (White et al 2013).

Average visitor spending (per trip) in 2014 dollars is:

- Local day visitors: \$36.54
- Local overnight visitors, lodging on public land: \$179.82
- Local overnight visitors, lodging off public land: \$235.72
- Non-local day visitors: \$69.34
- Non-local overnight visitors, lodging on public land: \$258.35
- Non-local overnight visitors, lodging off public: \$569.08

Dollar values were converted from their original 2009 dollars to 2014 dollars using the Bureau of Labor Statistics' consumer price index calculator (BLS 2014a).

Minerals

Federal data sources report a wide range of employment in the extraction of oil and gas sector. IMPLAN employment estimates, which are derived from several federal sources, exceed the employment reported by the U.S. Census Bureau's County Business Patterns (CBP). In Area 1, IMPLAN reports 859.0 jobs in the extraction of oil and gas, while CBP reports only 4 jobs in 2012. In Area 2, IMPLAN reports 549.7 jobs and CBP reports 99 jobs in 2012. In Area 3, IMPLAN reports 242.7 jobs and CBP reports 90 jobs in 2012 (IMPLAN 2012 and U.S. Census Bureau 2014).

Discussions with state officials, BLM minerals specialists, and BLM economists suggest that the IMPLAN data is the most accurate available information. Therefore, IMPLAN is used for this analysis.

Since only Area 3 has production from BLM-managed wells in GUSG habitat, the economic contribution analysis is conducted only for this area. The following calculations were made to estimate direct jobs associated with production from BLM-managed wells within habitat:

- 1) Multiply countywide barrels of oil produced by the 2012 price ($5,477,216 * 94.05$)
- 2) Multiply countywide Mcf of natural gas produced by the 2012 price ($51,109,451 * 2.66$)
- 3) Divide the total number of jobs in the extraction of oil and gas sector by the sum of (1) and (2), which yields $242.7 / (515,132,164.8 + 135,951,139.66) = 242.7 / 651,083,304.46 = 0.000000373$
- 4) Multiply barrels of oil produced from BLM-managed wells within GUSG habitat by the 2012 price ($8,283 * 94.05$) = 779,016.15
- 5) Multiply Mcf of natural gas produced from BLM-managed wells within GUSG habitat by the 2012 price ($919,281 * 2.66$) = 2,445,287.46
- 6) Multiply the sum of (4) and (5) by the result of (3), which yields $3,224,303.61 * 0.000000373 = \mathbf{1.2 \text{ direct jobs}}$

The number of direct jobs are then entered into the IMPLAN model to estimate the indirect and induced effects of oil and gas production from BLM-managed wells within GUSG habitat. IMPLAN modeling reveals that in addition to the 1.2 direct jobs, extraction of oil and gas from BLM-managed wells within GUSG habitat supports an additional 0.7 indirect jobs and 0.3 induced jobs. The total labor income associated with the direct, indirect, and induced jobs is \$95,000 and total output is \$630,000 (IMPLAN 2012).

4.18.2. SOCIO-ECONOMIC IMPACTS

GRAZING ALLOTMENTS

The potential impacts of management alternatives affecting grazing closures on overall employment, earnings, and output were estimated quantitatively only for alternatives A and B. Alternative C and sub-alternatives D₁ and D₂ would maintain GUSG habitat open for grazing, but these alternatives would impose restrictions on livestock grazing in GUSG habitat. The extent to which management actions under these alternatives would actually reduce the amount of billed AUMs is unclear. For purposes of the quantitative comparison of alternatives, the mid-point between Alternatives A and B is presented as an estimate of the economic impact of

Alternative C and sub-alternatives D₁ and D₂. This estimate is presented to allow addition to the impacts of other resource areas on output, employment, and labor income for comparison of alternatives, but should be understood as representing the range of potential impacts.

In addition to economic impacts linked to closing federal lands to livestock grazing, the estimates are intended to illustrate other costs on livestock operators, mainly under Alternative C and sub-alternatives D₁ and D₂. These include, among others:

- Various measures could affect the efficiency of livestock operations such as restrictions in GUSG habitat on vegetation treatments, structural improvements, movement of cattle, or on supplemental winter feeding.
- To the extent determined necessary in land health assessments, some allotments may be required to change livestock rotation or season of grazing, which could also affect the efficiency of ranch operations.
- For Alternative C and sub-alternatives D₁ and D₂ in areas where disturbance caps are exceeded, there is potential for restrictions on new disturbance (such as roads) that could increase operation costs for livestock operators.

Details about impacts under each alternative are provided below.

ALTERNATIVE A - NO ACTION

Under No Action Alternative A, federal lands with GUSG habitat would remain open for grazing.

Area 1

Area 1 contains approximately 14,600 billed AUMs for cattle, 7 billed AUMs for horses, 3,381 AUMs for sheep, and 2,275 AUMs for yearling cattle. The majority of AUMs are within GUSG habitat. Livestock grazing in Area 1 supports 45 jobs, \$720,000 in labor income, and \$4.5 million in output. None of these are expected to change as a result of management actions under No Action Alternative A.

Area 2

Area 2 contains approximately 6,916 billed AUMs for cattle, 26 billed AUMs for horses, and 248 AUMs for yearling cattle. Livestock grazing in Area 2 supports 15 jobs, \$275,000 in labor income, and \$1.8 million in output. None of these are expected to change as a result of management actions under No Action Alternative A.

Area 3

Area 3 contains approximately 9,446 billed AUMs for cattle, 8 billed AUMs for horses, and 128 AUMs for yearling cattle. Livestock grazing in Area 3 supports 21

jobs, \$270,000 in labor income, and \$1.7 million in output. None of these are expected to change as a result of management actions under No Action Alternative A.

ALTERNATIVE B

Under Alternative B, GUSG habitat would be closed to livestock grazing. Livestock grazing on federal lands in the decision area would be restricted to those with no GUSG habitat. Alternative B would also implement management actions in Non-Habitat Areas. Range management actions in the Non-Habitat Areas would apply only to BLM managed-lands. However, grazing would continue to be authorized.

Area 1

In Area 1, the impact of Alternative B is reflected in the estimated loss of approximately \$783,000 of the output, 9 jobs, and \$132,000 labor income compared to current conditions. The impact of Alternative B may also be greater than estimated, if the closure of federal lands makes some grazing operations no longer viable. In addition, permittees may incur fencing costs to prevent livestock from entering public lands in GUSG habitat. Compliance with water development best management practices may increase costs to permittees with allotments in Non-Habitat Areas.

Area 2

In Area 2, the impact of Alternative B is reflected in the estimated loss of approximately \$1 million of the output, 8 jobs, and \$153,000 labor income compared to current conditions. The impact of Alternative B may also be greater than estimated, if the closure of federal lands makes some grazing operations no longer viable. In addition, permittees may incur fencing costs to prevent livestock from entering public lands in GUSG habitat. Compliance with water development best management practices may increase costs to permittees with allotments in Non-Habitat Areas.

Area 3

In Area 3, the impact of Alternative B is reflected in the estimated loss of approximately \$1.3 million of the output, 16 jobs, and \$208,000 labor income compared to current conditions. The impact of Alternative B may also be greater than estimated, if the closure of federal lands makes some grazing operations no longer viable. In addition, permittees may incur fencing costs to prevent livestock from entering public lands in GUSG habitat. Compliance with water development best management practices may increase costs to permittees with allotments in Non-Habitat Areas.

ALTERNATIVE C

Under Alternative C, grazing on federal lands with GUSG habitat is likely to be similar to Alternative A because all GUSG habitat would be kept open for grazing. However, under Alternative C, decisions on livestock movement, range improvements, and vegetation treatments may be subject to the conservation, enhancement, or restoration of GUSG habitat, potentially reducing forage available because permittees would be required to move livestock off-range if necessary to protect GUSG. Seasonal restrictions could also be imposed, requiring that permittees move their livestock elsewhere, with added costs to their operations.

Area 1

The estimated employment, labor income, and output consequences of Alternative C are presented as the mid-point between alternatives A and B. In Area 1, this translates to 41 jobs, \$652,000 of labor income, and \$4.1 million of output. This estimate is provided to allow addition to the impacts of other resource areas on output, employment, and earnings for comparison of alternatives, but should be understood as representing the range of potential impacts (between those of A and B).

Area 2

The estimated employment, labor income, and output consequences of Alternative C are presented as the mid-point between alternatives A and B. In Area 2, this translates to 11 jobs, \$199,000 of labor income, and \$1.3 million in output. This estimate is provided to allow addition to the impacts of other resource areas on output, employment, and earnings for comparison of alternatives, but should be understood as representing the range of potential impacts (between those of A and B).

Area 3

The estimated employment, labor income, and output consequences of Alternative C are presented as the mid-point between alternatives A and B. In Area 3, this translates to 13 jobs, \$166,000 of labor income, and \$1.1 million of output. This estimate is provided to allow addition to the impacts of other resource areas on output, employment, and earnings for comparison of alternatives, but should be understood as representing the range of potential impacts (between those of A and B).

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

The economic consequences of management under Sub-Alternative D₁ are expected to be similar to the economic consequences described under Alternative C.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

The economic consequences of management under Sub-Alternative D₂ are expected to be similar to the economic consequences described under Alternative C and Sub-Alternative D₁.

RECREATION

ALTERNATIVE A - NO ACTION

No Action Alternative A would be the least likely to affect recreational opportunities in the decision area. Total recreation visits, activity participation, and the location of visits would not change as a result of management under this alternative.

Area 1

Non-local recreation visits in Area 1 support 90 jobs, \$2.4 million in labor income, and \$6.5 million in output. None of these are expected to change as a result of management actions under Alternative A.

Area 2

Non-local recreation visits in Area 2 support 34 jobs, \$992,000 in labor income, and \$2.7 million in output. None of these are expected to change as a result of management actions under Alternative A.

Area 3

Non-local recreation visits in Area 3 support 40 jobs, \$1.1 million in labor income, and \$2.9 million in output. None of these are expected to change as a result of management actions under Alternative A.

ALTERNATIVE B

Alternative B would adopt the most restrictive management of recreation use among the considered alternatives, including limiting route construction and the issuance of SRPs in Non-Habitat Areas. Total recreation visits are not expected to change, however, some users may be displaced to other sites in the affected counties. As a result, economic activity associated with BLM-managed public land recreation would not change. However, social values related to recreation may be affected as activities are displaced to less preferred sites. Data on site-specific management actions is unavailable; therefore, estimating differentiated effects among the three socioeconomic areas is not possible.

ALTERNATIVE C

Alternative C would implement some recreation restrictions to avoid adverse effects to GUSG and their habitat. Similar to Alternative B, total recreation visits and their associated economic activity are not expected to change. However, some recreation users may be displaced to other sites. The amount of displacement would be lower under Alternative C compared to Alternative B. Data on site-specific management actions is unavailable; therefore, estimating differentiated effects among the three socioeconomic areas is not possible.

SUB-ALTERNATIVE D₁ - GUNNISON BASIN PREFERRED

Sub-Alternative D₁ would implement recreation restrictions for consistency with the CCA to protect and enhance the recovery of GUSG. Similar to alternatives B and C, total recreation visits and their associated economic activity are not expected to change. However, some recreation users may be displaced to other sites. The amount of displacement would be lower under Sub-Alternative D₁ compared to Alternative B. Data on site-specific management actions is unavailable; therefore, estimating differentiated effects among the three socioeconomic areas is not possible.

SUB-ALTERNATIVE D₂ - SATELLITE PREFERRED

Sub-Alternative D₂ would implement some recreation restrictions to avoid adverse effects to GUSG and their habitat. Similar to alternatives B and C and Sub-Alternative D₁, total recreation visits and their associated economic activity are not expected to change. However, some recreation users may be displaced to other sites. The amount of displacement would be lower under Sub-Alternative D₂ compared to Alternative B. Data on site-specific management actions is unavailable; therefore, estimating differentiated effects among the three socioeconomic areas is not possible.

OIL, NATURAL GAS, AND CO₂ LEASES

ALTERNATIVE A - NO ACTION

Alternative A would continue current management of oil, natural gas, and carbon dioxide (CO₂) leases in the planning area. The existing resource management plans incorporate restrictions on oil, natural gas, and CO₂ activity to protect GUSG habitat. The selection of Alternative A would not affect employment, labor income, or output relative to existing conditions. Oil, natural gas, and CO₂ lessees are not

expected to face additional costs to their operations as a result of management actions under this alternative.

Future fluid mineral leasing would have the greatest potential under Alternative A. Within the planning area, 96,564 acres would be designated as closed to leasing and 941,991 acres would be designated as open to leasing. The potential for future economic activity related to oil, natural gas, and CO₂ development in the planning area would be highest under this alternative.

Area 1

There are no federal wells with oil or gas production in Area 1.

Area 2

There are no federal wells with oil or gas production in Area 2.

Area 3

All existing oil and gas leases are located within the Monticello-Dove Creek and San Miguel Basin population areas. There are 31 wells with production in the Monticello-Dove Creek population area and 37 wells with production in the San Miguel Basin population area. All of the Monticello-Dove Creek wells with production are in Unoccupied Habitat. In the San Miguel Basin population area, all of the wells with production are in Occupied Habitat.

Annual federal oil production in the Monticello-Dove Creek population area averaged approximately 6,200 barrels (bbl) between 2012 and 2014. Over the same period, federal oil production in the San Miguel Basin population area was approximately 2,200 bbl. Annual federal natural gas production in the Monticello-Dove Creek population area averaged approximately 276,000 Mcf between 2012 and 2014. Over the same period, annual federal oil production in the San Miguel Basin Population Area was approximately 644,000 Mcf. Chapter 3 displays the countywide oil and gas production in the Monticello-Dove Creek and San Miguel Basin population areas. Federal oil and gas production in both Occupied and Unoccupied Habitat accounts for a small share of total oil and gas production in the counties (approximately 0.2 percent of oil production and 2 percent of gas production).

Federal mineral production within GUSG habitat in Area 3 would be expected to continue to support 2 jobs, \$95,000 in labor income, and \$630,000 in output.

ALTERNATIVE B

Under Alternative B, the entire planning area would be closed to fluid minerals leasing. Existing leases would be allowed to expire. No expressions of interest

would be accepted for new or expired leases and unleased federal minerals would no longer be available for oil, natural gas, and CO₂ leasing. Alternative B would be expected to reduce employment, labor income, and output related to the development and extraction of oil, natural gas, and CO₂ in the planning area. The economic impact of closing the planning area to fluid mineral leasing would vary across the planning area; effects by socioeconomic area are described in more detail below.

Some operators might be able to obtain leases on private land, which could offset some of the economic consequences of this alternative. However, the extent to which these opportunities would exist is uncertain. Specific impacts on leasing and development of currently unleased minerals cannot be estimated without project-specific information on the size and configuration of such leases in relation to adjacent federal or private lands and existing or feasible new access routes. Data on site-specific management actions would not be available until specific lease sales are proposed.

Alternative B would also implement a controlled surface use (CSU) stipulation on BLM-managed lands and federal mineral resources in the Non-Habitat Areas. The CSU stipulation may increase the costs of fluid mineral development and extraction in Non-Habitat, which could deter fluid mineral activities in those areas. Because on site-specific management actions is unavailable, estimating differentiated effects of the CSU stipulation in Non-Habitat among the three socioeconomic areas is not possible.

The economic impact of closing the decision area to fluid mineral leasing would vary across the decision area.

Area I

In most of Area I (Gunnison Basin, Cerro Summit-Cimarron-Sims Mesa, and Poncha Pass population areas), there is low to no development potential for oil, natural gas, and CO₂. In the Crawford population area, between one and ten applications for permit to drill (APDs) are projected, which would not occur under Alternative B. Therefore, Alternative B could affect future employment, labor income, and output related to oil and gas development in the Crawford population area.

Area 2

There is low to no development potential for oil, natural gas, and CO₂ in Area 2 (Piñon Mesa). Therefore, fluid mineral leasing restrictions under Alternative B based on current resource knowledge and technologies is not expected to affect future economic activity in Area 2.

Area 3

Area 3 has both existing fluid mineral leases and the potential for future development. Therefore, Alternative B may affect both current and future economic activity related to oil and gas production in Area 3. The designation of the decision area as a ROW exclusion area (with some exceptions) would increase costs for access roads and utilities, which may further affect the financial feasibility of oil, natural gas, and CO₂ operations in the area.

ALTERNATIVE C

Under Alternative C, all Occupied Habitat would be open to leasing with a NSO stipulation. All Unoccupied Habitat would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat. The impact of management under this alternative would depend on the extent to which horizontal drilling could be used to reach the same oil reserves. If operators are able to access oil reserves using horizontal drilling, impacts would resemble those from Alternative A. If operators are unable to reach oil reserves using horizontal drilling, the economic impacts of Alternative C would resemble those of Alternative B.

To assess the extent to which federal minerals would remain accessible in the decision area under an NSO stipulation would require project-specific knowledge, including the location and size of leases and their spatial relationship to other leases, intersection of any new utility and road corridors with existing ones and the location of GUSG leks and habitats that facilities would be required to avoid, as well as the potential downhole geology of a specific lease in relation to the potential number of wells reachable from a single well pad. Even if accessible, development of federal minerals may be no longer viable depending on the extent to which the NSO stipulation adds costs to their development. Because data on site-specific management actions is unavailable, estimating differentiated effects among the three socioeconomic areas is not possible.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Under sub-alternatives D₁ and D₂, the impacts are essentially the same as under Alternative C.

OTHER MINERALS

As described in Chapter 3, approximately 19,000 acres of GUSG habitat (Occupied and Unoccupied) overlaps with existing or pending potash prospecting permits. GUSG habitat conservation measures may restrict the development of potash in the decision area. These restrictions could affect the economic feasibility of mineral

extraction and, as a result, the employment, income, and output associated with mineral development. There is not enough information on the potential for mineral production throughout the primary study area to quantify the potential economic impacts of restrictions imposed by management alternatives.

ALTERNATIVE A - NO ACTION

Under No Action Alternative A, approximately 95,564 acres are designated as closed to leasing and 899,645 acres are designated as open to leasing.

Area 1

As there is no known development potential for solid minerals in Area 1, no economic effects are anticipated.

Area 2

As there is no known development potential for solid minerals in Area 2, no economic effects are anticipated.

Area 3

Although there are no solid minerals currently leased in the decision area, there are five approved potash prospecting permits in the Monticello-Dove Creek Population Area. Because No Action Alternative A has the highest potential to enable solid mineral development in the decision area, this alternative is the most likely among the alternatives to support employment, income, and output related to solid mineral development in the decision area.

ALTERNATIVE B

Under Alternative B, the entire decision area would be closed to solid minerals leasing. Existing leases would be allowed to expire. No new leases, prospecting permits, or exploration licenses would be issued.

Alternative B would also implement a controlled surface use (CSU) stipulation on BLM-managed lands and federal mineral resources in Non-Habitat. The CSU stipulation could increase costs associated with potash prospecting and development in Non-Habitat Areas, which could make those activities economically infeasible.

Area 1

There is no known development potential for solid minerals in Area 1. Therefore, no economic effects are anticipated.

Area 2

There is no known development potential for solid minerals in Area 2. Therefore, no economic effects are anticipated.

Area 3

Five authorized potash prospecting permits in the Monticello-Dove Creek population area would continue as valid existing rights. The San Miguel Basin population area also has potash development potential. However, since there are no authorized federal leases or prospecting permits, there would be no production in the San Miguel Basin population area. Therefore, Alternative B may reduce the potential for potash prospecting and development to contribute to employment, income, and output in Area 3.

ALTERNATIVE C

Under Alternative C, all Occupied Habitat would be open to leasing with a NSO stipulation. All Unoccupied Habitat would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat.

Area 1

There is no known development potential for solid minerals in Area 1. Therefore, no economic effects are anticipated.

Area 2

There is no known development potential for solid minerals in Area 2. Therefore, no economic effects are anticipated.

Area 3

The consequences of Alternative C are expected to be similar to No Action Alternative A. However, the NSO and CSU stipulations may increase the cost of mining operations. In particular, NSO stipulations are expected to make potash prospecting and development economically infeasible. CSU stipulations would increase the costs of mining operations and may also make potash prospecting and development economically infeasible. Therefore, Alternative C could support lower levels of potash-related employment, income, and output than No Action Alternative A.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

The impacts under sub-alternatives D₁ and D₂ are essentially the same as under Alternative C.

LANDS & REALTY

ROWs on BLM-managed lands are used for roads, pipelines, utility corridors, communication sites, and other infrastructure. Management actions that restrict development of infrastructure could increase the cost of new investments or make them no longer economically viable.

ALTERNATIVE A - NO ACTION

No Action Alternative A places the fewest restrictions on ROW development and route construction and has the largest area open to travel. Under Alternative A, approximately 305,306 acres are designated as ROW exclusion areas and 89,028 acres are designated as ROW avoidance areas. The remainder of the analysis area is open to ROWs. Site-specific management actions and the need for future ROWs is uncertain. Therefore, the effects cannot be differentiated among the socioeconomic analysis areas.

ALTERNATIVE B

Under Alternative B, the entire decision area would be designated as a ROW exclusion area, with some exceptions allowed. General management requirements, including timing limitations and reclamation requirements, would apply to any new, amended, or renewed authorization. Alternative B would impose greater limitations and added costs to future economic investments in the decision area compared to No Action Alternative A.

Alternative B would also implement management actions in the Non-Habitat Areas. BLM-managed lands in Non-Habitat Areas would be designated as ROW avoidance areas. General management requirements, including timing limitations and reclamation requirements, would apply to any new, amended, or renewed authorization. The proposed ROW restrictions in Non-Habitat could increase the costs of infrastructure development adjacent to the decision area. ROW avoidance area designation could affect the economically viability of infrastructure development in Non-Habitat Areas.

ALTERNATIVE C

Under Alternative C, the entire decision area would be designated as a ROW avoidance area, and guidelines for resource protection would be applied if locating a new ROW in the decision area could not be avoided. General management requirements, including timing limitations and reclamation requirements, would apply to any new, amended, or renewed authorization. Alternative C would have

similar economic consequences to Alternative B. However, the added costs to infrastructure development under Alternative C are expected to be lower.

Therefore, some projects may be more economically viable under Alternative C compared to Alternative B.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

The impacts under sub-alternatives D₁/D₂ are similar to those described for Alternative C. However, some infrastructure development under Sub-Alternative D₁ would require additional offsite mitigation, which would further increase project costs for proposed ROWs. The added costs could result in some projects no longer being economically viable.

NON-MARKET VALUES

As described in Chapter 3, non-market values are goods and services that are not traded in markets. Many individuals hold wildlife-related values and the protection of GUSG in the decision area may advance those values. However, other non-market values, particularly recreation-related consumer surplus and livestock grazing heritage values may entail tradeoffs with habitat conservation measures.

ALTERNATIVE A - NO ACTION

The continuation of surface-disturbing activities under No Action Alternative A would be less likely to support non-market values related to wildlife protection, water and soil quality. However, Alternative A would offer the most access and opportunities for people who value livestock grazing and recreation.

ALTERNATIVE B

Alternative B is expected to decrease soil erosion and restore damaged streams and wetlands, which will benefit people who value healthy ecosystems. However, Alternative B is also expected to increase the number of acres affected by wildfire and make firefighting more difficult due to limited access. These consequences could adversely affect nearby residents due to smoke emissions and the risk of wildfire in the wildland-urban interface.

Although Alternative B would reduce human surface-disturbing activities in the decision area, the effect on GUSG habitat is not straightforwardly positive. As described in the wildlife section, reduced human activities may cause elk and mule deer to concentrate in closure areas, which may degrade GUSG habitat. The removal of domestic livestock grazing may be offset by increased grazing of wild

ungulates. While these effects may still support wildlife-related non-market values, they may not support the values of those who are particularly interested in the protection of GUSG.

ALTERNATIVE C

Alternative C would allow for ecosystem restoration activities, which may benefit people who value healthy ecosystems. However, continued livestock grazing would affect soil erosion and riparian health.

Alternative C would reduce wildfire risk in the future due to habitat and fuel treatments. Reduced wildfire risk would benefit nearby residents, who may be affected by smoke emissions and the spread of fire in the wildland-urban interface.

Like No Action Alternative A, Alternative C would continue to support heritage-related livestock grazing values and recreation-related consumer surplus.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Effects to non-market values under sub-alternatives D₁ and D₂ would be similar to those under Alternative C.

ENVIRONMENTAL JUSTICE

Chapter 3 finds that San Juan, Utah and Saguache, Colorado counties have large shares of minority residents. These counties also have the highest poverty rates in the decision area. These conditions increase the likelihood that individuals in these counties may experience disproportionately adverse consequences from economic changes. Saguache County is in socioeconomic Area 1, while San Juan County is in socioeconomic Area 3. Therefore, environmental justice consequences are assessed for these two areas.

Saguache County is dominated by agriculture, which accounts for more than one-third (34%) of jobs in the county. This makes agriculture the largest economic sector, by a large margin, in the county. Therefore, GUSG habitat conservation measures that affect livestock grazing could disproportionately and adversely affect residents of Saguache County.

San Juan County has a large share of employment in both agriculture (11.4%) and mining (7.8%) relative to the size of these sectors in Utah overall. The potential for GUSG habitat conservation measures to reduce opportunities for livestock grazing and mineral development could, therefore, disproportionately and adversely affect residents of San Juan County, Utah.

ALTERNATIVE A - NO ACTION

Area I (Saguache County, Colorado)

No Action Alternative A would not affect forage availability or allotment management costs of public land grazing permittees. Therefore, management under Alternative A would not disproportionately and adversely affect environmental justice populations in Area 1.

Area 3 (San Juan County, Utah)

No Action Alternative A would not affect forage availability or allotment management costs of public land grazing permittees. Additionally, Alternative A would not affect the economic feasibility of mining operations in Area 3. Therefore, management under Alternative A would not affect the quality of life or livelihoods of residents in Area 3.

ALTERNATIVE B

Area I (Saguache County, Colorado)

Under Alternative B, livestock grazing would be eliminated within Occupied and Unoccupied Habitat. Saguache County includes portions of the Gunnison Basin and Poncha Pass GUSG populations. In both the Gunnison Basin and Poncha Pass populations, approximately 85% of AUMs overlap with GUSG habitat. Therefore, the expected effect of Alternative B in Saguache County is to reduce public land livestock grazing opportunities by 85%. The overlap of agriculture-sector dependence, high poverty rates, and large minority populations indicates that changes to livestock grazing management under Alternative B could adversely and disproportionately affect the environmental justice population in Area 1.

Area 3 (San Juan County, Utah)

Alternative B would eliminate livestock grazing within GUSG habitat. San Juan County includes a portion of the Monticello-Dove Creek Population. Approximately one-quarter (26%) of AUMs overlap with GUSG habitat. The effects of livestock grazing management under Alternative B would be lower in Area 3 than in Area 1; however, the effect would still be expected to have environmental justice consequences, given the economic specialization in agriculture, high poverty rates, and large minority populations in Area 3.

Alternative B would close the decision area to mineral leasing. Federal oil and gas is extracted from wells in the Monticello-Dove Creek population area, although its contribution to countywide production of oil and gas is small (approximately 0.2% of oil and 2% of gas, as described in chapter 3). In addition to fluid mineral leasing, the Monticello-Dove Creek population area contains the only authorized potash

prospecting permits in the decision area. Although these five authorized prospecting permits would continue as valid existing rights under Alternative B, the potential for future economic activity related to potash would be curtailed. These management actions could adversely affect livelihoods in San Juan County.

ALTERNATIVE C

Area 1 (Saguache County, Colorado)

Alternative C would continue to authorize public land grazing in GUSG habitat, however, increased measures to protect GUSG relative to Alternative A could increase some costs to the permittee. Although the potential environmental justice consequences would be muted relative to Alternative B, increased livestock operating costs would be more difficult to bear in the area due to high poverty rates.

Area 3 (San Juan County, Utah)

Alternative C would continue to authorize public land grazing in GUSG habitat, however, increased measures to protect GUSG relative to Alternative A could increase some costs to the permittee. Although the potential environmental justice consequences would be muted relative to Alternative B, increased livestock operating costs would be more difficult to bear in the area due to high poverty rates.

Under Alternative C, all Occupied Habitat would be open to leasing with a NSO stipulation. All Unoccupied Habitat would be open to leasing with a CSU stipulation to protect sagebrush and riparian habitat. The effect of these management actions on livelihoods in Area 3 is uncertain, but they are expected to increase operating costs. If increased costs cause some mining operations to cease activities, employment and income in Area 3 could decline.

SUB-ALTERNATIVES D₁/D₂ - GUNNISON BASIN AND SATELLITE PREFERRED

Area 1 (Saguache County, Colorado)

Environmental justice impacts in Saguache County under sub-alternative D₁ and D₂ would be essentially the same as under Alternative C.

Area 3 (San Juan County, Utah)

Environmental justice impacts in San Juan County under sub-alternatives D₁ and D₂ would be essentially the same as under Alternative C.

4.18.3. CUMULATIVE IMPACTS

The cumulative effects analysis addresses how past, present, and reasonably foreseeable future actions contribute to the socioeconomic consequences of GUSG conservation measures. Cumulative effects analysis considers activities on both federal and non-federal lands in the decision area and vicinity. Because five BLM RMPs (Grand Junction, Gunnison Gorge NCA, Moab, Uncompahgre, and Tres Rios) already restrict surface-disturbing activities within 0.6 mile of a lek or more, GUSG conservation measures are already integrated into BLM management in much of the decision area.

Activities on state, private, and other federal lands (such as USFS lands) in the 11-county socioeconomic analysis area could interact with proposed BLM management actions to either amplify or attenuate the socioeconomic effects described above.

The socioeconomic consequences related to minerals could be affected by both private and public forces. Market fluctuations, such as the recent decline in oil prices, could affect private interest in developing federal mineral resources. Regulatory constraints, including decisions related to pipelines and other infrastructure that depends on public lands, could affect the feasibility of developing both federal and private mineral resources. Actions and events that cause mineral prices to fall would decrease the interest in mineral exploration and development in the decision area, while actions and events that cause mineral prices to rise would increase the interest in mineral exploration and development in the decision area.

Mineral price changes could interact with management actions to produce cumulative effects. Under No Action Alternative A, a rise in prices would increase mineral exploration and development relative to existing conditions. A decline in mineral prices would reduce activity under Alternative A, despite relatively permissive management. Under Alternatives B, firms would have fewer opportunities to react to price changes due to management restrictions. Therefore, a rise in prices would increase the cost of foregone economic opportunities. A decline in prices would decrease the cost of foregone mining-related economic opportunities. Under Alternative C and sub-alternatives D₁ and D₂, a rise in mineral prices could improve the economic feasibility of exploration and development activities in areas subject to NSO and CSU stipulations, while a decline in mineral prices would result in fewer economically feasible exploration and development opportunities.

The socioeconomic consequences related to public land grazing could be affected by the price of private forage, the conversion of ranch land to residential land, and management actions on adjacent public lands (such as USFS lands).

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

The socioeconomic consequences related to recreation could be affected by changes in motorized and non-motorized opportunities on adjacent lands and decisions by adjacent landowners regarding access.

5. CONSULTATION & COORDINATION

This chapter describes the public outreach and participation opportunities made available through the development of this RMP Amendment/EIS, and consultation and coordination efforts with tribes, government agencies, and other stakeholders.

BLM land use planning activities are conducted in accordance with requirements of NEPA, as well as CEQ regulations and BLM policies and procedures implementing NEPA. NEPA and associated laws, regulations, and policies require the BLM to seek public involvement early in and throughout the planning process to develop a reasonable range of alternatives to proposed actions and to prepare environmental documents that disclose the potential impacts of proposed actions and alternatives. Public involvement and agency consultation and coordination, which have been at the heart of the planning process leading to this Draft RMP Amendment/EIS, were achieved through Federal Register notices, public and informal meetings, individual contacts, media releases, and the GUSG planning project website: <http://1.usa.gov/1Uusw8C> (formerly www.bit.ly/gunnison_sage-grouse).

5.1. COLLABORATION

Federal laws require that the BLM consult with certain federal and state agencies and entities and Native American tribes (40 CFR 1502.25) during the NEPA decision-making process. The BLM is also directed to integrate NEPA requirements with other environmental review and consultation requirements to reduce paperwork and delays (40 CFR 1500.4-5).

In addition to formal scoping (outlined in Chapter 5, Section 5.3), as summarized below, the BLM has implemented an extensive collaborative outreach and public involvement process that has included coordinating with cooperating agencies and holding public scoping meetings. The BLM will continue to meet with interested agencies and organizations throughout the planning process, as appropriate, and will continue coordinating closely with cooperating partners.

5.1.1. NATIVE AMERICAN TRIBAL CONSULTATION

The BLM began tribal consultation for cultural resources for the planning process through a consultation initiation letter that was sent to the following tribes on July 9, 2014:

- The Hopi Tribe
- Jicarilla Apache Nation
- Kewa Pueblo (formerly the Pueblo of Santo Domingo)
- Navajo Nation
- Ohkay Owingeh (Pueblo of San Juan)
- Pueblo of Acoma
- Pueblo de Cochiti
- Pueblo of Isleta
- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Nambe
- Pueblo of Picuris
- Pueblo of Pojoaque
- Pueblo of San Felipe
- Pueblo of San Ildefonso
- Pueblo of Sandia
- Pueblo of Santa Ana
- Pueblo of Santa Clara
- Pueblo of Taos
- Pueblo of Tesuque
- Pueblo of Zia
- Southern Ute Indian Tribe
- The Paiute Tribe
- Ute Indian Tribe (Uintah & Ouray Reservation)
- Ute Mountain Ute Tribe
- White Mesa Ute Council
- Ysleta del Sur Pueblo
- Zuni Tribe of the Zuni Reservation

None of the 27 tribes contacted expressed an interest in participating in a formal capacity throughout the planning process. While the BLM received three letters from tribal agencies (Navajo Nation, The Hopi Tribe, and the Pueblo of San Felipe) in response to the consultation notice and scoping period notice, none identified immediate concerns beyond encouraging the BLM to follow the Section 106 consultation process. Government-to-government consultation will continue

throughout the RMP Amendment process to ensure that the concerns of tribal groups are considered. The Draft RMP Amendment/Draft EIS will be provided to the tribes concurrently with its release to the public.

5.1.2. COLORADO STATE AND UTAH STATE HISTORIC PRESERVATION OFFICERS CONSULTATION

The Draft RMP Amendment/Draft EIS will be provided to the Colorado State Historic Preservation Office and Utah State Historic Preservation Office concurrently with its release to the public.

5.1.3. U.S. FISH AND WILDLIFE SERVICE CONSULTATION

To comply with Section 7(c) of the Endangered Species Act, the BLM consulted with the FWS early in the planning process. The FWS provided input on planning issues, data collection and review, and alternatives development in their role as a cooperating agency. The BLM will consult with the FWS as appropriate.

5.1.4. COOPERATING AGENCIES

A cooperating agency is any federal, state, or local government agency or Native American tribe that enters into a formal agreement with the lead federal agency to help develop an environmental analysis. More specifically, cooperating agencies “work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks” (BLM Land Use Planning Handbook H-1601-1).

On July 9, 2014, the BLM wrote to numerous local, state, federal, and tribal representatives (as shown in Table 5.108), inviting them to participate as cooperating agencies for the Gunnison Sage-Grouse Rangewide RMP Amendment/EIS. Twenty-one agencies signed MOUs with the BLM to participate as cooperating agencies in the preparation of the EIS.

Table 5.108 - Agencies and Tribes Invited to Participate as Cooperating Agencies

AGENCIES AND TRIBAL GOVERNMENTS	
PARTICIPATING AGENCIES	
Counties	
Delta County, Colorado	
Dolores County, Colorado	
Grand County, Utah	
Gunnison County, Colorado	
Mesa County, Colorado	
Montrose County, Colorado	
Ouray County, Colorado	
Saguache County, Colorado	
San Juan County, Utah	
San Miguel County, Colorado	
State Agencies	
Colorado Department of Natural Resources	
Colorado Department of Transportation	
Colorado Parks and Wildlife	
State of Utah Public Lands Policy Coordination Office	
Federal Agencies	
Bureau of Reclamation, Upper Colorado Region	
National Park Service, Intermountain Region	
Natural Resources Conservation Service, Colorado State Office	
Office of Surface Mining Reclamation and Enforcement, Western Region	
U.S. Department of Energy, Western Area Power Administration	
U.S. Fish and Wildlife Service, Mountain-Prairie Region	
U.S. Forest Service - Region 2	
OTHERS CONTACTED	
Counties	
Chaffee County, Colorado	
Hinsdale County, Colorado	
State Agencies	
Colorado State Historic Preservation Officer	

AGENCIES AND TRIBAL GOVERNMENTS

Colorado Public Utilities Commission
Colorado Department of Public Health and Environment
Colorado Division of Agriculture
Shavano Conservation District
Mesa Conservation District
San Miguel Basin Conservation District
Gunnison Conservation District
Delta Conservation District
Dove Creek Conservation District
Center Conservation District

Federal Agencies

Environmental Protection Agency - Region 8
Natural Resources Conservation Service - Utah State Office
U.S. Geological Survey Science Center
U.S. Fish and Wildlife Service - Utah Field Office
U.S. Army Corps of Engineers - Sacramento District

Tribal Governments

The Hopi Tribe
Jicarilla Apache Nation
Kewa Pueblo (formerly the Pueblo of Santo Domingo)
Navajo Nation
Ohkay Owingeh (Pueblo of San Juan)
Pueblo of Acoma
Pueblo de Cochiti
Pueblo of Isleta
Pueblo of Jemez
Pueblo of Laguna
Pueblo of Nambe
Pueblo of Picuris
Pueblo of Pojoaque
Pueblo of San Felipe
Pueblo of San Ildefonso

AGENCIES AND TRIBAL GOVERNMENTS

Pueblo of Sandia

Pueblo of Santa Ana

Pueblo of Santa Clara

Pueblo of Taos

Pueblo of Tesuque

Pueblo of Zia

Southern Ute Indian Tribe

Ute Indian Tribe (Uintah & Ouray Reservation)

Ute Mountain Ute Tribe

White Mesa Ute Council

Ysleta del Sur Pueblo

Zuni Tribe of the Zuni Reservation

Since the planning process began in August, 2014, the BLM has typically conducted two meetings/conference calls a month with cooperating agencies. Potential cooperating agencies were also encouraged to attend the scoping public meetings and provide comments during the scoping period (discussed in Chapter 5, Section 5.3.1).

5.1.5. RESOURCE ADVISORY COUNCILS

Resource Advisory Councils (RACs) are composed of ten to fifteen members appointed by the Secretary of the Interior to represent a variety of interests across their state. The RACs meet two to four times annually to develop recommendations for the BLM regarding the preparation, amendment, and implementation of land use plans for public lands and resources and to provide representative citizen counsel and advice to the Secretary of the Interior concerning the planning and management of public land resources.

A coordinated effort to involve the RACs early on and throughout a planning effort ensures that the BLM will obtain and incorporate local input and advice at every stage. The three Colorado RACs (Front Range, Northwest, and Southwest) and the Utah RAC have been engaged throughout the Draft RMP Amendment/Draft EIS process as available and appropriate.

5.2. COORDINATION & CONSISTENCY

BLM planning regulations (43 CFR 1610) require that BLM RMPs be consistent with officially approved or adopted resource-related plans of other federal, state, local, and tribal governments, to the extent that those plans are consistent with federal laws and regulations applicable to public lands. Plans formulated by federal, state, local, and tribal governments that relate to federal lands and resources have been reviewed and considered as the RMP Amendment/EIS has been developed. These plans are listed in Chapter 5, Sections 5.2.1 through 5.2.6.

The BLM is aware that there are specific state laws and local plans relevant to aspects of public land management that are discrete from, and independent of, federal law. However, the BLM is bound by federal law. As such, there may be inconsistencies that cannot be reconciled. FLPMA and its implementing regulations require that the BLM's land use plans be consistent with officially approved state and local plans only if those plans are consistent with the purposes, policies, and programs of federal laws and regulations applicable to public lands.

Where officially approved state and local plans or policies and programs conflict with the purposes, policies and programs of federal law applicable to public lands, there will be an inconsistency that cannot be resolved. With respect to officially approved state and local policies and programs (as opposed to plans), this consistency provision only applies to the maximum extent practical. While county and state planning processes, under FLPMA, are required to be as integrated and consistent as practical, the federal agency planning process is not bound by or subject to state or county plans, planning processes, policies, or planning stipulations.

Related policies and plans to be considered during the GUSG RMP Amendment planning effort include:

5.2.1. RANGEWIDE AND LOCAL WORKING GROUP PLANS

- Gunnison Sage-Grouse Rangewide Conservation Plan (2005)
- Crawford Area Gunnison Sage-Grouse Conservation Plan (2011)
- Gunnison Sage-Grouse Conservation Plan Crawford Area, Colorado (1998)
- Gunnison Sage-Grouse Conservation Plan Dove Creek, Colorado (1998)
- Gunnison Sage-Grouse Conservation Plan Gunnison Basin, Colorado (1997)
- Gunnison Sage-Grouse Conservation Plan Piñon Mesa, Colorado (2000)

- Gunnison Sage Grouse Conservation Plan San Juan County, Utah
- Gunnison Sage-grouse Conservation Plan Update San Juan County, Utah (2003)
- Gunnison Sage-Grouse Conservation Plan San Miguel Basin Colorado (1998)
- Poncha Pass Gunnison Sage-Grouse Conservation Plan (2000)

5.2.2. COUNTY PLANS AND POLICIES

- Delta County Master Plan (1996)
- Dolores County Planning Process and Master Plan
- Grand County Non-Motorized Trails Master Plan (2011)
- Gunnison County Sage-Grouse Conservation Action Plan (2009)
- Mesa County Master Plan (2000)
- Montrose County Master Plan as amended (2010)
- Ouray County Master Plan (1999)
- Saguache County Master Plan (2010)
- San Juan County Master Plan (2008)
- San Miguel County Master Plan (as amended) (1978)
- Dolores County Development and Land Use Regulations (as amended 2012)
- Gunnison County Resolution No. 2007-09 – Temporary Closure of Certain Roads for Protection of Gunnison Sage Grouse (2007)
- Gunnison County Resolution No. 2007-17 – Amends Gunnison County Land Use Resolution Section 11-106: Protection of Wildlife Habitat Areas (amended 2013)
- Montrose County Resolution No. 39-2013 – Adoption of 1041 Regulations for the Protection of Gunnison Sage Grouse Occupied Habitat

5.2.3. STATE POLICIES AND PLANS

- Candidate Conservation Agreement with Assurances for Gunnison Sage-grouse (*Centrocercus minimus*) between the Colorado Division of Wildlife and the U.S. Fish and Wildlife Service (2006)
- Utah Code, Title 23 – Wildlife Resources

5.2.4. BLM POLICIES AND PLANS

PROGRAMMATIC REGIONAL & NATIONAL-LEVEL PLAN AMENDMENTS/EIS

- Vegetation Treatment on BLM Lands in Thirteen Western States (BLM 1991) (common to the proposed plan and draft alternatives)
- Final Vegetation Treatments on BLM Lands in 17 Western States Programmatic EIS and Associated Record of Decision (ROD) (FES 07-21) (BLM 2007)
- Approved RMP Amendments/ROD for Designation of Energy Corridors on BLM-administered Lands in the 11 Western States (U.S. Department of Energy, USFS, and BLM 2009)

ACTIVITY-LEVEL PLANS

- Candidate Conservation Agreement for the Gunnison sage-grouse, *Centrocercus minimus* Gunnison Basin Population (2013) (See Appendix C.)
- Bangs Canyon Travel Management Plan (2005)
- Billings Canyon Jeep Trails Plan (2003)
- Burn Canyon Travel Management Plan, Uncompahgre FO (2014)
- Dry Creek Travel Management Plan, Uncompahgre FO (2011)
- Gunnison Field Office Travel Management Plan (2010)
- Ridgway Comprehensive Travel Management Plan, Uncompahgre FO (2013)
- San Luis Valley Public Lands Center Travel Management Plan (2009)
- BLM Grand Junction Field Office [and] NPS Colorado National Monument Fire Management Plan (2008)
- Gunnison Field Office Fire Management Plan (2004)
- Canyon Country Fire Zone Fire Management Plan (2013 maintenance update)
- North Fruita Desert Travel Management Plan (2004)
- San Juan Public Lands Center Fire Management Plan (2014)
- San Luis Valley Bureau of Land Management Fire Management Plan (2004)
- Uncompahgre Field Office Fire Management Plan (2008)
- Utah Land Use Plan Amendment for Fire and Fuels Management (2005)

5.2.5. OTHER FEDERAL AGENCY POLICIES AND PLANS

- Black Canyon of the Gunnison National Monument and Curecanti National Recreational Area General Management Plan (1997, as amended)
- Endangered Species Act of 1973, as amended (16 USC 1531 et sequens)

- Grand Mesa, Uncompahgre and Gunnison National Forests Land and Resource Management Plan (1983, as amended)
- Pike and San Isabel National Forests and Comanche and Cimarron National Grasslands Land and Resource Management Plan (1984)
- Rio Grande National Forest Revised Land and Resource Management Plan (1996)
- San Juan National Forest Revised Land and Resource Management Plan (2013)

5.2.6. MEMORANDA OF UNDERSTANDING

- MOU between the BLM and the DOE to identify the individual and shared roles and responsibilities of the DOE and BLM with respect to the DOE Uranium Leasing Program. (April 2010)

5.2.7. PUBLIC INVOLVEMENT

Public Involvement is a vital and legal component of both the RMP Amendment and EIS processes. Public involvement vests the public in the decision-making process and allows for full environmental disclosure. Guidance for implementing public involvement under NEPA is codified in 40 CFR Section 1506.6, thereby ensuring that federal agencies make a diligent effort to involve the public in the NEPA process. FLPMA Section 202 directs the Secretary of the Interior to establish procedures for public involvement during land use planning actions on public lands. These procedures can be found in the BLM Land Use Planning Handbook (H-1601-1). Public involvement for the GUSG RMP Amendment/EIS involves the following four phases:

- Public scoping before NEPA analysis begins to determine the scope of issues and alternatives to be addressed in the RMP Amendment/EIS
- Public outreach via news releases
- Collaboration with federal, state, local, and tribal governments and cooperating agencies
- Public review of and comment on the Draft RMP Amendment/EIS, which analyzes likely environmental effects and identifies the BLMs preferred alternative.

While the public scoping phase of the process has been completed, public outreach and collaboration are ongoing throughout the RMP Amendment/EIS process. Information about the process can be obtained by the public at any time on the BLM GUSG project website (<http://1.usa.gov/1Uusw8C>). This website contains

CHAPTER 5 - CONSULTATION & COORDINATION

background information about the project, a public involvement timeline and calendar, maps, and photos of the planning area, and copies of public information documents released throughout the RMP Amendment/EIS process.

5.3. SCOPING & ISSUES

When developing or amending an RMP, the BLM follows a process outlined in the BLM Land Use Planning Handbook H-1601-1 (BLM 2005), beginning with the identification of issues. Planning issues are concerns or controversies about existing and potential land and resource allocations, levels of resource use, production, and related management practices that can be addressed through a range of alternatives. These issues can stem from new information or changed circumstances that cause federal land managers to reassess current situations on federal lands. Issues can be identified either internally by resource specialists and other agency staff or externally by public stakeholders during a public scoping period.

5.3.1. PUBLIC SCOPING

The public scoping period for this planning effort was initiated on July 18, 2014 with the publication of a Notice of Intent (79 2014-16819) in the *Federal Register* and ran through August 22, 2014. The process included soliciting input from interested individuals and organizations, state, local, and tribal governments, and other federal agencies in an effort to identify the scope of issues to be addressed in the RMP Amendment and assist in formulating reasonable alternatives.

SCOPING MEETINGS

The BLM hosted four public scoping meetings in Golden, Gunnison, Montrose, and Dove Creek, Colorado to provide the public with opportunities to learn more about the project and interact with and ask questions of BLM resource specialists and other staff. In addition, scoping comment forms were available for the public to fill out and hand deliver at the meetings. A combined total of 170–200 individuals attended one or more of the public scoping meetings.

Table 5.109 - Public Scoping Meetings

VENUE	LOCATION	DATE	TIME
Marriott - Denver West	Golden, CO	August 4, 2014	6-8 pm
Western Complex	Gunnison, CO	August 5, 2014	6-8 pm
Holiday Inn Express	Montrose, CO	August 6, 2014	6-8 pm
Dove Creek High School	Dove Creek, CO	August 7, 2014	6-8 pm
Total Attendees			170-200

The scoping meetings were divided into three segments: (1) an open house, (2) a PowerPoint presentation, and (3) a question and answer session.

Open House

During the open house portion, the public was able to review poster-sized maps depicting various land designations (including surface, split estate, oil and gas leases, grazing allotments, travel routes, and specially designated land status) across the range of the GUSG. BLM resource specialists stationed near the maps provided the public with opportunities for face-to-face interaction.

PowerPoint Presentation

Following the open house, the GUSG Project Manager delivered a PowerPoint presentation on the BLM GUSG planning effort, which included an overview of FWS proposals to list and designate critical habitat for the GUSG, the goals of public scoping, the BLM planning process, background information on the GUSG and its range, a summary of existing agreements and policies to protect the GUSG, potentially affected RMPs and resource and program areas, a draft project schedule, and acceptable methods for submitting comments.

Question and Answer Session

A contract employee facilitated a question and answer session that enabled the public to ask questions of the GUSG Project Manager and other BLM staff. The public was reminded that the verbal questions posed did not constitute a formal public scoping comment and that they would still need to submit their comments and issues in writing.

OTHER OUTREACH METHODS

In addition, the BLM issued a news release announcing the planning effort and meetings, mailed notifications to an initial list of potentially interested organizations and individuals, established a project website, and made presentations to each of the active BLM resource advisory councils (RAC) within the range of the species. All of these methods were used to notify the public regarding the scoping period and planning process and to invite the public to provide written comments. Comments obtained from the public during the scoping period were used to help identify the relevant issues to be addressed through a reasonable range of alternatives.

Public scoping provided the public with an opportunity to identify considerations for managing GUSG habitat. As part of the scoping process, the BLM also requested that the public consider and submit nominations for potential Areas of Critical Environmental Concern (ACECs) for GUSG and GUSG habitat to be designated in

order to protect the significant wildlife resources, natural processes, or systems within.

Project Website

The BLM developed a project website at www.bit.ly/gunnison_sage-grouse to provide the public with current information about the RMP Amendment/EIS process (including background information, a public involvement timeline and calendar, maps of the planning area, copies of public information documents such as the Notice of Intent and press releases, a list of cooperating agencies, and project updates).

In addition, project information, documents, and public comment opportunities are posted to the BLM ePlanning site at <http://1.usa.gov/1Uusw8C>.

Mailing List

The BLM compiled a mailing list of several hundred individuals, agencies, and organizations that had participated in past BLM projects in southwest Colorado and or southeast Utah. Attendees at the scoping public meetings were added to the mailing list if they chose to receive or continue to receive project information. In addition, all individuals or organizations who submitted scoping comments were added to the mailing list. Requests to be added to or to remain on the official RMP Amendment distribution list will continue to be accepted throughout the planning process.

5.3.2. SCOPING COMMENTS

All written public comments received on or before August 22, 2014 were evaluated and documented in the Scoping Report (available online at www.bit.ly/gunnison_sage-grouse and through BLM ePlanning at <http://1.usa.gov/1Uusw8C>).

A total of 63 unique written submissions were received. A number of the submissions contained multiple comments, which resulted in a total of 526 unique comments. These comments were assigned to one of four response categories:

- An issue to be resolved in the RMP Amendment.
- An issue to be resolved through policy or administrative action.
- An issue beyond the scope of the RMP Amendment.
- An issue that has already been addressed but should be better communicated to the issue holder.

Of the 526 comments received, 500 were identified as issues for resolution through the RMP Amendment, 5 were determined to be issues to be resolved through policy or administrative action, and 21 comments were determined to be beyond the

scope of the plan amendment effort to resolve. No comments were categorized as issues that had already been addressed but required improved communications between the BLM and the commenter.

5.3.3. KEY ISSUES IDENTIFIED THROUGH SCOPING

Table 5.110 - Comments by Resource or Planning Issue

RESOURCE OR PLANNING ISSUE	NUMBER OF INDIVIDUAL COMMENTS
Planning Process and Alternatives	114
Data/Best Available Science	54
Energy and Mineral Development	50
Livestock Grazing	47
Fish and Wildlife	42
Recreation and Travel Management	40
Partnerships/Collaboration	37
Social, Economic, and Environmental Justice	30
Lands, Realty, and Rights-of-Way	28
Special Management Areas	20
Vegetation Management	15
Drought Management and Climate Change	10
Water, Soil, and Riparian Areas	8
Invasive Species	5
TOTAL	500

FUTURE PUBLIC INVOLVEMENT

Public participation opportunities will continue to be offered throughout the GUSG RMP Amendment planning process. A substantial contribution to this effort is the opportunity for members of the public to review and comment on this Draft RMP Amendment/Draft EIS during a 90-day comment period. The BLM will consider and address substantive comments within the Proposed RMP Amendment/Final EIS. The release of the Proposed RMP Amendment/Final EIS will be followed by a 30-day protest period, as well as consistency reviews by the governors of Colorado and Utah. The resolution of legitimate protests and issues raised through the

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consistency reviews will culminate in the issuance of a Record of Decision (ROD) and Approved RMP Amendment by the BLM.

5.4. LIST OF PREPARERS

BLM resource specialists and staff members from across Colorado and Utah served on an interdisciplinary team in the preparation of this Draft RMP Amendment/Draft EIS. In addition, a USFS Enterprise team contributed the socio-economic analysis, while numerous BLM employees provided valuable input and assistance to the project team members and reviewed and commented on draft documents. Core team members and key contributors are identified in Table 5.111.

Table 5.111 - Contributors to the Draft RMP Amendment/Draft EIS

MEMBER	OFFICE	RESPONSIBILITY
CORE TEAM		
Bridget Clayton	BLM Grand Junction Field Office	Sage Grouse Coordinator (July 2016 – present)
Lori A. Armstrong	BLM Colorado Southwest District	Project Manager (July 2015 – June 2016)
Leigh D. Espy	BLM Colorado State Office	Project Manager (Project Initiation – July 2015)
Roger Sayre	BLM Colorado State Office	NEPA; Planning (December 2015 – present)
Travis Haby	BLM National Operations Center	NEPA; Planning (June 2014 – December 2015)
Russ Japuntich	BLM Gunnison Field Office	Wildlife Biology - Gunnison Basin Population
Nathaniel West	BLM Tres Rios Field Office	Wildlife Biology - Satellite Populations
Amanda Clements	BLM Uncompahgre Field Office	Vegetation Management; Grazing; Fire
Sean Noonan	BLM San Luis Valley Field Office	Recreation; Travel; Special Designation Areas
Marnie Medina	BLM Gunnison Field Office	Minerals; Land Tenure; Contracting Officer's Representative
D. Maggie Magee	BLM Colorado Southwest District	Technical Writer-Editor; Web and ePlanning
Natalie Dovgan	BLM Colorado State Office	GIS Coordination and Data Analysis
KEY CONTRIBUTORS		
Ruth Welch	BLM Colorado State Office	State Director
Brian St. George	BLM Colorado State Office	Deputy State Director
Rebecca Doolittle	BLM Utah Canyon Country District	BLM Utah Point of Contact
Leah Baker	BLM Washington Office	Planning Point of Contact
Courtney Whiteman	BLM Colorado State Office	Communications Specialist
Shannon Borders	BLM Colorado Southwest District	Public Affairs Officer
Martin Hensley	BLM Colorado State Office	Socio-Economics Point of Contact
Delilah Jaworski	USFS Enterprise Team	Socio-Economics Analysis
Kymm Gresset	BLM Colorado State Office	Administrative Record
Sara Lura Matthews	BLM Colorado State Office	Facilitation; Administration (pre-draft)
David Baker	BLM National Operations Center	Recreation; Travel Management (pre-draft)
Sean Hudak, GIS Intern	Colorado Youth Core Association	GIS Analysis
Cara Arpino, GIS Intern	Colorado Youth Core Association	GIS Data Digitization
Bradley Porter, GIS Intern	Colorado Youth Core Association	GIS Data Digitization
Caroline Mardock	Colorado Youth Core Association	GIS Data Digitization
Josh Ryan	Colorado Youth Core Association	GIS Data Digitization

6. APPENDICES

- APPENDIX A: GUSG Population Maps
- APPENDIX B: BLM Washington Office IM 2014-100
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- APPENDIX D: GUSG Rangewide Conservation Plan Structural Habitat Guidelines
- APPENDIX E: BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado and Utah
- APPENDIX F: GUSG Draft Socio-Economic Data
- APPENDIX G: Areas of Critical Environmental Concern - Relevance and Importance Analysis and Determination Rationale
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APPENDIX A: GUSG POPULATION MAPS

Spatial data for the GUSG Draft RMP Amendment/Draft EIS was primarily generated internally by combining feature classes from BLM field offices covered within the planning area. Several feature classes were created by pulling legal land descriptions from the BLM LR2000 database, based on pertinent case types. The remaining feature classes were gathered from external sources such as FWS, USGS, and state and local government data. Each feature class is listed below by name and general data source for that feature class.

Table A.II2 - Data Sources for the Draft RMP Amendment/Draft EIS

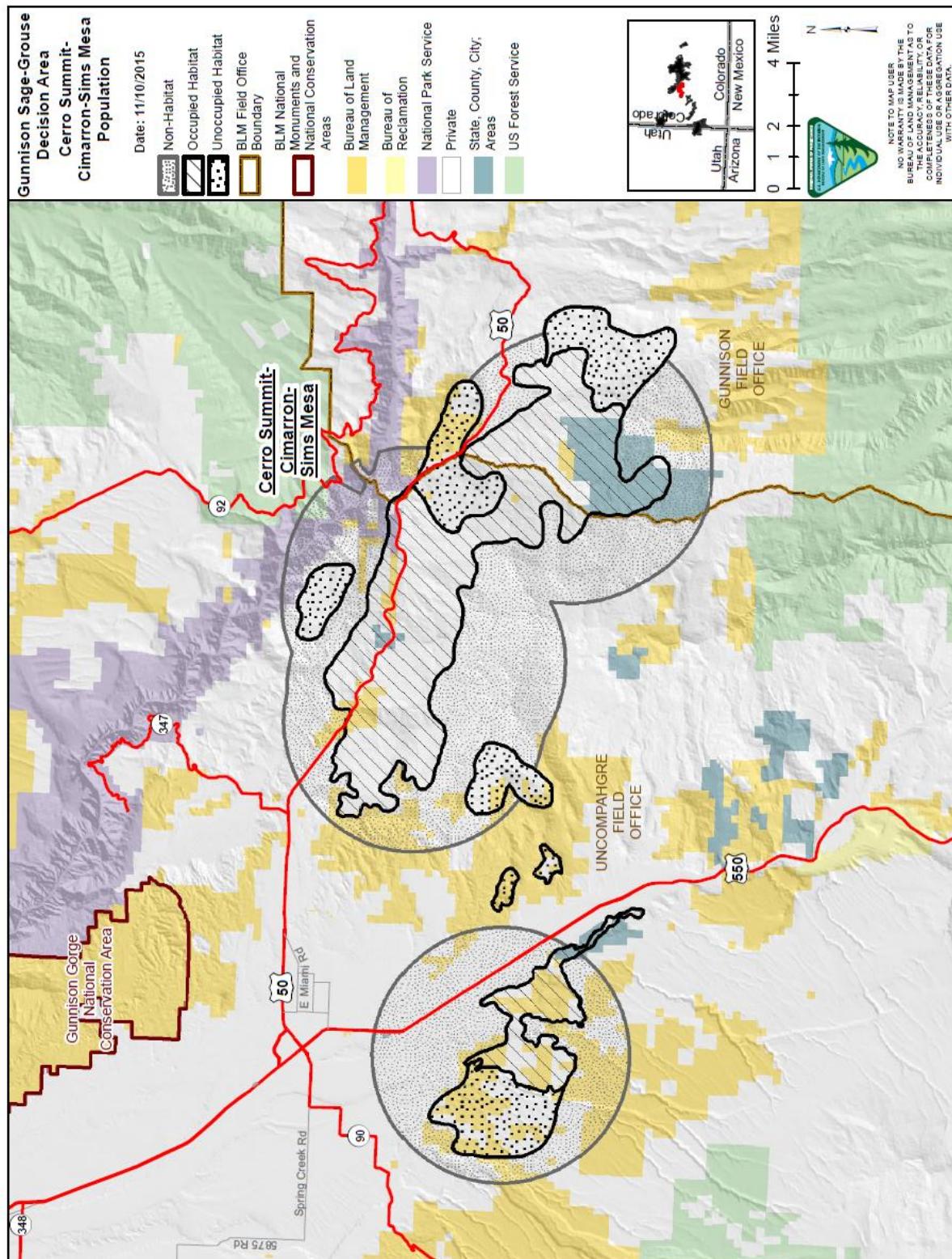
DATA SET NAME	DATA SOURCE
Existing Vegetation Type	LANDFIRE LFI.2.0
Vegetation Condition Class	LANDFIRE LFI.1.0
Streams	USGS NHD v220
Oil and Gas Wells	Colorado Oil and Gas Commission, Utah Department of Natural Resources
Roads	ESRI ArcGIS Online Major Roads, Delta County Roads, Gunnison County Roads, Mesa County Roads, Montrose County Roads, San Miguel County Roads, Grand County Roads, BLM GTLF
Uranium Lease Tracts	DOE Uranium Lease Tracts file Y0010500-02
Fire Occurrence History Points	USGS Federal Fire Occurrence
GUSG Habitat	USFWS Final GUSG Critical Habitat
Lek Buffers	Colorado Parks and Wildlife
Wetlands	USFWS Wetlands Inventory
Fire Perimeters	Internal combined BLM Colorado and Utah Field office data
Land Use Planning Units	Internal combined BLM Colorado and Utah Field office data
Surface Restrictions	Internal combined BLM Colorado and Utah Field office data
Rights-of-Way (Lines)	Digitized from internal BLM case files and LR2000 attributes
Rights-of-Way (Polygon)	Buffered internal digitized ROW lines
Rights-of-Way (Polygon)	Generated from internal LR2000 database
Rights-of-Way Restrictions	Internal combined BLM Colorado and Utah Field office data
Utility Corridors	Internal combined BLM Colorado and Utah Field office data
Surface Management Agency	Internal combined BLM Colorado and Utah State office data
Coal Occurrence	Internal combined BLM Colorado and Utah Mineral Potential Reports where available
Oil and Gas Development Potential	Internal combined BLM Colorado and Utah State office data
Uranium Vanadium Occurrence Development Potential	Internal combined BLM Colorado and Utah Mineral Potential Reports where available
Mineral Materials Sites	Internal BLM data generated from LR2000
Notice of Surface Management Exploration Operations	Internal BLM data generated from LR2000

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Population Maps & Data Sources

DATA SET NAME	DATA SOURCE
Solid Non-energy Leasables	Internal BLM data generated from LR2000
Federal Subsurface Estate	Internal combined BLM Colorado and Utah State office data
ACEC	Internal combined BLM Colorado and Utah Field office data
Lands with Wilderness Characteristics	Internal combined BLM Colorado and Utah Field office data
NLCS National Monument and National Conservation Areas	Internal combined BLM Colorado and Utah State office data
NLCS National Scenic and Historic Trails	Internal combined BLM Colorado and Utah State office data
NLCS Wild and Scenic Rivers	Internal combined BLM Colorado and Utah State office data
NLCS Wilderness Areas	Internal combined BLM Colorado and Utah State office data
NLCS Wilderness Study Areas	Internal combined BLM Colorado and Utah State office data
Oil and Gas Leases	Internal BLM data generated from LR2000
Oil and Gas Stipulations	Internal combined BLM Colorado and Utah State office data
Closed to Oil and Gas Lease	Internal combined BLM Colorado and Utah State office data
Closed to Solid Minerals	Internal combined BLM Colorado and Utah State office data
OHV Areas	Internal combined BLM Colorado and Utah Field office data
Proper Functioning Condition	Internal combined BLM Colorado and Utah Field office data
Extensive Recreation Management Areas	Internal combined BLM Colorado and Utah Field office data
Special Recreation Management Areas	Internal combined BLM Colorado and Utah Field office data
Land Health Reporting	Internal combined BLM Colorado and Utah Field office data
Vegetation Materials Restrictions	Internal combined BLM Colorado and Utah Field office data
Vegetation Treatments	Internal combined BLM Colorado and Utah Field office data
Weed Priority Areas	Internal combined BLM Colorado and Utah Field office data
Withdrawals	Digitized from internal BLM master title plats and LR2000 generated polygons and attributes
Allotments	Internal combined BLM Colorado and Utah Field office data with added attributes from RIPS and field offices
Recreation Sites	Internal BLM FAMS database data
GUSG Decision Area	USFWS Critical Habitat combined with CPW habitat polygons and lek buffers

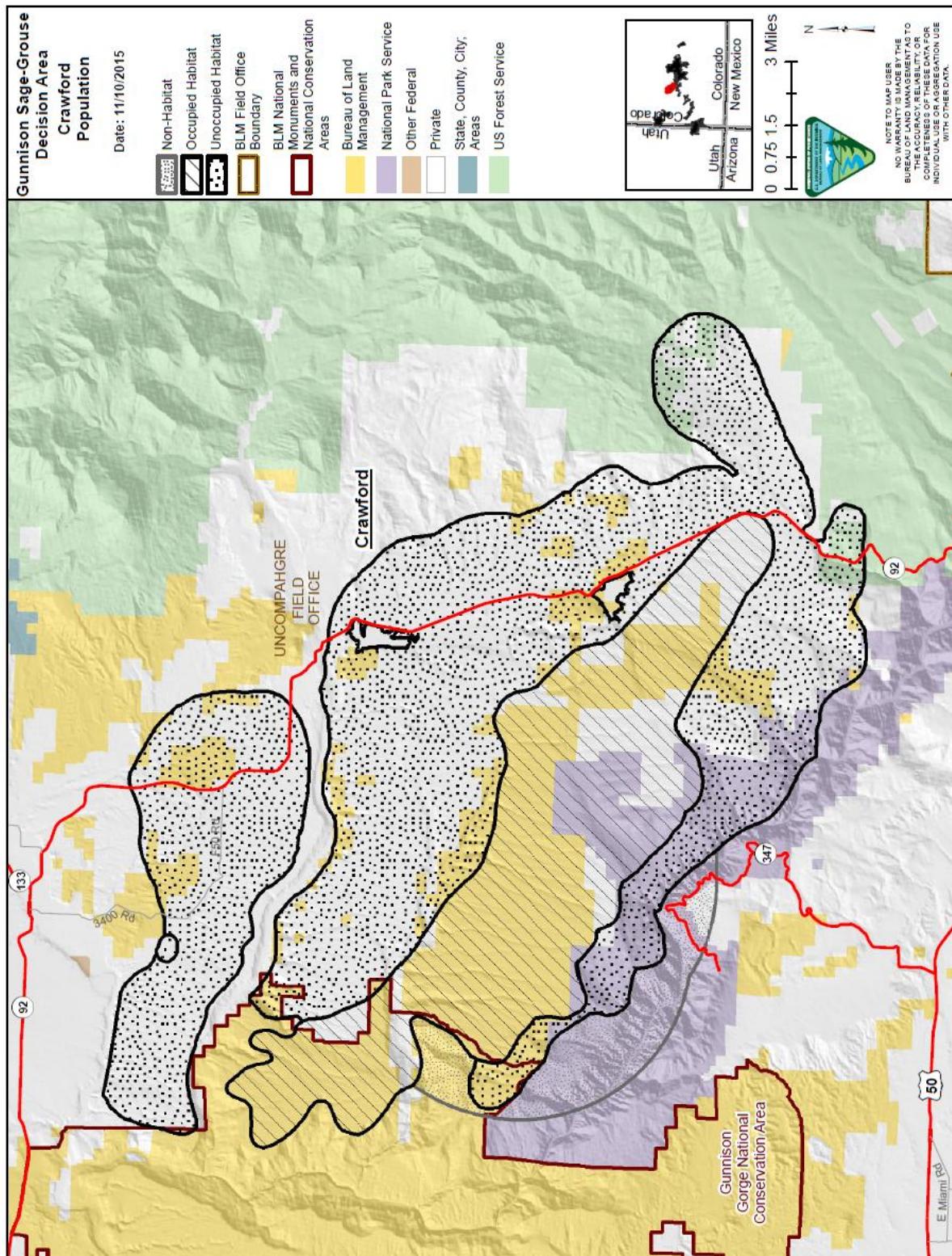
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Population Maps & Data Sources

Figure A.80 - Decision Area for the Cerro Summit-Cimarron-Sims Mesa Population



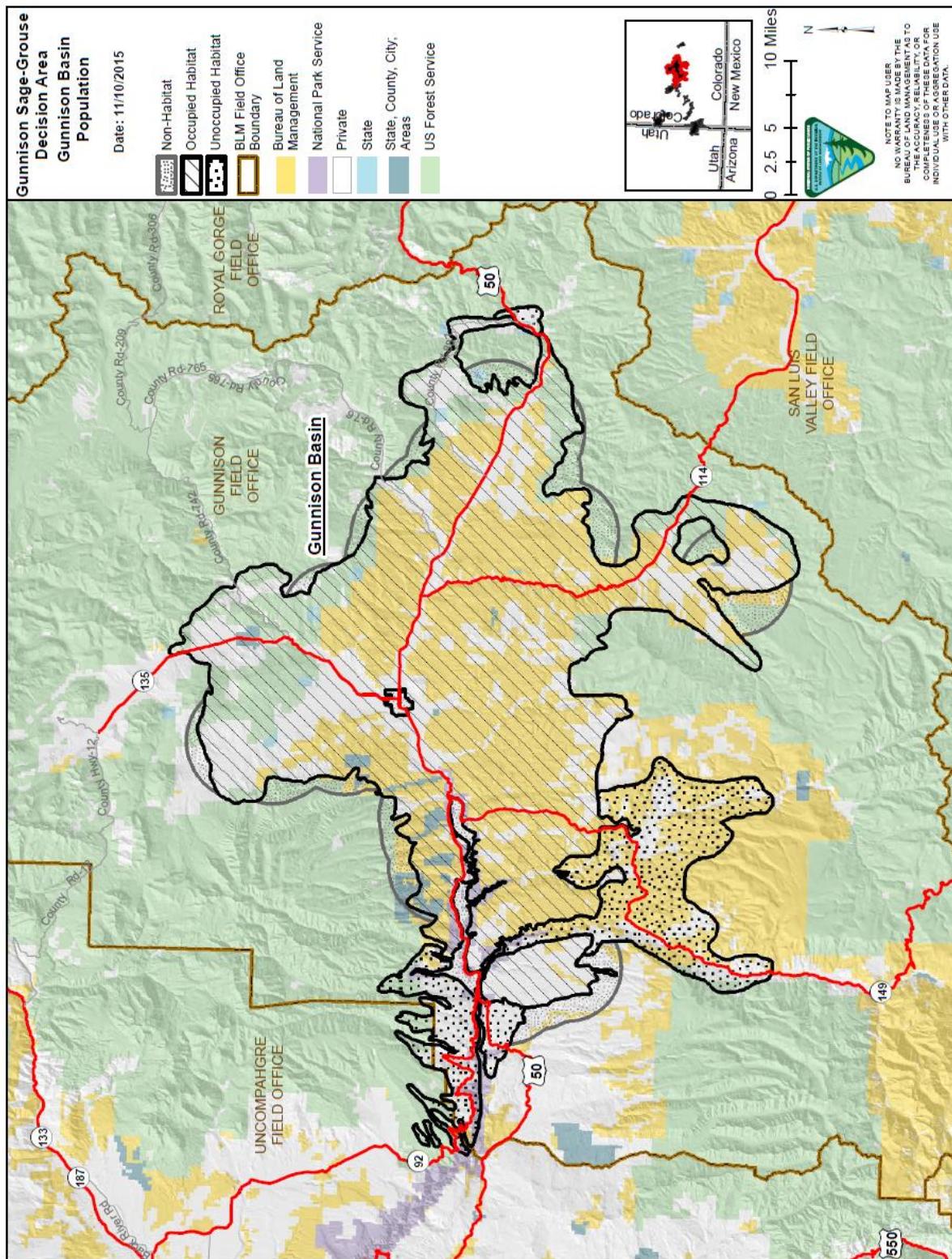
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Figure A.81 - Decision Area for the Crawford Population



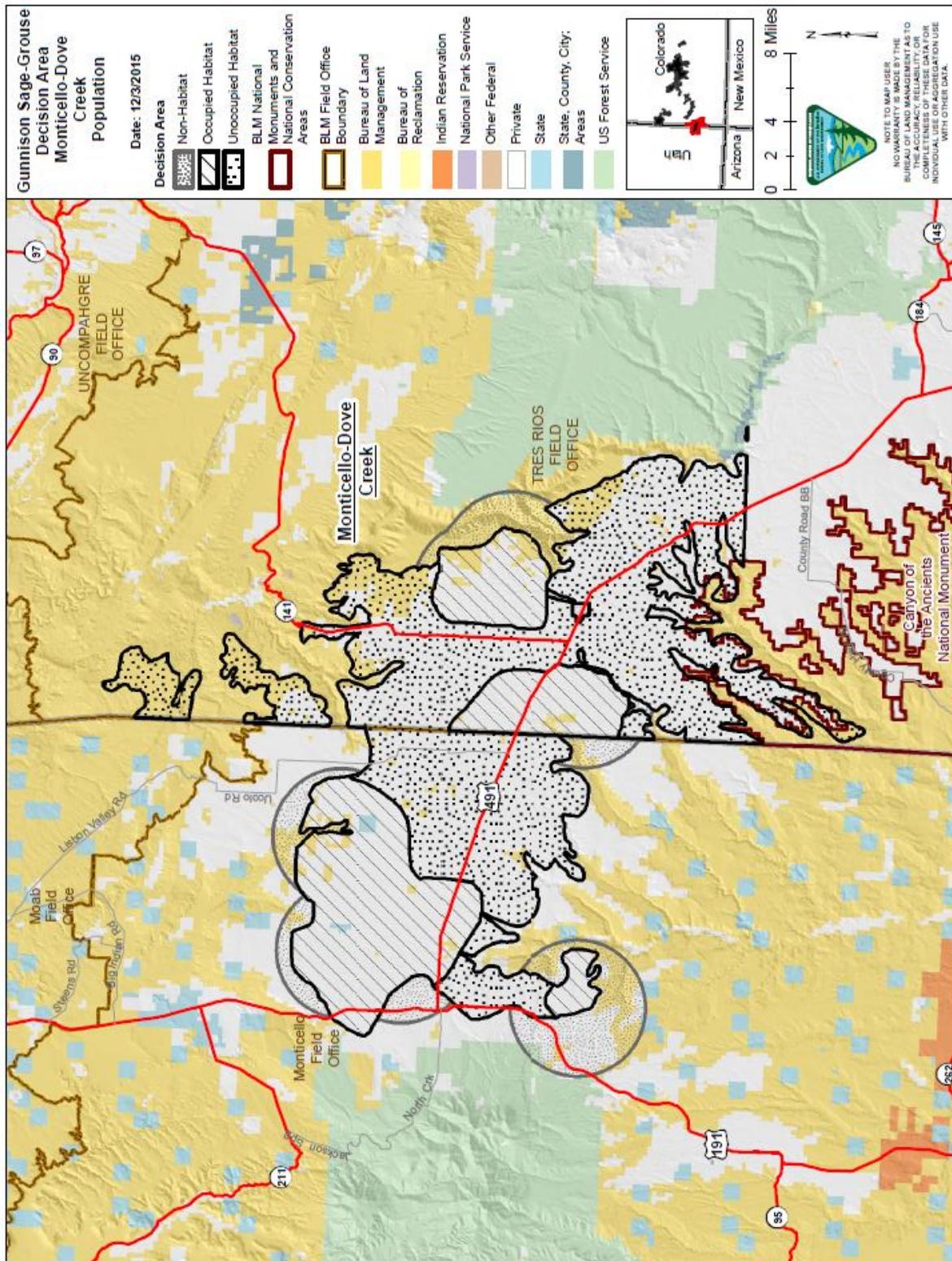
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Figure A.82 - Decision Area for the Gunnison Basin Population



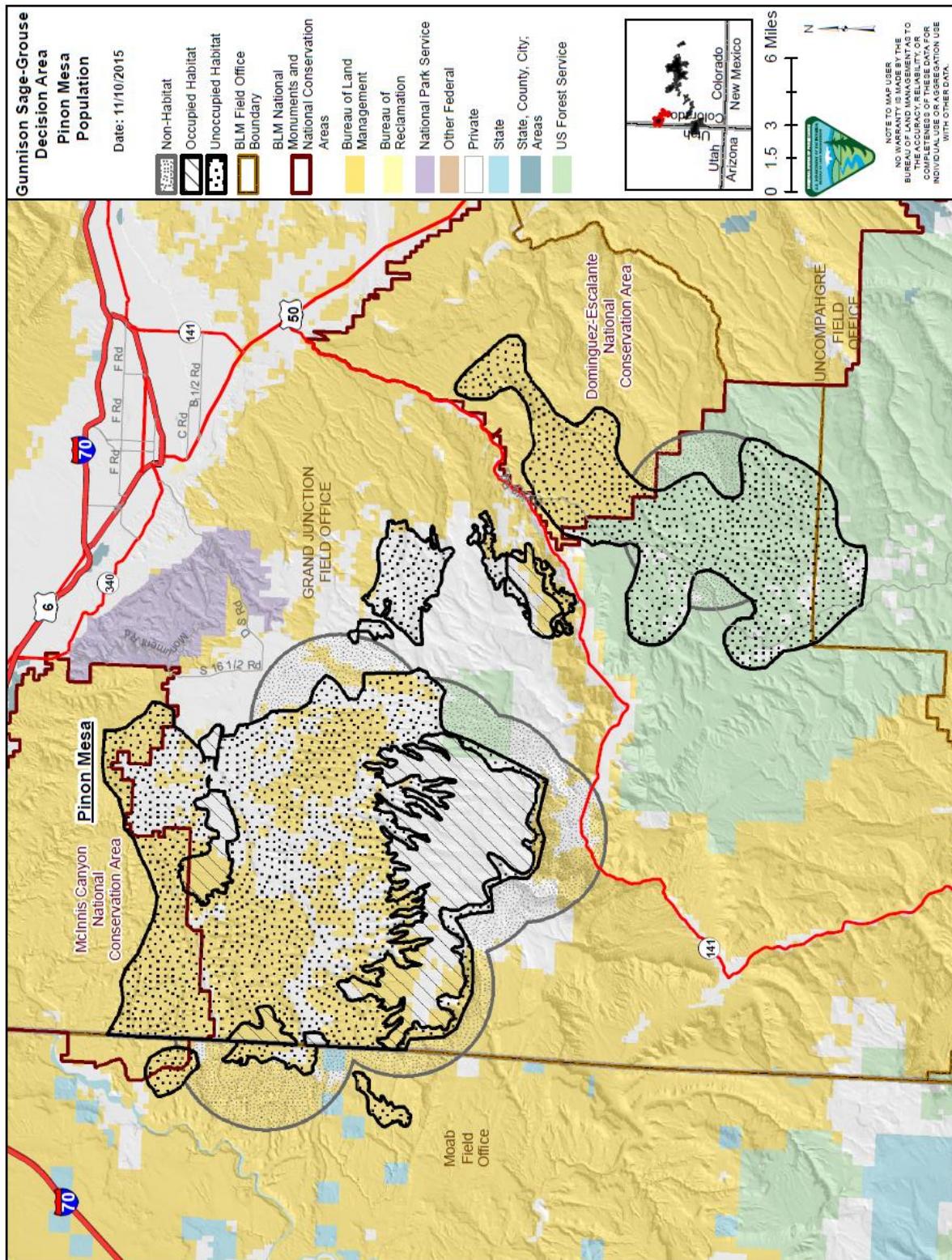
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Figure A.83 - Decision Area for the Monticello-Dove Creek Population



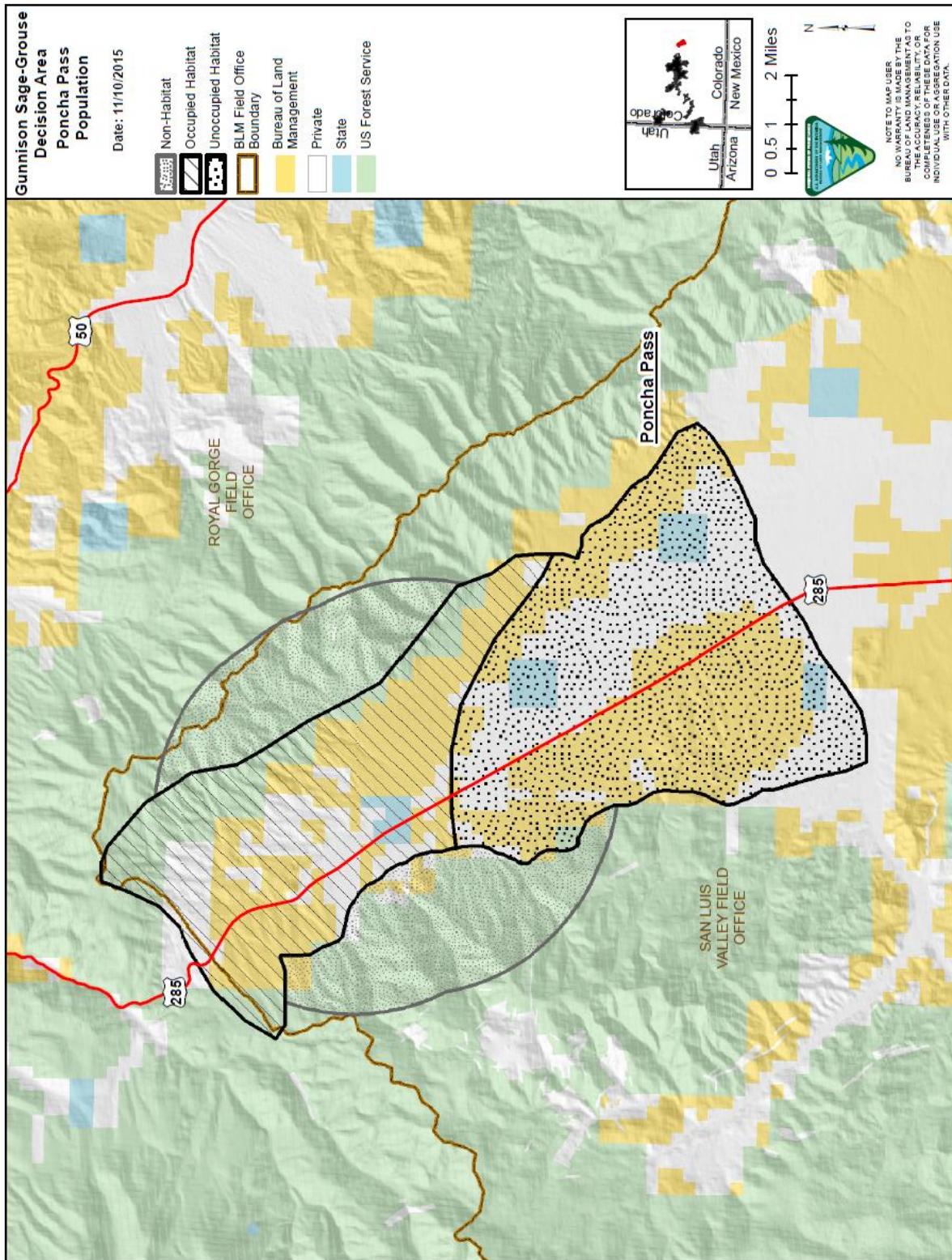
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Figure A.84 - Decision Area for the Piñon Mesa Population



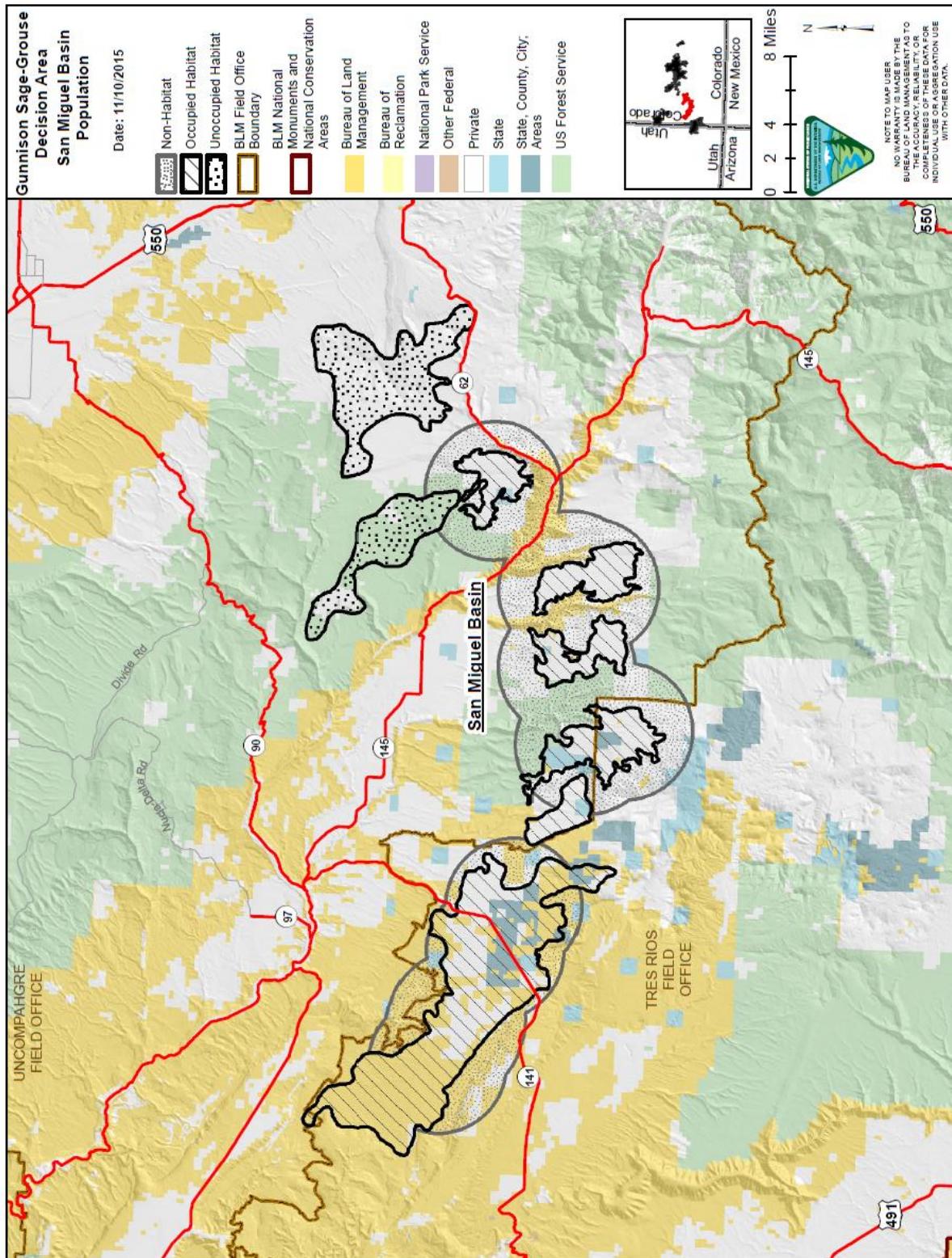
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Figure A.85 - Decision Area for the Poncha Pass Population



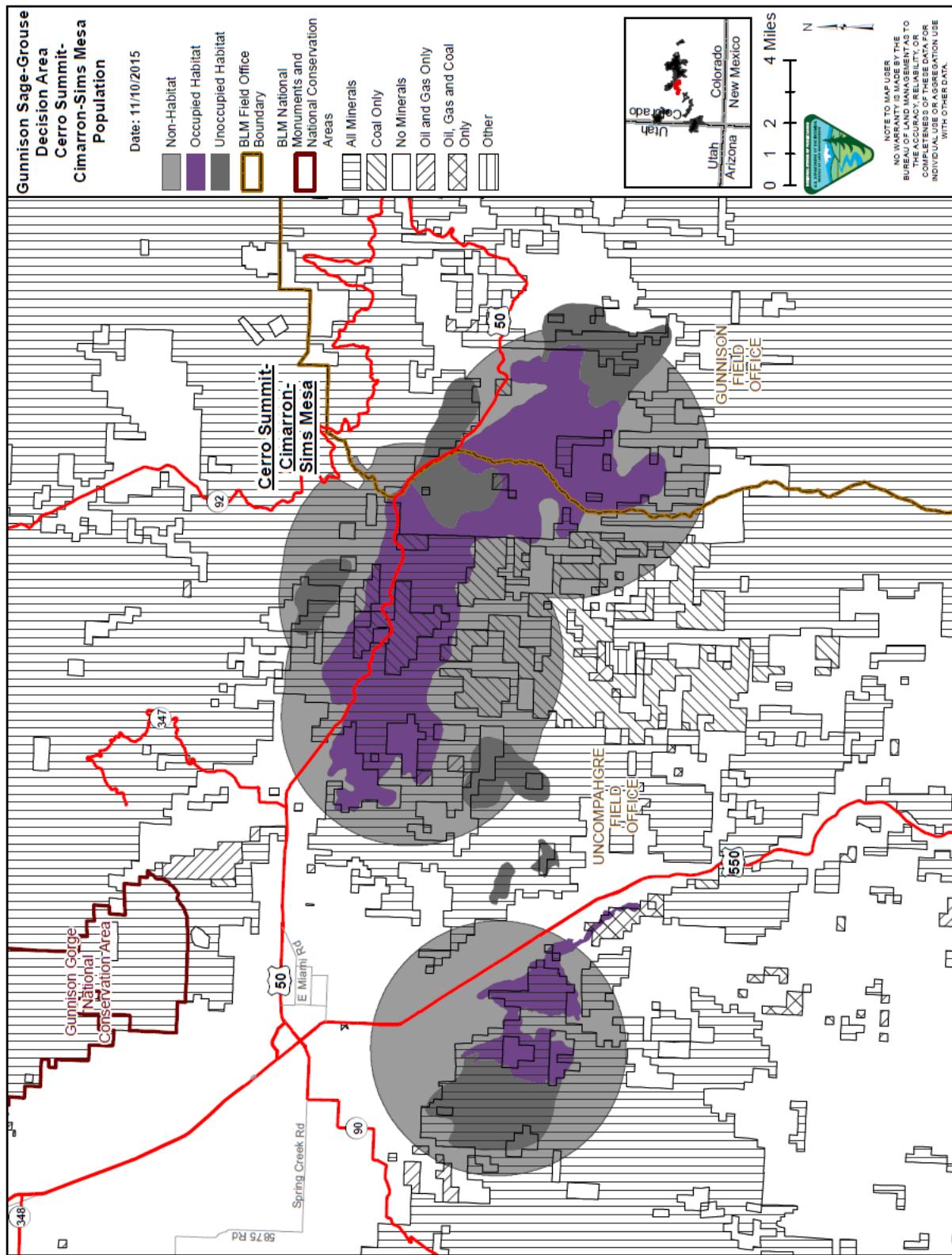
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Figure A.86 - Decision Area for the San Miguel Basin Population



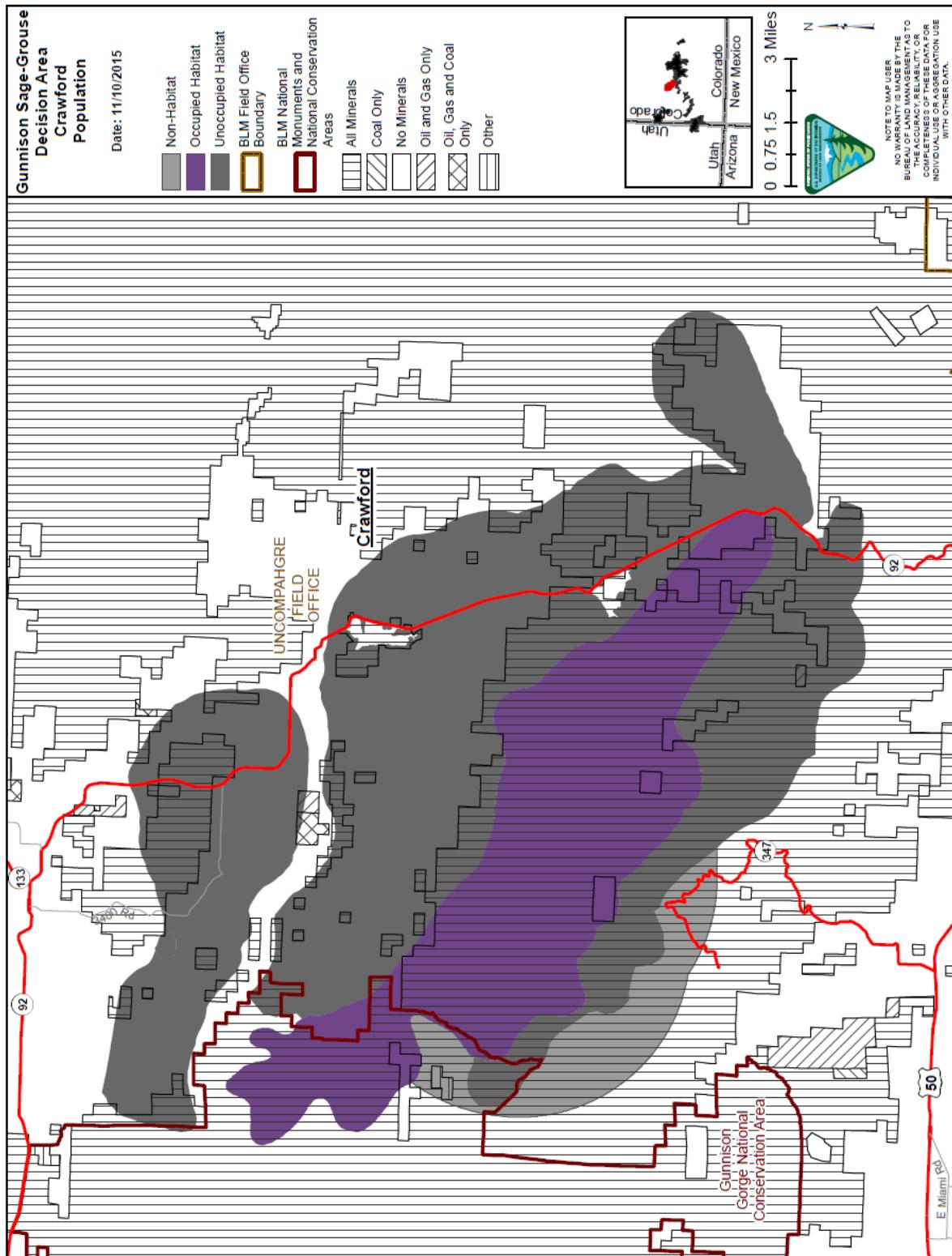
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Figure A.87 - Sub-Surface Decision Area for the Cerro Summit-Cimarron-Sims Mesa Population



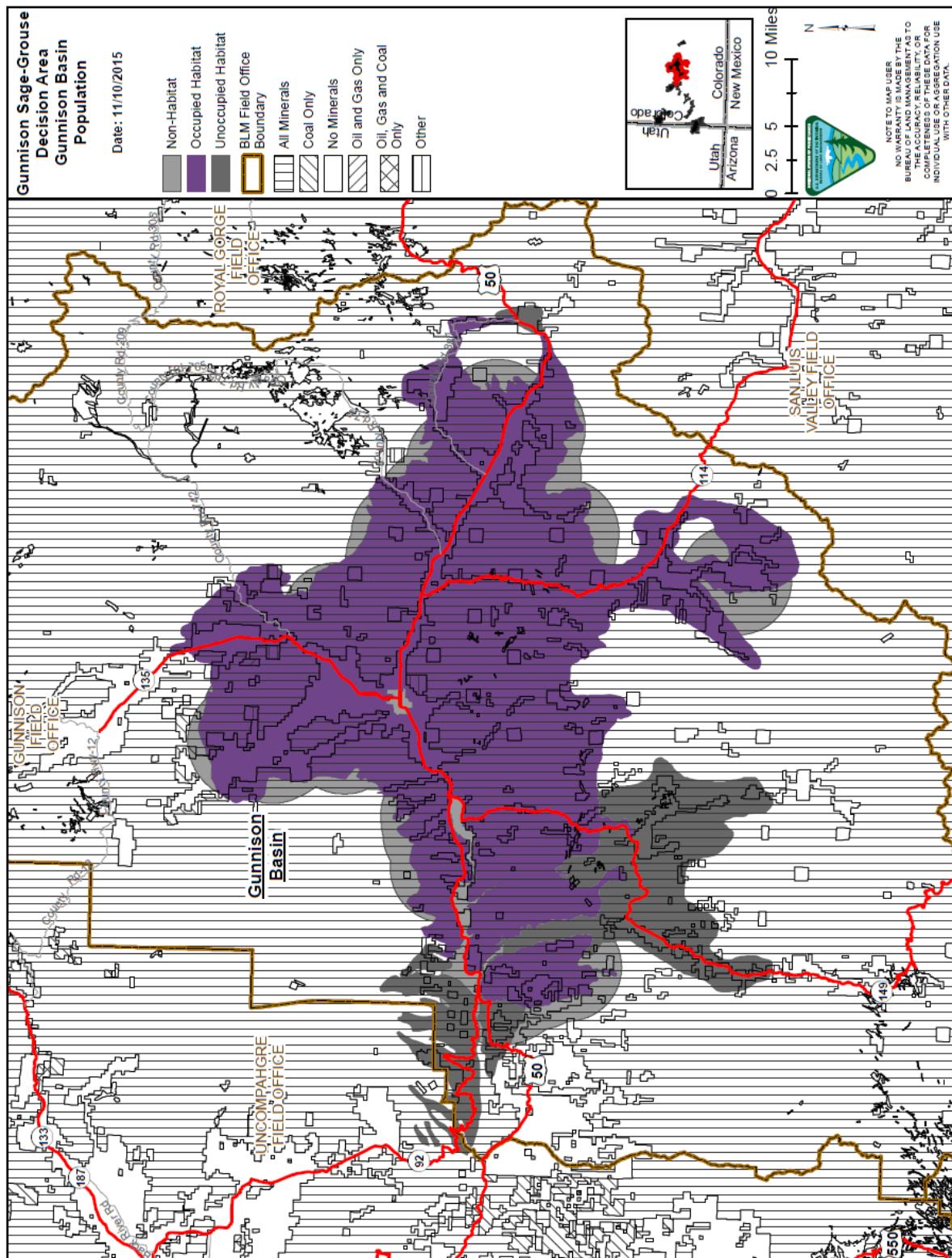
CHAPTER 6 - APPENDIX A
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Figure A.88 - Sub-Surface Decision Area for the Crawford Population



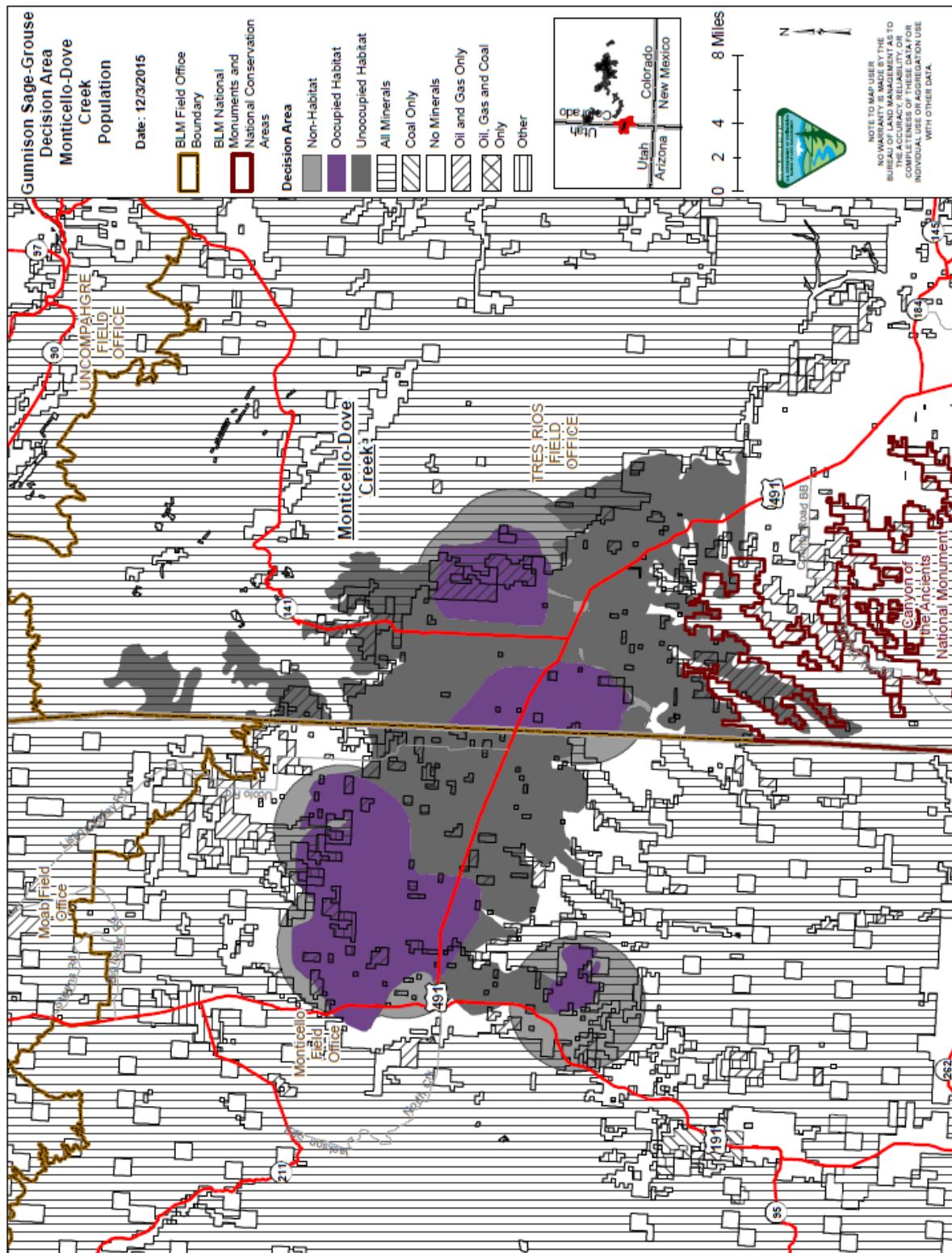
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Figure A.89 - Sub-Surface Decision Area for the Gunnison Basin Population



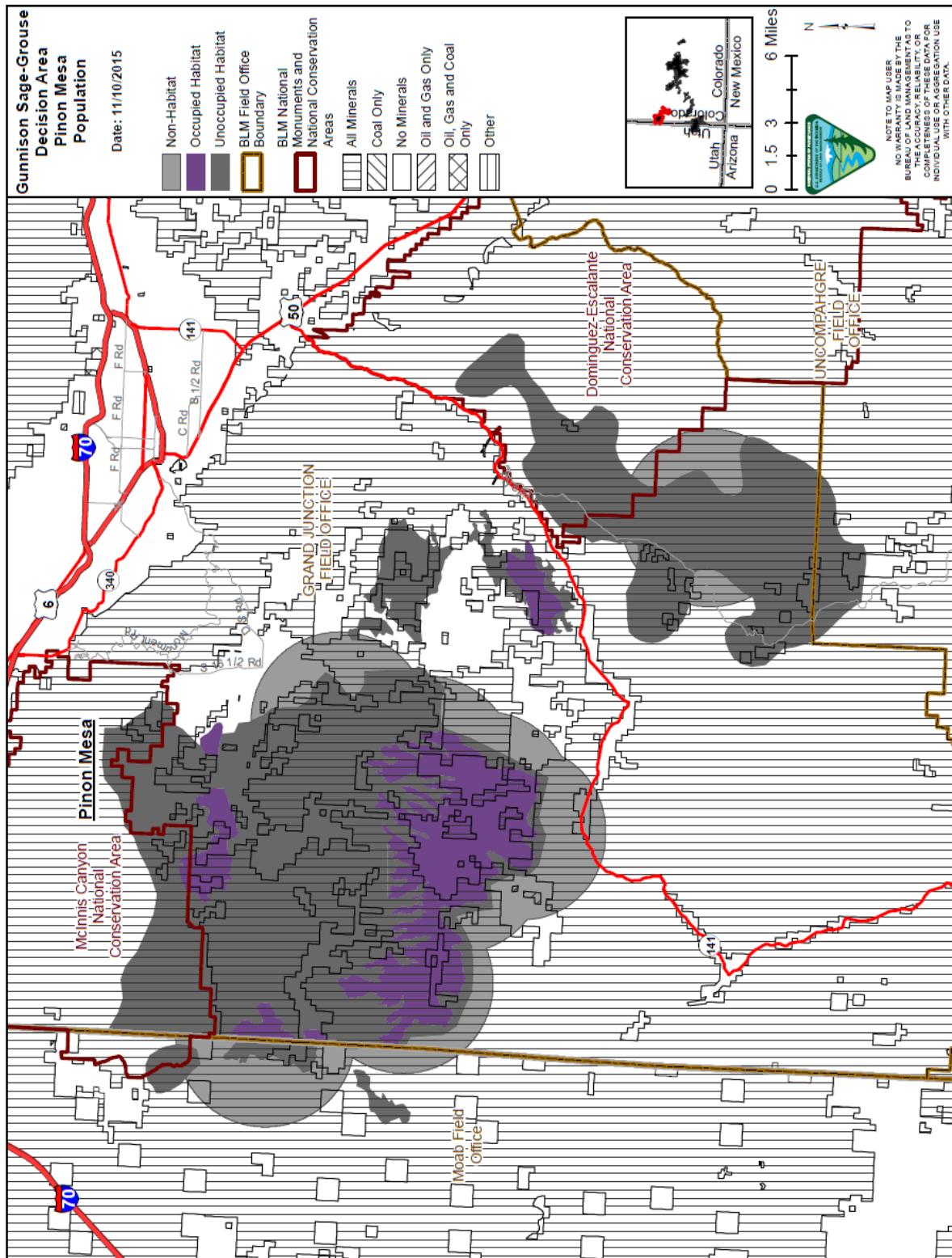
CHAPTER 6 - APPENDIX A
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Figure A.90 - Sub-Surface Decision Area for the Monticello-Dove Creek Population



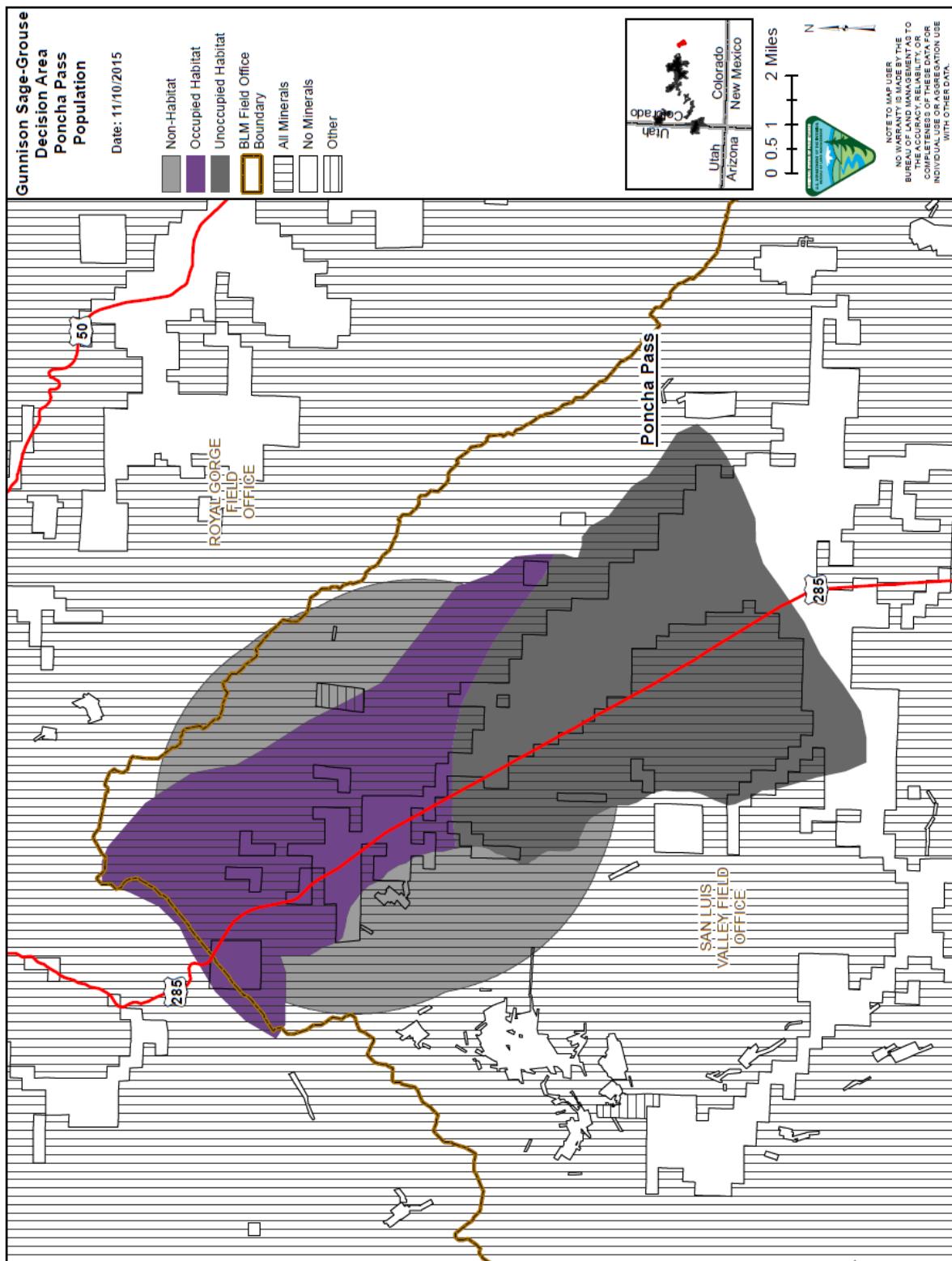
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Figure A.91 - Sub-Surface Decision Area for the Piñon Mesa Population



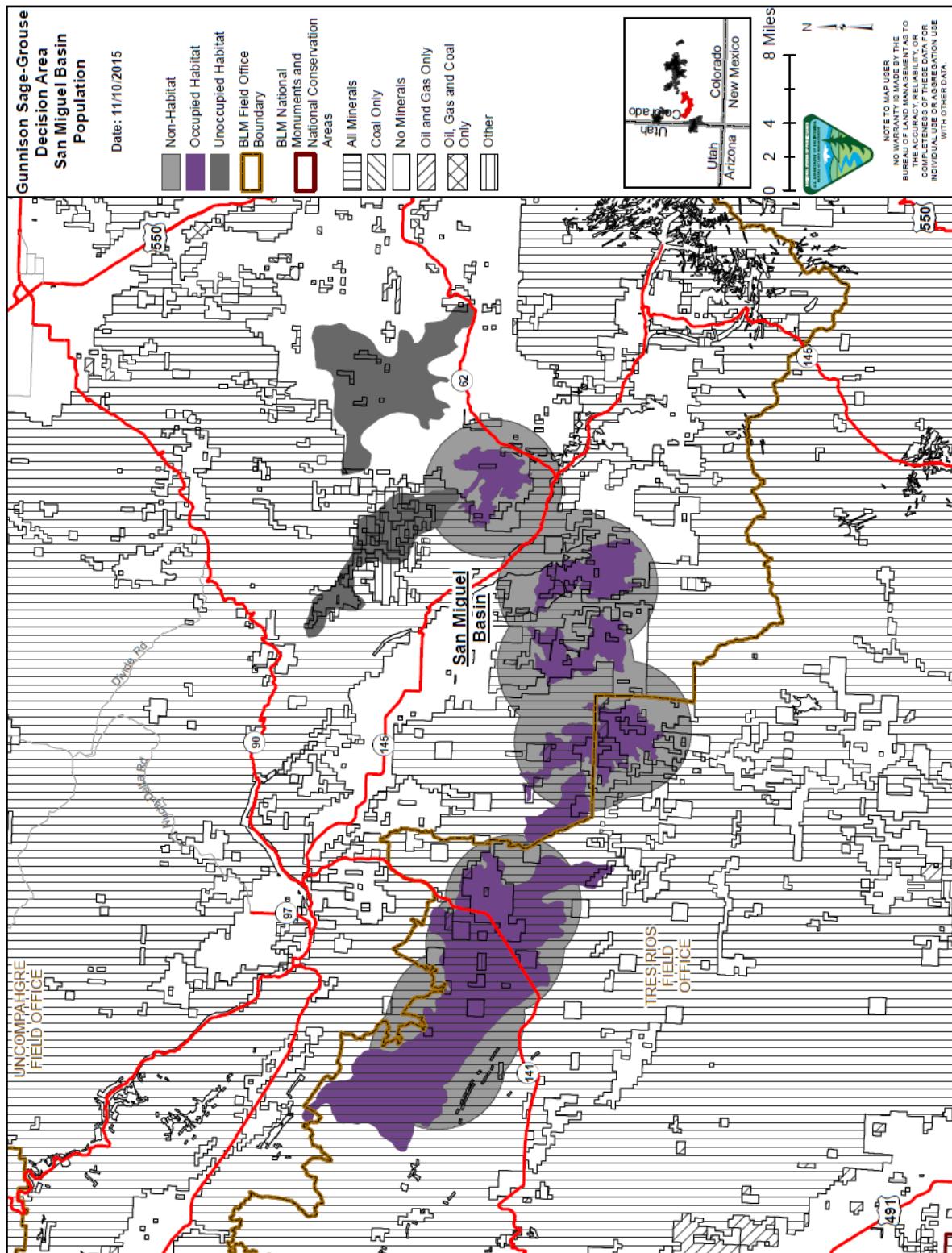
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Figure A.92 - Sub-Surface Decision Area for the Poncha Pass Population



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Figure A.93 - Sub-Surface Decision Area for the San Miguel Basin Population



APPENDIX B: BLM WASHINGTON OFFICE IM 2014-100

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

May 30, 2014

In Reply Refer To:
6500 (170/200/300/400) P

EMS TRANSMISSION 06/16/2014
Instruction Memorandum No. 2014-100
Expires: 09/30/2015

To: State Directors, Colorado and Utah
From: Assistant Director, Resources and Planning
Subject: Gunnison Sage-grouse Habitat Management Policy on Bureau of Land Management-Administered Lands in Colorado and Utah

Program Area: All Programs.

Purpose: The intent of this Instruction Memorandum (IM) is to provide interim guidance for protecting important habitat across the range of the Gunnison Sage-Grouse (GUSG). The Bureau of Land Management (BLM) will continue to apply conservation measures to manage and conserve GUSG and their habitat and consider the U.S. Fish and Wildlife Service (FWS) advisory recommendations for minimizing or avoiding adverse effects to GUSG or their proposed critical habitat. Habitat protection is crucial for the conservation and protection of this species. The BLM will focus any type of development in non-habitat areas. Disturbance will be focused outside of a 4-mile buffer around leks. The BLM intends that little or no disturbance occur within the 4-mile buffer, except for valid existing rights, and except where benefits to the GUSG are greater compared to other available alternatives. This guidance:

- Recognizes the FWS Proposed Listing of the GUSG as endangered (78 FR 2486) under the Endangered Species Act (ESA) (January 11, 2013) posted at <http://www.fws.gov/policy/library/2013/2012-31667.pdf>
- Provides updated direction regarding management and ongoing planning actions in GUSG occupied habitat.
- Recognizes that the BLM proposes to incorporate objectives and conservation measures for the protection of GUSG and its habitat into relevant Resource Management Plans (RMP) through a GUSG range-wide plan amendment process.
- Ensures continued coordination with the FWS, State fish and wildlife agencies, and other partners regarding implementation, updates and project prioritization for GUSG conservation and strategies identified in the Range-wide GUSG Conservation Plan (RCP) and local GUSG population conservation plans posted at: <http://wildlife.state.co.us/WildlifeSpecies/RecoveryConservationPlans/Pages/RecoveryConse rvationPlans.aspx>

- Does not preclude developing or using additional conservation measures or strategies deemed necessary to maintain or enhance local GUSG habitat and populations.

Should the final FWS determination be to list GUSG under the ESA, the BLM will review the implementation of this policy in accordance with any Recovery Planning schedules to determine the effectiveness of the guidance and make changes as necessary.

Policy/Action: The BLM will continue to apply conservation measures to manage and conserve GUSG and its habitat and consider the FWS advisory recommendations for minimizing or avoiding adverse effects to GUSG or its proposed critical habitat. The BLM's policy is to manage GUSG seasonal habitats and maintain habitat connectivity to support sustainable GUSG populations and/or GUSG population objectives as determined in coordination with the FWS and State fish and wildlife agencies. This policy is consistent with strategies outlined in the GUSG RCP. This policy is consistent with the BLM National Sage-grouse Habitat Conservation Strategy (USDI BLM 2004a), CO IM 2010-028 (GUSG & Greater Sage-grouse [GRSG] habitat management), WO IM 2010-071 (energy), WO IM 2010-022 (structures), WO IM 2013-128 (fire), WO IM 2010-117 (oil and gas leasing reform), CO IM 2005-038 (GUSG RCP), and CO IM 2013-033 (GUSG habitat management). This policy is structured to incorporate adaptive management processes to achieve habitat conservation, restoration and enhancement goals. This policy will be reviewed and updated, as necessary, following the final FWS listing decision.

Unless otherwise stated, BLM management actions and conservation measures in this IM apply to occupied habitat. Occupied habitat is defined in this IM as the FWS "proposed occupied critical habitat" (hereafter referred to as occupied) for GUSG in Colorado and Utah. Within the Gunnison Basin, occupied habitat is further delineated as Tier 1 or Tier 2 habitats using a habitat prioritization tool, developed locally in conjunction with Gunnison County, FWS, Colorado Parks and Wildlife (CPW), and other agencies. This policy applies to all activities and programs authorized and/or occurring on BLM-administered lands, including federal mineral estate. The direction in this IM is time-limited: the conservation policies and procedures described in this IM will be applied until the BLM makes GUSG conservation and resource management decisions through the land use planning process.

The BLM will work with FWS, and the State fish and wildlife agencies in identifying the best available science for implementation of this IM.

GUSG Habitat Mapping

As part of the proposed listing decision, the FWS proposed critical habitat for GUSG (78 FR 2540) posted at <http://www.fws.gov/policy/library/2013/2012-31666.pdf>. The proposed critical habitat map includes occupied GUSG habitat (as previously mapped by CPW and the Utah Division of Wildlife Resources (UDWR), 2004, as updated), and proposed unoccupied habitat. The FWS compiled proposed unoccupied critical habitat using mapping from the RCP (*potentially suitable habitat* – defined as in need of restoration, but capable of supporting sagebrush communities, and *vacant/unknown habitat* – defined as suitable habitat with no documentation of occupancy) and additional areas thought necessary for GUSG conservation based on 1) proximity to occupied habitat, 2) ability to provide connectivity, and 3) size of area, where sagebrush is a primary plant community (78 FR 2552). The final decision on whether to designate critical habitat for GUSG is expected around the same time as the final listing decision (anticipated November 12, 2014).

The BLM will continue to work with State fish and wildlife agencies and other partners to collect site-specific GUSG habitat data. GUSG habitat data includes seasonal habitat mapping (nesting, brood rearing and winter), and/or GUSG habitat condition assessments as documented in Land

Health Assessments (LHA). Habitat condition assessments reflect progress towards meeting GUSG habitat objectives set forth in the RCP or local conservation plans, as determined through the Habitat Assessment Framework (HAF) indicators or other BLM-approved habitat monitoring methods. [1]

If the species is listed and the FWS develops a range-wide Recovery Plan, the BLM will cooperate in the development and implementation of the Recovery Plan on public lands consistent with the policies in BLM's Special Status Species Management Manual 6840. This participation includes, but is not limited to, representation on the Range-wide Steering Committee (RSC) and local GUSG population working groups.

Land Use Planning

The BLM proposes to incorporate objectives and conservation measures for the protection of GUSG and its habitat into approved Resource Management Plans (RMP) through a GUSG range-wide plan amendment process.

As part of this GUSG range-wide planning process, the BLM will consider alternative(s) that:

- Close fluid mineral (oil and gas or geothermal) leasing, and consider land allocations following expiration of oil and gas and geothermal leases with a full range of alternatives, including a scenario where the lands will not be re-offered for lease in occupied GUSG areas;
- Exclude new energy development and rights-of-way (ROW);
- Reduce or make lands unavailable to livestock grazing (consistent with WO-IM-2012-169) in GUSG occupied habitat;
- Include consideration of regional mitigation strategies and appropriate mitigation measures (avoid, minimize, and/or compensate) to reduce or eliminate impacts to GUSG populations;
- Address other factors that may pose a threat to GUSG populations, including recreation management, vegetation treatments, and invasive plant management; and
- Consider citizen-based alternatives, as appropriate.

Through this range-wide plan amendment process, BLM Colorado and Utah FOs should consider and evaluate GUSG habitat conservation measures related to timing restrictions, buffer distances, percentages of allowable surface-disturbing activities, noise and desired density levels or other development constraints consistent with the GUSG RCP (including subsequent updates), current peer reviewed sage-grouse research, conservation summaries based on research or as developed in conjunction with State fish and wildlife agencies and the FWS to meet local population objectives. At a minimum, FOs will analyze and implement conservation measures that prohibit or limit energy and discretionary mineral development within four miles of active leks, and minimize surface disturbance and disruptive activities in all occupied habitat, where appropriate.

Gunnison Basin Candidate Conservation Agreement

The Gunnison FO, in conjunction with the FWS, CPW, National Park Service (NPS), U.S. Forest Service (USFS), Natural Resources Conservation Service (NRCS) and multiple stakeholders, developed a Candidate Conservation Agreement (CCA) to guide management of GUSG on public lands in the Gunnison Basin. The CCA focuses on managing key threats on federal lands identified by FWS for this population: grazing, recreation, roads, and transmission lines. Actions that fall under the purview of the CCA will follow CCA direction in the Basin. The range-wide planning effort will incorporate measures found in the CCA. All other actions will consider conservation measures identified in the RCP and this IM as the primary guidance for management.

All Program Areas

BLM FOs will:

- Work within multiple programs including recreation, hazardous fuels, fire management, Public Domain forestry, range management, and wildlife to accomplish GUSG habitat conservation. When permitting or authorizing activities, FOs will consider, analyze and incorporate appropriate GUSG management strategies, best management practices (BMPs), and mitigation actions (avoid, minimize, and compensate) through NEPA analysis or other regulatory processes. FOs will continue to implement appropriate BMPs through the permitting process in all program areas. BMPs could include those identified at the local, state or national level for oil and gas development in GUSG habitat (see also RCP (Appendix L), fire (WO-IM 2013-128), and grazing guidelines (RCP 2005)).
- Continue coordination with the FWS and State fish and wildlife agencies on appropriate site-specific habitat or population-level management strategies (RCP 2005). This will include, but is not limited to, considering, prioritizing and implementing management prescriptions and strategies outlined in the RCP and local GUSG conservation plans, as well as all subsequent updates as appropriate. The BLM will work with FWS and State fish and wildlife agencies to determine the best available science for implementation of this IM and, if appropriate, will revise the IM accordingly.
- Implement a 0.6-mile no surface disturbance/no surface occupancy buffer radius (RCP 2005) around all active leks for project-level implementation such as fences or sagebrush habitat treatments. Any sagebrush removal or treatment should be prohibited within this buffer, unless implemented to maintain or enhance the lek (RCP, Appendix I).
- Per the RCP (Appendix I), the BLM should manage all sagebrush habitat within a 4-mile radius of an active lek as GUSG breeding habitat (lekking, nesting, early brood rearing). To complement protections within the 0.6-mile buffer (described above), breeding habitat should be managed to minimize disturbance to GUSG during critical seasonal time periods and minimize the footprint of any project, habitat fragmentation across the landscape, and

cumulative effects on the associated population (see RCP, Appendix L). The following specific disturbance guidelines (see RCP, Appendix I) should be analyzed and applied to all ongoing program authorizations where appropriate:

- o Prohibit surface disturbing activities and disruptive activities within four miles of active leks from March 1 through June 30 (RCP 2005), subject to valid existing rights and emergency repairs of ROWs.
- o Avoid surface disturbance within mapped winter habitat for GUSG (if not mapped, within four miles of active leks); if surface disturbance cannot be avoided, prohibit said activity from December 1 through March 15 (RCP 2005).
- Include requirements to new Special Recreation Permits (SRP) to avoid disturbing leks during the breeding season. SRPs for hunting (other wildlife species), bird watching, and other activities should include appropriate timing restrictions to minimize disturbance to GUSG during critical seasonal periods such as the breeding, late brood rearing and winter-use periods.
- Evaluate the need, and implement where appropriate, seasonal or permanent road or trail closures in occupied habitat through travel management planning and associated NEPA analysis for BLM authorized routes. Avoid construction of new roads or ROWs within four miles of active leks.
- Analyze the impacts to GUSG when renewable energy (e.g., wind, solar, biomass) development and associated infrastructure (e.g., transmission lines) is proposed in or adjacent to sagebrush habitat, and avoid occupied habitat where warranted. Manage areas within four miles of active leks as ROW avoidance areas.
- Avoid routing above-ground transmission or distribution lines within occupied habitat.
- In response to a Plan of Operations, evaluate the impacts of non-discretionary activities managed under 43 CFR 3809 (those actions authorized under the 1872 mining law) on local GUSG populations, and clearly describe those effects that cannot be mitigated through the regulatory process. Through the NEPA process, analyze potential impacts of discretionary mining activities and mitigation approved under 43 CFR 3400 (such as coal management), 43 CFR 3500 (non-energy leasable materials), and exploration or extraction of other solid minerals wherever possible.
- Incorporate adequate reclamation standards designed to re-establish suitable GUSG seasonal habitats (RCP 2005, Appendix H) for all surface-disturbing activities within occupied GUSG habitat. Incorporate native seed mixtures in restoration efforts. Wherever possible, native seed mixtures should include a minimum of three native grasses, two native forbs and one native sagebrush species. Use desired non-persistent, non-native vegetation in rehabilitation only where other options have been proven unsuccessful.
- Monitor all restoration activities for success in meeting short- and long-term vegetation objectives and reclamation standards, including potential weed infestations following the principles outlined in the BLM Assessment, Inventory and Monitoring Strategy. Conduct follow-up treatments to eliminate weeds as identified through monitoring. If vegetation objectives are not being met, adjust restoration actions accordingly to improve success of achieving desired GUSG habitat objectives.

Proper Livestock Grazing

Continue to evaluate and implement livestock grazing management practices consistent with achieving GUSG seasonal habitat objectives during allotment permit renewals and associated NEPA analysis, or as identified through LHAs. Consistent with the best available science compiled in accordance with the Policy section above, GUSG habitat objectives identified in the RCP (Appendix H) should be considered the range-wide standards for managing GUSG seasonal habitats. Habitat objectives may be adjusted if more localized habitat structural data are available in coordination with State fish and wildlife agencies and the FWS on a population-by-population basis. GUSG habitat objectives should always be managed with consideration to ecological site potential.

Use the BLM-approved monitoring techniques described in the HAF to assess and monitor long-term GUSG habitat conditions and trend in conjunction with authorized grazing management.

Where current livestock grazing management has been identified as a causal factor in not meeting Land Health Standards (43 CFR 4180), use the process in WO-IM-2009-007, Process for Evaluating Status of Land Health and Making Determinations of Causal Factors When Land Health Standards Are Not Achieved, to identify appropriate actions. Evaluate progress towards meeting standards that may affect GUSG or its habitat prior to authorizing grazing on an allotment that was not achieving land health standards in the last renewal cycle, and livestock was a significant causal factor. Where available, use current monitoring data to identify any trends (e.g., progress) toward meeting the standards. Where monitoring data are not available or inadequate to determine whether progress is being made toward achieving Land Health Standards, an interdisciplinary team should be deployed as practicable to conduct a new land health assessment. The NEPA analysis for the permit/lease renewal must address a range of reasonable alternatives including alternatives that improve GUSG habitat.

Wildland Fire and Fuels Management

While GUSG protection and habitat enhancement is a high priority for the fire management program, firefighter and public safety is the first priority on every fire and takes precedence over natural resource protection. Local agency administrators and resource advisors will convey resource protection priorities to incident commanders. Incident Commanders will then develop and establish incident objectives, strategies, and operational tactics that ensure firefighter and public safety.[2]

The strategy for all unplanned ignitions in GUSG habitat will be "fire suppression." Fire suppression strategies and tactics used on an incident will comply with RMP and Fire Management Plan (FMP) direction. Unplanned ignitions in GUSG occupied habitat will not be managed to meet resource objectives until a final FWS listing decision is made and a programmatic consultation can be completed, if warranted.

Discretionary actions under the fire and fuels management program include: unplanned ignitions managed to meet resource objectives; planned ignitions (i.e., prescribed fires); and mechanical, biological and chemical vegetation treatments to reduce hazardous fuels. When these discretionary actions are expected to occur in occupied or unoccupied critical habitat, they must occur under conditions analyzed to be acceptable to meet GUSG resource objectives. The NEPA analysis for FMPs and project plans for these discretionary actions address achieving GUSG habitat objectives and must undergo appropriate consultation with the FWS following the final GUSG listing decision under ESA should the FWS make a final determination to list GUSG. These decisions must be documented in the Wildland Fire Decision Support System.

Climate Change/Rapid Eco-regional Assessments (REA)

The proposed GUSG listing package acknowledges the potential for climate change to alter the distribution of native vegetation, increase the potential for invasive species introduction and increase fire frequencies and intensities, all of which may have long-term impacts to key GUSG seasonal habitats across the landscape.

- The BLM Colorado State Office (COSO) will continue to develop a statewide Climate Change Adaptation Strategy, which will include a vulnerability assessment of GUSG.
- FOs in Colorado will implement climate change adaptation strategies developed through the statewide effort. The strategies will be informed by data provided by REAs or other assessment documents, as appropriate.
- BLM Colorado and Utah will incorporate landscape-level data and adaptive management strategies using information identified through the REAs or other assessments to conserve and restore sagebrush habitats.

Processing Fluid Mineral Leases in GUSG Habitat

New Nominated Leases

In accordance with WO IM 2010-117, Change 1, "the State Directors have discretion to temporarily defer leasing on specific tracts of land based on information under review during planning." Since the RCP (2005) was signed, the BLM Colorado's policy has been to defer leasing of occupied GUSG habitat until new FO land use planning has been completed, as these documents detail significant new information on GUSG not addressed in current plans. The BLM will continue to defer leasing in occupied habitat to avoid affecting decisions related to future management decisions.

Existing Leases

For authorization of any development actions (for individual APDs or where an operator proposes a Master Development Plan) where there are valid existing rights, FOs must coordinate with the FWS (consistent with requirements under ESA), CPW (consistent with COGCC MOU – Attachment 1), UDWR, and industry on management actions designed to minimize impacts to GUSG or their habitat, including Conditions of Approval (COA) that will be applied to future APDs. The BLM must ensure that any proposed COAs or mitigation measures are consistent with the RMP, are adequately supported by site-specific NEPA analysis and do not violate any lease rights (see Yates Petroleum Corp., 176 IBLA 144 [2008]).

In accordance with standard lease terms and conditions, existing leases are subject to applicable laws, including ESA, and therefore, may be required to adopt conditions of approval that would reduce adverse impacts to the species consistent with site-specific environmental analysis and ESA conference or consultation.

BLM offices are encouraged to work with the FWS, State fish and wildlife agencies, and industry in advance of planning to develop potential strategies in a particular geographic area. This pre-planning may include conservation strategies such as siting a project in lower quality habitat, clustering activities to minimize fragmentation of existing habitat patches, or noise mitigation.

This policy does not preclude developing and immediately implementing new mitigation or conservation measures necessary to reduce activity/project impacts to GUSG or their habitats, provided this mitigation is in accordance with existing RMPs and lease rights granted. Any new measures applied for GUSG will be coordinated with the FWS and State fish and wildlife agencies. FOs will work with project proponents, the State, the FWS, and private landowners when

appropriate to implement direct avoidance and minimization measures (e.g. relocating disturbance, timing restrictions, etc.) and use COAs. FOs must ensure any recommended COAs or operator-negotiated stipulations are supported by appropriate analysis through NEPA during the APD, plan of development, or use-authorization approval process. Biologists are encouraged to reference existing analyses or accepted recommendations from national, range-wide, or local conservation plans; existing or new peer reviewed research studies; or other scientific reports within the NEPA analysis, rather than restate those analyses.

In accordance with Fluid Mineral Resources Handbook (H-1624-1, 2013), the federal government retains certain rights when issuing an oil and gas lease. While the BLM may not unilaterally add a new stipulation to an existing lease that it has already issued, the BLM can subject development of existing leases to reasonable conditions, as necessary, through the application of COAs at the time of permitting. The new constraints must be consistent with the applicable land use plan and not in conflict with rights granted to the holder under the lease.

If the existing lease is in occupied GUSG habitat, and the land use plan does not contain mitigation, FOs should request the operator to modify existing stipulations or add an additional stipulation to mitigate the impacts to GUSG habitat. When applicable under 43 CFR 3101.1-4, if, after the lease is issued, the authorized officer determines that a modification of a lease term or stipulations involve an issue of major concern for the public, the modification shall be subject to public review for at least 30 days. 43 CFR 3101.1-4. If the operator refuses to sign a stipulation modification or to add a new stipulation, the BLM will need to carefully evaluate whether the project can proceed based on the level of impacts identified in the site-specific NEPA analysis and the BLM's obligation to prevent unnecessary or undue degradation [43 USC 1732(b)]. Any development pursuant to valid existing rights will be approved in the location and in a manner that best minimizes impacts to GUSG.

Where authorized in the applicable RMP, exceptions to lease stipulations or COAs in sagebrush habitats will be considered on a case-by-case basis and coordinated with the FWS and State fish and wildlife agencies before approval. Any exception authorized in occupied habitat will require District Manager review.

The BLM will defer fluid mineral lease nominations in GUSG occupied habitat until management prescriptions and strategies outlined in the RCP, local GUSG population conservation plans, and/or potential impacts to local GUSG populations as summarized in recent/existing research studies or conservation summaries, have been considered and evaluated through the range-wide plan amendment effort and associated NEPA analysis. Such analyses must consider the cumulative impact of decisions and mitigation measures.

Development constraints may vary by FO when those constraints are based on locally-collected scientific data or local habitat conditions and are supported with clear rationale in the range-wide amendment NEPA analysis. Prescriptive measures carried forward through the selection of the preferred alternative in the range-wide plan amendment will be incorporated into all new leases within occupied or other GUSG habitats, as outlined in the planning document.

Lands determined to be available for lease and development within occupied GUSG habitat, and under what constraints, will be described in the proposed range-wide plan amendment. The BLM will ensure that the GUSG range-wide plan amendment contains language consistent with recent Interior Board of Land Appeals (IBLA) decisions (Yates Petroleum Corp., 176 IBLA 144 [2008] and William P. Maycock, 177 IBLA 1 [2009]).^[3] These decisions allow the BLM discretion to modify surface operations to add specific mitigation measures supported by site-specific National Environmental Policy Act of 1969 (NEPA) analysis undertaken during the development phase on existing leases. The IBLA has made it clear when making a decision regarding discrete surface-

disturbing oil and gas development activities following site-specific environmental review, the BLM has the authority to impose reasonable protective measures not otherwise provided for in lease stipulations to minimize adverse impacts on other resource values.

Drainage

It is the responsibility of the BLM to protect the interests of the United States where it is determined that the oil and gas resource is subject to drainage. The BLM has many tools at its disposal to do so, such as forced pooling, communication agreements, issuing leases, and drilling protective wells. Where it is determined that drainage is occurring, the BLM will analyze and employ the least disruptive method necessary to protect the interests of the United States. If disturbance is necessary, the BLM protect GUSG habitat by applying the conservation concepts outlined in this IM, as well as other best management practices, as appropriate.

Processing Proposed Solid Mineral Leases (Coal) in GUSG Habitat (i.e., a lease has not been issued and, therefore, no valid existing rights have been established)

The BLM will defer leasing in occupied habitat to avoid affecting decisions related to future management until new FO land use planning has been completed.

Sagebrush Habitat Improvement/Restoration Projects

All GUSG habitat improvement projects should clearly articulate and document the need for the project to achieve desired habitat objectives (RCP 2005, Appendix H). Documentation should include current habitat condition assessments and specific treatment objectives as they relate to GUSG habitat.

All vegetation treatments in sagebrush habitat should consider and incorporate seasonal GUSG habitat needs into project design, analysis and approval when those projects are completed to meet other program area objectives. Recommendations for sagebrush removal or treatment projects within seasonal habitats are located in the RCP, Appendix I (pg. 6-7). (See guidance under "All Program Areas" for more information.)

All habitat treatments and management prescriptions in GUSG habitat should incorporate appropriate effectiveness monitoring to determine whether one or more of the following goals are being achieved:

- 1) Meeting site-specific GUSG habitat objectives consistent with best available science compiled in accordance with the Policy section above;
- 2) Enhancing the long-term sustainability of local GUSG populations;
- 3) Promoting the maintenance of large intact sagebrush communities;
- 4) Limiting the expansion or dominance of invasive species;
- 5) Maintaining or improving soil site stability, hydrologic function, and biological integrity;
- 6) Enhancing the native plant community, including the native shrub reference state in the *State and Transition Model*, with appropriate shrub, grass, and forb composition identified in the applicable ESD where available; and
- 7) Meeting specific project or management objectives as they relate to GUSG or their habitat.

Monitoring objectives will be coordinated and/or conducted in conjunction with State fish and wildlife agencies, and will use BLM-approved inventory or monitoring methods.

Livestock grazing will be deferred for all GUSG habitat improvement or restoration treatments for a minimum of two growing seasons to ensure establishment and persistence of desired vegetation, unless analysis or management objectives recommend otherwise.

The BLM will prioritize all GUSG restoration efforts in Proposed Unoccupied Critical Habitat in conjunction with the FWS and State fish and wildlife agencies. Priorities will reflect ground-truthing of site capability, likelihood of success, planning and design, monitoring needs, and prioritization by population status and need.

BLM Colorado and Utah will continue to support, coordinate with, and participate in GUSG conservation activities that are led or initiated by the FWS, State fish and wildlife agencies, and local workgroups or other partnerships. Such activities may include, but are not limited to, ongoing GUSG research studies, habitat mapping and modeling efforts, conservation planning and project implementation, and population monitoring.

Conference and Consultation with FWS

The ESA requires the BLM to conference on all management actions that may result in a Jeopardy determination of a proposed species. Since the BLM is generally not in a position to determine Jeopardy, BLM policy (Manual Section 6840) is to conference on all discretionary actions that May Affect, or are Likely to Adversely Affect (LAA). Per the FWS Guidance for Conferencing (Attachment 2), the FWS has agreed to continue ongoing discussions and/or conferencing for all land use planning efforts and for the Gunnison Basin CCA. The BLM has shared a list of ongoing planning efforts with FWS to help plan their interim workload with the BLM.

The FWS will not be conferencing on individual projects that may have adverse effects to the species or proposed critical habitat, but are not likely to reach the level of Jeopardy to the species. Assessment of project-level impacts should be documented in the associated NEPA analysis.

Individual projects with an LAA determination will be coordinated through the appropriate state office to support continuing ongoing actions. This will include providing feedback to the field on appropriate conservation measures and levels of impacts.

FOs will work with the appropriate state office to prioritize and streamline future consultation needs if the species is listed and help develop a schedule for submitting priority projects/activities/programmatic Biological Assessments (BA) to the FWS for consultation to manage reasonable workloads for both agencies. This will include assisting the FOs in identifying and grouping similar actions (existing and future) that may be assembled and analyzed in programmatic consultation documents or covered by project screens for one or more GUSG populations.

Adaptive Management

For purposes of this IM, adaptive management is used in two broad contexts:

1. Incorporating applicable new research or guidance into GUSG management.
2. Adjusting management to achieve specific GUSG resource objectives as determined through monitoring (DOI Technical Guide for Adaptive Management, Williams et.al 2007).[4]

As new research, national or state management guidance, population or habitat data, or other pertinent GUSG information becomes available, recommended management of GUSG should be adjusted accordingly. All recommended management applications will continue to be implemented via NEPA analysis. The success in implementation and effectiveness of this management direction will be reviewed to determine if GUSG resource objectives are being met. This review will be in coordination with the FWS, State fish and wildlife agencies, and other agencies through the GUSG RSC. As RMPs are amended or revised in the future with sufficient local population guidance, those conservation measures and management constraints will be reviewed for effectiveness as described above.

Alternatively, where specific GUSG population or habitat objectives have been set, the BLM will use monitoring data to determine the effectiveness of existing management actions in meeting those objectives. If not deemed effective, management prescriptions should be adjusted to meet identified resource objectives.

Timeframe: This IM is effective immediately.

Budget Impact: This IM will result in additional operational costs for coordination, NEPA review and monitoring of all activities in GUSG habitats in Colorado and Utah. In addition, full implementation of this IM including initiating a GUSG range-wide Plan Amendment, restoration efforts, response to climate change indicators, and adaptive management may require significant funding.

Background: Since 1999, the GUSG has been petitioned and reviewed for listing under ESA several times. The FWS issued a 12-month finding on September 27, 2010, (75 FR 59804), and determined that GUSG warranted protection under the ESA, but that proposing the species for protection would be delayed while the FWS addressed the needs of other higher priority species. On January 11, 2013, the FWS proposed GUSG as endangered, and concurrently proposed the designation of approximately 1.7 million acres of critical habitat, under ESA, as amended (78 FR 2486; 78 FR 2540).

GUSG occur in seven isolated populations, one of which is connected to a GUSG population in Utah. It is important to maintain existing populations and/or current distribution throughout both Colorado and Utah, where more than 90 percent of the estimated range-wide population of GUSG occurs within Colorado. Local GUSG workgroups have been established for six of the seven populations and are engaged in management of the species to varying degrees depending on land ownership and local involvement. Threats to these species vary by population in both Colorado and Utah, and are articulated in their respective Conservation Plans (RCP 2005).

As a land manager of GUSG habitat, it is imperative that the BLM conserve sagebrush communities to support sustainable GUSG populations and maintain or improve connectivity of habitat within and between existing populations, where appropriate. However, successful management of GUSG will require cooperation from private, state and federal land owners and managers to address the wide range of land uses that intersect with GUSG habitat. For instance, while the BLM is a primary land manager of GUSG habitat in Colorado, between 80-90 percent of all oil and gas drilling activity statewide occurs on private, county, or state lands, with no federal nexus. Only by finding ways to work across landscapes that transcend ownership boundaries will federal, state, and private land owners and managers achieve substantial and measurable conservation of sagebrush communities and sustainable GUSG populations.

Directives Affected: A BLM Colorado/Utah Handbook Supplement will incorporate the new policy and guidance.

CHAPTER 6 - APPENDIX C
GUSG Candidate Conservation Agreement, Gunnison Basin Population

Coordination: This IM was coordinated with BLM Utah State Office; Colorado State Office; the Washington Office (WO) Resources and Planning Directorate; WO Energy, Minerals, and Realty Management Directorate; and the WO National Landscape Conservation System and Community Programs Directorate.

Contact: Robin Sell, Conservation Biologist, at (303) 239-3723, or Leigh Espy, Project Manager, at (303) 239-3801.

Signed by:
Edwin L. Roberson
Assistant Director
Resources and Planning

Authenticated by:
Robert M. Williams
Division of IRM Governance, WO-860

2 Attachments

- 1 - COGCC MOU (9 pp)
- 2 - FWS Guidance for Endangered Species Act Conferencing for GUSG (1 p)

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- [1] The HAF is available at
<http://sagemap.wr.usgs.gov/docs/rs/SG%20HABITAT%20ASESSMENT%202010.pdf>
 - [2] More information available at: https://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf
 - [3] Available at: <http://www.oha.doi.gov:8080/index.html>
 - [4] Available at: <http://www.doi.gov/initiatives/AdaptiveManagement/TechGuide/openingpgs.pdf>

APPENDIX C: GUSG CANDIDATE CONSERVATION AGREEMENT, GUNNISON BASIN POPULATION

Candidate Conservation Agreement

For the Gunnison sage-grouse, *Centrocercus minimus*
Gunnison Basin Population

Developed cooperatively between:
Colorado Parks & Wildlife
Gunnison County
Saguache County
U.S. Bureau of Land Management
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. National Park Service
U.S. Natural Resources Conservation Service

EXECUTIVE SUMMARY

Beginning in January 2010, federal land management agencies and the Gunnison Basin Sage-Grouse Strategic Committee developed the following Candidate Conservation Agreement (CCA) to promote conservation of the Gunnison Basin population of Gunnison sage-grouse. The CCA addresses three categories of threats to sage-grouse habitat on federal public lands in the Gunnison Basin, as identified in the 2010 FWS status review: development, recreation, and grazing. The CCA will apply to such actions on the approximately 395,000 federal acres of occupied habitat, or roughly two-thirds of the total 590,000 acres of occupied Gunnison sage-grouse habitat in the Basin. As noted in the USFWS 2010 status review, the Gunnison Basin population constitutes 87% of the overall population of Gunnison sage-grouse.

Federal signatories will seek a conference opinion from the U.S. Fish and Wildlife Service (USFWS) in accordance with section 7 of the Endangered Species Act (ESA) regarding the CCA and its covered actions, and this process is expected to be completed by mid – 2013. With the conference opinion, so long as the federal agencies design and manage these specified activities to meet the conservation criteria outlined in the CCA, the federal agencies will have met their ESA conference requirements for those activities. If the Gunnison sage-grouse is subsequently listed under the ESA, the federal signatories will request that the USFWS confirm the conference opinion as the biological opinion, such that the federal agencies will have met their ESA consultation requirements for those covered activities.

Because the nonfederal signatories manage activities and uses on and through federal lands, such as road maintenance and big game, they too serve a role in implementing the CCA. Fortunately, the Gunnison Basin has a long history of government-to-government cooperation to conserve the species and habitat. Nonfederal actions or actions without a federal nexus are not intended to be included in the conference opinion, however.

Although the CCA delineates overarching habitat conservation objectives on federal lands, conservation measures in the CCA are not intended to address all threats to the species and habitat. Rather, the CCA and associated conference opinion covers a wide range of activities on federal lands including development, recreation, and grazing.

Further, neither the CCA nor the conference opinion is a land-use plan, nor is it intended to supersede federal or nonfederal land use planning authority. Section 7 coverage does not absolve federal agencies of NEPA obligations, nor does it absolve nonfederal permittees of compliance with permit terms and conditions. For federal agencies, the CCA is a tool to screen activities on federal lands for coverage under the streamlined, programmatic conference opinion. For nonfederal signatories, this document is intended to be a statement by the federal agencies that, so long as the nonfederal signatories implement the identified conservation measures for an action with a federal nexus , then no further consultation is necessary, and such covered actions are “screened out” of any further consultation requirements. For nonfederal nonsignatories who obtain permits and authorizations for activities on federal lands, including such broad stakeholder groups as right-of way/easement permit holders, recreationists, and Stockgrowers, so long as the federal agency administering such permits implements the identified, associated conservation measures, then no further consultation on the permit is necessary.

CHAPTER 6 - APPENDIX C
GUSG Candidate Conservation Agreement, Gunnison Basin Population

The Strategic Committee is the Gunnison and Saguache County-appointed local working group comprised of agency officials, elected officials, commercial stakeholders, conservation organizations and members of the public. The CCA effort was facilitated by the Bureau of Land Management (BLM), coordinated with the USFWS, and included approximately 35 individuals representing federal and state agencies, two counties, and stakeholder groups.

Signatories include (*See Section 0, Responsibilities of Signatories*):

- USDA Forest Service: Gunnison Ranger District of the Grand Mesa, Uncompahgre and Gunnison National Forest
- USDI National Park Service: Black Canyon of the Gunnison National Park and Curecanti National Recreation Area
- USDI Bureau of Land Management: Gunnison Field Office
- USDI Fish & Wildlife Service: Western Colorado Field Office
- USDA Natural Resources Conservation Service, Colorado
- State of Colorado – Department of Natural Resources, Colorado Parks & Wildlife: Gunnison Service Center.
- Board of County Commissioners of Gunnison County
- Board of County Commissioners of Saguache County

ACKNOWLEDGMENTS

The Gunnison Basin Gunnison sage-grouse Candidate Conservation Agreement is the result of the collective effort of many, many agency staff and public partners and the persistent dedication of a few. Although singular signatures may represent partners' commitment to implement the CCA, success depends upon a host of staff and public partners to fulfill and evolve the agreement in the years to come. Many thanks to those past and future contributors.

INTRODUCTION & FRAMEWORK

1.1. Background

For almost two decades, Gunnison sage-grouse conservation in the Gunnison Basin has been driven by local stakeholders, local government, and state and federal Authorized Officers and staff located in the Gunnison Basin, periodically spurred by U.S. Fish & Wildlife Service (USFWS) decisions regarding the species' status. The Gunnison Basin sage-grouse working group completed the first local conservation plan for Gunnison sage-grouse in June 1997, and Basin-wide sage-grouse conservation continues in large part via the Gunnison County and Saguache County-appointed Gunnison Basin Sage-grouse Strategic Committee. Formed in 2005, the Strategic Committee is comprised of agency officials, elected officials, commercial stakeholders, conservation organizations and members of the public. Meanwhile, the USFWS first designated the grouse as a candidate species in 2000, identifying it as warranted for listing as endangered or threatened under the Endangered Species Act (ESA). The candidate designation means that immediate proposed listing of the species is precluded by higher priority listing actions; the species was again designated as warranted but precluded in 2010. Most recently, in September 2011 the U.S. District Court for the District of Columbia, in *WildEarth Guardians v. Salazar*, approved a settlement agreement between USFWS and Wild Earth Guardians addressing the status of candidate species, including the Gunnison sage-grouse. Under this agreement and a subsequently court-revised timeline, the USFWS proposed the species as endangered in December 2012, and simultaneously proposed critical habitat.

Because of long-standing local commitment to the identification and implementation of sage-grouse conservation measures, and in anticipation of eventual listing under the ESA, agencies and stakeholders began to seek more formalized recognition of their efforts. Colorado Parks & Wildlife (CPW; then Colorado Division of Wildlife) completed a Candidate Conservation Agreement with Assurances (CCAA) with USFWS in 2006. Via voluntary participation in the CCAA, private landowners throughout the range of the Gunnison sage-grouse (GUSG) have enrolled their properties and obtained assurances that no further conservation measures would be required in the event that the sage-grouse is listed, provided they carry out the conservation measures and land management activities as identified in their Certificates of Inclusion.

Given the popularity of the CCAs and the emerging regional awareness of these types of voluntary but formalized conservation mechanisms, in 2010 the Gunnison Basin Sage-grouse Strategic Committee took on the task of preparing a Candidate Conservation Agreement (CCA) with the USFWS to both a) address threats to sage-grouse from activities on federal lands, and b) participate in laying the foundation for how such activities could continue subsequent to a listing decision for the grouse.

1.2. CCAs: Policy, Practice

By policy, a Candidate Conservation Agreement is “an agreement signed by [the USFWS] and other Federal or State agencies, local governments, Tribes, businesses, organizations, or non-federal citizens,

that identifies specific conservation measures that the participants will voluntarily undertake to conserve the covered species” (64 FR 32705 1999). Although the USFWS issued a final policy for Candidate Conservation Agreements with Assurances in 1999, no comparable policy exists for CCAs. USFWS issued an informal memo to describe how a CCA/CCAs could be jointly applied, and the memo detailed recommended components to include in such joint agreements (USFWSa). Yet for stand-alone CCAs, “the degree of detail …can vary widely, and there are no specific permits or assurances associated with them” (USFWS 2011).

By practice, most stand-alone CCAs to-date generally describe the known and anticipated threats to the species and its habitat, coupled with the specific conservation measures that signatories will implement to address the identified threats. For the Gunnison sage-grouse, just such a plan was developed in 2005 via an extensive, multi-agency effort that produced the Gunnison sage-grouse Rangewide Conservation Plan (RCP; GSRSC 2005). The RCP was the first up-to-date and rigorous assessment of rangewide population and habitat data for Gunnison sage-grouse, and still serves as a blueprint for GUSG management across the range. Nonetheless, five years subsequent to varying levels of implementation of the conservation strategies outlined in the Rangewide Conservation Plan, the 2010 status review confirmed that the present and future threats to the species were such that the species continues to be warranted for listing, with an increased priority ranking.

1.3. Goals & Objectives of this CCA

With a wide degree of latitude to develop a CCA, and the impetus to define the next step in management post-Rangewide Conservation Plan, the GUSG CCA participants outlined overarching process- and outcome-oriented goals:

- *Engage key stakeholders in the Gunnison Basin community in a collaborative planning and review process to support sage-grouse conservation*

Building on the trajectory of collaborative, bottom-up grouse management by the Strategic Committee and larger Gunnison Basin community, the CCA process was designed such that public partners worked alongside Authorized Officers to build the key components and conservation measures.

- *Ease the transition to living and working with a species that may be federally listed in the near future*

By outlining clear design criteria in the CCA for any proposed or renewed activities on federal lands in grouse habitat, signatories and partners plan ahead to identify and implement necessary conservation measures.

By then conducting a formal, programmatic conference with USFWS for those activities prior to a final listing determination, federal agencies frontload compliance with their ESA Section 7 obligations in the event of listing. In sum, the GUSG CCA was designed to primarily function as a

project screening tool to streamline future consultation with USFWS under Section 7.¹ This regulatory framework is further elaborated in Section 2.

- ***Build upon the Rangewide Conservation Plan to make conservation measures actionable***

Participating federal agencies and public partners have a clear and direct incentive to incorporate delineated conservation measures as design criteria for project proposals and renewed activities in grouse habitat due to a) efficiency gains from streamlined consultation under ESA Section 7 and b) greater upfront certainty over the conservation measures required.

The GUSG CCA advances several of the conservation objectives outlined in the RCP by breaking objectives into specific, implementable steps that can reasonably be achieved by the implementing agencies.

- ***Stratify occupied habitat to prioritize conservation measures***

With approximately 395,000 acres of federally managed occupied Gunnison sage-grouse habitat in the Gunnison Basin, land managers and planners sought a way to stratify the landscape and prioritize conservation measures.² The development of the Habitat Prioritization Tool, and the subsequent delineation of tiered habitat, is outlined in Section 3.3 and Appendix F.

Tier 1 Habitat: Roughly 60% of occupied grouse habitat is proposed to be managed as Tier 1 habitat. These areas are identified by the Habitat Prioritization Tool, and they are generally characterized by two or more overlapping seasonal habitats and minimal existing permanent development.

¹ For comparable example, see *Programmatic Consultation Agreement between Bureau of Land Management and US Fish and Wildlife Service for Canada Lynx in Colorado*. USFWS & BLM. 2010.

² The Habitat Prioritization Tool was developed for the entirety of occupied habitat in the Gunnison Basin, irrespective of land ownership. The CCA applies the stratification to federal acres only.

Tier 2 Habitat: Roughly 40% of occupied grouse habitat is proposed to be managed as Tier 2 habitat. These areas are identified by the Habitat Prioritization Tool, and they generally represent the more fragmented areas on the landscape.

Account for cumulative impacts of habitat fragmentation

Fragmentation as used throughout the CCA is defined as the reduction of continuity and/or quality of habitat, including both direct habitat conversion and indirect/functional impacts.³ A fundamental goal of the CCA is to account for the cumulative impacts of habitat fragmentation, which is identified as the overriding threat to the species. As such, two habitat objectives frame the conservation measures to address both existing impacts and impacts from future, additional development and activities in occupied habitat on federal lands:

Tier 1 habitat objective: Reduce existing net fragmentation.

Section 5, Conservation Measures to Address Existing Development & Activities, outlines measures the agencies and their partners will take to reduce the scope and extent of existing fragmentation over the lifetime of the CCA. For example, Tier 1 habitat will be prioritized for route reclamation.

Section 4, Conservation Measures to Address Future Development & Activities, sets up a framework to reduce net fragmentation – while enabling participating agencies to fulfill mission-priority work and uses – via the use of offsite mitigation⁴ for specified types of future infrastructure. For example, new trails can be constructed, but they will have to be offset by a *greater* amount of reclaimed trails. To the extent possible, offsite mitigation should lead to an increase in the size of intact, unfragmented Tier 1 habitat patches.

Tier 2 habitat objective: Avoid additional net fragmentation.

Section 4, Conservation Measures to Address Future Development & Activities, sets up a framework to avoid additional net fragmentation – while enabling participating agencies to fulfill mission-priority work and uses — via the use of offsite mitigation for specified types of future infrastructure. For example, new trails that meet the design criteria to minimize impacts to sage-grouse habitat may be constructed, but they will have to be offset at a minimum by an *equal* amount of reclaimed roads and trails.

³ The use of the term fragmentation throughout the CCA is not intended to imply that sage-grouse within the Gunnison Basin population are genetically isolated as a result of habitat fragmentation, and no data exist to indicate genetic isolation is occurring within the Basin.

⁴ Offsite mitigation consists of compensating for resource impacts by replacing or providing substitute resources or habitat at a different location than the project area.

Disturbance Caps

In the future, new research, agency policy, or signatories to the CCA may identify caps or thresholds of allowable disturbance in occupied grouse habitat in the Basin. At that time, parties to this CCA would consider modifying Tier 1 and Tier 2 habitat objectives to be consistent with identified disturbance caps, thereby ensuring the GUSG CCA remains a viable and relevant instrument (*See Section 9*).

1.4. Scope

From the onset, CCA participants focused the scope of the agreement on three threats in the Gunnison Basin that contributed to the candidate status of the species: development, grazing, and recreation. While other threats to the species exist, the CCA is a targeted conservation agreement that covers development, recreation, and grazing actions that are:

- discretionary actions occurring on and through federal lands that are likely to have insignificant or discountable effects to the species or habitat
- discretionary actions occurring on and through federal lands that can be closely managed to avoid, minimize, and/or mitigate negative effects to the species or habitat

Actions covered by this CCA are further defined as:

- **Development:** New roads, power lines, phone lines, communication sites and meteorological towers, pipelines, fences, culverts, gates, cattle guards, exclosures, rights-of-way and easements that result in small-scale development projects on federal lands. The maintenance and reconstruction of such existing infrastructure is also covered in the CCA, as is the access and maintenance to existing water developments.
- **Recreation:** New recreation roads and trails, modification and reclamation of existing recreation roads and trails, recreation infrastructure (signs, kiosks, vault toilets, vehicle barriers, concentrated parking areas), seasonal restrictions, and special recreation permits, including events and outfitters on federal lands.
- **Grazing:** With respect to grazing, the CCA primarily concerns livestock grazing permits on federal lands. Yet because of the landscape scale of grazing and grouse habitat, additional grazing conservation measures are identified in this CCA to share the conservation responsibility amongst key partners. These measures – including coordinated allotment management planning across private, state, and federal boundaries, upkeep of data analysis unit plans for big game—will not be addressed in the conference opinion, but are necessary components of a range management system that ensures sage-grouse conservation. Other activities relative to livestock management, such as fences, small-scale water developments, are included in the development category.

Certain activities on federal lands have impacts of such a scale, magnitude, and project-specific nature as to warrant additional consideration and may thus require additional consultation with USFWS under ESA Section 7, outside of what will occur in connection with the CCA. Such activities and actions on federal lands within the Gunnison Basin are **not** covered by the CCA, including but not limited to:

- Energy and minerals development
- ROWs and easements > 5 acres permitted area
- Utility ROWs and easements > 25 feet permitted area width
- ROWs and easements >.5 mile aboveground infrastructure (not including buried utilities, buried pipelines) OR
- Agency-implemented actions > 1 acre permanent ground disturbance

2 REGULATORY FRAMEWORK

2.1. CCA Relationship to Section 7 of the ESA

Other species-specific CCAs have been developed and implemented with sufficient time for the USFWS to evaluate their effectiveness at reducing or eliminating threats to candidate species, with the result that some CCAs have contributed to making listing unnecessary for the covered species. Due to the anticipated proposed listing determination by December 31, 2012, beneficial effects of this CCA on the GUSG and GUSG habitat will postdate any such proposal.

Federal Signatories

Any federal agency has the option of conducting an ESA Section 7(a)(4) conference for candidate species and species proposed for listing to ensure that the actions they authorize, fund, permit, or carry out are not likely to jeopardize the existence of those species. Because the GUSG CCA is intended in part to serve as a programmatic agreement to streamline the ESA Section 7 consultation process, the participating federal agencies will prepare a Programmatic Biological Assessment of the effects of the CCA's covered actions and their associated conservation measures. Subsequently, the federal agencies will request that USFWS conduct a Section 7 conference, resulting in a conference opinion, pursuant to section 7(a)(4) of the ESA and 50 C.F.R. § 402.10(d).

Should the USFWS list the GUSG as threatened or endangered, the federal agencies will request, pursuant to 50 C.F.R. § 402.10(d), that the USFWS review the CCA conference opinion and adopt it as a biological opinion issued through formal consultation for the actions covered by the CCA that are in compliance with its conservation measures. If the USFWS determines as a result of this review that there have been no significant changes in the information used during the conference or in the CCA, the USFWS would confirm the original Conference Opinion as the Biological Opinion and no further section 7 consultation will be necessary with respect to these actions. Ultimately, this CCA and accompanying Biological Assessment are intended to demonstrate that adequate conservation measures, sufficient adaptive management, and monitoring obligations to allow the conference opinion to be converted into a biological opinion on the effective date of any decision to list GUSG.

Nonfederal Signatories

The Section 7 process does not apply to non-federal actions or actions that are not authorized, funded, or carried out, in whole or in part, by a federal agency in the United States. Therefore, for non-federal signatories – such as Colorado Parks & Wildlife and Gunnison and Saguache counties – the Biological Assessment and subsequent conference opinion will only address actions with a federal nexus.

2.2. CCA Relationship to CCAAs

Many private landowners in the Gunnison Basin are enrolled in or have made application to be included in a Candidate Conservation Agreement with Assurances (CCAA) between the USFWS and CPW. Unanticipated conflicts may arise during the course of implementing both agreements. For example, one of the strategies in this CCA encourages cross-boundary flexibility for livestock management. Adjusted grazing prescriptions on the federal portion of an allotment may result in adjusted grazing on the private portion of an allotment, which could conflict with a private landowner's Certificate of Inclusion under his existing CCAA. Any unforeseen conflict between the GUSG CCA and any Certificate of Inclusion issued pursuant to the CCAA will be addressed by the participating agencies and enrolled landowners with close coordination to maximize benefit to grouse habitat. Ultimately, however, nothing in the CCA will alter, impair or negate any obligation or benefit provided to a private landowner under his Certificate of Inclusion in the GUSG CCAA.

2.3. CCA Relationship to Land-Use Plans

Federal Signatories

- The GUSG CCA is consistent with the 1992 BLM Gunnison Field Office Resource Management Plan; USFS Land and Resource Management Plan for the Grand Mesa, Uncompahgre and Gunnison National Forests; and 1997 General Management Plan, Black Canyon of the Gunnison National Monument and Curecanti National Recreation Area (*see Section 11, Authorities*).
- The GUSG CCA is not a decision document, and as such, does not replace any need for site-specific NEPA analysis for new and ongoing land-use authorizations.

Nonfederal Signatories

- Nothing in the CCA shall, or shall be construed to, limit applicable local government land-use or environmental regulatory authority.

3 SPECIES BACKGROUND, HABITAT & THREATS

3.1. Species Background

Currently there are 7 separate populations of Gunnison sage-grouse located in Colorado and Utah with the vast majority of the birds being in the Gunnison Basin. Loss of sagebrush habitat along with fragmentation has altered much of the historic range of the species. With limited population size and

existing threats to the bird, there are currently no strongholds for population persistence, including the Gunnison Basin (Wisdom et al. 2011). The Gunnison population has remained relatively stable over the last decade, and the RCP Population Viability Analysis indicated that the population has less than 1% chance of extinction next 50 years, modeled on a population target of 3000 individuals (GSRSC 2005). The 2012 population estimate is 3,327, and the three-year average is 3,119 (CPW 2012). However, several primary threats still exist, including landscape fragmentation, habitat loss, and the potential for increased habitat disturbance in the future.

As noted in Section 1.1, the USFWS first determined Gunnison sage-grouse to be a candidate species under the ESA in 2000. On April 11, 2006, USFWS determined that listing under the ESA was not warranted. In late 2006, a lawsuit was filed alleging the 12-month finding of “not warranted” violated the ESA. A settlement agreement was reached in 2009 for the USFWS to reissue a 12-month finding. On September 28, 2010, the USFWS published the 12-month finding which determined that listing under the ESA was warranted, but precluded by higher priority actions. Most recently, in the fall of 2011 the USFWS and Wild Earth Guardians reached a settlement agreement addressing the status of many candidate species, including the Gunnison sage-grouse. Under that court-approved settlement agreement as recently amended, the USFWS is required to issue a proposed rule to list the species, or a not-warranted determination, no later than December 30, 2012. If the USFWS proposes to list the species, the settlement agreement requires FWS to finalize its listing determination on or before September 30, 2013.

3.2. Habitat

There are approximately 593,000 total acres of occupied sage-grouse habitat in the Gunnison Basin. Elevation within occupied habitat ranges from 7,500 to over 9,500 feet. Precipitation levels range from 7 to 16 inches depending on geographic area and elevation. The majority of sage-grouse habitat within the Basin receives less than 12 inches of precipitation a year. Typical sagebrush types include mountain big sagebrush, Wyoming big sagebrush, and black sage. Mountain big sagebrush occurs at higher elevations and at lower elevations containing moist sites. Wyoming big sagebrush is typically found at lower elevations and on drier sites. There is a hybrid of Wyoming and mountain in transition areas between the two. Black sage is also found on the dry gravel soils in lower elevations. Aspect is also an important factor influencing soil moisture content and the distribution of big sagebrush, with mountain big sagebrush often occurring on more northerly slopes and Wyoming big sagebrush occurring on more southerly slopes. There are many perennial and ephemeral streams within the sagebrush-steppe habitat that provide important brood rearing habitat throughout the Basin. Many of these streams have sagebrush encroachment as a result of downcutting and entrenchment of the stream channel, leading to contraction of the riparian zone.

Habitat Stratification

As noted in Section 1.3, a fundamental purpose of the CCA is to stratify the approximately 395,000 federal acres of grouse habitat in the Gunnison Basin and to prioritize conservation measures accordingly. Via a year-long, collaborative, multi-agency process, members of the Strategic Committee developed a Habitat Prioritization Tool (*HPT*; *See Appendix F*). In January 2012, the Strategic Committee completed the Habitat Prioritization Tool, and the Committee defined the threshold for what

constitutes high-priority grouse management areas for the purposes of the CCA. For now and throughout this document, the highest-value habitat is referred to as Tier 1 habitat, and the remainder of occupied grouse habitat is referred to as Tier 2 habitat. (*See Figure 1*)

Adaptive Element:

The Strategic Committee will continue to refine and update the HPT, including but not limited to annual CPW updates regarding the status and high male counts of leks. The HPT will be updated when new, spatially explicit sage-grouse habitat models are created and validated for the Gunnison Basin.

Although thorough review of data inputs to the HPT was conducted, the accuracy of inputs is no doubt limited, with the effect that some existing permanent infrastructure may have been omitted in the current HPT and HPT-derived maps of Tier 1 and Tier 2 habitat. In the course of CCA implementation, future land use authorizations will be ground-truthed to determine presence/absence of existing permanent infrastructure. Subsequent design criteria and conservation measures should be consistent with the actual habitat status as Tier 1 or Tier 2.

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GUSG Candidate Conservation Agreement, Gunnison Basin Population

Affected Area

The CCA applies to approximately 395,000 acres, the entirety of occupied sage-grouse habitat on federal lands in the Gunnison Basin. Table 1 details acreage breakdown per agency.

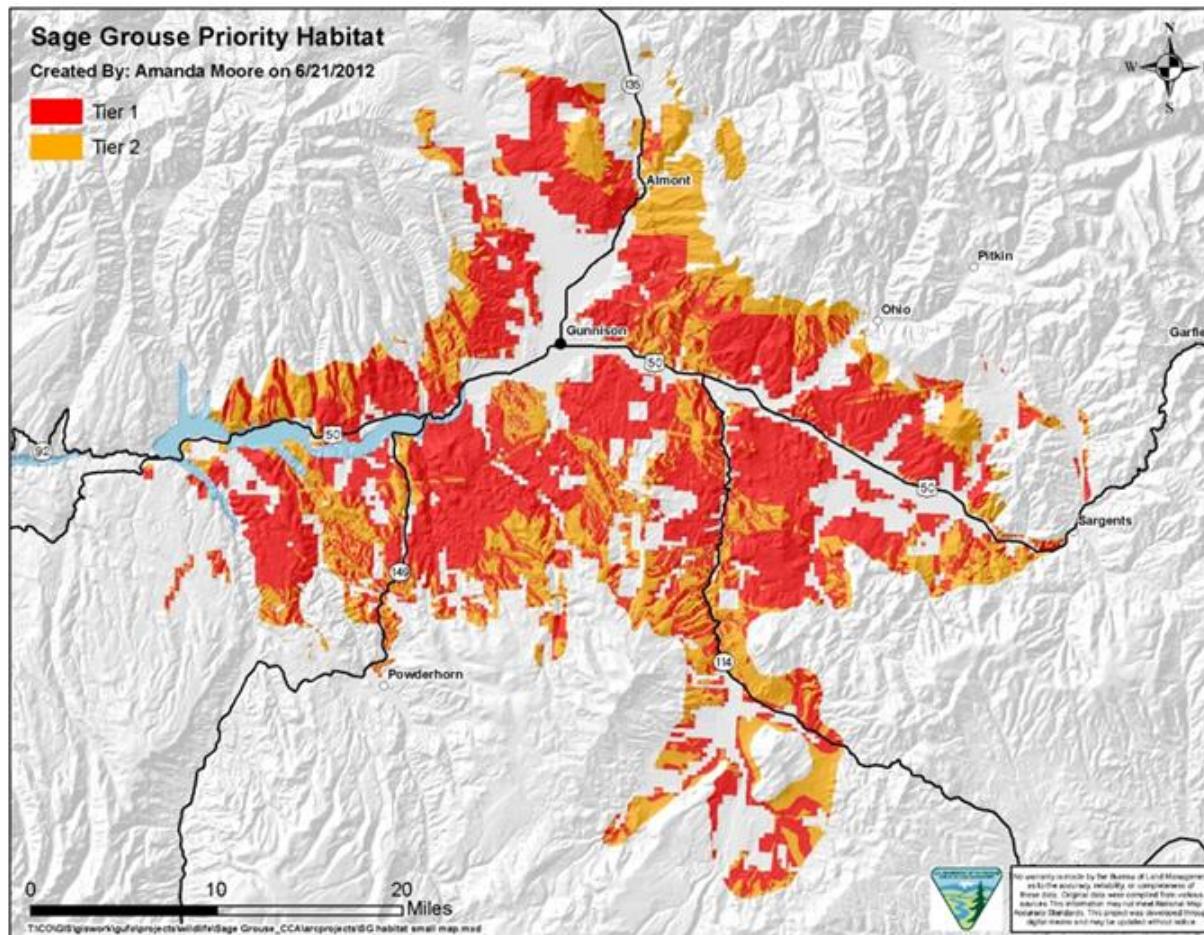


Table 114. Federal Gunnison sage-grouse occupied habitat acreage.

	<i>Tier 1</i>	<i>Tier 2</i>	<i>Tier 1 & Tier 2</i>
BLM	212,554	89,300	301,854
USFS	33,033	50,993	84,026
NPS	4,959	4,619	9,578
Totals (acres)	250,546	144,912	395,458

Figure 94. Tier 1 & Tier 2 habitat on federal lands.

3.3. Threats

Section 4 of the Endangered Species Act sets forth procedures for adding species to the Threatened or Endangered list based on information for five listing factors. The five listing factors are:

- A. The present or threatened destruction, modification, or curtailment of the species' habitat or range;
- B. Overutilization for commercial, recreational, scientific, or educational purposes
- C. Disease or predation
- D. Inadequacy of existing regulatory mechanisms
- E. Other natural or man-made factors affecting the species' continued existence

The USFWS looks at not only the species' exposure to each of these factors, but also to whether the species may respond to a factor in a way that causes actual, negative impacts to the species. If there is exposure to a factor and resulting negative effects, then the factor may be a threat to the species. If the threat drives or contributes to the risk of extinction of the species, leading to the need for protection under the ESA, the USFWS considers the threat to be significant.

In the 2010 Status Review and 12-month Finding, 75 Fed. Reg. 59,804 (Sept. 28, 2010), USFWS identified several threats to the grouse within the Gunnison Basin. As identified in Section 1.4, the CCA focuses on the threats to federal occupied habitat in the following categories: development, recreation, and grazing. The following is a summary of USFWS 2010 findings relating to these threats:

Factor A: The present or threatened destruction, modification, or curtailment of its habitat or range

- ***Historic Modification of Habitat***

Current occupied habitat in the Gunnison Basin totals 593,000 acres (GSRSC, 2005). Although USFWS notes that approximately 7% of the species potential historic range is currently occupied throughout the range of the species, they cite Boyle and Reeder to note that the rate of loss of sagebrush in the Basin was lower than other areas of sagebrush distribution in Colorado (75 FR 187, 59813). It appears that 60-70% of potential historic habitat remains occupied in the Gunnison Basin, considerably more than the USFWS' estimated 7% of potential historic habitat currently occupied rangewide (59813).

Roads

Currently there are 1,274 miles of roads within 4 miles of grouse leks in the Gunnison Basin. One USFWS analysis finds that all occupied habitat in the basin is indirectly

affected by roads, with the conclusion that “increased road use and increased road construction associated with residential development will continue at least through 2050, and likely longer. The resulting habitat loss, degradation, and fragmentation from roads are a significant threat to Gunnison sage-grouse now and in the foreseeable future” (75 FR 187, 59817-8).

Overall threat: High

Powerlines

USFWS analysis indicates that “68 percent of the Gunnison Basin population area is within 4.3 miles of an electrical transmission line and is potentially influenced by avian predators utilizing the additional perches...These results suggest that potential increased predation resulting from transmission lines have the potential to affect a substantial portion of the Gunnison Basin population” (75 FR 187, p. 59819). Citing current demographic and economic trends, USFWS expects that impacts from existing powerlines and distribution of new powerlines associated with residential development will continue at least through 2050, and likely longer (59819).

Overall threat: Moderate +

Invasive Plants

USFWS anticipates cheatgrass and other noxious/invasive weeds will increase in the Gunnison Basin in the future because of potential exacerbation from climate change and the limited success of broad-scale control efforts. Impacts will likely be in the form of habitat degradation via loss of native plants and an altered fire regime (75 FR 187, 59821-2).

Overall threat: Moderate +

Fences

Approximately 960 miles of fence are located on BLM lands alone within the Gunnison Basin, and are thus widely distributed throughout GUSG habitat. Fence posts create perches for avian predators; USFWS anticipates the effect on sage-grouse populations by such facilitated predation is comparable to the effect of powerlines (75 FR 187, 59816-7). Although fences pose a collision hazard that has resulted in a notable level of direct strike mortality rates in the Greater sage-grouse population, mortality risk is dependent in part upon topography. In more rugged terrain, researchers have documented a markedly lesser risk, hypothesized to be a product of consequent higher flying patterns by the grouse (Stevens 2011). The varied terrain of the Gunnison Basin, and anecdotally reported

higher-flying patterns of Gunnison sage-grouse, may limit population-level effects of any direct collisions.

Overall threat: Moderate +

Domestic Grazing & Wild Ungulate Herbivory

Domestic livestock grazing occurs throughout most of the occupied habitat in the Gunnison Basin and is expected to continue in the future. USFWS acknowledges that not all livestock grazing results in habitat degradation, and noted that “no studies have documented (positively or negatively) the actual impacts of grazing at the population level” (75 FR 187, 59823). They conclude that “habitat degradation that can result from improper grazing is a significant threat to GUSG now and in the foreseeable future” (59827).

Overall threat: Moderate (when considered with Wild Ungulate Herbivory)

Wild Ungulate Herbivory

Any negative effects of livestock grazing are furthermore “likely being exacerbated by intense browsing of woody species by wild ungulates in portions of the Gunnison Basin” (75 FR 187, 59826-7).

Overall threat: Moderate (when considered with Wild Ungulate Herbivory)

Factor E: Other natural or manmade factors affecting its continued existence

Recreation

USFWS notes that recreational activities, a significant use on federal lands, can result in direct and indirect effects on sage-grouse and habitat. Citing the RCP, the USFWS notes that direct disturbance during critical biological periods, including lekking, nesting, and early brood-rearing grouse, “can result in abandonment of lekking activities and nest sites, energy expenditure reducing survival, and greater exposure to predators” (75 FR 187, 59846). Early studies of the indirect effects of widespread motorized recreational access on wildlife habitat indicates that high-frequency human activity along established corridors can affect wildlife through habitat loss and fragmentation, including facilitating the spread of predators and invasive plants (Knick et al 2011). Furthermore, domestic dogs on recreation trails are anticipated to be an additional stressor when within vicinity of sage-grouse, although dogs alone are not currently identified as a population-level threat. In general, USFWS notes that recreational activities do not pose a singular threat

to GUSG now or in the foreseeable future, although localized impacts may occur (59846-7).

Overall threat: Low

4 NEW CONSERVATION MEASURES: FUTURE DEVELOPMENT & ACTIVITIES

4.1. Goal, Scope & Function

GOAL:

In order to reduce existing net fragmentation in Tier 1 habitat and avoid additional net fragmentation in Tier 2 habitat, impacts from specified new human infrastructure are avoided, minimized, and mitigated via off-site mitigation.

SCOPE:

New roads, routes, trails, power lines, phone lines, communication sites and meteorological towers, pipelines, fences, culverts, gates, cattle guards, exclosures, recreation infrastructure, and rights-of-way and easements that result in such types of small-scale development projects on federal lands.

Certain activities on federal lands have impacts of such a scale, magnitude, and project-specific nature as to warrant additional consideration and may thus require additional consultation with USFWS under ESA Section 7, outside of what will occur in connection with the CCA. Such activities and actions on federal lands within the Gunnison Basin are not covered by the CCA, including but not limited to:

- Energy and minerals development
- ROWs and easements > 5 acres permitted area
- Utility ROWs and easements > 25 feet permitted area width
- ROWs and easements >.5 mile aboveground infrastructure (not including buried utilities, buried pipelines) OR
- Agency-implemented actions > 1 acre permanent ground disturbance

FUNCTION:

Sections 4 & 5 are designed to function as a screening tool. Identified conservation measures are included as design criteria for projects to be covered under the conference opinion from USFWS. In the event that a project cannot be managed or designed to meet these criteria, additional consultation with USFWS—outside that provided by the conference opinion and any subsequent

adoption of the conference opinion as the biological opinion— may be required if the project may affect the species or its critical habitat.

As noted in Section 2.3, the GUSG CCA is not a decision document, and as such, does not replace any need for site-specific NEPA analysis for new and ongoing land-use authorizations.

4.2. Standard/General Minimization Measures

Note: Each of the bulleted measures below applies, unless otherwise indicated.

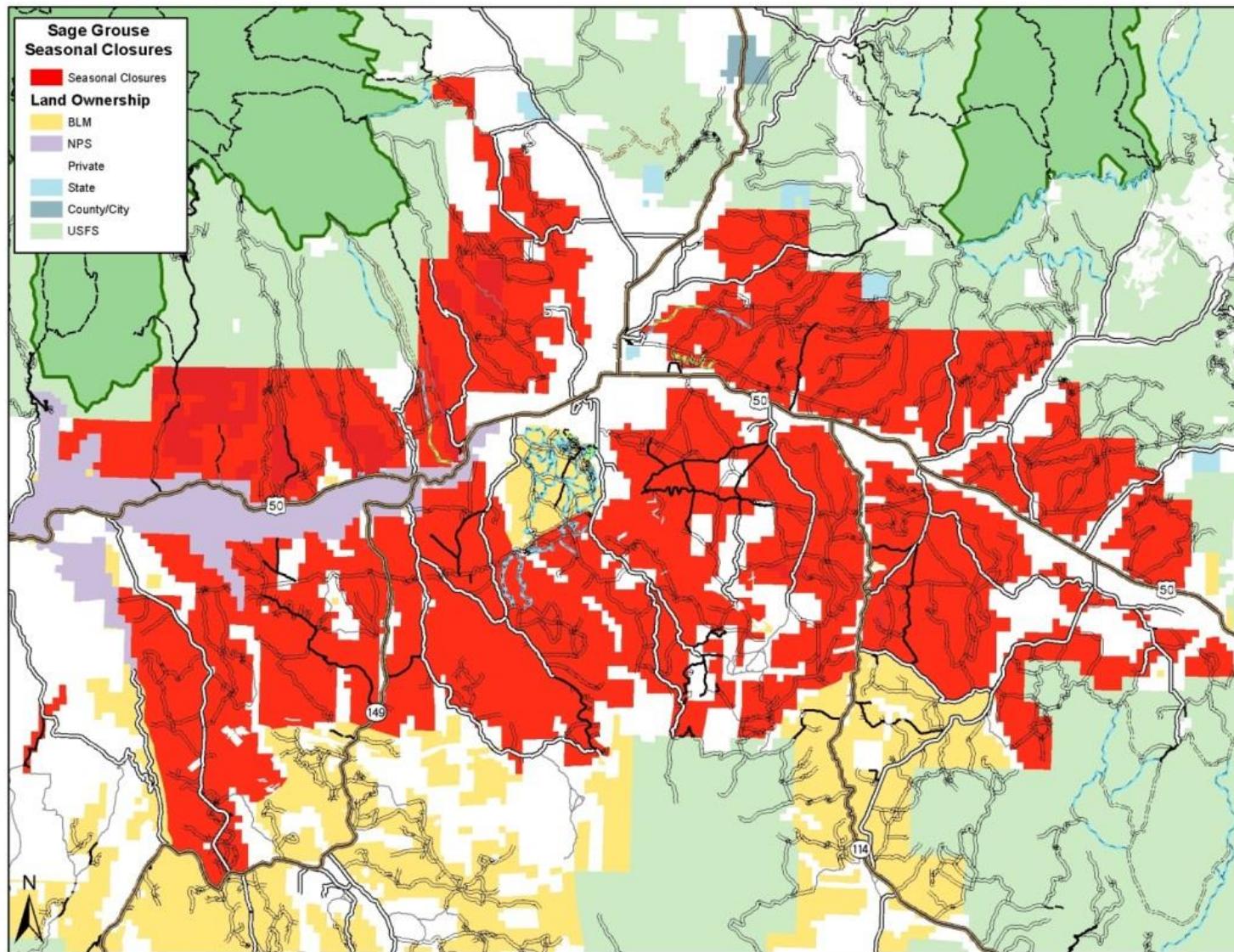
Timing Restrictions & Seasonal Closures

- Seasonal restrictions on construction, maintenance, and access in seasonal grouse habitat (excepting emergency maintenance), including public access (*See Figure.*)
 - Currently implemented: Lekking period, currently observed from approximately March 15 – May 15⁵
 - Closed to motorized travel, with the following exceptions. Excepted travel is encouraged after 9am where possible.
 - Permittees
 - Access to private property
 - Hartman Rocks Recreation Area, north of powerline
 - Emergency maintenance
 - If research indicates additional restrictions are necessary to sustain the sage-grouse population, seasonal restrictions in identified seasonal grouse habitat may be applied to minimize disturbance during the following critical biological periods: nesting, brood-rearing, or winter periods of use by grouse.

⁵ Spring closures to minimize disturbance to lekking grouse may be adjusted by the implementing agencies to accommodate changing environmental conditions, i.e., trend toward earlier lekking periods, etc.

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GUSG Candidate Conservation Agreement, Gunnison Basin Population

Figure 2. BLM & Gunnison County road and area closures, March 15-May 15



Siting & Construction

- Co-locate new construction or infrastructure within existing development footprints to the maximum extent feasible, unless implementing agency biologists have identified such existing infrastructure as detrimental to grouse; and
- Siting options analyzed with habitat prioritization tool (HPT) to determine least-fragmenting general location; and
 - For infrastructure that requires temporary or permanent access routes (i.e., utility lines, communication sites), siting options should be considered in conjunction with proposed access routes to determine least-fragmenting general location; and
- Consistent with the 1992 BLM RMP, locate any new construction outside of the lek boundary; and
- Field-verify all HPT designations to ground-truth final siting decisions⁶; and
- Site using topography to conceal or minimize noise and visual⁷ impacts to sage-grouse; and
- Site and construct new infrastructure to minimize hydrological modification and riparian disturbance;⁸ and
- Integrated weed prevention practices used for all construction and maintenance activity (*See Appendix A*); and
- Close coordination between right-of-way/easement-permitting agency and the respective county for new and amended ROW grants, easements and permits in grouse habitat on federal lands at the earliest possible stage of development.

Follow-up/Reclamation Standards

- Habitat reclamation employed for any ground disturbance, in order to minimize establishment of invasive weeds and to accelerate restoration of habitat function. (*See Appendix A*).

Adaptive element:

- Although these measures are intended to be thorough and sufficient to minimize impacts to sage-grouse and sage-grouse habitat from new human infrastructure, additional or more stringent minimization measures may be developed and recommended by the

⁶ Standards for Tier 1 Habitat and Tier 2 Habitat will be applied based upon the most current version of the Habitat Prioritization Tool base maps. Nonetheless, within contiguous blocks of Tier 1 or Tier 2 Habitat, habitat quality is likely to vary. A site visit is critical to locate new ground disturbance in the location with the least impact to grouse habitat.

⁷ Visual concealment of vertical infrastructure can minimize the documented behavioral avoidance of such structures by sage-grouse and other grouse species, avoidance likely due to the association between vertical features and predator perches (Braun 1998, Pruett et al 2009).

⁸ The BLM will site and construct new infrastructure such that PFC condition is maintained or improved.

Strategic Committee, RCP Steering Committee, agency policy, and/or full agreement by the implementing agencies for inclusion as Standard Minimization Measures. At a minimum, meetings between the implementing agencies and the USFWS will be used to update the CCA (*See Sections 9 & 10*).

- New or updated science will be incorporated into management direction via these committees, the policy of the implementing agency, and/or by full agreement by the implementing agencies.
- In order to accommodate this adaptive element, the permitting agency will reserve the right to require additional modifications to all permitted structures, should they be necessary to minimize impacts to Gunnison sage-grouse.
 - Such modifications may be developed and recommended by the Strategic Committee, RCP Steering Committee, agency policy, and/or full agreement by the implementing agencies.
 - At such time that modifications are required, the permit holder may elect to develop a phased implementation schedule in cooperation with the permitting agency.

4.3. Travel Management & Access

With respect to recreational and/or public access, new roads and trails will be considered in the context of comprehensive travel management and/or land-use plans. A trail or road proposal may meet sage-grouse standards set forth in the CCA, and therefore be covered under the USFWS conference opinion, but a trail or road proposal will also need to meet other established, specified objectives and standards not specific to sage-grouse. The same planning principles would apply to new recreation infrastructure/facilities.

The following standards generally apply to new routes proposed for recreation in occupied habitat, but a separate minimum set of grouse conservation measures are proposed for three geographic areas identified as Highly Managed, Urban Interface Recreation Areas to meet current and future recreation needs: (*See Appendix B*). For the purposes of the CCA, "new" routes are those for which construction begins on or after the date that the CCA is signed; therefore, areas and routes identified in the 2010 USFS/BLM Travel Management Plan for possible construction would not be considered as the baseline habitat condition, but *additional* to the baseline.

4.3.1 Motorized Roads & Trails

A. Tier 1 Habitat:

- Realignments for agency purposes that require new road or motorized trail construction and/or reopenings will be covered by the CCA if:
 - Realignment or reopening conserves or enhances sage-grouse habitat⁹; and

⁹ An example of a realignment that may conserve or enhance sage-grouse habitat is the realignment of existing routes out of brood-rearing habitat into other seasonal habitat types, given the relative scarcity of brood-rearing

- Decommissioned road/trail segments that result from realignment or reopening will be reclaimed¹⁰; and
- Standard minimization measures are applied (*Section 4.2*).
- ROW/easement access for private applicants that requires road construction and/or reopenings will be covered by the CCA if :
 - Demonstration that the proposed access route is the only reasonable, feasible option, and no sufficient alternative access is available; and
 - Accompanied by offsite/compensatory mitigation at a ratio >1 acre reclaimed: 1 acre disturbed; and
 - Standard minimization measures are applied (*Section 4.2*).

B. Tier 2 Habitat:

- New roads and motorized trails and reopenings will be covered by the CCA if:
 - Accompanied by offsite mitigation at ratio of 1 acre reclaimed: 1 acre disturbed; and
 - Standard minimization measures are applied (*Section 4.2*).

4.3.1 Nonmotorized Trails

A. Tier 1 Habitat:

- Realignments will be covered by the CCA if:
 - Realignment conserves or enhances sage-grouse habitat or other important natural resource (riparian areas); and
 - Decommissioned trail segments that result from realignments will be reclaimed; and
 - Standard minimization measures are applied (*Section 4.2*).
- New routes will be covered by the CCA if:
 - These routes would consolidate existing designated and user-created routes¹¹; and
 - “Consolidation” is accomplished via decommissioning and reclaiming the replaced routes at a ratio > 1 acre reclaimed: 1 acre disturbed; and

habitat in the Basin. Such net benefit to grouse habitat should be documented in the NEPA planning process and reported to USFWS in the annual CCA reports.

¹⁰ The reclamation standard will be determined and documented in site-specific NEPA. Detailed further in Section 6.3.

¹¹ For USFS and BLM, existing designated/system routes and user-created/nonsystem routes are defined by the 2010 Travel Management Plan (TMP) and subsequent Travel Management Implementation NEPA documents. For NPS, these are defined in the Curecanti National Recreation Area Motorized Vehicle Access Plan/Environmental Assessment, the NPS asset management system, and in the NPS GIS database.

- Signs are installed to ensure pets are leashed on the route during identified critical biological periods, with the exception of permitted outfitting activities; and
- Standard minimization measures are applied (*Section 4.2*).

B. Tier 2 Habitat:

- New routes will be covered by the CCA if:
 - Accompanied by offsite mitigation at ratio of 1 acre reclaimed: 1 acre disturbed; and
 - Standard minimization measures are applied (*Section 4.2*).

4.4. Miscellaneous Infrastructure

4.4.1 Utility Lines & Pipelines

*Note: Includes amendments on existing ROWs/easements for construction **beyond** the footprint of the original ROW authorization/easement permit. Routine maintenance and reconstruction within the footprint of the original ROW authorization/easement permit are covered in [Section 5.4](#).*

If proposal is for a major project, such as major transmission line construction, then it would fall outside the scope of the CCA and not be covered under the USFWS conference opinion. A major project would entail one or more of the following:

- > 5 acres permitted area OR
- > 25 feet utility ROW permitted area OR
- >.5 mile aboveground infrastructure (not including buried utilities, buried pipelines).

A. Tier 1 Habitat:

1. *For a line proposed through Tier 1 only or Tier 1 and Tier 2 habitat, each of the following standards apply in order to be covered under the CCA:*
 - Avoid Tier 1 to the maximum extent feasible, and demonstrate full consideration of this alternative.
2. *If unable to avoid,*
 - Co-locate new utility line on existing overhead lines, to the maximum extent feasible; and
 - Apply standard minimization measures (*Section 4.2*).
3. *If unable to co-locate on existing overhead lines,*
 - Bury line (vertical structure avoided); and

- Co-locate buried line within existing comparable development footprints (roads, other pipelines) to the maximum extent feasible;¹² and
- Apply standard minimization measures (*Section 4.2*).

B. Tier 2 Habitat:

1. *For a line proposed only in Tier 2 habitat, each of the following standards applies in order to be covered under the CCA:*
 - Co-locate new utility line on existing overhead lines, to the maximum extent feasible; and
 - Apply standard minimization measures (*Section 4.2*).
2. *If unable to co-locate,*
 - Bury line (vertical structure avoided) to the maximum extent feasible, and demonstrate full consideration of this alternative; and
 - Co-locate buried line within existing comparable development footprints (roads, other pipelines) to the maximum extent feasible; and
 - Apply standard minimization measures (*Section 4.2*).
3. *If unable to bury,*
 - Offsite/compensatory mitigation required at a ratio of 1:1, mitigated area: impacted area; and
 - Install the most effective perch deterrents available on all power poles for the proposed segment; and
 - Apply standard minimization measures (*Section 4.2*).

4.4.2 Communication Sites, MET Towers¹³, & Comparable Infrastructure

A. Tier 1 Habitat:

For communication sites, MET towers, and comparable infrastructure, each of the following standards apply in order to be covered under the CCA:

- Co-locate new equipment on existing communication tower, other comparable structure, and/or visually conceal¹⁴ structure in a forested area; and

¹² Design criteria largely consistent with BLM WO IM 2010 – 071, which advises that proposed transmission lines be routed outside of priority sage-grouse habitat. Enabling the transmission line to be buried in Tier 1 habitat provides some flexibility to achieve the desired conservation outcome: avoiding additional vertical infrastructure in Tier 1 sage-grouse habitat.

¹³ Meteorological towers. BLM IM 2010-22 advises that the siting of new temporary MET towers be avoided within 2 miles of active sage-grouse leks, unless they are located out of the direct line of sight of the active lek. The design criteria detailed above should achieve a comparable and higher standard by requiring co-location of MET towers and comparable equipment with existing infrastructure in all occupied habitat.

- Apply standard minimization measures (*Section 4.2*).

For associated access routes:

- Use impacted areas to the maximum extent feasible: utilize system roads and nonsystem roads; and
- Apply standard minimization measures (*Section 4.2*).

If there is no existing access,

- Demonstrate that the proposed access route is the only reasonable, feasible option, and no sufficient alternative access is available; and
- Apply offsite mitigation standards for new access routes, consistent with *Section 4.3.1, Motorized Roads*; and
- Apply standard minimization measures (*Section 4.2*).

B. Tier 2 Habitat:

For communication sites, MET towers, and comparable infrastructure, each of the following standards apply in order to be covered under the CCA:

- Co-locate new equipment on existing communication tower or other comparable structure, to the maximum extent feasible;
- Apply standard minimization measures (*Section 4.2*).

If unable to co-locate on comparable structures,

- Co-locate within existing comparable development footprints (proximal to other vertical infrastructure) and/or forested areas; and
- Incorporate each of the mitigation measures in the USFWS Interim Guidelines on the Siting, Construction, Operation and Decommissioning of Communication Towers (*See Appendix C*); and
- Apply standard minimization measures (*Section 4.2*).

For associated access routes:

- Use impacted areas to the maximum extent feasible: utilize system roads and nonsystem roads; and
- Apply standard minimization measures (*Section 4.2*).

If there is no existing access,

- Demonstrate that the proposed access route is the only reasonable, feasible option, and no sufficient alternative access is available; and
- Apply offsite mitigation standards for new access routes, consistent with *Section 4.3, Motorized Roads*; and

¹⁴ Visual concealment of vertical infrastructure can minimize the documented behavioral avoidance of such structures by sage-grouse, avoidance likely due to the association between vertical features and predator perches (Braun 1998, Pruett et al 2009).

- Apply standard minimization measures (*Section 4.2*).

Fences

A. Tier 1 and 2 Habitat:

New fences will be covered by the CCA if:

- Fence is necessary to improve habitat conditions for sage-grouse; and
- Built to general wildlife standards, as recommended by CPW (Hanophy 2009):
 - Posts at minimum 16' intervals; and
 - Gates, drop-downs, removable fence sections or other passages where animals concentrate and cross; and
 - If area is identified as high-risk for grouse collision based upon topography, use flagging to mark the fence¹⁵:
 - Otherwise, use a high-visibility wire, flagging or other visual markers for the top; and
 - Fencing wire placed on the side of the fence posts where the domestic animals are located; and
 - Smooth wire on the bottom; and
 - Height of top rail or wire should be 42" or less; and
 - At least 12" between the top two wires; and
 - At least 16" between the bottom wire or rail and the ground; and
- Standard minimization measures are applied (*Section 4.2*).

4.4.4 Additional Small-Scale Infrastructure

Examples: signs, kiosks, vault toilets, vehicle barriers, concentrated parking areas, culverts, gates, cattle guards, enclosures, and water developments not otherwise detailed above. Does not include ground disturbance and infrastructure associated with minerals and energy development; such projects are not within the scope of this CCA and any associated Section 7 conference or consultation.

A. Tier 1 Habitat:

- New infrastructure will be covered under the CCA if:
 - Total acres of new ground disturbance is $< \frac{1}{4}$ acre; and
 - Infrastructure is sited at least .6 miles from active leks, with the exception of signs and culverts along existing development footprints; and
 - Standard minimization measures are applied (*Section 4.2*).

B. Tier 2 Habitat:

¹⁵ Consistent with: BLM IM 2010-22, Managing Structures for the Safety of sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken, or as updated; USFS R2 SUPPLEMENT 2600-2004-1 2011, Section 2631.1, sage-grouse and Sagebrush Habitats.

- New infrastructure will be covered under the CCA if:
 - Total acres of new ground disturbance is < 1 acre; and
 - Standard minimization measures are applied (*Section 4.2*).

5 NEW CONSERVATION MEASURES: EXISTING DEVELOPMENT & ACTIVITIES

5.1. Goal, Scope & Function

GOAL:

In order to reduce existing net fragmentation in Tier 1 habitat and avoid additional net fragmentation in Tier 2 habitat:

- Specified impacts from existing human infrastructure and activities are avoided and minimized.
- Livestock grazing is managed to maintain and improve habitat conditions for sage-grouse.

SCOPE:

- Existing roads, trails, utility lines, including the maintenance and reconstruction of such infrastructure, access to and maintenance of existing water developments.
- Special recreation permits, including events and outfitters on federal lands. Seasonal closures to dispersed recreation are included, as such closures effect the management and permitting of events and outfitters.
- Grazing permits. Because of the landscape scale of grazing and grouse habitat, additional grazing conservation measures are identified to share the conservation responsibility amongst key partners. These measures – including coordinated allotment management planning across private, state, and federal boundaries, upkeep of data analysis unit plans for big game—will not be addressed in the Biological Assessment or conference opinion, but are necessary components of a range management system that ensures sage-grouse conservation.

FUNCTION:

Sections 4 & 5 are designed to function as a screening tool. Because Section 5 concerns existing land-use authorizations, such as ROW and easement reauthorizations and grazing and recreation permits, implementation of the identified conservation measures will ensure that continued authorizations receive coverage under the USFWS conference opinion. In the event that an authorization cannot meet these criteria, additional consultation with USFWS—outside that provided by the conference opinion and any subsequent adoption of the conference opinion as

the biological opinion— may be required if the authorized activity may affect the species or its critical habitat.

As noted in Section 2.3, the GUSG CCA is not a decision document, and as such, does not replace any need for site-specific NEPA analysis for new and ongoing land-use authorizations.

5.2. Travel Management

5.2.1 Closure Implementation

When implementing route closures under the 2010 Travel Management Plan (TMP) and the NPS Motorized Vehicle Access Plan (MVAP):

- Tier 1 habitat will be prioritized for reclamation work, to the extent feasible.¹⁶
- Using the Habitat Prioritization Tool and/or a route density map, reclamation options will be compared to optimize the size of intact, unfragmented Tier 1 habitat patches.¹⁷

5.2.2 Seasonal Closures

Tier 1 & Tier 2 Habitat

A. Lek Season

- **Motorized** travel is restricted during the lek season each year, and signatories to this CCA agree to continue implementing such closures (BLM, USFS, NPS, and Gunnison County. *See Figure*). Currently observed from approximately March 15 – May 15.¹⁸ The closures apply uniformly to construction, maintenance, and access, including motorized public access, with the following exceptions:
 - Permittees
 - Access to private property
 - Hartman Rocks Recreation Area, north of powerline
 - Emergency maintenance
- Define approximate geographic boundary.

¹⁶ sage-grouse habitat improvement is one of multiple resource concerns that will be taken into account to plan and prioritize closure implementation. When closed routes travel through Tier 1 and Tier 2 habitat, reclamation of Tier 1 segments alone may not be practical or desired from a management or habitat perspective. In such instances, reclamation of the entire closed segment may be preferred and implemented.

¹⁷ See Section 6, Offsite Mitigation. Routes reclaimed after the date of the signed CCA and accompanying conference opinion may be “banked” as credits for future offsite mitigation, so long as monitoring demonstrates such reclamation to be successful.

¹⁸ Spring closures to minimize disturbance to lekking grouse may be adjusted by the implementing agencies to accommodate changing environmental conditions, i.e., trend toward earlier lekking periods, etc.

- CCA signatories will install signs at major shooting areas within Tier 1 habitat or within .6 miles of active leks to encourage shooting only after 9am during the lek season, March 15-May 15.

B. Severe Winters

The agencies recognize that winter is a critical biological period for sage-grouse, and that even moderate-frequency travel through grouse concentration areas during severe winters would result in physiological stress that likely reduce the overall fitness of individuals and flocks (Hupp and Braun 1989; GSRSC 2005).

Management Trigger:

- Severe winters would trigger a collaborative, interagency management decision to implement area closures to protect identified grouse concentration areas. Closure decisions will be made in the context of managing for multiple resources, including big-game concentrations, public recreation, range condition, etc.
- Severe winters would be identified via a collaborative, interagency management discussion using the following criteria:
 - Snow depth
 - Temperature
 - Snow condition/consistency
 - Prior year's range condition
- Though frequency of severe winters cannot be predicted, on average, severe winters occur every 10 years.
- All other winter conditions:
 - Unless research indicates further consideration, no additional winter timing restrictions would be implemented during non-severe winters.
 - General messaging to recreation community will encourage cross-country winter travel in Urban Interface Recreation Areas, higher elevations and forested areas.

Management Tools:

- Over-snow travel:
 - Agency may implement area closures through all or a portion of identified grouse concentration areas, restricting travel to existing roads.
 - Agency would implement closures to motorized cross-country travel at a minimum, and to all human use at a maximum.
 - If open roads lead to cross-country travel in closed areas, agency will consider closing specified roads as well.
- Timeframe:
 - In identified severe winters, closures would occur anytime between approximately December 1 and March 31.

- Emergency Closures:
 - The above grouse management tools are not intended to substitute for existing agency guidelines/policies regarding emergency seasonal closures. Emergency seasonal closures are implemented to protect a variety of natural resources.
 - Existing management tools for emergency seasonal closures:
 - CPW can implement temporary, emergency area closures during hunting seasons (Colorado Wildlife Commission Regulation 020-E-6).
 - The BLM, NPS, and USFS can implement temporary, emergency seasonal closures to identified federal lands pursuant to their regulatory authorities.

C. Additional Seasonal Closures:

- If research indicates additional restrictions are necessary to sustain the sage-grouse population, seasonal restrictions in identified seasonal grouse habitat may be applied to minimize disturbance during the following critical biological periods: nesting, brood-rearing, or winter.
- If and when additional seasonal restrictions are implemented, restrictions will be uniformly applied to construction, maintenance, and access, with the standard exceptions.

5.2.3 Recreation Events and Outfitters

Tier 1 & Tier 2 Habitat

- *Special use permits for recreation events, guides, and outfitters will be covered by the CCA if:*
 - Applicants comply with any existing public seasonal closures; and
 - Events and guides utilize designated open routes (vs. cross-country travel) as identified in the TMP (BLM, USFS) or MVAP (NPS); and
 - Recreation permits, including those for outfitters, are modified at renewal and issuance to allow for management flexibility in event of a severe winter;
 - I.e., “*When severe winter conditions are identified by permitting agency, in order to preserve natural resources, including sensitive species, the permitting agency reserves the right to restrict permittee’s travel from identified areas and/or routes, consistent with restrictions that would be placed on general public access....approx. December 1 to March 31;* and
 - The permitting agency demonstrates reasonable attempt to focus events and outfitters on/through areas outside of sage-grouse habitat, or to identified high-use, urban interface recreation areas. Nonetheless, certain activities require a specific resource, and implementing agencies recognize that not all activities can be located outside of sagebrush habitat.

5.3. Miscellaneous Existing Infrastructure

5.3.1 Overhead Utility Lines

Tier 1 & Tier 2 Habitat

- *Prior to ROW/easement renewal/amendment:*

Routine maintenance and reconstruction that does not require ROW/easement amendments are covered under the terms and conditions of the original ROW/easement authorization. Nonetheless, participating permit holders may adopt the following voluntary measures:

- During the course of routine maintenance within the footprint of the existing ROW/easement, install the most effective perch deterrents available on all power poles for that segment.
 - Agency biologists will identify recommended perch deterrents and cooperate with utilities to ensure such mechanisms meet any applicable code requirements.
 - Apply standard minimization measures, (*Section 4.2*), including:
 - Limit access and construction during the lek season, consistent with spring seasonal closures for general public. Emergency maintenance excepted from this provision.
 - Use integrated weed prevention practices for all construction and maintenance activity (*See Appendix A*).
-
- *At ROW/easement permit renewal/amendment:*
- Construction within the footprint of the original authorization¹⁹ will be covered by the CCA if:
- As a condition of renewal or amendment approval, during the course of routine maintenance and upgrades that include pole/line replacement within the footprint of the existing right-of-way/easement, permit holders will install the most effective perch deterrents available on all power poles for that segment; and
 - The permitting agency reserves the right to require additional modifications to all powerline structures placed on rights-of-way/easements, should they be necessary to minimize impacts to Gunnison sage-grouse, consistent with *Section 4.2, Standard Minimization Measures*; and
 - Standard minimization measures are applied as terms and conditions of the permit (*Section 4.2*), including:
 - Timing restrictions for access and construction, consistent with spring seasonal closures for general public. Emergency maintenance excepted from this provision; and

¹⁹ See Section 4.4 for construction *beyond* the footprint of the original ROW/easement authorization.

- Integrated weed prevention practices used for all construction and maintenance activity (*See Appendix A*).

5.3.2 Water Developments

Tier 1 & Tier 2 Habitat

- *Right-of-way/easement authorizations and renewals through occupied habitat on federal lands to access and maintain existing water developments will be covered by the CCA if:*
 - Standard minimization measures are applied as terms and conditions of the permit (Section 4.2), including:
 - Timing restrictions for access and construction, consistent with spring seasonal closures for general public. Emergency maintenance excepted from this provision; and
 - Integrated weed prevention practices are used for all construction and maintenance activity (*See Appendix A*).

5.4. Livestock Grazing

Parties to this agreement recognize the following:

- Continuation of working ranches in the Gunnison Basin is important to sage-grouse conservation.
- Public land grazing allotments are critical to continuation of these ranches.
- All Gunnison sage-grouse habitat is important, irrespective of land ownership.
- Both wild ungulate and domestic livestock grazing occur on the landscape, and management of one must recognize the impacts of the other.

Tier 1 & Tier 2 Habitat

Grazing permit renewals in occupied habitat on federal lands will be covered under the CCA if each of the following five measures is implemented:

1. RCP/CCA grazing management guidelines²⁰ (*See Appendix D*) continue to be incorporated into all permits and any associated allotment management plans and/or coordinated management plans in occupied sage-grouse habitat (BLM, USFS, NRCS, NPS). *RCP Grazing Objective 1-1, p. 211*

²⁰ RCP **grazing management** guidelines—a list of Best Management Practices (pgs. 212-213 of RCP) are distinct/different from the RCP (**structural**) **habitat** guidelines – on-the-ground vegetation parameters necessary for maintenance of sage-grouse habitat (Appendix H of RCP).

Allotments and/or pastures containing occupied habitat will be managed for both breeding and summer/fall herbaceous heights RCP habitat guidelines.

2. At permit renewal or in annual operating instructions for each grazing permit containing occupied sage-grouse habitat, if not earlier, an agency IDT, in cooperation with the permittee, will use the Habitat Condition Assessment (*See Section 7.2*) to incorporate habitat guidelines for herbaceous heights as a term and condition of the permit.²¹
 - a. For riparian areas, Gunnison Basin GUSG Conservation Plan guidelines for herbaceous heights will be incorporated as a term and condition of the permit.
 - b. For non-riparian habitat, RCP guidelines for herbaceous heights will be incorporated as a term and condition of the permit.
 - c. Short-term/annual monitoring points will be selected by an IDT, including permittees, to monitor compliance with herbaceous height standards. (*See Section 7.2., which prescribes indicators and monitoring methodology.*)
 - d. For permittees participating in cooperative monitoring, implementing agencies will conduct on-the-ground review of the monitoring protocol.
3. At permit renewal or in annual operating instructions for each grazing permit containing occupied sage-grouse habitat, incorporate into all applicable permits, allotment management plans, and coordinated management plans the following framework of actions that will take effect if herbaceous heights are not met by the following timelines:

²¹ For the purposes of the CCA, herbaceous heights will only become a “standard” if and when they are incorporated into a grazing permit through this process. Otherwise, the habitat indicators will be used as long-term objectives to move toward via management of relevant factors.

- a. If monitoring shows that herbaceous heights are not meeting the terms and conditions of the permit and changes in grazing are needed, changes will be coordinated with a team approach that involves the permittee.²²
- b. If the sagebrush habitat structure is a limiting factor to achieving the guidelines, habitat treatments will be considered as funding and opportunities become available.²³
- c. If permitted or dispersed recreation is identified as a causal factor for the failure to meet the guidelines, agencies will address as practicable.
- d. If other land use authorizations and factors are limiting factors to achieving the guidelines, address as appropriate.

After year 1:

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights and due in part or whole to current livestock grazing:

- o Adjust intensity, timing, distribution and/or duration of livestock grazing for year 2. Employ grazing BMPs (*See Appendix D*).
- o Address any other contributing factors, as appropriate.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights and not due to current livestock grazing:

- o Record adequate monitoring data to determine cause.
- o Address any other contributing factors, as appropriate.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights and the cause is unclear:

- o Conduct more monitoring in year 2, including key areas of livestock use and important habitat areas for grouse, pre-season, and during the grazing season as needed to determine the cause.
- o Adjust intensity, timing, distribution and/or duration of livestock grazing for year 2. Employ grazing BMPs (*See Appendix D*).

After year 2:

²² Consistent with grazing regulation 4130.3-3, which requires the authorized officer to provide affected permittees “an opportunity to review, comment and give input during the preparation of reports that evaluate monitoring and other data that are used as a basis for making decisions to increase or decrease grazing use, or to change the terms and conditions of a permit or lease.”

²³ Habitat treatments are not covered by the CCA and associated conference opinion; they may require separate conference or consultation with USFWS.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights for 2nd consecutive year due in part or whole to current livestock grazing:

- Adjust intensity, timing, distribution, and/or duration of livestock grazing for year 3. Employ grazing BMPs (*See Appendix D*).
- Address any other contributing factors, as appropriate.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights for 2nd consecutive year and not due to current livestock grazing:

- Record adequate monitoring data to determine cause.
- Address any contributing factors, as appropriate.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights for 2nd consecutive year and the cause is unclear:

- Employ additional adjustments to livestock grazing and to other contributing factors for year 3.
- Continue additional monitoring in year 3, key areas of livestock use and important habitat areas for grouse, etc.

After years 3-5:

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights for 3rd-5th consecutive year due in part or whole to current livestock grazing:

- Employ longer-term adjustments to grazing, including changing grazing system, reducing stocking/season of use, rest, etc.
- If appropriate, treat/restore structural habitat²⁴.
- Address any other contributing factors, as appropriate.

²⁴Habitat treatments may require additional conference or consultation with USFWS.

If the Authorized Officer determines via compliance monitoring that an allotment is not meeting habitat guidelines for herbaceous heights for 3rd-5th consecutive year and not due to current livestock grazing:

- Continue to manage other factors and monitor progress.

For undetermined causes, continue to implement applicable BMPs to move towards sage-grouse habitat guidelines. Continue to monitor progress towards meeting relevant guidelines.

4. Conduct adequate monitoring of herbaceous heights on active grazing allotments in occupied sage-grouse habitat in accordance with the monitoring protocols outlined in the CCA (BLM, USFS). *RCP Grazing Objective 2-1, p. 212.* (*See Section 7.2*).
 - a. Short-term monitoring²⁵ will be conducted during season of grouse use (nesting, brood-rearing, etc.) for early-season grazing, and following livestock use for late-season grazing (*See Section 7.2*).
 - b. Prioritize limited funding to ensure adequate monitoring is accomplished in Tier 1 habitat.
5. Manage grazing in riparian areas, swales, and wet meadows to improve habitat conditions.

Note: These are included in Appendix D, Grazing Management Guidelines, but are also included here to emphasize the importance of maintaining and improving riparian and other brood-rearing habitat.

- a. Encourage continued use of irrigation water rights for existing hay meadows, particularly those that maintain riparian areas on allotments in sage-grouse habitat. *CCA Team*
- b. Manage grazing in riparian areas to maintain or move towards the desired riparian vegetation condition. *CCA Team*
- c. New spring developments and spring reconstructions will be designed to minimize changes to the natural flow of the water. *CO GrSG Conservation Plan – Grazing Management Options, p E-3*
 - Develop any new alternative livestock water sources outside of naturally occurring riparian areas (develop wells, install pipelines, etc.). *CCA Team; RCP Grazing Management Guidelines for GUSG, #9, p.213*
 - Where possible (when sufficient water is present to support riparian habitat and supply livestock water), redesign existing water developments that are in naturally occurring riparian areas to protect riparian habitat and pipe a portion of the water to troughs that are well away from naturally occurring riparian habitat. *CCA Team; RCP Grazing Management Guidelines for GUSG, #9, p.213*

²⁵ Minimum short-term monitoring information will include grass and forb stubble height along transects, in addition to photo points (See Section 7.2 and Appendix E).

- d. Salt at least 1/4 mile away from riparian areas, to the extent feasible within existing pasture boundaries.
- e. Move 95% of all livestock from one pasture to the next within 3 days of scheduled move, with 100% moved within one week from scheduled move.
- f. Maintain at least 4" of stubble height (residual material) on hydrophytic plant species (wide-leaved sedges such as beaked sedge, water sedge, rushes, tufted hairgrass, and spikerush) in riparian areas throughout the growing season.²⁶ *Gunnison Basin GUSG Conservation Plan*

Furthermore, the following grazing conservation measures are identified to share the conservation responsibility amongst key partners:

1. Seek opportunities to achieve greater flexibility in the distribution of current AUMs across the landscape in order to improve GUSG habitat.²⁷
 - a. Inventory inactive grazing allotments on state and federal lands. Identify vacant allotments that may enable short and long-term flexibility in the grazing system. (*Initial inventory complete.*)
 - b. If climate events delay the turnout date on federal lands, short-term options for flexibility include, subject to NEPA adequacy requirements:
 - o The agencies will work with the permittees to limit the length of delay and allow the days delayed to be added to extend the season, as long as grouse standards can be met.
 - o BLM and Forest grazing seasons may be changed to aid important grouse habitat on private land from being grazed beyond the standards.
 - o If the permittee is able to find alternative grazing capacity at the start of the season, then an equivalent amount of time may be added to the end of the grazing season on federal lands.
 - c. Long-term options for flexibility:
 - o As opportunities arise, create coordinated Allotment Management Plans to improve GUSG habitat across private and federal lands (NRCS, BLM, USFS, NPS, CPW, private landowners/stockgrowers).

5.5. Wild Ungulate Grazing

²⁶ This will help these deep-rooted plants hold onto sediment, sustain streambanks, and support water table levels (Clary & Leininger 2000, Wyamn et al 2006).

²⁷ Because of the landscape scale of grazing and grouse habitat, additional grazing conservation measures are identified to share the conservation responsibility amongst key partners. These measures – including coordinated allotment management planning across private, state, and federal boundaries, upkeep of data analysis unit plans for big game—will not be addressed in the Biological Assessment or conference opinion, but are necessary components of a range management system that ensures sage-grouse conservation.

The following RCP strategies, pertinent to big game management, are continued in the GUSG CCA:

- Participate in reevaluation of Data Analysis Unit (DAU) plans for managing specific populations of big game, particularly for maintaining elk populations at management objectives (CPW, BLM, USFS, and private landowners). DAU reevaluation will occur consistent with state laws and regulations and consistent with established protocols, including Wildlife Commission review.
- Develop wild ungulate winter habitat objectives to meet seasonal GUSG requirements (CPW, BLM, USFS, and private landowners).
- Develop strategies to draw ungulates away from treatment areas to allow proper recovery (CPW, BLM, USFS, and private landowners).

Furthermore,

- Implementing agencies commit to share and use pertinent short and long-term sage-grouse habitat monitoring data to inform DAU planning (CPW, BLM, and USFS).
- Implementing agencies recognize that both wild ungulate and domestic livestock grazing occur on the landscape, and management of one must recognize the impacts of the other.

5.6. Integrated Weed Management

Tier 1 & Tier 2 Habitat

Ground disturbance associated with the CCA actions and general road maintenance:

In order for signatories to receive coverage under the CCA and programmatic conference opinion for ground disturbance associated with the CCA action plan general road maintenance on federal lands, signatories will:

- Implement integrated weed prevention BMPs for road maintenance and ground disturbance operations, consistent with *Appendix A, Section I*.
- Incorporate integrated weed prevention terms and conditions for road maintenance and ground disturbance operations, consistent with *Appendix A, Section II*. These terms and conditions shall apply to the signatory as well as any signatory-contracted operators that maintain and construct infrastructure within Gunnison sage-grouse habitat on federal lands.

6 OFFSITE MITIGATION

In the fields of land management and conservation biology, the mitigation hierarchy typically includes three steps prior to offsite mitigation: avoid, minimize, restore. Although the CCA applies such steps for new infrastructure in sage-grouse habitat, the CCA also takes a precautionary and conservation-oriented approach to include off-site mitigation as a design criterion for specific infrastructure projects. Whereas biodiversity offsets are frequently used in situations where development is sought despite detrimental environmental impacts (McKenney 2005; Gibbons and Lindenmayer 2007), such as during the development of interstate transmission lines and oilfields, it is less commonly employed for small-scale projects such as those covered in the CCA. Generally, on-site mitigation and minimization measures are applied during the environmental review and permitting processes for small-scale projects such that off-site mitigation is not required. Yet such a project-by-project approach does not account for the cumulative impacts of even small-scale development.

Triggers for offsite mitigation in the GUSG CCA include²⁸:

1. Project impacts cannot be mitigated to an acceptable level onsite.

In the GUSG CCA, design criteria have been developed such that the maximum feasible level of on-site mitigation is applied. Yet with respect to the concrete objectives—avoid net Tier 2 habitat loss and achieve a net gain in Tier 1 habitat—permitting certain permanent land-use authorizations in sage-grouse habitat cannot be fully mitigated on-site. These actions, as identified above, include:

- New road construction and reopenings
- New motorized trail construction and reopenings
- New nonmotorized trail construction and reopenings
- Aboveground utility lines

2. It is expected that the proposed land use authorization as submitted would not be in compliance with important resource objectives.

To accomplish the CCA's habitat objectives, yet to allow continued, unavoidable, and viable land-use authorizations in the affected area that are consistent with the mission of the authorizing agency, offsite mitigation is included as a design criterion in order for specified new, ground-disturbing infrastructure to be covered under the CCA.

²⁸ Offsite mitigation in the GUSG CCA is consistent with BLM WO IM 2008-204.

6.1. Geographic Parameters

At a maximum, the service area for offsite mitigation implementation is limited to the defined affected area of the CCA: federal lands in occupied sage-grouse habitat in the Gunnison Basin. At a minimum, distance between the action area and the offset area is a project-specific discretionary determination, and should be made during project planning and authorization processes. By definition, offsite mitigation consists of compensating for resource impacts by replacing or providing substitute resources or habitat at a different location than the project area. For the purposes of the CCA, the offset action should not be located within the action's direct impact area, i.e., permitted area. Further, the functional value of the offset may be overshadowed if located within the action's functional impact area. Ultimately, the offset should be located to maximize the net benefit to GUSG habitat in the Gunnison Basin.

6.2. Accounting

While replacement ratios are specified in the CCA to account for the relative habitat value of Tier 1 versus Tier 2 habitat, there are admittedly more complex accounting systems to determine the size of offsets based upon on-the-ground assessments of habitat quality and function. Habitat assessments of impact and offset sites can provide thorough information to compare their relative values, but such efforts are time-consuming and costly, and are generally inefficient for small-scale projects. Another recent method involves identifying a biologically-based offset currency, based upon anticipated population declines from the project impact (Doherty et al 2010), but existing sage-grouse science limits applicability to development with established density-dependent effects on lek counts and bird distribution, such as oilfield development; paved, high-frequency roads; residential development (Aldridge et al 2011). No such impacts are covered in the CCA.

Instead, the CCA relies on the landscape-level delineation of relative habitat value in the Habitat Prioritization Tool to arrive at more simple, acre-for-acre replacement ratios to meet the stated habitat objectives: >1:1 in Tier 1 habitat; 1:1 in Tier 2 habitat.

If the impact occurs in Tier 1, yet the replacement or offset action is identified in Tier 2, then the standard >1:1 ratio would apply, on the condition that the offset action is calculated to bump the offset area from Tier 2 to Tier 1 classification.²⁹ If the offset action would not result in reclassifying the offset area as Tier 1 habitat, then a 3:1 replacement ratio would be necessary.

Yet while many offset policies identify replacement ratios and calculate acreage accordingly, i.e., a 2:1 replacement ratio for a 10-acre project would simply require 20 offset acres, critics of such an approach argue that time lags and success probability hinder their reliability in achieving no net loss objectives (Kiesecker et al 2010). Although preservation actions deliver value from the outset, restoration actions may take years to reach expected potential and provide full

²⁹ The effect of an offset action on the categorization of that area can be assessed with the Habitat Prioritization Tool.

conservation benefit, thus rendering a time lag component that is not accounted for in simple replacement ratios. With respect to success probability, or the likelihood of a particular type of restoration to reach full conservation potential, a simple replacement ratio assumes that all restoration approaches are guaranteed equal results, irrespective of ecological site characteristics and methods. Although most restoration actions completed as offsite mitigation in the CCA will likely be road and trail decommissioning, other restoration actions may surface as viable currency. Methods may vary, as well as the potential of a site to be successfully reclaimed. A high-medium-low probability of success can be estimated case-by-case from experience and professional judgment.

By accounting for both factors (See Table 6.1), offsite mitigation accounting in the CCA will include a back-calculation of the total offset acreage required in order to meet the identified habitat objectives and corresponding replacement ratios.

Time lags

- The time to maturity of a restoration action can be estimated to apply a discount rate.
- Over time, the accounting sheet for offset actions will be adjusted to reflect actual time lag, pending conservation maturity.
 - *Example:* .5 mile trail is reclaimed, estimated to take 5 years to reach maturity, which starts out at .49 miles of credit. Yet monitoring data may indicate restored habitat function within 3 years; in this case, the credits would be adjusted to ~.5 miles. “Credits” may increase or decrease, depending upon the actual time lag to conservation maturity.
- In the event that an offset action constitutes fee title acquisition or assurances via a conservation easement on private land in grouse habitat, time lag is estimated at 0 years (Kiesecker et al 2010).

Success probability

- The probability of the conservation action’s success can be roughly estimated, based upon past restoration actions in the same vegetation communities/ecological types.
- Over time, the accounting sheet for offset actions will be adjusted to reflect actual performance, pending conservation maturity.
 - *Example:* .5 mile trail is reclaimed, estimated to be 90% successful, based upon past success with the chosen methods and in the particular ecological types, which equals .45 miles of credit. Yet after the expected number of years to reach maturity, only 25% of the segment appears in a trend toward meeting the sage-grouse habitat guidelines, the credits would be adjusted to .125 miles... At that point, the implementing agency may decide to reinvest effort on this site to make up the difference, or it may make up the missing credits elsewhere on the landscape. “Credits” may increase or decrease, depending upon the actual performance of the offset action.

- In the event that an offset action constitutes fee title acquisition or assurances via a conservation easement on private land in grouse habitat, success likelihood is estimated at 100% (Kiesecker et al 2010).

Table 2. Calculating total conservation benefit from different offset actions.

Impact Size multiplied by replacement ratio = Offset Goal		
1/2 acre of Tier 1 habitat impacted; 2:1 replacement ratio requires minimum 1 acre restored		
<i>Offset portfolio</i>	<i>Site A, Tier 1</i>	<i>Site B, Tier 1</i>
Acres at offset site suitable for conservation	1/2 acre restoration	1/3 acre restoration
Proposed conservation action	Decommissioning a closed road	Redesigning a water source to relocate livestock out of riparian
Probability of success of conservation action	90%	100%
Time lag to conservation maturity	5 yrs	0 yrs
Effective discount rate	0.5%	0%
Offset credits	.44 acres	.33 acres
Minimum offset credits required	1 acre	1 acre
Implicit ratio, Total offset acres: impact acres	<i>(may be >2:1)</i>	
Minimum replacement ratio,	2:5	
Offset credit acres: impact acres	2:1	2:1
Additional acres needed to meet ratio?	.56 acres	.67 acres
Cost/acre for offset	\$500/acre	n/a
Total cost	\$250	\$1000 fixed cost
Cost/offset acre credit delivered	\$568/acre	\$3030/acre

(Table modified from Kiesecker et al 2010, p. 178)

6.3. Currency: Offset Actions

6.3.1 Roads & Trails

For public and recreational road and trail construction and reopenings, offsets actions will include:

- Decommissioning old routes to Level 3 or higher and monitoring to ensure public compliance with the route closure. While Level 3 or higher is generally preferred, there may be circumstances in which ground disturbance of a portion of a route should be minimized due to a) use of site openness for lekking grouse, and/or b) risk of spread of invasives. Such exceptions will be documented on a case-by-case basis in the annual reports submitted by the agency biologists.

- A. Level of Decommissioning done by hand, passenger vehicle, or ATV/UTV³⁰

³⁰ BLM terms and framework.

Level 1 – Allow the closed road to naturally revegetate.

Level 2 – Install sign with a hand crew

Level 3 –These activities will be done by a hand crew.

- a) Install/Remove worm fence/barricade, buck and pole fence/barricade, rock barriers, or gate.
- b) Place slash on the road surface, drop trees, dead plant vegetation, plant live vegetation, transplant live vegetation from nearby areas, and install erosion products such as coir logs (i.e. wattles), mulch, and erosion control blankets.
- c) Install and remove cross ditches/drains; check dams; and water bars.
- d) Hand crews rototill or scarify the ground.

B. Levels of Decommissioning done with heavy equipment (excavator, dozer, track hoe).

Level 4 – Physical Barricades. Install gates, rock blockades or trees with mechanized equipment, such as a tracked excavator or dozer.

Level 5 – With mechanized equipment, rip the road; sub-soil the road; or construct water bars or ditches within and outside of the road prism.

Level 6 – With mechanized equipment, re-contour the road prism by pulling back all cut and fill slopes in addition to inboard ditches.

Level 7 –With mechanized equipment, remove all drainage structures including cross drains (culverts, rolling dips, and water bars); stream crossings structures (culverts); and unstable fills.

For private ROW access that necessitates road construction or reopenings, offset actions will include:

- An in-lieu fee that will be calculated and charged to the project applicant, based upon the average cost of decommissioning and reclaiming a comparable area of road to Level 3 or higher. Timeline for completion of the on-the-ground offset action by the authorizing agency will be identified in any NEPA planning documents and the annual reports to USFWS; or
- Additional offset actions may be identified by the project applicant. The suitability of the action to meet net habitat objectives will be determined on a case-by-case basis by the implementing agency biologists, in cooperation with USFWS.

6.3.2 Utility Lines

Offset actions may include:

- Additional buried utility lines on public lands;³¹ or
- An in-lieu fee will be calculated and charged to the project applicant, based upon the average cost of reclaiming an area of habitat comparable to the permitted area of impact.

³¹ Action is additional vs. redundant, i.e., the action is not otherwise required.

Timeline for completion of the on-the-ground offset action by the authorizing agency will be identified in any NEPA planning documents and the annual reports to USFWS; or

- Additional offset actions may be identified by the project applicant. The suitability of the action to meet net habitat objectives will be determined on a case-by-case basis by the implementing agency biologists, in cooperation with USFWS.

6.4. Banking

- Subsequent to the date of the signed CCA and conference opinion, utility companies may “bank” miles of utility lines they bury on public lands to serve as future credit toward mitigation requirements, so long as the action is not otherwise required.
- Subsequent to the date of the signed CCA and conference opinion, agencies and their recreation partners may “bank” acres of routes they reclaim in sage-grouse habitat to serve as future credit toward mitigation requirements.

6.5. Timeline

Required timelines for completing offset actions will be identified in the NEPA planning documents and/or reported to USFWS in the annual reports. If a “banked” credit is used to meet the offset requirements of a particular project, that will likewise be identified in the annual reports to USFWS.

- In the case of a) realignments and b) recreation trails that will consolidate existing dispersed recreation, new open routes may be necessary in order to effectively close the old segments or routes.
- Otherwise, offset actions should be completed concurrent with or prior to new construction activities.

7 MONITORING PLAN

“The vegetation structure guidelines we present... should be interpreted as minimum standards, and managers should strive to meet the full potential of any given site. These habitat guidelines should be considered adaptive, and interim in nature. The guidelines were developed from actual grouse use sites, but should be considered as guidance until further and more specific and quantified data are available from grouse research, or until the development of a rigorous mapping protocol. These guidelines are intended to represent a variety of landscape situations. Landscapes are diverse; some areas on the landscape will not meet these guidelines, some areas will meet the guidelines, and some areas will exceed the guidelines. As new information is collected, these guidelines, as well as the plan are meant to be adaptable.”

RCP App H: GUSG Structural Habitat Guidelines,
H-5.

To this end, grouse habitat monitoring will be used to:

- characterize the variability across the landscape with “further and more specific and quantified data”;
- better enable managers “to meet the full potential of any given site” to provide sage-grouse habitat via livestock management and habitat reclamation, as outlined in the CCA;
- track the habitat quality and conservation maturity of offsite mitigation in the form of restoration.

7.1. Habitat Condition Assessment & Long-term Habitat Monitoring

**NOTE: This section is not specific to grazing, but is a component of an integrated vegetation monitoring plan that is relevant to multiple program areas and uses.*

Objective:

- Monitor and assess sage-grouse habitat conditions relative to RCP sage-grouse Structural Habitat Guidelines for nesting and brood-rearing sagebrush habitat at the landscape scale.
- Use RCP/GUSG Rangewide Steering Committee 2007 habitat monitoring protocol
- Habitat data will be used *in conjunction with* other monitoring data (grouse and non-grouse) to inform Land Health Assessments and Determinations (BLM) and relevant long-term management actions.
 - Participants recognize in order to describe grouse habitat conditions at the **allotment** level, additional information may be necessary, including annual stubble height measurements and additional transects read with the RCP habitat monitoring protocol.

1. Compile and analyze existing baseline data.

- a. Agencies will examine existing data that can be compared to the Rangewide Conservation Plan, Appendix H, GUSG Structural Habitat Guidelines. Potential data sets include the Habitat Partnership Program inventory, CPW baseline data³², trend studies, and sagebrush treatment monitoring transects.
- b. Using existing quantitative transect data, agencies may describe ecological site potential of vegetation communities as meeting or not meeting any or all of the GUSG structural habitat guidelines.

2. Select transect locations.

- a. An agency ID team, in coordination with CPW, livestock permittees, and other interested entities, would select a subset of existing transect locations to maintain permanent, long-term monitoring. This subset should include vegetation communities/ecological sites capable of meeting any/all habitat indicators.
- b. Additionally, new transects may be established to ensure coverage of all pertinent vegetation communities/ecological sites.

³² Williams 2012. Characteristics of Gunnison sage-grouse Habitat in Dry Mountain Loam and Mountain Loam Ecological Sites of the Gunnison Basin. CPW.

- c. Selected transects will be comprised of a random sample across federal lands in occupied habitat in the Basin.
- d. Agencies will monitor transects with the methods outlined in the RCP vegetation monitoring protocol (see Appendix E.II).

3. Collect Data.

At a minimum, participating agencies will complete the following:

- a. *For areas that are meeting most/all of the structural habitat guidelines:*
 - Re-read transects every 8-9 years, and/or when short-term monitoring indicates habitat conditions have changed. Read more frequently if a significant change occurs in management or vegetation condition (fire, large-scale weed invasion, die-off event, multiple-year drought, etc.)
- b. *For areas that are not meeting the minimum value of most/all of the structural habitat guidelines:*
 - Collect monitoring data at established study transect sites every 3-5 years.

4. Land Health Measures (BLM)

- a. Incorporate GUSG RCP structural habitat guidelines into Land Health Standards Determinations³³ on BLM, Gunnison Field Office-administered lands. *RCP Grazing Objective 1-2, p. 211*
 - Assessment will include data collected with the RCP monitoring protocol (long-term transects) and with the modified stubble height protocol (short-term, see Appendix E).
- b. Complete Land Health Determinations (revised, including RCP structural habitat guidelines) on all occupied sage-grouse habitat.
 - Priorities may include: grazing allotments in Tier 1 GUSG habitat, areas previously determined *Not Meeting - Moving towards*, etc.
 - Encourage interested parties to work with the BLM to complete Land Health Assessments.

³³ Land Health assessments and determinations are utilized by the BLM to inform management. Decisions specific to recreation, grazing, and development may follow from Land Health determinations.

7.2. Short-term Monitoring for Grazing Management

Objective:

- Monitor herbaceous heights in occupied sage-grouse habitat in order to inform grazing management and management of other contributing factors in the short-term.
- Integrate grouse habitat monitoring for grazing-relevant RCP habitat guidelines with range monitoring.

1. Select monitoring locations.

- a. An ID team, including participating permittees and range and wildlife Authorized Officer, will choose a subset of the baseline CCA plots for short-term monitoring locations that best represent the habitat conditions AND livestock/big game use in the pasture/use area. To the extent possible, short-term monitoring locations will include the long-term fixed point monitoring locations, but more locations may be necessary.
- b. Locations should be established in areas that can support GUSG habitat objectives (*use information from Section 7.2, sage-grouse Habitat Condition Assessment, to locate appropriate ecological sites/vegetation communities.*)
- c. The ID team will aim to establish fixed monitoring points for efficiency and consistency, but changing conditions may warrant that the ID team add locations over time to best represent grouse habitat and livestock use. Need at least one per pasture.

2. Collect & Interpret Data.

At a minimum, implementing agencies will complete the following:

Determine whether an allotment is meeting/not meeting the minimum value of the RCP habitat guidelines for herbaceous heights:

- a. **“Meeting” RCP Guidelines:** In a given year, if 70 % of the grass height measurements within a given allotment—in plant communities that have site potential to meet the RCP grass height guidelines in normal precipitation years—have met the RCP guidelines, the allotment will be determined to be “meeting”.
- b. **“Not meeting” RCP Guidelines:** In a given year, if more than 30% of the grass height measurements within a given allotment –in plant communities that have site potential to meet the RCP grass height guidelines in normal precipitation years—the allotment will be determined to be “not meeting”.
- c. Consideration of site potential is warranted in the process of determining “meeting” vs “not meeting”, because as the RCP notes, “landscapes are diverse; some areas on the landscape will not meet these guidelines, some areas will meet the guidelines, and some areas will exceed the guidelines” (GSRSC 2005, App. H).

When data indicate an area is meeting/exceeding the minimum value of the RCP habitat guidelines for herbaceous heights:

- a. Collect herbaceous heights and photo points once every *three years* – prior to livestock, immediately following livestock use, and at the end of the growing season.

When data indicate an area is not meeting the minimum value of the RCP habitat guidelines for herbaceous heights, consistent with Section 5.5, Livestock Grazing:

- a. Conduct trigger monitoring:
 - o Conduct utilization monitoring (Grazing Response Index, Key Forage Plant, Pellet Counts, etc.) as soon as practical.
 - o Using the same sampling and monitoring methods, monitor herbaceous heights in exclosures/rested pastures with comparable ecological sites, in order to establish control data.
 - o All causes for not meeting RCP herbaceous heights guidelines will be documented.
 - o If *livestock* grazing is found to be a significant contributing cause to not meet the heights guidelines, conduct utilization monitoring the following year during the grazing season.
 - o Use utilization data to assess stocking rates and to trigger pasture/allotment moves, within the terms and conditions of the current permit.
- b. Collect herbaceous heights and photo points *annually*, immediately following livestock use. Every third year, collect this information prior to livestock use and at the end of the growing season.

3. Cooperative Monitoring

- a. To provide a more complete short-term monitoring record in allotments containing sage-grouse habitat, permittees will be encouraged to enter into cooperative monitoring programs with the respective agency/ies to collect short-term monitoring information on the two years that the agency does not (including prior to livestock, immediately following livestock use, and at the end of the growing season).
- b. For participating permittees who manage allotments where annual short-term monitoring indicates RCP herbaceous height guidelines are consistently being met, these permittees would receive more consideration for increased flexibility in their grazing management systems.
- c. If a coordinated monitoring program is in place or a new one is developed for reasons outside of the CCA, participating agencies will work to incorporate these sampling methods into the monitoring program.

7.3. Monitoring Offsite Mitigation Actions: Reclaimed Routes

Objective:

- Monitor reclaimed routes in occupied sage-grouse habitat that are accounted for in the off-site mitigation accounting system, in order to:
 - o Track the habitat quality and conservation maturity of this form of off-site mitigation, including:
 - Revegetation over time; and
 - Public compliance with closures.
 - o Adjust reclamation methods used in order to speed and enhance revegetation.

1. Select monitoring locations and collect data.

A random set of reclaimed routes in the off-site mitigation accounting system will be monitored by the implementing agency at periodic intervals (one year after reclamation

activity, three – five years, etc.). At minimum, a photo point will be taken from the entrance/start of the route; modified vegetation transects may be appropriate in some cases.

8 REPORTING

8.1. Annual Meeting

At the end of one full year of implementation, dated from the signed CCA and conference opinion, CCA participants and the USFWS will meet to review progress toward CCA habitat objectives, identify problems encountered, and make updates to the CCA, as needed. Meeting would include review of each implementing agency's annual report. At that time, signatories will cooperatively establish subsequent meeting review periods, i.e., five year-intervals, to perform basic maintenance on the CCA. Yet consistent with the principles of adaptive management, changing conditions may warrant more frequent dialogue and adjustment to the CCA.

8.2. Annual Report Components

8.2.1 *Ground-disturbing Development (not including trail/road closure implementation)*

New, amended*, and reauthorized* right of ways/easements and other activities involving short term or permanent habitat fragmentation will be reported, including the following information:
*(*Include only reauthorizations and amendments for ground-disturbing activity beyond footprint of original authorization)*

1. Map/shapefile clearly identifying amount, if any, of new ground disturbance, construction, and new activity in Tier 1 and Tier 2 Habitat, in the following categories:
 - a. Buried pipeline or utility line
 - b. Aboveground pipeline
 - c. Overhead utility line
 - d. Reopened nonsystem³⁴ roads and trails
 - e. Roads, including realignments
 - f. Motorized trails, including realignments
 - g. Nonmotorized trails, including realignments
 - h. Fences
 - i. Communication sites
 - j. Miscellaneous infrastructure

³⁴ A nonsystem road or trail is one that is not formally approved; in this case, formerly officially closed roads and trails that are officially reopened should be reported.

2. Associated spreadsheet, including the following information for each category:
 - a. Individual action/project
 - b. Mileage/acres of each ground disturbance/infrastructure
 - c. Location in Tier 1 or Tier 2 habitat
 - d. CCA process used vs. individual/additional consultation process (yes/no)
 - i. If no, why
 - e. Accompanied by offsite mitigation (N/A/yes/no)
 - f. Accompanied by additional conservation measures not outlined in the CCA (yes/no)
 - i. If yes, what
 - g. Accompanied by monitoring?
 - h. Weed management and revegetation on ROWs- Compliance inspection
 - i. Fences – Compliance with marking, wildlife-friendly fencing standards

8.2.2 Reauthorized and Amended Rights-of-way/Easements

Unless amendment of existing right-of-way/easement involves ground disturbance or additions to the permitted area *beyond the original permitted area*, include amendments and reauthorizations in a spreadsheet detailing the following:

1. Individual reauthorization/amendment
2. Type of associated infrastructure
3. Relevant minimization measures incorporated into permit language (yes/no)
 - a. If no, why
4. Accompanied by additional conservation measures not outlined in the CCA (yes/no)
 - a. If yes, what
5. Accompanied by monitoring?/Compliance inspection?

8.2.3 Travel Management: Trail/Road Closures (not including seasonal closures)

1. Map/shapefile clearly identifying amount, if any, of trail/road closures and realignments in Tier 1 and Tier 2 Habitat, in the following categories:
 - a. Designated open/system or closed/nonsystem in 2010 TMP (USFS, BLM) and MVAP (NPS)
 - b. Class
 - c. Closures accompanied by a realignment (new ground disturbance)
2. Associated attribute table, including the following information:
 - a. Individual road/trail section
 - b. Designated open/system or closed/nonsystem in 2010 TMP (USFS, BLM) and MVAP (NPS)
 - c. Closures accompanied by a realignment (new ground disturbance) (yes/no)
 - i. If yes, Length/class of open realignment (or ID corresponding segment in G.1.a)

- d. Class³⁵
- e. Length of each section
- f. Level of closure
- g. Location in Tier 1 or Tier 2 habitat
- h. Any monitoring? Closure compliance?

8.2.4 Offsite Mitigation

For the first year of implementation, the agencies/partners will develop an accounting system to illustrate how offsite mitigation is used by agency recreation planners to develop and implement new roads and trails. Until otherwise agreed, report the following minimum information:

1. Baseline habitat map/shapefile, including all permanent infrastructure and linear features, including fences, closed roads and trails
2. Tier 1/Tier 2 habitat map:
 - a. new roads/trails, if any, and associated mitigation actions
3. Spreadsheet detailing:
 - a. Triggering action: new road/trail
 - o Type
 - o Size
 - o Location in Tier 1 or Tier 2 habitat
 - b. Corresponding mitigation action
 - o Type
 - o Size
 - o Location in Tier 1 or Tier 2 habitat
 - o Photo point/any other monitoring information

8.2.5 Grazing

The following information will be reported:

1. Number of permits renewed.
 - a. For each permit, an assessment of the habitat condition relative to RCP standards, using existing data.
2. Short-term monitoring:
 - a. Location of monitoring (transect number/approximate location)
 - o Herbaceous height data
 - o Photo point data
 - o Any additional environmental data
 - o For permits that have been modified to incorporate sage-grouse habitat guidelines or standards, identify whether or not area is meeting incorporated standard for grass/forb height (yes/no)
 - 2.a..1. If no, corresponding action and assessment (additional monitoring)

³⁵ See Section 14, Glossary.

- Year recorded
- Next anticipated (staff) monitoring season/year

8.2.6 Overall Progress

1. Quantify overall progress toward CCA habitat objectives in Tier 1 (net reduction of fragmentation) and Tier 2 habitat (no net increase in fragmentation).
2. Long-term monitoring:
 3. Location of monitoring (transect number/approximate location)
 4. Data for RCP habitat guidelines/vegetation variables
 - a. Photo point data, if any
 - b. Any additional environmental data
 - c. Meeting RCP Habitat Guidelines
 - Sagebrush Canopy (%) (yes/no). If no, corresponding action/assessment
 - Non-sagebrush Canopy (%) (yes/no). If no, corresponding action/assessment
 - Total Shrub Canopy (yes/no). If no, corresponding action/assessment
 - Sagebrush Height (yes/no). If no, corresponding action/assessment
 - Grass Cover (%) (yes/no). If no, corresponding action/assessment
 - Forb Cover (%) (yes/no). If no, corresponding action/assessment
 - Grass Height (yes/no). If no, corresponding action/assessment
 - Forb Height (yes/no). If no, corresponding action/assessment
 - Overall habitat condition for grouse (unsuitable/marginal/suitable)
 - Year recorded
 - Next anticipated monitoring season/year.
4. Report trends in habitat quality.

9 ADAPTIVE MANAGEMENT

Signatories to the GUSG CCA agree that implementing conservation measures is most effective when accomplished within an adaptive management framework. Adaptive management involves the scientific method of hypothesizing how conservation measures will affect a population or other conservation target, monitoring results, comparing them to pre-defined expectations, and modifying actions to better achieve stated goals and objectives (Walters and Holling 1990; Lyons et al 2008).

Accurate and credible monitoring is a necessary component of adaptive management to ensure that conservation measures described herein are successfully implemented and objectives met. However, it is not sufficient to simply monitor a population without having pre-defined population targets and thresholds that trigger additional actions.

As noted in the RCP, “if a series of population estimates for a given population continually declines toward a threshold, managers should increase efforts to evaluate the decline and potential conservation actions before the population passes the threshold” (GSRSC 2005, p. 198). The RCP identified a conservative threshold of 30% below the RCP population target of 3000 as such a trigger³⁶. Therefore, during the lifetime of the CCA, if the 3-year moving average of the Gunnison Basin population declines toward a population estimate of 2000 a) over two consecutive years or b) over a 5-year period, CCA signatories will revisit the conservation measures and management actions outlined in the CCA.

As with most land management decisions, signatories to the CCA must rely on the best available scientific information as to the efficacy of the included conservation measures, especially when such information is not locally available or readily ascertained through monitoring. If the signatories were to commit to monitoring the efficacy of weed BMPs or perch deterrents, and to correlate such measures to population-level effects, we would quickly consume all available biology staff time with such endeavors.

Nonetheless, the federal land management agencies are charged with managing the habitat, and therefore the overarching objectives of the CCA are to reduce net fragmentation (Tier 1 habitat) and avoid further net fragmentation (Tier 2 habitat), described in Section 1.3. Compliance monitoring to account for these objectives will be conducted and submitted in the annual report, as detailed in Section 8. As referenced in Section 1.3, future research or agency policy may identify cumulative levels of disturbance that Gunnison sage-grouse can tolerate. At that time, parties to this CCA would consider modifying Tier 1 and Tier 2 habitat objectives to be consistent with identified disturbance caps, thereby ensuring the GUSG CCA remains a viable and relevant instrument.

Annual compliance monitoring for livestock grazing is required, as is long-term habitat monitoring to document effectiveness of management actions and conservation measures in maintaining and improving sage-grouse habitat quality (*see Section Error! Reference source not found.*).

Furthermore, as the off-site mitigation plan is developed and implemented, effectiveness monitoring will be necessary to ensure that if functional habitat is disturbed, functional habitat is created or improved. With respect to trail decommissioning, randomized sampling of the vegetative condition will serve to both a) document compliance with overall habitat objectives in the CCA, and b) enable managers to improve habitat reclamation methods (*See Section 7.3*).

Additionally, adaptive management to ensure maintenance and improvement of land health (BLM) and compliance with Forest Plan standards (USFS) is an integral part of federal land

³⁶Future updates to the Gunnison Basin population targets via new population viability analyses will be incorporated to the CCA via a revised trigger threshold, i.e., a continual decline toward 70% of the revised population target would necessitate revisiting the conservation measures and management actions outlined in the CCA.

management and is well-integrated into livestock grazing management programs. For the GUSG CCA, prescribed short-term monitoring results will be used in conjunction with additional data to ensure maintenance and improvement of habitat conditions for Gunnison sage-grouse (*See Section 5.5 and Appendix E*).

10 DURATION of AGREEMENT

Any party may withdraw from the agreement by providing the other parties with a written notice of intent to withdraw no later than 90 days prior to the proposed termination date. If a signatory other than USFWS withdraws, the agreement would be maintained between remaining signatories. The terminating party shall also include a written explanation of the reasons for withdrawal.

All parties will meet at least one year subsequent to the plan execution to review the CCA, its effectiveness, and to determine whether revision is necessary; at such time, signatories will determine subsequent minimum meeting intervals, i.e., every five years, to review annual reports and perform basic maintenance on the CCA. Any signatory may propose changes to this agreement between review meetings, as referenced in Section 9. Such changes will be in the form of an amendment and may be considered at any time after a 30-day notice to all parties. No amendment shall be valid unless approved by all parties to this agreement, and some amendments may trigger the need for additional biological assessment and conferencing with USFWS.

11 AUTHORITIES

USDI - United States Fish and Wildlife Service

Sections 2 and 7 of the ESA allow the USFWS to enter into this CCA with other cooperating partners. Section 2 of the ESA states that encouraging interested parties, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the USFWS to review programs it administers and utilize such programs in furtherance of the purposes of the ESA. By entering into this CCA, the USFWS is utilizing its authority to enter into this type of agreement to further the conservation of the Nation's fish and wildlife resources.

USDI - Bureau of Land Management

The United States Department of Interior (USDI) BLM has authority for conservation of GUSG through: (1) the Federal Land Policy Management Act (FLPMA) of 1976 FLPMA, (Section 307, 43 USC 1737; 90 stat. 2743; PL 94-579); (2) the Sikes Act, Title II (16 U.S.C. 670 et seq.), as amended; and (3) the BLM Manual 6840, Special Status Species Management. Specifically, the

FLPMA guidance on sensitive species authorizes that “the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air, and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals...”(43 USC 1701 Sec. 102 (a) (8)).

The BLM’s 2004 National Sage-Grouse Habitat Conservation Strategy states “Approximately half of the remaining sage-grouse habitat is under BLM jurisdiction and management; therefore, BLM land plays a significant role in the consideration of sage-grouse and other sagebrush-dependent wildlife species.” Specific strategies pertaining to this CCA include *Strategy 3.1: Maintain, develop, and expand partnerships to promote cooperation and support for all activities associated with sage-grouse and sagebrush conservation; and Action 3.1.3: Maintain and expand state and local partnerships to implement the task outlined in the cooperatively developed state-level strategies and/or plans.*

Finally, the BLM’s “Guide to Agreements” notes that “Cooperative Management Agreements” are typically long-term agreements with other parties interested in joint management of wildlife habitats or other areas.

Section 06 (C) of the 6840 Manual gives the following guidance on candidate species: “Consistent with existing laws, the BLM shall implement management plans that conserve candidate species and their habitats and shall ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed.” Specific BLM guidance is outlined in the 6840 Manual. Section .12 of the 6840 Manual states: “Actions authorized by BLM shall further the conservation of federally listed and other special status species and shall not contribute to the need to list any special status species under provisions of the ESA, or designate additional sensitive species under provisions of this policy.” The Department of Interior Fish and Wildlife Policy: State-Federal Relationships (43CFR Part 24.4 (c)) states in part that “...the Secretary of Interior is charged with the responsibility to manage non-wilderness BLM lands for multiple uses, including fish and wildlife conservation.

BLM Colorado’s Instruction Memorandum No. 2005-038, Statement of Interim Policy, Implementation of the Gunnison sage-grouse Rangewide Conservation Plan, instructs BLM Colorado “to utilize the RCP as the basis for managing the multiple uses of the public lands in identified GSUG habitat. Effective immediately, RCP guidance and strategies will be applied through site-specific analysis, consistent with the National Environmental Policy Act (NEPA), to all proposed projects or actions in identified GUSG habitat;” the CCA formalizes specific standards and implementation practices founded in the RCP.

USDI - National Park Service

The USDI NPS has authority for conservation of the GUSG through the 1916 NPS Organic Act (16 USC 1) which charges the NPS with management of parks to “...conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of

future generations.” Additional authorities that guide the NPS are found in the General Authorities Act of 1970 (16 USC 1c(a)) and the Redwood Act of 1978 (16 USC 1a-1). Furthermore, the Presidential Proclamation establishing Black Canyon of the Gunnison National Monument (Proclamation No. 2033; March 2, 1933; 17 Stat. 2558), and the Memorandum of Agreement between the NPS and Bureau of Reclamation dated February 11, 1965, provide authorities for protection of the GUSG at Black Canyon of the Gunnison National Park and Curecanti National Recreation Area.

NPS Management Policies and the NPS-77 Natural Resources Management Guideline state that the NPS will seek to perpetuate the native animal life as part of the natural ecosystem of parks. They further define Species of Concern as all native animal species within a park that face an immediate danger of losing their natural role in an ecosystem because of human-induced change, which would include the GUSG. Regarding Species of Concern, NPS-77 states that the NPS should also look for opportunities to enter into cooperative and interagency agreements and memoranda of understanding with other federal and state agencies on research, monitoring, and management of the Species of Concern, and, where appropriate, promulgate regulations. The NPS must strive to protect the natural conditions and processes and the ecosystem integrity to the greatest extent possible for Species of Concern.

NPS-77 further states, “Management of Candidate species should, to the greatest extent possible, parallel the management of federally listed species.” The NPS Management Policies identifies the management of threatened or endangered plants and animals as follows: “The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the ESA because of human-caused change.” This could include the Gunnison sage-grouse. “The Service will fully meet its obligations under the NPS Organic Act and the ESA to both proactively conserve listed species and prevent detrimental effects on these species.”

USDA - United States Forest Service

The United States Department of Agriculture (USDA) Forest Service (USFS) has authority for conservation of the GUSG through: 1) the Multiple Use-Sustained Yield Act (MUSY) of 1960 (P.L. 86-517, 74 Stat. 215, 16 U.S.C 528(note), 528-531); 2) the Sikes Act of 1960 (P.L. 86-797, 74 Stat. 1052, 16 U.S.C. 670 et seq., as amended); 3) the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (P.L. 93-378, 88 Stat. 476, as amended; 16 U.S.C. 1600(note), 1600-1614); 4) the National Forest Management Act (NFMA) of 1976 (P.L. 94-588, 90 Stat. 2949, 16 U.S.C. 472 et seq.) and its implementing regulations (36 CFR 219); 5) Public Rangelands Improvement Act of 1978 (P.L. 95-514, 92 Stat. 1806, 43 U.S.C. 1901-1908); and 6) USDA Regulation 9500-4 and the Forest Service Manual (FSM) Chapter 2600. MUSY directs the USFS to administer the National Forests for outdoor recreation (including wilderness), range, timber, watershed, and wildlife and fish purposes, in cooperation with interested State and local governmental agencies and others. “Multiple use” means the harmonious and coordinated management of the various surface renewable resources so that they are utilized in the combination that will best meet the needs of the American people. The Sikes Act provides authority for cooperative planning, habitat improvement, and providing adequate protection for threatened or endangered species under the Endangered Species Act of 1973 or species

considered to be threatened, rare, or endangered by the State agency. RPA and NFMA provide for comprehensive, integrated planning that will provide for the diversity of plant and animal communities to meet overall multiple-use objectives. USDA Regulation 9500-4 directs the USFS to manage “habitats for all existing native and desired nonnative plants, fish and wildlife species in order to maintain at least viable populations of such species.” USFS policy states: “To preclude trends toward endangerment that would result in the need for federal listing, units must develop conservation strategies for those sensitive species whose continued existence may be negatively affected by the forest plan or a proposed project.” (FSM 2621.2)

Furthermore, the USFS Manual Update for Region 2, supplement number 2600-2011-2, dated September 30, 2011, “encourages [the Forest] to develop a Candidate Conservation Agreement for sage-grouse with the U.S. Fish and Wildlife Service”; “collaborate with the State, BLM, and other agencies and landowners to promote consistent management of sagebrush and sage-grouse habitats on adjoining lands”; and “support and participate in State-wide and local sage-grouse working groups for the conservation of sage-grouse and sagebrush habitats.”

USDA - Natural Resources Conservation Service

The USDA NRCS has authority for conservation of GUSG through: (1) the Soil Conservation and Domestic Allotment Act of 1936, as amended (PL 74-46; (2) the Department of Agriculture Reorganization Act of 1994 (PL 103-354; 7 U.S.C. 6962); and (3) the Farm Security and Rural Investment Act (Farm Bill) of 2002 (PL 107-171).

State of Colorado - Department of Natural Resources, Colorado Parks & Wildlife

The CPW, a branch of the Colorado Department of Natural Resources, has responsibility for the management and conservation of wildlife resources within state borders, including the conservation and management of threatened and endangered species, as defined and directed by state laws (i.e. Colorado Revised Statutes, Title 33 Article 1). Title 33 Article 1-101, Legislative Declaration states: “It is the policy of the State of Colorado that the wildlife and their environment are to be protected, preserved, enhanced and managed for the use, benefit, and enjoyment of the people of this state and its visitors. It is further declared to be the policy of this state that there shall be provided a comprehensive program designed to offer the greatest possible variety of wildlife-related recreational opportunity to the people of this state and its visitors and that, to carry out such program and policy, there shall be a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities.”

In addition, the 10-year Strategic Plan for CPW, adopted by the Colorado Wildlife Commission in 2010, emphasizes the importance of wildlife conservation. The plan lists 10 management principles that guide the agency in fulfilling its mission; these beliefs underscore the importance of wildlife conservation and maintenance of healthy, diverse and abundant wildlife. Principles applicable to this CCA include “... A primary consideration in wildlife management decisions is to maintain healthy, diverse and abundant wildlife...The quality, quantity and conservation of

wildlife habitat are essential to maintaining the state's diverse wildlife populations and wildlife-related uses...Partnerships and the involvement of private property owners, other agencies, local governments, public and private groups, citizens and volunteers are critical to the protection and management of Colorado's wildlife and wildlife habitat..."

The Strategic Plan's Fish, Wildlife, and Habitat Program Area include the following desired outcome, objectives, and actions:

Desired Outcome: Colorado's fish and wildlife is managed such that the need for federal listings under the Endangered Species Act are minimized, and the state retains primary management authority.

- *Objective:* Protect, restore and enhance habitat for fish and wildlife.
 - Provide analysis and recommendations to improve fish and wildlife habitats and reduce impacts from threats to those habitats (including, but not limited to, those impacts associated with energy development, climate change, urban and exurban development and invasive species)
- *Objective:* Ensure the long-term viability of native fish and wildlife and strive to maintain the broadest representation of the diversity of native wildlife in suitable habitats across the state.
 - Collaborate with interested and affected parties to develop and implement plans to recover threatened and endangered species and conserve native fish and wildlife
 - Assist public and private landowners in the conservation, restoration and enhancement of native fish and wildlife

Gunnison County

Gunnison County is a Colorado statutory county with the authority to protect and promote the health, welfare and safety of the people of Gunnison County, and the authority to regulate land use planning and quality and protection of the environment in Gunnison County.

Gunnison County has duly adopted regulations to exercise such authorities including the review, approval or denial of proposed activities and uses of land and natural resources.

Saguache County

Saguache County is a Colorado statutory county with the authority to protect and promote the health, welfare and safety of the people of Saguache County, and the authority to regulate land use planning and quality and protection of the environment in Saguache County. Saguache County has duly adopted regulations to exercise such authorities including the review, approval or denial of proposed activities and uses of land and natural resources.

12 RESPONSIBILITIES OF SIGNATORIES

BLM, NPS, USFS

- In order to be covered under the programmatic conference opinion for the CCA, the federal agencies will design, authorize, implement, and manage the specified land-use authorizations to be consistent with the conservation measures outlined in the CCA, at a minimum. Agencies may go above and beyond the minimum standards as conditions warrant and/or new federal land use plans and policies are developed.
- The agencies will notify and coordinate with USFWS on land-use authorizations that fall outside the scope of those covered in the CCA and/or fail to meet the established design criteria, consistent with ESA Section 7 requirements.
- As identified in the Reporting Section, submit annual compliance reports to USFWS.
 - Maintain the CCA by providing ongoing technical assistance and feedback to the implementing agencies via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.

USFWS

- Provide ongoing technical assistance and feedback to the signatory agencies regarding implementation of the CCA via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.

Colorado Parks & Wildlife

Colorado Parks & Wildlife commits to the following CCA objectives and conservation strategies so long as they are consistent with state law, regulation and budget authority.

- Support general objectives of GUSG CCA.
 - Provide ongoing technical assistance and feedback to the signatory agencies regarding implementation of the CCA via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.
 - Commit to Grazing measure 5, p. 24: *Seek opportunities to achieve greater flexibility in the distribution of current AUMs across the landscape in order to improve GUSG habitat.*
 - *Inventory inactive grazing allotments on state and federal lands. Identify vacant allotments that may enable short and long-term flexibility in the grazing system.*
 - *Seek opportunities to create coordinated Allotment Management Plans to improve GUSG habitat across private, state, and federal lands.*

- During severe winters, coordinate with the federal agencies to identify grouse concentration areas and need for area closures, as well as cooperate to communicate closures to public and hunters, consistent with Section 5.2.B.
- Commit to Section 5.6, Strategies to Manage Wild Ungulate Grazing.
 - *DAU reevaluation will occur consistent with established protocols, including Wildlife Commission review.*

Gunnison County

- Support general objectives of GUSG CCA.
- Provide ongoing technical assistance and feedback to the signatory agencies regarding implementation of the CCA via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.
- In order for Gunnison County to receive coverage under the CCA and programmatic conference opinion for the following specified land-use authorizations, Gunnison County will:
 - In partnership with the implementing agencies, and subject to relevant County policies and procedures, continue to coordinate the annual spring season road closures to motorized use, until such time the CCA signatories may determine the closures are no longer warranted.
 - Implement integrated weed prevention BMPs for road maintenance and ground disturbance operations through Gunnison sage-grouse habitat on federal lands, consistent with Appendix A, Section I.
 - Incorporate integrated weed prevention terms and conditions for road maintenance and ground disturbance operations in Gunnison sage-grouse habitat on federal lands, consistent with Appendix A, Section II. These terms and conditions shall apply to Gunnison County as well as any County-contracted operators that maintain and construct infrastructure within Gunnison sage-grouse habitat on federal lands.
 - As identified in the Reporting Section, contribute to annual compliance reports submitted to USFWS regarding use of integrated weed prevention practices within Gunnison sage-grouse habitat on federal lands.

Saguache County

- Support general objectives of GUSG CCA.
- Provide ongoing technical assistance and feedback to the signatory agencies regarding implementation of the CCA via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.

- In order for Saguache County to receive coverage under the CCA and programmatic conference opinion for the following specified land-use authorizations, Saguache County³⁷ will:
 - Implement integrated weed prevention BMPs for road maintenance and ground disturbance operations through Gunnison sage-grouse habitat on federal lands, consistent with Appendix A, Section I.
 - Incorporate integrated weed prevention terms and conditions for road maintenance and ground disturbance operations in Gunnison sage-grouse habitat on federal lands, consistent with Appendix A, Section II. These terms and conditions shall apply to Saguache County as well as any County-contracted operators that maintain and construct infrastructure within Gunnison sage-grouse habitat on federal lands.
 - As identified in the Reporting Section, contribute to annual compliance reports submitted to USFWS regarding use of integrated weed prevention practices within Gunnison sage-grouse habitat on federal lands.

Natural Resources Conservation Service

- Support general objectives of GUSG CCA.
- Provide ongoing technical assistance and feedback to the signatory agencies regarding implementation of the CCA via formal and informal channels, including continued and active participation in the Gunnison Basin Gunnison sage-grouse Strategic Committee and Technical Subcommittee.
- Commit to Grazing measure 5, p. 24: *Seek opportunities to create coordinated Allotment Management Plans to improve GUSG habitat across private, state, and federal lands.*

³⁷ Saguache County has proposed a 5-year phase-in of the integrated weed prevention measures for road maintenance and ground disturbance operations in Gunnison sage-grouse habitat on federal lands, consistent with Appendix A, Section II. Until such time that these measures are incorporated, Saguache County road maintenance and ground disturbance operations in Gunnison sage-grouse habitat on federal lands will not receive coverage under the programmatic conference opinion.

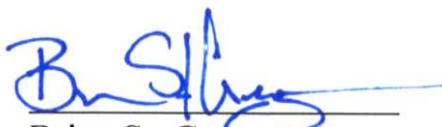
SIGNATURES



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CHAPTER 6 - APPENDIX C
GUSG Candidate Conservation Agreement, Gunnison Basin Population

Gunnison County Commissioners

Saguache County Commissioners



Anthony L. Gurzick
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State Conservationist
Natural Resources Conservation Service

14 GLOSSARY

Authorized officer: Any employee of the federal agency with delegated authority to perform the describe duties.

Consolidate: Multiple system and nonsystem routes in one area are replaced by one system trail or trails that better meets user needs and resource objectives.

Decommission: Install physical barriers to harden a trail or road closure.

Fragmentation: Fragmentation as used throughout the CCA is defined as the reduction of continuity and/or quality of habitat, including both direct habitat conversion and indirect/functional impacts. It is not intended to imply that sage-grouse within the Gunnison Basin population are genetically isolated as a result of habitat fragmentation, and no data exist to indicate genetic isolation is occurring within the Basin.

Ground disturbance: The development footprint; area of direct habitat conversion and impacts.

Nonsystem roads and trails: All roads, primitive roads, and trails that are not formally recognized, designated, or approved by the respective land management agency. User-created or officially closed roads and trails.

Offsite mitigation: Offsite mitigation consists of compensating for resource impacts by replacing or providing substitute resources or habitat at a different location than the project area. Per BLM policy³⁸, offsite mitigation may include, as appropriate:

- A. **In-kind:** Replacement or substitution of resources that are of the same type and kind as those being impacted.

Example: For every acre of new, long-term surface disturbance in important sage-grouse nesting/early brood-rearing habitat in Area (A), (X) acres of unsuitable habitat in Area (B) is reclaimed, treated, or planted to create new or suitable nesting/early brood-rearing sage-grouse habitat.

- B. **Out-of-kind:** Replacement or substitute resources that, while related, are of equal or greater overall value to public lands.

Example: For every acre of new, long-term surface disturbance in important sage-grouse nesting/early brood-rearing habitat in Area (A), the project proponent agrees to bury (Y) miles of existing power lines and remove the power poles used as hunting perches by raptors in Area (B).

³⁸ BLM WO 2008 –204.

- C. In-lieu-fee: Payment of funds to the BLM or a natural resource management agency, foundation, or other appropriate organization for performance of mitigation that addresses impacts of a project.

Example: The applicant may make payment to the BLM or a conservation group based on the amount of acres that will be disturbed in exchange for commitment from the recipient to apply the funds toward local sage-grouse core habitat protection/restoration projects.

Reclaim: Minimize visibility and improve the habitat function of closed routes via a variety of techniques. For the purposes of the CCA, “reclaimed” routes will generally be treated to Level 3 (BLM definition) or higher. Levels detailed here:

- C. Level of Decommissioning done by hand, passenger vehicle, or ATV/UTV (*BLM terms and framework*)

Level 1 – Allow the closed road to naturally revegetate.

Level 2 – Install sign with a hand crew

Level 3 –These activities will be done by a hand crew.

- e) Install/Remove worm fence/barricade, buck and pole fence/barricade, rock barriers, or gate.
- f) Place slash on the road surface, drop trees, dead plant vegetation, plant live vegetation, transplant live vegetation from nearby areas, and install erosion products such as coir logs (i.e. wattles), mulch, and erosion control blankets.
- g) Install and remove cross ditches/drains; check dams; and water bars.
- h) Hand crews rototill or scarify the ground.

- D. Levels of Decommissioning done with heavy equipment (excavator, dozer, track hoe).

Level 4 – Physical Barricades. Install gates, rock blockades or trees with mechanized equipment, such as a tracked excavator or dozer.

Level 5 – With mechanized equipment, rip the road; sub-soil the road; or construct water bars or ditches within and outside of the road prism.

Level 6 – With mechanized equipment, re-contour the road prism by pulling back all cut and fill slopes in addition to inboard ditches.

Level 7 –With mechanized equipment, remove all drainage structures including cross drains (culverts, rolling dips, and water bars); stream crossings structures (culverts); and unstable fills.

Realignment: Rerouting sections of existing roads, trails to avoid sensitive resource areas, i.e., rerouting a trail out of riparian zone.

Riparian: an area of land directly influenced by perennial water (streams, rivers, lakes and wetlands). A riparian area is distinctly different vegetation and soils with characteristics that are strongly influenced by free or unbound water in the soil. Swales, washes, and ephemeral drainages without perennial water and a dominant water-loving (hydrophytic) plant community

are not included. During drought years, riparian areas would still be considered riparian, even though water tables would have dropped and perennial water was deep below the soil surface.

System roads and trails: All linear features (roads, primitive roads, and trails) formally recognized, designated, and approved by the respective land management agency.

Tier 1 Habitat: Roughly 60% of occupied grouse habitat is proposed to be managed as Tier 1 habitat. These areas are identified by the Habitat Prioritization Tool, and are generally characterized by two or more overlapping seasonal habitats and minimal existing development (roads and homes).

Tier 2 Habitat: Roughly 40% of occupied grouse habitat is proposed to be managed as Tier 2 habitat. These areas are identified by the Habitat Prioritization Tool, and generally represent the more fragmented areas on the landscape. The standards for grouse conservation in Tier 2 habitat should be consistent with the Range-wide Conservation Plan, to the extent practicable. The RCP is a baseline for grouse management in the Basin.

15 LITERATURE CITED

Aldridge et al. 2011. Crucial nesting habitat for Gunnison sage-grouse: a spatially explicit hierarchical approach. *Journal of Wildlife Management*. 72(2): 391-406.

BLMa, Interagency Technical Team. 1996. Interagency Technical Reference for Utilization Studies and Residual Measurements. Technical Reference 1734-3. National Science and Technology Center, Denver, CO.

BLMb, Interagency Technical Team. 1996. Sampling vegetation attributes. Technical Reference 1734-4. National Science and Technology Center, Denver, CO, 172 pp.

BLM CO IM. IM-No. CO-2005-038. Statement of Interim Policy, Implementation of the Gunnison sage-grouse Rangewide Conservation Plan.

BLM WO IM. IM-No. WO-2008-024.. Offsite mitigation.

BLM WO IM. IM-No. WO-2010-022.. Managing Structures for the Safety of sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken.

BLM WO IM. IM-No. WO-2010-071.. Gunnison and Greater sage-grouse Management Considerations for Energy Development.

Boyle, S. A. and D. R. Reeder. 2005. Colorado sagebrush: a conservation assessment and strategy. Grand Junction: Colorado Division of Wildlife.

Braun, C.E. 1998. sage-grouse declines in western North America: What are the problems? Proceedings of the Western Association of State Fish and Wildlife Agencies 78:139–56.

Canfield, R.H. 1941. Application of the line interception method in sampling range vegetation. *Journal of Forestry*. 39:388-394.

Clary, W.P and W.C. Leininger. 2000. Stubble height as a tool for management of riparian areas. *Journal of Range Management*. 53:562–573.

Colorado Parks & Wildlife. 2012. 2012 Gunnison Basin Gunnison sage-grouse Lek Count Summary and Population Estimate. Colorado Parks & Wildlife, Gunnison Basin, Colorado, USA.

Colorado Rangeland Monitoring Guide. 2011.

Connelly, J.W., K.P. Reese, and M.A. Schroeder. 2003. Monitoring of greater sage-grouse habitats and populations. Station Bulletin 80, University of Idaho, Moscow, USA.

Daubenmire, Rexford. 1959. A canopy-coverage method of vegetation analysis. *Northwest Science* 33:43-64.

Doherty, K.E., D.E. Naugle, and J.S. Evans. 2010. A currency for offsetting energy development impacts: horse-trading sage-grouse on the open market. *PLoS ONE* 5(4): e10339. doi:10.1371/journal.pone.0010339

Endangered and Threatened Wildlife and Plants; Determination for the Gunnison sage-grouse as a Threatened or Endangered Species; Notice of the results of the status review. 75 Federal Register 187 (28 September 2010) pp. 59804-59863.

Gibbons P, and D.B. Lindenmayer 2007. Offsets for land clearing: no net loss or the tail wagging the dog? *Ecological Management and Restoration* 8: 26–31.

Gunnison sage-grouse Rangewide Steering Committee. 2005. Gunnison sage-grouse rangewide conservation plan. Colorado Division of Wildlife, Denver, Colorado, USA.

Hanophy, W. 2009. Fencing with wildlife in mind. Colorado Division of Wildlife, Denver, CO. 36 pp.

Kiesecker et al. 2010. Energy by design: making mitigation work for conservation and development. pp. 159-181. In D.E. Naugle, ed. *Energy development and wildlife conservation in western North America*. Island Press, Washington, DC.

Knick, S.T., and J.W. Connelly, editors. 2011. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. *Studies in Avian Biology* 38. University of California Press, Berkeley, CA.

Lyons, J. E., et al. 2008. Monitoring in the Context of Structured Decision-Making and Adaptive Management. *Journal of Wildlife Management* 72(8):1683-1692.

McKenney B. 2005. Environmental Offset Policies, Principles, and Methods: A Review of Selected Legislative Frameworks. Amherst (NH): Biodiversity Neutral Initiative.

Phillips, M. Personal communication – CCA review comments. 15 June 2012.

Pruett, C.L., Patten, M.A., and D.H. Wolfe. 2009. Avoidance behavior by prairie grouse: implications for development of wind energy. *Conservation Biology*. 23(5):1253-1259.

Safe Harbor Agreements and Candidate Conservation Agreements with Assurances; Final Policy. 64 Federal Register 116 (17 June 1999) pp. 32705-32716.

Stevens, B. S., Connelly, J. W. and Reese, K. P. (2012), Multi-scale assessment of greater sage-grouse fence collision as a function of site and broad scale factors. *Journal of Wildlife Management* 76 (7):1370-1380.

Stevens, B. S. 2011. Impacts of fences on Greater sage-grouse in Idaho: collision, mitigation, and spatial ecology. M.S. Thesis, University of Idaho, Moscow, Idaho, USA.

USFS R2 Supplement 2600-2004-1 2011, Section 2631.1, sage-grouse and Sagebrush Habitats.

USFWSa. N.d. Using Existing Tools to Expand Cooperative Conservation for Candidate Species across Federal and on Federal Lands.

USFWSb. N.d. CCA Fact Sheet, 2011.

USFWS. 2000. Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning. US Fish and Wildlife Service Migratory Bird Program.

USFWS & BLM. 2010. Programmatic Consultation Agreement between Bureau of Land Management and US Fish and Wildlife Service for Canada Lynx in Colorado.

Walters, C. J., and S. Holling. 1990. Large-scale management experiments and learning by doing. *Ecology* 71:53-74.

Williams, M.I. and A.L. Hild. 2012. Characteristics of Gunnison sage-grouse Habitat in Dry Mountain Loam and Mountain Loam Ecological Sites of the Gunnison Basin. CPW. Report to the Colorado Division of Parks and Wildlife. University of Wyoming, Department of Ecosystem Science and Management, Laramie, WY.

Wisdom et al. 2011. Factors associated with extirpation of sage-grouse. In Knick, S. T., and J. W. Connelly, editors. 2011. *Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats*. Studies in Avian Biology 38. University of California Press, Berkeley, CA.

CHAPTER 6 - APPENDIX C
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Wyman, S. et al. 2006. Riparian area management: grazing management processes and strategies for riparian-wetland areas. Technical Reference 1737-20. BLM/ST/ST-06/002+1737. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver, CO. 105 pp.

APPENDIX A. Integrated Weed Management: Preventing the Spread of Invasive Plants

A. Background

Weeds are identified as a “moderate+” threat to GUSG by the USFWS, with the likelihood of “indefinite increases due to increased human presence and climate change.” And much research indicates that ground disturbance caused by construction and maintenance activities, as well as unclean equipment, contributes heavily to the spread of invasives.

Recognizing that many weed prevention and management efforts are underway in the region, and many BMPs are already incorporated into standard operating procedures, nonetheless, the participants to early discussion – listed above – identified room for improvement across the agencies and counties.

Participants recognize that integrated weed prevention and management measures not only contribute to grouse habitat conservation, but contribute to better resource management in general.

B. Best Management Practices: Road Maintenance & Ground Disturbance Operations

In order for a signatory to receive coverage under the CCA and conference opinion, the signatory will apply these best management practices to the extent feasible for work within Gunnison sage-grouse habitat on and through federal lands, including signatories’ contractors and right-of-way, easement, and permit holders.

Including but not limited to crown or slope reconstruction; clearing ditches, culverts and catchments; replacement of road surface, roadside mowing operations, and dust abatement.

SCHEDULE & TIMING

1. Plan work from non-infested areas to infested areas, as practicable. Plan work with Basin Weed Coordinator or Agency Weed Specialist, using existing weed inventories along planned route.
2. If heavily infested areas are known along planned routes for grading or mowing, work with Basin Weed Coordinator/Agency Weed Specialist to identify sections where it may be appropriate and practical to lift grader’s blade or mower deck.
3. Minimize operations of equipment during conditions when mud can accumulate on equipment. Generally, these types of conditions exist when damage to the road resource can occur.
4. When scheduling allows, schedule activity when seeds or propagules are least likely to be viable and to be spread or when grading/blading/mowing could reduce the vigor of the weed infestation.
 - Contact Basin Weed Coordinator or Agency Weed Specialist and refer to Gunnison Basin Weed Inventory GIS database (to be developed).

- Generally grade roads early in the spring before grasses develop seed heads or late in the season after grasses have set seed and become dormant.

MOBILIZING EQUIPMENT: EQUIPMENT CLEANING

1. Clean all heavy equipment and mobilizing equipment³⁹ before entering Gunnison County and West Saguache County.
2. Power-washing is the most effective method of cleaning.
3. Equipment shall be considered free of soil, seeds, vegetation, and other such debris when a visual inspection by operator or staff does not disclose such material on the undercarriage, cross members, frame, skid plates, belly pans, wheels, treads, tracks, suspension, bumpers, wheel wells, radiator grills, and the ledges on the inside of rear and front bumpers. *Disassembly of equipment components or specialized inspection tools is not required.*

BETWEEN-SITE OPERATIONS: EQUIPMENT CLEANING

1. Clean all heavy equipment before entering each project area if:
 - Equipment is covered with mud, plants, or other foreign materials and/or
 - Previous operation site was infested with invasive plant species.
2. Power-washing is the most effective method of cleaning, when available. Mechanical removal via “brooming” may be appropriate when in the field.
 - *Ideally, equipment should be washed between each route within Gunnison sage-grouse habitat and/or in between infested areas and non-infested areas.*
 - *Yet the infrastructure – portable power-washing stations—is not yet available in the region.*
 - *Cleaning equipment arriving from outside of the Basin is a good step but not sufficient.*
 - *A practical compromise is that equipment should be cleaned via following methods:*
 - *Commercially washed whenever movement between sites takes operators through towns with commercial facilities;*
 - *Hose-washing in staging area/area with drain may suffice;*
 - *In the field: mechanical removal may be appropriate in the field.*
3. Equipment shall be considered free of soil, seeds, vegetation, and other such debris when a visual inspection by operator or staff does not disclose such material on the undercarriage, cross members, frame, skid plates, belly pans, wheels, treads, tracks, suspension, bumpers, wheel wells, radiator grills, and the ledges on the inside of rear and front bumpers. *Disassembly of equipment components or specialized inspection tools is not required.*

³⁹ earth-moving equipment; does not include pickup trucks and personal vehicles.

ON-SITE OPERATIONS & OPERATOR EDUCATION

1. Locate and use weed-free project staging areas.
2. Avoid acquiring water for road dust abatement where access to the water is through weed-infested sites.
3. Only use gravel, chip seal, soil, sand or other types of imported road/fill materials from sites that have no weed infestations.
 - o For agency/County work, these sites should be identified or inspected by the Gunnison Basin Weed Coordinator or Agency Weed Specialist prior to mobilization.
 - o For contracted work, a list of agency or County-recommended sources will be provided and recommended to contractor.
 - o In the future, should a state or local weed-free certification program for road/fill materials be initiated, participating entities in the CCA will adopt the certification standards and require use of certified weed-free road/fill materials for their own and contracted work.
4. Only grade the road or mow the shoulder when necessary for resource protection, safety, or function.
5. As practicable, keep the grader's blade 1 to 2 inches above the road surface when the primary goal is to remove rocks that have fallen onto the road.
6. Annually, train operations and maintenance staff in the identification of invasive plant species and relevant weed BMPs.

RESEEDING & RECLAMATION

1. During the same growing season that the ground disturbance takes place/within 30 days following completion of construction, revegetated the newly disturbed sites with approved seed mixes.
 - o Identify party responsible for revegetation work if work is contracted.
 - o If ground disturbance occurs after late August/average date of first frost, generally delay reseeding until October 1/average date of consistent frost to ensure seedlings remain dormant and viable until following growing season (NRCS guidance, Scott pers comm). *Date may vary depending upon elevation.*
 - o Consult Agency Weed Specialist, Botanist, or Ecologist for approved seed mixes. The agencies and/or the Weed Commission will work together to provide suitable seed mixes.
 - o For surfaces that are annually graded and cleaned, including the road prism⁴⁰ and water bars, revegetation would not be appropriate.
 - o Culvert installation and lead-out ditch construction should be revegetated.
 - o Seeding shall be repeated if a satisfactory stand is not obtained as determined by the agency representative upon evaluation after the second growing season.

⁴⁰ Road prism is area from the top of the cut to the bottom of the fill.

2. Use only weed-free (certified when available) erosion control devices, such as coir logs, erosion control blankets, straw, topsoil, and soil amendments. Wattles, jute mats, and rice straw are examples of weed-free products.
3. Following ground-disturbing activities, treat infested areas with herbicides, hand pulling, or biological controls as deemed necessary by Basin Weed Coordinator or Agency Weed Specialist.
 - Unless otherwise agreed, surfaces that are annually graded and cleaned, including the road prism and water bars, do not require treatments.
 - Culvert installation and lead-out ditch construction areas should be treated.

INVENTORY & MONITOR

1. Agencies and Counties should inventory areas for invasive plants prior to their own/contracted road maintenance activities and ground-disturbing construction and flag these areas for avoidance or post-project treatment (*see Treatments section, above*). Inventories should include the following information:
 - Road number and mile markers
 - UTM's
 - Infestation type, i.e. existing infestations
 - Infestation size
 - Cover class
 - Type(s) of species observed
2. Update Gunnison Basin Weed Inventory GIS database at minimum once a year.
 - Gunnison Basin Weed Coordinator will annually coordinate with agencies to collect, compile, and make available most updated weed inventory information.
3. Monitor sites between two and three years following all treatments, as practicable. Prioritize monitoring in priority grouse habitat.
 - Unless the Weed Commission can absorb the work load, the agency will be responsible for monitoring.

C. Terms and Conditions for Contractors, Rights-of-Way & Easement Holders

In order for a federal signatory to receive coverage under the CCA and conference opinion, federal signatories will incorporate these terms and conditions into new and renewed individual right-of-way authorizations, easements and permits on federal lands within GUSG habitat. In order for non-federal and federal signatories to receive coverage under the CCA and conference opinion, signatories will apply these terms and conditions to both internal and contracted work to maintain and construct infrastructure within Gunnison sage-grouse habitat on federal lands.

Unless otherwise agreed, to prevent the introduction of the seeds of noxious and invasive weeds onto lands within occupied Gunnison sage-grouse habitat on federal lands:

CLEANING

Contractor, utility, or individual operator shall ensure all heavy equipment moved onto lands is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds.

1. Equipment shall be considered free of soil, seeds, vegetation, and other such debris when a visual inspection by operator or staff does not disclose any such material on the undercarriage, cross members, frame, skid plates, belly pans, wheels, treads, tracks, suspension, bumpers, wheel wells, radiator grills, and the ledges on the inside of rear and front bumpers.
2. For equipment arriving from outside Gunnison County and West Saguache County, operator shall clean all heavy equipment and mobilizing equipment⁴¹ before entering Gunnison County and West Saguache County.
3. Although power-washing is the most effective method, prior to moving between sites *in the field*, operator shall employ **whatever cleaning methods necessary** to ensure compliance with the terms of this provision.
4. Movement between field sites that *requires travel through or return to Gunnison/urban center* shall be accompanied by power-washing at a commercial washing station, **if one is available**.
5. Disassembly of equipment components or specialized inspection tools is not required.

NOTIFICATION

Contractor, utility, or individual operator shall notify agency representative prior to moving each piece of heavy equipment onto such agency-administered lands, unless otherwise agreed.

1. If the agency representative requests an inspection, arrangements will be made to inspect equipment prior to it being moved onto agency lands.
2. Use of contractors by individual private ROW/easement holder would require agency notification, with the following exceptions:
 - Private land access ROWs/easement holders operating own equipment are excepted from this measure, unless otherwise agreed.
 - Does not apply to snow removal equipment.

SOURCING/STAGING

When the agency/County specifically provides the necessary information, contractor/utility/individual operator shall:

1. Use identified/mapped weed-free project staging areas.
2. Use identified/mapped access routes and water sources for road dust abatement.
3. Use only gravel, chip seal, soil, or other types of imported road materials from agency-approved or inspected sources.

⁴¹ earth-moving equipment; does not include pickup trucks and personal vehicles.

4. Use identified/mapped turn-around locations.

APPLICABLE ONLY TO RIGHT-OF-WAY/EASEMENT HOLDERS

1. The holder shall be responsible for weed control within the limits of the right-of-way. The holder shall be responsible for consultation with the appropriate agency representative for acceptable weed control methods.
1. The holder shall revegetate all disturbed areas using a seed mixture specified by the agency representative within 30 days following completion of any construction.
 - o If ground disturbance occurs after late August/average date of first frost, generally delay reseeding until October 1/average date of consistent frost to ensure seedlings remain dormant and viable until following growing season (NRCS guidance, Scott pers comm). Reseeding shall be completed prior to the following growing season.
 - o Consult Agency Weed Specialist, Botanist, or Ecologist for approved seed mixes.
 - o Seed shall be **certified** weed-free seed; exceptions to this requirement must be approved in writing by the agency representative.
 - o The seed mixture container shall be tagged in accordance with State law(s) and the tag(s) submitted for inspection by the agency representative at least 14 days before the date of proposed seeding.
 - o The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)/acre.
 - o For surfaces that are annually graded and cleaned, including the road prism⁴² and water bars, revegetation would not be appropriate.
 - o Culvert installation and lead-out ditch construction areas shall be revegetated.
 - o Seeding shall be repeated if a satisfactory stand is not obtained, as determined by the agency representative upon evaluation after the second growing season.

⁴² Road prism is area from the top of the cut to the bottom of the fill.

APPENDIX B. Urban Interface Recreation Areas

The intent of this section is to outline the preferred locations for current, concentrated recreation at the urban interface, and to outline long-term planning for recreation expansion to balance the needs of a growing population and the need to maintain sage-grouse habitat. A guiding strategy of the CCA Recreation Team has been to balance sage-grouse and recreation via the concentration of use in preferred areas. The following three areas are generally in close proximity to Gunnison⁴³ and especially in the case of Hartman Rocks, capture the vast majority of recreationists in grouse habitat in the Basin. Although sage-grouse conservation measures should still be observed in each of these areas, such as seasonal closures to minimize disturbance to leks the off-site mitigation standards outlined in sections 4.3, 4.4, 5.2, and 5.3 of the CCA would not be required in these areas to compensate for new route and facility development. For efficiency, route reclamation efforts will be best-suited to areas at a greater distance from the urban interface. For each of the following areas, a minimum set of grouse conservation measures is proposed below.

A. Hartman Rocks

Current Condition:

Hartman Rocks Recreation Area is a popular urban interface recreation area about 2 to 6 miles southwest of Gunnison (*See Figure 3 & Figure 4*). Its proximity to Gunnison makes it easy for local residents to access for a quick recreation experience. It is becoming a destination location for mountain biking, rock climbing and single track motorized enthusiasts. It is estimated that it receives approximately 40,000 visits each year. Visitors practice a variety of recreation activities including mountain biking, motorcycling, ATV riding, 4 wheeling, rock climbing, bouldering, camping, trail running, horseback riding, cross country skiing, snowmobiling, dog sledding, hill parties, target shooting, hunting and more.

Long-Term Planning – Future Need and Development:

The use of Hartman Rocks will continue to grow as population increases in Gunnison and the region, as accounted in the Hartman Rocks Area Management Plan (2012). In compliance with the Management Plan, facility development would be allowed in the Front Country (1814 acres) and Middle Country Zones (4205 acres.) Facility development could include but is not limited to trails, restrooms, a motorcycle track, open play areas, or shooting ranges.

Total Acreage: Tier 1 habitat = 2617; Tier 2 habitat = 3402.

Proposed sage-grouse Conservation Measures in this Recreation Area:

- Open north of the Power Line Road March 15 – May 15, when a large number of roads are closed to motorized travel. *Note: This is not a conservation measure for sage-grouse*

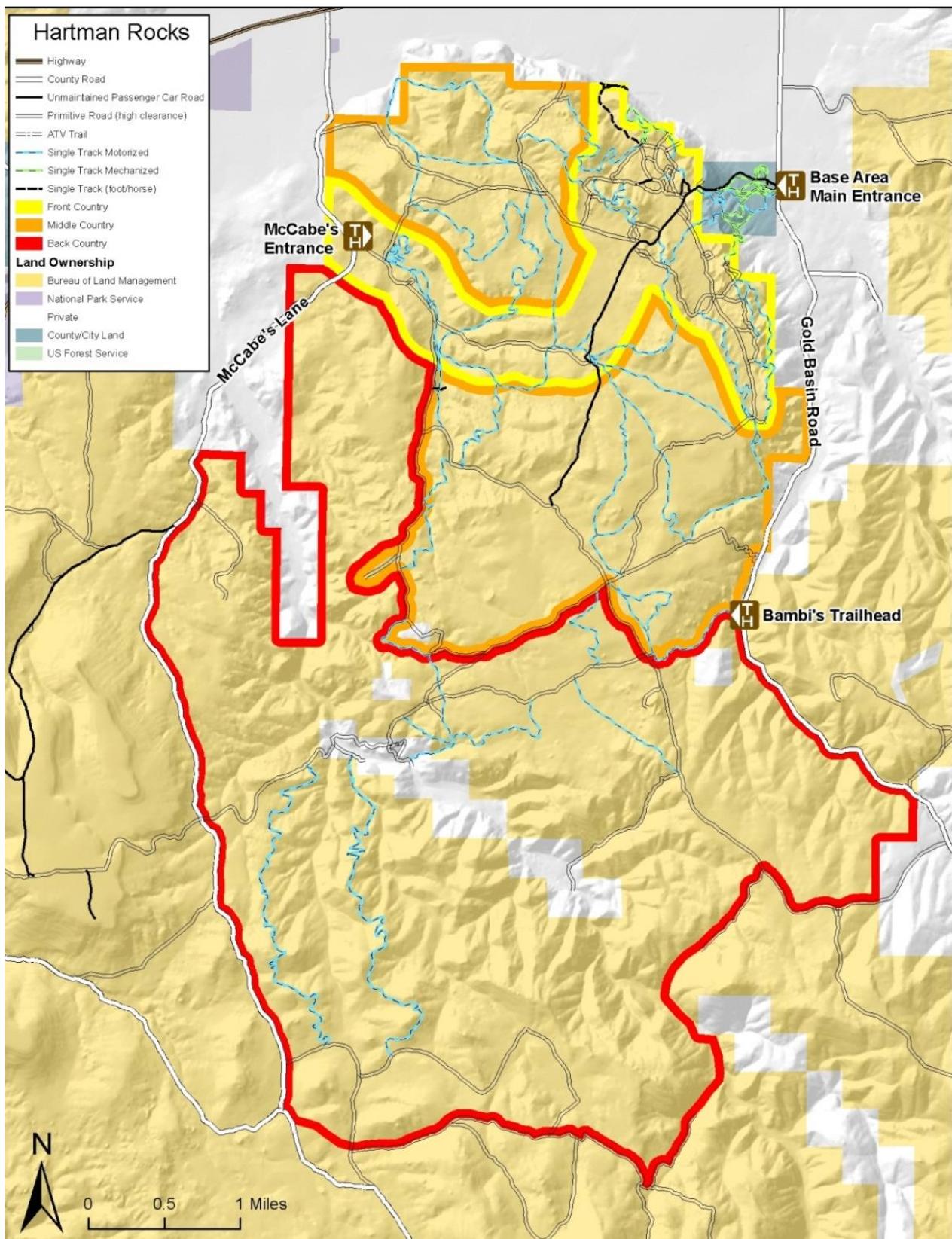
⁴³ These areas also capture recreation use in sage-grouse habitat from the outlying subdivisions, including Tomichi Heights, Cranor Hill, Upper and Lower Castle Mountain, Antelope Hills, and outlying neighborhoods adjacent to Hartman Rocks.

in Hartman Rocks, but the open area does concentrate recreation use here and limit noncompliance with closures elsewhere in the Basin.

- Human uses discouraged prior to 9 AM. March 15 to May 15.
 - Human uses in future facilities, i.e. shooting ranges, motorcycle tracks, would be discouraged prior to 9 AM during this time period.
- Closed south of the Power Line Road to motorized and mechanized use from March 15 to May 15.
- Any facility development in the Back Country Zone would follow the planning process and design criteria outlined in the relevant sections of the CCA. If the proposed facility development were to fall outside the scope of the CCA, then the default conference or consultation process would begin with USFWS.

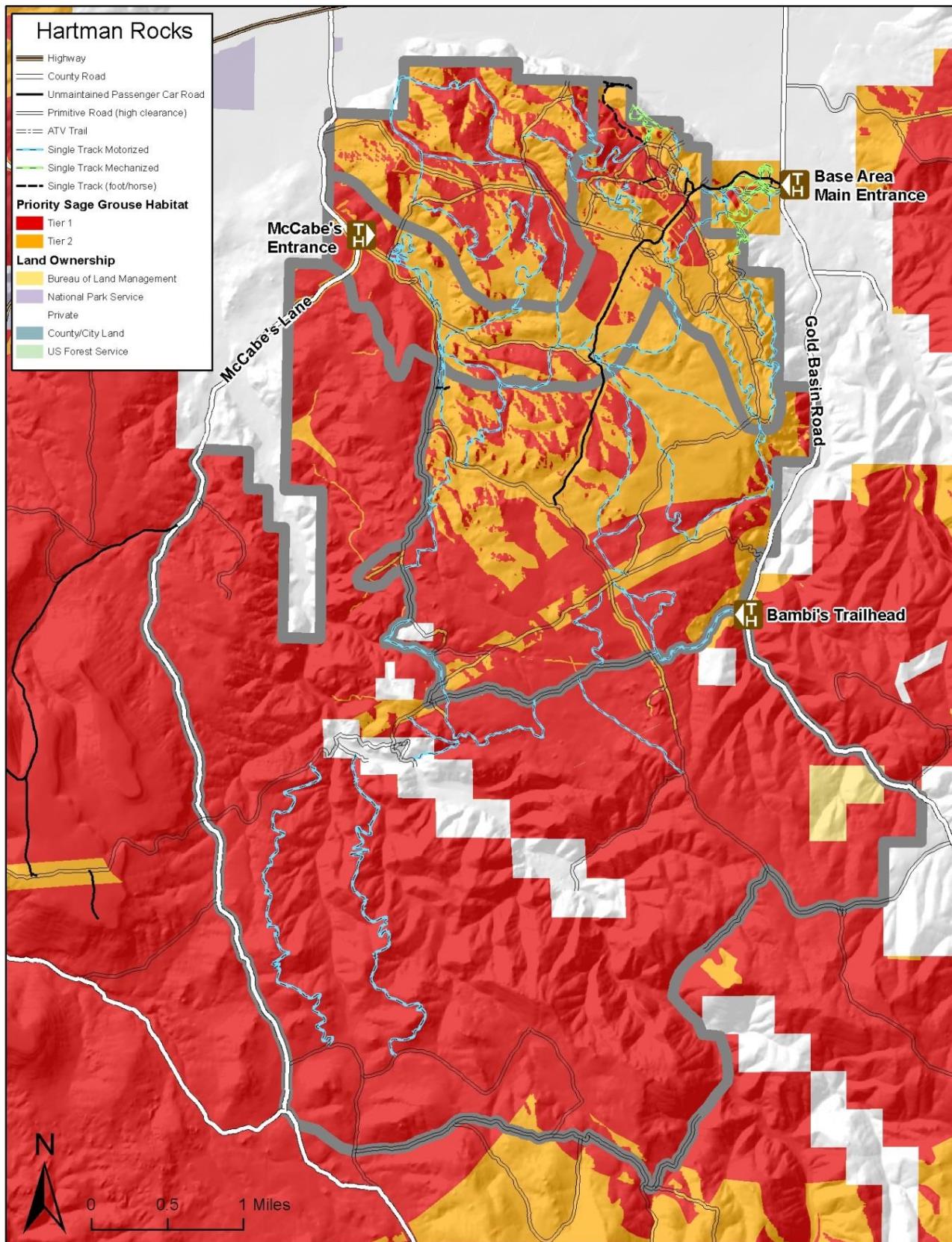
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Figure 3. Hartman Rocks Recreation Area

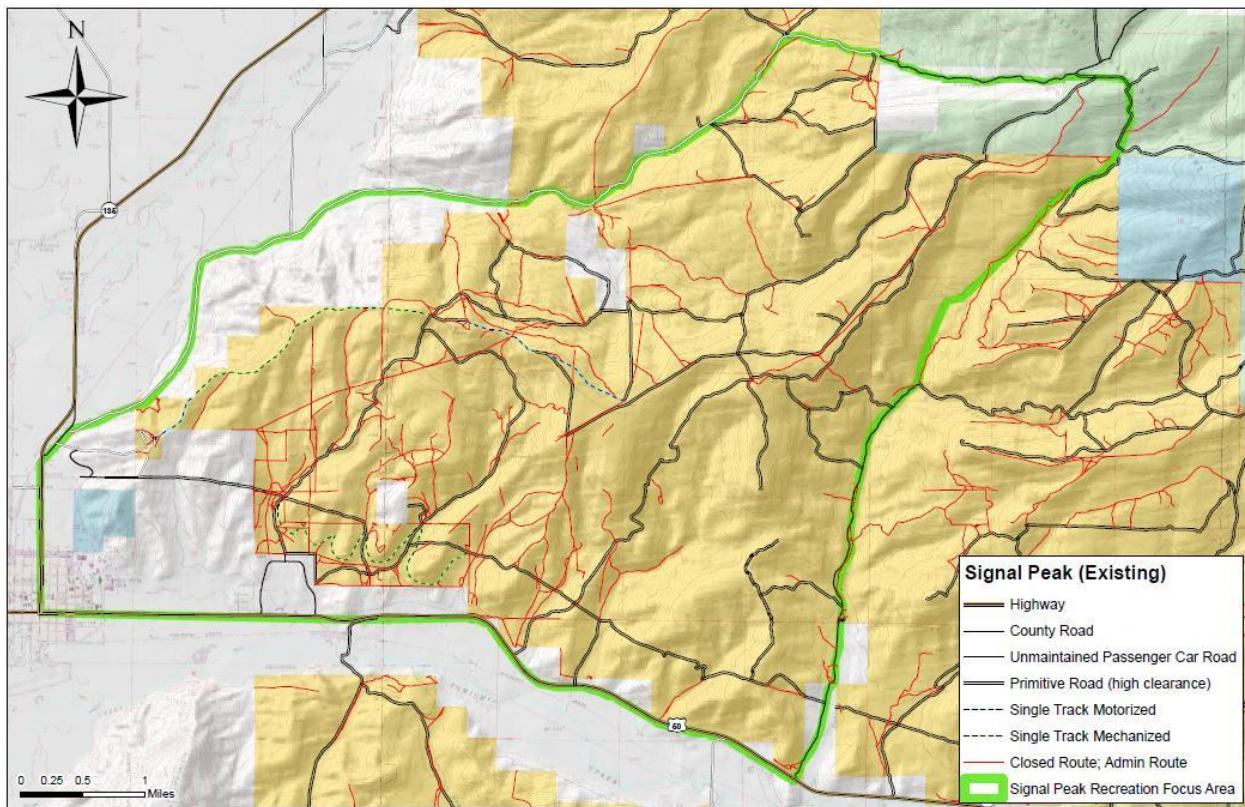


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Figure 4. Hartman Rocks Recreation Area with Tier 1, Tier 2 GUSG habitat



B. Signal Peak



Current Condition:

The Signal Peak Trail System is just outside and northeast of the city of Gunnison, east of Western State College (See Figure 98 & Figure 99). Visitor use in this area is high due to its proximity to the college and Gunnison. Some routes that were closed in the 2010 TMP are still being used by runners and cyclists because they are looking for loop options. Running, riding and walking with dogs is popular in this area. Many people stay close to the college but others venture out on the Contour and Ridgeline Trail. Other major access points enter this area from subdivisions. Shooting and motorized use is popular from subdivision access points.

Long-Term Planning – Future Need and Development:

Managing recreation use in an area like Signal Peak is very difficult, and offering people structured recreation is a practical compromise to balance wildlife and recreation needs. Developing a stacked loop trail system would keep people on designated trails and allow the BLM to successfully close routes—and gain public compliance with the closures—in areas where human presence is undesirable from a wildlife perspective. This may require trail construction or designation in Tier 1 habitat. While the proposed condition includes a greater number of open route miles, increased compliance with closures are expected via well-defined loop systems (*See Figure 7*).

The Numbers:

Current condition: 93 miles existing (open) and 140 miles (closed) = 233 miles of disturbance

Proposed condition: 121 miles of open routes, including up to approximately 28 miles of new construction. Decommission the remainder; target routes for reclamation in Tier 1 areas (140 miles).

Total Acreage: Tier 1 = 8856. Tier 2 = 4915.

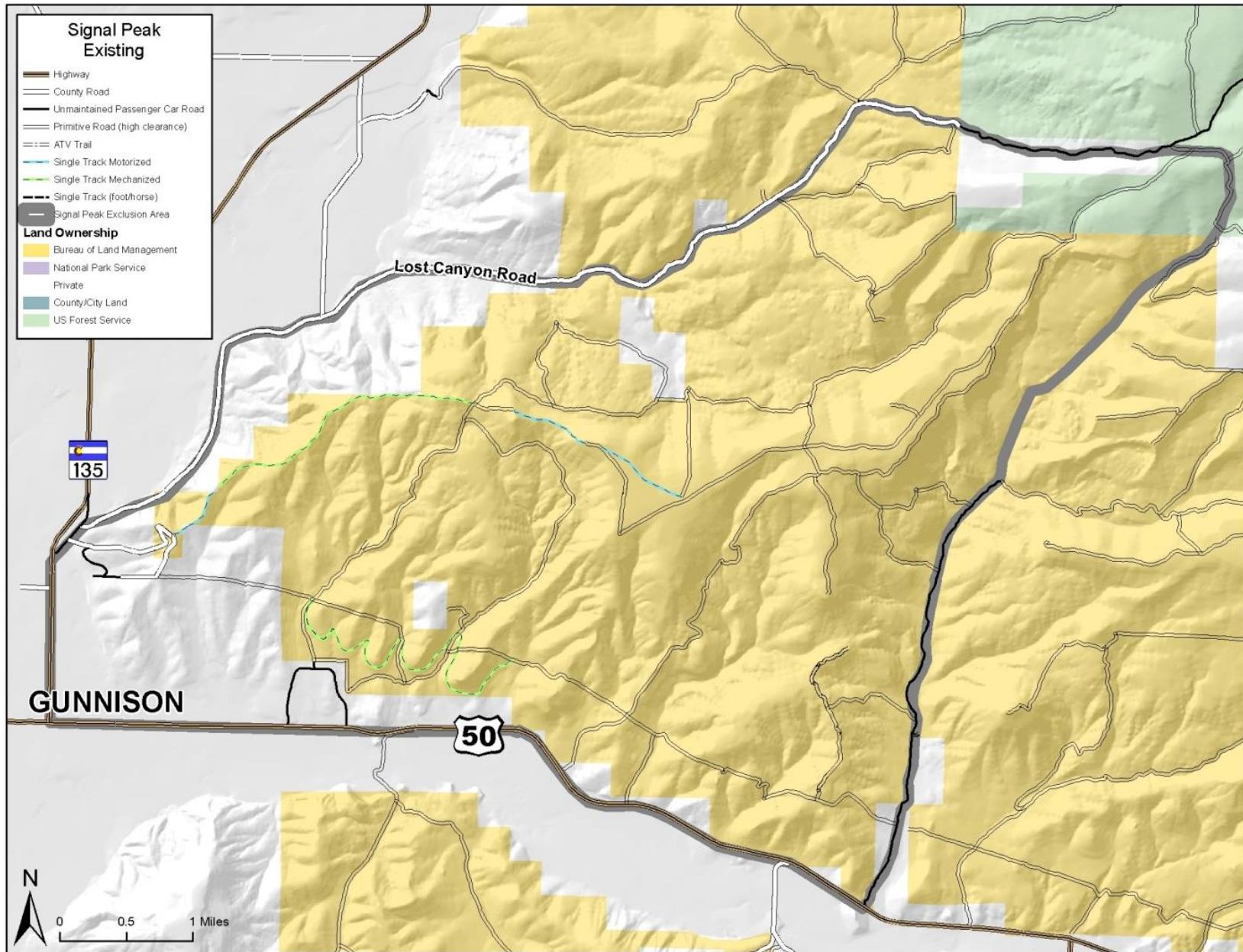
Proposed sage-grouse Conservation Measures in this Area:

- No human uses before 9:00 a.m. between March 15 and May 15.
- No motorized travel between March 15 and May 15.
- Dogs on leash from March 15 to August 15. *Note: In the long-term, as Van Tuyl is developed and popularized for dog walkers originating in the city dog park, it may be appropriate and feasible to close areas of Signal Peak to dogs during critical grouse periods.*

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Figure 5. Signal Peak.

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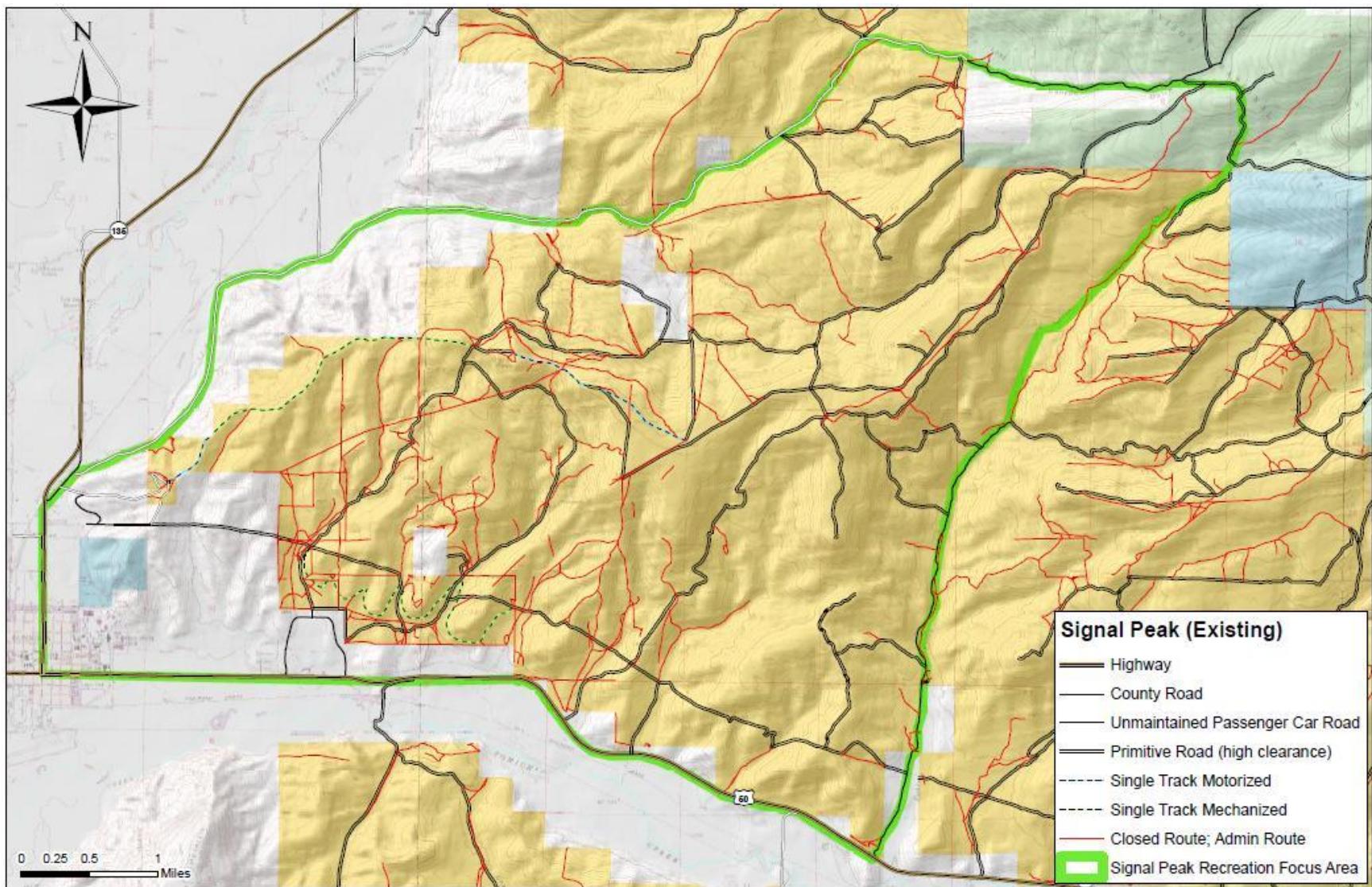


Figure 6. Signal Peak with Tier 1, Tier 2 GUSG habitat.

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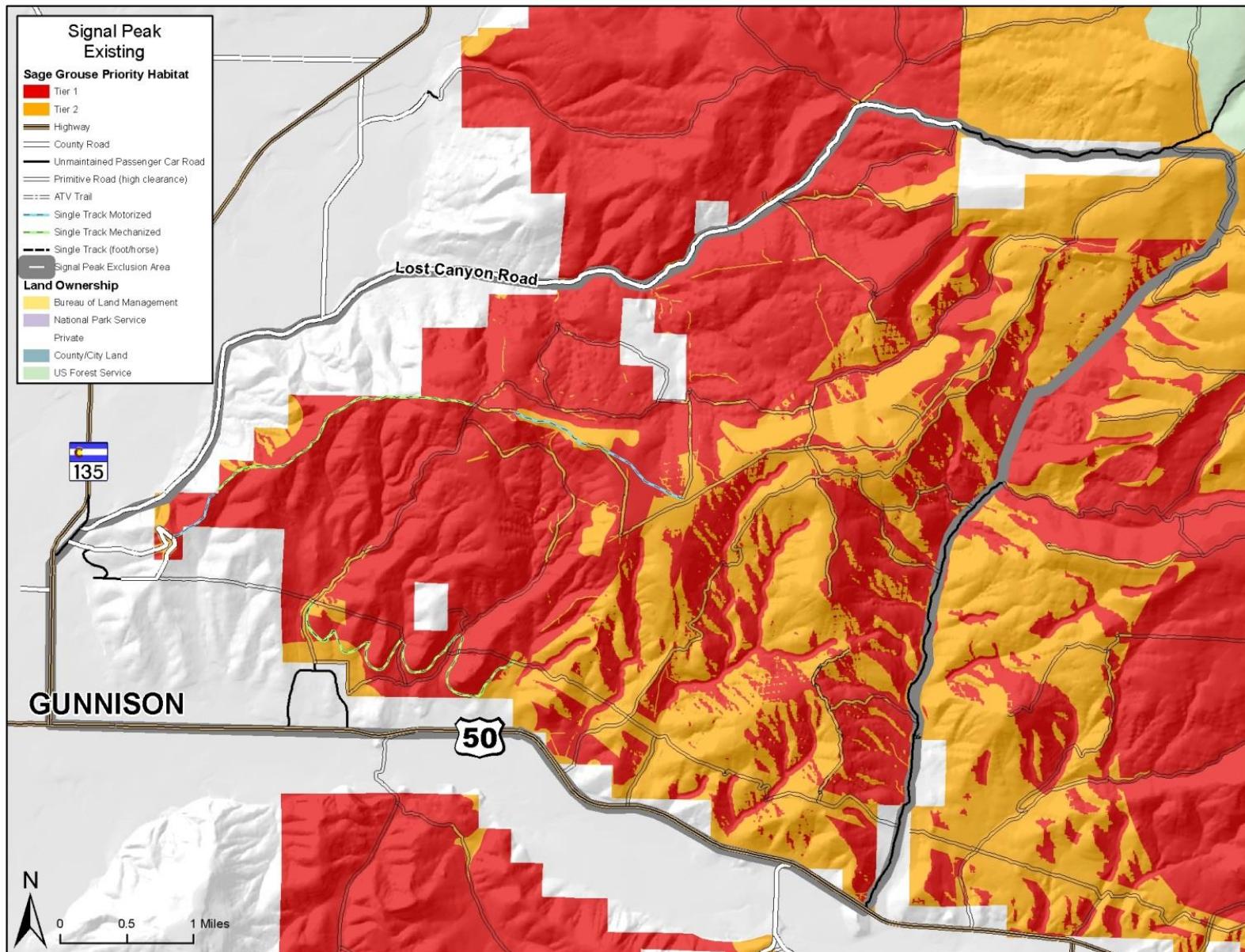
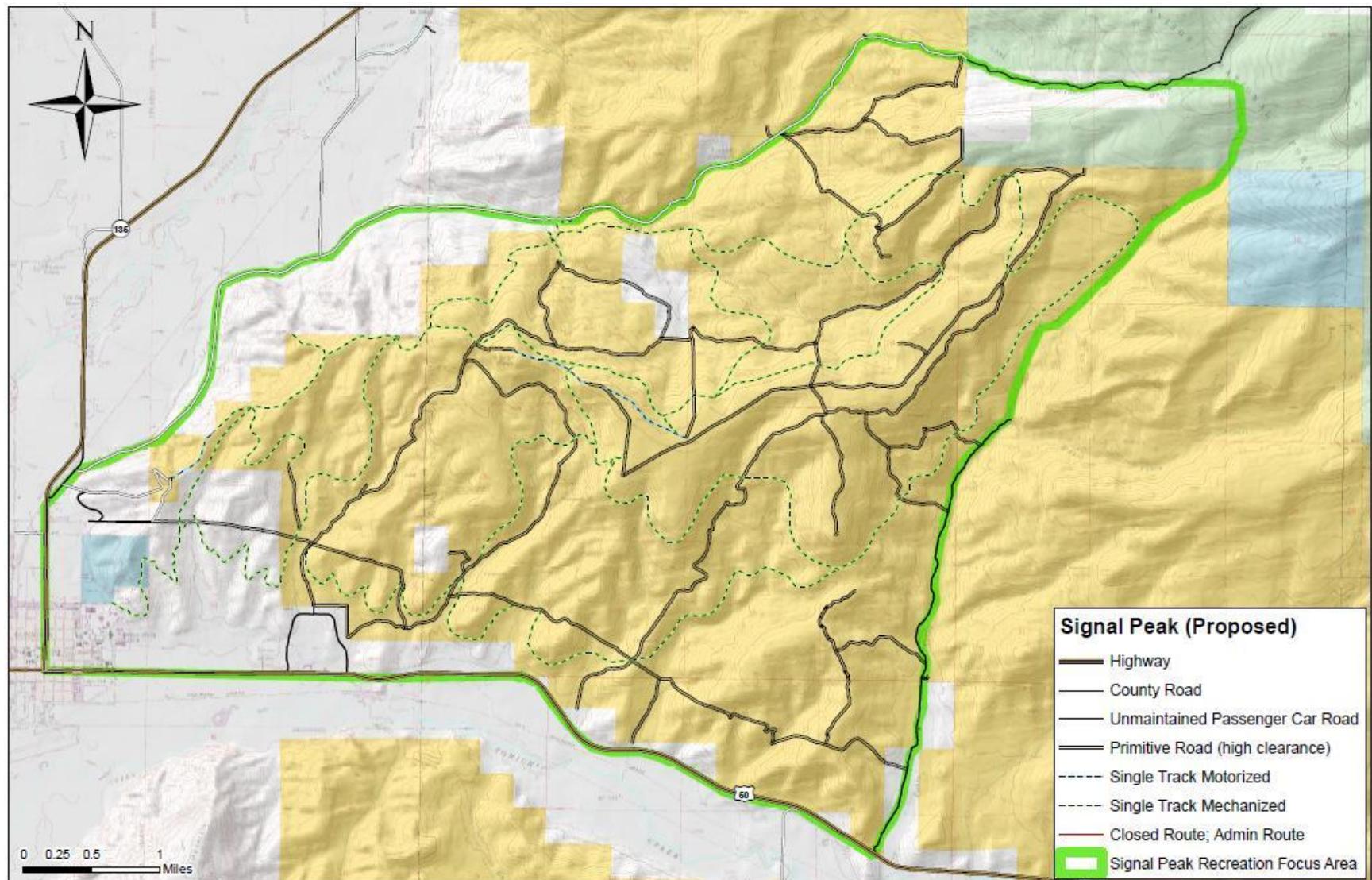


Figure 7. Proposed future condition of Signal Peak.



C. Van Tuyl Ranch

Current Condition:

The Van Tuyl Ranch is owned by the city of Gunnison and includes a system of trails on the east side of the Gunnison River, on the northwest side of Gunnison (*See Figure 8 & Figure 9*). The trails are open to hiking and biking.

Long-Term Planning – Future Need and Development:

In order to provide for increased recreation opportunities for a growing population and to focus dog use away from Signal Peak, nonmotorized user groups envision future development in the area. In order to develop and maintain a limited trail system on the west side of the Gunnison River, a bridge may be constructed. Trails would be developed on BLM lands in a bench below the ridge line of the palisade. Use on this trail system would be hiking and biking.

The Numbers:

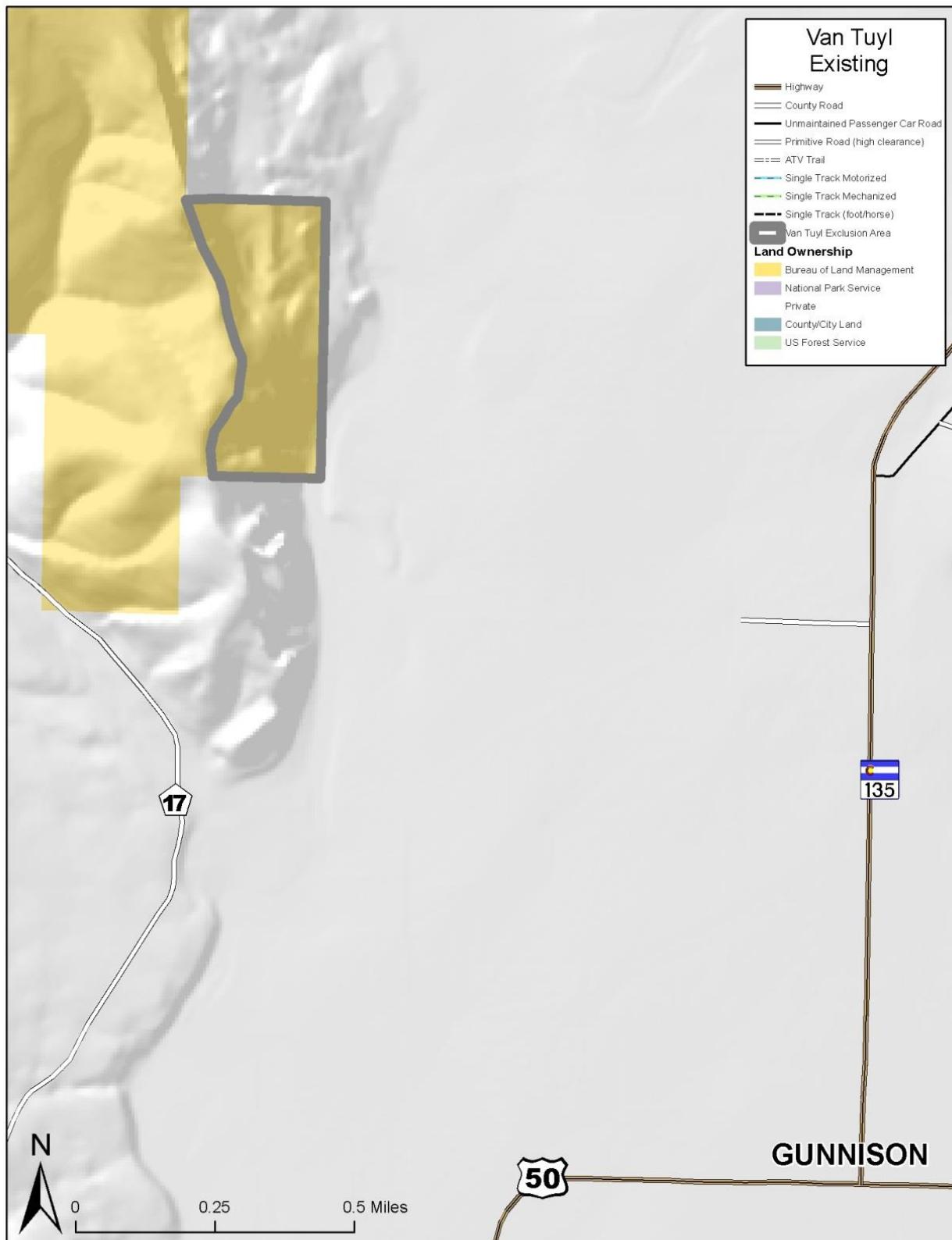
Total Acreage: Tier 1 = 51; Tier 2 = 8.

Proposed sage-grouse Conservation Measures in this Area:

- No motorized travel.
- Possible closure from March 15 to May 15, or no human uses before 9:00 a.m. during that time period.
- Dogs on leashes in areas outside of the city-maintained/owned Ranch, which includes a dog park.

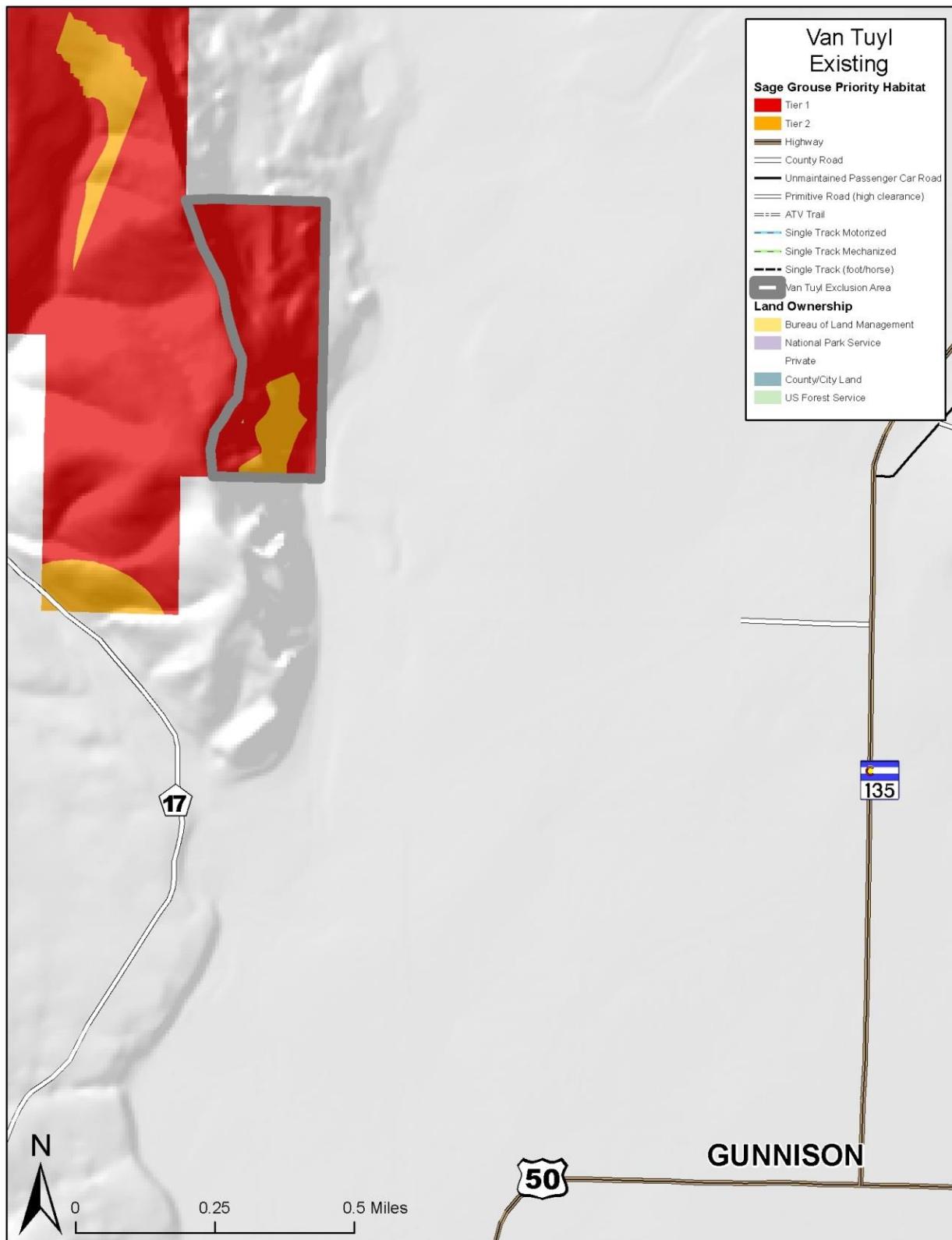
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Figure 8. Van Tuyl.



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Figure 9. Van Tuyl with Tier 1, Tier 2 GUSG habitat.



APPENDIX C. Communication Towers Standards

From *Service Interim Guidelines for Recommendations On Communications Tower Siting, Construction, Operation, and Decommissioning*, US Fish And Wildlife Service Migratory Bird Program, 2000.

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to co-locate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
2. If collocation is not feasible and a new tower or towers are to be constructed, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
4. If at all possible, new towers should be sited within existing “antenna farms” (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species⁴⁴. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
5. N/A If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white (preferable) or red strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on

⁴⁴ With respect to the recommendation that towers not be sited in habitat of threatened or endangered species, the CCA and programmatic conference opinion would cover siting within Gunnison sage-grouse habitat, although such siting would be minimized via a minimum standard of co-locating the new towers with comparable development and/or locating it in a forested area.

the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see *Avian Power Line Interaction Committee (APLIC). 1994. Mitigating Bird Collisions with Power Lines: The State of the Art in 1994. Edison Electric Institute, Washington, D.C., 78 pp.*, and *Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp.* Copies can be obtained via the Internet at <http://www.eei.org/resources/pubcat/enviro/>, or by calling 1-800/334-5453).

7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower “footprint”. However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.
8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.
9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee’s antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.
10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
11. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group [or respective federal land management Authorized Officer] should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.
12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

APPENDIX D. Grazing Management Guidelines for GUSG

From pages 212 – 213 in the Rangewide Conservation Plan; modified December 2011 by Gunnison area participants in the CCA Grazing Team.

The grazing management guidelines below represent a partial list of grazing management practices that may be compatible with achieving GUSG habitat objectives. Site-specific grazing prescriptions should specify timing, intensity, duration, and frequency of grazing that together provide a recovery period for plant health and maintenance and fit the specific circumstances (both biotic and abiotic factors) unique to that area, including other resource or operational considerations. This site specificity also maximizes potential flexibility or opportunities for each situation including incorporating private, state, and/or federal lands to reach habitat objectives.

A. Overall Guiding Principle & Objectives

Applicable to all livestock grazing in occupied sage-grouse habitat:

1. To maintain and improve grouse sage-grouse seasonal habitat:
 - a. Control the distribution of livestock, duration of use, and the time of year that livestock graze a particular location by using grazing systems such as rest-rotation, deferred rotation, or low intensity/longer duration.
 - b. Allow for growth and/or re-growth in each pasture during the spring growing season to provide quality vegetation and vegetation height requirements during periods of sage-grouse seasonal use (refer to “GUSG Structural Habitat Guidelines”, Appendix H).
 - o Specifically, retain adequate cover for nesting habitat during current season *and* residual cover for nesting habitat the subsequent year.
2. Furthermore, in order to improve riparian, swales, and wet meadow habitat for grouse/other species:
 - a. Encourage continued use of irrigation water rights for existing hay meadows, particularly those that maintain riparian areas on allotments in sage-grouse habitat. *CCA team suggestion*
 - b. New spring developments and spring reconstructions should be designed to minimize changes to the natural flow of the water. *CO GrSG Conservation Plan – Grazing Management Options, p E-3*
 - o When possible, develop alternative livestock water sources outside of naturally occurring riparian areas (dig wells, install pipelines, etc.). *CCA team suggestion; RCP Grazing Management Guidelines for GUSG, #9, p.213*
 - o Where possible (when sufficient water is present to support riparian habitat and supply livestock water), redesign existing water developments that are in naturally occurring riparian areas to protect riparian habitat and pipe a portion of the water to troughs that are well away from naturally occurring riparian habitat.

*CCA team suggestion; RCP Grazing Management Guidelines for GUSG, #9,
p.213*

- c. Place salt, minerals, and supplements at least 1/4 mile away from riparian areas, to the extent feasible within existing pasture boundaries.
- d. Move 95% of all livestock from one pasture to the next within 3 days of scheduled move, with 100% moved within one week from scheduled move.

B. Best Management Practices

If monitoring data indicate that an allotment is not meeting RCP habitat guidelines, then apply the following strategies, as appropriate:

1. Where possible, do not graze the same pasture at the same time of year for consecutive years. If not possible, develop smaller grazing units within large pastures using salting, supplements, water, herding, or fencing to facilitate improved grazing practices.
2. Consider rotating the type of livestock (age, species), if possible.
3. If needed, to avoid overuse of riparian areas, water sources, and other known livestock concentration areas, use management actions such as the placement of salt/supplements, herding, and/or fencing to achieve improved livestock grazing distribution.
4. If needed, manage grazing in riparian areas to maintain or move towards the desired riparian vegetation condition.
5. If needed, modify the livestock use in pastures or allotments when abnormal environmental events occur (e.g., drought, heavy snow fall, flooding) and stress vegetation.
6. If the need arises and as determined by, and with prior approval from the managing agency, periodically use livestock grazing as a vegetation treatment to improve the openness of lek sites. *Note:* temporary fencing, herding, or increased stocking rate may be used, but grazing needs to be limited to specific lek site, so as to not overgraze surrounding area. Consistent with #6, strategic grazing of lek sites should occur outside of the grouse breeding season.
7. Avoid placing salt, minerals or supplements within ½ mile of leks.
8. Avoid livestock concentrations in lek areas during the breeding season, approximately March 15 – May 15. Depending on seasonal conditions, this date may fluctuate.
9. For areas failing to meet RCP habitat guidelines, develop a range vegetation improvement plan in consultation with the affected permittee, which could include but is not limited to:

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If monitoring data indicate forb density and height do not meet the RCP habitat guidelines or is declining:

- a. Periodically defer spring grazing.
- b. Plant native forb seed in rangelands that have enough moisture and the soil characteristics to establish and support forbs.

If sagebrush stands don't meet the RCP habitat guidelines::

- a. Use grazing treatments that will rejuvenate new sagebrush growth, improve sagebrush quality and age diversity, and improve the understory.

If an allotment or area is not meeting sage-grouse habitat guidelines due in part/all to weeds:

- a. Strategically graze to control noxious and invasive weeds.
- 10.** Restrict grazing in vegetation treatment areas for 2 full growing seasons after treatment, unless grazing is needed for seedbed preparation or desired understory and overstory are established.

APPENDIX E. Monitoring Protocol

A. Short-Term: Modified Stubble Height Method

Excerpts consistent with the Colorado Rangeland Monitoring Guide (2011) for stubble height measurements; incorporates elements from the Interagency Technical Reference for Utilization Studies and Residual Measurements (1996) and the Gunnison sage-grouse Rangewide Conservation Plan (2005).

Grass and forb (plants other than grasses & shrubs) plant cover is important to Gunnison sage-grouse for hiding cover for chicks, food, nesting, and insects. Retaining an adequate amount of standing herbaceous cover (stubble) in sagebrush plant communities, swales, wet meadows, and riparian areas is critical for maintaining sage-grouse habitat and long-term forage for livestock production.

This adapted Stubble Height method is simple to use and will help provide consistency in short-term monitoring of livestock and big game use in occupied sage-grouse habitat across all land ownerships. “Stubble height monitoring typically occurs on predetermined key plant species in key areas. Depending on the objectives and resource concerns, key areas may be along the streamside or in wet or dry meadow sites within the riparian area or in upland areas. In some instances, monitoring is based on species groups, such as sod-forming species with similar growth form and response to grazing” (Colorado Rangeland Monitoring Guide 2011).

For pastures that are grazed by livestock or big game before or during grouse nesting and/or early brood-rearing, monitoring should ideally be conducted within the season of use by grouse, approximately late March through mid-August (Phillips, pers. comm.). For pastures that are grazed during late brood-rearing (late summer/fall), short-term monitoring should be conducted following livestock use to determine if adequate residual cover remains to provide nesting and hiding cover the following spring (RCP 2005).

Procedure

- Measurements need to be made in designated key areas, within riparian areas (but possibly on uplands), and on predetermined key plant species. Alternatively, heights may be determined for a group of similar species, such as wet-site, wide-leaved sedges or rushes or dry-site, narrow-leaved grasses or sedges. The key is that this group of species be used by, and react similarly, to grazing effects [by livestock or big game]. *On BLM and Forest Service lands, permittees and other affected interests (CPW, USFWS, WSC students, etc.) are encouraged to assist in the establishment of transects and the measurement of stubble heights (BLM 1996).*
- For riparian areas, sampling should be done on both sides of a stream segment [or wetland] along the Greenline, when feasible. For upland or meadow sites, measurements should be taken along a predetermined transect or course.

- Once the riparian segment or transect site has been selected, take a photograph looking down the stream segment or transect. Include a relocatable, prominent feature in the photo background, such as a rocky point or distinctive horizon. Determine the distance between observation points (this is the sample interval). This will vary depending on the size and shape of the site selected. Record the sample interval in the Sample Interval blank at the top of the form.
- Determine how many paces (2 steps per pace is typical) will give the selected sample interval, and begin pacing along the Greenline or the predetermined transect course. Stop at each sample interval and do the following:
 - Locate the individual plant nearest the toe of your boot for the identified key species. The nearest plant may not be immediately at your toe.
 - *Instead of recording the average stubble height (average leaf length) of the nearest key species (CRMI 2011), record the droop height using Gunnison sage-grouse Rangewide Conservation Plan (GSRSC 2007) guidelines attached below. This alteration in the CRMI method follows RCP guidelines and more closely measures hiding cover for sage-grouse. Measure height (leaf or flower) at the tallest vertical point (droop height – do not straighten up the plant) where the bulk of a plant's mass occurs. If the flower of the plant does not provide visual obstruction, measure where the bulk of the mass occurs in the leafy portion of the plant at the tallest leaf height (see Figure 1 below). If the flower provides a bulk of the mass, then the tallest portion of the flower is measured (Figure 2 below) (GSRSC 2007).*
 - Where it is difficult to tell where one plant starts and another stops, visualize a three-inch circle and sample the key species within that circle. Estimate and record the average [droop] height within the three-inch circle.
 - If you are sampling for more than one key species, or grouping of similar species, record [droop] height for each key species. There will be a minimum of 30 [droop] height measurements for each species. Additional readings can be taken if variability on the site warrants. *This procedure does not provide guidelines for every species of plant. The individual conducting the sampling will have to make a judgment call for each measurement and each species along the transect. Consistency in following this protocol is key, as well as collecting an adequate number of measurements (BLM 1996).*
 - *The same protocol should be followed for forbs (Figure 3 below – the bulk of the mass of the plant occurs in the leafy portion where the tallest leaf height is measured). In Figure 4 below, the flower provides the bulk of the mass where the tallest portion of the flower is measured (GSRSC 2007).*
 - After a minimum of 30 samples have been recorded, total the measurements for each column, and divide by the number of plant samples for each species to calculate the average [droop] height.

From the *Minimum Structural Vegetation Collection Guidelines for the Gunnison sage-grouse*, Rangewide Steering Committee (March 2007)

Examples of where grass and forb heights should be taken.

Figure 1.



Figure 2.



Figure 3 [forb].



Figure 4 [forb].



B. Long-Term: Structural Vegetation Collection Guidelines

MINIMUM STRUCTURAL VEGETATION COLLECTION GUIDELINES FOR THE GUNNISON SAGE-GROUSE Rangewide Steering Committee March 2007

The following protocol was designed to assess suitability of vegetation conditions for the Gunnison sage-grouse as outlined in the Gunnison sage-grouse Rangewide Conservation Plan (RCP) (Appendix H [Gunnison sage-grouse Structural Habitat Guidelines]).

- This protocol is intended to provide a consistent method for measuring the minimum vegetation characteristics to evaluate site-specific suitability for Gunnison sage-grouse as described in the RCP Structural Habitat Guidelines (Appendix H). If additional vegetation data is needed, consult the BLM Technical Reference 1734-4 or other agency technical manuals.
- This protocol can be used to evaluate current suitability of site-specific conditions, monitor changes in the suitability of site-conditions over time (other techniques will be needed for specific monitoring projects) and evaluate impacts of habitat and restoration treatments on Gunnison sage-grouse site-suitability.
- Vegetation data must be collected during the season of use by Gunnison sage-grouse. For breeding habitat, measurements should start around the middle to the end of May or after the first nests begin to hatch and continue through June to encompass both nesting and early-brood-rearing habitat. Summer habitat measurements should start around mid-June (after the chicks are about 4 weeks old) and continue through mid-August to encompass late-brood-rearing habitat. Winter structural habitat variables (sagebrush canopy cover and sagebrush height) may be collected at any time of the year as these variables do not change substantially on a seasonal basis.
- To ensure repeatability in data collection, all methodology should be established before beginning field work and documented for future reference. To maintain consistency in data collection, use of this protocol is recommended. If an alternate methodology is used to evaluate site suitability with regards to the RCP Structural Habitat Guidelines (Appendix H), techniques must be reported.

General Guidance

- To measure sagebrush and other shrub canopy cover, the line intercept method developed by Canfield (1941) should be used. For other canopy cover estimates use Daubenmire (1959) plots.
- Take a minimum of 1 photo per vegetation transect preferably at the starting point of the transect line. Attempt to take the photo at a height and angle that will provide a good representation of the general condition of the site.
- Frequency, density, and composition are additional types of information that could be collected but are not required by this protocol to assess Gunnison sage-grouse with regards to the RCP Structural Habitat Guidelines (Appendix H). If this type of data is needed consult the Technical Reference 1734-4 (<http://www.blm.gov/nstc/library/pdf/samplveg.pdf>).

Specific Measurements

Transect Lines

- Line transects should be 30 m in length.
- Placement of transects should be done using any statistically valid design.
- Collect a UTM coordinate with a GPS unit at the start pointing of the transect line and record on the field form so that transects can be located in the future.
- Transects placement could be stratified by community types and soils.

Shrub Canopy Cover

- Measure all shrubs and trees that intersect the line transect. The sagebrush species (if it can be identified) that intersects the line should be documented; all others non-sagebrush shrubs can be lumped into one category.
- Measure the amount of live shrub canopy cover that intersects the transect line. Large spaces in the foliage cover (>5 cm) should be excluded from the canopy cover measurement so that only live shrub cover is recorded.
- Do not measure overlap of canopy of species—i.e., if two sagebrush plants overlap along the transect, the length of the transect covered from a vertical vantage point is the percent canopy cover regardless of how many individual plants makeup that coverage. Canopy cover should never exceed 100%.

. General Guidelines for Application of Daubenmire (1959)

- See Daubenmire (1959) or USDI-BLM (1996) for additional details.
- Five other vegetation variables will be collected along line transects within a Daubenmire frame:
 - o Sagebrush Height
 - o Grass Height
 - o Forb Height
 - o Grass Cover
 - o Forb Cover
- Collect data in 10 Daubenmire frames along each 30 m transect.
- Select a consistent and statistically valid method for placement of the Daubenmire frame along each transect. Record your method on the field form so future transects can be completed in the same way.

Sagebrush Height

- Take one height measurement per sampling point (Daubenmire frame) by selecting the sagebrush closest to the lower left corner of the Daubenmire frame, based on its canopy and not its root. The closest sagebrush could be within the frame, in front of the frame, behind the frame, and on either side of the transect. Choose the sagebrush closest to the lower left corner of the frame regardless of its direction from that corner.
- Note on the data sheet whether the shrub measured is a seedling (no woody base) or a very young plant.
- Exclude seed heads (inflorescences) from height measurement of sagebrush.

- Do not re-measure the same shrub even if it is the closest sagebrush for a subsequent plot. Instead select the next nearest sagebrush within 10 meters of the plot. If there is no other sagebrush within 10 meters, do not take a height measurement for that plot.

Understory Cover

To the extent possible, plants should be identified to the species level, but training and time limitations may prevent this. The important habitat variables to be collected include:

- Grasses: break out perennial versus annual at a minimum. Identify dominant species to the extent possible in comments section of form. Identify cheat grass (e.g. *Bromus tectorum*) and other non-native species to the extent possible.
- Sedges are included in the grass category.
- Forbs: At a minimum list the number of different forb species per plot, even if you cannot identify the species. Identify species to the extent possible.
- Measure the live and residual foliar cover of grasses and forbs.

Understory Height

Height measurements are conducted to characterize the vertical and horizontal structure of the understory. Gunnison sage-grouse select habitat based on vertical (how tall it is) and horizontal (how thick it is) structure. Both aspects contribute to a diversity of structure and provide a sense of security for birds. These aspects contribute to nest, chick and adult concealment from predation events. That is why these measurements are relatively, but not absolutely consistent.

- Measure 1 grass and 1 forb in each Daubenmire frame. The plants must be rooted in the frame, and if there are no grasses or forbs in the frame, record as not present.
- Measure height of the nearest grass and forb from the bottom left corner of the Daubenmire frame.
- Grass height only includes the current year's growth. There are no criteria or guidelines for previous year's growth (e.g. residual grass height).
- Grass height can include annual or perennial grass. It should be documented on the datasheet if annual grass (cheat grass, e.g. *Bromus tectorum*) is measured. It is preferable to measure perennial grasses.
- Additional grass heights can be measured, but at a minimum grass height should be measured in the following manner:
 - Measure grass height (leaf or inflorescence) at the tallest vertical point (do not straighten up the plant, i.e. droop height) where the bulk of a plant's mass occurs. If the inflorescence of the plant does not provide visual obstruction, measure where the bulk of the mass occurs in the leafy portion of the plant at the tallest leaf height (Fig. 1). If the inflorescence provides a bulk of the mass, then the tallest portion of the inflorescence is measured (see Fig. 2 above).
 - This protocol does not provide guidelines for every species of grass. The individual conducting the sampling will have to make a judgment for each plot and each species along a plot. Consistency by following this protocol is key, as well as collecting an adequate number of measurements.
- The same protocol should be followed for forbs (see Fig. 3, above - the bulk of the mass of the plant occurs in the leafy portion and the tallest leaf height is measured; see Fig. 4, above - the inflorescence provides the bulk of the mass the tallest portion of the inflorescence is measured)

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All cover estimates should be placed in the categories noted in Table 1. The standard Daubenmire method uses six cover classes, but the specific ranges lump too much in the 5-25% class for Gunnison sage-grouse vegetation variables. Therefore, this category was split into 2 cover classes below.

Table 3. Cover classes for Gunnison sage-grouse habitat variable estimation.

Cover Class	Range of Coverage	Midpoint of Range
1	0-5%	2.5
2	5-15%	10
3	15-25%	20
4	25-50%	38
5	50-75%	63
6	75-100%	88

APPENDIX F. Habitat Prioritization Tool

The below listed information was incorporated into a spatial model to evaluate habitat within the Gunnison Basin for Gunnison sage-grouse. The spatial model in itself can only be used on a broad scale for planning and rough habitat assessment. Projects and development will still need to be evaluated with an onsite assessment on a project-by-project basis. This model has been developed through collaborative efforts of Gunnison County, US Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM), US Forest Service (USFS), Colorado Parks and Wildlife (CPW), National Park Service (NPS), Natural Resources Conservation Service (NRCS), and interested stakeholders. This Tool/Model incorporates the most recent information as provided by agency input from those working on the ground through numerous meetings and hours of discussion about data layers that provide the best representation of current on the ground conditions in the Gunnison Basin.

High priority habitat consists of all habitat layers and all uncontrollable threat layers. Controllable and other impacts can be changed or adjusted to decrease the impact on grouse habitat.

A. Habitat

1. **Lek 0.6 mile buffer and average high male count for active leks:** The official lek status and high male count are defined and reported from lekking data collected and published by CPW in their annual Gunnison Basin Lek Count Summary and Population Estimate. The Official Status of a lek is given as a cumulative status and designated as Active, Historic, Inactive, or Unknown. To be Officially Active, a lek only needs to be designated as Active in the current year. A lek is not considered Officially Inactive unless it has been seasonally Inactive for five consecutive years. Thus, a lek might not have any birds for a given season, but its official status may be Unknown because the lek had not been Inactive all of the past five years. Historical lek status is not given until a lek has been Inactive for 10 consecutive years. (Jackson and Seward, 2011)
- **Geospatial Data:** This layer is the CPW lek polygon layer and includes a 0.6 mile buffer from the outside edge of the lek polygon with spatial boundaries from the 2011 update as well as the Official Status from 2011. Buffering the lek polygons by 0.6 miles matches up with the disturbance guidelines in the Rangewide Conservation Plan. This 0.6 mile buffer serves as a measure of protection to insure that the entire lek polygon is captured within the buffer polygon and that potential direct or indirect impacts directly adjacent to a lek that could influence lekking behavior are evaluated.
- **Evaluation class breaks (weight) justification:** Leks are considered the most important habitat for the grouse. Habitat alteration on or near a lek has the potential to have the greatest impact to the population. There is a need to conserve all leks, regardless of the number of birds displaying on the lek. (Aldridge, 2011b; Phillips, 2011)
 - o Officially Active (15) Active leks are those of greatest value to the grouse population. Birds are displaying regularly on an annual basis.

- Officially Unknown (10) *These leks could have and Official Status of unknown for many reasons, including missing count data. Leks can fall into this category in a one year time frame.*
- Officially Inactive (8) *These leks should not be completely discounted. There is potential for the grouse to comeback and begin using these areas on a regular basis if numbers increase or surrounding habitat improves. It takes 5 years for a lek to move into this category.*
- Officially Historic (1) *The majority of these leks are close to high build-out densities and will probably never be able to recover to active status regularly.*

- **Data for support:**

- 2011 Gunnison Basin Gunnison sage-grouse Lek Count Summary and Population Estimate Final Report (Jackson and Seward 2011).
- 2011. Seward, Nate. Lek Status Definitions.
- 2011b. Aldridge, Cam. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.
- 2011. Phillips, Mike. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.

- **Area for improvement:**

- The Local Annual Report definitions do not align with the RCP or current statewide definitions for Official Status as defined by Colorado Parks and Wildlife. Local CPW staff has maintained consistency in local definitions and is working to align them with the RCP and Statewide definitions.

- **Updated:** This layer will be updated on a yearly basis.

2. Brood-rearing habitat: Brood rearing habitat is defined in the RCP. It includes mesic areas (swales, meadows, sagebrush near irrigation ditches and irrigated meadows) with lush vegetation. This layer is intended to capture priority habitat as defined in the RCP.

- **Geospatial Data:** Four spatial layers were combined to create this layer—NRCS mapped alluvial soils minus irrigated meadows, CPW streams, and wet meadow/sagebrush interface areas. A 50m buffer was placed around the streams and the wet meadow/sagebrush interface layer (RCP 2005). Areas were not double-counted where overlap occurred and areas where mesic sites were greater than 50m from the sagebrush.

- **Evaluation class breaks (weight) justification:**

- Present (13)

- **Data for support:**

- RCP

- **Area for improvement:**

- Updated NRCS soils mapping and range site mapping for alluvial and riparian sites.
(Not possible in current timeframe, but progress has begun on this endeavor.)
 - Removal of any brood rearing habitat from forested areas.
 - There is a need to add other features including springs and seeps that are not captured in the current data layers.
- **Updated:** This layer will be updated if new and better data becomes available.
- 3. Nesting/summer/late fall habitat:** These habitats are defined in the RCP. It includes sagebrush dominated areas. This layer is trying to capture priority habitat as defined in the RCP.
- **Geospatial Data:** This data layer was compiled from NRCS soils data and includes all sagebrush dominated range sites (mountain loam, subalpine loam, mountain outwash, and deep clay loam). Soils included from the Gunnison Soil Survey (CO662) are: CeC, CoE, CuE, DeB, DoE, GeB, GeE, JeE, KvE, LeE, MoE, MrE, PwE, RcE, SuE, YgE, YIE, YpE, EvD and the NE (331 to 149 degrees) aspects of CrE, DrE, DsE, KcE, LhF, PhF, PmF, and MrE. Soils included from the Grand Mesa-West Elk Soil Survey (CO660) are: 107, 138, 139, 142, 165, 172, 191 and the NE aspects of 153. Soils included from the Cochetopa Area Soil Survey (CO663) are: 103, 104, 108, 111, 119, 121, 122, 131, 132, 133, 134, 141, 142 and the NE aspects of 110.
 - **Evaluation class breaks (weight) justification:** As we looked at the map we decided to differentiate nesting habitats. We thought it would provide important additional information to give nesting habitat closer to the brood rearing habitat a higher score. sage-grouse hens have to be able to move their broods from the nests to brood rearing habitat by walking. All nesting habitat is of value, but nesting habitat closer to brood rearing habitat has potential to be of higher benefit. Disjunction of brood rearing habitat from nesting habitat results in habitat fragmentation and possibly the loss of usability. It is recognized that In order to capture most of the nesting locations, one would have to have to account for all nesting habitat within 4 miles of a lek (Connelly et al 2000, Aldridge 2011b) - which is all nesting habitat in the basin.
 - Present <1500 ft. from brood rearing habitat (15)
 - Present >1500 ft. from brood rearing habitat (10)
 - **Data for support:**
 - RCP
 - NRCS Soil Survey
 - 2011b. Aldridge, Cam. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.
 - Connelly et. al 2000
 - **Area for improvement:**

- Updated NRCS soils mapping and range site mapping. (*Not possible in current timeframe, but progress has begun on this endeavor.*)
 - **Updated:** This layer will be updated if new and better data becomes available.
- 4. Winter habitat:** This habitat is defined in the RCP. It includes sagebrush dominated areas with both thermal cover and exposed sagebrush for winter use. This layer is intended to capture priority habitat as defined in the RCP.
- **Geospatial Data:** Winter habitat was modeled using the dry mountain loam soils from NRCS Soil Survey mapping layers. Dry mountain loam sites are mapped on SE to NW (150-330 degrees) facing slopes. A 10m DEM was used in the slope analysis and boundaries were then smoothed to reduce the pixilation. Soils included from the Gunnison Soil Survey (CO662) are: CrE, DrE, DsE, KcE, LhF, PhF, PmF, and MrE. Soils included from the Grand Mesa-West Elk Soil Survey (CO660) are: 153. Soils included from the Cochetopa Area Soil Survey (CO663) are: 110, and 130.
 - **Evaluation class breaks (weight) justification:** Winter habitat was considered to be of lesser importance than the other habitat types for the grouse. In general, winter mortality of the Gunnison sage-grouse is low (Phillips, 2011)
 - Present (10)
 - **Data for support:**
 - RCP
 - NRCS Soil Survey/ Web Soil Survey
 - 2011. Phillips, Mike. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.
 - **Area for improvement:**
 - Updated NRCS soils mapping and range site mapping. (*Not possible in current timeframe, but progress has begun on this endeavor.*)
 - **Updated:** This layer will be updated if new and better data becomes available.

- 5. Habitat status:** The habitat status has been defined from the RCP and incorporates many researchers' and managers' expert knowledge of the current and historic distribution of the grouse. The occupied habitat layer will serve as this tool's boundary for grouse habitat evaluation. Potential and vacant/unknown habitats are not included in scoring because of lack of habitat and geospatial data. Vacant/Unknown habitat is apparent high quality habitat without birds. Potential habitat would require a significant amount of time, energy and resources to create to a habitat of sufficient quality that could be colonized by grouse, due to the large amount of forested acres. There are areas within the CPW mapped occupied habitat

layer that are unusable to grouse and have been removed. These areas include within the landfill boundary, the UMTRA site, open water areas, and some gravel pits.

- **Geospatial Data:** The original occupied habitat with polygons delineated by the CPW/USFWS is defined in the RCP. The current occupied habitat boundary is an updated version from May 2011 by CPW staff based on field observations. The 2011 spatial layer was incorporated into the tool.

- **Evaluation class breaks (weight) justification:**

- o Occupied (0) *Occupied habitat was not actually scored. It was used as the outer boundary for the prioritization tool.*

- **Data for support:**

- o RCP (page 32-40)
 - o Schroeder et al. 2004
 - o CPW - Species Activity Mapping Data

- **Area for improvement:**

- o Potential and vacant/unknown habitats are not included in scoring because of lack of habitat and geospatial data.

- **Updated:** When revisions to the occupied habitat boundary occur, alterations and updates to this tool will be needed.

6. Land near active leks: Land near active leks is considered a higher priority for preservation. Leks are often in close proximity to quality nesting habitat. (Connelly et al. 2000; Aldridge et al. 2011) The Local Gunnison Sage Grouse Conservation Plan notes that these areas are priority areas used by nesting hens (1997).

- **Geospatial Data:** A two mile buffer was placed around the outer edge of the lek polygon layer. Both the area within the 2 mile buffer and the lek itself were included in this layer. The two mile buffer is from the Gunnison Sage Grouse Conservation Plan (1997).

- **Evaluation class breaks (weight) justification:**

- o Areas within active leks and <2 miles from the edge of the active leks (5)

- **Data for support:**

- o Connelly, J.W., M.A. Schroeder, A.R. Sands and C.E. Braun. 2000. Guidelines to manage sage-grouse populations and their habitat. Wildlife Society Bulletin 28:967-985.
 - o Aldridge et al. 2011
 - o Gunnison Sage Grouse Conservation Plan; Gunnison Basin- Colorado. 1997. Local species management plan.

- **Area for improvement:**

- **Updated:** This layer will be updated if new and better data becomes available.

 - 7. **Irrigated lands:** Irrigated areas greater than 50m from the sagebrush interface and outside CPW lek polygons are not considered as suitable grouse habitat.
 - **Geospatial Data:** This layer was created by the Division of Water Resources using Landsat TM imagery. It is a spatial layer of irrigated meadows.
 - **Evaluation class break (weight) justification:**
 - o Present (-8)
 - **Data for support:**
 - o RCP
 - o Federal Register
 - o 2011. Phillips, Mike. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.
 - **Area for improvement:**
 - **Updated:** This layer will be updated if new and better data becomes available.
-
8. **Non-Habitat:**
 - Areas of no habitat such as open water and gravel pits are overlaid on top of the scoring polygons to show that these areas are not habitat. More areas, such as building footprints, could be added to this layer in the future when available.
-
- ## B. Uncontrollable Threats
- 1. **High density subdivisions:** A highly divided subdivision has a greater impact on grouse habitat than an individual home.
 - **Geospatial Data:** Gunnison and Saguache County's parcel layers, as well as their 9-1-1 house point layers, have been combined to determine development potential/impact. Development was defined as home, barn, or any improvement valued at more than \$30,000 on a parcel. At each house point, there was a 300 foot radius buffer added to the known structure. House points that were within 1000ft of another two house points location were then buffered by 1000ft due to the increased impact on the grouse. (Cochran, 2011) The 300ft buffered housing points buffer was clipped and removed from the 1000 ft. buffer so that points did not receive a negative score for both the buffers.
 - **Evaluation class break (weight) justification:**
 - o Areas within 300ft of a house point (-5) *Areas adjacent to houses are not suited for grouse habitation.*

- Areas where a housing point is within 1000ft of another 2 house points (-20) *Areas where more house points are located closer together (subdivisions) will have an even greater negative impact on the grouse habitat.*
- <70 acre parcels with development (-7) *Smaller developed parcels have a greater impact on both degradation and fragmentation of surrounding habitats than larger developed parcels, in most circumstances. They are given a negative score as a result of these negative impacts.*

- **Data for support:**

- Cochran, Jim. 2011. Personal communication.
- Phillips, Mike. 2011. Personal communication.

- **Area for improvement:**

- **Updated:** This layer will be updated on a yearly basis to track changes in development and subdivision.

2. Roads/Trails: All roads and improved trails were evaluated for their impact to the habitat from fragmentation and predator corridors. *Use and recreation impacts from disturbance are considered under the recreation layer, not in this layer. This is a habitat impact evaluation of the roads themselves.* Improved roads are considered all roads bigger than all season, 2-wheel drive roads. Improved roads are defined as passenger car roads, highways, and improved county roads. Double track roads are considered unimproved roads and include: admin routes, jeep trails, primitive roads, high clearance roads, private roads, and ATV routes. Single track routes are considered trails (mechanized and motorized are included). Closed routes are routes that are permanently closed (not seasonally) that have not been reclaimed.

- **Geospatial Data:** Road data from the county, CPW, BLM and USFS were used to create this layer.

- **Evaluation class break (weight) justification:**

- <150ft from the centerline of an improved road (-4) *These roads are defined as passenger car roads, highways, and county roads.*
- <50ft from centerline of a double track(-3) *These roads are defined as roads with vegetation growing between the tracks and include admin routes, jeep trails, primitive roads, private roads (driveways), unmaintained roads, and ATV routes.*
- <25ft from that center line of a single track (-2) *These are defined as smaller disturbances that include trails, including both mechanized and motorized uses.*
- <25ft from that center line of a closed route (-1) *These are defined as routes that are permanently closed (not seasonally) that have not been reclaimed.*
- <1000ft from a recreational use point (0) *This includes known access points, shooting areas, and more.*
- <100ft from trails in Curecanti National Recreation Area (0)
- Curecanti National Recreation Area recreation polygons (0)

- **Data for support:**
 - o Aldridge et al. 2010- Aldridge does not agree with the 150ft buffer. He feels that improved roads can impact nesting habitat up to 8km away. Double track roads can have an impact to over 6 km away. He feels that there is not a non-linear response as you move away from the road and that a regression model needs to be used to depict this.
 - o Gunnison Basin USFS and BLM Federal Travel Management Plan
 - **Area for improvement:**
 - **Updated:** This layer will be updated on a yearly basis, if possible.
3. **Power lines:** Power lines pose a potential risk for habitat degradation due to predation and fragmentation. There is a significant distinction between WAPA lines and the GCEA lines. WAPA lines do have large structures, high lines, and improved roads associated with them. GCEA lines are smaller primary and secondary lines that usually do not have roads associated with them.
- **Geospatial Data:** There is a data layer available with large, above ground, WAPA transmission lines mapped.
 - **Evaluation class break (weight) justification:**
 - o <450 feet from a WAPA above ground power line (-3)
 - **Data for support:**
 - o 2011. Phillips, Mike. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse. Mike feels that an impact from power lines is for direct mortality (2 birds within the scope of his study).
 - o 2011b. Aldridge, Cam. Public meeting information, December 1, 2011. Meeting to validate the priority tool model called by the Technical Subcommittee for the Gunnison Basin Strategic Committee for the Gunnison sage-grouse.
 - **Area for improvement:**
 - o Small power lines are not available and may need to be incorporated. GCEA will not make this information publicly available through this mapping tool for safety/protection reasons.
 - o Exponential decay out to about 2.5 km is more probably the direct influence of the power lines. This would reflect the impact of predation on the grouse from perching predators. (Aldridge 2011b.)
 - **Updated:** This layer will be updated when needed.

C. Controllable Threats – (No Weights Applied)

Attempts to combine controllable threats with the habitat map (which includes uncontrollable threats) were not successful. In order to allow future work on this issue, controllable threats were included in the scoring query but were assigned a zero (0) weight. Currently, it appears that the best way to approach the scoring issues associated with controllable threats is to overlay a “controllable threat layer” of interest over the habitat map for visual analysis.

1. **Development potential:** Areas that are currently developed pose risks to habitat degradation and fragmentation for the sage-grouse. The hope would be to update this layer on a yearly basis.
 - **Geospatial Data:** Gunnison and Saguache County's' parcel layers were used to assess parcel size and development status. Seventy acres was chosen as a break point for this analysis because of the state law that allows for minimal restriction for subdivision of parcels as long as the final parcels are greater than 35 acres. Development was defined as home, barn, anything >\$30,000 worth of improvements on a parcel.
 - **Evaluation class break (weight) justification:**
 - o *>70 acre parcels (0) Parcels greater than 70 acres, even undeveloped, can represent a large risk for subdivision and development. Colorado State law allows the subdivision of private property into parcels equal to or greater than 35 acres with minimal restriction or regulation by local government. This poses a significant risk to habitat degradation and fragmentation and therefore receives a high score for needed habitat protection.*
 - o *<70 acre parcels without development (0) Undeveloped parcels of this size have to go through a county review process to be further subdivided, in which a species conservation planner is consulted for risk to sage-grouse and mitigation opportunities to decrease the developmental impact. The risk for habitat degradation is decreased with this consultation and although there is a potential for fragmentation there is a lower, but still positive, score given for needed habitat protection. This also means that this property has a conservation potential.*
 - **Data for support:**
 - **Area for improvement:**
 - o There is a need for more support data for acreages and impact area sizes used in the model. Is there good development impact data available that could inform this process?
 - o There is a need for future analysis to be able to relate development densities to the RCP. It would be beneficial to complete this exercise using the acres from Appendix F in the RCP.
 - **Updated:** This layer will be updated on a yearly basis to track changes in development and subdivision.

2. **Invasive Species:** Invasive species alter and degrade sage-grouse habitat. Different plant species have different potentials to impact the habitat.
 - **Geospatial Data:** Data from the BLM, USFS, NPS and Gunnison County are utilized in this layer.
 - **Evaluation class break (weight) justification:**
 - o Cheatgrass (0)
 - o Other weed species (0)
 - **Data for support:**
 - o Cheatgrass research
 - **Area for improvement:**
 - o There are no comprehensive records for private land.
 - o The data collected is sometimes incomplete and species at each point/line/polygon is not documented.
 - **Updated:** This layer will be updated on a yearly basis to track changes in infestations. This layer should be a cumulative layer where previous year's data is incorporated with each year's new data.
3. **Recreation:** All recreational uses of the landscape have potential to impact the sage-grouse through habitat fragmentation, habitat degradation, and direct threat to individuals' survival.
 - **Geospatial Data:** Large recreational area polygons have been drawn across the basin and have been rated with a seasonality and level of use. The BLM and recreational stakeholders have worked together to create this very broad layer which reflects the diffuse use that may occur in these areas. Impacts are not directly tied to specific routes, trails and points of interest.
 - **Evaluation class break (weight) justification:**
 - o Spring Use
 - Low (0)
 - Medium/Low (0)
 - Medium (0)
 - Medium/High (0)
 - High (0)
 - o Summer Use
 - Low (0)
 - Medium/Low (0)
 - Medium (0)
 - Medium/High (0)
 - High (0)
 - o Fall Use

- Low (0)
- Medium/Low (0)
- Medium (0)
- Medium/High (0)
- High (0)
- Winter Use
 - Low (0)
 - Medium/Low (0)
 - Medium (0)
 - Medium/High (0)
 - High (0)

- **Data for support:**
- **Area for improvement:**
 - This layer should be further refined.
 - Spatial data layers will need to be collected for all recreational trails, fishing areas, parking areas, camp grounds, and boat launch areas from the BLM, USFS, CDOW, NPS, Gunnison County, and Saguache County. These are available, but not currently incorporated into the Tool.
- **Updated:** This layer will be updated on a yearly basis to track changes in development and subdivision.
- 4. **Landfill:** The Gunnison County landfill serves as a feeding/harboring location for sage-grouse predators. The landfill's influence on the surrounding area is considered controllable because active measures can be taken to reduce the sage-grouse predator populations.
- **Geospatial Data:** This is a simple spatial layer that delineates a polygon around the landfill area as seen through ortho-imagery.
- **Evaluation class break (weight) justification:**
 - Areas within ½ mile of the landfill (0)
 - Area >½ mile and <1 mile of the landfill (0)
- **Data for support:**

- **Area for improvement:**
 - o Data to supporting the evaluation classes and impact from predators will need to be documented.
- **Updated:** This layer will be updated as needed or when better information becomes available.

D. Other Impacts - (No Weights Applied)

- 1. **Landownership - Protections:** Areas that are currently developed pose risks to habitat degradation and fragmentation for the sage-grouse. Areas with easements specifically for sage-grouse habitat protection or with non-development agreements are considered beneficial to the grouse.
- **Geospatial Data:** Gunnison County has a database and a spatial layer with all qualified conservation easements. The CPW has also provided a layer of participating CCAA parcels (signed Certificate of Inclusion) which has been included in this layer. Public land boundaries are also available and can be incorporated.
- **Evaluation class break (weight) justification:**
 - o Conservation Easements (0) - *These are voluntary agreements that protect the land in perpetuity. All of these easements have grouse mentioned in the documentation, whether management actually occurs to benefit the grouse is a different issue.*
 - o CCAA (0) - *These are voluntary agreements that all have an endpoint of 2026 which can be renewed. These agreements can be terminated with 30-60 days' notice.*
 - o Public lands (0) - *These are mostly undevelopable.*
- **Area for improvement:**
 - o This layer has not been totally fleshed out at this point. Instead of being incorporated into the tool, it could be used as a layer for evaluation when looking at proximity to priority habitat.
- **Updated:** This layer will be updated on a yearly basis.

APPENDIX D: GUSG RANGEWIDE CONSERVATION PLAN STRUCTURAL HABITAT GUIDELINES

Gunnison Sage-grouse Rangewide Conservation Plan

APPENDIX H

GUSG STRUCTURAL HABITAT GUIDELINES

GUSG Structural Habitat Guidelines

Background and Data Sources

Guidelines for the maintenance of sage-grouse habitats were first provided by Braun et al (1977). Subsequent research improved knowledge about the seasonal habitat use, movements, and migratory patterns of sage-grouse across their range. Connelly et al (2000) built upon those findings and developed more specific habitat guidelines for the structural characteristics of the overstory and understory of sagebrush communities used by sage-grouse. Although Connelly et al (2000) improved the 1977 recommendations, they lacked in habitat structural information specific to GUSG.

The GUSG habitat guidelines formulated for the RCP differ slightly from the Connelly et al (2000) guidelines. As Connelly et al (2000:275) mention, "...the judgment of local biologists and quantitative data from population and habitat monitoring are necessary to implement the guidelines correctly." This is the case in current GUSG range.

GUSG inhabit the Colorado Plateau (Fig. 3, pg. 33) where some sagebrush communities are different from those which served as a basis for the guidelines in Connelly et al (2000). Connelly et al (2000) reported grass and big sagebrush cover values from floristic provinces other than the Colorado Plateau, including the Wyoming Basin, Columbia Basin, Northern Great Basin, Snake River Plain, and Silver Sagebrush provinces. The Colorado Plateau is older (geologically) and has less productive soils than some of the aforementioned provinces. The moisture regime is also more characteristic of warm season grasses (summer monsoon moisture patterns) (S. B. Monsen, personal communication) rather than cool season grasses (spring and fall moisture regimes). Therefore, the herbaceous communities on the Colorado Plateau are not directly comparable to the other floristic provinces, especially when comparing herbaceous understories. Thus, the basis for some differences in the 2 sets of guidelines (Connelly et al 2000 and RCP) are a result of local soil parent material and precipitation patterns.

In addition, much of the data used in development of the habitat structural characteristics in Connelly et al (2000) were dominated by GRSG habitat use and movement information. Connelly et al (2000) did use some GUSG habitat use information (Hupp 1987, Young 1994, Commons et al 1999), but other sources of information were not used because they were located in unpublished CDOW correspondence summary reports (Woods and Braun 1995), or were new (Apa 2004). Using this more extensive data for GUSG, we have developed vegetation structure guidelines specific to the sagebrush communities within GUSG range.

In developing these habitat guidelines, we summarized *only GUSG habitat use data*. Although GRSG investigations were reviewed, no GRSG data were used in the development of these habitat guidelines. All of the known structural vegetation data collected in breeding (Young 1994,

Apa 2004), summer - fall (Young 1994, Woods and Braun 1995, Commons 1997, Apa 2004), and winter (Hupp 1987) habitat were summarized. Note that Apa (2004), collected habitat data from 5 different GUSG population areas, while many of the other studies focused on Gunnison Basin.

Studies were not separated based on annual precipitation. Data reported in Apa (2004) were collected during a significant drought and variables such as grass and forb cover and height were likely lower than normal because of the lack of precipitation. Overstory shrub structural variables were less likely to be influenced by short-term drought.

Following the development of the guidelines, 1 additional GUSG vegetation dataset was used to validate the guidelines (NPS, unpublished data). In all vegetation structure categories, the mean or median reported in the NPS reports fell within the guideline ranges established in this plan.

Seasonal Habitat Definitions

Until seasonal GUSG habitats are mapped in a given population area (see “Habitat Monitoring” rangewide strategy, pg. 220, Objective 1, Strategies 7 and 8) the following definitions of seasonal habitats should be used. For additional limiting criteria, such as slope and aspect, consult with local biologists.

Breeding Habitat: sagebrush communities delineated within 4 miles (see “GUSG Disturbance Guidelines”, Appendix I, for discussion) of an active strutting ground. Breeding habitat includes active strutting grounds, and nesting and early brood-rearing habitat (Connelly et al 2000), usually in use from mid-March through late-June.

None of the studies we reviewed for GUSG breeding habitat structural guidelines divided brood-rearing habitat into early- or late-brood-rearing (Young 1994, Apa 2004), so all of the brood habitat information was included in breeding habitat. The data summary to develop the guidelines for breeding habitat was done without respect to nest success, so data from both successful and unsuccessful nests were used. Although data have been presented that suggest herbaceous vegetation might differ between successful and unsuccessful GRSG nests (Connelly et al 2004), no consistent differences have been reported. There is, in fact, more conclusive and consistent evidence that shrub structure characteristics (i.e., horizontal and vertical cover values) differ between successful and unsuccessful nests (Connelly et al 2004).

Summer – Fall Habitat: vegetation communities including sagebrush, agricultural fields, and wet meadows (Connelly et al 2000) that are within 4 miles (see “GUSG Disturbance Guidelines”, Appendix I, for discussion) of an active strutting ground.

For the summer - fall guidelines we used habitat use data from non-brooding females and males (Young 1994, Woods and Braun 1995, Commons 1997, Apa 2004).

Winter Habitat: sagebrush areas (Connelly et al 2000) within currently occupied habitat that are available (i.e., not covered by snow) to sage-grouse in average winters. These areas either have sufficient shrub height to be above average snow depths, or are exposed due to topographic features (e.g., windswept ridges, south-facing slopes). Sites are typically characterized by sagebrush canopy cover > 25% and sagebrush > 12–15 inches in height (Schoenberg 1982) associated with drainages, ridges, or southwest-facing aspects having slopes < 15% (Gill 1965, Wallestad 1975, Beck 1977, Robertson 1999).

Only 1 study (Hupp 1987) reported winter habitat information and these data were collected in the Gunnison Basin.

Habitat Guideline Development

Where possible, study areas in the literature were categorized as arid or mesic. As per Connelly et al (2000), arid and mesic sites can be determined locally using the precipitation and soil characteristics (Tisdale and Hironaka 1981, Hironaka 1983, Winward 2004, Monsen 2005). We classified data from Gunnison Basin, Dry Creek Basin, and Dove Creek (south) as arid. It is well understood that the Gunnison Basin has both mesic and arid sites, but we were not able to discern between the sites. The data from Piñon Mesa, Miramonte (in San Miguel Basin), Cerro Summit - Cimarron, Crawford, north Dove Creek, and Hamilton Mesa (in San Miguel Basin), were considered more mesic sites. Most of the data reported were in the form of means and standard errors. The mean and standard error for each structural variable were summarized by arid or mesic sites across the entire range of the GUSG. The means were bounded by the standard errors to create a variable “distribution range” and a guideline was developed using the distribution range. Numerical maximum and minimum data points were not included. The guideline range is compared with Connelly et al (2000).

Seven overstory and understory vegetation structural characteristics guidelines for GUSG breeding and summer - fall habitats are reported: (1) sagebrush canopy cover; (2) non-sagebrush canopy cover; (3) sagebrush height; (4) grass cover; (5) forb cover; (6) grass height; and (7) forb height. Only 2 overstory vegetation structural characteristic guidelines were developed for winter habitat: (1) sagebrush canopy cover and (2) sagebrush height.

Many species of shrubs were included in the non-sagebrush canopy cover portion of the guidelines. In more arid locations, the non-sagebrush shrubs included, but are not limited to, horsebrush, rabbitbrush, bitterbrush, snakeweed, greasewood, and winterfat. In mesic locations the aforementioned shrub species can occur, but the shrub community may also include Gambel’s oak, snowberry, serviceberry, and chokecherry.

None of the 6 studies we evaluated sampled vegetation structural variables in the same manner. Commons (1997) used a modification of Daubenmire (1959) and Canfield (1941) to estimate understory and overstory coverages, respectively. Understory measurements were estimated to the nearest 5%. In contrast to most of the other studies, Commons (1997) did not use the foliar intercept to estimate shrub canopy cover (%), but instead used the canopy cover estimate. The canopy cover value overestimates foliar intercept (foliar cover), which is the standard used in essentially all other sage-grouse research. No grass or forb heights were reported (Commons 1997). Hupp (1987) estimated sagebrush canopy cover using the foliar intercept. Young (1994) used a modification of Canfield (1941) to estimate shrub, forb, and grass cover, but grass and forb heights were not reported. Woods and Braun (1995) used methods similar to Commons (1997), but it is unknown whether shrub foliar or intercept cover was used to estimate canopy cover. No grass or forb heights were reported. Apa (2004) used Canfield (1941) to estimate foliar cover for non-sagebrush and sagebrush canopy cover, and Daubenmire (1959) to estimate understory coverage. Although sagebrush height was sampled in many different ways, the actual measurement (not including inflorescences) was standard across all studies. The importance of using standard monitoring protocols and techniques within GUSG range is clear, and is addressed for the future in the “Habitat Monitoring” rangewide strategy (see pg. 220).

CHAPTER 6 - APPENDIX D
GUSG RCP Structural Habitat Guidelines

Using the Guidelines

The vegetation structure guidelines we present (Tables 1 – 3) should be interpreted as minimum standards, and managers should strive to meet the full potential of any given site. These habitat guidelines should be considered adaptive, and interim in nature. The guidelines were developed from actual grouse use sites, but should be considered as guidance until further and more specific and quantified data are available from grouse research, or until the development of a rigorous mapping protocol. These guidelines are intended to represent a variety of landscape situations. Landscapes are diverse; some areas on the landscape will not meet these guidelines, some areas will meet the guidelines, and some areas will exceed the guidelines. As new information is collected, these guidelines, as well as the plan are meant to be adaptable.

CHAPTER 6 - APPENDIX D
GUSG RCP Structural Habitat Guidelines

Table 1. GUSG breeding habitat guidelines ^a.

Vegetation Variable	BREEDING HABITAT			
	Gunnison sage-grouse		Connelly et al (2000)	
	Arid ^c	Mesic ^c	Arid	Mesic
Sagebrush Canopy ^d %	15 - 25	10 – 20	15 - 25	15 – 25
Non-sagebrush Canopy ^d %	5 - 15	5 – 15	-	-
Total Shrub Canopy ^d %	20 - 40	15 – 35	-	-
Sagebrush Height cm(inches)	25 – 50 (9.8 – 19.7)	30 – 50 (11.8 – 19.7)	30 – 80 (11.8 – 31.5)	40 – 80 (15.7 – 31.5)
Grass Cover ^d %	10 - 30	20 – 40	-	-
Forb Cover ^e %	5 - 15	20 – 40	≥ 15	≥ 25
Grass Height ^f cm (inches)	10 – 15 (3.9 – 5.9)	10 – 15 (3.9 – 5.9)	> 18 <td>> 18<br (>="" 7.1)<="" td=""/></td>	> 18
Forb Height ^f cm (inches)	5 – 10 (2.0 – 3.9)	5 – 15 (2.0 – 5.9)	-	-

^a Breeding habitat guidelines were developed using data in GUSG studies by Young (1994) and Apa (2004).

^b Breeding habitat is defined as sagebrush communities delineated within 4 miles of a lek (see “GUSG Disturbance Guidelines”, Appendix I, for discussion. Breeding habitat includes lek, nesting and early brood-rearing habitat usually from mid-March through late-June.

^c Arid or mesic communities are as defined by Winward (2004).

^d Canopy cover measured according to Canfield (1941) and further described by Connelly et al (2003).

^e Understory cover measured according to Daubenmire (1959).

^f The tallest vertical point (droop height) where the bulk of a plant’s mass occurs.

Table 2. GUSG summer - fall habitat guidelines^a. No specific habitat guidelines have been included for riparian or wet meadow habitat used by GUSG during this period. BLM and USFS currently have riparian and/or wet meadow management guidance which is consistent with the needs of GUSG.

SUMMER - FALL HABITAT^b				
Gunnison sage-grouse			Connelly et al (2000)	
Vegetation Variable	Arid^c	Mesic^c	Arid	Mesic
Sagebrush Canopy ^d (%)	5 – 15	5 – 20	10 – 25	10 – 25
Non-sagebrush Canopy ^d (%)	5 - 15	5 – 15	-	-
Total Shrub Canopy ^d (%)	10 - 30	10 – 35	-	-
Sagebrush Height cm (inches)	20 – 40 (7.9 - 15.7)	25 – 50 (9.8 - 19.7)	40 – 80 (15.7 – 31.5)	40 – 80 (15.7 – 31.5)
Grass Cover ^e (%)	10 - 25	10 – 35	-	-
Forb Cover ^e (%)	5 - 15	15 – 35	> 15	> 15
Grass Height ^f cm (inches)	10 – 15 (3.9 – 5.9)	10 – 15 (3.9 – 5.9)	variable	variable
Forb Height ^f cm (inches)	3 – 10 (1.2 - 3.9)	5 – 10 (2.0 - 5.9)	variable	variable

^a Summer - fall habitat guidelines were developed using data in GUSG studies by Young (1994), Woods and Braun (1995), Commons (1997), and Apa (2004)

^b Summer – fall habitat is defined as vegetation communities, including sagebrush, agricultural fields, and wet meadows (Connelly et al 2000) that are within 4 miles (see “GUSG Disturbance Guidelines”, Appendix I, for discussion) of an active strutting ground.

^c Arid or mesic communities are as defined by Winward (2004).

^d Canopy cover measured according to Canfield (1941) and further described by Connelly et al (2003).

^e Understory cover measured according to Daubenmire (1959).

^f The tallest vertical point (droop height) where the bulk of a plant’s mass occurs.

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GUSG RCP Structural Habitat Guidelines

Table 3. GUSG winter habitat guidelines ^a.

WINTER HABITAT^b				
Gunnison sage-grouse			Connelly et al (2000)	
Vegetation Variable	Arid^c	Mesic^c	Arid	Mesic
Sagebrush Canopy ^d : %	30 – 40	-	10 – 30	10 – 30
Sagebrush Height ^e : cm (inches)	40 – 55 (15.8 – 21.7)	-	25 – 35 (9.8 – 13.8)	25 – 35 (9.8 – 13.8)

^a Winter habitat guidelines were developed using GUSG data from Hupp (1987).

^b Winter habitat is defined as sagebrush areas (Connelly et al 2000) within currently occupied habitat that are available (i.e., not covered by snow) to sage-grouse in average winters.

^c Arid or mesic communities are as defined by Winward (2004).

^d Canopy cover measured according to Canfield (1941) and further described by Connelly et al (2003).

^e Measured from ground level to the tallest stem (excluding inflorescence) according to Hupp (1987).

APPENDIX E: BLM STANDARDS FOR PUBLIC LAND HEALTH AND
GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT IN COLORADO
AND UTAH

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240
<http://www.blm.gov>

May 21, 2012

In Reply Refer To:
1600, 1700, 4000, 4100, 4400, 6000, 6500, 6600, 7100, 7200, 7300 (200) P

EMS TRANSMISSION 05/25/2012
Instruction Memorandum No. 2012-124
Expires: 09/30/2013

To: All Field Offices (except Eastern States)

From: Assistant Director, Renewable Resources and Planning

Subject: Implementation of Land Health Reporting Data Standard: A New Standardized System for Reporting and Mapping Achievements in Land Health

Program Areas: Resource Management Planning; Renewable Resource Improvement and Treatments; Range Management; Standards and Guidelines for Grazing Administration; Rangeland Inventory Monitoring and Evaluation; Wildlife Management; Fish Wildlife and Special Status Plant Resources Inventory and Monitoring; Soil Resource Management; Water Resources; Air Resources

Purpose: This Instruction Memorandum (IM) transmits the Bureau of Land Management's (BLM's) digital geospatial data standard for reporting and mapping land health data, implementing a new standardized way to map and report achievements and non-achievements of Land Health Standards.

Policy/Action: The Land Health Reporting Data Standard Report and the Domains specific to Land Health Reporting and Mapping are found in Attachments 1 and 2 of this IM. All Field Offices must use this standard when reporting the results of land health evaluations.

- Field Offices are required to examine the existing land health evaluations that have been conducted at the allotment or watershed level, and if possible, retrofit the current land health reporting categories to the new land health reporting categories, by each individual Land Health Standard. Field Offices are required to map the new land health reporting categories for each individual Land Health Standard.
- Effective immediately, all new land health evaluations must be categorized to the new land health reporting categories.

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BLM Public Land Health Standards and Livestock Grazing Management Guidelines

Current land health reporting categories, and the replacement land health reporting and mapping categories can be found in Attachment 3. The implementation guidelines for this policy/action can be found in Attachment 6.

Land health geodatabases have been created for field offices to use to conduct mapping of land health achievements and non-achievements. Eighteen land health geodatabases are available, each of which has been customized to operate for a set of Land Health Standards that exists for each Administrative State or Resource Advisory Council area. Attachment 4 lists the 18 land health geodatabases. The land health geodatabases, and instructions outlining how to operate them can be found in Attachment 5. Each Field Office must maintain its respective land reporting and mapping data. There is no requirement to submit the land health reporting and mapping data to a national dataset.

Timeframe: The Land Health Reporting data standard is effective immediately.

Budget Impact: Workload associated with implementing this new standardized land health reporting and mapping must be accommodated within existing budgets at the Field Office/District Office/State Office level. Budget impact is expected to vary between offices but will generally be low as the mapping step is added to the current land health assessment and evaluation processes. Standardized mapping and data standards will accommodate State and National reports, significantly reducing or eliminating current data calls to the field needed to report land health achievement. Planning processes should be improved as this spatial data becomes available.

Background: The Land Health Reporting Data Standard is intended to provide consistent data in reporting the current status of land health on BLM-administered surface lands and standardizes mapping and reporting land health achievements and non-achievements, providing an improved way of reporting land condition, and trend in that condition over time. Reporting land health achievements and non-achievements will replace seral status of plant communities, which is the BLM's current way of reporting condition and trend-in-condition over time. Seral status of plant communities, by itself, is no longer comprehensive enough to reflect land condition and is no longer supported by science for that purpose. Implementing this data standard will satisfy the BLM's condition reporting mandate in the Public Rangelands Improvement Act of 1978.

This data standard will increase accuracy of land health reporting. Currently, acreages of entire allotments are the basis for reporting land health achievements and non-achievements. Spatial polygons and linear features, in acres and miles respectively, will be reported under this data standard, allowing for more accurate portrayal of land health achievements and non-achievements.

This data standard will create a spatial component to land health reporting. Neither the seral status reporting nor current reporting has a spatial component. The BLM cannot show where—on the ground—the reported conditions are. The ability to map land health achievements and non-achievements will increase the BLM's accountability, improve Congress' and the public understanding of land conditions, as well as improve the BLM's land use planning by providing current resource condition information.

This new reporting process will standardize electronic storage of land health achievement and non-achievement data, allowing the discontinuation of land health data calls to the field. Land health achievement and non-achievement data will be stored in geodatabases that can be queried for reporting, thereby discontinuing the need for data calls.

The new standardized method of reporting and mapping land health achievements and non-achievements has been pilot-tested in 13 Field /District Offices including Kremmling, Colorado; Carlsbad, New Mexico; Safford, Sonoran Desert National Monument, and Arizona Strip, Arizona; Cedar City and Grand Staircase-Escalante National Monument, Utah; Challis, Idaho; Cody, Newcastle, and Lander, Wyoming; and Burns and Prineville, Oregon.

Manual/Handbook Sections Affected: Manual 1283 Data Administration, Manual 1601 Land Use Planning, H-1601-1 Land Use Planning Handbook, Manual 1734 Inventory and Monitoring

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Coordination, Manual 1740 Renewable Resource Improvements and Treatments, H-1740-2 Integrated Vegetation Management Handbook, Manual 4180 Land Health, H-4180-1 Rangeland Health Standards Handbook, Manual 4400 Rangeland Inventory, Monitoring, and Evaluation, and H-4400-1 Rangeland Monitoring and Evaluation Handbook.

Coordination: This IM has been coordinated with WO-200, OC-530, LLAZA00000, LLAZG01000, LLAZP04000, LLCON02000, LLIDI03000, LLNMP02000, LLORB00000, LLORP00000, LLUT030000, LLUTC01000, LLWYP08000, LLWYR02000 and LLWYR05000.

Contact: Questions related to this IM may be directed to Michael "Sherm" Karl, Rangeland Management Specialist, OC-570, at 303-236-0166, or Richard (Dick) Mayberry, Rangeland Management Specialist, WO-220, at 202-912-7229. Questions related to Land Health geodatabase assistance may be directed to Tom Chatfield, BLM Data Architect, OC-530, at 303-236-1936.

Signed by: Authenticated by:
Edwin L. Roberson Robert M. Williams
Assistant Director Division of IRM Governance, WO-560
Renewable Resources and Planning

6 Attachments

- 1 – Land Health Reporting Data Standards Report (52 pp)
- 2 – Land Health Reporting Domains (19 pp)
- 3 – Current Land Health Reporting Categories and New Land Health Reporting and Mapping Categories with Explanation (7 pp)
- 4 – Land Health Geodatabases Available for Use by Field Offices, Listed by the Administrative State or Resource Advisory Council Area in Which a set of Land Health Standard Exists (1 p)
- 5 – Geodatabase Instructions (32 pp)
- 6 – Implementation Guidelines (72 pp)

Colorado Standards for Public Land Health

Standards describe conditions needed to sustain public land health, and relate to all uses of the public lands. Standards are applied on a landscape scale and relate to the potential of the landscape.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.

- Indicators:
 - Expression of rills, soil pedestals is minimal.
 - Evidence of actively-eroding gullies (incised channels) is minimal.
 - Canopy and ground cover are appropriate.
 - There is litter accumulating in place and is not sorted by normal overland water flow.
 - There is appropriate organic matter in soil.
 - There is diversity of plant species with a variety of root depths.
 - Upland swales have vegetation cover or density greater than that of adjacent uplands.
 - There are vigorous, desirable plants.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly.

- Indicators:
 - Vegetation is dominated by an appropriate mix of native or desirable introduced species.
 - Vigorous, desirable plants are present.
 - There is vegetation with diverse age class structure, appropriate vertical structure, and adequate composition, cover, and density.
 - Streambank vegetation is present and is comprised of species and communities that have root systems capable of withstanding high streamflow events.
 - Plant species present indicate maintenance of riparian moisture characteristics.
 - Stream is in balance with the water and sediment being supplied by the watershed (e.g., no headcutting, no excessive erosion or deposition).
 - Vegetation and free water indicate high water tables.
 - Vegetation colonizes point bars with a range of age classes and successional stages.
 - An active floodplain is present.
 - Residual floodplain vegetation is available to capture and retain sediment and dissipate flood energies.
 - Stream channels with size and meander pattern appropriate for the stream's position in the landscape, and parent materials.
 - Woody debris contributes to the character of the stream channel morphology.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

- Indicators:
 - Noxious weeds and undesirable species are minimal in the overall plant community.
 - Native plant and animal communities are spatially distributed across the landscape with a density, composition, and frequency of species suitable to ensure reproductive capability and sustainability.

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- Plants and animals are present in mixed age classes sufficient to sustain recruitment and mortality fluctuations.
- Landscapes exhibit connectivity of habitat or presence of corridors to prevent habitat fragmentation.
- Photosynthetic activity is evident throughout the growing season.
- Diversity and density of plant and animal species are in balance with habitat/landscape potential and exhibit resilience to human activities.
- Appropriate plant litter accumulates and is evenly distributed across the landscape.
- Landscapes composed of several plant communities that may be in a variety of successional stages and patterns.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

- Indicators:
 - All the indicators associated with the plant and animal communities standard apply.
 - There are stable and increasing populations of endemic and protected species in suitable habitat.
 - Suitable habitat is available for recovery of endemic and protected species.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303(c) of the Clean Water Act.

- Indicators:
 - Appropriate populations of macroinvertebrates, vertebrates, and algae are present.
 - Surface and ground waters only contain substances (e.g. sediment, scum, floating debris, odor, heavy metal precipitates on channel substrate) attributable to humans within the amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado (5 CCR 1002-8).

Guidelines for Livestock Grazing Management

Guidelines are the management tools, methods, strategies, and techniques (e.g., best management practices) designed to maintain or achieve healthy public lands as defined by the standards. Currently, the only guidelines for BLM Colorado that have been developed in concert with the Resource Advisory Councils are livestock grazing management guidelines.

1. Grazing management practices promote plant health by providing for one or more of the following:

- periodic rest or deferment from grazing during critical growth periods;
- adequate recovery and regrowth periods;
- opportunity for seed dissemination and seedling establishment.

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2. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency and intensity of grazing use and livestock health.
3. Grazing management practices maintain sufficient residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, to assist in maintaining appropriate soil infiltration and permeability, and to buffer temperature extremes. In riparian areas, vegetation dissipates energy, captures sediment, recharges ground water, and contributes to stream stability.
4. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required, on land treatment efforts, emphasis will be placed on using native plant species. Seeding of non-native plant species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals and noxious weeds on the site, and composition of non-natives in the seed mix.
5. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland sites.
6. Grazing management will occur in a manner that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds.
7. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, and thus minimizing habitat fragmentation.
8. Colorado Best Management Practices and other scientifically developed practices that enhance land and water quality should be used in the development of activity plans prepared for land use.

Utah Standards for Rangeland Health

Standard 1. Upland soils exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate, and landform.

As indicated by:

- a) Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.
- b) The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies.
- c) The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community (DPC), where identified in a land use plan, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological conditions.

Standard 2. Riparian and wetland areas are in properly functioning condition. Stream channel morphology and functions are appropriate to soil type, climate and landform.

As indicated by:

- a) Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events. Vegetative cover adequate to protect stream banks and dissipate streamflow energy associated with high- water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.
- b) Vegetation reflecting: Desired Plant Community, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover and other habitat needs for dependent animal species.
- c) Revegetating point bars; lateral stream movement associated with natural sinuosity; channel width, depth, pool frequency and roughness appropriate to landscape position. d) Active floodplain.

Standard 3. Desired species, including native, threatened, endangered, and special status-species, are maintained at a level appropriate for the site and species involved.

As indicated by:

- a) Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival.
- b) Habitats connected at a level to enhance species survival.
- c) Native species reoccupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of normative species.
- d) Appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community [DPC], where identified in a land use plan conforming to these Standards, or (2) where the DPC is identified a community that equally sustains the desired level of productivity and properly functioning ecological processes.

Standard 4. BLM will apply and comply with water quality standards established by the State of Utah (R.317-2) and the Federal Clean Water and Safe Drinking Water Acts. Activities on BLM Lands will fully support the designated beneficial uses described in the Utah Water Quality standards (R.317-2) for surface and groundwater.¹

As indicated by:

- a) Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other water quality parameters.
- b) Macro-invertebrate communities that indicate water quality meets aquatic objectives.

¹ BLM will continue to coordinate monitoring water quality activities with other Federal, State and technical agencies.

Utah Guidelines for Grazing Management

1. Grazing management practices will be implemented that:
 - a) Maintain sufficient residual vegetation and litter on both upland and riparian sites to protect the soil from wind and water erosion and support ecological functions;
 - b) Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and infiltration, and appropriate soil conditions and kinds and amounts of plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow;
 - c) Meet the physiological requirements of desired plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow;
 - d) Maintain viable and diverse populations of plants and animals appropriate for the site;
 - e) Provide or improve, within the limits of site potentials, habitat for Threatened or Endangered Species; f) Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species;
 - g) Encourage innovation, experimentation and the ultimate development of alternatives to improve rangeland management practices;
 - h) Give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving the Standards.
2. Any spring or seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wild horse and wildlife distribution.
3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.
4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland areas or other permanently located, or other natural water sources. It is recommended that the locations of these supplements be moved every year.
5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands nonintrusive, nonnative plant species are appropriate for use where native species:
 - a) are not available
 - b) are not economically feasible
 - c) can not achieve ecological objectives as well as normative species,
 - d) cannot compete with already established native species.
6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire and intensive grazing, will be utilized prior to the use of chemical or mechanical manipulations.
7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites and opportunities for solitude are among those considerations.
8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements) for the purpose of substituting for inadequate natural forage will not be conducted on BLM lands other than in:
 - a) emergency situations where no other resource exists and animal survival is in jeopardy

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b) situations where the Authorized Officer determines such a practice will assist in meeting a Standard or attaining a management objective.

9. In order to eliminate, minimize, or limit the spread of noxious weeds:

- a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM lands
- b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.

10. To avoid contamination of water sources and inadvertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of a riparian/ wetland area unless the product is registered for such use by the EPA.

11. On rangelands where a standard is not being met, and conditions are moving toward meeting the standard, grazing may be allowed to continue. On lands where a standard is not being met, conditions are not improving toward meeting the standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Officer pursuant to CFR 4180.2(c).

12. Where it can be determined that more than one kind of grazing animal is responsible for failure to achieve a Standard, and adjustments in management are required, those adjustments will be made to each kind of animal, based on interagency cooperation as needed, in proportion to their degree of responsibility.

13. Rangelands that have been burned, reseeded or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows:

- a) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for minimum of one complete growing season following the burn;
- b) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons.

14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a Standard, or they are not in conflict with BLM land use plans, the conversion will be allowed.

APPENDIX F: GUSG DRAFT SOCIO-ECONOMIC DATA

COUNTY-LEVEL EMPLOYMENT BY INDUSTRY

The following employment data was generated using IMPLAN Professional Version 3.0 (2012).

Table F.II3 - Delta County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	14,664.39	—
Agriculture, Forestry, Fish & Hunting	1,622.48	11.1%
Mining	1,153.78	7.9%
Utilities	56.84	0.4%
Construction	1,449.12	9.9%
Manufacturing	652.88	4.5%
Wholesale Trade	242.86	1.7%
Retail Trade	1,380.59	9.4%
Transportation & Warehousing	170.56	1.2%
Information	159.87	1.1%
Finance & Insurance	402.66	2.7%
Real Estate & Rental	320.11	2.2%
Professional, Science & Technology	922.80	6.3%
Management of Companies	10.20	0.1%
Administrative & Waste Services	258.07	1.8%
Educational Services	129.32	0.9%
Health & Social Services	1,360.38	9.3%
Arts, Entertainment & Recreation	179.77	1.2%
Accommodation & Food Services	878.31	6.0%
Other Services	831.69	5.7%
Government	2,482.12	16.9%

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Table F.114 - Dolores County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	1,129.95	—
Agriculture, Forestry, Fish & Hunting	235.09	20.8%
Mining	20.37	1.8%
Utilities	0.00	0.0%
Construction	86.43	7.6%
Manufacturing	4.60	0.4%
Wholesale Trade	24.47	2.2%
Retail Trade	125.48	11.1%
Transportation & Warehousing	19.46	1.7%
Information	2.66	0.2%
Finance & Insurance	10.92	1.0%
Real Estate & Rental	6.72	0.6%
Professional, Science & Technology	92.73	8.2%
Management of Companies	0.00	0.0%
Administrative & Waste Services	31.33	2.8%
Educational Services	67.08	5.9%
Health & Social Services	36.80	3.3%
Arts, Entertainment & Recreation	16.24	1.4%
Accommodation & Food Services	44.69	4.0%
Other Services	84.10	7.4%
Government	220.78	19.5%

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Table F.115 - Gunnison County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	10,464.31	—
Agriculture, Forestry, Fish & Hunting	268.57	2.6%
Mining	777.68	7.4%
Utilities	63.95	0.6%
Construction	1,049.12	10.0%
Manufacturing	124.21	1.2%
Wholesale Trade	87.81	0.8%
Retail Trade	958.97	9.2%
Transportation & Warehousing	93.59	0.9%
Information	81.62	0.8%
Finance & Insurance	279.93	2.7%
Real Estate & Rental	400.09	3.8%
Professional, Science & Technology	697.64	6.7%
Management of Companies	37.18	0.4%
Administrative & Waste Services	201.34	1.9%
Educational Services	181.60	1.7%
Health & Social Services	371.02	3.5%
Arts, Entertainment & Recreation	730.42	7.0%
Accommodation & Food Services	1,443.05	13.8%
Other Services	707.00	6.8%
Government	1,909.52	18.2%

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Table F.116 - Hinsdale County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	637.47	—
Agriculture, Forestry, Fish & Hunting	20.32	3.2%
Mining	5.24	0.8%
Utilities	1.02	0.2%
Construction	63.16	9.9%
Manufacturing	0.00	0.0%
Wholesale Trade	67.49	10.6%
Retail Trade	52.66	8.3%
Transportation & Warehousing	0.00	0.0%
Information	4.41	0.7%
Finance & Insurance	21.81	3.4%
Real Estate & Rental	16.53	2.6%
Professional, Science & Technology	38.23	6.0%
Management of Companies	0.00	0.0%
Administrative & Waste Services	29.05	4.6%
Educational Services	81.19	12.7%
Health & Social Services	8.10	1.3%
Arts, Entertainment & Recreation	13.77	2.2%
Accommodation & Food Services	63.65	10.0%
Other Services	45.52	7.1%
Government	105.33	16.5%

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Table F.117 - Mesa County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	83,293.29	—
Agriculture, Forestry, Fish & Hunting	1,693.52	2.0%
Mining	4,275.61	5.1%
Utilities	208.79	0.3%
Construction	5,696.23	6.8%
Manufacturing	2,482.46	3.0%
Wholesale Trade	2,533.73	3.0%
Retail Trade	9,005.65	10.8%
Transportation & Warehousing	3,099.19	3.7%
Information	874.36	1.0%
Finance & Insurance	2,969.13	3.6%
Real Estate & Rental	5,829.02	7.0%
Professional, Science & Technology	4,774.98	5.7%
Management of Companies	733.98	0.9%
Administrative & Waste Services	4,956.07	6.0%
Educational Services	1,669.59	2.0%
Health & Social Services	10,891.44	13.1%
Arts, Entertainment & Recreation	1,408.41	1.7%
Accommodation & Food Services	6,605.76	7.9%
Other Services	4,390.39	5.3%
Government	9,194.98	11.0%

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Table F.118 - Montrose County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	21,842.66	—
Agriculture, Forestry, Fish & Hunting	1,578.16	7.2%
Mining	1,028.21	4.7%
Utilities	234.44	1.1%
Construction	2,152.91	9.9%
Manufacturing	1,324.36	6.1%
Wholesale Trade	503.61	2.3%
Retail Trade	2,468.40	11.3%
Transportation & Warehousing	581.00	2.7%
Information	185.28	0.8%
Finance & Insurance	641.09	2.9%
Real Estate & Rental	905.74	4.1%
Professional, Science & Technology	1,197.51	5.5%
Management of Companies	65.86	0.3%
Administrative & Waste Services	438.53	2.0%
Educational Services	194.80	0.9%
Health & Social Services	2,378.72	10.9%
Arts, Entertainment & Recreation	215.18	1.0%
Accommodation & Food Services	1,245.76	5.7%
Other Services	1,416.22	6.5%
Government	3,086.86	14.1%

Table F.119 - Ouray County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	3,057.73	—
Agriculture, Forestry, Fish & Hunting	110.21	3.6%
Mining	54.31	1.8%
Utilities	13.17	0.4%
Construction	450.87	14.7%
Manufacturing	56.04	1.8%
Wholesale Trade	9.09	0.3%
Retail Trade	426.96	14.0%
Transportation & Warehousing	36.81	1.2%
Information	17.39	0.6%
Finance & Insurance	72.33	2.4%
Real Estate & Rental	215.10	7.0%
Professional, Science & Technology	331.50	10.8%
Management of Companies	4.47	0.1%
Administrative & Waste Services	87.31	2.9%
Educational Services	14.71	0.5%
Health & Social Services	94.19	3.1%
Arts, Entertainment & Recreation	99.18	3.2%
Accommodation & Food Services	426.25	13.9%
Other Services	141.33	4.6%
Government	396.52	13.0%

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Table F.120 - Saguache County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	2,550.36	—
Agriculture, Forestry, Fish & Hunting	867.17	34.0%
Mining	25.09	1.0%
Utilities	0.00	0.0%
Construction	172.90	6.8%
Manufacturing	52.24	2.0%
Wholesale Trade	143.40	5.6%
Retail Trade	137.38	5.4%
Transportation & Warehousing	70.20	2.8%
Information	12.05	0.5%
Finance & Insurance	22.45	0.9%
Real Estate & Rental	17.35	0.7%
Professional, Science & Technology	117.02	4.6%
Management of Companies	7.63	0.3%
Administrative & Waste Services	26.35	1.0%
Educational Services	50.46	2.0%
Health & Social Services	63.66	2.5%
Arts, Entertainment & Recreation	26.82	1.1%
Accommodation & Food Services	53.51	2.1%
Other Services	106.12	4.2%
Government	578.56	22.7%

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Table F.121 - San Miguel County, Colorado Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	7,772.51	—
Agriculture, Forestry, Fish & Hunting	314.81	4.1%
Mining	12.39	0.2%
Utilities	19.77	0.3%
Construction	781.29	10.1%
Manufacturing	114.80	1.5%
Wholesale Trade	43.01	0.6%
Retail Trade	642.58	8.3%
Transportation & Warehousing	120.08	1.5%
Information	85.83	1.1%
Finance & Insurance	132.99	1.7%
Real Estate & Rental	401.69	5.2%
Professional, Science & Technology	609.23	7.8%
Management of Companies	4.96	0.1%
Administrative & Waste Services	187.97	2.4%
Educational Services	161.48	2.1%
Health & Social Services	212.88	2.7%
Arts, Entertainment & Recreation	1,445.44	18.6%
Accommodation & Food Services	1,293.55	16.6%
Other Services	359.57	4.6%
Government	828.20	10.7%

Table F.122 - Grand County, Utah Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	6,868.63	—
Agriculture, Forestry, Fish & Hunting	77.88	1.1%
Mining	190.35	2.8%
Utilities	28.23	0.4%
Construction	494.73	7.2%
Manufacturing	46.46	0.7%
Wholesale Trade	93.09	1.4%
Retail Trade	951.34	13.9%
Transportation & Warehousing	85.79	1.2%
Information	51.07	0.7%
Finance & Insurance	168.81	2.5%
Real Estate & Rental	296.02	4.3%
Professional, Science & Technology	419.98	6.1%
Management of Companies	138.42	2.0%
Administrative & Waste Services	128.75	1.9%
Educational Services	122.16	1.8%
Health & Social Services	389.92	5.7%
Arts, Entertainment & Recreation	448.31	6.5%
Accommodation & Food Services	1,527.83	22.2%
Other Services	258.13	3.8%
Government	951.36	13.9%

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Table F.123 - San Juan County, Utah Employment by Industry

DESCRIPTION	EMPLOYMENT	SHARE OF EMPLOYMENT
Total	6,191.15	—
Agriculture, Forestry, Fish & Hunting	705.58	11.4%
Mining	480.86	7.8%
Utilities	3.93	0.1%
Construction	341.46	5.5%
Manufacturing	112.85	1.8%
Wholesale Trade	47.16	0.8%
Retail Trade	304.33	4.9%
Transportation & Warehousing	71.20	1.2%
Information	12.47	0.2%
Finance & Insurance	107.92	1.7%
Real Estate & Rental	213.23	3.4%
Professional, Science & Technology	61.00	1.0%
Management of Companies	54.15	0.9%
Administrative & Waste Services	165.31	2.7%
Educational Services	41.46	0.7%
Health & Social Services	559.34	9.0%
Arts, Entertainment & Recreation	116.51	1.9%
Accommodation & Food Services	518.55	8.4%
Other Services	645.38	10.4%
Government	1,628.45	26.3%

APPENDIX G: AREAS OF CRITICAL ENVIRONMENTAL CONCERN - RELEVANCE AND IMPORTANCE ANALYSIS AND DETERMINATION RATIONALE

Date: June 4, 2015

Participants:

Russell Japuntich, Wildlife Biologist, BLM Gunnison Field Office
Melissa Siders, Wildlife Biologist, BLM Uncompahgre Field Office
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Consolidated and condensed ACEC proposals for evaluation of Relevance and Importance

Information relevant to ACEC proposals from internal and external scopingⁱ were analyzed, consolidated, and condensed into the following specific potential ACEC designations.

1. All GUSG Critical Habitat (Occupied and Unoccupied):
 - a. for satellite populations
 - b. for the Gunnison Basin
2. All GUSG Occupied Critical Habitat:
 - a. for satellite populations
 - b. for the Gunnison Basin
3. All GUSG Habitat (Occupied and Unoccupied)
4. All GUSG Occupied Habitat

Criteria for Relevance and Importance analysis

The criteria for establishing relevance and importance were analyzed for their applicability to ACECs for Gunnison Sage-Grouse.

RELEVANCE

An area meets the relevance criterion if it contains **one or more** of the following:

- I. **A significant historic, cultural, or scenic value;** (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).

Out of scope: An analysis of areas for presence of significant historic, cultural, or scenic values for the purpose of determining relevance is beyond the scope of this plan amendment. The purpose

and need of this RMP Amendment is the conservation of the Gunnison Sage-Grouse and the ecosystems upon which they rely.

2. A fish and wildlife resource; (including but not limited to habitat for endangered, sensitive, or threatened species, or habitat essential for maintaining species diversity).

In Scope

3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).

In Scope

4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action may meet the relevance criteria if it is determined through the resource management planning process that it has become part of a natural process.

Out of scope: An analysis of areas for presence of natural hazards for the purpose of determining relevance is beyond the scope of this plan amendment. The purpose and need of this RMP Amendment is the conservation of the Gunnison Sage-Grouse and the ecosystems upon which they rely.

IMPORTANCE

The value, resource, system, process, or hazard described above must have substantial significance and values in order to satisfy the "importance" criteria. This generally means that the value, resource, system, process, or hazard is characterized by one or more of the following:

1. Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.

In Scope

2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.

In Scope

3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.

In Scope

4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.

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Out of scope: An analysis of areas for presence of qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare for the purpose of determining importance is beyond the scope of this plan amendment. The purpose and need of this RMP Amendment is the conservation of the Gunnison Sage-Grouse and the ecosystems upon which they rely.

5. Poses a significant threat to human life and safety or to property.

Out of scope: An analysis of areas for presence of a significant threat to human life and safety or to property for the purpose of determining importance is beyond the scope of this plan amendment. The purpose and need of this RMP Amendment is the conservation of the Gunnison Sage-Grouse and the ecosystems upon which they rely.

APPENDIX G: ANALYSIS OF ACEC PROPOSALS FOR RELEVANCE AND IMPORTANCE

Ia. All GUSG Critical Habitat (Occupied and Unoccupied) for Satellite Populations

Meets criteria for both relevance and importance.

Relevance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	Gunnison sage-grouse are a wildlife resource that is federally threatened species and the USFWS has designated critical habitat (both occupied and unoccupied) necessary for their recovery.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Critical habitat consists of numerous natural processes and systems. However, critical habitat itself is not a discrete process or system and none of the components processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Have more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.ii
2	Have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
3	Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the FWS determines that it is “essential for the conservation of the species”.

Ib. All GUSG Critical Habitat (Occupied and Unoccupied) for the Gunnison Basin

Does not meet criteria for both relevance and importance.

Relevance Criterion		Meets Criterion? Yes/ No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	GUSG are a federally threatened wildlife resource for which the FWS has designated critical habitat (both occupied and unoccupied) necessary for their recovery.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Critical habitat consists of numerous natural processes and systems. However, critical habitat itself is not a discrete process or system and none of the components processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Have more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the FWS determines that it is “essential for the conservation of the species”.

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Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	Have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	No	
3	Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.

2a. All GUSG Occupied Critical Habitat for Satellite Populations

Meets criteria for both relevance and importance.

Relevance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	Gunnison sage-grouse are a wildlife resource that is federally threatened species and the FWS has designated critical habitat (both occupied and unoccupied) necessary for their recovery.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Critical habitat consists of numerous natural processes and systems. However, critical habitat itself is not a discrete process or system and none of the components processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

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Draft Areas of Critical Environmental Concern Relevance and Importance Rationale

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Have more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”. ⁱⁱⁱ
2	Have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.
3	Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.

2b. All GUSG Occupied Critical Habitat for the Gunnison Basin

Meets criteria for both relevance and importance.

Relevance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	Gunnison sage-grouse are a wildlife resource that is federally threatened species and the FWS has designated critical habitat (both occupied and unoccupied) necessary for their recovery.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Critical habitat consists of numerous natural processes and systems. However, critical habitat itself is not a discrete process or system and none of the components processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Have more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”. ^{iv}
2	Have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	No	
3	Has been recognized as warranting protection to satisfy national priority concerns or to carry out the	Yes	Under the Endangered Species Act, any species that is determined to be a threatened species requires critical

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Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
	mandates of FLPMA.		habitat to be designated. Critical habitat is designated as such because the USFWS determines that it is “essential for the conservation of the species”.

3. All GUSG Habitat (Occupied and Unoccupied)

Relevance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	Gunnison sage-grouse are a wildlife resource that is federally threatened species.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Occupied habitat consists of numerous natural processes and systems. However, occupied habitat itself is not a discrete process or system, and none of the component processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Has more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	
2	Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	Yes	
3	Has been recognized as warranting	Yes	

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	protection to satisfy national priority concerns or to carry out the mandates of FLPMA.		
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4. All GUSG Occupied Habitat

Relevance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
2	A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).	Yes	Gunnison sage-grouse are a wildlife resource that is federally threatened species.
3	A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).	No	Occupied habitat consists of numerous natural processes and systems. However, occupied habitat itself is not a discrete process or system, and none of the component processes and systems are being proposed as ACECs separate and apart from their contribution to GUSG habitat.

Importance Criterion		Meets Criterion? Yes/No	Rationale for Determination
#	Description		
1	Has more than locally significant qualities, which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.	Yes	
2	Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.	No	
3	Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.	Yes	

APPENDIX H: DRAFT STIPULATIONS APPLICABLE TO FLUID MINERAL LEASING AND LAND USE AUTHORIZATIONS

Appendix H - Draft Stipulations Applicable to Fluid Mineral Leasing and Land Use Authorizations

This appendix lists the stipulations for fluid mineral leasing (e.g., oil, gas, and geothermal) referred to throughout this Draft RMP Amendment/Draft EIS. These stipulations will also apply, where appropriate, to all surface-disturbing activities (and occupancy) associated with land use authorizations, permits, and leases issued on BLM lands. The stipulations will not apply to activities and uses where they are contrary to laws, regulations, or specific program guidance. The intent of these stipulations is to consistently mitigate impacts by applying the same stipulation to all land use authorizations across the board. It is the BLM's intent to incorporate the same level of restrictions, to the extent practicable, on agency proposed projects.

Stipulations outlined in this appendix also apply to fluid mineral leasing on lands overlying federal mineral estate, which includes federal mineral estate underlying privately owned lands, and state-owned lands. The BLM will coordinate with the surface owner when applying stipulations on split estate at the leasing phase.

Surface-disturbing activities are those that normally result in more than negligible (i.e., immeasurable, not readily noticeable) disturbance to vegetation and soils on public lands and accelerate the natural erosive process. Surface disturbances could require reclamation and normally involve use and/or occupancy of the surface, causing disturbance to soils and vegetation. They include, but are not limited to: the use of mechanized earth-moving equipment; construction of facilities such as oil and gas wells and/or pads; major recreation sites; new trail construction. Surface disturbance is not normally caused by casual-use activities. Activities that are not normally considered surface disturbing include, but are not limited to: livestock grazing, cross country hiking, minimum impact filming, vehicular travel on designated routes. Even where stipulations prohibit surface-disturbing activities, some surface-disturbing activities may be allowed under exceptions from stipulations.

Upon completion of the Proposed RMP Amendment/Final EIS, the list of stipulations that are included in the decision would supersede the relevant stipulations attached to the existing land use plans. Those program areas/stipulations that are not considered in the Proposed RMP Amendment/Final EIS (not directly relevant only to GUSG and GUSG habitat) would continue in full force and effect where they apply (within individual BLM field offices).

DESCRIPTION OF STIPULATIONS

Three types of stipulations could be applied to leasing authorizations and would also be applied as terms and conditions for land use authorizations: 1) No Surface Occupancy (NSO); 2) Controlled Surface Use (CSU); and 3) Timing Limitations (TL). Lease Notices (LNs) are also described below.

No Surface Occupancy (NSO)

Use or occupancy of the land surface for fluid mineral exploration or development is prohibited to protect GUSG and GUSG habitat. In areas open to fluid mineral leasing with NSO stipulations, fluid mineral leasing activities are permitted, but surface-disturbing activities cannot be conducted on the surface of the land unless an exception, modification, or waiver is granted. Access to fluid mineral deposits would require drilling from outside the boundaries of the NSO stipulation. An NSO/No Surface-Disturbing Activities stipulation does not apply to existing facilities and the maintenance of existing facilities, such as, but not limited to, range improvements, oil and gas wells and/or pads, and major recreation sites.

Controlled Surface Use (CSU)

A CSU stipulation is a category of moderate constraint that allows some use and occupancy of public land while protecting identified resources or values. A CSU stipulation allows the BLM to require additional conditions be met to protect a specified resource or value in addition to standard lease terms and conditions.

Timing Limitations (TL)

Areas identified for TLs, a moderate constraint, are closed to fluid mineral exploration and development during identified time frames. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance, such as workovers on wells, is not permitted. Administrative activities are allowed at the discretion of the BLM Authorized Officer.

Lease Notice (LN)

A Lease Notice provides more detailed information concerning limitations that already exist in law, lease terms, regulations or operational orders. An LN also addresses special items that the lessee should consider when planning operations but does not impose additional restrictions. Lease Notices apply only to leasable minerals (e.g., oil, gas, and geothermal) and not to other types of leases, such as livestock grazing.

Condition of Approval (COA)

Conditions of Approval are enforceable conditions or provisions under which an Application for Permit to Drill (APD) is approved.

EXCEPTIONS, MODIFICATIONS, AND WAIVERS

An exception exempts the holder of the lease from the stipulation on a one-time basis. A modification changes the language or provisions of a stipulation due to changed conditions or new information either temporarily or for the term of the lease. A modification may or may not apply to all other sites within the leasehold. A waiver permanently exempts the surface stipulation for a specific lease, planning area, or resource based on absence of need, such as a determination that protection of winter use is unnecessary for maintenance or recovery of a species.

Exception, Modification, or Waiver Process

An exception, modification, or waiver may be granted at the discretion of the BLM Authorized Officer if the specific criteria described below are met. In order to implement an action that would not normally be allowed because of a stipulation, the proponent must submit a written request for an exception, modification, or waiver and provide the data necessary to demonstrate that specific criteria have been met. Any such requests would be subject to appropriate consultation and/or coordination with the applicable state and/or federal wildlife agency(ies). Prior to any modification or waiver of a lease stipulation, a 30-day public notice and comment period could also be required.

STIPULATIONS APPLICABLE TO LAND USE AUTHORIZATIONS

Restrictions on land use authorizations (including ROWs, permits, and leases) are administered through the identification of exclusion and avoidance areas. Exclusion areas are unavailable for location of ROWs under any conditions, unless specific exceptions and special stipulations are identified. Avoidance areas are to be avoided when practicable due to identified resource values but may be available with special stipulations. Those ROW terms and conditions that would be attached to authorizations sited in areas identified as avoidance areas are described in the draft action alternatives Table 2.7.

Lease Number: <LEASE_NUMBER>

GUNNISON SAGE-GROUSE ESA LISTED SPECIES NSO CO/UT
NO SURFACE OCCUPANCY
[Alternative C and Sub-Alternatives D₁/D₂]

Stipulation: No surface occupancy or use is allowed within Occupied Habitat for the Gunnison Sage-Grouse as mapped in the Resource Management Plan, BLM's GIS database, or other maps provided by local, state, federal or tribal agencies that are analyzed and accepted by the BLM:

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To maintain the integrity of habitat for the Gunnison Sage-Grouse and promote recovery of the species.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101 or Forest Service Manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

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Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

**GUNNISON SAGE-GROUSE ESA LISTED SPECIES CSU CO/UT
CONTROLLED SURFACE USE**

[Alternative B]

Stipulation: Surface occupancy or use may be restricted or prohibited in Non-Habitat Areas within Four Miles of a Gunnison Sage-Grouse Lek, as mapped in the Resource Management Plan Amendment, BLM's GIS database, or other maps provided by local, state, federal, or tribal agencies that are analyzed and accepted by the BLM.

Special design, construction and implementation measures, including relocation of operations by more than 200 meters (656 feet) and/or prohibition on surface-disturbing operations for a period of more than 60 days may be required.

The lease area may now or hereafter contain Non-Habitat Areas within Four Miles of a Gunnison Sage-Grouse Lek adjacent to habitat for wildlife listed as threatened or endangered or identified as candidates for listing under the Endangered Species Act. An assessment of the potential to cause disruption to Gunnison Sage-Grouse may be required before drilling and construction may commence. The operator may be required to submit a plan of development that demonstrates how the proposed activities will avoid or minimize disruption of threatened and endangered species by siting or prioritizing vegetation clearing, facility construction, and concentrated operational activities (e.g., drilling, completion, utility installation).

The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species, result in the destruction or adverse modification of designated or proposed critical habitat, or contribute to a need to list a proposed or candidate threatened and endangered species. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until the agency completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. §1531 et seq., including completion of any required procedure for conference or consultation.

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To protect federally listed, proposed, or candidate threatened or endangered wildlife species and promote recovery of the species.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM manuals 1624 and 3101 or Forest Service manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

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The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP Amendment; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

**GUNNISON SAGE-GROUSE ESA LISTED SPECIES CSU CO/UT
CONTROLLED SURFACE USE
[Alternative C and Sub-Alternatives D₁/D₂]**

Stipulation: Surface occupancy or use may be restricted or prohibited within Unoccupied Habitat for the Gunnison Sage-Grouse, as mapped in the Resource Management Plan Amendment, BLM's GIS database, or other maps provided by local, state, federal, or tribal agencies that are analyzed and accepted by the BLM.

Special design, construction and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required.

The lease area may now or hereafter contain habitat for wildlife listed as threatened or endangered or identified as candidates for listing under the Endangered Species Act. An inventory of habitat may be required before drilling and construction may commence. The operator may be required to submit a plan of development that demonstrates how the proposed activities will avoid or minimize disruption of threatened and endangered species by siting or prioritizing vegetation clearing, facility construction, and concentrated operational activities (e.g., drilling, completion, utility installation).

The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species, result in the destruction or adverse modification of designated or proposed critical habitat, or contribute to a need to list a proposed or candidate threatened and endangered species. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. §1531 et seq., including completion of any required procedure for conference or consultation.

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To maintain the integrity of habitat for federally listed, proposed, or candidate, threatened or endangered wildlife species and promote recovery of the species.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM manuals 1624 and 3101 or Forest Service manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require

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additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

GUNNISON SAGE-GROUSE TL CO/UT
TIMING LIMITATION

Stipulation: No surface use is allowed within habitat for Gunnison Sage-Grouse during the following time period:

March 1 to May 15 [Alternative B]

March 15 to May 15 [Alternative C and Sub-Alternatives D₁/D₂]

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To minimize disruption of Gunnison Sage-Grouse lekking/breeding activities.

This stipulation only applies to construction and drilling, and does not apply to operations and maintenance. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance, such as workovers on wells, is not permitted.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management manuals 1624 and 3101 or Forest Service manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development,

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surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

GUNNISON SAGE-GROUSE TL CO/UT
TIMING LIMITATION

Stipulation: No surface use is allowed within habitat for Gunnison Sage-Grouse during the following time period:

April 15 to July 15 [Alternative B]

April 15 to June 30 [Alternative C and Sub-Alternatives D₁/D₂]

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To minimize disruption of Gunnison Sage-Grouse nesting/early brood-rearing activities.

This stipulation only applies to construction and drilling, and does not apply to operations and maintenance. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance, such as workovers on wells, is not permitted.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM manuals 1624 and 3101 or Forest Service manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other

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government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

GUNNISON SAGE-GROUSE TL CO2/UT
TIMING LIMITATION

Stipulation: No surface use is allowed in Gunnison Sage-Grouse winter range, as mapped in the Resource Management Plan Amendment, BLM's GIS database or other maps provided by local, state, federal or tribal agencies that are analyzed and accepted by the BLM, during the following time period:

October 1 to February 28 [Alternative B]

December 1 to March 14 [Alternative C and Sub-Alternatives D₁/D₂]

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To prevent disruption of Gunnison Sage-Grouse during the winter period.

This stipulation only applies to construction and drilling, and does not apply to operations and maintenance.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM manuals 1624 and 3101 or Forest Service manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development,

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surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30-day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30-day period.

Lease Number: <LEASE_NUMBER>

GUNNISON SAGE-GROUSE NSO CO/UT
NO SURFACE OCCUPANCY/NO SURFACE DISTURBANCE

Stipulation: No surface occupancy or use is allowed within a

- 4-mile [Alternative B]
- 1-mile [Alternative C]
- 0.6-mile [Sub-Alternatives D₁/D₂]

radius of Gunnison Sage-Grouse leks, as mapped in the Resource Management Plan, BLM's GIS database or other maps provided by local, state, federal or tribal agencies that are analyzed and accepted by the BLM

On the following lands:

<LEGAL_DESCRIPTION>

Purpose: To maintain integrity of Occupied and Unoccupied Habitat surrounding Gunnison Sage-Grouse leks.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see Bureau of Land Management Manuals 1624 and 3101 or Forest Service Manuals 1950 and 2820.)

Exception: An exception is a one-time exemption for a particular site within the leasehold. Exceptions are determined on a case-by-case basis. The stipulation continues to apply to all other sites within the leasehold.

The Authorized Officer may grant an exception to a stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently such that: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; or 2) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination.

Modification: A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may modify a stipulation or the area subject to the stipulation if it is determined that the factors leading to its inclusion in the lease have changed sufficiently. The Authorized Officer may modify a stipulation as a result of new information if: 1) the protection provided by the stipulation is no longer justified or necessary to meet resource objectives established in the RMP; 2) the protection provided by the stipulation is no longer

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sufficient to meet resource objectives established in the RMP; or 3) proposed operations would not cause unacceptable impacts. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the modification may be subject to public review for at least a 30 day period.

Waiver: A waiver is a permanent exemption from a lease stipulation. When a waiver is granted, the stipulation no longer applies anywhere within the leasehold.

In accordance with the provisions of 43 C.F.R. 3101.1-4, the Authorized Officer may waive a stipulation if it is determined that the factors leading to its inclusion in the lease no longer exist. The Authorized Officer may require additional plans of development, surveys, mitigation proposals, or environmental analysis, and may be required to consult with other government agencies and/or the public in order to make this determination, and the waiver may be subject to public review for at least a 30 day period.

APPENDIX I: DRAFT GUSG BEST MANAGEMENT PRACTICES

DRAFT GUNNISON SAGE-GROUSE BEST MANAGEMENT PRACTICES

**Adapted from the 2011 BLM Technical Report:
A Report on National Greater Sage-grouse Conservation Measures**

Travel and Transportation

- Conduct restoration of roads, primitive roads and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in Wilderness Study Areas and within lands with wilderness characteristics that have been selected for protection.
- When reseeding roads, primitive roads and trails, use appropriate seed mixes and consider the use of transplanted sagebrush.
- Utilize minimum constructions and maintenance standards appropriate for the operation
- Sign roads to prevent off road travel
- Place speed bumps, dips, etc. to slow traffic as needed.

Recreation

- Only allow special recreation permits (SRPs) that have neutral or beneficial affects to Gunnison Sage-grouse (GUSG) Occupied Habitat.

Lands and Realty

- Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within GUSG habitat areas. Sage-grouse may avoid powerlines because of increased predation risk (Steenhof et al 1993, Lammers and Collopy 2007). Powerlines effectively influence (direct physical area plus estimated area of effect due to predator movements) at least 39% of the sage-grouse range (Knick et al 2011). Deaths resulting from collisions with powerlines were an important source of mortality for sage-grouse in southeastern Idaho (Beck et al 2006, 75 FR 13910)
- Where existing leases or ROWs have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

Land Tenure Adjustments

- Retain public ownership of GUSG Occupied Habitat. Consider exceptions where:

- There is mixed ownership, and land exchanges would allow for additional or more contiguous federal ownership patterns within the sage-grouse habitat area.
- In occupied sage-grouse habitat areas with minority federal ownership, include an additional, effective mitigation agreement for any disposal of federal land. As a final preservation measure consideration should be given to pursuing a permanent conservation easement.
- Where suitable conservation actions cannot be achieved, seek to acquire state and private lands with intact subsurface mineral estate by donation, purchase or exchange in order to best conserve, enhance or restore GUSG habitat.
- Identify areas where acquisitions (including subsurface mineral rights) or conservation easements, would benefit sage-grouse habitat.

Proposed Land Withdrawals

- Do not approve withdrawal proposals not associated with mineral activity unless the land management is consistent with GUSG conservation measures. (For example; in a proposed withdrawal for a military training range buffer area, manage the buffer area with GUSG conservation measures.)

Range Management

- Work cooperatively on integrated ranch planning within GUSG habitat so that operations with deeded/BLM allotments can be planned as single units.
- Develop specific objectives for sage-grouse habitat based on ESDs and assessments (including within wetlands and riparian areas). If an effective grazing system that meets GUSG habitat requirements is not already in place, analyze at least one alternative that meets GUSG habitat requirements in the NEPA document prepared for the permit renewal (Doherty et al 2011b, Williams et al 2011).
- Manage for vegetation composition and structure consistent with ecological site potential and within the reference state to achieve GUSG seasonal habitat objectives.
- Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within GUSG habitat. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to GUSG.
- Only allow treatments that conserve, enhance, or restore GUSG habitat (including treatments that benefit livestock as part of an Allotment Management Plan/Conservation Plan to improve GUSG habitat).

- Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to GUSG habitat to determine whether they should be restored to sagebrush or habitat of higher quality for GUSG. If these seedings are part of an AMP/Conservation Plan or if they provide value in conserving or enhancing the rest of the habitats, then no restoration would be necessary. Assess the compatibility of these seedings for GUSG habitat or as a component of a grazing system during the land health assessments (Davies et al 2011).
- Design any new structural range improvements and location of supplements (salt or protein blocks) to conserve, enhance, or restore GUSG habitat through an improved grazing management system relative to sage-grouse objectives. Structural range improvements, in this context, include but are not limited to: cattle guards, fences, exclosures, corrals or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels and spring developments. Potential for invasive species establishment or increase following construction must be considered in the project planning process and monitored and treated post-construction.
- Evaluate existing structural range improvements and location of supplements (salt or protein blocks) to make sure they conserve, enhance or restore GUSG habitat.
 - To reduce outright GUSG strikes and mortality, remove, modify, or mark fences in high-risk areas within GUSG habitat based on proximity to lek, lek size, and topography (Christiansen 2009, Stevens 2011).
 - Monitor for and treat invasive species associated with existing range improvements (Gelbard and Belnap 2003 and Bergquist et al 2007).
 - General wildlife standards for fences should follow Wendy Hanophy's *Fencing with Wildlife in Mind* (CPW 2009).
 - Include the use of the NRCS fence collision risk tool (NRCS 2012) to identify low-risk areas for construction of new fences and to evaluate collision risk for existing fences.
 - When possible, develop alternative livestock water sources outside of naturally occurring riparian areas.
 - Place salt, minerals and supplements at least 0.25-mile away from riparian areas, to the extent feasible within existing pasture boundaries
 - Avoid placing salt, minerals or supplements within 0.50-mile of leks.

Riparian Areas

- Where riparian areas and wet meadows meet proper functioning condition, strive to attain reference state vegetation relative to the ecological site description.

Habitat Restoration

- Prioritize implementation of restoration projects based on environmental variables that improve chances for project success in areas most likely to benefit GUSG (Meinke et al 2009).
- Include sage-grouse habitat parameters as defined in the RCP and appropriate local information in habitat restoration objectives. Make meeting these objectives within occupied sage-grouse habitat areas the highest restoration priority.
- Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success (Richards et al 1998). Where probability of success or adapted seed availability is low, non-native seeds may be used as long as they support GUSG habitat objectives (Pyke 2011).
- Design post restoration management to ensure long term persistence. This could include changes in livestock grazing management and travel management, etc., to achieve and maintain the desired condition of the restoration effort that benefits GUSG (Eiswerth and Shonkwiler 2006).
- Restore native (or desirable) plants and create landscape patterns which most benefit GUSG.
- Make re-establishment of sagebrush cover and desirable understory plants (relative to ecological site potential) the highest priority for restoration efforts.
- In fire prone areas where sagebrush seed is required for GUSG habitat restoration, consider establishing seed harvest areas that are managed for seed production (Armstrong 2007) and are a priority for protection from outside disturbances.

West Nile Virus Transmission via Ponds (from Doherty 2007)

The following are seven distinct site modifications that if adhered to, would minimize exploitation of ponds by the *Culex tarsalis* mosquito:

1. Increase the size of ponds to accommodate a greater volume of water than is discharged. This will result in unvegetated and muddy shorelines that breeding *Culex tarsalis* avoid (De Szalay and Resh 2000). This modification may reduce *Culex tarsalis* habitat, but could create larval habitat for *Culicoides sonorensis*, a vector of blue tongue disease, and should be used sparingly (Schmidtmann et al 2000). Steep shorelines should be used in combination with this technique whenever possible (Knight et al 2003).
2. Build steep shorelines to reduce shallow water and aquatic vegetation around the perimeter of impoundments (Knight et al 2003). Construction of steep shorelines also will create more permanent ponds that are a deterrent to colonizing mosquito

species like *Culex tarsalis* which prefer newly flooded sites with high primary productivity (Knight et al 2003).

3. Maintain the water level below that of rooted vegetation for a muddy shoreline that is unfavorable habitat for mosquito larvae. Rooted vegetation includes both aquatic and upland vegetative types. Avoid flooding terrestrial vegetation in flat terrain or low lying areas. Aquatic habitats with a vegetated inflow and outflow separated by open water produce 5-10 fold fewer *Culex* mosquitoes than completely vegetated wetlands (Walton and Workman 1998). Wetlands with open water also had significantly fewer stage III and IV instars which may be attributed to increased predator abundances in open water habitats (Walton and Workman 1998).
4. Construct dams or impoundments that restrict downslope seepage or overflow by digging ponds in flat areas rather than damming natural draws for effluent water storage, or lining constructed ponds in areas where seepage is anticipated (Knight et al 2003).
5. Line the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water, thus precluding shallow surface inflow and accumulation of sediment that promotes aquatic vegetation.
6. Line the overflow spillway with crushed rock, and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation.
7. Fence pond site to restrict access by livestock and other wild ungulates that trample and disturb shorelines, enrich sediments with manure and create hoof print pockets of water that are attractive to breeding mosquitoes.

Fluid Mineral Development

GUSG Occupied Habitat - BMPs are continuously improving as new science and technology become available and therefore are subject to change. Include from the following BMPs those that are appropriate to mitigate effects from the approved action.

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

- Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Use gravel, chip seal, soil, sand or other types of imported road and fill material only from sites with no weed infestations.
- Should grade or mow roads only when necessary for resource protection, safety, or function.
- Close and rehabilitate duplicate roads.
- Minimize operation of equipment when mud can accumulate on equipment.
- Clean all heavy equipment and mobilizing equipment before entering each project area.

Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of habitat areas. Have no tanks at well locations within habitat areas (minimizes perching and nesting opportunities for ravens and raptors and truck traffic). Pipelines must be under or immediately adjacent to the road (Bui et al 2010).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Corridor power, flow, and small pipelines under or immediately adjacent to roads.
- Bore pipeline crossings under perennial streams rather than trenching.

- Design or site permanent structures which create movement (e.g. a pump jack) to minimize impacts to sage-grouse.
- Cover (with fine mesh netting or other effective techniques) all drilling and production pits and tanks regardless of size to reduce sage-grouse mortality.
- Encourage use of water tanks instead of open pits.
- Use low profile storage tanks.
- Paint wells to camouflage in background.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (e.g., by washing vehicles and equipment) (Evangelista et al 2011).
- Locate and use weed-free project staging areas.
- Avoid acquiring water for road dust abatement where access to the water is through weed-infested sites.
- Use only closed-loop systems for drilling operations and no reserve pits.
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
 - Overbuild size of ponds for muddy and non-vegetated shorelines.
 - Build steep shorelines to decrease vegetation and increase wave actions.
 - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
 - Construct dams or impoundments that restrict down slope seepage or overflow.
 - Line the channel where discharge water flows into the pond with crushed rock.
 - Construct spillway with steep sides and line it with crushed rock.
 - Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
- Require noise shields when drilling during the lek, nesting, brood rearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Require sage-grouse-safe fences.
- Locate new compressor stations outside habitats and design them to reduce noise that may be directed towards habitat.
- Clean up refuse (Bui et al 2011).
- Locate man camps outside of habitats.

Reclamation

- Include objectives for ensuring habitat restoration to meet GUSG habitat needs in reclamation practices/sites (Pyke 2011). Address post-reclamation management in reclamation plans such that goals and objectives are designed to protect and improve GUSG habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

Locatable Mineral Development

BMPs are continuously improving as new science and technology become available and therefore are subject to change. Include from the following BMPs those that are appropriate to mitigate effects from the approved action.

Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Place speed bumps, dips, etc. to slow traffic as needed.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

Operations

- Cluster disturbances associated with operations and facilities as close as possible.

- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to GUSG habitat.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury power lines.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al 2007).
- Minimize operations of equipment during conditions when mud can accumulate on equipment.
- Clean all heavy equipment and mobilizing equipment before entering project area.
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
 - Overbuild size of ponds for muddy and non-vegetated shorelines.
 - Build steep shorelines to decrease vegetation and increase wave actions.
 - Avoid flooding terrestrial vegetation in flat terrain or low lying areas.
 - Construct dams or impoundments that restrict down slope seepage or overflow.
 - Line the channel where discharge water flows into the pond with crushed rock.
 - Construct spillway with steep sides and line it with crushed rock.
 - Treat waters with larvicides to reduce mosquito production where water occurs on the surface.
- Require sage-grouse-safe fences around sumps.
- Clean up refuse (Bui et al 2010).
- Locate man camps outside of GUSG habitat.

Reclamation

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites.

- Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat needs.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community.
- Irrigate interim reclamation as necessary during dry periods.
- Utilize mulching techniques to expedite reclamation.

Salable Mineral Materials

- Restore saleable mineral pits no longer in use to meet GUSG habitat conservation objectives.

Fire & Fuels (WO IM 2013-128)

Fuels Management

- Design fuels management projects in sage-grouse habitat to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design (Launchbaugh et al 2007).
- Prioritize native seed allocation for use in GUSG habitat in years when preferred native seed is in short supply. This may require reallocation of native seed from ES&R projects outside of sage-grouse habitat to those inside it. Use of native plant seeds for ES&R seedlings is required based on availability, adaptation (site potential), and probability of success Richards et al 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet GUSG habitat conservation objectives (Pyke 2011). Reestablishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts.
- Design post ES&R management to ensure long term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, and travel management, etc., to achieve and maintain the desired condition of ES&R projects to benefit sage-grouse (Eiswerth and Shonkwiler 2006).
- Provide training to fuels treatment personnel on GUSG biology, habitat requirements, and identification of areas utilized locally.
- Use fire prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of hydrophobicity).

- Ensure proposed sagebrush treatments are planned with interdisciplinary input from BLM and /or state wildlife agency biologist and that treatment acreage is conservative in the context of surrounding sagegrouse seasonal habitats and landscape.
- Where appropriate, ensure that treatments are configured in a manner (e.g., strips) that promotes use by GUSG (See Connelly et al, 2000*)
- Where applicable, incorporate roads and natural fuel breaks into fuel break design.
- Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.
- Design vegetation treatment in areas of high frequency to facilitate firefighting safety, reduce the risk of extreme fire behavior; and to reduce the risk and rate of fire spread to key and restoration habitats.
- As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs.
- Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.
- Remove standing and encroaching trees within at least 100 meters of occupied GUSG leks and other habitats (e.g., nesting, wintering, and brood rearing) to reduce the availability of perch sites for avian predators, as appropriate, and resources permit.
- Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.
- Reduce the risk of vehicle or human-caused wildfires and the spread of invasive species by planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way.
- Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, and strictly managed grazed strips) to aid in controlling wildfire should wildfire occur near key habitats or important restoration areas (such as where investments in restoration have already been made).

Fire Management

- Develop specific GUSG toolboxes containing maps, a list of resource advisors, contact information, local guidance, and other relevant information.
- Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.
- Assign a GUSG resource advisor to all extended attack fires in or near key GUSG habitat areas. Prior to the start of fire season, provide training to

CHAPTER 6 - APPENDIX I
Draft GUSG Best Management Practices

GUSG advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals.

- On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GUSG habitat.
- During periods of multiple fires, ensure line officers are involved in setting priorities.
- To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, and heli-bases) in areas where physical disturbance to GUSG habitat can be minimized, including disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.
- Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and ATVs prior to deploying in or near sage-grouse habitat areas to minimize noxious weed spread.
- Minimize unnecessary cross-country vehicle travel during fire operations in GUSG habitat.
- Minimize burnout operations in key GUSG habitat areas by constructing direct fireline whenever safe and practical to do so.
- Utilize retardant and mechanized equipment to minimize burned acreage during initial attack.
- As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

APPENDIX J: GUSG RANGEWIDE MITIGATION STRATEGY

INTRODUCTION

The BLM will develop a GUSG Rangewide Mitigation Strategy (Mitigation Strategy) for inclusion in the Final EIS and Proposed GUSG Rangewide RMP Amendment. The Mitigation Strategy will be based on the BLM Mitigation Handbook H-1794-1, Department of the Interior Departmental Manual Chapter 6: *Implementing Mitigation at the Landscape-scale*, and the November 3, 2015 Presidential Memorandum: *Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment*.

The purpose of the Mitigation Strategy will be to identify mitigation needs and measures across the range of the GUSG at relevant and appropriate scales that, when implemented, will result in a net conservation gain to and assist with recovery (if the ESA listing remains in effect) and/or ongoing conservation (if the ESA listing is no longer in effect) of the species. The goal will be to help increase the effectiveness, consistency, and transparency of mitigation efforts that assist with the recovery and/or ongoing conservation of the GUSG.

The Mitigation Strategy will incorporate guidance outlined in the BLM Mitigation Handbook. Many components are already present in the overall NEPA analysis associated with this planning effort. As a result, the strategy will build on this existing work rather than attempt to duplicate it. Examples of these components include descriptions of the uses of public land in the planning area, resource objectives, baseline conditions and trends, mitigation measures (including those referenced in the proposed amendment), and potential residual impacts. It will also address whether there is a potential need for compensatory mitigation to address these residual impacts.

The Mitigation Strategy will provide a framework for managers to use in determining necessary and appropriate mitigation for project proposals within GUSG habitat. By employing several key building blocks, the Mitigation Strategy will: 1) incorporate mitigation measures included in the alternatives and best management practices considered in this Draft EIS analysis, 2) incorporate comments received during the public review of this Draft EIS, 3) be based on the best available science, 4) be resource based (i.e., focused on GUSG habitat), 5) consider reasonably foreseeable impacts to GUSG habitat from all of the foreseeable public land uses within the planning area, and 6) be developed using a transparent and meaningful engagement process with cooperating agencies.

The intent of the Mitigation Strategy is to achieve a net conservation gain and assist with the recovery and ongoing conservation of GUSG habitat. To achieve a net gain

goal, compensatory mitigation will be required for all residual impacts to GUSG habitat—and not just to those impacts determined to be “significant” as defined under NEPA. To do so, the BLM will undertake management actions identified in the RMP Amendment that are consistent with valid existing rights and applicable law, minimize actions that result in habitat loss, and include an accounting of uncertainty associated with the effectiveness of such mitigation.

The Mitigation Strategy will employ a full mitigation hierarchy. CEQ regulations describe the mitigation hierarchy as:

- a) Avoiding the impact altogether by not taking a certain action or parts of an action.
- b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e) Compensating for the impact by replacing or providing substitute resources or environments.

The Mitigation Strategy should include guidance on avoidance, minimization, and compensation, as follows:

Avoidance is defined as those measures that result in a potential impact not occurring from the outset by not taking a certain action or parts of an action. The RMP Amendment alternatives identify a range of potential avoidance measures. Examples of avoidance measures include No Surface Occupancy, Controlled Surface Use, withdrawn areas, closures, and exclusion areas.

Minimization occurs through limiting the degree or magnitude of the action and its implementation. The RMP Amendment alternatives identify multiple potential minimization options for a variety of projects and land uses. The alternatives also identify multiple best management practices (Appendix I), design features (Table 2.4), and various stipulations that can be applied to projects as appropriate. Examples of minimization include facility placement, timing of activities, facility design, and interim reclamation.

Rectification is the repairing, rehabilitating, or restoring of the affected environment. This approach is more action specific. An example might be the reclamation of an abandoned mine location. Reduction of impacts involves preservation and maintenance operations during the life of the proposed project to be mitigated. This approach is more design specific. An example might be a phased development and reclamation project design or a similar approach to a related impact on the landscape.

Compensation can occur if, after applying avoidance and minimization techniques, residual impacts remain. *Residual impacts* are defined in the BLM Mitigation Handbook as any reasonably foreseeable impacts from a proposed project that are expected to remain after implementing the avoidance, minimization, rectification, and reduction elements of the mitigation hierarchy. These impacts include those that will continue until the benefits of the mitigation measure are fully realized on the ground. Compensation could include the discussion of impact valuation, compensatory mitigation options, siting, compensatory project types and costs, monitoring, reporting, and funds administration.

The RMP Amendment prioritizes the avoidance of impacts, followed by minimization techniques. If after applying avoidance and minimization techniques, any residual impacts remain, then compensatory mechanisms may be used to address those impacts. Compensatory mechanisms could take the form of a mitigation or conservation bank, habitat exchange, in lieu fee program, proponent mitigation, or other options that might be developed or suggested. Numerous methodologies or tools may be developed, to determine and quantify the nature and extent of the compensatory mitigation required under a given mitigation mechanism. These tested methodologies are used to quantify the nature and extent of the impact from a public land use and nature and extent of the compensatory mitigation measure.

The strategy, with input from cooperating agencies, will identify which methodology(ies) would be most appropriate for use in compensatory mitigation for the GUSG habitat within the scope of this RMP Amendment. The strategy will also identify the criteria for determining what compensatory mitigation mechanisms, and under what conditions, may be available to address residual impacts. This will include a methodology to cross-walk between various methodologies to ensure equivalent benefits are realized. The strategy will identify criteria for selection of locations, to prioritize for compensatory mitigation activities.

In addition, it is expected that the mitigation strategy should ensure that mitigation measures are implemented and monitored for effectiveness using approved methodologies such as the BLM Assessment, Inventory, and Monitoring (AIM) Strategy. It should describe how to remedy failed mitigation efforts, and incorporate adaptive management principles in the design and implementation of compensatory mitigation mechanisms.

References

- BLM 2016: Draft Mitigation Handbook H-1794-1
- Department of the Interior's mitigation policy 600 DM 6
- Presidential Memorandum - Mitigating Impacts on Natural Resources from Development

7. GLOSSARY

Active Livestock Grazing Allotment - An allotment that is being regularly grazed by livestock. This does not include allotments in a non-use status, e.g., through a voluntary non-use agreement, or in conservation use, allotments that are being removed from the grazing base through an RMP revision or amendment, or vacant allotments.

Actual use - The amount of animal unit months consumed by livestock based on the numbers of livestock and grazing dates submitted by the livestock operator and confirmed by periodic field checks by the BLM.

Adaptive Management - A type of natural resource management in which decisions are made as part of an ongoing science-based process. Adaptive management involves testing, monitoring, and evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings and the needs of society. Results are used to notify management policy, strategies and practices.

Allotment - An area of land in which one or more livestock operators graze their livestock. Allotments generally consist of BLM lands, but may also include other federally managed, state owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Allotment Management Plan (AMP) - A concisely written program of livestock grazing management, including supportive measures, if required, designed to attain specific management goals in a grazing allotment. An AMP is prepared in consultation with the permittees, lessees, and other affected interests. Livestock grazing is considered in relation to other uses of the range and to renewable resources, such as watershed, vegetation, and wildlife. An AMP establishes seasons of use, the number of livestock to be permitted, the range improvements needed, and the grazing system.

Amendment - The process for considering or making changes in the terms, conditions, and decisions of approved Resource Management Plans or management framework plans. Usually only one or two issues are considered that involve only a portion of the planning area.

Animal Unit Month (AUM) - The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.

Application for Permit to Drill (APD) - An application for oil and gas drilling which includes 1) a drilling plan, 2) a surface use plan of operations, 3) evidence of bond coverage as required by DOI regulations, and 4) such other information as may be required by applicable orders and notices.

Area of Critical Environmental Concern (ACEC) - Areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.

Authorized Use - This is an activity (i.e. resource use) occurring on the public lands that is either explicitly or implicitly recognized and legalized by law or regulations. This term may refer to those activities occurring on the public lands for which the BLM or other appropriate authority has issued a formal authorization document (e.g. livestock grazing; lease/permit; right-of-way; oil and gas permit to drill; etc.). Formally authorized uses typically involve some type of commercial activity, facility placement, or event. Unless constrained or bounded by statute, regulation, or an approved land use plan decision, legal activities involving public enjoyment and use of the public lands (e.g. hiking, camping, etc.) require no formal BLM authorization.

Avoid - To stay away from when practicable due to identified resource values, but may be available with special stipulations or mitigation. Establishes that the management priority is to not authorize an activity or parts of an activity in an area, but recognizes that an absolute prohibition is not available or reasonable.

Avoidance/Avoidance area - These areas usually address mitigation of some activity (i.e. resource use). Paraphrasing the CEQ Regulations (40 CFR 1508.20), avoidance means to circumvent, or bypass, an impact altogether by not taking a certain action, or parts of an action. Therefore the term “avoidance” does not necessarily prohibit a proposed activity, but it may require the relocation of an action, or the total redesign of an action to eliminate any potential impacts resulting from it. Also see “right-of-way avoidance areas” definition.

Best Management Practices - A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans specify that they are mandatory.

Big Game - Indigenous ungulate wildlife species that are hunted, such as elk, deer, bison, bighorn sheep, and pronghorn antelope.

Biological Assessment - Information prepared by, or under the direction of, a federal agency to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat.

Biological Opinion (BO) - Document which includes: (1) the opinion of the Fish and Wildlife Service...as to whether or not a federal action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of designated critical habitat; (2) a summary of the information on which the opinion is based; and (3) a detailed discussion of the effects of the action on listed species or designated critical habitat.

Carrying Capacity - The stocking rate (for livestock) that is sustainable over time per unit of land area.

Casual use - Activities involving practices that do not ordinarily cause appreciable disturbance or damage to the public lands, resources or improvements and, therefore, do not require a right-of-way grant or temporary use permit (43 CFR 2800). Any short term noncommercial activity which does not cause appreciable damage or disturbance to public lands, their resources or improvements, and which is not prohibited by closure of the lands to such activities (43 CFR 2920). Casual use does not include use of mechanized earth-moving equipment, truck-mounted drilling equipment, suction dredges, motorized vehicles in areas designated as closed to off-road vehicles, chemicals, or explosives. It also does not include occupancy or operations where the cumulative effects of the activities result in more than negligible disturbance.

Clean Air Act of 1963 and Amendments - Federal legislation governing air pollution control.

Clean Water Act of 1972 and Amendments - Federal legislation governing water pollution control.

Climate change - Any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors, natural processes or human activities.

Closed - Generally denotes that an area is not available for a particular use or uses; refer to specific definitions found in law, regulations, or policy guidance for application to individual programs. For example, 43 CFR 8340.0-5 sets forth the specific meaning of “closed” as it relates to off-highway vehicle use, and 43 CFR 8364 defines “closed” as it relates to closure and restriction orders (from H-1601-1, BLM Land Use Planning Handbook).

Collaboration - A cooperative process in which interested parties, often with widely varied interests, work together to seek solutions with broad support for managing public and other lands. Collaboration may take place with any interested parties, whether or not they are a cooperating agency.

Compensatory mitigation - Compensating for the residual impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Comprehensive Travel and Transportation Management (CTTM) - The proactive interdisciplinary planning on-the-ground management and administration of travel networks (both motorized and non-motorized) to ensure public access, natural resources, and regulatory needs are considered. It consists of inventory, easement acquisition, mapping and signing, and other measures necessary to provide access to public lands for a wide variety of uses including uses for recreational, traditional, casual, agricultural, commercials, educational, landing strips, and other purposes).

Condition Class (Fire Regimes) - Fire Regime Condition Classes are a measure describing the degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, livestock grazing, introduction and establishment of exotic plant species, introduced insects or disease, or other management activities.

Conditions of Approval - Conditions or provisions (requirements) under which an Application for a Permit to Drill or a Sundry Notice is approved.

Conformance - A proposed action shall be specifically provided for in the land use plan or, if not specifically mentioned, shall be clearly consistent with the goals, objectives, or standards of the approved land use plan.

Conservation measures - Measures to conserve, enhance, and/or restore Gunnison Sage-Grouse habitat by reducing, eliminating, or minimizing threats to that habitat.

Conservation plan - The recorded decisions of a landowner or operator, cooperating with a conservation district, on how the landowner or operator plans, within practical limits, to use his/her land according to its capability and to treat it according to its needs for maintenance or improvement of the soil, water, animal, plant, and air resources.

Conservation strategy - A strategy outlining current activities or threats that are contributing to the decline of a species, along with the actions or strategies needed to reverse or eliminate such a decline or threats. Conservation strategies are generally developed for species of plants and animals that are

designated as BLM sensitive species or that have been determined by the US Fish and Wildlife Service to be federal candidates under the ESA.

Controlled surface use (CSU) - CSU is a category of moderate constraint stipulations that allows some use and occupancy of public land while protecting identified resources or values and is applicable to fluid mineral construction and drilling activities (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads). CSU areas are open to fluid mineral leasing but the stipulation allows the BLM to require special operational constraints, or the activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value.

Communication site - Sites that include broadcast types of uses (e.g., television, AM/FM radio, cable television, broadcast translator) and non-broadcast uses (e.g., commercial or private mobile radio service, cellular telephone, microwave, local exchange network, passive reflector).

Cooperating agency - Assists the lead federal agency in developing an environmental assessment or environmental impact statement. These can be any agency with jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any tribe or federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency.

Council on Environmental Quality - An advisory council to the President of the U.S. established by the National Environmental Policy Act of 1969. The council reviews federal programs to analyze and interpret environmental trends and information.

Critical habitat - For listed species consists of: (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Act, on which are found those physical or biological features (constituent elements) (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Crucial wildlife habitat - The environment essential to plant or animal biodiversity and conservation at the landscape level. Crucial habitats include, but are not limited to, biological core areas, severe winter range, winter concentration areas, reproduction areas, and movement corridors.

Cultural resources - Locations of human activity, occupation, or use. Cultural resources include archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and locations of traditional cultural or religious importance to specified social and/or cultural groups.

Cumulative effects - The direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action.

dBA (A-weighted decibels) - The commonly used frequency weighting for environmental sounds.

Decision area - Public lands and mineral estate managed by the BLM that are within the planning area and are encompassed by all designated habitat.

Deferred/deferred use - To set aside, or postpone, a particular resource use(s) or activity(ies) on the public lands to a later time. Generally when this term is used, the period of the deferral is specified.

Deferments sometimes follow the sequence timeframe of associated serial actions (e.g., action B will be deferred until action A is completed, etc.).

Designated roads and trails - Specific roads and trails identified by the BLM (or other agencies) where some type of motorized vehicle use is appropriate and allowed either seasonally or year-round.

Desired future condition - For rangeland vegetation, the condition of rangeland resources on a landscape scale that meet management objectives. It is based on ecological, social, and economic considerations during the land planning process. It is usually expressed as ecological status or management status of vegetation (species composition, habitat diversity, and age and size class of species) and desired soil qualities (soil cover, erosion, and compaction). In a general context, desired future condition is a portrayal of the land or resource conditions that are expected to result if goals and objectives are fully achieved.

Desired outcomes - A type of land use plan decision expressed as a goal or objective.

Direct impacts - Direct impacts are caused by an action or implementation of an alternative and occur at the same time and place.

Disposal - Transfer of public land out of federal ownership to another party through sale, exchange, Recreation and Public Purposes Act, Desert Land Entry or other land law statutes.

Disruptive Activity - Public Land resource uses/activities that are likely to alter the behavior, displace, or cause excessive stress to existing GUSG populations occurring at a specific location and/or time. In this context, disruptive activity(ies) refer to those actions that alter behavior or cause the displacement of individuals such that reproductive success is negatively affected, or an individual's physiological ability to cope with environmental stress is compromised. This term does not apply to the physical disturbance of the land surface, vegetation, or features. Examples of disruptive activities may include noise, vehicle traffic, or other human presence regardless of the activity. The term is commonly used in conjunction with protecting wildlife during crucial life stages (e.g., breeding, nesting, birthing, etc.). The use of this term is not intended to prohibit all activity or authorized uses.

Diversity - The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

Easement - A right afforded a person or agency to make limited use of another's real property for other purposes.

Ecological Site - A distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Emergency stabilization - Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within one year following containment of a wildfire.

Endangered species - Any species that is in danger of extinction throughout all or a significant portion of its range (BLM Manual 6840, Special Status Species Manual). Under the Endangered Species Act in the US, "endangered" is the more-protected of the two categories. Designation as endangered (or threatened) is determined by the FWS as directed by the Endangered Species Act.

Endangered Species Act of 1973 (as amended) - Designed to protect critically imperiled species from extinction as a consequence of economic growth and development untampered by adequate concern and conservation. The Act is administered by two federal agencies, the FWS and the National Oceanic and Atmospheric Administration. The purpose of the Act is to protect species and the ecosystems upon which they depend (16 US Code 1531-1544).

Endemic species - A plant or animal restricted to a defined geographic location.

Enhance - The improvement of habitat by increasing missing or modifying unsatisfactory components and/or attributes of the plant community to meet sage-grouse objectives.

Environmental assessment - A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. It includes a brief discussion of the need for the proposal, alternatives considered, environmental impact of the proposed action and alternatives, and a list of agencies and individuals consulted.

Environmental Impact Statement (EIS) - A detailed statement prepared by the responsible official in which a major federal action which significantly affects the quality of the human environment is described, alternatives to the proposed action provided, and effects analyzed (from BLM National Management Strategy for OHV Use on Public Lands).

Evaluation (plan evaluation) - The process of reviewing the land use plan and the periodic plan monitoring reports to determine whether the land use plan decisions and National Environmental Policy Act of 1969 analysis are still valid and whether the plan is being implemented.

Exchange - A transaction whereby the federal government receives land or interests in land in exchange for other land or interests in land.

Exclusion Areas - An area on the public lands where a certain activity(ies) is prohibited to insure protection of other resource values present on the site. The term is frequently used in reference to lands/realty actions and proposals (e.g., rights-of-way, etc.), but is not unique to lands and realty program activities. This restriction is functionally analogous to the phrase "no surface occupancy" used by the oil and gas program, and is applied as an absolute condition to those affected activities. The less restrictive analogous term is avoidance area. Also see definition for "right-of-way exclusion area."

Existing routes - The roads, trails, or ways that are used by motorized vehicles (jeeps, all-terrain vehicles, motorized dirt bikes, etc.), mechanized uses (mountain bikes, wheelbarrows, game carts), pedestrians (hikers), and/or equestrians (horseback riders) and are, to the best of BLM's knowledge, in existence at the time of RMP/EIS publication.

Exploration - Active drilling and geophysical operations to:

1. Determine the presence of the mineral resource; or
2. Determine the extent of the reservoir or mineral deposit.

Extensive Recreation Management Area (ERMA) - Administrative units that require specific management consideration in order to address recreation use, demand, or Recreation and Visitor Services program investments. ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. ERMA management is commensurate and considered in context with the management of other resources and resource uses.

Federal Land Policy and Management Act of 1976 (FLPMA) - Public Law 94-579, October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction policy, and basic management guidance.

Federal mineral estate - Subsurface mineral estate owned by the US and administered by the BLM. Federal mineral estate under BLM jurisdiction is composed of mineral estate underlying BLM lands, privately owned lands, and state-owned lands.

Fire management plan (FMP) - A plan that identifies and integrates all wildland fire management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (wildfire, prescribed fire, and wildland fire use). The plan is supplemented by operational plans including, but not limited to, preparedness plans, preplanned dispatch plans, and prevention plans. Fire Management Plans assure that wildland fire management goals and components are coordinated.

Fire suppression - All work activities connected with fire extinguishing operations, beginning with discovery of a fire and continuing until the fire is completely extinguished.

Fluid minerals - Oil, gas, coal bed natural gas, and geothermal resources.

Forested lands - Lands primarily vegetated with trees that include one or more of the following types: aspen, ponderosa pine, lodgepole pine, limber pine, spruce and fir.

Formal Consultation - When a federal agency determines, through a biological assessment or other review, that an action is likely to adversely affect a listed species, the agency submits a request to the FWS for formal consultation. During formal consultation, the FWS and the agency share information about the proposed project and the species likely to be affected. Formal consultation may last up to 90 days, after which the FWS will prepare a biological opinion on whether the proposed activity is likely to jeopardize the continued existence of a listed species.

Functional Groups - The life form of a plant. Examples include trees, shrubs, vines, grasses, forbs.

Functioning at Risk - Condition in which vegetation and soil are susceptible to losing their ability to sustain naturally functioning biotic communities. In uplands or riparian-wetland areas, conditions currently function properly, but a soil, water, or vegetation attribute makes them susceptible to degradation and lessens their ability to sustain natural biotic communities. Human activities, past or present, may increase the risks.

Geographic Information System (GIS) - A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and display a potentially wide array of geospatial information.

Geophysical exploration - Efforts to locate deposits of oil and gas resources and to better define the subsurface.

Geothermal energy - Natural heat from within the Earth captured for production of electric power, space heating, or industrial steam.

Goal - A broad statement of a desired outcome; usually not quantifiable and may not have established timeframes for achievement.

Grazing preference - Grazing preference or preference means a superior or priority position against others for the purpose of receiving a grazing permit or lease. This priority is attached to base property owned or controlled by the permittee or lessee (43 CFR 4100.0-5).

Grazing system - Scheduled grazing use and non-use of an allotment to reach identified goals or objectives by improving the quality and quantity of vegetation. Include, but are not limited to, developing pastures, utilization levels, grazing rotations, timing and duration of use periods, and necessary range improvements.

Habitat - An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for all or part their life cycle.

Breeding Habitat: Sagebrush communities known or suspected to be used by Gunnison Sage-Grouse for nesting and early brood rearing where sagebrush canopy cover is between 10 and 25%, and in a configuration such that it meets the habitat requirements for sage-grouse; to include cleared areas void of sagebrush used as strutting grounds.

Table 1 – Gunnison sage-grouse Structural Guidelines for Breeding Habitat¹

Vegetation Variable*	Amount of occurrence in the habitat
Sagebrush Canopy Cover*	10-25%
Non-sagebrush Canopy Cover*	5-15%
Total Shrub Canopy Cover*	15-40%
Sagebrush Height*	25-50 cm (9.8-19.7 in.)
Grass Cover*	10-40%
Forb Cover*	5-40%
Grass Height*	10-15 cm (3.9-5.9 in.)
Forb Height*	5-15 cm (2 – 6 in.)

¹These guidelines incorporate the vegetation variable range for arid and mesic sites identified in the RCP.

*These habitat structure values are average values over a given area.

Summer- Fall Habitat: Vegetation communities known or suspected to be used by Gunnison Sage-grouse, including sagebrush, agricultural field, and wet meadows.

Table 2 – Gunnison sage-grouse Structural Guidelines for Summer-Late Fall Habitat¹

Vegetation Variable*	Amount of occurrence in the habitat
Sagebrush Canopy Cover*	5-20%
Non-sagebrush Canopy Cover*	5-15%
Total Shrub Canopy Cover*	10-35%

Table 2 – Gunnison sage-grouse Structural Guidelines for Summer-Late Fall Habitat¹

Vegetation Variable*	Amount of occurrence in the habitat
Sagebrush Height*	25-50 CM (9.8 – 19.7 in.)
Grass Cover*	10-35%
Forb Cover*	5-35%
Grass Height*	10-15 cm (3.9-5.9 in.)
Forb Height*	3-10 cm (1.2-3.9 in.)

¹These guidelines incorporate the vegetation variable range for arid and mesic sites identified in the RCP.

*These habitat structure values are average values over a given area.

Winter habitat: Sagebrush areas known or suspected to be used by Gunnison Sage-grouse that area available (i.e., not covered by snow) to sage-grouse in average winters.

Table 3 – Gunnison sage-grouse Structural Guidelines for Winter Habitat¹

Vegetation Variable	Amount of occurrence in the habitat
Sagebrush Canopy Cover*	30-40%, or areas of exposed sagebrush in a configuration capable of supporting sage-grouse
Sagebrush height*	40-55 cm (15.8 – 21.7 in.), or where shrub height is above snow cover

¹These guidelines incorporate the vegetation variable range for arid and mesic sites identified in the RCP.

*These habitat structure values are average values over a given area.

Habitat Prioritization Tool - A spatial model used to evaluate GUSG habitat within the Gunnison Basin. (See Tier 1 Habitat and Tier 2 Habitat.)

Harvest coefficient - The percentage of total forage produced that is assigned to grazing animals for consumption.

Heavy metal - Occurs naturally in the ecosystem, with large variations in concentration. In modern times, anthropogenic sources of heavy metals (pollution) have been introduced to the ecosystem. Motivations for controlling heavy metal concentrations in gas streams are diverse. Some heavy metals are dangerous to health or to the environment, some may cause corrosion, and some are harmful in other ways.

Impact - The effect, influence, alteration, or imprint caused by an action.

Impairment - The degree to which a distance of clear visibility is degraded by human-caused pollutants.

Implementation decisions - Decisions that take action to implement land use planning; generally appealable to Interior Board of Land Appeals under 43 CFR 4.410.

Implementation plan - An area or site-specific plan written to implement decisions made in a land use plan. Implementation plans include both activity plans and project plans.

Incidental Take - The unintentional harming (including killing) or harassing of a listed species resulting from a Federal action, which may occur when authorized by the FWS through an incidental take statement that identifies the amount or extent of the take, as well as reasonable and prudent measures to minimize the take and terms and conditions that must be observed when implementing those measures.

Indirect impacts - Indirect impacts result from implementing an action or alternative but usually occur later in time or are removed in distance and are reasonably certain to occur.

Informal Consultation - The requirement under Section 7 of the ESA for federal agencies to consult with the FWS when any action the agency carries out, funds, or authorizes (such as through a permit) has the potential to affect a listed endangered or threatened species. The process usually begins as informal consultation and if, after discussions with and concurrence from the FWS, the agency determines that the proposed action is not likely to affect any listed species in the project area, consultation is complete and the proposed project can proceed. If it appears that the agency's action might affect a listed species, the agency can prepare a biological assessment to assist in its determination of the project's effect on a species.

Integrated Pest Management - The use of all appropriate weed control measures, including fire, as well as mechanical, chemical, biological, and cultural techniques, in an organized and coordinated manner on a site-specific basis.

Late season - Fall or late summer grazing.

Land classification - When, under criteria of 43 CFR 2400, a tract of land has potential for either retention for multiple use management or for some form of disposal, or for more than one form of disposal, the relative scarcity of the values involved and the availability of alternative means and sites for realization of those values will be considered. Long-term public benefits will be weighed against more immediate or local benefits. The tract will then be classified in a manner that would best promote the public interest.

Land Health Fundamental(s) - Overarching principles of rangeland health listed at 43 CFR 4180.1 which establish the Department of Interior's policy of managing for healthy rangelands. State or regional standards must provide for conformance with the fundamentals for rangeland health.

Land tenure adjustments - Ownership or jurisdictional changes to improve the manageability of BLM lands and their usefulness to the public. The BLM has numerous authorities for repositioning lands into a more consolidated pattern, disposing of lands, and entering into cooperative management agreements. These land pattern improvements are completed primarily through the use of land exchanges, but also through land sales, jurisdictional transfers to other agencies, and through the use of cooperative management agreements and leases.

Land use allocation - The identification in a land use plan of the activities and foreseeable development that are allowed, restricted, or excluded for all or part of the planning area, based on desired future conditions. (from H-1601-1, BLM Land Use Planning Handbook).

Land use plan - A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan level decisions developed through the planning process outlined in 43 CFR 1600, regardless of the scale at which the decisions were developed. The term includes both RMPs and MFPs.

Land use plan decision - Establishes desired outcomes and actions needed to achieve them. Decisions are reached using the planning process in 43 CFR 1600. When they are presented to the public as proposed decisions, they can be protested to the BLM Director. They are not appealable to Interior Board of Land Appeals.

LANDFIRE - A partnership program between the DOI, USFS, and Nature Conservancy begun in 2001 that produces geo-spatial products and databases covering the U.S. for the purpose of creating a nationally complete, comprehensive, and consistent set of products that support fire and natural resource management organizations and applications; also known as "Landscape Fire and Resource Management Planning Tools."

Large transmission lines - The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to customers, or is delivered to other electrical systems. Transmission is considered to end when the energy is transformed for distribution to the customer. For purposes of this EIS, large transmission lines are considered to be 230 kilovolts or higher. 230-kilovolt lines generally require a larger disturbance footprint to accommodate larger infrastructure.

Late brood-rearing area - Habitat includes mesic sagebrush and mixed shrub communities, wet meadows, and riparian habitats as well as some agricultural lands (e.g. alfalfa fields, etc.).

Leasable minerals - Those minerals or materials subject to lease by the federal government under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium, sodium minerals, oil and gas, as well as geothermal resources.

Lease - Section 302 of FLPMA provides the BLM with authority to issue leases for the use, occupancy, and development of public lands. Leases are issued for purposes such as a commercial filming, advertising displays, commercial or noncommercial croplands, apiaries, livestock holding or feeding areas not related to grazing permits and leases, harvesting of native or introduced species, temporary or permanent facilities for commercial purposes (does not include mining claims), residential occupancy, ski resorts, construction equipment storage sites, assembly yards, oil rig stacking sites, mining claim occupancy if the residential structures are not incidental to the mining operation, and water pipelines and well pumps related to irrigation and non-irrigation facilities. The regulations establishing procedures for the processing of these leases and permits are found in 43 CFR 2920.

Lease stipulation - A modification of the terms and conditions on a standard lease form at the time of the lease sale.

Lek - An area where certain bird species (such as sage-grouse) assemble to carry on display and courtship behavior.

Active Lek: An open area that has been attended by ≥ 2 male sage-grouse in ≥ 2 of the previous 5 years. For the smaller GUSG populations outside the Gunnison Basin, an active lek is defined as an open area where one or more sage-grouse have been observed on more than one occasion, engaging in courtship or breeding behavior. An area used by displaying males in the last 5 years is considered an active lek. (RCP)

Historic lek: A formerly active lek that has not been utilized for display or breeding within the last 10 years.

Inactive Lek: To be considered inactive for a given season, a lek must have zero males in attendance for at least two count periods. For the official status of a lek to be considered Inactive, a lek needs to be seasonally In active for five consecutive years.

Limited - Designated areas and trails where the use of off-road vehicles is subject to restrictions, such as limiting the number or types of vehicles allowed, dates and times of use (seasonal restrictions), limiting use to existing roads and trails, or limiting use to designated roads and trails. Under the designated roads and trails designation, use would be allowed only on roads and trails that are signed for use. Combinations of restrictions are possible, such as limiting use to certain types of vehicles during certain times of the year (from BLM National Management Strategy for OHV Use on Public Lands).

Locatable minerals - Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon minerals not subject to lease or sale.

Maintenance action - A minor adjustment to a land use plan that does not require an amendment.

Management decision - A decision made by the BLM to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Management unit - A BLM field office, national monument, or national conservation area.

Master Development Plans - A plan addressing two or more APDs that share a common drilling plan, surface use plans of operations, and plans for future development and production.

Mineral - Any naturally formed inorganic material, solid or fluid inorganic substance that can be extracted from the earth, any of various naturally occurring homogeneous substances (as stone, coal, salt, sulfur, sand, petroleum, water, or natural gas) obtained for human use, usually from the ground. Under federal laws, considered as locatable (subject to the general mining laws), leasable (subject to the Mineral Leasing Act of 1920), and salable (subject to the Materials Act of 1947).

Mineral entry - The filing of a claim on public land to obtain the right to any locatable minerals it may contain.

Mineral estate - The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral materials - Materials such as sand and gravel and common varieties of stone, pumice, pumicite, and clay that are not obtainable under the mining or leasing laws, but that can be acquired under the Materials Act of 1947, as amended.

Minimization mitigation - Minimizing impacts by limiting the degree or magnitude of the action and its implementation (40 CFR 1508.20 (b)).

Mining claim - A parcel of land that a miner takes and holds for mining purposes, having acquired the right of possession by complying with the Mining Law and local laws and rules. A mining claim may contain as many adjoining locations as the locator may make or buy. There are four categories of mining claims: lode, placer, mill site, and tunnel site.

Mitigation - Includes specific means, measures, or practices that could reduce, avoid, or eliminate adverse impacts. Mitigation can include:

- (a) Avoiding an impact altogether by not taking a certain action or parts of an action.
- (b) Minimizing an impact by limiting the degree or magnitude of the action and its implementation.
- (c) Rectifying an impact by repairing, rehabilitating, or restoring the affected environment.
- (d) Reducing or eliminating an impact over time by preservation and maintenance operations during the life of the action.
- (e) Compensating for an impact by replacing or providing substitute resources or environments.

Modification - A change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

Monitoring (plan monitoring) - The process of tracking the implementation of land use plan decisions and collecting and assessing data necessary to evaluate the effectiveness of land use planning decisions.

Motorized vehicles or uses - Vehicles that are motorized, including but not limited to jeeps, all-terrain vehicles (all-terrain vehicles, such as four-wheelers and three-wheelers), trail motorcycles or dirt bikes, and aircrafts.

Multiple use - Managing public lands and their various resource values so that they are utilized in a combination that will best meet the present and future needs of the American people. Making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.

National Environmental Policy Act of 1969 (NEPA) - Public Law 91-190. Establishes environmental policy for the nation. Among other items, NEPA requires federal agencies to consider environmental values in decision-making processes.

National Register of Historic Places - A listing of architectural, historical, archaeological, and cultural sites of local, state, or national significance, established by the Historic Preservation Act of, 1966 and maintained by the National Park Service.

National Wild and Scenic Rivers System - A system of nationally designated rivers and their immediate environments that have outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values and are preserved in a free-flowing condition. The system consists of three types of streams: (1) **recreational**: rivers or sections of rivers that are readily accessible by road or railroad and that may have some development along their shorelines and may have undergone some impoundments or diversion in the past, (2) **scenic**: rivers or sections of rivers free of impoundments with shorelines or watersheds still largely undeveloped but accessible in places by roads, and (3) **wild**: rivers or sections of rivers free of impoundments and generally inaccessible except by trails, with watersheds or shorelines essentially primitive and waters unpolluted.

No Surface Occupancy (NSO) - A major constraint where use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of

wells and/or pads) are prohibited to protect identified resource values. Areas identified as NSO are open to fluid mineral leasing, but surface occupancy or surface-disturbing activities associated with fluid mineral leasing cannot be conducted on the surface of the land. Access to fluid mineral deposits would require horizontal drilling from outside the boundaries of the NSO area.

Non-energy leasable minerals - Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. Non-energy minerals include resources such as phosphate, sodium, potassium, and sulfur.

Nonfunctioning Condition - Condition in which vegetation and ground cover are unable to sustain natural biotic communities. In riparian-wetland areas, conditions do not provide adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows and thus are unable to reduce erosion, improve water quality, or other normal characteristics of riparian areas.

Notice of Intent to Conduct Oil and Gas Geophysical Exploration Operations - Notice to the BLM to conduct oil and gas exploration proposals.

Notice of Staking - Notice to the BLM that staking has been or will be completed for well locations on Federal leases and serves as a request to schedule an onsite inspection.

Noxious weeds - A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or nonnative, new, or not common to the US.

Objective - A description of a desired condition for a resource. Objectives can be quantified and measured and, where possible, have established timeframes for achievement.

Off-highway vehicle (OHV) (off-road vehicle) - Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non-amphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used for national defense.

Open - Designated areas and trails where off-road vehicles may be operated, subject to operating regulations and vehicle standards set forth in BLM Manuals 8341 and 8343, or an area where all types of vehicle use is permitted at all times, subject to the standards in BLM Manuals 8341 and 8343.

Outstandingly Remarkable Values - Values among those listed in Section 1(b) of the Wild and Scenic Rivers Act: "scenic, recreational, geological, fish and wildlife, historic, cultural, or other similar values..." Other similar values which may be considered include ecological, biological or botanical, paleontological, hydrological, scientific or research values.

Perennial stream - Perennial streams carry flowing water continuously throughout the year, regardless of weather conditions. It exhibits well-defined geomorphologic characteristics and in the absence of pollution, thermal modifications, or other man-made disturbances has the ability to support aquatic life. During hydrological drought conditions, the flow may be impaired.

Permitted Use - The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease, and expressed in Animal Unit Months.

Permittee - A person or company permitted to graze livestock on public land.

Planning area - A geographic area for which land use and resource management plans are developed and maintained.

Planning criteria - The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamlines and simplifies the resource management planning actions.

Policy - A statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Potential Habitat - Unoccupied habitats that could be suitable for occupation of sage grouse if practical restoration were applied.

Prescribed fire - Any fire intentionally ignited by management actions in accordance with applicable laws, policies and regulations to meet specific objectives.

Primary Constituent Element (PCE) - A physical or biological feature essential to the conservation of a species and upon which designated or proposed critical habitat is based, such as space for individual and population growth and normal behavior such as food, water, air, light, minerals, or other nutritional or physiological requirements, cover or shelter, sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal, and habitats that are protected from disturbance or are representative of historic geographic and ecological distribution for the species.

Primitive route - Any transportation linear feature located within areas that have been identified as having wilderness characteristics and not meeting the wilderness inventory road definition (BLM Manual 6310 – Conducting Wilderness Characteristics Inventory on BLM Lands).

Prohibit/Closed/Exclusion - prevented, precluded or not available under any conditions for a particular use or uses to insure protection of other resource values present.

Properly Functioning Condition - (1) An element of the Fundamental of Rangeland Health for watersheds, and therefore a required element of state or regional standards and guidelines under 43 CFR § 4180.2(b). (2) Condition in which vegetation and groundcover maintain soil conditions necessary to sustain natural biotic communities. Riparian wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is influenced by geomorphic features, soil, water, and vegetation. (4) Uplands function properly when the existing vegetation and groundcover maintain soil conditions capable of sustaining natural biotic communities. The functioning condition of uplands is influenced by geomorphic features, soil, water, and vegetation.

Public land - Land or interest in land owned by the United States and administered by the Secretary of the Interior through the BLM without regard to how the United States acquired ownership, except lands located on the Outer Continental Shelf, and lands held for the benefit of Indians, Aleuts, and Eskimos.

Rangeland health - The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained.

Range Improvement - An authorized physical modification or treatment designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, restore, protect, and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife, including, but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

Reasonable Foreseeable Development (RFD) Scenario - The prediction of the type and amount of oil and gas activity that would occur in a given area. The prediction is based on geologic factors, past history of drilling, projected demand for oil and gas, and industry interest.

Recreation and Public Purposes Act (of 1926) - The Recreation and Public Purposes Act provided for the lease and sale of public lands determined valuable for public purposes. The objective of the Recreation and Public Purposes Act is to meet the needs of state and local government agencies and nonprofit organizations by leasing or conveying public land required for recreation and public purpose uses. Examples of uses made of Recreation and Public Purposes lands are parks and greenbelts, sanitary landfills, schools, religious facilities, and camps for youth groups. The act provides substantial cost-benefits for land acquisition and provides for recreation facilities or historical monuments at no cost.

Recreation management area - Includes special recreation management areas (SRMAs) and extensive recreation management areas (ERMAs); see SRMA and ERMA definitions.

Recreation Opportunity Spectrum - A continuum used to characterize recreation opportunities in terms of setting, activity and experience opportunities. The spectrum covers a range of recreation opportunities from primitive to urban. With respective to river management planning, the Recreation Opportunity Spectrum represents one possible method for delineating management units or zones.

Rehabilitate - Returning disturbed lands as near to its pre-disturbed condition as is reasonably practical or as specified in approved permits.

Renewable Energy - Energy resources that constantly renew themselves or that are regarded as practically inexhaustible. These include solar, wind, geothermal, hydro, and biomass. Although particular geothermal formations can be depleted, the natural heat in the Earth is a virtually inexhaustible reserve of potential energy.

Resource Advisory Council (RAC) - Provides advice to the BLM on various resource issues. A coordinated effort to involve RACs early on and throughout the process ensure that the BLM obtains and incorporates local input and advice throughout this project.

Resource Management Plan (RMP) - A land use plan as prescribed by the Federal Land Policy and Management Act that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Restore/restoration - Implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term. The long-term goal is to create functional, high quality habitat that is occupied by sage-grouse. Short-term goal may be to restore the landform, soils and hydrology and increase the percentage of preferred vegetation, seeding of desired species, or treatment of undesired species.

Restriction/restricted use - A limitation or constraint on public land uses and operations. Restrictions can be of any kind, but most commonly apply to certain types of vehicle use, temporal and/or spatial constraints, or certain authorizations.

Revegetate/revegetation - The process of putting vegetation back in an area where vegetation previously existed, which may or may not simulate natural conditions.

Revision - The process of completely rewriting the land use plan due to changes in the planning area affecting major portions of the plan or the entire plan.

Right-of-Way (ROW) - Means the public lands authorized to be used or occupied for specific purposes pursuant to a right-of-way grant, which are in the public interest and which require rights-of-way over, upon, under, or through such lands.

Right-of-way avoidance area - An area identified through resource management planning to be avoided but may be available for ROW location with special stipulations.

Right-of-way exclusion area - An area identified through resource management planning that is not available for ROW location under any conditions.

Riparian area - A form of wetland transition between permanently saturated wetlands and upland areas. Riparian areas exhibit vegetation or physical characteristics that reflect the influence of permanent surface or subsurface water. Typical riparian areas include lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels. Excluded are ephemeral streams or washes that lack vegetation and depend on free water in the soil.

Road - A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

Rock art - Petroglyphs (carvings) or pictographs (paintings) created on natural rock surfaces by native people and depicting their history and culture.

Rotation - Regular change in grazing between pastures in an allotment for a permitted period.

Routes - Multiple roads, trails and primitive roads; a group or set of roads, trails, and primitive roads that represents less than 100 percent of the BLM transportation system. Generically, components of the transportation system are described as “routes.”

Sagebrush habitat - Areas of vegetation composed primarily of sagebrush plant communities - at least 25 percent of the land is dominated by sagebrush cover within a 0.9-mile [1.5-km] radius of any given location, of sufficient size and configuration to encompass all seasonal habitats for a give population of Gunnison Sage-grouse, and facilitate movement within and among populations (FWS 2014 primary constituent element I).

Salable minerals - Common mineral varieties such as sand and gravel found on public lands and used mainly for construction. Salable minerals are disposed of by sales to the public or free-use permits to government agencies or nonprofit organizations.

Sale (public land) - A method of land disposal pursuant to Section 203 of FLPMA, whereby the US receives a fair-market payment for the transfer of land from federal ownership. Public lands determined suitable for sale are offered on the initiative of the BLM. Lands suitable for sale must be identified in the RMP. Any lands to be disposed of by sale that are not identified in the current RMP, or that meet the disposal criteria identified in the RMP, require a plan amendment before a sale can occur.

Scenic byway - Highway route with a roadside or corridor of special aesthetic, cultural, or historic value. An essential part of the highway is its scenic corridor. The corridor may contain outstanding scenic vistas, unusual geologic features, or other natural elements.

Scoping process - An early and open public participation process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action.

Season of Use - The time during which livestock grazing is permitted on a given range area, as specified in a grazing lease.

Sensitive species - Species designated as sensitive by the BLM State Director, including species that are under status review, have small or declining populations, live in unique habitats, or require special management. BLM Manual 6840 provides policy and guidance for managing special status species.

Site Specific Relocation (SSR) - Allows some use and occupancy of public land while protecting identified resources or values. SSR areas are potentially open to surface-disturbing activities but the restriction allows the BLM to require special constraints, or the activity can be shifted (spatially or temporally) to protect the specified resource or value. Activities that are not considered surface disturbing include, but are not limited to, livestock grazing, cross-country hiking or equestrian use, installing signs, minimum impact filming, vehicular travel on designated routes, and general use of the area by wildlife.

Special Recreation Management Area (SRMA) - A public land area identified in a land use plan to which recreation funding and personnel are committed in order to provide specific, structured recreation opportunities (including activities, experiences, and benefits).

Special recreation permit (SRP) - Authorization that allows for recreational uses of public lands and related waters. Issued as a means to control visitor use, protect recreational and natural resources, and provide for the health and safety of visitors. Commercial SRPs are also issued as a mechanism to provide a fair return for the commercial use of public lands.

Special status species - BLM special status species are: (1) species listed, candidate, or proposed for listing under the Endangered Species Act; and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act that are designated as BLM sensitive by the BLM State Director(s). All federally listed candidate species, proposed species, and delisted species in the five years following delisting are conserved as BLM sensitive species.

Split estate - This is the circumstance where the surface of a particular parcel of land is owned by a different party than the minerals underlying the surface. Split estates can have any combination of surface and subsurface owners (federal/state; federal/private; state/private) or percentages of ownership. When referring to the split estate ownership on a particular parcel of land, it is generally necessary to describe the surface/subsurface ownership pattern of the parcel.

Standard lease terms and conditions - Areas may be open to leasing with no specific management decisions defined in a Resource Management Plan; however, these areas are subject to lease terms and conditions as defined on the lease form (Form 3100-11, Offer to Lease and Lease for Oil and Gas; and Form 3200-24, Offer to Lease and Lease for Geothermal Resources).

State Implementation Plan - A detailed description of the programs a state will use to carry out its responsibilities under the Clean Air Act. State implementation plans are a collection of regulations used by a state to reduce air pollution.

Stipulation (general) - A term or condition in an agreement or contract.

Stipulation (oil and gas) - A provision that applies to construction and drilling which modifies standard oil and gas lease terms and conditions in order to protect other resource values or land uses and is attached to and made a part of the lease. Typical lease stipulations include No Surface Occupancy

(NSO), Timing Limitations (TL), and Controlled Surface Use (CSU). Lease stipulations are developed through the land use planning (RMP) process.

Stocking rate - the number of animals on a given amount of land over a certain period of time. Stocking rate is generally expressed as animal units per unit of land area.

Structural range improvements – Constructed developments such as fences, corrals, cattle guards, windmills, and other facilities that help with the distribution and control of livestock.

Succession - the observed process of change in the species structure of an ecological community over time.

Surface access agreement - A voluntary, private contract between the private surface owner and the Federal mineral lessee or operator to conduct applicable resource surveys and oil and gas operations necessary to develop the Federal mineral lease. The Surface Access Agreement may include terms or conditions of use, be a waiver, or an agreement for compensation..

Surface-disturbing activities (or surface disturbance) - The physical disturbance and movement or removal of land surface and vegetation. These activities range from excavation and development activities associated with use of heavy equipment for road, pipeline, power line and other types of construction; blasting; strip, pit, and underground mining and related activities, including ancillary facility construction; oil and gas well drilling and field construction or development and related activities; range improvement project construction; and recreation site construction. Surface disturbances normally involve use of surface lands resulting in disturbance to soils and vegetation that could require reclamation. Surface disturbance is not normally caused by casual-use activities. Activities not considered surface-disturbing include, but are not limited to, livestock grazing, cross-country hiking or equestrian use, prescribed fire, some fuels and vegetation treatments, dispersed camping, installing signs, minimum impact filming, vehicular travel on designated routes, and general use of the land by wildlife.

Surface use(s) - These are all the various activities that may be present on the surface or near-surface (e.g., pipelines), of the public lands. It does not refer to those subterranean activities (e.g., underground mining, etc.) occurring on the public lands or federal mineral estate. When administered as a use restriction (e.g., No Surface Use [NSU]), this phrase prohibits all but specified resource uses and activities in a certain area to protect particular sensitive resource values and property. This designation typically applies to small acreage sensitive resource sites (e.g., plant community study exclosure, etc.), and/or administrative sites (e.g., government ware-yard, etc.) where only authorized, agency personnel are admitted.

Tall Structures - Infrastructure that is at least twice as tall as the surrounding vegetation, including poles and towers for lighting, communications, meteorology, telephone and electrical distribution, and high-tension transmission.

Temporary/temporary use - A relative term that must be considered in the context of the resource values affected and the nature of the resource use(s)/activity(ies) taking place. Generally, a temporary activity is considered to be one that is not fixed in place and is of short duration.

Threatened species - Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (BLM Manual 6840, Special Status Species Management). Under the Endangered Species Act in the US, “threatened” is the lesser-protected of the two categories. Designation as threatened (or endangered) is determined by USFWS as directed by the Endangered Species Act.

Tier 1 Habitat - Roughly 60% of GUSG Occupied Habitat in the Gunnison Basin population area is proposed to be managed as Tier 1 habitat. These areas were identified in the CCA using the habitat prioritization tool and are generally characterized by overlapping seasonal habitats and minimal existing permanent development.

Tier 2 Habitat - Roughly 40% of GUSG Occupied Habitat in the Gunnison Basin population area is proposed to be managed as Tier 2 habitat. These areas were identified in the CCA using the habitat prioritization tool and generally represent the more fragmented areas on the landscape.

Timing Limitation (TL) - The TL stipulation, a moderate constraint, is applicable to fluid mineral construction and drilling activities (e.g., truck-mounted drilling and geophysical exploration equipment off designated routes, construction of wells and/or pads), and other surface-disturbing activities (i.e., those not related to fluid mineral leasing). Areas identified for TL are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance, such as workovers on wells, is not permitted. TLs can overlap spatially with NSO and CSU, as well as with areas that have no other restrictions.

Total Maximum Daily Load - An estimate of the total quantity of pollutants (from point, nonpoint, and natural sources) allowed into waters without exceeding applicable water quality criteria.

Traditional Cultural Property - A property that derives significance from traditional values associated with it by a social and/or cultural group such as an Indian tribe or local community. A traditional cultural property may qualify for the National Register if it meets the criteria and criteria exceptions in 36 CFR 60.4.

Trail - A linear route managed for human power (e.g., hiking or bicycling), stock (e.g., equestrian), or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

Transmission - The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers, or is delivered to other electric systems. Transmission is considered to end when the energy is transformed for distribution to the consumer.

Transmission line (large) - An electrical utility line with a capacity greater than or equal to 100 kilovolts or a natural gas, hydrogen, or water pipeline greater than or equal to 24 inches in diameter.

Transportation system - The sum of the BLM's recognized inventory of linear features (roads, primitive roads, and trails) formally recognized, designated, and approved as part of the BLM's transportation system.

Travel management areas - Polygons or delineated areas where a rational approach has been taken to classify areas open, closed or limited, and have identified and/or designated a network of roads, trails, ways, landing strips, and other routes that provide for public access and travel across the planning area. All designated travel routes within travel management areas should have a clearly identified need and purpose as well as clearly defined activity types, modes of travel, and seasons or timeframes for allowable access or other limitations (BLM Handbook H-1601-1, Land Use Planning Handbook).

Trespass - Any unauthorized use of public land.

Tribal interests - Native American or Native Alaskan economic rights such as Indian trust assets, resource uses and access guaranteed by treaty rights, and subsistence uses.

Utility corridor - Tract of land varying in width forming passageway through which various commodities such as oil, gas, and electricity are transported.

Vacant or Unknown Habitat - Suitable habitat for sage-grouse that is separated (not contiguous) from occupied habitat that either (1) has not been adequately inventoried, or (2) has not had documentation of grouse presence in the past 10 years.

Valid existing rights - Documented, legal rights or interests in the land that allow a person or entity to use said land for a specific purpose and that are still in effect. Such rights include but are not limited to fee title ownership, mineral rights, rights-of-way, easements, permits, and licenses. Such rights may have been reserved, acquired, leased, granted, permitted, or otherwise authorized over time.

Vegetation treatments - Management practices which change the vegetation structure to a different stage of development. Vegetation treatment methods include managed fire, prescribed fire, chemical, mechanical, and seeding.

Visitor day - Twelve visitor hours that may be aggregated by one or more persons in single or multiple visits.

Visitor use - Visitor use of a resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

Visual Resource Management (VRM) classes - Visual resource management classes define the degree of acceptable visual change within a characteristic landscape. A class is based on the physical and sociological characteristics of any given homogeneous area and serves as a management objective. Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. Each class has an objective which prescribes the amount of change allowed in the characteristic landscape.

Watershed - Topographical region or area delineated by water draining to a particular watercourse or body of water.

West Nile virus - A virus that is found in temperate and tropical regions of the world and most commonly transmitted by mosquitos. West Nile virus can cause flu-like symptoms in humans and can be lethal to birds, including sage-grouse.

Wildcat well - An exploratory oil well drilled in land not known to be an oil field.

Wilderness - A congressionally designated area of undeveloped federal land retaining its primeval character and influence, without permanent improvements and generally appear to have been affected primarily by the forces of nature.

Wilderness characteristics - Wilderness characteristics attributes include the area's size, its apparent naturalness, and outstanding opportunities for solitude or a primitive and unconfined type of recreation. They may also include supplemental values. Lands with wilderness characteristics are those lands that have been inventoried and determined by the BLM to contain wilderness characteristics as defined in section 2(c) of the Wilderness Act.

Wilderness Study Area - The Federal Land Policy and Management Act of 1976 directed the Bureau to inventory and study its roadless areas for wilderness characteristics. To be designated as a Wilderness Study Area, an area had to have the following characteristics:

- Size - roadless areas of at least 5,000 acres of public lands or of a manageable size;
- Naturalness - generally appears to have been affected primarily by the forces of nature;
- Opportunities - provides outstanding opportunities for solitude or primitive and unconfined types of recreation.

Wildland fire - Any fire, regardless of ignition source, that is burning outside of a prescribed fire and any fire burning on public lands or threatening public land resources, where no fire prescription standards have been prepared.

Wildland-Urban Interface (WUI) - An area within or adjacent to an at risk community that has been identified by a community in its wildfire protection plan or, for areas that do not have such a plan, an area: 1) extending one half mile from the boundary of an at risk community; 2) extending 1½ miles when other criteria are met (such as a sustained steep slope or a geographic feature aiding in creating an effective fire break) or comprised of Condition Class III land; or 3) adjacent to an evacuation route.

Withdrawal - An action that restricts the use of public land and segregates the land from the operation of some or all of the public land and mineral laws. Withdrawals are also used to transfer jurisdiction of management of public lands to other federal agencies.

Woodland – lands vegetated primarily by juniper and pinyon-pine trees.

8. REFERENCES

- Aldridge, C. L. and M. S. Boyce. 2007. Linking occurrence and fitness to persistence: habitat-based approach for endangered greater sage-grouse. *Ecological Applications* 17:508-526.
- Aldridge, C. L., S. E. Nielsen, H. L. Beyer, M. S. Boyce, J. W. Connelly, S. T. Knick, and M. A. Schroeder. 2008. Range-wide patterns of greater sage-grouse persistence. *Diversity and Distributions* 17:983-994.
- Aldridge, C. L., D. J. Saher, T. M. Childers, K. E. Stahlnecker, and Z. H. Bowen. 2012. Crucial nesting habitat for Gunnison sage-grouse: a spatially explicit hierarchical approach. *Journal of Wildlife Management* 76(2):391-406.
- Anderson, D. C., K. T. Harper, and S. R. Rushforth. 1982. Recovery of cryptogamic soil crusts from grazing on Utah winter ranges. *Journal of Range Management* 35(3).
- Archer, S. A. and K. I. Predick. 2008. Climate change and ecosystems of the Southwestern United States. *Rangelands* 30(3): 23-38.
- Armour, C. L., D. A. Duff, and W. Elmore. 1991. The effects of livestock grazing on riparian and stream ecosystems. *Fisheries* 16(1): 7-11.
- Baker, W. L. 2006. Fire and restoration of sagebrush ecosystems. *Wildlife Society Bulletin* 34:177-185.
- Balch, J. K., B. A. Bradley, C. M. D'Antonio, and J. Gomez-Dans. 2012. Introduced annual grass increases regional fire activity across the arid western USA (1980–2009). *Global Change Biology* vol. 19 (1) pp. 173-183.
- Barney, M. A. and N. C. Frischknecht. 1974. Vegetation changes following fire in the pinyon-juniper type of west-central Utah. *Journal of Range Management*, Volume 27, No. 2.
- Batchelor, J. L., W. J. Ripple, T. M. Wilson, L. E. Painter. 2015. Restoration of riparian areas following the removal of cattle in the northwestern Great Basin. *Environmental Management* (2015) 55:930-942.
- Beck, J. L., J. W. Connelly, and K. P. Reese. 2009. Recovery of greater sage-grouse habitat features in Wyoming big sagebrush following prescribed fire. *Restoration Ecology* 17:393-403.
- Beck, J. L. and D. L. Mitchell. 2000. Influences of livestock grazing on sage grouse habitat. *Wildlife Society Bulletin* 28:993-1002.
- Beck, J. L., K. P. Reese, J. W. Connelly, and M. B. Lucia (Beck et al). 2006. Movements and survival of juvenile greater sage-grouse in southeastern Idaho. *Wildlife Society Bulletin* 34:1070-1078.
- Belnap, J. 1993. Recovery rates of cryptobiotic soil crusts: assessment of artificial inoculant and methods of evaluation. *Great Basin Naturalist* 53, 89-95.

CHAPTER 8 - REFERENCES

- Belnap, J., J. H. Kaltenecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge (Belnap et al). 2001. Biological soil crusts: ecology and management. Bureau of Land Management. National Science and Technology Center Technical reference 1730-2.
- Belnap, J., R. Prasse, and K. T. Harper (Belnap, Prasse, and Harper). 2001. Influences of biological soil crusts on soil environments and vascular plants. *Biological Studies*, Vol 150: 281-300.
- Belsky, A. J., A. Matzke, and S. Uselman. 1999. Survey of livestock influences on stream and riparian ecosystems in the western United States. *Journal of Soil and Water Conservation* 54: 419-431.
- BLM. (See U.S. Department of the Interior, Bureau of Land Management.)
- Boyd, C. S. and T. J. Svejcar. 2011. The influence of plant removal on succession in Wyoming big sagebrush. *Journal of Arid Environments* Volume 75, Issue 8.
- Boyle, S. A. and D. R. Reeder. 2005. Colorado sagebrush: a conservation assessment and strategy. Grand Junction: Colorado Division of Wildlife.
- Braun, C. E. 1998. Sage-grouse Declines in Western North America: What are the problems? *Proceedings of the Western Association of State Fish and Wildlife Agencies* 78:139-56.
- Brockway, D. G., R. G. Gatewood, and R. B. Paris. 2002. Restoring grassland savannas from degraded pinyon-juniper woodlands: effects of mechanical overstory reduction and slash treatment alternatives. *Journal of Environmental Management* Volume 64, Issue 2, February 2002.
- Brown, J. K. 1982. Fuel and fire behavior prediction in big sagebrush. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. Research Paper INT-290. Ogden, UT.
- Bryce, S. A., J. R. Stritholt, B. C. Ward, and D. M. Bachelet. 2012. Colorado Plateau Rapid Ecoregional Assessment Report. Prepared for the U.S. Department of the Interior, BLM, Denver.
- Budd, B. and J. Thorpe. 2009. Benefits of managed grazing: a manager's perspective. *Society for Range Management* October 2009.
- Bui, Thuy-Vy, J. M. Marzluff, and B. Bedrosian. 2010. Common raven activity in relation to land use in western Wyoming: implications for greater sage-grouse reproductive success. *The Condor* 112(1):65-78.
- Bui, Thuy-Vy. 2009. The Effects of Nest and Brood Predation by Common Ravens (*Corvus corax*) on Greater Sage-grouse (*Centrocercus urophasianus*) in Relation to Land Use in Western Wyoming. Thesis. University of Washington.
- Bureau of Land Management. (See U.S. Department of the Interior, Bureau of Land Management.)
- Burke, M. J. W. and J. P. Grime. 1996. An experimental study of plant community invasibility. *Ecology* 77: 776-790.
- Burkhardt, J. W. and E. W. Tisdale. 1976. Causes of juniper invasion in southwestern Idaho. *Ecology* 57(3):472-484.

CHAPTER 8 - REFERENCES

- Cagney, J., E. Bainter, B. Budd, T. Christiansen, V. Herren, M. Holloran, B. Rashford, M. Smith, and J. Williams (Cagney et al). 2010. Grazing influence, objective development, and management in Wyoming's greater sage-grouse habitat with emphasis on nesting and early brood rearing. *Cooperative Extension Service Bulletin B-1203*, University of Wyoming: Laramie.
- Callison, J., J. D. Brotherson, and J. E. Brown. 1985. The effects of fire on the blackbrush (*Coleogyne ramisissima*) community of southwestern Utah. *Journal of Range Management* 38:535-538.
- Candidate Conservation Agreement for the Gunnison Sage-Grouse, *Centrocercus minimus* Gunnison Basin Population (CCA). 2013. Colorado Parks & Wildlife, Gunnison County, Saguache County, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. National Park Service, and U.S. Natural Resources Conservation Service.
- Canfield, R. H. 1941. Application of the line interception method in sampling range vegetation. *Journal of Forestry* 39:388-394.
- Cardille, J., S. J. Ventura and M. G. Turner. 2001. Environmental and social factors influencing wildfires in the upper Midwest, United States. *Ecological Applications* 11(1), 2001, pp. 111-127.
- Carlisle, D. M., D. M. Wolock, and M. R. Meador. 2011. Alteration of streamflow magnitudes and potential ecological consequences: a multiregional assessment. *Frontiers in Ecology and the Environment* 9:264-270.
- Carpenter, J., C. Aldridge, and M. S. Boyce. 2010. Sage-grouse habitat selection during winter in Alberta. *Journal of Wildlife Management* 74(8):1806-1814.
- Carsey, K., G. Kittel, K. Decker, D. J. Cooper, and D. Culver. 2003. Field Guide to the Wetland and Riparian Plant Associations of Colorado. Colorado Natural Heritage Program: Fort Collins.
- Cayan D. R., S. A. Kammerdiener, M. D. Dettinger, J. M. Caprio, and D. H. Peterson. 2001. Changes in the onset of spring in the western United States. *Bulletin of the American Meteorological Society* 82:399-415.
- CBS News. Top 10 Fastest Growing States. New York, NY. <http://www.cbsnews.com/media/top-10-fastest-growing-states/> (accessed July 20, 2015).
- Centers for Disease Control. 2012. West Nile Virus. <http://www.cdc.gov/ncidod/dvbid/westnile/birds&mammals.htm>.
- Chambers, J. C., B. A. Roundy, R. R. Blank, S. E. Meyer, and A. Whittaker. 2007. What makes Great Basin sagebrush ecosystems invasible by *Bromus tectorum*?
- Chaudhary, V. B., M. A. Bowker, T. E. O'Dell, J. B. Grace, A. E. Redman, M. C. Rillig, and N. C. Johnson. 2009. Untangling the biological contributions to soil stability in semiarid shrublands. *Ecological Applications* 19(1):110-122.
- Clark, L. J. Hall, R. McLean, M. Dunbar, K. Klenk, R. Bowen, and C. A. Smeraski. 2006. Susceptibility of greater sage-grouse to experimental infection with West Nile Virus. *Journal of Wildlife Diseases* 42:14-22.

CHAPTER 8 - REFERENCES

- Clary, W. P. and W. C. Leininger. 2000. Stubble height as a tool for management of riparian areas. *Journal of Range Management* 53:562-573.
- Coates, P. S. 2007. Greater Sage-Grouse (*Centrocercus urophasianus*) nest predation and incubation behavior. Idaho State University: Boise.
- Coates, P. S. and D. J. Delehanty (Coates and Delehanty).
2010. Nest predation of greater sage-grouse in relation to microhabitat factors and predators. *Journal of Wildlife Management* 74(2):240-248.
2008. Effects of environmental factors on incubation patterns of greater sage-grouse. *The Condor* 110(4):627-638.
- Coates, P. S., J. W. Connelly, and D. J. Delehanty. 2008. Predators of greater sage-grouse nests identified by video monitoring. *Journal of Field Ornithology* 79(4):421-428.
- Coates, P. S., K. B. Howe, M. L. Casazza, and D. J. Delehanty (Coates et al).
- 2014a. Common raven occurrence in relation to energy transmission line corridors transiting human-altered sagebrush steppe. *Journal of Arid Environments* V.111, pp.68-78.
- 2014b. Landscape alterations influence differential habitat use of nesting buteos and ravens within sagebrush ecosystem: Implications for transmission line development. *The Condor* 116(3):341-356.
- Colorado Off-Highway Vehicle Coalition. 2009. Economic Contribution of Off-Highway Vehicle Recreation in Colorado. Lakewood.
- Colorado Office of Economic Development and International Trade. 2015. Gov. Hickenlooper Establishes Colorado Outdoor Recreation Industry Office; Appoints Luis Benitez as Director. Denver.
- Colorado Oil and Gas Conservation Commission (COGCC).
2015. Production and Sales by County Monthly. <http://cogcc.state.co.us/> COGCCReports (accessed July 2, 2015).
2014. Colorado Oil and Gas Information System, Production. <https://cogcc.state.co.us/> (accessed November 5, 2014).
- Colorado Parks and Wildlife (CPW).
2015. 2015 Strategic Plan: Existing Conditions, Trends, and Projections. Denver.
- 2014a. Colorado Statewide Comprehensive Outdoor Recreation Plan. Denver.
- 2014b. Data Analysis Unit D-29, Deer Management Plan, Game Management Units 72 and 73.
- 2014c. Data Analysis Unit D-24, Deer Management Plan, Game Management Units 70, 71, & 711.
- 2014d. Geographic Information Systems data. Unpublished data. Colorado Department of Natural Resources, Parks and Wildlife, Denver.
- 2013a. Data Analysis Unit D-21, Deer Management Plan, Game Management Unit 54.

CHAPTER 8 - REFERENCES

- 2013b. Data Analysis Unit D-22, Deer Management Plan, Game Management Units 55 & 551.
- 2013c. Data Analysis Unit D-25, Deer Management Plan, Game Management Units 66 & 67.
2012. 2012 Gunnison Basin Gunnison sage-grouse Lek Count Summary and Population Estimate. Colorado Parks & Wildlife, Gunnison Basin, Colorado, USA.
- 2010a. Data Analysis Unit E-11, Elk Management Plan, Game Management Unit 82.
- 2010b. Data Analysis Unit D-18, Deer Management Plan.
- 2010c. Data Analysis Unit D-37, Deer Management Plan, Game Management Unit 82.
- 2008a. Data Analysis Unit E-26, Elk Management Plan, Game Management Units 68 & 681.
- 2008b. Data Analysis Unit D-26, Deer Management Plan, Game Management Units 68, 681, & 682.
2005. Data Analysis Unit E-52, Elk Management Plan, Game Management Units 53 & 63.
- 2001a. Data Analysis Unit E-43, Elk Management Plan, Game Management Units 55 & 551.
- 2001b. Data Analysis Unit E-54, Elk Management Plan, Game Management Unit 54.
- 2001c. Data Analysis Unit E-25, Elk Management Plan, Game Management Units 66 & 67.
- Colorado Parks and Wildlife, Gunnison County, Saguache County, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. National Park Service, and U.S. Natural Resources Conservation Service (CCA). 2013. Candidate Conservation Agreement for the Gunnison Sage-Grouse, *Centrocercus minimus* Gunnison Basin Population (CCA).
- Colorado Rangeland Monitoring Guide. 2011.
- Colorado State Demography Office. 2014. Population Totals for Colorado and Sub-State Regions. Final Estimates – years (1985 to 2013). https://dola.colorado.gov/demog_webapps/psParameters.jsf (accessed February 7, 2015).
- Colorado State Department of Local Affairs. 2012. Population Forecasts. Denver, CO.
- Colorado Weed Management Association. 2012. Noxious Weed Information. <http://www.cwma.org/noxweeds.html> (accessed April 23, 2015).
- Commission for Environmental Cooperation (CEC). 2012. Invasive Species. The Northern American Mosaic: An Overview of Key Environmental Issues. Commission for Environmental Cooperation document. p. 1-4.
- Connelly, J. W. and C. E. Braun. 1997. Long-term changes in sage-grouse *Centrocercus urophasianus* populations in western North America. *Wildlife Biology* 3:229-234.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished report. Cheyenne, Wyoming.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. *Wildlife Society Bulletin* 28:967-985.

CHAPTER 8 - REFERENCES

- Connelly, J. W., C. A. Hagen, and M. A. Schroeder. 2011a. Characteristics and dynamics of greater sage-grouse populations. *Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats*, pp. 53-67, S. T. Knick and J. W. Connelly, editors. Studies in Avian Biology Volume 38, University of California Press: Berkeley.
- Connelly, J. W., K. P. Reese, and M. A. Schroeder. 2003. Monitoring of greater sage-grouse habitats and populations. *Station Bulletin* 80, University of Idaho: Moscow.
- Connelly, J. W., E. T. Rinkes, and C. E. Braun. 2011b. Characteristics of Greater Sage-Grouse habitats: a landscape species at micro- and macroscales, pp. 69-83 in S.T. Knick and J.W. Connelly (editors). *Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats*. Studies in Avian Biology (vol. 38), University of California Press: Berkeley.
- Cook, B. 2012. The Economic Contribution of CO₂ Enhanced Oil Recovery in Wyoming's Economy. Enhanced Oil Recovery Institute: Laramie, WY. 43 p.
- Cordell, Ken H., et al 2008. Off-Highway Vehicle Recreation in the United States and its Regions and States: An Update National Report from the National Survey on Recreation and the Environment (NSRE). www.fs.fed.us/recreation/programs/ohv/IrisRecl rpt.pdf (accessed June 30, 2015).
- Council on Environmental Quality (CEQ).
1997. Environmental Justice, Guidance Under the National Environmental Policy Act. Washington, DC. December 10, 1997. 40 p. <http://ceq.hss.doe.gov/nepa/regs/ej/ej.pdf>.
1981. Forty Most Asked Questions Concerning CEQ's NEPA Regulations. March 23, 1981.
- Cronk, Q. and J. Fuller. 1995. Plant Invaders: The threat to natural ecosystems. Chapman & Hall. New York.
- Daubenmire, Rexford. 1959. A canopy-coverage method of vegetation analysis. *Northwest Science* 33:43-64.
- Davies, L. W., J. D. Bates and A. M. Nafus. 2011. Are there benefits to mowing Wyoming big sagebrush plant communities? An evaluation in southeastern Oregon. *Environmental Management* 48: 539-546.
- Davis, J. N. and K. T. Harper. 1990. Weedy Annuals and Establishment of Seeded Species on a Chained Juniper-Pinyon Woodland in Central Utah. Proceedings-Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management. United States Department of Agriculture, Forest Service, Intermountain Research Station General Technical Report INT-276.
- DeBano, L. F. and L. J. Schmidt. 1989. Improving southwestern riparian areas through watershed management. General Technical Report RM 182-182. USDA Forest Service Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO. 33 pp.
- Deisenroth, D., J. Loomis, and C. Bond. 2009. Non-Market Valuation of Off-Highway Vehicle Recreation in Larimer County, Colorado: implications of trail closures. *Journal of Environmental Management* 90(11): 3490-3497.

CHAPTER 8 - REFERENCES

- Deseret News. 2015. Utah Growth Rate Soaring. Salt Lake City.
<http://www.deseretnews.com/article/600128008/Utah-growth-rate-soaring.html?pg=all> (accessed July 28, 2015).
- Dether, D. 2005. Prescribed Fire Lessons Learned. Escape prescribed fire reviews and near miss incidents. Report prepared for Wildland Fire Lessons Learned Center. http://training.nwcg.gov/pre-courses/rx301/Rx_Fire_LL_Escapes_Review.pdf (accessed July 30, 2015).
- Dinkins, Jonathan B., M. R. Conover, C. P. Kirol, J. L. Beck, and S. N. Frey. 2014. Greater Sage-grouse (*Centrocercus Urophasianus*) hen survival: Effects of raptors, anthropogenic and landscape features, and hen behavior. *Canadian Journal of Zoology* 92:319–330.
- Dinkins, Jonathan B., M. R. Conover, C. P. Kirol and J. L. Beck. 2012. Greater Sage-grouse (*Centrocercus urophasianus*) Select Nest Sites and Brood Sites Away from Avian Predators. *The Auk* 129(4)600-610.
- Dodson, E. K. and C. E. Fiedler. 2006. Impacts of restoration treatments on alien plant invasion in *Pinus ponderosa* forests, Montana. *Journal of Applied Ecology* Vol. 43 Issue 5.
- Doherty, K. E., D. E. Naugle, and B. L. Walker. 2010. Greater sage-grouse nesting habitat: the importance of managing at multiple scales. *Journal of Wildlife Management* 74:1544-1553.
- Doherty, K. E., D. E. Naugle, B. L. Walker, and J. M. Graham. 2006. Greater sage-grouse winter habitat selection and energy development. *Journal of Wildlife Management* 72(1): 187-195.
- Doherty, K. E., D. E. Naugle, and J. S. Evans. 2010. A currency for offsetting energy development impacts: horse-trading sage-grouse on the open market. *PLoS ONE* 5(4): e10339.
doi:10.1371/journal.pone.0010339
- Dolores County. 2014. Social and Economic Considerations. Board of County Commissioners: Dove Creek, CO. 7 p.
- Driver, B. L., (Ed.). 2008. Managing to Optimize the Beneficial Outcomes of Recreation. State College, PA: Venture.
- Dunk, Jeffery R., R. N. Smith and S. L. Cain. 1997. Nest-site selection and reproductive success in common ravens. *The Auk* 114(1): 116-120.
- Dzialak, M. R., C. V. Olson, S. M. Harju, S. L. Webb, and J. B. Winstead. 2012. Temporal and hierarchical spatial components of animal occurrence: conserving seasonal habitat for greater sage-grouse. *Ecosphere* 3(4):30. <http://dx.doi.org/10.1890/ES11-00315.1>
- Eiswerth, M. E. and J. S. Shonkwiler. 2006. Examining post-wildfire reseeding on arid rangeland: a multivariate tobit modeling approach. *Ecological Modeling* 192:286-298.
- Ellis, K. L. 1984. Behavior of lekking sage-grouse in response to a perched golden eagle. *Western Birds* 15:37-38.
- Ellis, K. L. 1985. Effects of a new transmission line on distribution and aerial predation of breeding male sage grouse. 28 pp. Final Report for Deseret Generation and Transmission Cooperative. Sandy, UT.

CHAPTER 8 - REFERENCES

- Endangered and Threatened Wildlife and Plants; Determination for the Gunnison sage-grouse as a Threatened or Endangered Species; Notice of the results of the status review. 75 Federal Register 187 (28 September 2010) pp. 59804-59863.
- Enz, John W. 2003. North Dakota Topographic, Climatic, and Agricultural Overview. January 2003.
- Erdman, J. A. 1970. Pinyon-juniper succession after natural fires on residual soils of Mesa Verde, Colorado. *Brigham Young University Science Bulletin, Biological Series Volume 11, No. 2*. June, 1970.
- Evans, C. C. 1986. The relationship of cattle grazing to sage-grouse use of meadow habitat on the Sheldon National Wildlife Refuge. Thesis, University of Nevada: Reno.
- Federal Interagency Council on Outdoor Recreation. 2015. Outdoor Recreation: Jobs and Income. Washington, DC. <http://www.fs.fed.us/research/docs/outdoor-recreation/recreation-economy.pdf> (accessed May 12, 2015).
- Federal Register Notices. (See originating agency.)
- Finney, M. A. 2001. Design of regular landscape fuel treatment patterns for modifying fire growth and behavior. *Forest Science* 47 (2) 2001.
- Fire Effects Information System (FEIS).
2015. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). <http://www.fs.fed.us/database/feis/> (accessed July 30, 2015).
2005. Potential Natural Vegetation Groups. Final Document 9-30-2005. <http://www.fs.fed.us/database/feis/pdfs/PNPGs/Southwest/R3P1JUff.pdf> (accessed June 18, 2015).
- Fish and Wildlife Service. (See U.S. Department of the Interior, Fish and Wildlife Service.)
- Forman R. T. T. and L. E. Alexander. 1998. Roads and their major ecological effects. *Annual Review of Ecology and Systematics* 29, pp. 207-231.
- Fowler, N. 1986. The role of competition in plant communities in arid and semi-arid regions. *Annual Review of Ecology and Systematics* 1986 17:89-110. Annual Reviews Inc.
- Fuhlendorf, S. D. and D. M. Engle. 2001. Restoring heterogeneity on rangelands: ecosystem management based on evolutionary grazing patterns. *BioScience* 51(8): 625-632.
- Gartner, W.C., and Lime, D.W. (Eds.). (2000). Trends in Outdoor Recreation, Leisure and Tourism. St. Paul, MN: CABI.
- Garton, E. O., J. W. Connelly, J. S. Horne, C. A. Hagen, A. Moser, and M. Schroder. 2011. Greater sage-grouse population dynamics and probability of persistence. *Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats*, pp. 293-382. S. T. Knick and J. W. Connelly, editors. *Studies in Avian Biology* 38. University of California Press: Berkeley.
- Getz, H. L. and W. L. Baker. 2008. Initial invasion of cheatgrass (*Bromus tectorum*) into burned pinyon-juniper woodlands in western Colorado. *American Midland Naturalist* Vol. 159, No. 2 (April 2008) pp. 489-497.

CHAPTER 8 - REFERENCES

- Gibbons P. and D. B. Lindenmayer. 2007. Offsets for land clearing: no net loss or the tail wagging the dog? *Ecological Management and Restoration* 8: 26-31.
- Gifford, G. F. and R. H. Hawkins. 1978. Hydrologic impact of grazing on infiltration: a critical review. *Water Resources Research* 12(2):305-313.
- Golden Valley County. 2012. Golden Valley County Comprehensive Plan Update: 2012.
- Gordon, E. and D. Ojima, eds. 2015. Colorado Climate Change Vulnerability Study. A report submitted to the Colorado Energy Office. Western Water Assessment and Colorado State University.
- Grahame, J. D. and T. D. Sisk, editors. 1999-2002. Canyons, cultures and environmental change: An introduction to the land-use history of the Colorado Plateau. Center for Environmental Sciences and Education, Northern Arizona University, Flagstaff.
<http://www.cpluhna.nau.edu/Biota/wildfire.htm> (accessed April 23, 2015).
- Gregory, A. J. and J. L. Beck. 2014. Spatial Heterogeneity in Response of Male Greater Sage-grouse Lek Attendance to Energy Development. *PLoS ONE* 9(6): e97132.
- Gunnison County. 2014. Gunnison County Economic Indicators Report, August 2014 Working Draft. Community Development Department: Gunnison, CO.
- Gunnison Sage-grouse Rangewide Steering Committee (GUSGRSC). 2005. Gunnison Sage-grouse Rangewide Conservation Plan. Colorado Division of Wildlife: Denver.
- Hagen, C. A., J. W. Connelly, and M. A. Schroeder. 2007. A meta-analysis for greater sage-grouse nesting and brood rearing habitats. *Wildlife Biology* 13 Supplement 1:42-50.
- Hagen, C. A. 2010. Impacts of energy development on prairie grouse ecology: a research synthesis. *Transactions of North American Wildlife and Natural Resource Conference* 75:96-103.
- Hann, W. J. and D. L. Bunnell. 2001. Fire and land management planning and implementation across multiple scales. *International Journal of Wildland Fire* 10:389-403.
- Hann, W. J. and D. J. Strohm. 2003. Fire regime condition class and associated data for fire and fuels planning: methods and applications. *Fire, Fuel Treatments, and Ecological Restoration: Conference Proceedings*. U.S. Forest Service Proceedings RMRS-P-29.
- Hann, W., A. Shlisky, D. Havlina, K. Schon, S. Barrett, T. DeMeo, K. Pohl, J. Menakis, D. Hamilton, J. Jones, and M. Levesque. 2008. Interagency Fire Regime Condition Class Guidebook. Version 1.3.0. <http://www.frcc.gov>.
- Hanophy, W. 2009. Fencing with Wildlife in Mind. Colorado Division of Wildlife: Denver. 36 pp.
- Harju, S. M., M. R. Dzialak, R. C. Taylor, L. D. Hayden-Wing, and J. B. Winstead. 2010. Thresholds and time lags in effects of energy development on greater sage-grouse populations. *Journal of Wildlife Management* 74(3):437-448.
- Harrington, J. B. and R. E. Donnelly. 1978. Fire probabilities in Ontario's boreal forest. American Meteorological Society and the Society of American Foresters, pp. 1-4. Proceedings of the fifth

CHAPTER 8 - REFERENCES

- joint conference on fire and forest meteorology. Atlantic City, New Jersey 14-16 March 1978. American Meteorological Society: Boston.
- Harrod, R. J. 2001. The effect of invasive and noxious plants on land management in eastern Oregon and Washington. *Northwest Science* 75, 85-89.
- Herman-Brunson K. 2007. Nesting and Brood Rearing Habitat Selection of Greater Sage-Grouse and Associated Survival of Hens and Broods at the Edge of their Historic Distribution. Master's thesis, South Dakota State University. <http://pubstorage.sdstate.edu/wfs/thesis/Herman-Brunson-Katie-M-M-S-2007.pdf>.
- Hess, J. E. and J. L. Beck. 2012. Disturbance factors influencing greater sage-grouse lek abandonment in north-central Wyoming. *Journal of Wildlife Management* 76(8):1625-1634.
- High Country News.
- 2015a. Special Outdoor Recreation Issue. Paonia, CO.
- 2015b. Wilderness as therapist. Paonia, CO. <https://www.hcn.org/issues/47.3/wilderness-as-therapist> (accessed July 12, 2015).
- Hilty, J., D. J. Eldridge, R. Rosentreter, M. C. Wicklow-Howard, and M. Pellatt. 2004. Recovery of biological soil crusts following wildfire in Idaho. *Journal of Range Management* 57: 89–96 January 2004.
- Hobbs, R. J. and L. F. Huenneke. 1992. Disturbance, diversity, and invasion: implications for conservation. *Conservation Biology* 6, 324-337.
- Holechek, J. L.
1988. An approach for setting the stocking rate. *Rangelands* 10(1):10-14.
1981. Livestock grazing impacts on public lands: a viewpoint. *Journal of Range Management* 34(3): 251-254.
- Holechek, J. L., R. D. Pieper, and C. H. Herbel. 1989. Range Management Principles and Practices. Prentice-Hall, Inc. Englewood Cliffs, New Jersey. 501 pp.
- Holloran, M. J. 2005. Greater Sage-Grouse (*Centrocercus urophasianus*) Population Response to Natural Gas Field Development in Western Wyoming. Dissertation, Department of Zoology and Physiology, University of Wyoming: Laramie.
- Holloran, M. J., R. C. Kaiser, and W. A. Hubert.
2010. Yearling greater sage-grouse response to energy development in Wyoming. *Journal of Wildlife Management* 74(1): 65-72.
2007. Population response of Yearling Greater sage-grouse to the infrastructure of Natural Gas Fields in Southwestern Wyoming. Completion Report USGS, Wyoming Game and Fish Cooperative Fish and Wildlife Research Unit: Laramie.

CHAPTER 8 - REFERENCES

- Hood, S. M., D. Long, M. Miller and K. C. Ryan. 2007. Introduction in: Fire ecology and management of the major ecosystems of southern Utah. Gen. Tech. Rep. RMRS-GTR-202, S. M. Hood and M. Miller, editors. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p. 1-5.
- Howe, K. B. and P. S. Coates. 2015. Observations of territorial breeding common ravens caching eggs of greater sage-grouse. *Journal of Fish and Wildlife Management* 5(2).
- Howe, K. B., P. S. Coates, and D. J. Delehanty. 2014. Selection of anthropogenic features and vegetation characteristics by nesting Common Ravens in sagebrush ecosystem. *The Condor* 116(1):35-49.
- Huenneke L. F., S. P. Hamburg, R. Koide, H. A. Mooney and P. M. Vitousek. 1990. Effects of soil resources on plant invasion and community structure in Californian serpentine grassland. *Ecology* 71:478-491.
- Hughes, R.M., Kaufmann, P.R., and M.H. Weber. 2011. Strahler order versus stream size. *Journal of the North American Benthological Society* 30:103-121.
- Husby, P. 2007. Livestock Spring Developments and Wetland Policy. USDA Natural Resources Conservation Service. Conservation Planning Technical Note No. MT-13 (rev. 1) May 2007.
- IMPLAN. 2012. IMPLAN Professional Version 3.0, 2012 Data.
- IMPROVE. 2011. Spatial and Seasonal Patterns and Temporal Variability of Haze and its Constituents in the United States: Report V. Interagency Monitoring of Protected Visual Environments (IMPROVE). June 2011.
- Industrial Economics, Incorporated (IEc). 2013. Draft Economic Analysis of Critical Habitat Designation for the Gunnison Sage-Grouse. Prepared for U.S. Fish and Wildlife Service: Arlington, VA. 204 pp.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis: Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Solomon, S. D. et al, editors. Cambridge University Press: New York. 996 pp. <http://www.ipcc.ch/>
- International Mountain Bicycling Association (IMBA). 2015. Demographics of Mountain Biking. <https://www.imba.com/resources/research/demographics-mountain-biking> (accessed August 7, 2015).
- Johansen, J. R. 2001. Impacts of fire on biological soil crusts. pp. 385–400. In: J. Belnap and O. Lange (eds.) Biological soil crusts: structure, management and function. Ecological studies 150. Springer-Verlag, Berlin.
- Johnson, D. H., M. J. Holloran, J. W. Connelly, S. E. Hanser, C. L. Amundson, and S. T. Knick. 2011. Influences of environmental and anthropogenic features on Greater Sage-Grouse populations, 1997-2007. Pp. 407-450 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

CHAPTER 8 - REFERENCES

- Johnson, T. N., P. L. Kennedy and M. A. Etterson. 2012. Nest success and cause-specific nest failure of grassland passerines breeding in prairie grazed by livestock. *The Journal of Wildlife Management* 76(8):1607–1616.
- Jones, J. and D. Termenstein. 2013. Fire Regime Condition Class Mapping Tool User's Guide. Version 3.1.0 Wildland Fire Management R, D and A.
- Kauffman, J. B. 1988. The status of riparian habitats in Pacific northwest forests, pp. 45–55. *Streamside Management: Riparian Wildlife and Forestry Interactions*. Institute of Forest Resources Contribution 59, K. J. Raedeke, editor. University of Washington: Seattle.
- Kaczor, N. 2008. Nesting and Brood-rearing Success and Resource Selection of Greater Sage-grouse in Northwestern South Dakota. Master's thesis, South Dakota State University. <http://pubstorage.sdstate.edu/wfs/thesis/Kaczor-Nicholas-W-M-S-2008.pdf>.
- Kelly, J. P., K. L. Etienne, and J. E. Roth. 2005. Factors influencing the nest predatory behaviors of common ravens in heronries. *The Condor* 107: 402–415.
- Kiesecker et al 2010. Energy by design: making mitigation work for conservation and development, pp. 159–181. *Energy Development and Wildlife Conservation in Western North America*, D. E. Naugle, editor. Island Press: Washington, DC.
- Kinch, G. 1989. Riparian Area Management: Grazing management in riparian areas. USDI BLM Technical Reference TR 1737-4.
- Knapp, P. A. 1996. Cheatgrass (*Bromus tectorum* L.) dominance in the Great Basin Desert: history, persistence and influences to human activities. *Global Environmental Change* Vol. 6, Issue 1. April 1996.
- Knick, S. T. 2011. Historical development, principal federal legislation and current management of sagebrush habitats: implications for conservation, pp. 13–31. *Greater Sage-Grouse: Ecology of a Landscape Species and Its Habitats*, S. T. Knick and J. W. Connelly, editors. Cooper Ornithological Union, University of California Press: Berkeley.
- Knick, S. T. and J. W. Connelly, editors. 2011. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. *Studies in Avian Biology* 38. University of California Press: Berkeley.
- Knick, S. T. and J. W. Connelly. 2011. Greater sage-grouse and sagebrush: an introduction to the landscape, pp. 1-9. *Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats*, S. T. Knick and J. W. Connelly, editors. *Studies in Avian Biology* (vol. 38), University of California Press: Berkeley.
- Knick, S. T. and S. E. Hanser. 2011. Connecting pattern and process in greater sage-grouse populations and sagebrush landscapes, pp. 383-405. *Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats*. S. T. Knick and J. W. Connelly, editors. *Studies in Avian Biology* (vol. 38), University of California Press: Berkeley.
- Knight, R. L. and M. W. Call. 1980. The Common Raven. BLM Technical Note 344.
- Koniak, S. 1985. Succession in pinyon-juniper woodlands following wildfire in the Great Basin. *The Great Basin Naturalist* Vol. 45, No. 3.

CHAPTER 8 - REFERENCES

- Kruse, R., E. Bend, and P. Bierzychudek. 2004. Native plant regeneration and introduction of non-natives following post-fire rehabilitation with straw mulch and barley seeding.
- LANDFIRE.
2015. Miller, M. E., R. T. Belote, M. A. Bowker, and S. L. Garman. 2011. Alternative states of a semiarid grassland ecosystem: Implications for ecosystem services. *Ecosphere* 2(5):1-18 <http://www.landfire.gov/index.php> (accessed March 5, 2015).
2010. US_110VCC Metadata. <http://landfire.cr.usgs.gov/distmeta/servlet/gov.usgs.edc.MetaBuilder?TYPE=HTML&DATASET=F4T> (accessed June 10, 2015).
2009. <http://landfire.gov/NationalProductDescriptions10.php> (accessed June 8, 2015).
- LeBeau, C. W. 2012. Evaluation of greater sage-grouse reproductive habitat and response to wind energy development in south-central Wyoming. Master's Thesis. University of Wyoming: Laramie.
- Lockyer, Z. B., P. S. Coates, M. L. Casazza, S. Espinosa, and D. J. Delehanty. 2013. Greater sage-grouse nest predators in the Virginia mountains of northwestern Nevada. *Journal of Fish and Wildlife Management* 4(2):242–254.
- Long, et. al. 2010. The Principal Rare Earth Element Deposits of the United States—A Summary of Domestic Deposits and a Global Perspective.
- Lyon, L. A. and S. H. Anderson. 2003. Potential gas development impacts on sage grouse nest initiation and movement. *Wildlife Society Bulletin* 31:486–491.
- Lyons, J. E., et al 2008. Monitoring in the context of structured decision-making and adaptive management. *Journal of Wildlife Management* 72(8):1683–1692.
- Main, W. A. and D. A. Haines. 1974. The causes of fires on northeastern national forests. U.S. Forest Service Research Paper NC-102.
- Manier, D. J., D. J. A. Wood, Z. H. Bowen, R. M. Donovan, M. J. Holloran, L. M. Juliusson, K. S. Mayne,, S. J. Oyler-McCance, F. R. Quamen, D. J. Saher, and A. J. Titolo. 2013. Summary of Science, Activities, Programs and Policies that Influence the Rangewide Conservation of Greater Sage-Grouse (*Centrocercus urophasianus*). U.S. Geological Survey Open-File Report 2013-1098. Fort Collins, Colorado.
- Manzer, D. L. and S. J. Hannon. 2005. Relating grouse nest success and corvid density to habitat: a multi-scale approach. *Journal of Wildlife Management* 69(1):110–123.
- McKenney, B. 2005. Environmental Offset Policies, Principles, and Methods: A Review of Selected Legislative Frameworks. Amherst, NH: Biodiversity Neutral Initiative.
- Meinke, C. W., S. T. Knick, and D. A. Pyke. 2009. A spatial model to prioritize sagebrush landscapes in the intermountain west (USA) for restoration. *Restoration Ecology* 17:652-659.
- Milchunas, D. G., O. E. Sala, and W. K. Lauenroth. 1988. A generalized model of the effects of grazing by large herbivores on grassland community structure. *The American Naturalist* 132(1):87-106.

CHAPTER 8 - REFERENCES

- Miller, M. E., R. T. Belote, M. A. Bowker, and S. L. Garman. 2011. Alternative states of a semiarid grassland ecosystem: Implications for ecosystem services. *Ecosphere* 2(5):1–18. <http://www.landfire.gov/index.php> (accessed March 5, 2015).
- Miller, R. F. and L. L. Eddleman. 2001. Spatial and Temporal Changes of Sage Grouse Habitat in the Sagebrush Biome. Oregon State University Agricultural Experiment Station. Technical Bulletin 151. Corvallis, OR. 39 pp. <http://greatbasin.wr.usgs.gov/> LWG/Floristic_Provinces.asp.
- Monsen, S. B., R. Stevens, and N. L. Shaw. 2004. Restoring Western Ranges and Wildlands General Technical Report RMRS-GTR-136. Vol. I. 294 pp.
- National Atmospheric Deposition Program/National Trends Network. 2012. NTN Site ND00 interactive trend plots. <http://nadp.sws.uiuc.edu/sites/ntn/> NTNtrends.html?siteID=ND00 (accessed January 16, 2013).
- National Audubon Society. 2010. The Christmas Bird Count Historical Results. <http://www.christmasbirdcount.org> [20150618]
- National Park Service (NPS). 2009. Air Resources Division. Air quality in national parks: 2008 annual performance and progress report. Natural Resource Report NPS/NRPC/ARD/NRR—2009/151. National Park Service: Denver.
- National Renewable Energy Laboratory.
- 2012a. Classes of Wind Power Density at 10m and 50m. <http://rredc.nrel.gov/wind/pubs/atlas/tables/1-1T.html> (accessed December 2012).
- 2012b. Fuel from the Sky: Solar Power's Potential for Western Energy Supply. <http://www.nrel.gov/csp/pdfs/32160.pdf> (accessed December 2012).
2011. Estimates of Windy Land Area and Wind Energy Potential, by State, for Areas >=30% Capacity at 80m. Updated April 13, 2011. http://www.windpoweringamerica.gov/filter_detail.asp?itemid=2542 (accessed May 3, 2013).
- National Research Council (NRC).
2010. Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia. NRC of the National Academies, p. 180. Prepublication version released July 16. http://www.nap.edu/catalog.php?record_id=12877
2002. Riparian areas: functions and strategies for management. National Academy of Science. Washington, DC.
- Natural Resources Conservation Service (NRCS). 2012. Applying the Sage-Grouse Fence Collision Risk Tool to Reduce Bird Strikes. November 2012. http://www.ncrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1049415.pdf
- Nature Conservancy, The.
2015. <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/colorado/colorado-simple-structures-help-wildlife.xml> (accessed June 5, 2015).

CHAPTER 8 - REFERENCES

2011. Gunnison Basin Climate Change Vulnerability Assessment for the Gunnison Climate Working Group.
- NatureServe. 2014. NatureServe Explorer. <http://explorer.natureserve.org/> (accessed January 21, 2015).
- Naugle D. E., K. E. Doherty, B. L. Walker, M. J. Holloran, and H. E. Copeland. 2011. Energy development and greater sage-grouse, pp. 489-504. *Greater Sage-Grouse: Ecology of a Landscape Species and Its Habitats*, S. T. Knick and C. J. W., editors. Cooper Ornithological Union, University of California Press: Berkeley.
- Neff, J. C., R. L. Reynolds, J. Belnap, and P. Lamothe. 2005. Multi-decadal impacts of grazing on soil physical and biogeochemical properties in southeast Utah. *Ecological Application* 15(1) 2005.
- Obama, B. H. 2010. America's Great Outdoors [Presidential Memorandum]. Washington, DC.
- Office of Natural Resources Revenue (ONRR). 2014. County-level Leasable Sales Volume, Value, and Royalties. Department of the Interior: Washington, DC.
- Our Public Lands. 2015. Colorado. <http://www.ourpubliclands.org/public-lands-report-co> (accessed July 12, 2015).
- Outdoor Foundation. 2014. Outdoor Participation Report. Washington, DC.
- Outdoor Industry Association. 2012. The Outdoor Recreation Economy. Boulder, CO.
https://outdoorindustry.org/pdf/OIA_OutdoorRecEconomyReport2012.pdf (accessed July 8, 2015).
- Oyler-McCance, S. J., K. P. Burnham, and C. E. Braun. 2001. Influence of changes in sagebrush on Gunnison sage-grouse in southwestern Colorado. *The Southwestern Naturalist* 46(3):323-331.
- Painter, T. H., A. P. Barrett, C. C. Landry, J. C. Neff, M. P. Cassidy, C. R. Lawrence, K. E. McBride, and G. L. Farmer. 2007. Impact of disturbed desert soils on duration of mountain snow cover. *Geophysical Research Letters* Vol. 34, L12502, doi:10.1029/2007GL030284, 2007.
- Pellant, M., P. Shaver, D. Pyke, and J. Herrick. 2005. Interpreting indicators of rangeland health Version 4. *BLM Technical Reference* 1734-6.
- Peppin, D., P. Z. Fulé, C. H. Sieg, J. L. Beyers, and M. E. Hunter. 2010. Post-wildfire seeding in forests of the western United States: an evidence-based review. *Forest Ecology and Management* 260.
- Pitman, J. C., C. A. Hagen, R. J. Robel, T. M. Loughlin, and R. D. Applegate. 2005. Location and success of lesser prairie-chicken nests in relation to vegetation and human disturbance. *Journal of Wildlife Management* 68(3):1259-1269.
- Poff, B., K. A. Koestner, D. G. Neary, and V. J. Henderson. 2011. Threats to riparian ecosystems in western North America: an analysis of existing literature. *Journal of the American Water Resources Association* 1-14.
- Prather, P. R. and T. A. Messmer. 2009. Raptor and corvid response to power distribution line perch deterrents in Utah. *Journal of Wildlife Management* 74(4):796-800.

CHAPTER 8 - REFERENCES

- Pruett, C. L., Patten, M. A., and D. H. Wolfe. 2009. Avoidance behavior by prairie grouse: implications for development of wind energy. *Conservation Biology* 23(5):1253-1259.
- Radle, A. L. 2007. The effect of noise on wildlife: a literature review. World Forum for Acoustic Ecology Online Reader. http://interact.uoregon.edu/MediaLit/wfae/library/articles/radle_effect_noise_wildlife.pdf
- Ranglack, D. H., S. Durham, and J. T. du Toit. 2015. Competition on the range: science vs. perception in a bison-cattle conflict in the western USA. *Journal of Applied Ecology* 52:467-474.
- Reinhart, E. D., R. E. Keane, D. E. Calkin and J. D. Cohen. 2008. Objectives and considerations for wildland fuel treatment in forested ecosystems of the interior western United States. *Forest Ecology and Management* 256.
- Romme, W. H., C. D. Allen, J. D. Bailey, W. L Baker, B. T. Bestelmeyer, P. M. Brown, K. S. Eisenhart, M. L. Floyd, D. W. Huffman, B. F. Jacobs, R. F. Miller, E. H. Muldavin, T. W. Swetnam, R. J. Tausch and P. J. Weisberg. 2009. Historical and modern disturbance regimes, stand structures, and landscape dynamics in pinyon-juniper vegetation of the western United States. *Rangeland Ecology and Management* 62(3).
- Rosgen, D. L. 1996. A Geomorphological Approach to Restoration of Incised Rivers. Proceedings of the Conference on Management of Landscapes Disturbed by Channel Incision, 1997.
- Roth, J. E., J. P. Kelly, W. J. Sydeman, and M. A. Colwell. 2004. Sex differences in space use of breeding common ravens in western Marin County, California. *The Condor* 106(3):529-539.
- Roundy, B. A., R. F. Miller, R. J. Tausch, K. Young, A. Hulet, B. Jessop, J. Chambers, and D. Effett. 2014. Understory cover responses to pinyon-juniper treatments across tree dominance gradients in the Great Basin. *Rangeland Ecology and Management* Vol. 67, No. 5.
- Safe Harbor Agreements and Candidate Conservation Agreements with Assurances; Final Policy. 64 Federal Register 116 (17 June 1999) pp. 32705-32716.
- Sage-Grouse National Technical Team (NTT). 2011. A Report on National Greater Sage-Grouse Conservation Measures. December 2011.
- Sauer, J. R., J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2014. The North American Breeding Bird Survey, Results and Analysis 1966–2012. Version 02.19.2014 USGS Patuxent Wildlife Research Center, Laurel, MD.
- Sawyer, H., M. J. Kauffman, and R. M. Nielson. 2009. Influence of well pad activity on winter habitat selection patterns of mule deer. *Journal of Wildlife Management* 73:1052-1061.
- Sawyer, H., R. M. Nielson, F. G. Lindzey, L. Keith, J. H. Powell, and A. A. Abraham. 2007. Habitat selection of Rocky Mountain elk in a nonforested environment. *Journal of Wildlife Management* 71(3): 868-874.
- Schroeder, M. A. and R. K. Baydack. 2001. Predation and the management of prairie grouse. *Wildlife Society Bulletin* 29(1): 24-32.

CHAPTER 8 - REFERENCES

- Schroeder, M. A., C. L. Aldridge, A. D. Apa, J. R. Bohne, C. E. Braun, S. D. Bunnell, J. W. Connelly, P. Diebert, S. C. Gardner, M. A. Hilliard, G. D. Kobjriger, S. M. McAdam, C. W. McCarthy, J. J. McCarthy, D. L. Mitchell, E. V. Rickerson, and S. J. Stiver. 2004. Distribution of sage-grouse in North America. *The Condor* 106:363-376.
- Seager R., M. Ting, I. Held, Y. Kushnir, J. Lu, G. Vecchi, H. Huang, N. Harnik, A. Leetmaa, N. Lau, C. Li, J. Velez, and N. Naik. 2007. Model projections of an imminent transition to a more arid climate in southwestern North America. *Science* 316: 1181-1184.
- Shlisky, A., J. Waugh, P. Gonzalez, M. Gonzalez, M. Manta, H. Santoso, E. Alvarado, A. Ainuddin Nuruddin, D. Arturo Rodríguez-Trejo, R. Swaty, D. Schmidt, M. Kaufmann, R. Myers, A. Alencar, F. Kearns, D. Johnson, J. Smith, and D. Zollner. 2007. Fire, ecosystems and people: threats and strategies for global biodiversity conservation. *The Nature Conservancy Global Fire Initiative Technical Report* 2007-2.
- Singletracks. 2012. U.S. Mountain Bike Trail Stats: The West and States with Mountains Rule. <http://www.singletracks.com/blog/mtb-trails/us-mountain-bike-trail-stats-the-west-and-states-with-mountains-rule/> (accessed August 7, 2015).
- Sisk-A-Dee. 2015. Gunnison Sage Grouse Conservation. Gunnison, CO. <https://www.siskaddee.org/index.html> (accessed July 17, 2015).
- Slater, S. J. and J. P. Smith. 2010. Effectiveness of raptor perch deterrents on an electrical transmission line in southwestern Wyoming. *Journal of Wildlife Management* 74(5):1080-1088
- Stednick, J. 2010. Cumulative Watershed Effects of Fuel Management in the Western United States. USDA Forest Service RMRS-GTR-231. 2010.
- Steenhof, K., M. N. Kochert, and J. A. Roppe. 1993. Nesting by raptors and common ravens on electrical transmission line towers. *Journal of Wildlife Management* 57:271-281.
- Stevens, B. S., J. W. Connelly, and K. P. Reese. 2012. Multi-scale assessment of greater sage-grouse fence collision as a function of site and broad scale factors. *Journal of Wildlife Management* 76(7):1370-1380.
- Stevens, B. S. 2011. Impacts of fences on Greater sage-grouse in Idaho: collision, mitigation, and spatial ecology. M.S. Thesis, University of Idaho, Moscow, Idaho, USA.
- Stevens, R. and S. B. Monsen. 2004. Guidelines for restoration and rehabilitation of principal plant communities. In Restoring Western Ranges and Wildlands. USDA Forest Service. General Technical Report RMRS-GTR-136.
- Stiver, S. J., A. D. Apa, J. R. Bohne, S. D. Bunnell, P. A. Deibert, S. C. Gardner, M. A. Hilliard, C. W. McCarthy, and M. A. Schroeder. 2006. Greater Sage-Grouse Comprehensive Conservation Strategy. Western Association of Fish and Wildlife Agencies. Unpublished report. Cheyenne, Wyoming.
- Stiver, S. J., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl, eds. 2015. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Technical Reference 6710-I. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver.

CHAPTER 8 - REFERENCES

- Stoddard, J. L., D. V. Peck, S. G. Paulsen, J. Van Sickle, C. P. Hawkins, A. T. Herlihy, R. M. Hughes, P. R. Kaufmann, D. P. Larsen, G. Lomnický, A. R. Olsen, S. A. Peterson, P. L. Ringold, and T. R. Whittier. 2005. An ecological assessment of western streams and rivers. EPA 620/R-05/005, U.S. Environmental Protection Agency, Washington, DC.
- Straughan, B. and T. Pollak. 2008. The Broader Movement: nonprofit environmental and conservation organizations, 1989–2005. The Urban Institute: Washington, DC. 50 p.
- Swanson, C. 2009. Ecology of Greater Sage-Grouse in the Dakotas. PhD dissertation. Wildlife and Fisheries Science, South Dakota State University. <http://pubstorage.sdstate.edu/wfs/thesis/Swanson-Christopher-C-Ph-D-2009.pdf>.
- Szalavitz, M. 2010. Obesity in America 2010: Where does your state rank when it comes to obesity? MSN Health and Fitness.
- Tack, J. 2009. Sage-grouse and the human footprint: Implication for conservation of small and declining populations. Thesis, University of Montana, Missoula.
- Taylor R. L., B. L. Walker, D. E. Naugle, L. S. Mills. 2012. Managing multiple vital rates to maximize greater sage-grouse population growth. *Journal of Wildlife Management* 76: 336-347.
- Theoharides, K. A. and J. S. Dukes. 2007. Plant invasion across space and time: factors affecting nonindigenous species success during four stages of invasion. *Tansley Review, The New Phytologist* Volume 176, Issue 2.
- Torell, L. A., J. A. Tanaka, N. Rimbey, T. Darden, L. Van Tassell and A. Harp. 2002. Ranch-level impacts of changing grazing policies on BLM land to protect the Greater Sage-Grouse: Evidence from Idaho, Nevada and Oregon. Policy Analysis Center for Western Public Lands, policy paper SG-01-02, Caldwell, ID.
- Trombulak, S. C. and C. A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology*. pp. 18–30. Volume 14 No. 1, February 2000.
- Utah Department of Natural Resources (UDNR). 2014. Division of Oil, Gas, and Mining – Statistics. <http://oilgas.ogm.utah.gov/Statistics/Statistics.cfm> (accessed November 5, 2014).
- Utah Division of State Parks and Recreation. 2013. 2014 Utah State Comprehensive Outdoor Recreation Plan. Salt Lake City.
- Utah Division of Wildlife Resources (UDWR).
2012. Deer Herd Unit Management Plan, Deer Herd Unit #14.
2005. Utah Comprehensive Wildlife Conservation Strategy. Salt Lake City. http://wildlife.utah.gov/cwcs/11-03-09_utah_cwcs_strategy.pdf (accessed July 20, 2015).
- n.d. Utah Mule Deer Statewide Management Plan. http://wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan.pdf (accessed June 2015).
- n.d. Utah Elk Statewide Management Plan. http://wildlife.utah.gov/hunting/biggame/pdf/elk_plan.pdf (accessed June 2015).

CHAPTER 8 - REFERENCES

U.S. Bureau of Labor Statistics.

- 2014a. Consumer Price Index Calculator. http://www.bls.gov/data/inflation_calculator.htm (accessed November 20, 2014).
- 2014b. Local Area Unemployment Statistics. <http://www.bls.gov/lau> (accessed September 26, 2014).
- 2011. Local Area Unemployment Statistics. <http://www.bls.gov/lau/#tables> Unemployment Rates for States <http://www.bls.gov/lau/lastrk10.htm>.

U.S. Census Bureau (Census Bureau).

- 2015. Projections of the Size and Composition of the U.S. Population: 2014 to 2060. Washington, DC. <https://www.census.gov/content/dam/Census/library/publications/2015/demo/p25-1143.pdf> (accessed June 30, 2015).
- 2014. County Business Patterns. <http://www.headwaterseconomics.org/tools/eps-hdt> (accessed November 24, 2014).
- 2012a. American Community Survey, 2008-2012 5-year Estimates. <http://factfinder2.census.gov> (accessed September 16, 2014).
- 2012b. Population Estimates Program, Current Estimates. <http://www.census.gov/popest/data/index.html> (accessed September 24, 2014).
- 2000. Population Estimates Program, Historical Data. <http://www.census.gov/popest/data/historical/index.html> (accessed September 24, 2014).

U.S. Climate Change Science Program. 2008. The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States. May 2008.

U.S. Department of Agriculture, Forest Service (USFS).

- 2011. R2 Supplement 2600-2004-I 2011, Section 2631.1, Sage-Grouse and Sagebrush Habitats.
- 2009. Continental Divide Comprehensive Plan (CDNST) Plan Amendment. http://www.fs.fed.us/cdt/main/cdnst_comprehensive_plan_final_092809.pdf
- 2000. Coarse-Scale Potential Natural Vegetation Groups. v2000. <http://www.firelab.org/science-applications/fire-fuel/181-pnvg> (accessed August 28, 2012).

U.S. Department of Agriculture, National Agricultural Statistical Service. 2012. Statistics by State. http://www.nass.usda.gov/Statistics_by_State/North_Dakota/Publications/County_Estimates/index.asp.

U.S. Department of Agriculture. National Resources Conservation Service (NRCS). 2003. National Range and Pasture Handbook. Revision 1, December 2003.

U.S. Department of Agriculture, Soil Conservation Service. 1975. Soil Survey of Gunnison Area, Colorado. Parts of Gunnison, Hinsdale and Saguache Counties.

U.S. Department of Agriculture and U.S. Department of the Interior. 2009. Guidance for Implementation of Federal Wildland Fire Management Policy. Wildland Fire Leadership Council. February 2009.

CHAPTER 8 - REFERENCES

U.S. Department of Commerce.

2012a. Census Bureau, American Community Survey Office. Washington, DC.

2012b. Bureau of Economic Analysis, Regional Economic Information System, Washington, D.C. Table CA30.

2010, 2005, and 2000. Decennial census data Historic data. <http://www.census.gov/poulation/cencounts/nd190090>.

2007. Census of Governments Survey of State and Local Government Finances. Washington, DC (obtained from EPS-HDT Federal Payments report) p.4.

U.S Department of Energy (DOE). 2014. Final Uranium Leasing Program Programmatic Environmental Impact Statement.

U.S. Department of the Interior (DOI).

2014. U.S. Department of the Interior Economic Report FY13. http://www.doi.gov/ppa/economic_analysis/fy-2013-economic-report.cfm (accessed January 8, 2015).

2004. Bureau of Land Management National Sage-Grouse Habitat Conservation Strategy.

1979. Code of Federal Regulations 8340, Off-Road Vehicles. Washington, D.C.

U.S. Department of the Interior, Bureau of Land Management (BLM).

n.d. Rapid Ecoregional Assessment. BLM Fact Sheet: Level III Ecoregions of the Western U.S. map. Desert Managers Group. http://www.dmg.gov/documents/BR_Rapid_Ecoregional_Assessment_BLM_102809.pdf (accessed January 7, 2015).

2016. National Scenic and Historic Trails Strategy and Work Plan, U.S. Department of the Interior Bureau of Land Management. National Landscape Conservation System, National Scenic and Historic Trails Program, Washington, D.C. BLM-WO-GI-06-020-6250.

2015a. GIS analysis products.

2015b. Livestock Grazing. <http://www.blm.gov/wo/st/en/prog/grazing.html> (accessed July 14, 2015).

2015c. Proposed Resource Management Plan and Final Environmental Impact Statement for the Grand Junction Field Office, Colorado.

2015d. Rangeland Administration System (accessed June 10, 2015).

2015e. Rapid Ecoregional Assessments. BLM. http://www.blm.gov/wo/st/en/prog/more/Landscape_Approach/reas.html (accessed January 6, 2015).

2015f. Record of Decision for the Approved Resource Management Plan for Public Lands Administered by the Tres Rios Field Office, Dolores, Colorado.

2015g. Tourism and Community Services Program. Washington, DC. http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/_tourism___community.html. (accessed February 2, 2015).

CHAPTER 8 - REFERENCES

- 2015h. Sage-Grouse Habitat Assessment Framework: A Multiscale Assessment Tool. Stiver, S. J., E. T. Rinkes, D. E. Naugle, P. D. Makela, D. A. Nance, and J. W. Karl, eds. Technical Reference 6710-1. Bureau of Land Management and Western Association of Fish and Wildlife Agencies, Denver.
- 2014a. BLM Recreation Strategy: Connecting with Communities. Washington, DC.
- 2014b. Colorado Instruction Memorandum No. 2014-026, Review of Draft Recreation Step-Down Recreation Strategy for the Bureau of Land Management Colorado. Denver.
- 2014c. Handbook Section 8320-1, Planning for Recreation and Visitor Services. Washington, DC.
- 2014d. Instruction Memorandum No. 2014-094, State Strategy Development to Implement the BLM Recreation Strategy: *Connecting with Communities*. Washington, DC.
- 2014e. Rangeland Administration System (accessed October 31, 2014).
- 2014f. Reasonably Foreseeable Development Scenario for Potash in the Moab Master Leasing Plan Area, BLM Canyon Country District.
- 2014g. Recreation Management Information System (accessed November 14, 2014).
- 2014h. The BLM: A Sound Investment for America. Washington, DC.
http://www.blm.gov/style/medialib/blm/wo/Communications_Directorate/public_affairs/socioeconomic.Par.81563.File.dat/socioeconomic_2012.pdf (accessed July 2, 2015).
- 2014i. Uncompahgre Resource Management Plan Revision and Environmental Impact Statement, Preliminary Draft RMP/EIS (Internal Draft).
- 2013a. Approved Land Use Plan Amendments/ROD for Allocation of Oil Shale and Tar Sands Resources on Lands Administered by the BLM in Colorado, Utah, and Wyoming and FEIS.
- 2013b. BLM National Training Center Course 8300-25, Planning for Travel and Transportation Management. Washington, DC.
- 2013c. Final Environmental Impact Statement, BLM Tres Rios Field Office Land and Resource Management Plan.
- 2013d. Guidance on Estimating Nonmarket Environmental Values (Instruction Memorandum No. 2013-131). Washington, DC: E. Roberson.
- 2013e. Instruction Memorandum No. 2013-176, Seed Collection Policy and Pricing. Washington, DC.
- 2012a. Approved Resource Management Plan Amendments/Record of Decision for Solar Energy Development in Six Southwestern States.
- 2012b. Instruction Memorandum No. 2012-124. Implementation of Land Health Reporting Data Standard: A New Standardized System for Reporting and Mapping Achievements in Land Health.
- 2012c. Colorado Plateau Rapid Ecoregional Assessment Report. http://www.blm.gov/style/medialib/blm/wo/Communications_Directorate/public_affairs/landscape_approach/documents1.Par.82149.File.dat/COP_I_Final_Ch_I_2_and_3.pdf
- 2012d. Draft Environmental Impact Statement for the Grand Junction Field Office Resource Management Plan.

CHAPTER 8 - REFERENCES

- 2012e. Handbook Section 8342-1, Travel and Transportation Handbook. Washington, DC.
- 2012f. Instruction Memorandum No. 2012-169, RMP Alternative Development for Livestock Grazing. Washington, DC. August 16, 2012.
- 2012g. Instruction Memorandum No. 2012-124. Implementation of Land Health Reporting Data Standard: A New Standardized System for Reporting and Mapping Achievements in Land Health.
- 2012h. Instruction Memorandum No. 2012-043, Greater Sage-Grouse Interim Management Policies and Procedures. Washington, DC. December 22, 2011.
- 2012i. National Greater Sage-Grouse Planning Strategy, Land Use Plan Amendments and Environmental Impact Statements, Scoping Summary Report. Washington, DC. May 2012.
- 2011a. BLM History of Public Land Grazing.
http://www.blm.gov/ut/st/en/prog/grazing/history_of_public.html (accessed June 8, 2015).
- 2011b. BLM Utah Grazing Standards. http://www.blm.gov/ut/st/en/prog/grazing/utah_standards_for.html (accessed January 30, 2015).
- 2011c. BLM Utah Guidelines for Grazing Management. http://www.blm.gov/ut/st/en/prog/grazing/utah_guidelines_for.html (accessed August 3, 2015).
- 2011d. BLM Utah History of Public Land Grazing. http://www.blm.gov/ut/st/en/prog/grazing/history_of_public.html (accessed June 8, 2015).
- 2011e. BLM Utah Rangeland Health Standards.
http://www.blm.gov/ut/st/en/prog/grazing/utah_standards_for.html (accessed January 30 and August 3, 2015).
- 2011f. BLM Utah Standards for Rangeland Health. http://www.blm.gov/ut/st/en/prog/grazing/utah_standards_for.html (accessed January 30, 2015).
- 2011g. Dominguez-Escalante National Conservation Area Analysis of the Management Situation.
- 2011h. Instruction Memorandum No. 2012-044, Greater Sage-Grouse Land Use Planning Strategy. Washington, DC. December 27, 2011.
- 2011i. Instruction Memorandum No. 2011-138, Sage-Grouse Conservation Related to Wildland Fire and Fuels Management. Washington, DC. June 13, 2011.
- 2011j. Instruction Memorandum No. 2011-061, Solar and Wind Energy Applications – Pre-Application and Screening. Washington, DC. February 7, 2011.
- 2011k. Instruction Memorandum No. 2011-003, Solar Energy Development I Policy. Washington, DC. October 7, 2010.
- 2011l. Manual Section 1626, Travel and Transportation Manual. Washington, DC.
- 2011m. Manual Section 8320, Planning for Recreation and Visitor Services. Washington, DC.
- 2010a. Analysis of the Management Situation for the BLM Uncompahgre Planning Area. Montrose, CO.

CHAPTER 8 - REFERENCES

- 2010b. Instruction Memorandum No. 2011-004, Transmittal of Revised Recreation and Visitor Services Land Use Planning Guidance, Updated Checklist, and Three Land Use Planning Templates. Washington, DC.
- 2010c. Instruction Memorandum No. 2010-071, Gunnison and Greater Sage-Grouse Management Considerations for Energy Development.
- 2010d. Instruction Memorandum No. 2010-022, Managing Structures for the Safety of Sage-Grouse, Sharp-Tailed Grouse, and Lesser Prairie-Chicken.
- 2009a. Canyons of the Ancients Proposed Resource Management Plan and Final EIS.
- 2009b. Grand Junction Field Office, Colorado Resource Management Plan Revision: Final Analysis of the Management Situation.
- 2009c. Instruction Memorandum No. 2009-120, Updated Contract Clause for Utilization of Woody Biomass. Washington, DC. May 7, 2009.
2008. BLM Colorado Rangeland Management Standards and Guidelines.
http://www.blm.gov/co/st/en/BLM_Programs/grazing/rm_stds_guidelines.html (accessed January 23-30, 2015).
- 2008a. Handbook Section 1740-01, Renewable Resource Improvement and Treatment Guidelines and Procedures. Washington, DC. February 29, 2008.
- 2008b. Handbook Section 1790-1, National Environmental Policy Act. Washington, DC. January 2008.
- 2008c. Manual Section 6840, Special Status Species Management. Washington, DC. December 12, 2008.
- 2008d. Moab Field Office Proposed Resource Management Plan and Final Environmental Impact Statement.
- 2008e. Moab Field Office Record of Decision and Approved Resource Management Plan.
- 2008f. Monticello Field Office Record of Decision and Approved Resource Management Plan.
- 2008g. Instruction Memorandum No. 2009-043, Wind Energy Development Policy. Washington, DC. December 19, 2008.
- 2008h. Instruction Memorandum No. 2009-018, Process for Setting Priorities for Issuing Grazing Permits and Leases. Washington, DC. October 31, 2008.
- 2008i. Instruction Memorandum No. 2008-204, Offsite mitigation. Washington, DC.
2007. Final Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Associated Record of Decision. Washington, DC. September 2007.
2006. Moab BLM Field Office Analysis of the Management Situation.
- 2005a. Canyons of the Ancients National Monument, Analysis of the Management Situation.
- 2005b. Colorado Instruction Memorandum No. 2005-038, Statement of Interim Policy, Implementation of the Gunnison Sage-Grouse Rangewide Conservation Plan.

CHAPTER 8 - REFERENCES

- 2005c. Handbook Section 1601-1, Land Use Planning Handbook. Washington, DC. March 2005.
- 2005d. Mineral Potential Report for the Monticello Planning Area.
- 2005e. Monticello BLM Field Office Analysis of Management Situation.
- 2005f. Record of Decision, Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments.
- 2004a. Gunnison Gorge National Conservation Area Approved Resource Management Plan.
- 2004b. Instruction Memorandum No. 2004-227, Bureau of Land Management's Biomass Utilization Strategy. Washington, DC. August 16, 2004.
2003. Draft Resource Management Plan and Environmental Impact Statement. Gunnison Gorge National Conservation Area. March 2003.
2000. Colorado Instruction Memorandum No. 2001-011, Recreation Management Guidelines to Meet Public Land Health Standards on Bureau of Land Management Lands in Colorado. Washington, DC.
1999. Utilization Studies and Residual Measurements. Interagency Technical Reference.
1998. Riparian Area Management: Process for Assessing Proper Functioning Condition. Technical Reference 1737-9. Revised 1998.
1993. Gunnison Resource Area Record of Decision, Approved Resource Management Plan, and Rangeland Program Summary.
- 1991a. Final Environmental Impact Statement Vegetation Treatment on BLM Lands in Thirteen Western States. Washington, DC. May 1991.
- 1991b. Gunnison Resource Area Resource Management Plan and Environmental Impact Statement. United States Department of the Interior, Bureau of Land Management, Montrose District, Colorado. March 1991.
1990. Handbook Section 1624-1, Planning for Fluid Mineral Resources. Washington, DC. May 1990.
1989. Draft San Luis Resource Management Plan and Environmental Impact Statement.
1988. Manual Section 1613, Areas of Critical Environmental Concern. Washington, DC. September 29, 1988.
- U.S. Department of the Interior, BLM and USFS. 2013. Volume II: Final San Juan National Forest and Proposed Tres Rios Field Office Land and Resource Management Plan.
- U.S. Department of the Interior, BLM Interagency Technical Team.
- 1996a. Interagency Technical Reference for Utilization Studies and Residual Measurements. Technical Reference 1734-3. National Science and Technology Center, Denver.
- 1996b. Sampling vegetation attributes. Technical Reference 1734-4. National Science and Technology Center, Denver, 172 pp.
- U.S. Department of the Interior, Fish and Wildlife Service (FWS).

CHAPTER 8 - REFERENCES

- n.d. Using Existing Tools to Expand Cooperative Conservation for Candidate Species across Federal and on Federal Lands. <http://www.fws.gov/endangered/esa-library/pdf/CCA-CCAA%20%20final%20guidance%20signed%20Sept08.PDF>
- 2014a. National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. 2011 (rev. 2014). <https://www.census.gov/prod/2012pubs/fhwI1-nat.pdf> (accessed June 30, 2015).
- 2014b. Final Rule: Threatened Status for Gunnison Sage-Grouse. *Federal Register*, Vol. 79, No. 224, 69192-69310, November 20, 2014.
- 2014c. Final Rule: Designation of Critical Habitat for Gunnison Sage-Grouse. *Federal Register*, Vol. 79, No. 224, 69312-69363, November 20, 2014.
- 2013a. Proposed Rule: Endangered Status for Gunnison Sage-grouse. *Federal Register*, Vol. 78, No. 8, 2486-2538, January 11, 2013.
- 2013b. Proposed Rules: Designation of Critical Habitat for Gunnison Sage-grouse, *Federal Register*, Vol. 78, No. 8, 2540-2570, January 11, 2013.
- 2013c. Birding in the United States: A Demographic and Economic Analysis (Addendum to the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation). Arlington, VA.
- 2013d. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013.
2011. Candidate Conservation Agreements. Fact Sheet. <http://www.fws.gov/endangered/esa-library/pdf/CCAs.pdf>.
- 2010a. Determination for the Gunnison Sage-grouse as a Threatened or Endangered Species. *Federal Register*, Vol. 75, No. 187, 59804-59863, September 27, 2010.
- 2010b. 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered: Notice of 12-month Petition Findings. *Federal Register*, Vol. 75, 13910, March 23, 2010.
2000. Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation, and Decommissioning. US Fish and Wildlife Service Migratory Bird Program.
- U.S. Department of the Interior, Fish and Wildlife Service and BLM. 2010. Programmatic Consultation Agreement between Bureau of Land Management and US Fish and Wildlife Service for Canada Lynx in Colorado.
- U.S. Department of the Interior and U.S. Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.
- U.S. Department of the Interior, U.S. Department of Agriculture, U.S. Department of Energy, U.S. Department of Defense, U.S. Department of Commerce, U.S. Environmental Protection Agency, Federal Emergency Management Agency, and National Association of State Foresters (DOI and USDA et al). 2001. Review and Update of the 1995 Federal Wildland Fire Management Policy, January, 2001.

CHAPTER 8 - REFERENCES

- U.S. Department of the Interior, Wildland Fire Leadership Council (WFLC). 2009. Guidance for Implementation of Federal Wildland Fire Management Policy. February 2009.
- U.S. Department of State. 2010. Fifth U.S. climate action report. Global Publishing Services: Washington, DC. 180 p. <http://www.state.gov/e/oes/rls/rpts/car/index.htm>
- U.S. Energy Information Administration (U.S. EIA).
- 2015a. U.S. States, State Profiles and Energy Estimates.
<http://www.eia.gov/state/rankings/?sid=US#/series/47> and
<http://www.eia.gov/state/rankings/?sid=US#/series/46> (accessed July 28, 2015).
- 2015b. Petroleum and Other Liquids Prices. http://www.eia.gov/dnav/pet/ pet_pri_spt_sl_a.htm (accessed August 10, 2015).
- 2015c. Annual Energy Outlook 2015.
- 2014a. Natural Gas Prices. http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm (accessed November 21, 2014).
- 2014b. Petroleum and Other Liquids Prices. http://www.eia.gov/dnav/pet/ pet_pri_spt_sl_a.htm (accessed November 21, 2014).
- 2013a. State Energy Profiles. http://www.eia.gov/state/ state_energy_profiles.cfm?sid=ND (accessed March 19, 2013).
- 2013b. State Energy Reserves and Supply. <http://www.eia.gov/state/ data.cfm?sid=ND#ReservesSupply> (accessed March 19, 2013).
- 2013c. U.S. States, Rankings: Carbon Dioxide Emissions, 2010. <http://www.eia.gov/beta/state/rankings/?sid=US#/series/98> (accessed February 15, 2013).
- U.S. Environmental Protection Agency (EPA).
- 2004-2010. CASTNET Annual Reports. <http://java.epa.gov/castnet/documents.do> (accessed January 31, 2013).
2010. Primary Distinguishing Characteristics of Level III Ecoregions of the Continental United States, revised July 2010. http://www.epa.gov/wed/pages/ ecoregions/level_iii_iv.htm (accessed August 22, 2011) p. 7.
- 2011a. Level III Ecoregions of the Continental United States. Revised December 2011.
- 2011b. Climate Change, Basic Information. <http://www.epa.gov/climatechange/ basicinfo.html> (accessed October 18, 2011).
- 2012a. EPA Green Book. <http://www.epa.gov/airquality/greenbook/ancl3.html> (accessed September 5, 2012).
- 2012b. Air Quality Statistics Report. http://www.epa.gov/airquality/airdata/ ad_rep_con.html (accessed January 16, 2013).
- 2012c. Air Quality Index Report. http://www.epa.gov/airdata/ad_rep_aqi.html (accessed September 4, 2012).

CHAPTER 8 - REFERENCES

- 2012d. Glossary of Climate Change Terms. <http://www.epa.gov/climatechange/glossary.html> (accessed January 20, 2013).
- 2012e. Visibility, Basic Information. <http://www.epa.gov/visibility/what.html> (accessed January 21, 2013).
- 2012f. Ground Level Ozone, Basic Information. <http://www.epa.gov/airquality/ozonepollution/basic.html> (accessed January 21, 2013).
- 2012g. Inventory of US Greenhouse Gas Emissions and Sink: 1990-2010. Chapter 3, Land Use, Land-Use Change, and Forestry. April 15, 2012. <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html> (accessed February 1, 2013).
- 2013a. Health Effects of Air Pollution. <http://www.epa.gov/region07/air/quality/health.htm> (accessed March 20, 2013).
- 2013b. North Dakota Greater Sage-Grouse EIS/RMPA, Social and Economic Conditions and Analysis Report. TEAMS Planning Enterprise Unit. January 17, 2013.
- U.S. Fish and Wildlife Service. (See U.S. Department of the Interior, Fish and Wildlife Service.)
- U.S. Geological Survey (USGS).
- 2012a. Gap Analysis Program, Protected Areas Database of the United States, Version 1.3. Accessed September 27, 2014 from Economic Profile System, Land Use Report.
- 2012b. National Hydrography Dataset.
2011. National Gap Analysis Program Land Cover Data Portal. Available online at: <http://gapanalysis.usgs.gov/gaplandcover/gap-land-cover-updated/> (accessed January 21, 2015).
2010. GAP Land Cover Data Set, version 2.
- U.S. Global Change Research Program. 2009. Global Climate Change Impacts in the United States. Cambridge University Press. [Downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf](http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf).
- Utah Department of Administrative Services. Division of Administrative Rules. 2014. Website: <http://www.rules.utah.gov/publicat/code/r068/r068-009.htm> (accessed April 22, 2015).
- Utah Department of Natural Resources (UDNR). 2014. Division of Oil, Gas, and Mining – Statistics. <http://oilgas.ogm.utah.gov/Statistics/Statistics.cfm> (accessed November 5, 2014).
- Van Dyke, Fred, and E. C. Klein. 1996. Response of elk to installation of oil wells. *Journal of Mammalogy*. 77(4): 1028-1041.
- van 't Veld, K. and O. Phillips. 2009. Pegging Input Prices to Output Prices in Long-Term Contracts: CO₂ purchase agreements in enhanced oil recovery. Enhanced Oil Recovery Institute: Laramie, WY. 35 p.
- Verma, S. and S. Jayakumar. 2012. Impact of forest fire on physical, chemical and biological properties of soil: A review. *Proceedings of the International Academy of Ecology and Environmental Sciences* 2(3): 168-176.

CHAPTER 8 - REFERENCES

- Walker B. L. and D. E. Naugle. 2011. West Nile virus ecology in sagebrush habitat and impacts on greater sage-grouse populations. *Greater Sage-Grouse: Ecology of a Landscape Species and Its Habitat*. S. Knick, editor. Cooper Ornithological Union. University of California Press. Berkeley (pp. 127-143).
- Walker, B. L., D. E. Naugle, and K. E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. *Journal of Wildlife Management* 71:2644-2654.
- Walker, B. L., D. E. Naugle, K. E. Doherty, and T. E. Cornish. 2004. Outbreak of West Nile virus in greater sage-grouse and guidelines for monitoring, handling and submitting dead birds. *Wildlife Society Bulletin* 32: 1-7.
- Walters, C. J., and S. Holling. 1990. Large-scale management experiments and learning by doing. *Ecology* 71:53-74.
- Wambolt, C. L., K. S. Walhof and M. R. Frisina. 2001. Recovery of big sagebrush communities after burning in south-western Montana.
- Warren, S. D. and D. J. Eldridge. 2001. Biological soil crusts and livestock in arid ecosystems: are they compatible? *Ecological Studies*, Vol. 150. J. Belnap and O.L. Lange (eds.) Biological Soil Crusts: Structure, Function and Management. Springer-Verlag Berlin Heidelberg 2001.
- Watts, M. J. and C. L. Wambolt. 1996. Long-term recovery of Wyoming big sagebrush after four treatments. *Journal of Environmental Management* Vol. 46, Issue 1, January 1996.
- Webb, W. C., W. I. Boarman, and J. T. Rotenberry. 2009. Movements of juvenile common ravens in an arid landscape. *Journal of Wildlife Management* 73(1):72-81
- Webb, W. C., W. I. Boarman, and J. T. Rotenberry. 2004. Common raven juvenile survival in a human augmented landscape. *The Condor* 106:517-528.
- Weltz, M., Kidwell M., and Fox, H. 1998. Influence of abiotic and biotic factors in measuring and modeling soil erosion on rangelands: State of knowledge. *Journal of Range Management* 51:482-495. Sept 1998.
- Westbrooks, R. 1998. Invasive plants, changing the landscape of America: Fact book. Federal Interagency Committee for the Management of Noxious and Exotic Weeds. Washington, DC.
- White, E., D. Gooding, and D. Stynes. 2013. Estimation of National Forest Visitor Spending Averages from National Visitor Use Monitoring: Round 2. General Technical Report PNW-GTR-883. U.S. Department of Agriculture, Forest Service: Portland, OR.
- Williams, B. K., R. C. Szaro, and C. D. Shapiro (Williams et al). 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide, p. iv. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.
- Williams, M. I. and A. L. Hild. 2012. Characteristics of Gunnison Sage-Grouse Habitat in Dry Mountain Loam and Mountain Loam Ecological Sites of the Gunnison Basin. CPW. Report to the Colorado Division of Parks and Wildlife. University of Wyoming, Department of Ecosystem Science and Management, Laramie, WY.

CHAPTER 8 - REFERENCES

- Wisdom, M. J., C. W. Meinke, S. T. Knick, and M. A. Schroeder. 2011. Factors associated with extirpation of Sage-Grouse. pp. 451-472. S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. *Studies in Avian Biology* vol. 38, University of California Press, Berkeley.
- World Bank. 2014. Global Economic Monitor (GEM) Commodities <http://data.worldbank.org/data-catalog/commodity-price-data> (accessed November 10, 2014).
- World Values Survey. 2014. World Values Survey Wave 6: 2010-2014.
<http://www.worldvaluessurvey.org/WVSSonline.jsp> (accessed December 2, 2014).
- Wyman, S. et al 2006. Riparian area management: grazing management processes and strategies for riparian-wetland areas. Technical Reference 1737-20. BLM/ST/ST-06/002+1737. U.S. Department of the Interior, BLM, National Science and Technology Center, Denver. 105 pp.
- Zeedyk, B. 2014. Restoring wetlands. <http://billzeedyk.com/2014/12/10/restoring-wetlands/#more-79> (accessed July 23, 2015).
- Zouhar, K. 2003. Bromus tectorum. In: Fire Effects Information System, U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). <http://www.fs.fed.us/database/feis/> (accessed July 30, 2015).