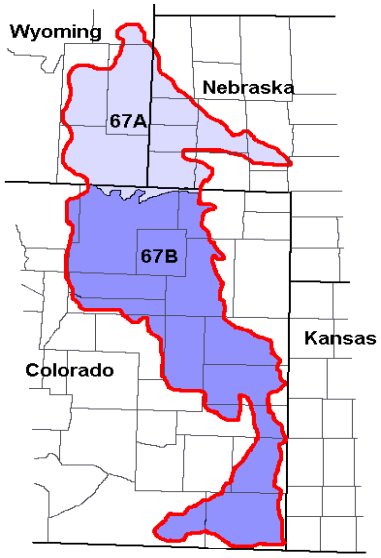
United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description



Site Type: Rangeland

Site Name: Saline Overflow

Site ID: R067BY037CO

Major Land Resource Area: 67B – Central High Plains, Southern Part

Physiographic Features

This site occurs on level to gently sloping slopes.

Landform: drainageway **Aspect:** N/A

	Minimum	Maximum
Elevation (feet):	3800	5200
Slope (percent):	0	3
Water Table Depth (inches):	60	60
Flooding:		
Frequency:	none	occasional
Duration:	none	brief
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	medium	high

Climatic Features

The mean average annual precipitation varies from 12 to 16 inches per year depending on location and ranges from less than 8 inches to over 20 inches per year. Approximately 75 percent of the annual precipitation occurs during the growing season from mid-April to late-September. Snowfall can vary greatly from year to year but averages 35 to 45 inches per year. Winds are estimated to average about 9 miles per hour annually, ranging from 10 miles per hour during the spring to 9 miles per hour during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring periods of high winds with gusts to more than 90 miles per hour.

The average length of the growing season is 142 days, but varies from 129 to 154 days. The average date of first frost in the fall is September 28, and the last frost in the spring is about May 9. July is the hottest month and December and January are the coldest. It is not uncommon for the temperature to exceed 100 degrees F during the summer. Summer humidity is low and evaporation is high. The winters are characterized with frequent northerly winds, producing severe cold with temperatures dropping to -35 degrees F or lower.

Growth of native cool season plants begins about March 15 and continues to about June15. Native warm season plants begin growth about May 15 and continue to about August 15. Regrowth of cool season plants occurs in September and October of most years, depending on moisture.

	Minimum	Maximum
Frost-free period (days):	129	154
Freeze-free period (days):	151	178
Mean Annual Precipitation (inches):	12	16

Average Monthly Precipitation (inches) and Temperature (ºF):

	Precip. Min.	Precip. Max	Temp. Min.	Temp. Max.
January	0.32	0.36	12.0	45.1
February	0.26	0.38	15.9	50.9
March	0.83	0.87	22.3	58.9
April	1.28	1.38	30.1	69.1
May	2.32	2.49	39.9	78.0
June	1.93	2.57	49.0	88.7
July	1.42	2.31	55.0	93.9
August	1.07	2.38	53.5	91.9
September	1.02	1.40	43.8	83.8
October	0.89	1.00	32.5	72.9
November	0.52	0.53	20.9	57.4
December	0.34	0.37	11.9	46.9

Climate Stations		Period	
Station ID	**Location or Name**	**From**	**To**
CO0945	Briggsdale	1948	2000
CO4076	Holly	1918	2000
CO9147	Windsor	1948	1990

For local climate stations that may be more representative, refer to http://www.wcc.nrcs.usda.gov.

Influencing Water Features

Wetland Description:	**System**	**Subsystem**	**Class**	**Sub-class**
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are very deep, well drained, and moderately slowly and slowly permeable. These soils occur on drainageways. Some soils have salts or alkali in the substratum or underlying material. The available water capacity is typically moderate. The soil surface layer is typically 4 to 20 inches thick.

The Historic Climax Plant Community (HCPC) should show slight to no evidence of rills, wind scoured areas or pedestalled plants. Water flow paths are broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers. The soil surface is stable and intact. Sub-surface soil layers are non-restrictive to water movement and root penetration.

Major soil series correlated to this ecological site include: Manzanola*

Other soil series that have been correlated to this site include: Haverson

Parent Material Kind: alluvium
Parent Material Origin: shale, clayey
Surface Texture: clay loam, silty clay loam
Surface Texture Modifier: none

Subsurface Texture Group: clayey
Surface Fragments ≤ 3" (% Cover): 0
Surface Fragments > 3" (%Cover): 0
Subsurface Fragments ≤ 3" (% Volume): 0 - 15
Subsurface Fragments > 3" (% Volume): 0

	Minimum	Maximum
Drainage Class:	well	well
Permeability Class:	slow	moderately slow
Depth (inches):	60	80
Electrical Conductivity (mmhos/cm)*:	0	8
Sodium Absorption Ratio*:	0	0
Soil Reaction (1:1 Water)*:	7.4	9.0
Available Water Capacity (inches)*:	6.5	8.0
Calcium Carbonate Equivalent (percent)*:	5	15

*These attributes represent 0-40 inches in depth or to the first restrictive layer.

Plant Communities

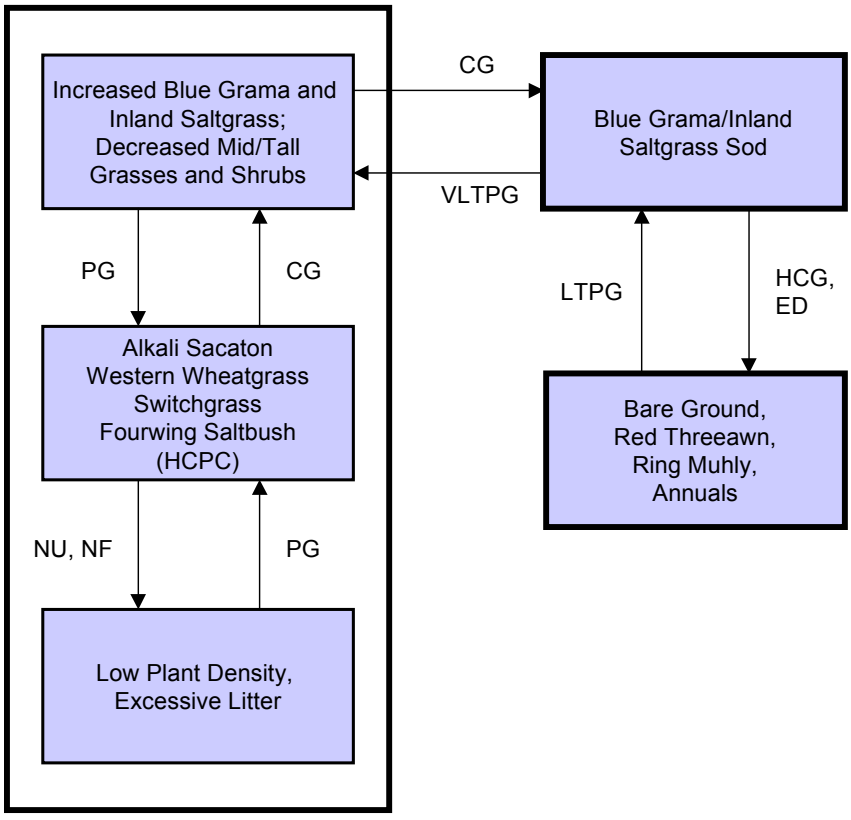
Ecological Dynamics of the Site:

Continuous grazing without adequate recovery periods following each grazing occurrence causes this site to deteriorate. Species such as blue grama and inland saltgrass will increase. Alkali sacaton, switchgrass, green needlegrass and western wheatgrass will decrease in frequency and production as well as American vetch and fourwing saltbush. Further continuous grazing will cause blue grama and inland saltgrass to form into a sodbound condition. Heavy continuous grazing or excessive defoliation will eventually result in a plant community consisting of various low successional perennials, annuals and increased bare ground. Excessive rest or non-use and/or lack of fire will result in a plant community having high litter levels with low plant density.

The historic climax plant community (description follows the plant community diagram) has been determined by study of rangeland relic areas, areas protected from excessive disturbance, seasonal use pastures, short durationl/time controlled grazing and historical accounts.

The following diagram illustrates the common plant communities that can occur on the site and the transition pathways (arrows) among communities. Bold lines surrounding each plant community or communities represent ecological thresholds. The ecological processes are discussed in more detail in the plant community descriptions following the diagram.

Plant Communities and Transitional Pathways



CG - continuous grazing without adequate recovery opportunity, **ED -** excessive defoliation, **HCG -** heavy continuous grazing, **HCPC -** Historic Climax Plant Community, **LTPG -** long-term prescribed grazing (>40 years), **NF, NU -** no fire, non-use, **PG -** prescribed grazing with adequate recovery opportunity, **VLTPG** - very long term prescribed grazing (>80 years)

Plant Community Composition and Group Annual Production

			Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush (HCPC)		
COMMON/GROUP NAME	**SCIENTIFIC NAME**	**SYMBOL**	**Group**	**lbs./acre**	**% Comp**
GRASSES & GRASS-LIKES			*1*	*1275 - 1530*	*75 - 90*
alkali sacaton	Sporobolus airoides	SPAI	1	425 - 595	25 - 35
western wheatgrass	Pascopyrum smithii	PASM	1	255 - 425	15 - 25
blue grama	Bouteloua gracilis	BOGR2	1	255 - 340	15 - 20
switchgrass	Panicum virgatum	PAVI2	1	85 - 170	5 - 10
vine mesquite	Panicum obtusum	PAOB	1	85 - 170	5 - 10
buffalograss	Buchloe dactyloides	BUDA	1	17 - 85	1 - 5
inland saltgrass	Distichlis spicata	DISP	1	17 - 85	1 - 5
big bluestem	Andropogon gerardii	ANGE	1	0 - 85	0 - 5
needleandthread	Hesperostipa comata ssp. comata	HECOC8	1	17 - 51	1 - 3
green needlegrass	Nassella viridula	NAVI4	1	0 - 51	0 - 3
alkali cordgrass	Spartina gracilis	SPGR	1	0 - 34	0 - 2
Canada wildrye	Elymus canadensis	ELCA4	1	0 - 34	0 - 2
little bluestem	Schizachyrium scoparium	SCSC	1	0 - 34	0 - 2
sand dropseed	Sporobolus cryptandrus	SPCR	1	0 - 34	0 - 2
bottlebrush squirreltail	Elymus elymoides ssp. elymoides	ELELE	1	0 - 17	0 - 1
galleta (south)	Pleuraphis jamesii	PLJA	1	0 - 17	0 - 1
ring muhly	Muhlenbergia torreyi	MUTO2	1	0 - 17	0 - 1
sixweeks fescue	Vulpia octoflora	VUOC	1	0 - 17	0 - 1
sun sedge	Carex inops ssp. heliophila	CAINH2	1	17 - 51	1 - 3
other perennial grasses		2GP	1	17 - 85	1 - 5
FORBS			*2*	*85 - 170*	*5 - 10*
American vetch	Vicia americana	VIAM	2	17 - 51	1 - 3
American licorice	Glycyrrhiza lepidota	GLLE3	2	17 - 34	1 - 2
Fremont goldenweed	Oonopsis foliosa var. foliosa	OOFOF	2	17 - 34	1 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	2	0 - 34	0 - 2
Colorado greenthread	Thelesperma filifolium	THFI	2	0 - 17	0 - 1
cutleaf evening-primrose	Oenothera coronopifolia	OECO2	2	0 - 17	0 - 1
dotted gayfeather	Liatris punctata	LIPU	2	0 - 17	0 - 1
hairy goldaster	Heterotheca villosa	HEVI4	2	0 - 17	0 - 1
heath aster	Symphyotrichum ericoides	SYER	2	0 - 17	0 - 1
ironplant goldenweed	Machaeranthera pinnatifida ssp. pinnatifida var. pinnatifida	MAPIP4	2	0 - 17	0 - 1
Lambert crazyweed	Oxytropis lambertii	OXLA3	2	0 - 17	0 - 1
narrowleaf penstemon	Penstemon angustifolius	PEAN4	2	0 - 17	0 - 1
povertyweed	Iva axillaris	IVAX	2	0 - 17	0 - 1
purple prairie clover	Dalea purpurea	DAPU5	2	0 - 17	0 - 1
rush skeletonplant	Lygodesmia juncea	LYJU	2	0 - 17	0 - 1
silky crazyweed	Oxytropis sericea	OXSE	2	0 - 17	0 - 1
slimflower scurfpea	Psoralidium tenuiflorum	PSTE5	2	0 - 17	0 - 1
twogrooved milkvetch	Astragalus bisulcatus	ASBI2	2	0 - 17	0 - 1
upright prairie coneflower	Ratibida columnifera	RACO3	2	0 - 17	0 - 1
variable senecio	Packera neomexicana var. mutabilis	PANEM	2	0 - 17	0 - 1
western ragweed	Ambrosia psilostachya	AMPS	2	0 - 17	0 - 1
woolly Indianwheat	Plantago patagonica	PLPA2	2	0 - 17	0 - 1
other perennial forbs		2FP	2	17 - 85	1 - 5
SHRUBS			*3*	*85 - 255*	*5 - 15*
fourwing saltbush	Atriplex canescens	ATCA2	3	85 - 170	5 - 10
broom snakeweed	Gutierrezia sarothrae	GUSA2	3	0 - 17	0 - 1
fringed sagebrush	Artemisia frigida	ARFR4	3	0 - 17	0 - 1
green plume rabbitbrush	Ericameria nauseosa ssp. nauseosa var. glabrata	ERNAG	3	0 - 17	0 - 1
plains pricklypear	Opuntia polyacantha	OPPO	3	0 - 17	0 - 1
small soapweed	Yucca glauca	YUGL	3	0 - 17	0 - 1
other shrubs		2SHRUB	3	17 - 51	1 - 3

Annual Production lbs./acre	LOW	RV*	HIGH
GRASSES & GRASS-LIKES	640 -	1400	- 2350
FORBS	80 -	130	- 175
SHRUBS	80 -	170	- 275
TOTAL	800 -	1700	- 2800

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors. *RV - Representative Value.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition table shown above has been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities will be determined by the decision makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). This community developed with grazing by large herbivores and is well suited for grazing by domestic livestock and can be found on areas that are properly managed with prescribed grazing that allows for adequate recovery periods between grazing events. The potential vegetation is about 75-90% grasses and grass-likes, 5-10% forbs and 5-15% shrubs by air-dry weight.

Dominant grasses include alkali sacaton, western wheatgrass and switchgrass. Grasses of secondary importance are blue grama, vine mesquitegrass (south) and inland saltgrass. Sun sedge is common. Forbs and shrubs such as American vetch, American licorice, Fremont goldenweed, scarlet globemallow and fourwing saltbush are significant.

This plant community is diverse, stable, and productive. Litter is properly distributed with very little movement and natural plant mortality is low. It is well suited to carbon sequestration, water yield, wildlife use by many species, livestock use and is esthetically pleasing. Community dynamics, nutrient cycle, water cycle and energy flow are functioning properly. This community is resistant to many disturbances except continuous grazing, tillage and/or development into urban or other uses.

Total annual production ranges from 800 to 2800 pounds of air-dry vegetation per acre and will average 1700 pounds during an average year.

The following is an estimated growth curve of this plant community expected during a normal year. Vegetative growth begins earlier in the southern reaches (Baca, Bent, Kiowa, Las Animas and Prowers counties) of MLRA-67B. Vegetative growth will typically be suppressed during the months of June through August in these counties due to higher evapotranspiration rates.

Growth curve number: CO6708
Growth curve name: Warm season/cool season co-dominant; MLRA-67B; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	8	20	35	18	10	5	2	0	0

(monthly percentages of total annual growth)

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous grazing without adequate recovery periods between grazing events will shift the HCPC to the *Increased Blue Grama and Inland Saltgrass; Decreased Mid/Tall Grasses and Shrubs Plant Community.*
- Non-use (rest) or absence of fire will move the HCPC to the *Excessive Litter, Low Plant Density Plant Community.*

- Prescribed grazing that allows for adequate recovery opportunity following each grazing event and proper stocking will maintain the *Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush Plant Community (HCPC).*

Increased Blue Grama and Inland Saltgrass; Decreased Mid/Tall Grasses and Shrubs Plant Community

This community developed with longer term continuous grazing and lack of adequate recovery periods during the growing season. Blue grama and inland saltgrass have increased but have not developed into a sod bound condition. Alkali sacaton is scattered in reduced amounts. Western wheatgrass, switchgrass and vine-mesquite have been significantly reduced. American vetch and green needlegrass have been removed. Forbs and shrubs such as scarlet globemallow, Fremont goldenweed, green plume rabbitbrush and broom snakeweed has increased. Fourwing saltbush is greatly reduced in abundance.

Plant vigor, litter, frequency and production have decreased. Reduction of key warm and cool season grasses, nitrogen fixing legumes and shrubs and an increase in blue grama and inland saltgrass has negatively affected nutrient cycling. The biological integrity, water and nutrient cycles of this plant community are becoming impaired.

Total annual production ranges from 450 to 1400 pounds of air-dry vegetation per acre and will average 850 pounds during an average year.

The following is an estimated growth curve of this plant community expected during a normal year. Vegetative growth begins earlier in the southern reaches (Baca, Bent, Kiowa, Las Animas and Prowers counties) of MLRA-67B. Vegetative growth will typically be suppressed during the months of June through August in these counties due to higher evapotranspiration rates.

Growth curve number: CO6702
Growth curve name: Warm season dominant, cool season sub-dominant; MLRA-67B, upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	2	15	45	20	15	3	0	0	0

(monthly percentages of total annual growth)

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Continuous grazing without adequate recovery opportunity between grazing events will move this plant community across an ecological threshold to the *Blue Grama/Inland Saltgrass Sod Plant Community.*
- Prescribed grazing with adequate recovery periods following each grazing event and proper stocking will revert this plant community back to the *Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush Plant Community (HCPC).*

Excessive Litter, Low Plant Density Plant Community

This plant community occurs when grazing is removed for long periods of time (rest) in the absence of fire. Plant composition is similar to the HCPC, however individual species production and frequency will be lower.

Much of the nutrients are tied up in excessive litter. The semiarid environment and the absence of animal traffic to break down litter slow nutrient recycling. Aboveground litter also limits sunlight from reaching plant crowns. Many plants, especially bunchgrasses die off. Thick litter and absence of grazing animals (animal impact) or fire reduce seed germination and establishment.

If prescribed grazing and/or prescribed burning followed by prescribed grazing are not allowed, plants will typically die off and erosion can become a concern. Once this happens it will require increased energy input in terms of practice cost and management to stabilize the plant community.

Total annual production ranges from 550 to 2000 pounds of air-dry vegetation per acre and will average 1200 pounds during an average year.

The following is an estimated growth curve of this plant community expected during a normal year. Vegetative growth begins earlier in the southern reaches (Baca, Bent, Kiowa, Las Animas and Prowers counties) of MLRA-67B. Vegetative growth will typically be suppressed during the months of June through August in these counties due to higher evapotranspiration rates.

Growth curve number: CO6705
Growth curve name: Warm season/cool season co-dominant, excess litter; MLRA-67B; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	7	18	35	18	13	5	2	0	0

(monthly percentages of total annual growth)

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Prescribed grazing with adequate recovery opportunity between grazing events and proper stocking or prescribed burning followed by prescribed grazing will shift this plant community back toward the *Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush Plant Community (HCPC).*

Blue Grama/Inland Saltgrass Sod Plant Community

This plant community developed with further continuous grazing where adequate recovery periods between grazing events were not allowed. Inland saltgrass and blue grama dominate the site and have developed into a sodbound condition. Isolated small bunches of low vigor alkali sacaton are evident. Tall warm season grasses and fourwing saltbush has been removed. Western wheatgrass may persist in remnant amounts, reduced in vigor.

This plant community is resistant to change due to the grazing tolerance of blue grama and inland saltgrass. A significant amount of production and diversity has been lost when compared to the HCPC. Loss of key warm and cool season grasses, shrub component and nitrogen fixing forbs have negatively impacted energy flow and nutrient cycling. Water infiltration is reduced significantly due to the massive shallow root system “root pan”, characteristic of blue grama and inland saltgrass. Soil loss may be obvious where flow paths are connected.

It will take a long time to bring this plant community back to the HCPC with management alone. Renovation (mechanical and/or chemical inputs) is not recommended due to high salt content of the soil and saltgrass persistence.

Total annual production ranges from 200 to 700 pounds of air-dry vegetation per acre and will average 450 pounds during an average year.

The following is an estimated growth curve of this plant community expected during a normal year. Vegetative growth begins earlier in the southern reaches (Baca, Bent, Kiowa, Las Animas and Prowers counties) of MLRA-67B. Vegetative growth will typically be suppressed during the months of June through August in these counties due to higher evapotranspiration rates.

Growth curve number: CO6707
Growth curve name: Warm season dominant; MLRA-67B; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	3	20	45	20	10	2	0	0	0

(monthly percentages of total annual growth)

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Heavy continuous grazing or excessive defoliation without regard to adequate recovery periods between grazing occurrences, will shift this plant community toward the *Red threeawn, Ring Muhly, Annuals, Bare Ground Plant Community.* This transition may take greater than 40 years. Erosion and loss of organic matter/carbon reserves are concerns.
- Very long term prescribed grazing with adequate recovery period between grazing events and proper stocking will move this plant community toward the *Increased Blue Grama and Inland Saltgrass; Decreased Mid/Tall Grasses and Shrubs Plant Community* and eventually to the *HCPC* or associated successional plant community stages assuming an adequate seed/vegetative source exists. This change will require a long period of time (>80 years) and may be difficult to attain depending on the degree of degradation.

Red Threeawn, Ring Muhly, Annuals with Increased Bare Ground Plant Community

This community develops by heavy continuous grazing or excessive defoliation. It is in an extremely degraded condition. Some inland saltgrass and blue grama may persist in localized areas. Lower successional species which dominate the community are red threeawn, ring muhly, sand dropseed, western ragweed and mouse-ear povertyweed. Typical annual invaders include kochia, Russian thistle and cheatgrass.

Litter levels are extremely low. Erosion is evident where flow paths are continuous. Rills may be evident as well as some gully erosion. The nutrient cycle, water cycle and overall energy flow are greatly impaired. Organic matter/carbon reserves are greatly reduced. This community is not stable. Desertification is obvious.

Total annual production ranges from 50 to 350 pounds of air-dry vegetation per acre.

The following is an estimated growth curve of this plant community expected during a normal year. Vegetative growth begins earlier in the southern reaches (Baca, Bent, Kiowa, Las Animas and Prowers counties) of MLRA-67B. Vegetative growth will typically be suppressed during the months of June through August in these counties due to higher evapotranspiration rates.

Growth curve number: CO6707
Growth curve name: Warm season dominant; MLRA-67B; upland fine textured soils.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	3	20	45	20	10	2	0	0	0

(monthly percentages of total annual growth)

Transitional pathways and/or community pathways leading to other plant communities are as follows:

- Long term prescribed grazing with adequate recovery periods between grazing events and proper stocking will shift this plant community toward the *Blue Grama/Inland Saltgrass Sod Plant Community* assuming an adequate seed/vegetative source is available. This transition may take up to 40 years or more to accomplish.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing Saltbush Plant Community
The structural diversity in the plant community found on the HCPC is attractive to a number of wildlife species. Common bird species expected on the HCPC include Cassin's sparrow, chestnut collared longspur, lark bunting, western meadowlark, and ferruginous and Swainson's hawks. Although they would be expected more in MLRA 72, the combination of mid-tall grasses and shrubs provides habitat for greater and lesser prairie chicken in the easternmost parts of this site. Scaled quail are expected to use this site.

White-tailed and black-tailed jackrabbit, badger, pronghorn, coyote, swift fox, plains pocket gopher, long-tailed weasel, and several species of mice are mammals that commonly use this plant community. Reptiles using this community include western rattlesnake, bullsnake, plains garter snake western hognose snake, racer, western box turtle, and six-lined racerunner.

Increased Blue Grama and Inland Saltgrass; Decreased Mid/Tall Grasses and Shrubs Plant Community
The reduction of shrubs and taller grasses in this plant community results in a shift of bird species away from the HCPC birds. Lark bunting, chestnut-collared longspur, and western meadowlark use declines and Cassin's sparrow stop using the community altogether. Habitat conditions are ideal for long-billed curlew. McCown's longspur, burrowing owl, mountain plover, killdeer, and horned lark begin using this community. Ferruginous and Swainson's hawks are frequent users of this community

Most mammals will be the same as in the HCPC, however jackrabbit, black-tailed prairie dog, desert cottontail, and thirteen-lined ground squirrel use will increase because of the changing plant community. Reptiles using this community are the same as in the HCPC.

Excessive Litter, Low Plant Density Plant Community
Both the HCPC species and shortgrass prairie species such as burrowing owl, mountain plover, horned lark, McCown's longspur, killdeer, and long-billed curlew use this plant community, however, conditions are shifting away from HCPC species preferences and toward shortgrass prairie species. Jackrabbit, black-tailed prairie dog, thirteen-lined ground squirrel, and desert cottontail rabbit are frequent users of this community. All other mammal species from the HCPC may use the community. Reptiles using this community include the species listed for the HCPC.

Blue Grama/Inland Saltgrass Sod Plant Community and Red Threeawn, Ring Muhly, Annuals with Increased Bare Ground Plant Community
Conditions in these plant communities favor the shortgrass species listed in the Low Density, Excessive Litter community. Most HCPC bird species other than the hawks would not be expected here. All other mammal species from the HCPC may use these communities. Reptiles using these communities exclusively are short-horned lizard and lesser earless lizard. Other reptiles using these communities include the species listed for the HCPC.

Other Potential Species
The plains spadefoot is the only common species of frog or toad inhabiting grasslands in Eastern Colorado. This species requires water for breeding. Tiger salamanders may be found on grassland sites, but require a water body for breeding. Either of these species may be found in any plant community if seasonal water requirements are met. Mule and white-tailed deer may use this ecological site, however the shrub cover is too low to provide escape or hiding cover. On ecological site locations near riparian areas, deer will use the vegetation for feeding. Big brown bats will use any plant community on this ecological site if a building site is in the area. The gray wolf, black-footed ferret, and wild bison used this ecological site in historic times. The wolf and ferret are thought to be extirpated from Eastern Colorado. Bison are currently found only as domestic livestock.

Animal Preferences (Quarterly – 1,2,3,4†)

Common Name	Cattle				Sheep				Horses				Deer				Antelope				Bison				Elk			
Grasses and Grass-likes																												
alkali cordgrass	U	D	D	U	N	U	N	N	U	D	D	U	N	U	N	N	N	U	N	N	U	D	D	U	U	D	D	U
alkali sacaton	U	D	D	U	N	U	N	N	U	D	D	U	N	U	N	N	N	U	N	N	U	D	D	U	U	D	D	U
big bluestem	U	D	P	D	U	D	U	U	U	D	P	D	U	D	U	U	U	D	U	U	U	D	P	D	U	D	P	D
blue grama	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D
bottlebrush squirreltail	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U
buffalograss	D	D	P	D	D	D	P	D	D	D	P	D	D	D	P	D	D	D	P	D	D	D	P	D	D	D	P	D
Canada wildrye	U	D	U	U	N	U	N	N	U	D	U	U	N	U	N	N	N	U	N	N	U	D	U	U	U	D	U	U
galleta	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U	U	D	D	U
green needlegrass	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D
inland saltgrass	N	U	U	N	N	N	N	N	N	U	U	N	N	N	N	N	N	N	N	N	N	U	U	N	N	U	U	N
little bluestem	U	D	P	U	N	D	D	N	U	D	P	U	N	D	D	N	N	D	D	N	U	D	P	U	U	D	P	U
needleandthread	U	P	D	D	N	D	N	D	U	P	D	D	N	D	N	D	N	D	N	D	U	P	D	D	U	P	D	D
ring muhly	N	N	N	N	U	U	U	U	N	N	N	N	U	U	U	U	U	U	U	U	N	N	N	N	N	N	N	N
sand dropseed	U	D	U	N	N	U	D	N	U	D	U	N	N	U	D	N	N	U	D	N	U	D	U	N	U	D	U	N
sixweeks fescue	N	D	N	N	N	D	N	N	N	D	N	N	N	D	N	N	N	D	N	N	N	D	N	N	N	D	N	N
switchgrass	U	D	D	U	U	D	U	U	U	D	D	U	U	D	U	U	U	D	U	U	U	D	D	U	U	D	D	U
vine mesquite	U	D	P	U	U	D	D	U	U	D	P	U	U	D	D	U	U	D	D	U	U	D	P	U	U	D	P	U
western wheatgrass	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D
sun sedge	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D	U	P	D	D
Forbs																												
American licorice	U	U	D	U	N	U	U	N	U	U	D	U	N	U	U	N	N	U	U	N	U	U	D	U	U	U	D	U
American vetch	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D
Colorado greenthread	U	U	U	U	N	N	N	N	U	U	U	U	N	N	N	N	N	N	N	N	U	U	U	U	U	U	U	U
cutleaf evening-primrose	U	U	U	U	N	U	U	N	U	U	U	U	N	U	U	N	N	U	U	N	U	U	U	U	U	U	U	U
dotted gayfeather	U	U	D	U	U	D	P	U	U	U	D	U	U	D	P	U	U	D	P	U	U	U	D	U	U	U	D	U
Fremont goldenweed	U	U	U	U	N	U	U	N	U	U	U	U	N	U	U	N	N	U	U	N	U	U	U	U	U	U	U	U
hairy goldaster	U	U	D	U	N	N	N	N	U	U	D	U	N	N	N	N	N	N	N	N	U	U	D	U	U	U	D	U
heath aster	U	U	D	U	U	U	P	U	U	U	D	U	U	U	P	U	U	U	P	U	U	U	D	U	U	U	D	U
ironplant goldenweed	U	D	D	U	U	P	P	U	U	D	D	U	U	P	P	U	U	P	P	U	U	D	D	U	U	D	D	U
Lambert crazyweed	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
narrowleaf penstemon	U	D	U	U	U	P	P	U	U	D	U	U	U	P	P	U	U	P	P	U	U	D	U	U	U	D	U	U
povertyweed	U	U	U	U	N	N	N	N	U	U	U	U	N	N	N	N	N	N	N	N	U	U	U	U	U	U	U	U
purple prairie clover	U	P	P	D	U	P	P	U	U	P	P	D	U	P	P	U	U	P	P	U	U	P	P	D	U	P	P	D
rush skeletonplant	U	U	U	U	N	N	N	N	U	U	U	U	N	N	N	N	N	N	N	N	U	U	U	U	U	U	U	U
scarlet globemallow	U	D	D	U	U	P	P	U	U	D	D	U	U	P	P	U	U	P	P	U	U	D	D	U	U	D	D	U
silky crazyweed	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
slimflower scurfpea	N	N	N	N	N	U	U	N	N	N	N	N	N	U	U	N	N	U	U	N	N	N	N	N	N	N	N	N
twogrooved milkvetch	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
twogrooved milkvetch	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
upright prairie coneflower	U	U	D	U	U	P	P	U	U	U	D	U	U	P	P	U	U	P	P	U	U	U	D	U	U	U	D	U
western ragweed	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U	U	D	U	U
woolly Indianwheat	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Shrubs																												
broom snakeweed	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
fourwing saltbush	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P	P	D	D	P
fringed sagebrush	U	N	N	U	U	D	D	U	U	N	N	U	U	D	D	U	U	D	D	U	U	N	N	U	U	N	N	U
plains pricklypear	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
small soapweed	D	P	N	D	D	P	N	D	D	P	N	D	D	P	N	D	D	P	N	D	D	P	N	D	D	P	N	D
winterfat	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

N = not used; **U** = undesirable; **D** = desirable; **P** = preferred; **T** = toxic
† Quarters: 1 – Jan., Feb., Mar.; 2 – Apr., May, Jun.; 3 – Jul., Aug., Sep.; 4 – Oct., Nov., Dec.

Animal Community – Grazing Interpretations

The following table lists suggested initial stocking rates for cattle under continuous grazing (year long grazing or growing season long grazing) under normal growing conditions however, *continuous grazing is not recommended.* These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using the following stocking rate information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

Plant Community	Production (lbs./acre)	Stocking Rate (AUM/acre)
Alkali Sacaton, Western Wheatgrass, Switchgrass, Fourwing (HCPC)	1700	0.54
Increased Blue Grama and Inland Saltgrass	850	0.27
Blue Grama/Inland Saltgrass Sod	450	0.14
Excessive Litter, Low Plant Density	*	*
Red Threeawn, Ring Muhly, Annuals, Bare Ground	*	*

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangelands in this area provide yearlong forage under prescribed grazing for cattle, sheep, horses and other herbivores. During the dormant period, livestock may need supplementation based on reliable forage analysis.

* Highly variable; stocking rate needs to be determined on site.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group D. Infiltration is moderate and runoff potential for this site varies from moderate to high depending on ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where shortgrasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to NRCS Section 4, National Engineering Handbook (NEH-4) for runoff quantities and hydrologic curves).

Recreational Uses

This site provides hunting, hiking, photography, bird watching and other opportunities. The wide varieties of plants that bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products

No appreciable wood products are present on the site.

Other Products

None noted.

Supporting Information

Associated Sites

(R067BY002CO) – Loamy (formerly Loamy Plains)
(R067BY042CO) – Clayey (formerly Clayey Plains)
(R067BY047CO) – Alkaline Plains
(R067BY033CO) – Salt Flat
(R067BY035CO) – Salt Meadow

Similar Sites

(R067BY036CO) – Overflow
[lacks salinity and salt tolerant plants]

Inventory Data References

Information presented here has been derived from NRCS clipping data, numerous ocular estimates and other inventory data. Field observations from experienced range trained personnel were used extensively to develop this ecological site description. Specific data information is contained in individual landowner/user case files and other files located in county NRCS field offices.

Those involved in developing this site description include: Ben Berlinger, Rangeland Management Specialist, NRCS; Harvey Sprock, Rangeland Management Specialist, NRCS; James Borchert, Soil Scientist, NRCS; Terri Skadeland, Biologist, NRCS.

State Correlation

This site is unique to Colorado.

Field Offices

Akron, Brighton, Burlington, Byers, Cheyenne Wells, Eads, Flagler, Fort Collins, Fort Morgan, Greeley, Holly, Hugo, Kiowa, Lakewood, Lamar, Longmont, Simla, Springfield, Sterling

Other References

High Plains Regional Climate Center, University of Nebraska, 830728 Chase Hall, Lincoln, NE 68583-0728. (http://hpccsun.unl.edu)

USDA, NRCS. National Water and Climate Center, 101 SW Main, Suite 1600, Portland, OR 97204-3224. (http://wcc.nrcs.usda.gov)

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Site Description Approval

/s/ 03/25/2004

State Range Management Specialist Date