

# **CONSERVATION AGREEMENT AND STRATEGY FOR GOOSE CREEK MILKVETCH (*ASTRAGALUS ANSERINUS*)**



**Photo of Goose Creek milkvetch plant by Gina Glenne, U.S. Fish and Wildlife Service**

## **Prepared for**

### **Bureau of Land Management:**

**Twin Falls District Office, Idaho  
Elko District Office, Nevada  
West Desert District Office, Utah**

### **U.S. Fish and Wildlife Service:**

**Idaho State Fish and Wildlife Service Office, Idaho  
Nevada Fish and Wildlife Service Office, Nevada  
Utah Ecological Services Field Office, Utah**

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# 1. EXECUTIVE SUMMARY

This document includes an interagency Conservation Agreement and Strategy (CAS) for Goose Creek milkvetch within the States of Idaho, Nevada, and Utah. The signatories to this CAS are the USFWS, Utah Ecological Services Field Office, and the BLM, Twin Falls District in Idaho, Elko District in Nevada, and West Desert District in Utah. The BLM Field Offices that will implement the CAS are the Burley Field Office in Idaho, Wells Field Office in Nevada, and the Salt Lake Field Office in Utah.

The primary purpose of the CAS is to identify and commit to meeting the goals for long-term conservation of Goose Creek milkvetch (*Astragalus anserinus*), a rare endemic plant, that is currently known from the Goose Creek drainage in Cassia County, Idaho, Elko County, Nevada, and Box Elder County, Utah. Goose Creek milkvetch has been a candidate species for listing under the Endangered Species Act (ESA) of 1973, as amended (ESA, 16 U.S. C. 1531 et seq) since 2009. Long-term conservation of Goose Creek milkvetch is directed by the CAS and will be accomplished through proactive management of the species to maintain existing populations and habitat conditions as well as to develop a better understanding of the species' life history and biological requirements.

A second purpose of the CAS is to establish a process for cooperation between the Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS) in the implementation of their responsibilities under the ESA. The CAS will also meet the needs of the 1994 Memorandum of Understanding on the conservation of species that are trending towards federal listing (94-SMU-058), which the above agencies signed. This CAS will be implemented under existing BLM land use plans and will remain in effect until superseded by a new, revised or amended plan of action and will be incorporated into future BLM Field Office resource management plans, as applicable.

The CAS outlines active conservation actions that will occur in Idaho, Nevada, and Utah over the thirty-year period from 2015 to 2045. The Strategy identifies many of the same proactive, ongoing, land management actions which have been voluntarily and independently implemented as early as 1998 by the Burley, Wells, and Salt Lake BLM Field Offices for the protection of Goose Creek milkvetch. The CAS expands upon the existing management actions and includes new conservation actions that will be consistently implemented by the BLM throughout the entire range of Goose Creek milkvetch to conserve the species and to minimize any negative impacts from management techniques employed by the BLM in the following areas: (1) wildfire management planning and firefighting activities; (2) fire prevention activities; (3) emergency stabilization and rehabilitation activities; (4) invasive, non-native plant species; (5) livestock use and range improvements; and (6) mining activities. These conservation actions will be reviewed and revised annually for success of implementation and effectiveness for the protection and

conservation of Goose Creek milkvetch. Also described are the anticipated timing, funding, and responsible parties for implementing conservation actions (see Appendix 1).

The CAS is consistent with the provisions of the BLM Sensitive Species Policy, which contains specific protections for Threatened, Endangered, Proposed, Candidate, and Sensitive species (BLM 2008a). The CAS is also consistent with the provisions for sensitive species identified in the following BLM Resource Management Plans: the Cassia Resource Management Plan (BLM 1985a) as amended by the Fire Management Plan (BLM 2005a) and the Fire, Fuels, and Related Vegetation Management Direction Plan Amendments (BLM 2008b); the Wells Resource Management Plan (BLM 1985b) as amended by the Elko/Wells Fire Management Amendment (BLM 2003); and the Box Elder Resource Management Plan (BLM 1986) as amended by the Salt Lake Fire Management Plan (BLM 2005b). The BLM has the authority to implement the conservation actions within this CAS (see Authority section, below). The BLM considered the necessary environmental review under the National Environmental Policy Act (NEPA) when identifying and committing to the CAS implementation schedule. The implementation dates or time period are identified in Table 1 and Appendix 1 (see NEPA Compliance section, below).

## **2. GOALS AND OBJECTIVES OF THE AGREEMENT AND STRATEGY**

The goal of the CAS is to ensure the long-term persistence of Goose Creek milkvetch within its historic range, provide a framework for future conservation efforts, and to reduce or minimize any negative impacts from BLM management activities to the species and its habitat. This CAS provides a framework for immediate and future conservation efforts, and addresses threats and potential threats to the species as discussed in the 12-month finding (74 FR 46521, September 10, 2009).

### **OBJECTIVES**

The following objectives will be enacted through this CAS:

**Objective 1:** Conserve Goose Creek milkvetch and its habitat on BLM-administered lands throughout its current known geographic range.

**Objective 2:** Implement conservation actions that address factors known or suspected to adversely affect the species or its habitat.

**Objective 3:** Effectively manage Goose Creek milkvetch, taking into account environmental changes and research results, to maintain the biological and ecological integrity of occupied habitat.

**Objective 4:** Implement an adaptive management approach to conservation of Goose Creek milkvetch, which will allow the development of alternative conservation actions in the event that currently identified conservation actions are not effective and the management flexibility when conditions change or new information is obtained.

**Objective 5:** Implement survey, monitoring, and research programs to determine the effectiveness of ongoing conservation actions and to understand the population trends as well as the biological and ecological requirements of Goose Creek milkvetch.

**Objective 6:** Initiate and maintain opportunities to educate the public, user groups, BLM staff, and permittees on the uniqueness of Goose Creek milkvetch and the importance of its conservation.

These objectives will be reached through implementation of this CAS. The status of Goose Creek milkvetch will be evaluated annually to assess program progress and amendments of this CAS, will be added as needed, to address recovery issues and ensure program effectiveness. For specific information regarding conservation actions, refer to Table 1 in the Conservation Actions section of the document.

## INVOLVED PARTIES

### **United States Department of the Interior Bureau of Land Management**

Burley Field Office  
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Burley, Idaho 83318

Wells Field Office  
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Salt Lake Field Office  
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### **United States Department of the Interior Fish and Wildlife Service**

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Boise, Idaho 83709

Nevada Fish and Wildlife Service Office  
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Reno, Nevada 89502

Utah Ecological Services Field Office  
2369 West Orton Circle Suite 50  
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## AUTHORITY

All parties to the CAS recognize that each agency has specific statutory responsibilities that cannot be delegated, particularly with respect to the management and conservation of species and the management and development of public land resources. Nothing in the CAS is intended to abrogate any of the parties' respective responsibilities. The CAS is also subject to and is intended to be consistent with all applicable Federal and State laws and regulations.

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled species and the ecosystems upon which they depend. A fish or wildlife species listed as threatened or endangered under authority of the ESA receives protection from "take" and is protected from interstate and international trade. Threatened or endangered plants receive protections under the ESA against jeopardy and destruction or modification of designated critical habitat for Federal actions, and are protected from prohibited acts as identified under section 9 of the ESA [50 C.F.R. §17.61 and 17.71]. In addition, the USFWS, in coordination with Federal, State, Tribal, and local entities, are provided the authority to develop and implement Recovery Plans, purchase important habitats, and ensure Federal aid to State wildlife agencies.

Section 4 of the ESA requires species to be listed as endangered or threatened solely on the basis of their biological status and threats to their existence. When evaluating a species for listing, the USFWS considers five factors: (1) damage to, or destruction of, a species' habitat; (2) overutilization of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing protection; and (5) other natural or manmade factors that affect the continued existence of the species. However, it is easier and often more effective to conserve species before they need to be listed as endangered or threatened than to try to recover them when they are in danger of extinction or likely to become so. A CAS is a voluntary agreement between landowners — including federal land management agencies — and one or more other parties to reduce or remove threats to candidate or other at-risk species. Parties to a CAS work with the USFWS to design conservation measures and monitor the effectiveness of plan implementation.

The USFWS agrees to promote the conservation of candidate, proposed, and listed species and to informally and formally consult/confer as specified in the Interagency Cooperation Regulations 50 C.F.R. § 402 on listed and proposed species, and designated and proposed critical habitat during planning: (1) to assure that activities implemented under these plans minimize or avoid adverse impacts to such species and any critical habitat; (2) to assure that such activities implemented under these plans do not preclude future conservation opportunities; (3) to use, where possible, consultation procedures specified in 50 C.F.R. § 402 to avoid conflicts between elements contained in plans and the requirements for conservation of proposed species and

proposed critical habitat; and (4) to analyze the effects of the plan on candidate species pursuant to agency planning regulations.

The USFWS cannot guarantee listing will never be necessary for Goose Creek milkvetch. It is important to note that “preclude or remove any need to list” is based upon the removal of threats and the stabilization or improvement of the species’ status. The decision to list under the ESA is a regulatory process independent of a CAS. The USFWS will evaluate actions and successes of this CAS in accordance with the USFWS Policy for Evaluation of Conservation Efforts during the listing determination process, as required under section 4(b)(2)(A) of the ESA. The USFWS will consider the contribution to conservation made by this CAS in the “five-factor analysis” used to make a listing determination, as described earlier in this section.

The applicable BLM regulatory authority for this CAS is described in the USDI BLM Special Status Species Management Policy pursuant to the Endangered Species Act (ESA) of 1973, as amended, and the Federal Land Policy and Management Act (FLPMA) of 1976. FLPMA, as amended, is the BLM "organic act" that establishes the agency's multiple-use mandate to serve present and future generations. The FLPMA and BLM policies direct that BLM 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; and that will provide for outdoor recreation and human occupancy and use. It is the USDI BLM Special Status Species Management Policy that, 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.

The national interagency Memorandum of Understanding (MOU) for the conservation of species tending towards federal listing issued on January 25, 1994 (94-SMU-058) provides the general framework for cooperation and participation among cooperators in conservation of these species. This CAS is consistent with the general framework of this MOU. This CAS is subject to and is intended to be consistent with all applicable Federal and State laws and regulations.

### **3. STATUS OF THE SPECIES**

On February 3, 2004, the USFWS received a petition dated January 30, 2004, from Red Willow Research, Inc., and 25 other concerned parties (the Prairie Falcon Audubon Society Chapter Board, Western Watersheds Project, Utah Environmental Congress, Sawtooth Group of the Sierra Club, and 21 private citizens) requesting that USFWS emergency list Goose Creek milkvetch as threatened or endangered, and designate critical habitat concurrently with the listing (Red Willow Research Inc. 2004). USFWS reviewed the petition and determined that

emergency listing was not warranted, but that if conditions change USFWS would re-evaluate the need for emergency listing. USFWS informed the petitioners that in light of resource constraints, USFWS anticipated making an initial finding in Fiscal Year 2005 as to whether the petition contained substantial information indicating that the action may be warranted. On August 16, 2007, USFWS published a notice of 90-day finding (72 FR 46023) that the petition presented substantial scientific or commercial information indicating that listing Goose Creek milkvetch may be warranted, and that we were initiating a status review of the species (72 FR 46023).

The USFWS's 12-month finding (74 FR 46521, September 10, 2009), concluded that listing Goose Creek milkvetch under the ESA is warranted, but precluded by higher priority actions. At that time, USFWS assigned a listing priority number (LPN) of 5 to the species because the threats affecting the species have a high magnitude, but are non-imminent. In 2012, during the Candidate Notice of Review, the USFWS assigned a LPN of 2 to Goose Creek milkvetch because the threats affecting the species were high in magnitude and imminent. The increase in listing priority to LPN 2 was based largely on the imminence of another wildfire within Goose Creek milkvetch habitat (see Threats and their Management, *Wildfire*, below) and the lack of existing regulatory mechanisms throughout the species' range to protect the species during and after another wildfire from firefighting and emergency stabilization and restoration activities (see Threats and their Management, *Wildfire*, and *Post-Wildfire Emergency Stabilization and Restoration*, below). Additional legacy effects from post-wildfire rehabilitation practices (disking and seeding), competition from invasive non-native plant species introduced via soil stabilization mixtures, habitat alteration from the 2007 wildfires, and livestock trailing in the fragile soils of the tuffaceous outcrops contributed to the magnitude of the threats to the species.

## **SPECIES INFORMATION**

In this section we provide the most current biological information of the Goose Creek milkvetch, including information from surveys and ongoing research of the species through 2014.

### ***Species Description:***

Goose Creek milkvetch was first collected in 1982 by Duane Atwood from a location in Box Elder County, Utah, and subsequently described in 1984 (Atwood *et al.* 1984). Goose Creek milkvetch is a low-growing, matted, perennial forb (flowering herb) in the legume (pea) family (Fabaceae). Gray hairs cover the leaves giving the plant a gray-green appearance. Goose Creek milkvetch has pink-purple flowers and brownish-red curved seed pods (Mancuso and Moseley 1991). This species is distinguished from Torrey's milkvetch (*A. calycosus*), woolly pod milkvetch (*A. purshii*), and Newberry's milkvetch (*A. newberryi*), the three other mat-forming *Astragalus* species found in the Goose Creek drainage, primarily by its smaller leaflets and



flowers, and the color and shape of the seed pods (Baird and Tuhy 1991; Mancuso and Moseley 1991).

***Species Distribution and Abundance:***

The species is historically and currently known from the Goose Creek drainage in Cassia County, Idaho; Elko County, Nevada; and Box Elder County, Utah (Baird and Tuhy 1991; Mancuso and Moseley 1991; Smith 2007). Goose Creek milkvetch occurs at elevations ranging between 4,900–5,885 feet (ft) (1,494–1,790 meters (m)) (Idaho Conservation Data Center (ICDC) 2007b; Smith 2007; Shohet and Wolf 2011). Most known locations are within an area that is approximately 35 miles (mi) (56 kilometers (km)) long by 6 mi (10 km) wide, oriented in a northeast to southwesterly direction along Goose Creek and extending to Rock Spring Creek (see Figure 1). Goose Creek milkvetch occupies an estimated 2,101 acres (850 hectares (ha)) within this range. The acreage is considerably larger than the previously reported 400 acres (164 ha) reported in the 12-month finding because survey areas from reports were digitized and included in this analysis. Earlier analyses utilized GPS points to calculate acreage, which grossly underestimated the area of occupied habitat. The amount of Goose Creek milkvetch habitat on BLM lands is 1,974 acres (799 ha) which is 93% of the total habitat for the species. A suitable habitat model is currently under development to identify areas where the species may occur and where surveys are recommended (Davis 2014).

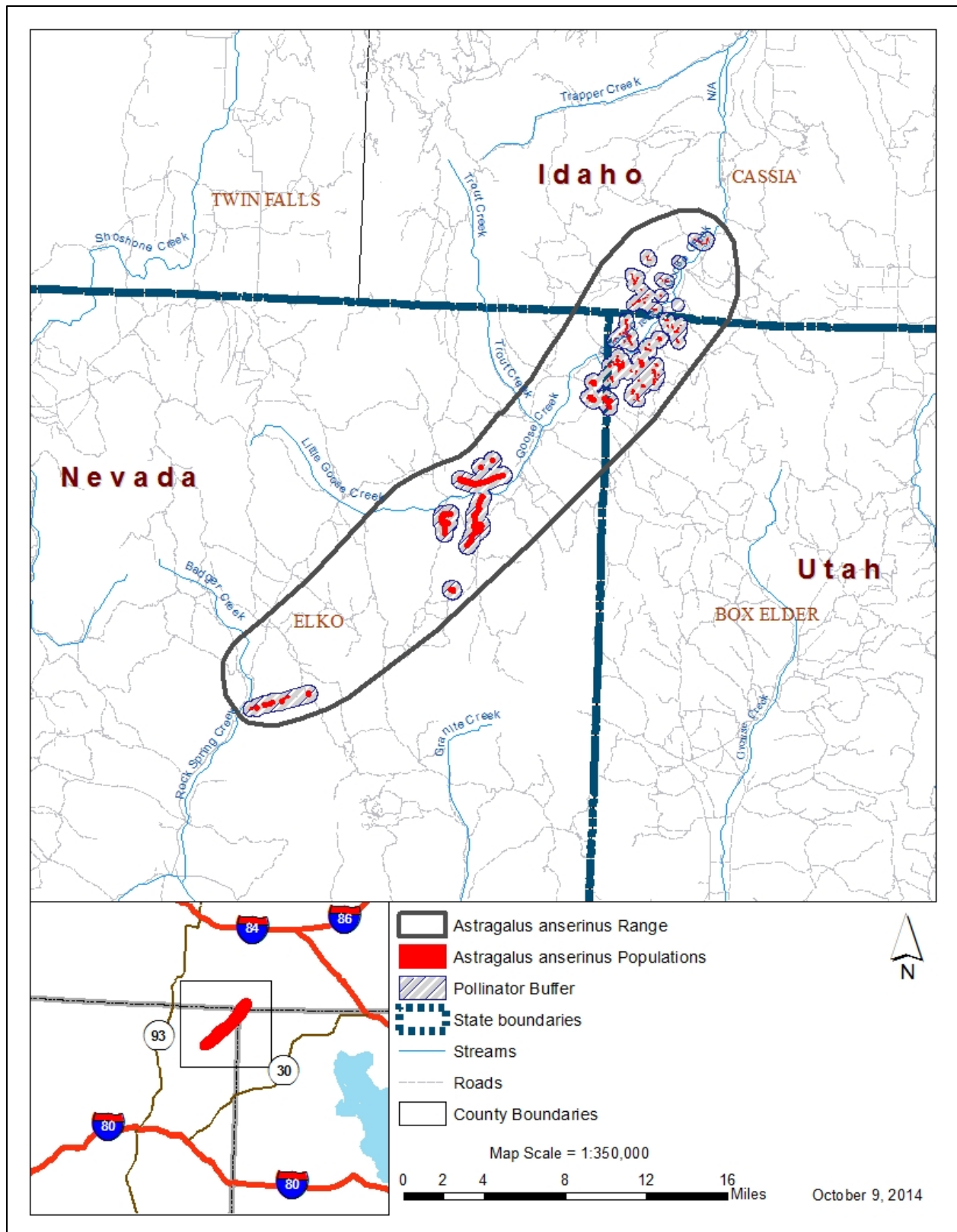


Figure 1. Goose Creek milkvetch range and occupied habitat.

The current population estimate for Goose Creek milkvetch is 31,252 individuals distributed across 19 Element Occurrences (EOs). EOs are plant sites that are grouped together based on geographic proximity (NatureServe 2004, p. 6). This estimate is higher than the total population size of 28,500 individuals reported in the 2009 12-month finding, and lower than the estimated 60,000 total population before the 2007 wildfires (cite 74 FR 46521, September 10, 2009). Annual monitoring indicates the population size undergoes substantial year to year variation.

### ***Habitat and Life History:***

Goose Creek milkvetch typically occurs on sparsely vegetated outcrops of highly weathered volcanic-ash (tuffaceous) soils from the Salt Lake Formation. These tuffaceous outcrops, also referred to as Salt Lake Formation “ashy” outcrops in Table 1, appear to constitute the optimal habitat for the species throughout its range. Goose Creek milkvetch also occurs in the sandy loam and gravelly sandy loam soils surrounding some but not all of these tuffaceous outcrops (Mancuso and Moseley 1991; Hardy 2013). Goose Creek milkvetch presence and scattered distribution on the sandier soils appears to be associated with the proximity to occupied tuffaceous outcrops and other unstudied factors related to how favorable the habitat conditions are for the species. The species ability to colonize the sandy soils adjacent to the tuffaceous outcrops indicates that Goose Creek milkvetch has some physiological or ecological ability to tolerate the conditions that exist outside of the tuffaceous outcrops within its historic range.

The dominant native species within the general surrounding plant community include: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), Utah juniper (*Juniperus osteosperma*), green or yellow rabbitbrush (*Chrysothamnus viscidiflorus*), Sandberg’s bluegrass (*Poa secunda*), and needle and thread grass (*Hesperostipa comata*) (Baird and Tuhy 1991). The habitat can vary from stable areas with little erosion to washes or steep slopes where erosion is common.

Goose Creek milkvetch appears to be a short-lived perennial, but information on longevity is lacking. Reproductive plants flower from late May to early June; fruit set begins in early June, and fruits remain on the plants for several months. Plants in full flower were observed in late fall, presumably induced by late summer moisture. Mechanisms of seed dispersal are not known, but may include wind dispersion of seed pods and insect or bird agents (Baird and Tuhy 1991). Clusters of seedlings are occasionally observed on abandoned ant hills, suggesting that ants may also assist with dispersal (USFWS 2006). Additional monitoring information for Goose Creek milkvetch can be found in the USFWS 12-month finding (74 FR 46521, September 10, 2009) and the USFWS Candidate Notice of Review (77 FR 70103 70162).

The breeding system and specific pollinators of Goose Creek milkvetch are not known at this time, but we assume that pollinators are important to support maximum reproduction for the species based upon research of other milkvetches (Tepedino 2005). Because of the similar

flower morphology within the *Astragalus* genus, we deduce that solitary bees are important pollinators of the species since they are common pollinators for the entire *Astragalus* genus (Geer *et al.* 1995; Watrous and Cane 2011). Additionally, at least two different bumblebee species (*Bombus* spp.) were documented on Goose Creek milkvetch flowers (Shohet and Wolf 2011). Protection guidelines for pollinators in this CAS are based upon the nesting and foraging habits of ground nesting, solitary bees. These bees are vulnerable to soil disturbance which can destroy nests, are not likely to travel far across fragmented terrain, and are density-dependent foragers that prefer floral-rich sites over floral-poor sites (Gathmann and Tschamtkke 2002; Geer *et al.* 1995; Tepedino *et al.* 2012). The 500-meter (m) (1,640.4 feet (ft)) recommended buffer for pollinators by BLM is discussed in detail in BLM (2012), and is recommended by USFWS to protect the nesting and foraging requirements of ground nesting bees to ensure that Goose Creek milkvetch's reproductive output is not limited by a decline in bee abundance.

## **THREATS AND THEIR MANAGEMENT**

The USFWS assesses existing and potential threats facing the species based on the five criteria as required by Section 4(a) (1) of the ESA. Within each of these criteria, several factors which contributed to the degradation of Goose Creek milkvetch habitat and negative impacts to plant populations were identified. The conservation actions in this CAS should significantly reduce or entirely remove threats to Goose Creek milkvetch and will restore, enhance, or preserve its habitat, and address research needs for the species. The following existing and potential threats to Goose Creek milkvetch are considered in this CAS and are summarized in this section: (1) Wildfire; (2) Wildfire Management; (3) Post-Wildfire Emergency Stabilization and Restoration; (4) Nonnative Introduced Species – Unseeded and Seeded; (5) Livestock Use; and (6) Mining. Disease or predation and recreation by Off-Highway Vehicles were both assessed as low threats in the 12-month finding and are not considered in this CAS. For a thorough discussion and evaluation of threats, see the USFWS 12-month finding (74 FR 46521, September 10, 2009).

### ***Wildfire***

#### **Altered Wildfire Regime**

In 2007, two wildfires had a significantly negative impact on Goose Creek milkvetch abundance. The wildfires burned approximately 53% of all known Goose Creek milkvetch individuals (31,500 out of 60,000) across 25% of known occupied habitat (100 acres (41 ha) out of an estimated 400 acres (164 ha)). The initial declines in abundance after the wildfires were considerable, with the loss of approximately 98% of plants in the 2007 burned area. Plants were destroyed from the wildfire and post-fire due to disking and seeding activities associated with emergency stabilization and restoration activities performed by the BLM (Mancuso 2010).

The long-term recovery of the species after a fire is less clear because comprehensive monitoring within the 2007 burned areas was not performed on a regular basis, and the monitoring that was conducted was limited in its ability to distinguish the confounding influences of other factors such as post-fire rehabilitation practices, livestock use, and the considerable annual fluctuation in population size of the species. The limited information we do have regarding post-fire survival and recovery comes from monitoring that occurred at eleven sites pre-fire in 2004 or 2005, and then immediately post-fire in 2008 and 2009, and again in 2014. In the eight burned monitoring sites, Goose Creek milkvetch density was significantly lower than the baseline, pre-fire density of 2004/2005 and remained that way from 2008 through 2014 (Mancuso 2014a). However, post-fire plant density was significantly lower than the pre-fire density for all eleven monitoring sites, including the three unburned sites. The factors contributing to lower plant densities in unburned habitat are not conclusive at this time, but it seems reasonable that they would affect the species in burned habitat as well. A better understanding of the species' response to climatic conditions and other factors including wildfire is needed to identify factors that influence recovery time. Recovery of the total population after a wildfire will likely take a decade or more and may be dependent upon soil type (outcrops vs. sandy soils), burn intensity, existing site conditions, suitable climatic conditions for recruitment, and land use practices.

The concern of an altered wildfire regime (i.e., an increase in wildfire frequency) within Goose Creek milkvetch's range is a potential threat that has not been realized to-date. The concern is that wildfire frequency will increase within the species' range as it has in other areas of the Great Basin formerly dominated by Wyoming big sagebrush and now dominated by cheatgrass (*Bromus tectorum*) (Bunting *et al.* 1987). In these areas, cheatgrass invasion altered the fire regime from a historic return interval of 60 – 110 years (Whisenant 1990) to an altered fire regime on the order of every 3 – 5 years (D'Antonio and Vitousek 1992; USGS 1999). The three recent fires within the species' habitat, one in 2000 and two in 2007, support this concern of an increased fire frequency; however, these wildfires occurred at different locations within the range and no single area or habitat has burned repeatedly.

Prior to the 2007 wildfires, cheatgrass was observed throughout the range of Goose Creek milkvetch, but was generally encountered at low levels. During the 2004–2005 surveys, cheatgrass was generally found at less than five percent cover when it occurred with Goose Creek milkvetch. At sites with either a southern exposure or higher levels of livestock trampling, the percent cover of cheatgrass was generally higher (USFWS 2008). After the 2007 wildfires, the level of cheatgrass cover in occupied habitat was similar to the pre-burn condition (74 FR 46521, September 10, 2009). In 2014, cheatgrass cover was either absent or had declined and was present in trace amounts (<1% cover) in the few monitoring plots where it was previously documented, possibly due to an army cutworm infestation that was documented that year (Mancuso 2014).



During the 2007 wildfires, while the majority of Goose Creek milkvetch individuals were killed, the majority of native bunchgrasses survived (75 – 90%) (Mancuso 2010), and their survival and competition for resources such as available water likely reduced the susceptibility of the habitat to cheatgrass invasion. The ecological condition of Wyoming big sagebrush habitat and the surviving cover of perennial herbaceous plant species within the habitat after disturbance events significantly influence the susceptibility of the habitat to cheatgrass invasion (Chambers *et al.* 2007). Studies support the mechanistic relationship between resource availability, plant competition, and invasibility of the habitat (Davis *et al.* 2000; Davis and Pelsor 2001). In well-developed soils, cheatgrass invasion is documented to be lower in habitats that have relatively high cover of perennial herbaceous plants in part because the perennial plants are strong competitors for available resources (such as soil moisture and nutrients) after disturbance events (Chambers *et al.* 2007; Davis and Pelsor 2001).

While the potential exists for continued encroachment and dominance of cheatgrass within Goose Creek milkvetch habitat and the surrounding habitat, the trajectory of habitat condition is complex and influenced by multiple factors, many of which can be controlled by management practices (Bunting *et al.* 2003). Wyoming big sagebrush communities that are slightly altered can respond favorably to restoration efforts (Bunting *et al.* 2003). Restoration strategies typically include appropriate livestock management and fire suppression (Bunting *et al.* 2003). Post-fire seeding activities may not be necessary if the post-fire survival of the native bunchgrasses is high. If restoration efforts are necessary, recommendations for Wyoming big sagebrush communities include the combination of post-fire seeding and reduction or elimination of habitat utilization by livestock to ensure successful seeding establishment and native plant re-establishment (Evers *et al.* 2013). For Goose Creek milkvetch habitat on tuffaceous outcrops, post-fire seeding may not be necessary and the success criteria should be adjusted to reflect ecological site potential of these soils. Additionally, the tuffaceous outcrops likely will not support a continuous fine fuel layer of cheatgrass that is possible in well-developed soils. Consistent implementation of the recommended restoration strategy for Wyoming big sagebrush communities within Goose Creek milkvetch habitat can reduce adverse effects to the species, maintain the habitat condition after disturbance events, and reduce the threat of cheatgrass dominance within the habitat. All of the Conservation Actions in Table 1 relate to the maintenance of Goose Creek milkvetch habitat condition after disturbance events.

### Wildfire Management

Wildfire management and wildfire control activities undertaken to preemptively manage wildfire risk and control wildfires once ignited are designed to reduce the spread and extent of fire within the range of Goose Creek milkvetch. While these activities are fundamental to reducing the wildfire threat to the species, the activities themselves impact the landscape and certain types of wildfire control activities may negatively impact Goose Creek milkvetch and its habitat. Activities of particular concern include: the construction of roads, fire lines, and staging areas;

construction of fire breaks; and juniper removal with heavy equipment. Such activities can uproot and kill established Goose Creek milkvetch plants and render habitat unsuitable for re-colonization by new seedlings (74 FR 46521, September 10, 2009). Avoiding heavy equipment and soil disturbing activities in known Goose Creek milkvetch habitat can dramatically reduce adverse effects to Goose Creek milkvetch and its habitat. See Conservation Actions 1 - 10 in Table 1 for compatible wildfire management and response activities and restrictions that will be implemented throughout the range of Goose Creek Milkvetch within occupied habitat.

#### Post-Wildfire Emergency Stabilization and Restoration

Post-wildfire emergency stabilization and restoration (ES&R) activities undertaken in burned areas are designed to stabilize soils, rehabilitate burned habitats, and prevent the spread of noxious weeds. While these activities are important to improving the habitat condition after a fire, certain types of ES&R activities may negatively impact Goose Creek milkvetch and its occupied habitat. Activities of particular concern include: fencing projects, the use of heavy equipment and rangeland drills, and seeding of highly competitive, non-native, plant species like crested wheatgrass (*Agropyron cristatum*), highly competitive, rhizomatous plant species like intermediate wheatgrass (*Thinopyrum intermedium*), and non-native, fire resistant plant species like forage kochia (*Kochia* (= *Bassia*) *prostrata*). Such ES&R activities can uproot and kill established Goose Creek milkvetch plants, render habitat unsuitable for re-colonization by new seedlings, and promote increased competition from aggressive plants used in soil stabilization seed mixes (74 FR 46521, September 10, 2009).

Methods for seeding landscapes following a wildfire often include broadcast seeding by rangeland drills or by aerial application (Monsen *et al.* 2004; Thompson *et al.* 2006). A general recommendation to improve the success of an aerial seeding effort includes an accompanying form of surface disturbance such as chaining or harrowing to provide sufficient seed-to-soil contact (Monsen and Stevens 2004; Thompson *et al.* 2006). The restriction in this CAS to avoid disking and drilling and any other method of soil disturbance in Goose Creek milkvetch occupied habitat is to prevent negative impacts to the species from these activities. There is no restriction on aerial seeding, just follow up measures like chaining and harrowing that create additional disturbance within the habitat. While this restriction will reduce the success of the seeding effort in Goose Creek milkvetch occupied habitat, it does not impede land managers from incorporating drill seeding and soil tilling in the surrounding habitat. If future disturbances alter Goose Creek milkvetch habitat so the use of drills, other mechanical seeding methods, or the seeding of highly-competitive, non-native plants in Goose Creek milkvetch habitat are necessary, a justification will be required and will be based upon site specific conditions and an evaluation of likely impacts to the species if these methods were or were not employed. Broadcast seeding native, non-rhizomatous plant species, avoiding the use of heavy equipment and soil disturbing activities, and avoiding the seeding of highly competitive, non-native plant species in Goose Creek milkvetch habitat can dramatically reduce adverse effects to Goose Creek milkvetch. See

Conservation Actions 12 - 23 in Table 1 for compatible post-wildfire emergency stabilization and restoration activities that will be implemented throughout the range of Goose Creek milkvetch within occupied habitat and the pollinator buffer.

### ***Non-native Introduced Species – Seeded and Unseeded***

Highly competitive non-native plants are strong competitors for soil moisture and other resources, can spread rapidly after disturbance events, and can alter the structure and function of diverse, native plant communities. The non-native species of most concern to Goose Creek milkvetch are cheatgrass, leafy spurge (*Euphorbia esula*), and crested wheatgrass. Cheatgrass and leafy spurge are natural invaders and were not directly seeded in the habitat; crested wheatgrass has been utilized in soil stabilization seed mixes since the 1950's and was directly seeded within Goose Creek milkvetch habitat and throughout the species' range both historically and following the 2007 wildfires. See Conservation Actions 38 - 40 in Table 1 for seeding recommendations and restrictions for revegetation efforts; Conservation Actions 24 - 31 for leafy spurge control; and Conservation Actions 32 - 37 for weed control efforts that will be implemented throughout the range of Goose Creek milkvetch within occupied habitat and the pollinator buffer.

### **Cheatgrass**

Cheatgrass has the potential to negatively impact Goose Creek milkvetch because of its ability to spread rapidly after disturbance, to strongly compete for soil moisture, and to increase the frequency of fire within the habitat. Cheatgrass is an annual grass with a shallow root system that germinates early in the growing season and uses soil moisture at the expense of most native plant species (Billings 1990). The species dies back early in the growing season usually before the dry summers common to the Great Basin. Once dry, cheatgrass is highly flammable and may occur in dense swards that effectively carry wildfire. The net effect of cheatgrass invasion can be a "positive feedback from the initial colonization in the interstices of shrubs, followed by fire, to dominance by cheatgrass and more frequent fire" (D'Antonio and Vitousek 1992). That said, various environmental factors and ecosystem attributes influence a sagebrush community's resiliency and resistance to cheatgrass invasion, and a careful analysis of the existing integrity of the habitat and its response to disturbance is needed to assess a community's risk of cheatgrass invasion and dominance (Chambers *et al.* 2013). Land management practices can be effective at reducing the risk of cheatgrass dominance within plant communities, as discussed in the above *Wildfire* section. Maintenance of the pre-fire or pre-disturbance habitat condition within the range of Goose Creek milkvetch will support the resiliency of the habitat to cheatgrass invasion and thus reduce the likelihood of cheatgrass dominance and an altered fire regime, and dramatically reduce the negative impacts to the species.

## Leafy Spurge

Leafy spurge has the potential to negatively impact Goose Creek milkvetch because of its ability to spread rapidly after establishment and to strongly compete for soil moisture. Leafy spurge is a perennial forb with a deep and extensive spreading root system, and seeds that are dispersed up to 15 feet by the explosive opening of the species' seed pod upon ripening (Selleck et al. 1962). Seeds of leafy spurge are spread by water, animals, vehicles, humans, and over long distances by birds thereby increasing the plant's ability to disperse into new territory (Coulter 2013; Goodwin et al. 2001). Leafy spurge can spread rapidly after disturbance, displace native vegetation, and persist after repeated herbicide treatments (Leistriz et al. 2004). Leafy spurge is a Class A noxious weed in Utah because it poses a serious threat to state lands and is a very high priority for eradication (Belliston et al. 2009). Leafy spurge is also a Category B noxious weed in Nevada, and a Contaminant noxious weed in Idaho (Center for Invasive Species Management 2014).

Leafy spurge occurs within portions of the Goose Creek drainage as well as within Goose Creek milkvetch habitat in Idaho and Utah. In Nevada, leafy spurge does not occur in Goose Creek milkvetch habitat, but occurs in one drainage within the range of the species (USFWS 2013). An aggressive and coordinated weed control program for leafy spurge and other noxious weeds is performed on an annual basis in both Cassia County, Idaho and Box Elder County, Utah. Funding is provided on an annual basis by the Burley BLM Field Office, Idaho, and the Salt Lake BLM Field Office, Utah, for county-wide weed control efforts. The establishment of the Goose Creek Cooperative Weed Management Area (CWMA) in 1998 fostered cooperation among the various landowners and county, state, and federal agencies efforts to implement weed control efforts in Cassia County. This CWMA implemented a quarantine of the removal, transport, and distribution of hay grown on private lands in the Goose Creek drainage to reduce and control the spread of leafy spurge. Additionally, Cassia County issues a 5 day notice to private landowners to treat spurge and other noxious weeds before the County treats the infestation. This measure ensures that all located spurge plants are treated. There are four other CWMAs that cover the range of Goose Creek milkvetch which operate in a similar fashion to implement weed control efforts: Utah – Idaho CWMA in Utah, Tri-State CWMA in Idaho, and Elko County CWMA in Nevada. Leafy spurge control efforts are a priority for Idaho and Utah counties with Goose Creek milkvetch and the Burley and Salt Lake BLM Field Offices, and funding has been provided since 1998 and 2004, to treat existing infestations and survey for new infestations.

Leafy spurge control efforts include a combination of chemical and biological methods that are considered to be a very effective combination to control the species (Lym and Nelson 2002; Belliston *et al.* 2009). In Idaho and Utah, existing leafy spurge infestations are mapped and treated annually with herbicide, and *Aphthona* flea beetles are released in large leafy spurge

stands as an effective biological control (Edwards 2014). The BLM in Idaho has already implemented the annual treatment of leafy spurge since 1999, which was effective in reducing the acreage containing spurge from 660 acres in 1999 to 14.3 acres in 2011 (Theodozio 2013, entire). The BLM in Utah has treated leafy spurge since 2004. Continued future annual funding and implementation of leafy spurge weed control efforts in and adjacent to occupied habitat should dramatically reduce the future spread of leafy spurge in Goose Creek milkvetch habitat.

### Crested Wheatgrass

Crested wheatgrass has been directly seeded into Goose Creek milkvetch habitat. It was widely introduced to the Great Basin to improve the condition of degraded rangelands, to stabilize the soil, and to provide forage for livestock. Historic seedings of crested wheatgrass were performed in the 1950's both adjacent to and within Goose Creek milkvetch habitat throughout its range. The historic seedings were successful in establishing crested wheatgrass, with an average of 15% canopy cover, in areas adjacent to Goose Creek milkvetch habitat in Utah (Davies and Hulet 2014). Goose Creek milkvetch is persisting within historically seeded habitat in Idaho, Nevada and Utah.

After the 2007 wildfires, crested wheatgrass was seeded (in 2008) into the largest population of Goose Creek milkvetch which contained approximately 18 percent of the total pre-fire population of the species. However, the 2014 monitoring determined the establishment of crested wheatgrass was very low, ranging from 1 - 3% canopy cover, due to high native bunchgrass survival post-fire (Mancuso 2014). Thus, the crested wheatgrass seeding is not negatively affecting the long-term establishment and abundance of Goose Creek milkvetch within the 2008 seeded area because crested wheatgrass failed to establish.

Possible benefits of establishing crested wheatgrass include that it is effective at inhibiting the establishment of cheatgrass and its relative fire resistant qualities may reduce the fire frequency within the habitat (Cox 2004). However, crested wheatgrass has the potential to negatively impact Goose Creek milkvetch because it is able to competitively displace slower-developing native species due to its drought tolerance, fibrous root system, and good seedling vigor (Bunting *et al.* 2003; Lesica and DeLuca 1996; Pellant and Lysne 2005; Pyke and Archer 1991). Its extreme competitive ability likely suppresses the establishment of Goose Creek milkvetch and other native plant species as it does to other more aggressive, noxious weeds such as leafy spurge (Ferrell *et al.* 1998).

Current measures to reduce crested wheatgrass canopy cover in previously established stands do not appear to be effective (Fansler and Mangold 2010; Hulet *et al.* 2010) and are therefore not incorporated in this CAS, but future measures that are effective will be considered. Since Goose Creek milkvetch does persist within established stands of crested wheatgrass, there does not appear to be an immediate need to reduce or eradicate crested wheatgrass within the milkvetch's



habitat. However, based upon crested wheatgrass's strong competitive ability, prohibiting its use within Goose Creek milkvetch habitat will likely dramatically reduce future adverse effects to the species. The restriction of seeding crested wheatgrass and other highly competitive nonnative plant species in the pollinator buffer (500m/1640 ft) is based on research that documented lower bee diversity in crested wheatgrass dominated habitats compared to other habitats in the Great Basin (Johnson 2008) and a decline in pollinator diversity in habitats dominated by invasive grasses (Havens *et al.* 2006). Since crested wheatgrass and other non-native grasses are identified as highly competitive plant species and will be excluded from the pollinator buffer, this restriction will be effective in maintaining pollinator diversity in the Goose Creek milkvetch pollinator buffer so that the species' seed production and genetic diversity are maximized and not limited by seeded plant species.

### ***Livestock Use***

Livestock use has occurred within the range of Goose Creek milkvetch for more than 150 years, and the number of animals and forage utilization was likely much greater in the late 1800s than the present (Hardy 2005). Livestock grazing by cattle is the dominant land use within the range of Goose Creek milkvetch. The potential benefits of livestock grazing to the species include reduced vegetative competition of bunchgrasses within Goose Creek milkvetch habitat in sandy soils (Baskin and Baskin 2005) as well as the reduced amount of herbaceous fuel within the habitat that may reduce wildfire size, severity, and extent (Davies *et al.* 2010; Strand *et al.* 2014). However, livestock may negatively impact Goose Creek milkvetch because of the direct, physical effects of trampling that can damage or destroy individual plants, and the indirect, effects from range improvement projects that concentrate livestock and degrade the habitat. Range improvement projects include water tanks and associated pipelines, and placement of salt licks and fencing.

The tuffaceous outcrops where Goose Creek milkvetch primarily occurs are steep and contain relatively sparse vegetation; a combination that tends to limit livestock use within the habitat. However, where the species occurs on flatter slopes with sandy soils below or adjacent to the outcrops, these areas may receive more livestock use. Goose Creek milkvetch appears to tolerate some trampling and habitat disturbance from livestock use because Goose Creek milkvetch is present and sometimes abundant along livestock trail margins and road edges. However, Goose Creek milkvetch plants do not occur within heavily used livestock trails (74 FR 46521, September 10, 2009). The tuffaceous outcrops appear to be vulnerable to the establishment of trails because they are comprised of soft and highly erodible soils. Therefore, protection of the tuffaceous outcrops from livestock trail development and protection of all other Goose Creek milkvetch occupied habitat from concentrated livestock use will reduce adverse effects to the species, its habitat, and likely its pollinators.

Water sources and mineral licks are resources that concentrate livestock and affect livestock movement and forage utilization. Thus, their distribution across the landscape can influence how efficiently and evenly the range is utilized by livestock (Rigge *et al.* 2013; Shahriary *et al.* 2012). In arid and semi-arid plant communities, an area of impact known as a piosphere often develops around water sources and mineral licks where the impact radiates outward from the resource along a utilization gradient (Rigge *et al.* 2013; Shahriary *et al.* 2012). Within the Goose Creek milkvetch range, the center of a piosphere, completely devoid of vegetation, extended approximately 45 meters (150 feet) from one water tank (74 FR 46521, September 10, 2009); however, the site specific topography, distribution of livestock, season and duration of use, number of livestock, and number of water sources will influence this distance. While it may be impossible to prevent the development of piospheres around these resources, their careful placement will influence grazing patterns to ensure that piospheres do not overlap with ecologically important areas (Rigge *et al.* 2013). Thus, management efforts to locate water tanks and salt licks outside of Goose Creek milkvetch habitat with a sufficiently protective buffer for pollinators will avoid concentrating livestock use within the habitat, and reduce adverse effects to the species.

In addition to water sources and mineral licks, fence lines can concentrate livestock and affect livestock movement. In Utah, fence lines were erected following the 2007 fire to protect burned habitat from livestock entry. The installation of fence lines can be beneficial to Goose Creek milkvetch and its habitat by allowing post-fire recovery and establishment of plants without livestock grazing and trampling. However, at one site in Utah, the fence line was installed directly through a Goose Creek milkvetch occupied tuffaceous outcrop that resulted in the concentrated use of livestock within the habitat and an increase in trailing and habitat degradation. Conservation action 45a in Table 1 is a commitment by the BLM Salt Lake Field Office to exclude livestock from this outcrop. Consideration of Goose Creek milkvetch habitat in the siting of future fence lines will be important to avoid concentrated livestock use within the habitat of the species.

Finally, livestock use after a large disturbance event such as a wildfire may negatively impact Goose Creek milkvetch and its habitat (as discussed in the Wildfire, *Altered Wildfire Regime* and *Wildfire Management* sections, above), if livestock grazing occurs before sufficient survival and re-establishment of perennial native plant species is achieved. In order to address livestock use in burned areas, the BLM will provide an adequate rest period following a wildfire in order to maintain the habitat condition and to achieve BLM post-fire ES&R objectives. Post-fire vegetation monitoring and a consistent implementation of the recommended post-fire restoration strategy can reduce adverse effects to Goose Creek milkvetch, maintain the habitat condition after disturbance events, and reduce the likelihood of cheatgrass dominance within the habitat. See Conservation Actions 43 - 48 in Table 1 for compatible livestock use practices that will be implemented throughout the range of Goose Creek milkvetch within occupied habitat.

### ***Mining and Energy Development***

The effects of mining and energy development to habitats and landscapes include the removal of soil and vegetation from the construction of mines, wells, roads, and associated infrastructure as well as from increased vehicle traffic (BLM 2008c). These disturbances can affect rare plant species through habitat destruction, habitat fragmentation, soil disturbance, spread of invasive weeds, and production of fugitive dust (particulate matter suspended in the air by wind and human activities) (BLM 2008c). Habitat loss or fragmentation from energy development can result in higher extinction probabilities for plants because remaining plant populations are confined to smaller patches of habitat that are isolated from neighboring populations (Jules 1998; Soons 2003). Habitat fragmentation and low population numbers can affect a rare plant species' genetic potential to adapt to changing environmental conditions (Matthies *et al.* 2004). The incorporation of a pollinator buffer (500 m/1,640.4 ft) in this CAS for mining and energy development is to minimize impacts to the species and its pollinators from habitat loss and fragmentation. This buffer provides a biological basis of protection for the species, pollinator nesting sites and secondary floral resources to support pollinators (Bhattacharya *et al.* 2003; Cane 2001; Goverde *et al.* 2002).

Excessive dust from increased vehicle traffic on dirt roads can clog plant pores, increase leaf temperature, alter photosynthesis, and affect gas and water exchange (Sharifi *et al.* 1997; Ferguson *et al.* 1999; Lewis 2013), negatively affecting plant growth and reproduction. Dust can affect plants up to 1,000 m (3,280 ft) away from the source (Service 2014). Effects of fugitive dust include species composition changes, altered soil properties, blocked stomata, reduced foraging capacity of pollinators, dehydration, reduced reproductive output, and a decline in reproductive fitness (Service 2014). A 91.5 m (300 ft) buffer is the minimum distance needed in order to protect sensitive plant species from dust impacts (USFWS 2014).

Mining activity and energy development in Goose Creek milkvetch habitat has not occurred to date. There has been limited interest in mining and energy development in the habitat and the volcanic ash deposits do not appear to have any particular practical or valuable use for commercial interests (Lubinski 2014, entire). There was one expired mineral exploration permit that overlapped with a portion of Nevada EO 002 and a lease parcel was recently nominated in September 2014 for an area that is primarily to the north of the species known range but does overlap a portion of Idaho EO 004 on BLM land (Lubinski 2014, entire). At this time, the BLM does not know of the oil and gas potential for this parcel.

There are no active claims or operations for minerals and no energy development has occurred in the Goose Creek drainage. While there appears to be a low level of future interest in mining and energy development, commitments to prevent or reduce future impacts are important given the

species' small range if mining and energy interest increases. See Conservation Actions 49 - 51 in Table 1 for mineral leasing protective measures in Goose Creek milkvetch habitat.

## **4. CONSERVATION ACTIONS**

The USFWS assesses existing and potential threats facing the species based on the five criteria as required by Section 4(a) (1) of the ESA. Within each of these criteria, several factors which have contributed to the degradation of Goose Creek milkvetch habitat and its EOs were identified. The conservation actions in this CAS were developed to address the threats identified in the USFWS 12-month finding. Disease or predation and recreation by Off-Highway Vehicles were both assessed as low threats in the 12-month finding and are not considered in this CAS.

The process of selecting specific conservation actions for one or more BLM field offices is based on where the threat occurs. The signatories recognize that each field office is unique and that not every conservation action is appropriate for all BLM field offices. Where the BLM is identified in general terms in a conservation action, that action will be implemented by all three BLM field offices. Where the BLM is identified by State in a conservation action, that action will only be implemented by the field office(s) with management authority for the identified state(s). Additionally, the conservation actions can be site-dependent and are tailored to alleviate the threat(s) at the level of a site or EO. Conservation actions that will be enacted to address identified threats are described in Table 1. The timeline for implementation of the conservation actions will be within 4 months after this CAS is finalized or, as per the specified date or time period identified in Table 1. The conservation team identified in Table 1 will consist of a designated representative from each signatory to this CAS, as described in the Coordinating Conservation Activities section, below.

**Table 1. Conservation Actions to Address Threats, Potential Threats, and Research Needs for Goose Creek Milkvetch (GCM). The Actions implemented by all three BLM Field Offices will apply to all habitat on BLM lands (equivalent to 93% of the total habitat), unless specified otherwise next to an Action.**

| Threat and Associated Impacts                                   | Conservation Action   |
|---|---|
| <b>Wildfire Management Planning and Firefighting Activities</b> |   |
| Plant Mortality & Habitat Degradation                           | <p><b>Goal:</b> BLM fire suppression efforts will be conducted, as necessary, to protect GCM occupied habitat from fire on BLM lands. A high priority will be placed on protecting GCM occupied habitat from fire, and protecting the habitat from undue degradation from firefighting activities. Human life and safety, as well as property and improvements, will take priority over species protection in fire suppression activities.</p> <ol style="list-style-type: none"> <li>1. The BLM will include GCM populations and GCM occupied habitat on BLM fire operational planning maps and will regularly inform fire crews on suppression guidelines within and near these locations to maximize fire protection and avoid or minimize impacts from fire suppression activities.</li> <li>2. A Resource Advisor, with knowledge of GCM, its habitat, and the conservation actions identified in this CAS, will be appointed to all fires within the range of GCM that have the potential to spread into GCM habitat to provide onsite guidance for the appropriate fire suppression actions</li> <li>3. Surface disturbance will be avoided during fire-fighting related activities within GCM occupied habitat. This includes the construction of fire lines, fire breaks, access routes, and staging areas. A 300-foot (ft) minimum buffer between new disturbance and GCM occupied habitat will be maintained. Use of existing roads as fire breaks is encouraged, including those within 300 feet of GCM. Use of fire retardant will be avoided within 300 ft. <ul style="list-style-type: none"> <li>Exceptions to the 300-ft minimum buffer include the following: <ol style="list-style-type: none"> <li>a. Human life, property, and safety would be compromised by maintaining the 300-ft buffer;</li> <li>b. MIST (minimum impact suppression tactics) will be implemented within GCM occupied habitat to contain the fire at the smallest possible perimeter when the benefit of such activities to protect unburned GCM occupied habitat outweighs the impact by the surface disturbance. MIST is outlined in ACNWTG (2014).</li> </ol> </li> </ul> </li> <li>4. The responsible BLM Field Office will notify the conservation team of the wildfire(s) and firefighting activities within GCM occupied habitat as soon as practicable to facilitate a post-fire evaluation by the conservation team.</li> <li>5. The responsible BLM Field Office will provide all reporting documents regarding the wildfire(s) and firefighting activities within GCM occupied habitat to the conservation team by December 31 of that year, so that any actions or modifications that may be necessary can be incorporated into the following year's fire planning.</li> <li>6. On BLM lands, prescribed broadcast burns are excluded within GCM occupied habitat.</li> <li>7. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of fire-fighting activities on BLM lands within GCM occupied habitat.</li> </ol> |
| <b>Fire Prevention Activities</b>                               |   |
| Plant Mortality & Habitat Degradation                           | <p><b>Goal:</b> BLM fire prevention activities will be conducted to reduce the threat of fire within GCM occupied habitat and throughout the range of the species. A high priority will be placed on protecting GCM occupied habitat from fire.</p>   |



| Threat and Associated Impacts   | Conservation Action   |
|---|---|
|   | <p>8. Fuel breaks may be beneficial to reduce the spread of wildfire to GCM occupied habitat; however, there may be potential negative impacts to GCM because fuel breaks may facilitate weed dispersal. Use of existing roads as fire breaks is encouraged. BLM proposed fuel breaks within the GCM pollinator buffer (500meter (m) (1,640 ft)) will be discussed with the conservation team prior to implementation.</p> <p>9. New fuel breaks will be prohibited within GCM occupied habitat.</p> <ol style="list-style-type: none"> <li>If new fuel breaks are planned within the pollinator buffer (500meter (m)(1,640 ft)) of GCM occupied habitat, targeted surveys to detect and control invasive species will be performed on a regular basis, see conservation action 33 for more details.</li> <li>The seeding or use of highly competitive, non-native species, such as crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species will not be used in fuel breaks within the pollinator buffer (500m (1,640 ft)) of GCM occupied habitat. The provisions of conservation action 40 will be implemented if exceptions or modifications are necessary.</li> <li>Where site specific modifications or conditions warrant changes to this conservation action, changes will occur in coordination with the conservation team. Any modification will include a documented rationale or justification.</li> </ol> <p>10. The following restrictions for juniper removal will be followed if juniper encroachment within GCM occupied habitat is a concern: a) avoid the use of heavy equipment including bull-hogs within GCM occupied habitat; b) chainsaws and manual removal of trees are recommended; c) equipment will be cleaned prior to use to reduce the spread of weeds; e) timing of juniper removal will be considered to reduce the spread of noxious weeds post-treatment.</p> <p>11. Cheatgrass control by herbicide application or other methods will be considered within GCM occupied habitat and the pollinator buffer (500m (1,640 ft.)) if and when the level of cheatgrass significantly increases the risk of wildfire or habitat alteration. Control methods and monitoring will be developed by the BLM in coordination with the conservation team.</p> |
| <b>Emergency Stabilization And Rehabilitation (ES&amp;R)</b>  |   |
| Plant Mortality,<br>Habitat Degradation &<br>Introduction of Non-Native,<br>Highly Competitive Vegetation | <p><b>Goal:</b> BLM ES&amp;R activities will be conducted to maintain or improve the habitat condition within GCM occupied habitat and the pollinator buffer (500m (1,640 ft)). A high priority will be placed on protecting GCM occupied habitat from surface disturbance. Natural colonization of the native plant community is generally preferred when post-fire survival of native perennial bunchgrasses is high.</p> <p>12. The BLM will include GCM populations, GCM occupied habitat, and GCM pollinator buffer on ES&amp;R planning maps and regularly inform ES&amp;R crews and new staff on the conservation actions within this CAS for GCM occupied habitat and the pollinator buffer.</p> <p>13. The Resource Advisor and others (botanist, biologists, range specialists, etc.) will provide recommendations for ES&amp;R actions based upon the burn area evaluation, GCM habitat condition, and the predicted seeding success. Coordination with the conservation team is recommended for ES&amp;R activities in GCM occupied habitat, as soon as practical.</p> <p>14. Within GCM occupied habitat, the use of aerial seeding only (without accompanying soil surface disturbance activities) , back-pack seeders, and hand planting will be utilized to reduce surface disturbance from seeding activities.</p> <p>15. Within GCM occupied habitat, drill seeding is prohibited. Exceptions will be considered if drill seeding may be beneficial to reduce another threat to GCM. Where site specific modifications or conditions warrant drill seeding within GCM occupied habitat, the BLM ES&amp;R personnel will notify the conservation team. Drill seeding within GCM occupied habitat will require a rationale for the benefits of drill seeding as well as a monitoring and adaptive management plan that is developed by the BLM in coordination with the conservation team.</p> <p>16. Within the GCM pollinator buffer (500m (1,640 ft)), drill seeding is permitted. GCM occupied habitat will be flagged and clearly visible prior to drill seeding activities so drill</p>   |

| Threat and Associated Impacts                         | Conservation Action  |
|---|--|
|   | <p>seeding activities do not occur within GCM occupied habitat. Equipment operators will have GPS polygons delineating GCM occupied habitat to avoid them. A biological monitor (which includes trained personnel familiar with GCM) is required to be on-site during drill-seeding activities within the pollinator buffer to ensure compliance.</p> <p>17. For seed mix recommendations in GCM occupied habitat, see conservation action 38.</p> <p>18. For seed mix prohibitions in GCM occupied habitat, see conservation action 39.</p> <p>19. For seed mix recommendations in GCM pollinator buffer, see conservation action 40.</p> <p>20. Within GCM occupied habitat, leafy spurge treatment 2 times per year is recommended for post-fire year 1, 2, and 3. See conservation actions 24 – 30 for more details about on-going leafy spurge control recommendations.</p> <p>21. Within GCM occupied habitat, BLM will protect disturbed and recovering areas by using temporary fencing or other methods of no livestock use (reductions, pasture rotations, etc.) to minimize disturbance to GCM occupied habitat and to ensure vegetation treatments are successfully established. BLM will continue to rest areas from time of the wildfire to at least 2 growing season following the fire from land use activities or until ES&amp;R objectives are met. Any scientifically valid objectives or criteria specific to GCM that are developed in the future will be incorporated into this action.</p> <p>22. The BLM Field Office will provide all reporting documents to the conservation team regarding the ES&amp;R activities within GCM occupied habitat and pollinator buffer by December 31 of that year.</p> <p>23. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of ES&amp;R activities within GCM occupied habitat.</p>  |
| <b>Noxious Weeds</b>                                  |  |
| Non-Native, Introduced Plant Species:<br>Leafy Spurge | <p><b>Goal:</b> Leafy spurge control will be conducted throughout the range of GCM through integrated pest management (chemical, biological, mechanical, and manual control methods). A high priority will be placed on controlling leafy spurge within GCM occupied habitat.</p> <p>24. The BLM will include GCM populations and GCM occupied habitat on leafy spurge weed control planning maps and regularly inform weed crews and new staff on the conservation actions within this CAS.</p> <p>25. Annual funding of leafy spurge control will be prioritized and actively pursued by the BLM at each respective field office. Leafy spurge within GCM occupied habitat will be a high priority for treatment.</p> <p>26. Effective BLM approved chemical and biological methods will be used to control leafy spurge within GCM occupied habitat as identified in the Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007) or other BLM District specific vegetation treatments plans.</p> <p>27. The BLM in Idaho and Utah will closely coordinate with Cassia County and Box Elder County in the treatment and monitoring of leafy spurge in the Goose Creek drainage. The BLM will remain an active partner in established weed management areas (WMAs): Goose Creek, Raft River, Elko County, and Tri State WMAs.</p> <p>28. On BLM lands, leafy spurge control will occur on an annual basis at known locations within GCM occupied habitat and adjacent areas in ID, NV, and UT, as funding allows.</p> <p>29. For post-fire leafy spurge control, see conservation action 20.</p> <p>30. Within one year of signing the CAS, BLM staff in coordination with the conservation team will develop a schedule of repeated surveys in GCM occupied habitat to detect new invasions of leafy spurge or other invasive species, as well as monitor leafy spurge treatment effectiveness within GCM occupied habitat. Leafy spurge surveys and monitoring within GCM occupied habitat can be incorporated as part of range-wide monitoring, see conservation action 62.</p> <p>a. The schedule of repeated surveys for new leafy spurge infestations will ensure that surveys will be performed within GCM occupied habitat on an annual or</p> |

| Threat and Associated Impacts  | Conservation Action  |
|--------------------------------|--|
|                                | <p>biennial basis within each BLM Field Office</p> <p>b. Until additional monitoring protocols are developed in coordination with the conservation team, the BLM will implement the existing leafy spurge monitoring protocols from the Idaho BLM which include: a) installation of monitoring plots around leafy spurge plants in GCM occupied habitat; b) counting the number of leafy spurge stems within the plot on a regular basis.</p> <p>31. BLM Field Office staff, in coordination with and agreement from the conservation team, will use an adaptive management process to examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of weed control activities within GCM occupied habitat.</p>   |
| Noxious Weeds                  | <p><b>Goal:</b> Weed control will be conducted within GCM occupied habitat through integrated pest management (chemical, biological, mechanical, and manual control methods). A high priority will be placed on controlling weeds within GCM occupied habitat. A proactive approach is recommended to monitor invasions in nearby areas and to select the appropriate treatment methods for GCM.</p> <p>32. The BLM will include GCM populations and sites on weed control planning maps and regularly inform weed crews and new staff on the conservation actions within this CAS and more recent treatment protocols for GCM occupied habitat.</p> <p>33. Within 1 year of signing the CAS, BLM staff and the conservation team will develop a schedule of repeated surveys in GCM occupied habitat to detect new invasions of weeds in addition to leafy spurge, see conservation action 30. Weed surveys and monitoring within GCM occupied habitat can be incorporated as part of the range-wide monitoring, see conservation action 62.</p> <p>34. As invasions of noxious weeds occur within GCM occupied habitat and the presence and or density of such weeds is determined to be a risk to GCM habitat, BLM staff will develop treatment protocols that identify treatment options as appropriate for each known weed species and the most appropriate control methods within GCM occupied habitat, in coordination with the conservation team, and as identified in the Vegetation Treatments Using Herbicides Programmatic EIS (BLM 2007) or other BLM District specific vegetation treatments plans.</p> <p>The BLM and conservation team will develop a monitoring protocol to evaluate the effectiveness of control methods within GCM occupied habitat. This will occur on an as needed basis. The BLM will provide weed control and weed invasion updates to the conservation team on an annual basis.</p> <p>35. Until additional treatment protocols are developed in coordination with the conservation team, the BLM will implement the following measures within GCM occupied habitat: a) herbicide treatments are limited to back-pack sprayers, animal-pack sprayers or ATV/UTV sprayers; and b) ATV/UTV use on steep slopes or Salt Lake Formation “ashy” outcrops within GCM occupied habitat will be prohibited.</p> <p>36. The BLM Field Offices, in coordination with the conservation team, will use an adaptive management process to examine and modify the treatment methods to accommodate changes necessary to improve the effectiveness of weed control activities within GCM occupied habitat.</p> <p>37. When and where feasible, the BLM will cooperate to control noxious weeds in established cooperative weed management programs.</p> |
| Seeded Grasses and Wildflowers | <p><b>Goal:</b> The use of native forbs in seed mixtures, with a variety of blooming times, and preferably found within the range and GCM occupied habitat, is encouraged in order to benefit GCM insect pollinators and pollinator enhancement in restoration projects. Seeding should only be used when there is a documented high mortality of native grasses and forbs, or a documented need to improve diversity within GCM occupied habitat or the pollinator buffer.</p> <p>38. Within GCM occupied habitat, the BLM will use native forbs and grasses in seed mixtures as needed. Native plants and seeds that originate from local sources and/or from existing provisional seed zones for target native species are preferred. If native plants are not available, non-highly competitive, non-native or native cultivar plant species will be used.</p>   |

| Threat and Associated Impacts                 | Conservation Action  |
|---|--|
|   | <p>39. Within GCM occupied habitat, the BLM will exclude the seeding of highly competitive, non-native plant species including crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species. The seeding density of non-native grasses should be calibrated based upon the native grass survival so not to exceed the target or pre-disturbance grass canopy cover of the site.</p> <p>40. Within the GCM pollinator buffer (500m (1,640 ft)), the guidance identified for conservation actions 38 and 39 will generally apply. Exceptions to the exclusion of seeding highly competitive, non-native plant species including crested wheatgrass (<i>Agropyron cristatum</i>), intermediate wheatgrass (<i>Thinopyrum intermedium</i>), and kochia species within the pollinator buffer will be considered where site specific modifications or conditions warrant their use such as the potential for burned areas to convert to a cheatgrass monoculture. The BLM will notify the conservation team if the use of these plant species is necessary. Additional monitoring and control measures may be incorporated into the project design, as recommended by the conservation team. Control measures will be informed by monitoring and based upon thresholds or triggers that are exceeded.</p> <p>41. For seeding techniques in GCM occupied habitat and pollinator buffer (500m (1,640 ft)), see conservation actions 14 – 16.</p> <p>42. BLM Field Office staff, in coordination with and agreement from the conservation team, will examine and modify the actions identified here in order to accommodate changes necessary to improve the effectiveness of ES&amp;R and other restoration activities within GCM occupied habitat.</p>  |
| <b>Livestock Grazing on BLM-Managed Lands</b> |  |
| Trampling of Plants & Habitat Degradation     | <p><b>Goal:</b> The BLM will manage livestock grazing and trailing to conserve GCM and GCM occupied habitat and use available data to ensure all livestock management practices and operations (e.g., grazing intensity, distribution, confinement, location of salt, and range improvements) will be implemented in a way that does not negatively impact GCM.</p> <p>43. The BLM will inform grazing permittees of the need to manage for GCM conservation. Information on GCM, GCM occupied habitat, and maps to aid permittees in understanding where GCM occurs and the appropriate management techniques for GCM occupied habitat will be developed and provided within 1 year following the signature of this CAS, and as needed thereafter.</p> <p>44. The following BLM grazing management practices will be incorporated during project planning (NEPA).</p> <ol style="list-style-type: none"> <li>Locate new water sources, pipelines, and other range improvements outside of GCM occupied habitat, and at least ¼ mile (402.3 m / 1,320 ft) away from GCM occupied habitat to protect the habitat and plant pollinators. New water troughs will be placed so that livestock are drawn away as needed from GCM occupied habitat and concentrated livestock use areas are outside of GCM occupied habitat. Where site specific modifications or conditions warrant changes to this distance, BLM staff will notify the conservation team. Any modification to this distance will include a documented rationale or justification.</li> <li>Locate new fences outside of GCM occupied habitat and in a manner so that livestock use is concentrated outside of GCM occupied habitat.<br/><br/>Post-fire, the planning and installation of new fence lines to keep livestock out of burned areas will be aligned to exclude livestock within burned GCM occupied habitat. Unburned GCM occupied habitat that is near or adjacent to the planned fence line should be considered in the planned alignment so that livestock use is not concentrated within the unburned GCM habitat near the fence line.</li> <li>Mineral supplements will be located at least ¼ mile (402.3 m / 1,320 ft) away from occupied habitat. Where site specific modifications or conditions warrant changes to reduce this distance, BLM staff will notify the conservation team. Any modification will include a documented rationale or justification. This action may require the modification of existing livestock grazing permits and</li> </ol> |

| Threat and Associated Impacts        | Conservation Action   |
|--------------------------------------|---|
|                                      | <p>will be incorporated into existing permits as soon as practical, no later than the next permit renewal. The BLM currently has the authority under 43 C.F.R. part 4100 section 4110 3-3b to modify existing grazing permits or modify authorized grazing use following BLM documentation that identifies an imminent likelihood of significant resource damage.</p> <p>d. BLM staff will inspect proposed fence-lines, water troughs, pipelines, and other range improvement projects to ensure their installation will not concentrate livestock in GCM occupied habitat. Following installation, BLM staff will inspect livestock use in adjacent GCM occupied habitat to verify livestock are avoiding and not concentrated inside GCM occupied habitat and make adjustments as needed to ensure livestock is not concentrated in GCM occupied habitat.</p> <p>e. BLM staff will provide annual updates to the conservation team regarding new or proposed range projects within the GCM pollinator buffer (500m (1,640 ft)) or GCM occupied habitat.</p> <p>45. The BLM will ensure no new livestock trails or piospheres are established through their management actions within GCM occupied habitat. If through management actions, new trails develop that are negatively impacting habitat as determined by monitoring, effective measures will be utilized to close these new trails and direct trailing outside of the habitat. These measures will be made on a site-specific basis by the BLM in coordination with the conservation team. Measures may include installation of temporary fencing prior to the next use period, and permanent fencing at problem areas to redirect trailing. Following any management action implementation, BLM staff will inspect the site to evaluate the effectiveness of the measure and adjust as necessary to ensure new trails and piospheres are not established within GCM occupied habitat. Updates on these actions will be provided to the conservation team. See conservation action 48 for schedule details.</p> <p>a. The BLM will exclude livestock from one site, U001-6-1, in Utah where livestock trails were established within a Salt Lake Formation "ashy" outcrop after the 2007 wildfires. A monitoring plan will be developed for this site no later than 1 year following the signature of this CAS. This site will be fully fenced before livestock turnout 2015 and no later than May 1, 2015. This site is approximately 8 acres. This action area includes &lt;1% of GCM occupied habitat.</p> <p>46. The BLM will adjust livestock use within GCM occupied habitat after major disturbances to provide adequate rest from grazing if necessary. Major disturbances include fire, post-fire ES&amp;R activities, drought, or other soil-disturbing activities, see conservation action 21 for more details.</p> <p>a. BLM staff will perform spot checks within GCM occupied habitat where livestock adjustment is necessary to ensure livestock use is in compliance with BLM guidance. For the duration of the livestock closure after a fire, spot checks will be performed a minimum of 2 times a year, preferably on a regular basis throughout the adjustment period. Spot checks for compliance after other disturbances will be performed a minimum of 1 time per year, preferably on a regular basis throughout the adjustment period. The BLM will provide details regarding the adjustment period such as target criteria and the results of their evaluation to the conservation team.</p> <p>47. Within one year of signing the CAS, the BLM in coordination with the conservation team will incorporate photo monitoring within existing or new Goose Creek monitoring sites to monitor the establishment of new livestock trails and piospheres. This can be incorporated as part of the range-wide monitoring; see conservation action 62.</p> <p>48. The BLM and the conservation team will review the livestock monitoring schedule annually, and update as necessary.</p> |
| <b>Mining and Energy Development</b> |   |
| Habitat Loss or Fragmentation        | <p>49. While mining or energy development is not currently occurring within GCM occupied habitat, the BLM will notify the conservation team of any new mineral exploration permit applications or requested lease parcels in GCM occupied habitat, within the GCM</p>   |



| Threat and Associated Impacts                       | Conservation Action   |
|---|---|
|   | <p>pollinator buffer, or between GCM Element Occurrences.</p> <p>50. In Idaho, Nevada, and Utah the BLM will will develop a lease notice for the species and include avoidance and minimization measures to survey for plants and implement a 500m (1,640 ft) buffer between surface disturbing activities and plants. This action area includes 93% of GCM occupied habitat.</p> <p>51. Each BLM Field Office will keep track of the area and location of surface disturbance within the GCM pollinator buffer from mining and energy development and report that annually to the conservation team. The BLM and the conservation team will continue to review mining and energy development activity and update the conservation actions and the avoidance buffer when additional action is necessary to protect GCM from habitat loss and fragmentation.</p>   |
| <b>Inadequacy of Existing Regulatory Mechanisms</b> |   |
| Lack of range-wide protection                       | <p>52. The BLM will assume primary responsibility for implementation of specific conservation actions to protect GCM and GCM occupied habitat and to ensure the species persists on BLM Lands.</p> <p>53. The BLM will retain GCM on the BLM Special Status Species list to ensure that analyses are conducted to determine effects of planned projects to GCM and GCM occupied habitat.</p> <p>54. The BLM will ensure that ongoing and future federal actions support or do not preclude the species' conservation. The BLM will involve the USFWS and appropriate state agencies in NEPA analysis as cooperators or partners for all projects likely to affect GCM and GCM occupied habitat. All new projects not specifically considered in this CAS that are proposed in GCM occupied habitat or the GCM pollinator buffer (500m (1,640 ft)) will be evaluated under NEPA for their potential to impact GCM with input from the conservation team.</p> <p>a. Surveys for GCM will be performed by a qualified personnel trained in the identification of GCM and its habitat. A 91.4 m (300 ft) minimum buffer between new disturbance and GCM occupied habitat will be maintained. Use of existing roads, including those within 91.4 m (300 feet), is encouraged. If the proposed action cannot be moved to avoid the plants, additional conservation measures may be necessary to offset the impacts to the species. These conservation measures will depend upon the project impacts to GCM and may include the following: flagging of plants and avoidance areas prior to construction; on-site biological monitors to ensure compliance with avoidance areas; dust abatement during construction; plant salvage and successful propagation of the species to be reintroduced to the project site; and post-construction monitoring. These conservation measures will be developed by the BLM in coordination with and agreement from the conservation team.</p> <p>55. The BLM will ensure that site specific implementation of management actions will be updated and adjusted as needed based upon monitoring results and adaptive management recommendations to ensure that management objectives are met.</p> <p>56. The BLM will incorporate the provisions of this CAS into agency planning documents, permitting requirements, and budgets.</p> <p>a. Within 4 months of the signature date of the CAS, the BLM will incorporate the provisions of this plan into their work activities and in any new permits. This timeframe also applies to all planning actions identified in the wildfire management, fire fighting, ES&amp;R, leafy spurge, and noxious weed sections.</p> <p>b. These provisions will be incorporated into existing livestock grazing permits as soon as practical, no later than the next permit renewal. This applies to the mineral supplement action, see 44c.</p> <p>c. These provisions will be incorporated into future federal actions and permits through the duration of the CAS.</p> <p>57. The BLM will consider land exchanges with state and private landowners to expand protection of GCM occupied habitat to facilitate the long-term persistence and recovery of the species when possible.</p> <p>58. The BLM will sustain the health of the GCM population by managing for a "no net loss of habitat" for GCM. This includes the retention of GCM occupied habitat currently under BLM management. Due to its restricted distribution, the loss of GCM occupied habitat should be considered detrimental to the long-term conservation of the species.</p> |

| Threat and Associated Impacts          | Conservation Action  |
|--|--|
|  | 59. The BLM will continue to coordinate with the USFWS, permittees, interested parties, and the public on the conservation of GCM.   |
| <b>Small Population Size</b>           |  |
| Vulnerability to<br>Stochastic events  | 60. The BLM and the conservation team will coordinate seed collections in all areas and for multiple years where the species is present (with landowner approval), in accordance with USFWS and Center for Plant Conservation (CPC) guidelines, for placement in storage at Red Butte Garden and the National Center for Genetic Resources Preservation. The BLM will implement or fund seed collections, as staff time and funding is available. This effort can be incorporated as part of range-wide monitoring, see conservation action 62.  |
| <b>Climate Change</b>                  |  |
| Mortality caused by drought            | 61. As part of range-wide monitoring of the species, a component will be included to study the relationship between precipitation patterns and species' growth, reproduction and recruitment, and mortality. This may be accomplished by utilizing existing weather stations or establishing weather-monitoring equipment at existing long-term monitoring sites. This effort will be incorporated as part of range-wide monitoring, see conservation action 62.   |
| <b>Research Needs</b>                  |  |
| Range-wide Monitoring                  | <p>62. Within one year of signing the CAS, the BLM and the conservation team will expand existing monitoring efforts across the range of the species in order to implement range-wide monitoring for the species to determine trends in plant populations and evaluate habitat condition. Existing monitoring protocols (as described below in Monitoring and Adaptive Management) will be used and may be adjusted to ensure the data collection and sampling area is consistent across the range of the species. Existing monitoring sites will be utilized and additional monitoring sites will be established to ensure that a representation of all the EOs is monitored. One or two monitoring site(s) will include demographic monitoring to determine basic life history characteristics of GCM on both Salt Lake Formation "ashy" outcrops and sandy soils. A monitoring schedule will be developed to identify when monitoring sites will be visited. The range-wide monitoring may also incorporate additional monitoring of invasive weeds, livestock use, plant succession as well as seed collection.</p> <p>a. In Utah, EO 003 is on BLM land, but is land locked with a private land owner not allowing access to federal and state officials in this area for the past 9 years. BLM will continue to work with the land owner to obtain access to this EO for monitoring and management purposes.</p> <p>63. The BLM and the conservation team will prioritize areas of GCM potential habitat to survey. The BLM will survey potential habitat depending upon staff availability and/or the availability of funds. Survey results will be provided to the conservation team. All data will be submitted to the respective State Natural Heritage programs for inclusion in their databases.</p> <p>64. The BLM and the conservation team will prioritize research projects to study the basic biology of GCM and other research essential to the species' conservation. Research topics to consider include pollinators and plant breeding system, pollinator habitat restoration and enhancement, and the species' response to ground disturbance. Research projects will be dependent upon availability of funds.</p> |
| <b>Cumulative Effects of the Above</b> |  |
|  | 65. Addressing the threats and potential threats above independently will prevent these threats from acting cumulatively.  |

## 5. MONITORING AND ADAPTIVE MANAGEMENT

Goose Creek milkvetch conservation includes four levels of monitoring: (1) population and habitat monitoring; (2) effectiveness of conservation actions; (3) adaptive management; and, (4) compliance with regulatory mechanisms.

1. *Population and Habitat Monitoring.* In order to evaluate population and habitat trends over time, the BLM will continue to monitor established monitoring sites (or plots) for their respective Field Offices. Additionally, within one year of signing this CAS, the BLM will establish new sites to ensure that a representation of all EOs will be monitored, and that at least one monitoring site will include demographic monitoring to determine basic life history characteristics of the species (see Conservation Action 62). Existing monitoring protocols will be used and may be adjusted to ensure the data collection and sampling area is consistent across the range of the species.

Existing monitoring efforts in Nevada and Utah include 11 monitoring sites established in 2004 or 2005 that contain pre- and post-fire Goose Creek milkvetch abundance data. Two monitoring sites are in Nevada (within EO-001 and EO-004) and nine monitoring sites are in Utah (within EO-001) (see Appendix 2, Figure 2 for site locations). Existing monitoring protocols were designed to determine plant abundance, determine the habitat area occupied by Goose Creek milkvetch at each site, determine habitat and disturbance factors at each site, and have photos taken at established photo points. Repeat photography taken at established photo points can be used to monitor and document site-specific change or stability for landscape features of interest (Hall 2001). Monitoring protocols are fully described in Mancuso (2010).

Within 3 of the 11 monitoring sites, 6 smaller study plots were established in 2013 and 2014 by the Utah BLM Salt Lake Field Office to document plant abundance and vegetation cover. An additional 6 monitoring sites were established in Utah by Utah BLM Salt Lake Field Office beginning in 2004 (see Appendix 2, Figure 3 for site locations). Monitoring at these sites is performed at a minimum of every three years which documents plant abundance and vegetation cover. In addition, BLM range trend monitoring, fire stabilization monitoring, photo-point photography and the 1991 Challenge Cost Share Project Report provide additional information for Goose Creek milkvetch management. Five Utah BLM monitoring sites ‘U001-NV-1’, ‘U001-7-3’, ‘U001-6’, ‘Sagebrush Steppe’, and ‘Pipeline Trail’ monitoring sites include detailed soil pedon (types) descriptions and rangeland health evaluations provided by the U.S. Natural Resources Conservation Service in 2014.

Existing monitoring efforts in Idaho include 9 monitoring sites established beginning in 2001 (see Appendix 2, Figure 4 for site locations). The monitoring of all EOs in Idaho is included in the monitoring design. Existing monitoring protocols were designed to determine plant abundance and document habitat conditions at established photo points. Sites are monitored either on an annual or periodic basis, as identified below. The visitation schedule is designed to incorporate a larger number of sites into the monitoring effort. If impacts to the species or habitat are documented in periodically monitored sites, the visitation schedule would be adjusted to visit these sites more frequently to evaluate plant abundance and any corrective actions that were implemented.

- Annual monitoring is performed at the following sites:

Within EO 3: 1. Big Site sub-population 1;  
2. Big Site sub-population 7;  
3. Lower Beaverdam (north sub-population by the road);  
4. ID/UT Border (Southernmost ashy ridge sub-population);  
5. Beaverdam sub-population 1.

Within EO 4: 6. Coal Banks sub-population

- Periodic monitoring is performed at least once every three years at the following sites:

Within EO 3: 7. Section 33;  
Within EO 2: 8. Horseshoe Spring;  
Within EO 5: 9. Goose Creek Cliff Bands

2. *Effectiveness of Conservation Actions.* This CAS establishes a formal and ongoing partnership by the Burley, Wells, and Salt Lake BLM Field Offices and the Utah, Boise, and Reno USFWS Field Offices to collaborate, implement, and modify consistent conservation actions as needed to protect Goose Creek milkvetch and its habitat under an adaptive management framework. Actions intended to promote the conservation of Goose Creek milkvetch have been implemented independently by each respective BLM field office, and are summarized below by Field Office.

#### Idaho BLM Burley Field Office (BFO):

##### *Wildfire Management and Fire Fighting*

- a) The BFO includes Goose Creek milkvetch occupied habitat as avoidance areas on fire operational planning maps and provides regular training to resource advisors and fire crews about Goose Creek milkvetch, its distribution in Idaho so that fire crews are

prepared to avoid occupied habitat during fire-fighting activities. The BFO also provides a GIS shapefile of known Goose Creek milkvetch occurrences as avoidance areas to their resource advisors for fire preparation and strategy purposes as well as post-fire reclamation activities. These actions, implemented since 2005, are consistent with Conservation Actions 1 and 2 in Table 1.

- b) The BFO implements the fire management strategy identified in the South Central Idaho Fire Management Plan (BLM 2005, as revised in 2008 and 2011) for the South Hills Fire Management Unit (FMU) where Goose Creek milkvetch occurs. The July 2008 addendum includes the following conservation action: (1) Suppress wildland fire in identified habitat for Goose Creek milkvetch; no dozer use, and follow MIST guidelines where appropriate. These actions are consistent with Conservation Action 3 in Table 1.
- c) The BFO has never authorized prescribed burns within GCM occupied habitat. This action is consistent with Conservation Action 6 in Table 1.

#### *Emergency Stabilization and Restoration Activities*

- d) The BFO includes Goose Creek milkvetch occupied habitat on ES&R planning maps and regularly informs ES&R crews on their location and the need to follow the restrictions in their Final Programmatic Emergency Stabilization and Rehabilitation (ES&R) Plan and Environmental Assessment (BLM 2013a, p. 26). The ES&R Plan identifies conservation actions the BFO has implemented since 2000. The conservation actions are: (1) ground disturbing activities would not occur in Goose Creek milkvetch habitat unless it is clearly beneficial to the species; (2) only aerial seeding or hand plantings would occur in Goose Creek milkvetch habitat; and (3) potentially invasive, non-native plant materials would not be used in Goose Creek milkvetch habitat. Exceptions may occur in areas where such plants are needed to stabilize the site following a wildfire. If competitive non-native plants are used, their presence would be monitored to determine if adverse effects are occurring and removed as needed to conserve Goose Creek milkvetch and its habitat; (4) Only hand treatment methods would be used to control invasive plants or noxious weeds in occupied Goose Creek milkvetch habitat. These actions are consistent with Conservation Actions 12, 13, 36, 39, and 40 in Table 1.
- e) The BFO has provided equipment operators with GPS polygons delineating avoidance areas which includes GCM occupied habitat since 2011. This action is consistent with Conservation Actions 16 in Table 1.

#### *Leafy Spurge & Weed Control*

- f) In cooperation with the Cassia County Weed Control Program, the BFO is actively controlling leafy spurge in the Goose Creek drainage including within Goose Creek milkvetch habitat in Idaho. Leafy spurge control is being conducted specifically for the purpose of maintaining habitat for Goose Creek milkvetch in addition to maintaining healthy rangelands. The BFO has annually funded leafy spurge control since 1998. The BFO annually monitors leafy spurge treatment plots within Goose Creek milkvetch habitat that were established in 2007 for the effectiveness of leafy spurge control methods. These actions are consistent with Conservation Actions 24, 25, 26, 27 and 28 in Table 1.
- g) The BFO includes Goose Creek milkvetch occupied habitat on weed control planning maps and regularly informs weed crews of their location and the need to follow weed control restrictions in their draft Noxious Weed and Invasive Plant Treatment Plan (BLM 2013b, p. 35) : (1) only hand treatment methods, including spot herbicide treatment, would be used to control noxious weeds or invasive plants in occupied Goose Creek milkvetch habitat; and (2) herbicide treatments would be applied in a manner that avoids application to Goose Creek milkvetch. These actions, implemented since approximately 2000, are consistent with Conservation Actions 32 and 35 in Table 1.
- h) The BFO funds spurge control treatment twice-annually during post-fire years 1, 2, and 3 for the past 20 years (since 1994). This action is consistent with Conservation Actions 20 and 29 in Table 1.

#### *Livestock Use*

- i) The BFO has instructed grazing permittees to avoid locating mineral supplements within and near Goose Creek milkvetch habitat since 2001. This action is consistent with Conservation Action 44c in Table 1.
- j) The BFO held a range tour for grazing permittees in 2004 to show where Goose Creek milkvetch occurs and to discuss appropriate management of the habitat. This action is consistent with Conservation Actions 43 and 59 in Table 1.

#### *Population and Habitat Monitoring*

- k) The BFO initiated a monitoring program in 2001 and established monitoring plots to document plant abundance, habitat condition, and leafy spurge occurrence. The monitoring effort is described in the *Population and Habitat Monitoring* section, above. Staff also assisted with range-wide plant surveys in 2004. These actions are consistent with Conservation Action 62 and 63 identified in Table 1.



## Utah BLM Salt Lake Field Office (SLFO):

### *Wildfire Management and Fire Fighting*

- l) Since 2012, the SLFO includes Goose Creek milkvetch occupied habitat as avoidance areas on fire management planning maps and regularly informs the fire crews of their location in Utah so that fire crews are prepared to avoid occupied habitat during fire-fighting activities. The SLFO developed a GIS shapefile of Goose Creek milkvetch occupied habitat as avoidance areas for use by their resource advisors and fire staff in 2013. These actions are consistent with Conservation Action 1 in Table 1.
- m) The SLFO has stationed a Resource Advisor, with knowledge of GCM and its habitat, to all fires within the range of GCM to provide onsite guidance for appropriate fire suppression actions. This action is consistent with Conservation Action 2 in Table 1.
- n) The SLFO has never authorized prescribed burns within GCM occupied habitat. This action is consistent with Conservation Action 6 in Table 1.

### *Emergency Stabilization and Restoration Activities*

- o) The SLFO includes Goose Creek milkvetch occupied habitat as avoidance areas on ES&R planning maps and informs the ES&R crews of their location since 2012. The SLFO developed a GIS shapefile of Goose Creek milkvetch occupied habitat as avoidance areas for use by their resource advisors and staff in 2013. These actions are consistent with Conservation Action 12 in Table 1.

### *Leafy Spurge & Weed Control*

- p) In cooperation with the Utah-Idaho CWMA and the Cassia County Weed Control Program, the SLFO is actively controlling leafy spurge in the Goose Creek drainage including within Goose Creek milkvetch habitat in Utah. Since 2004, the SLFO has annually funded leafy spurge control. These actions are consistent with Conservation Actions 25, 26, 27 and 28 in Table 1.

### *Population and Habitat Monitoring*

- q) In 1990, the Utah Natural Heritage program inventoried 29 of the known 61 key habitat sites for Goose Creek milkvetch. At that time, the population was estimated at 7000 plants (Baird 1991). This action is consistent with Conservation Action 63 in Table 1.
- r) In 2004, the SLFO initiated a monitoring program and established monitoring plots to document plant abundance, vegetative cover, and habitat condition. The monitoring effort is described in the *Population and Habitat Monitoring* section, above. Staff also

assisted with range-wide plant surveys in 2004 and 2005, and range-wide monitoring efforts in 2008, 2009, and 2014. These actions are consistent with Conservation Action 62 and 63 identified in Table 1.

Nevada BLM Wells Field Office (WFO):

*Wildfire Management and Fire Fighting*

- s) Since the spring of 2014, the WFO includes Goose Creek milkvetch occupied habitat as avoidance areas on fire management planning maps and regularly informs the fire crews of their location in Nevada so that fire crews are prepared to avoid occupied habitat during fire-fighting activities. In 2013, the WFO developed a GIS shapefile of Goose Creek milkvetch occupied habitat as avoidance areas for use by their resource advisors and fire staff. This action is consistent with Conservation Action 1 in Table 1.
- t) The WFO has never authorized prescribed burns within GCM occupied habitat. This action is consistent with Conservation Action 6 in Table 1.

*Emergency Stabilization and Restoration Activities*

- u) After the 2007 wildfires, the WFO implemented compatible ES&R activities in Goose Creek milkvetch occupied habitat. The WFO aurally seeded sagebrush within the burn perimeter and avoided surface disturbance within the habitat. This action is consistent with Conservation Actions 3 and 14 in Table 1.
- v) Since the spring of 2014, the WFO includes Goose Creek milkvetch occupied habitat as avoidance areas on ES&R planning maps and informs the ES&R crews of their location. In 2013, the WFO developed a GIS shapefile of Goose Creek milkvetch occupied habitat as avoidance areas for use by their resource advisors and staff. These actions are consistent with Conservation Action 12 in Table 1.

*Leafy Spurge & Weed Control*

- w) Since 2013, the WFO includes Goose Creek milkvetch occupied habitat on weed control planning maps and informs weed crews of their location. These actions are consistent with Conservation Actions 24 and 32 in Table 1.

*Population and Habitat Monitoring*

- x) The WFO performed plant surveys in suitable habitat in 2013 near adjacent Goose Creek milkvetch occupied habitat to locate new populations and identify additional occupied areas near to existing populations. Additionally, they monitored plant abundance at two

long-term monitoring sites in Nevada in 2013 and 2014. These actions are consistent with Conservation Actions 62 and 63 identified in Table 1.

The list above demonstrates that the BLM Field Offices have independently committed to and have been successful at implementing conservation actions to protect Goose Creek milkvetch. This demonstrated track record provides a high level of certainty that conservation efforts will continue and the conservation actions identified in this CAS will be implemented. Many of the conservation actions identify avoidance buffers for specified activities, restrictions for specific activities, and the incorporation of technology or biological monitors to ensure the buffers and restrictions are implemented. The BLM will document that these buffers and restrictions were correctly employed both during and following implementation. The BLM will report activities, compliance, and additional recommendations to the conservation team on an annual basis. The avoidance buffers identified in the CAS are measureable because they are specific distances. They are also scientifically valid because they are based upon biologically relevant minimum distances for dust impacts to plants and pollinator foraging distances.

The previous and ongoing actions by the BLM identified above were effective and have already reduced the target threat, such as including Goose Creek milkvetch occupied habitat on fire planning maps at all three BLM Field Offices and utilizing resource advisors with knowledge of the species. For instance, both the BFO and SLFO fire crews and resource advisors were able to avoid impacts to Goose Creek milkvetch and its habitat during the 2013 Border fire that was adjacent to Goose Creek milkvetch habitat in both Utah (Utah EO 003) and Idaho (Idaho EO 003) because the resource advisors and fire crews utilized up-to-date maps and shapefiles that depicted the species location. Another example of effective actions that have already been implemented is the chemical and biological methods currently used by the BFO and SLFO to effectively treat invasive nonnative plant species. The BFO has implemented the annual treatment of leafy spurge since 1999, which was effective in reducing the acreage containing spurge from 660 acres in 1999 to 14.3 acres in 2011 (Theodozio 2013, entire). The SLFO has treated leafy spurge since 2004. This continued annual commitment to treat leafy spurge will ensure leafy spurge remains at low densities in Goose Creek milkvetch habitat, and will reduce the spread to new locations. A third example of an effective action is how the BLM in Nevada successfully avoided the use of rangeland drills in Goose Creek milkvetch habitat following the 2007 wildfires. Drill seeding that was initially planned near EO 005 was not conducted and thus avoided having negative effects to the species (Howard 2007; Fuell 2008). These examples illustrate the effectiveness of BLM past and ongoing actions to provide for the conservation of Goose Creek milkvetch prior to this CAS. Based on evidence such as this, the conservation team anticipates a reduction of impacts to Goose Creek milkvetch and a positive population response to additional protections provided through this CAS (see Table 1).

Effectiveness monitoring will be conducted to determine whether the intended objectives of the conservation action(s) are achieved; and, if not, information learned from effectiveness monitoring will be used to adapt conservation strategies thereby improving the effectiveness of future conservation actions. Effectiveness monitoring is incorporated into the CAS and includes criteria that are both measureable and scientifically valid. One example of effectiveness monitoring in the CAS is the monitoring of leafy spurge control. The BLM in Idaho has been monitoring the effectiveness of leafy spurge control in Goose Creek milkvetch habitat since 2007, and the commitment in the CAS to monitor leafy spurge control throughout the range of the species will expand the existing effort. The BFO has documented leafy spurge density within established plots. This monitoring protocol is measureable and consistent with other scientific monitoring protocols for leafy spurge (Bourchier *et al.* 2006). Another example of effectiveness monitoring in the CAS is the monitoring of livestock trailing and piospheres before and after the installation of new range improvements in nearby Goose Creek habitat. The BLM will implement a minimum ¼ mile (402.3 m/ 1,320 ft) avoidance buffer for new range improvement projects that include water tanks and associated pipelines, new fencing, and the placement of mineral supplements. This is a new commitment and to ensure the buffer distance is effective, the BLM will inspect nearby Goose Creek milkvetch habitat before and after each new range improvement installation to detect if new livestock trails and piospheres are created in the habitat and to implement corrective measures to close new trails and piospheres.

3. *Adaptive Management.* The U.S. Department of the Interior defines adaptive management as a decision process that promotes flexible 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 both advances scientific understanding and helps adjust policies or operations 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. Its true measure is in how well it helps meet environmental, social, and economic goals; increase scientific knowledge; and reduce tensions among stakeholders.

Wildfire extent and frequency, competition from non-native plants, weather and climatic conditions, and other factors are dynamic and interacting components that will continue to affect Goose Creek milkvetch and its habitat. Because of uncertainties associated with future conditions, or the effectiveness of conservation actions, conservation strategies need to be adaptable to address habitat changes and emerging threats and to take advantage of new information based on research findings and the results of prior conservation efforts.

Successful conservation requires flexibility to adapt strategies based on lessons learned and to accommodate habitat shifts associated with this changing environment.

As an example of how adaptive management has been incorporated into Goose Creek milkvetch conservation, the Burley Field Office has incorporated restrictions on surface disturbance, ES&R activities and seeding recommendations, and leafy spurge control methods within Goose Creek milkvetch habitat in Idaho. These restrictions were based upon their knowledge of how fragile the tuffaceous outcrop soils are to disturbance from past plant monitoring efforts, the plant composition and low plant cover on the tuffaceous outcrop soils, and the incorporation of best practices for weed control within sensitive plant species habitats (See the *Effectiveness of Conservation Actions* section, above, for more details).

The existing monitoring efforts that are occurring throughout the range of Goose Creek milkvetch provide important baseline information regarding the species, its response to various factors, and the natural variability in abundance over time. The commitment to continue monitoring at these sites and to collect basic life history characteristics of the species will facilitate the evaluation and effectiveness of any conservation actions and strategies that are implemented.

Operating under an adaptive management framework is essential for Goose Creek milkvetch conservation to be successful. The uncertainty of where and when the next wildfire will occur and how best the BLM can avoid and minimize impacts to the species and its habitat to fight wildfires as well as implement the appropriate post-fire ES&R activities places high importance on the need for advanced planning, staff who are knowledgeable about the species, and consistent monitoring to evaluate the effects of these actions to the species. Information gained from monitoring and research efforts will be reviewed by the conservation team on an annual basis and conservation planning and actions will be adjusted accordingly.

#### 4. *Compliance with Regulatory Mechanisms.*

In addition to monitoring population status, habitat, and effectiveness of conservation actions, this CAS will implement compliance monitoring for BLM grazing permits, and restrictions identified in Fire Management Plans, Noxious Weed and Invasive Plant Treatment Plans, and Emergency Stabilization and Rehabilitation (ES&R) Plans.

## 6. COORDINATING CONSERVATION ACTIVITIES

The Goose Creek milkvetch conservation team will consist of a designated representative from each signatory to this CAS, and technical advisors (i.e. species experts, and others) as deemed necessary by the conservation team. The conservation team will meet at least once annually to review the status of the species, develop yearly conservation action schedules, review the conservation Strategy, and modify the Strategy as appropriate. Annual reports will be prepared to ensure that research and monitoring results are evaluated and conservation actions and strategies are implemented and modified, as needed. Summaries of discussions held by the conservation team will be prepared and available to all interested parties.

## 7. FUNDING CONSERVATION ACTIONS

Since 2004, funding and in-kind services to enact conservation actions have been provided by the BLM and the USFWS. Funding was provided to monitor the status of Goose Creek milkvetch, survey for new populations, evaluate habitat conditions, develop conservation measures, and treat and control leafy spurge on an annual basis. In-kind contributions in the form of personnel, field equipment, and supplies were also provided by the two Federal agencies as well as participating State agencies and volunteers. While it is understood that all funding and other agency resource commitments made under this CAS are contingent upon appropriations by the respective entities, through this CAS, partners anticipate maintaining prior and ongoing funding levels and in-kind contributions for the duration of this CAS.

Specifically, the Bureau of Land Management is committed to continue to fund, as budgets allow, the protection, monitoring, and research efforts identified in Table 1. The estimated funding amount for implementing past actions, as described in the Monitoring and Adaptive Management section above, and the anticipated funding amount to implement the conservation actions outlined in this CAS, is identified in Table 2.

**Table 2. Prior costs (\$) demonstrating a track record for funding commitment and implementation of Goose Creek milkvetch conservation actions, and anticipated future expenditures to enact the conservation actions in this CAS.**

| <b>Year</b> | <b>BFO</b> | <b>WFO</b> | <b>SLFO</b> | <b>USFWS</b> |
|-------------|------------|------------|-------------|--------------|
| 2004        | 11,000     |            | 8,000       | 3,750        |
| 2005        | 6,500      |            | 8,000       | 11,250       |
| 2006        | 6,500      |            | 8,000       |              |
| 2007        | 17,000     |            | 8,000       |              |
| 2008        | 37,000     |            | 8,000       | 7,500        |
| 2009        | 35,000     |            | 8,000       | 5,000        |
| 2010        | 40,000     |            | 8,000       |              |



|                                 |                 |        |                |        |
|---------------------------------|-----------------|--------|----------------|--------|
| 2011                            | 13,000          |        | 8,000          |        |
| 2012                            | 43,000          |        | 8,000          |        |
| 2013                            | 3,000           | 35,000 | 8,000          | 3,750  |
| 2014                            | 51,000          | 8,100  | 8,000          | 23,000 |
| Anticipated Future Expenditures |                 |        |                |        |
| 2015                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |
| 2016                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |
| 2017                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |
| 2018                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |
| 2019                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |
| 2020                            | 10,000 - 20,000 | 15,000 | 9,000 – 19,000 | 5,000  |

## 8. DURATION OF AGREEMENT AND STRATEGY

This CAS shall be effective as of the date of the last signature and shall remain in force for a period of thirty years or until such time as the participating parties agree to terminate or amend this CAS. This document may be executed in multiple, identical original counterparts, all of which shall constitute one CAS. Signatures may be delivered by facsimile, copy or electronic scan. Facsimile and electronic scanned signatures shall be binding on the Parties as if they were originals.

Any party may withdraw from this CAS on ninety days written notice to the other parties. The signatories will meet to discuss the renewal of the CAS one year prior to its expiration. The intent by the signatories at this time is to renew the CAS at the end of this thirty year period.

The cooperators shall use appropriate procedures to ensure adherence to all legal requirements in assessing conservation actions, as well as establishing and implementing new conservation actions for the protection of Goose Creek milkvetch. When appropriate, this will include future amendment(s) or revision(s) of BLM's Resource Management Plan or changes to the cooperator's directive systems. These amendments or changes, in addition to this CAS, will provide a basis for, and commitment to, the long-term conservation of Goose Creek milkvetch.

## 9. NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

This CAS is being developed for planning purposes. Before any on-the-ground actions can occur on federally managed lands, a determination must be made whether or not the conservation actions and adaptive management actions are consistent with the applicable agency's land use or land management plan and whether or not additional NEPA analysis is required. If conservation actions and adaptive management actions are determined not to be consistent with a land management plan, then these actions must be incorporated into the applicable agency's land use

or land management plan through an amendment or maintenance process before they can be implemented. Actions on lands administered by the State or private lands may not be subject to NEPA analysis.

The BLM will implement the conservation actions for the dates or time period identified in Table 1 and Appendix 1. The BLM can implement the conservation actions identified in this CAS under existing land management plans and the BLM has considered the NEPA requirement when committing to the CAS implementation schedule. The BLM in Idaho, Nevada, and Utah has completed NEPA analyses for fire suppression, emergency stabilization and restoration, weed control, and livestock grazing. For conservation actions under these existing NEPA analyses, they are either covered under existing land use plans, environmental assessments, determinations of NEPA adequacy, or categorical exclusions (actions that do not have significant environmental impacts, per 40 FR 1508.4) and thus do not require further BLM decisions or external approvals. Previously implemented conservation actions such as planning efforts, restrictions on disking, drilling and seed mixtures, leafy spurge treatment, and monitoring efforts were covered under existing NEPA documents.

For mining and energy development projects or other large scale projects not covered under the above mentioned categories, additional NEPA review will be required. Future planning efforts will include a review of existing NEPA analyses to ensure adequacy and will incorporate the appropriate NEPA analysis prior to implementation.

## **10. FEDERAL AGENCY COMPLIANCE**

During the performance of this CAS, the participants agree to abide by the terms of Executive Order 11246 on non-discrimination and will not discriminate against any person because of race, color, religion, sex, or national origin.

No member of delegate to Congress or resident commissioner shall be admitted to any share or part of this CAS, or to any benefit that may arise there from, but this provision shall not be construed to extend to this CAS if made with a corporation for its general benefit.

## **11. CONSERVATION AGREEMENT AND STRATEGY MODIFICATION**

Modification of this CAS requires written consent of all signatories. If these measures prove inadequate for species conservation, the USFWS reserves all obligations required by, and options offered by the ESA, as amended, including but not limited listing under the provisions of Section 4 of the Act.

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## 14. APPENDICES

### Appendix 1. Timing, Funding, and Implementation Responsibilities of Conservation Actions in this CAS

| Conservation Action(s)                        | Action Item # | Action Item Description  | Party | Approximate Cost            | Time Period    |
|---|---------------|--|-------|-----------------------------|----------------|
| <b>Wildfire Management &amp; Firefighting</b> | 1             | Include Goose Creek milkvetch habitat on ES&R planning maps and inform ES&R crews and new staff on the conservation actions within this CAS  | BLM   | In-kind labor and materials | 2015           |
|   | 2             | A BLM Resource Advisor, with knowledge of Goose Creek milkvetch and the Actions in this CAS, will be appointed to all fires with the potential to spread to the habitat.   | BLM   | In-kind labor and materials | As Needed      |
|   | 6             | Prescribed burns are prohibited within Goose Creek milkvetch habitat   | BLM   | In-kind labor and materials | 2014 - Ongoing |
| <b>Fire Prevention Activities</b>             | 8             | Planned fuel breaks will be prohibited in Goose Creek milkvetch habitat. New fuel breaks in the pollinator buffer will be monitored for weeds, and highly competitive, non-native species will not be used within the pollinator buffer. | BLM   | Variable                    | As needed      |
|   | 9             | Juniper removal in Goose Creek milkvetch habitat, and restrictions   | BLM   | Variable                    | As needed      |

| Conservation Action(s)                                       | Action Item # | Action Item Description   | Party            | Approximate Cost             | Time Period    |
|--|---------------|---|------------------|------------------------------|----------------|
| <b>Emergency Stabilization and Rehabilitation (ES&amp;R)</b> | 12            | Include Goose Creek milkvetch habitat on ES&R planning maps and inform ES&R crews and new staff on the conservation actions within this CAS   | BLM              | In-kind labor and materials  | 2015           |
|  | 16            | For any drill seeding activities in the pollinator buffer, Goose Creek milkvetch habitat will be flagged for avoidance, a biological monitor will be on site during drill seeding, and equipment operators will have GPS polygons of Goose Creek milkvetch habitat. | BLM              | Variable                     | As Fires Occur |
|  | 21            | The BLM will protect disturbed or recovering areas of Goose Creek milkvetch habitat to ensure any ES&R treatments are successful.   | BLM              | Variable                     | As Fires Occur |
| <b>Noxious Weeds</b>   | 24, 32        | Include Goose Creek milkvetch habitat on weed control planning maps and inform weed crews and new staff on the conservation actions within this CAS   | BLM              | In-kind labor and materials  | 2015           |
|  | 25, 28        | Leafy spurge control will be prioritized for funding and treatment on an annual basis in Goose Creek milkvetch habitat.   | BLM ID<br>BLM UT | \$20,000 - \$40,000 per year | 2014 - Ongoing |
|  | 30            | Develop a schedule of repeated surveys in Goose Creek milkvetch habitat to detect new invasions of leafy spurge or other invasive species, as well as monitor leafy spurge treatment effectiveness.   | Signatories      | In-kind labor and materials  | 2015           |

| Conservation Action(s)  | Action Item # | Action Item Description   | Party       | Approximate Cost            | Time Period            |
|-------------------------|---------------|---|-------------|-----------------------------|------------------------|
|                         | 34            | Develop treatment for weed species and the most appropriate control methods within GCM occupied habitat, in coordination with the conservation team.                                  | BLM         | In-kind labor and materials | As needed              |
|                         | 34            | The BLM and conservation team will develop a monitoring protocol to evaluate the effectiveness of control methods within GCM occupied habitat. This will occur on an as needed basis. | Signatories | In-kind labor and materials | As needed              |
| <b>Livestock Use</b>    | 43            | Inform grazing permittees of the need to manage for Goose Creek milkvetch conservation. Provide information and maps.   | BLM         | In-kind labor and materials | 2015                   |
|                         | 45.a          | Exclude livestock from on Salt Lake Formation “ashy” outcrop in order to address concentrated livestock trampling from fire fence installation  | UT BLM ONLY |                             | By May 1, 2015         |
|                         | 47            | Develop livestock use monitoring schedule   | Signatories | In-kind labor and materials | 2015                   |
| <b>Land acquisition</b> | 58            | Strive to acquire Goose Creek milkvetch habitat   | BLM         | Unknown                     | As opportunities arise |

| Conservation Action(s)                 | Action Item #             | Action Item Description   | Party       | Approximate Cost   | Time Period  |
|--|---------------------------|---|-------------|--|--|
| <b>Long-term monitoring</b>            | 62                        | Expand existing monitoring  | Signatories | In-kind labor and materials or contract funding if available | 2014 – 2015  |
|  | 62                        | Implementation of Range-wide monitoring   | BLM         | In-kind labor and materials or contract funding if available | 2015 - Ongoing   |
| <b>Survey</b>                          | 63                        | Survey suitable habitat for Goose Creek milkvetch as needed.                                      | BLM         | Variable TBD   | As needed or as projects arise within the range of Goose Creek milkvetch |
| <b>Studies and scientific research</b> | 64                        | Secure funding for and participate in research essential to conservation of Goose Creek milkvetch | Signatories | Variable TBD   | As funding and opportunities are available                               |
| <b>Reporting</b>                       | 5, 22                     | Provide all fire and ES&R reporting documents to the conservation team                            | BLM         | After a fire   | Ongoing  |
| <b>Adaptive Management</b>             | 7, 23, 31, 36, 42, 48, 51 | Examine and modify actions to accommodate changes necessary to improve their effectiveness        | Signatories | In-kind labor and materials                                  | 2015 - Ongoing   |

## Appendix 2. Map locations of existing monitoring plots in Idaho, Utah, and Nevada

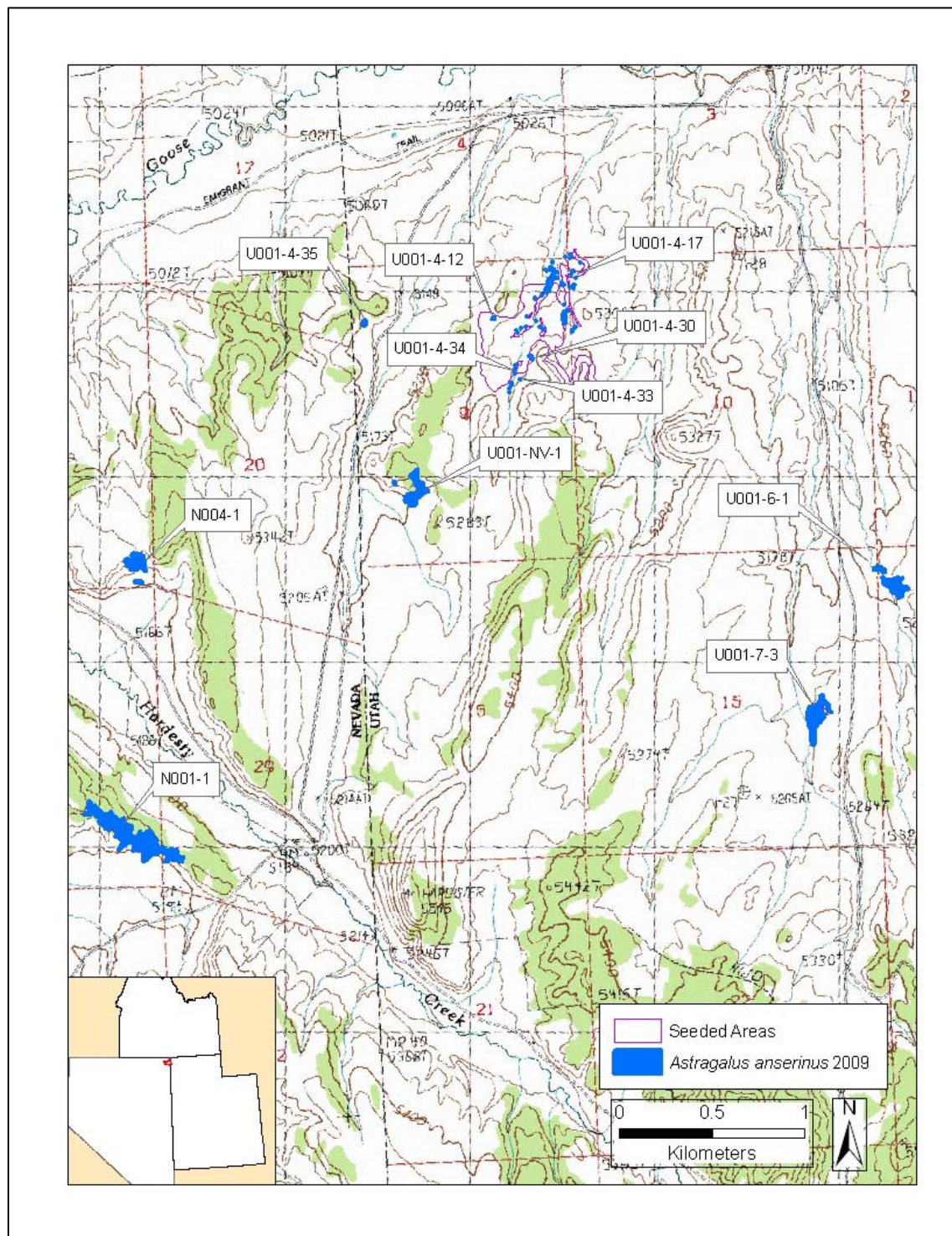


Figure 2. Locations of eleven long-term monitoring sites in Utah and Nevada



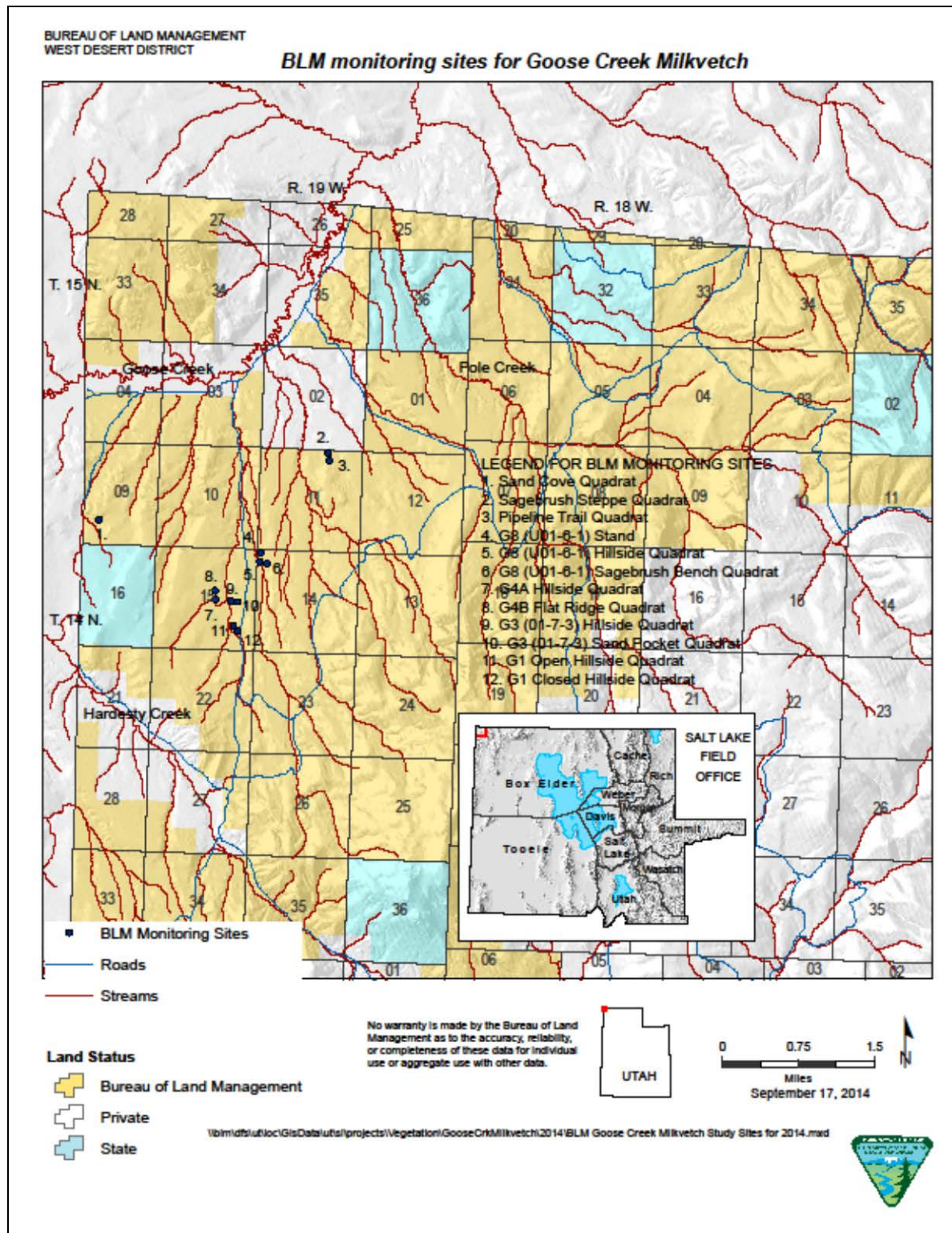


Figure 3. Locations of Utah BLM Salt Lake Field Office Monitoring Sites



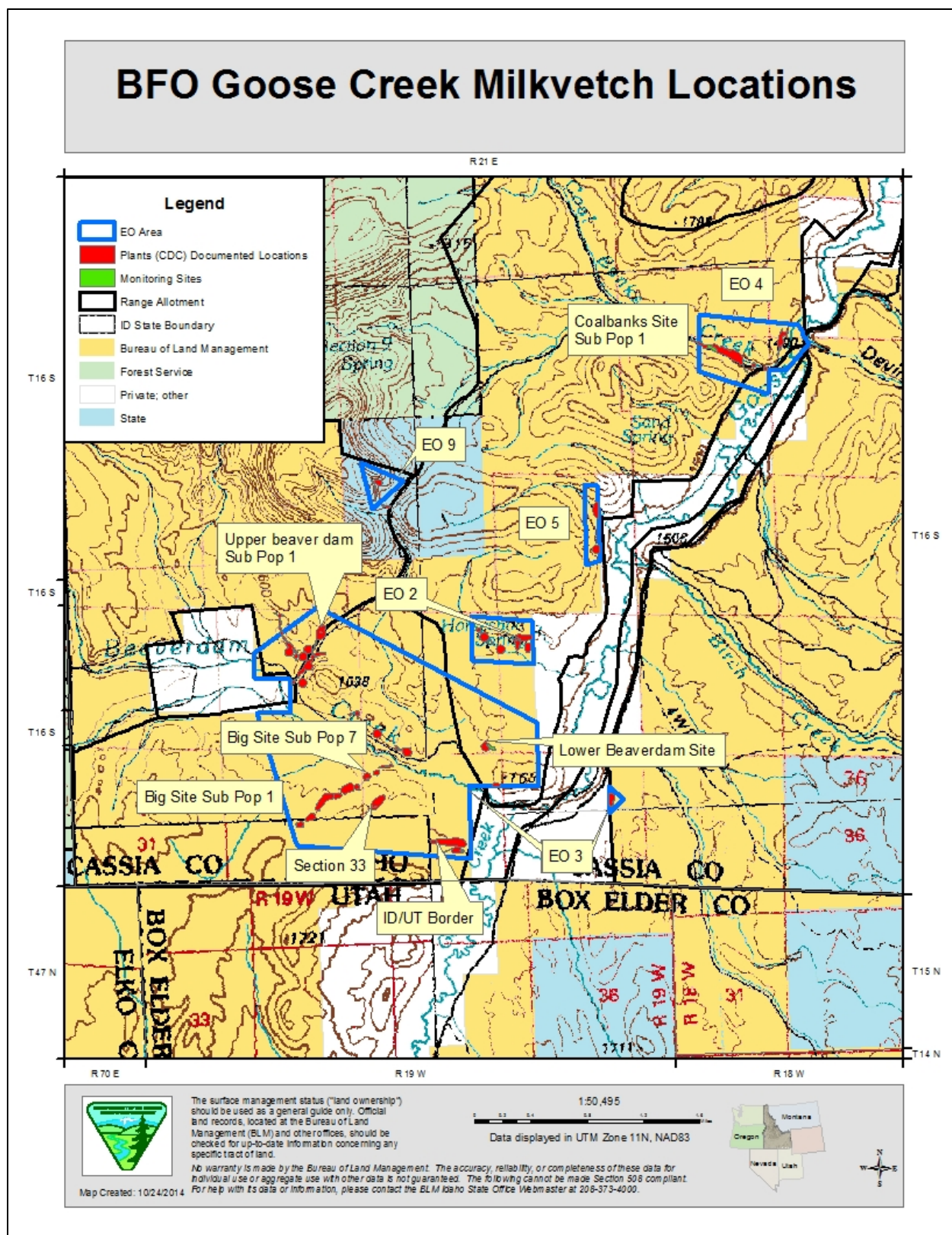


Figure 4. Locations of Idaho Goose Creek milkvetch EO and monitoring plot locations.

## CONSERVATION AGREEMENT AND STRATEGY FOR GOOSE CREEK MILKVETCH

The Signatories hereby states their intent and commitment to assist with and participate in the implementation of the Goose Creek Milkvetch Conservation Agreement and Strategy (CAS), as prepared by the Goose Creek Milkvetch Conservation Team.

Performance of activities is contingent on adequate funds available for and allocated to the signatory agency. This CAS shall not prohibit the signatory agency from engaging in management actions regarding Goose Creek Milkvetch conservation beyond those described herein.

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By signing this document below, the Signatory acknowledges that it is also signing as a party and participant to the whole of the Goose Creek Milkvetch CAS attached hereto. This document may be executed in multiple identical counterparts, all of which shall constitute one document. Signatures may be delivered by facsimile copy or electronic scan. Facsimile and electronic scanned signatures shall be binding on the Parties as if they were originals.



Kevin Oliver, District Manager  
U.S. Bureau of Land Management, West Desert District (Utah)

10 JUL 2015

Date

Jill Silvey, District Manager  
U.S. Bureau of Land Management, Elko District (Nevada)

Date

Mike Courtney District Manager  
U.S. Bureau of Land Management, Twin Falls District (Idaho)

Date

Larry Crist, Field Supervisor  
U.S. Fish and Wildlife Service, Utah Ecological Services Field Office

Date

Michael Carrier, Idaho State Supervisor  
U.S. Fish and Wildlife Service, Boise, Idaho

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Ted Koch, Field Supervisor  
U.S. Fish and Wildlife Service, Reno, Nevada

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| Jill C. Silvey   | 7/14/2015 |
| Jill Silvey, District Manager                          | Date      |
| U.S. Bureau of Land Management, Elko District (Nevada) |           |

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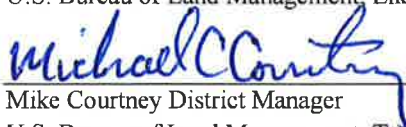
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| <br>Michael Carrier, Idaho State Supervisor<br>U.S. Fish and Wildlife Service, Boise, Idaho | 6-26-15<br>Date |
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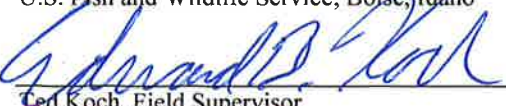
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