

United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Saline Upland 12-17” Precipitation Zone

Site ID: R067AY144WY

Major Land Resource Area: 67 – North Central High Plains

PHYSIOGRAPHIC FEATURES

This site occurs on nearly level to moderately sloping uplands.

Landforms: Hillsides, alluvial fans and stream terraces.

Elevation: (Ft)	<u>Minimum</u>	<u>Maximum</u>
	3800	5100

Slope: (%)	0	15
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Water Table Depth: (in) None within 60 inches.

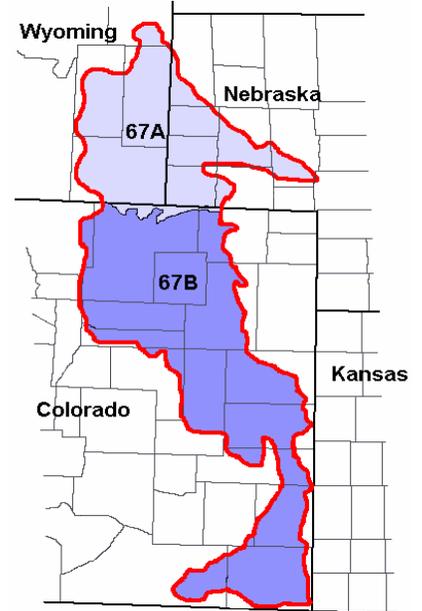
Flooding:

Frequency:	None	None
Duration:	None	None

Ponding:

Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None

Runoff Class:	Negligible	Medium
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Climatic Features

Annual precipitation ranges from 12-17 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums, due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks from Canada in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Chinook winds may occur in winter and bring rapid rises in temperature. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Wind speed averages about 8 mph, ranging from 10 mph during the spring to 7 mph during late summer. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool-season plants begins about April 1 and continues to about July 1. Native warm-season plants begin growth about May 15 and continue to about August 15. Green up of cool season plants may occur in September and October of most years.

The following information is from the “Lusk 2SW” climate station.

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	<u>Minimum</u>	<u>Maximum</u>
Frost-free period (days):	74	148
Freeze-free period (days):	101	181
Mean Annual Precipitation (inches):	12	17

Mean annual precipitation: 15.71 inches

Mean annual air temperature: 45.2 °F (31.0°F Avg. Min. – 59.3°F Avg. Max.)

For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at <http://www.wcc.nrcs.usda.gov/> website. Other climate station(s) representative of this precipitation zone include: “Chugwater, Wheatland 4N, Cheyenne AP and Scottsbluff WSO AP”.

Influencing Water Features

Wetland Description:	<u>System</u>	<u>Subsystem</u>	<u>Class</u>	<u>Sub-class</u>
None	None	None	None	None

Stream Type: None

Representative Soil Features

The soils of this site are moderately deep (greater than 20 inches to bedrock) to very deep, well drained soils that formed in alluvium from sodic or alkaline materials. These soils have moderate to slow permeability and are moderately to strongly alkaline or saline. Layers of soil most influential to the plant community varies from 3 to 6 inches thick.

Major Soil Series correlated to this site: Uffens, Orella

Other Series Correlated to this site in MLRA 67:

Parent Material Kind: Alluvium

Parent Material Origin: Sandstone and shale

Surface Texture: Loam, very fine sandy loam, silt loam

Surface Texture Modifier: None

Subsurface Texture Group: clay

Surface Fragments <3”(% Cover): 0

Surface Fragments >3”(% Cover): 0

Subsurface Fragments <3”(%Volume): 0

Subsurface Fragments >3”(% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well	well
Permeability Class:	slow	moderate
Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤20”:	4	16
Sodium Absorption Ratio ≤20”:	10	25
Soil Reaction (1:1 Water) ≤20”:	6.6	9.0
Available Water Capacity (inches):	2.8	5.7
Calcium Carbonate Equivalent (percent) ≤ 20”:	0	10

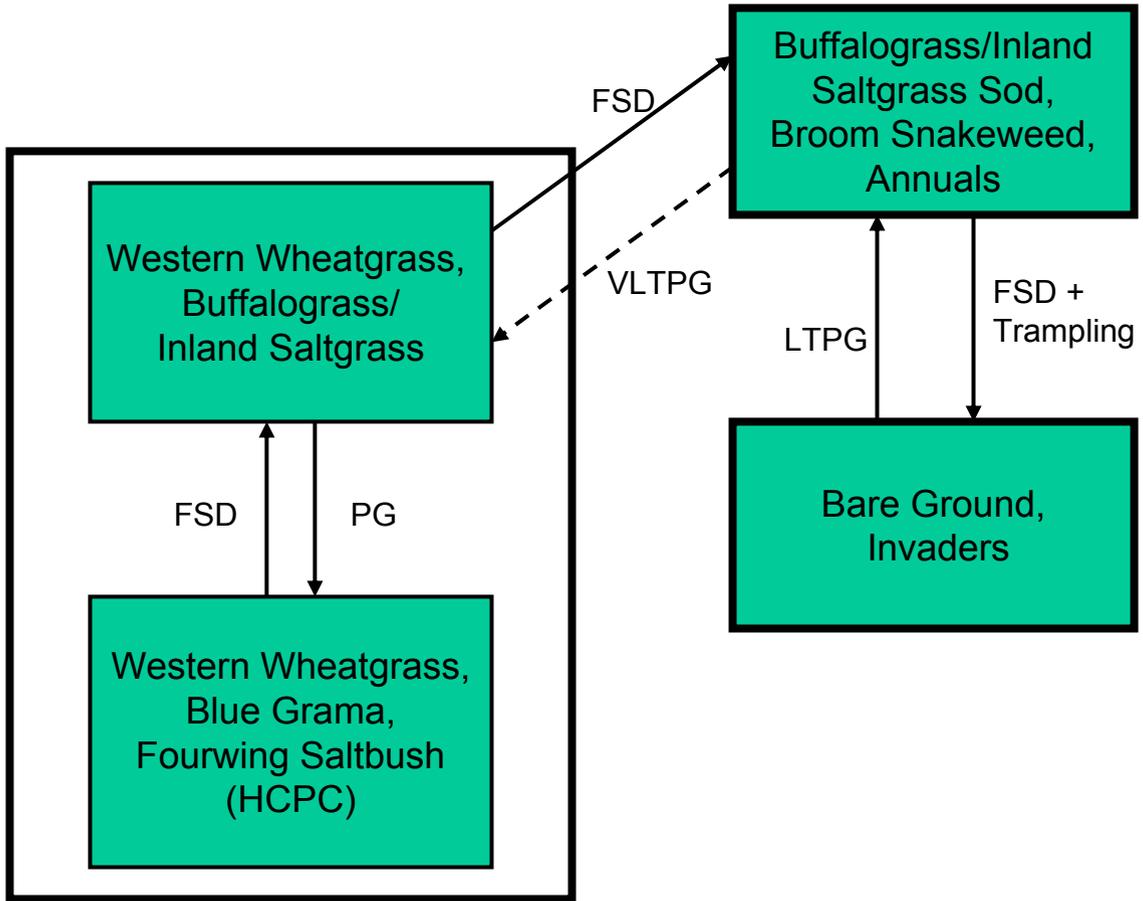
Plant Communities

Ecological Dynamics of the Site:

As this site deteriorates from frequent and severe grazing (defoliation), species such as needleandthread, blue grama, alkali sacaton, and fourwing saltbush will decrease in frequency and production. Western wheatgrass will decrease, but tends to persist in all communities. Buffalograss and inland saltgrass increase and may eventually form a dense sod if defoliation remains frequent and severe. Continued frequent and severe defoliation will eventually cause broom snakeweed and bare ground to increase and annual plants and others to invade the site.

The historic climax plant community (description follows the State and Transition Model Diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



FSD - Frequent and Severe Defoliation.

LTPG - Long-term Prescribed Grazing.

PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season).

VLTPG - Very Long-term Prescribed Grazing (could take generations)

Plant Community Composition and Group Annual Production
Western Wheatgrasses/Blue Grama/Fourwing Saltbush Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Total: 700		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES				595 - 665	85 - 95
COOL-SEASON MID-GRASSES			1	70 - 140	10 - 20
needleandthread	Hesperostipa comata	HECO26	1	35 - 105	5 - 15
Indian ricegrass	Achnatherum hymenoides	ACHY	1	0 - 35	0 - 5
green needlegrass	Nassella viridula	NAV14	1	0 - 35	0 - 5
RHIZOMATOUS WHEATGRASSES			2	245 - 350	35 - 50
western wheatgrass	Pascopyrum smithii	PASM	2	245 - 350	35 - 50
WARM-SEASON GRASSES			3	140 - 280	20 - 40
buffalograss	Buchloe dactyloides	BUDA	3	35 - 70	5 - 10
blue grama	Boutela gracilis	BOGR	3	70 - 175	10 - 25
alkali sacaton	Sporobolus airoides	SPAI	3	35 - 105	5 - 15
inland saltgrass	Distichlis spicata	DISP	3	0 - 35	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	3	0 - 35	0 - 5
GRASS-LIKES			4	0 - 70	0 - 10
threadleaf sedge	Carex filifolia	CAFI	4	0 - 35	0 - 5
sedges		CAREX	4	0 - 35	0 - 5
MISCELLANEOUS GRASSES			5	0 - 35	0 - 5
other perennial grasses (native)		2GP	5	0 - 35	0 - 5
FORBS			6	0 - 35	0 - 5
wild onion	Allium textile	ALTE	6	0 - 14	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 35	0 - 5
rush skeletonplant	Lygodesmia juncea	LYJU	6	0 - 14	0 - 2
silverscale saltbush	Atriplex argentea	ATAR2	6	0 - 14	0 - 2
curlycup gumweed	Grindelia squarrosa	GRSQ	6	0 - 14	0 - 2
other perennial forbs		2FP	6	0 - 35	0 - 5
SHRUBS			7	35 - 70	5 - 10
Gardners saltbush	Atriplex gardneri	ATGA	7	0 - 14	0 - 2
four-wing saltbush	Atriplex canescens	ATCA2	7	7 - 70	1 - 10
broom snakeweed	Gutierrezia sarothrae	GUSA2	7	0 - 14	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	7	0 - 14	0 - 2
winterfat	Krascheninnikovia lanata	KRLA2	7	0 - 14	0 - 2

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.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility that may occur on a given site, 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.

Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community

This plant community is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC). This community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Historically, fires likely occurred infrequently. This plant community can be found on areas that are grazed and where the grazed plants receive adequate periods of recovery between grazing events during the growing season. The potential vegetation is about 85% grasses, 5% forbs, and 10% woody plants. The grasses include western wheatgrass, blue grama, alkali sacaton, and needleandthread. Other grasses include buffalograss, inland saltgrass and green needlegrass. Forbs and shrubs such as scarlet globemallow, fourwing saltbush and winterfat also occur.

The total annual production (lb./ac., air-dry weight) of this plant community during an average year is: 12-14” P.Z.

	LOW	AVG	HIGH
GRASS/GRASSLIKE	425	595	850
FORB	25	35	50
SHRUB	50	70	100
TREE	0	0	0
TOTAL	500	700	1000

The following is the growth curve of this plant community expected during an average year:

Growth Curve Number:

Growth Curve Name:

Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	13	15	35	25	5	5	0	0	0

(monthly percentages of total annual growth)

This plant community is stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community in terms of soil stability, watershed function, and biologic integrity.

Transitions or pathways leading to other plant communities are as follows:

Frequent and severe defoliation will move this plant community initially toward the *Western Wheatgrass, Buffalograss/Inland Saltgrass Plant Community*. Over a period of years, plant species less tolerant to frequent and severe defoliation will decrease, and those more tolerant will begin to increase.

Western Wheatgrass, Buffalograss/Inland Saltgrass Plant Community

This plant community typically develops, over a period of several years, under frequent and severe defoliation during the growing season. Compared to the Historic Climax Plant Community, buffalograss and inland saltgrass have increased. Blue grama, needleandthread, and alkali sacaton have decreased. Palatable forbs and shrubs such as fourwing saltbush and winterfat have decreased. Plant diversity is moderate.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 500 pounds per acre during an average year, but it can range from about 350 pounds per acre in unfavorable years to about 725 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:

Growth Curve Number:

Growth Curve Name:

Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	13	25	25	15	10	10	0	0	0

(monthly percentages of total annual growth)

Changes in grazing management may take a long time to affect the species composition of this plant community. Soil erosion is low.

Transitions or pathways leading to other plant communities are as follows:

- Prescribed grazing that allows adequate recovery periods between grazing events will move this plant community back toward the *Western Wheatgrass, Blue Grama, Fourwing Saltbush Plant Community (HCPC)*.
- Continued frequent and severe defoliation, throughout the growing season will move this plant community toward a *Buffalograss/Inland Saltgrass Sod, Broom Snakeweed, Annuals Plant Community*.

Buffalograss/Inland Saltgrass Sod, Broom Snakeweed, Annuals Plant Community

This plant community develops under long-term frequent and severe defoliation. The dominant grasses are sod bound buffalograss or inland saltgrass or both. Western wheatgrass has been reduced but still persists in the plant community. All forbs have been reduced. The dominant shrub is broom snakeweed. Fourwing saltbush and winterfat may be found, but only as low vigor, remnant plants. Plant diversity is low.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 300 pounds per acre during an average year, but it can range from about 200 pounds per acre in unfavorable years to about 430 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:

Growth Curve Number:

Growth Curve Name:

Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	15	25	30	20	5	0	0	0

(monthly percentages of total annual growth)

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This plant community is resistant to change. This is because many of the plant species have been removed from the plant community. Oftentimes, a seed source is not readily available. Also, much of the precipitation is lost to runoff and is unavailable to the plants. While soil erosion is low, infiltration has been greatly decreased. Increased runoff typically causes off-site erosion.

Transitions or pathways leading to other plant communities are as follows:

- Very long-term prescribed grazing may move this plant community towards the Western *Wheatgrass, Buffalograss/Inland Saltgrass Plant Community* assuming an adequate seed/vegetative source exists. This transition could take generations.
- Continued frequent and severe defoliation combined with trampling can eventually move this plant community to *the Bare Ground, Invaders Plant Community*.

Bare Ground, Invaders Plant Community

This plant community occurs where the rangeland is grazed year-round, at high stock densities, such as in a feeding situation or a prairie dog town. Physical impact such as trampling, soil compaction, and trailing typically contribute to this transition. The plant composition is made up annuals with a few species of perennial forbs and grasses that are very tolerant to frequent and severe defoliation. In some instances, pricklypear cactus can increase and be found in mosaic patterns across the landscape. Remnant western wheatgrass will survive in these patches, protected by the spines of the pricklypear. Remnants of inland saltgrass and buffalograss can be found. Annual grasses, such as cheatgrass, have increased. Bare ground is significant.

Compared to the Historic Climax Plant Community, all perennial plants have been greatly reduced with only remnants of the most grazing tolerant species present. Plant diversity is very low if annuals and weedy species are not considered.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 300 pounds per acre during an average year, but it can range from about 250 pounds per acre in unfavorable years to about 400 pounds per acre in above average years.

The following is the growth curve of this plant community expected during an average year:

Growth Curve Number:

Growth Curve Name:

Growth Curve Description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	2	13	20	25	20	10	10	0	0	0

(monthly percentages of total annual growth)

This plant community is resistant to positive change because of the lack of perennial species present and the amount of annuals and invaders occupying the community. Planned rest periods during the growing season will improve the vigor of the plant species present and eventually reduce the amount of bare ground.

Soil erosion is very high compared to other potential plant communities because of the amount of bare ground. Soil erosion can alter the ability of this community to ever recover to a level equal to its original potential. Infiltration is very low and runoff is high because of a lack of litter and living plants. Mineral crusting magnifies the situation making much of the precipitation unavailable to the plants.

Transitions or pathways leading to other plant communities are as follows:

- Long-term prescribed grazing will move this plant community back toward the *Buffalograss/Inland Saltgrass Sod, Broom Snakeweed, Annuals Plant Community*. The rate of this transition can be extremely variable depending on the species present and the availability of a seed source. This can take many years, even if the community is not significantly eroded. Range or pasture planting may be the only option to return this community to a productive condition in a realistic time frame.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Western Wheatgrass, Blue Grama, Fourwing Saltbush (HCPC): The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope.

Western wheatgrass, Buffalograss/Inland Saltgrass: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals.

Buffalograss/Inland saltgrass Sod, Broom Snakeweed, Annuals: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse and weedy species are invading.

Bare Ground, Invaders: This plant community exhibits a low level of plant species diversity due to the accumulation of salts in the soil. In most cases it is not a desirable plant community to select as a wildlife habitat management objective.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 67 North

Common Name	Scientific Name	Symbol	Cattle	Sheep	Horses	Antelope	Deer	Elk
GRASSES/GRASSLIKES								
alkali bluegrass	<i>Poa juncifolia</i>	POJU	UDUD	NDNU	UDUD	UDUU	UDUU	DPDD
alkali cordgrass	<i>Spartina gracilis</i>	SPGR	UDPU	UPDU	UPDU	UDUU	UDUU	UDPU
alkali muhly	<i>Muhlenbergia asperifolia</i>	MUAS	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
alkali sacaton	<i>Sporobolus airoides</i>	SPAI	UDPU	UPDU	UPDU	UUDU	UUDU	UDPU
Baltic rush	<i>Juncus balticus</i>	JUBA	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
basin wildrye	<i>Leymus cinereus</i>	LECI4	DPDD	UPDU	DPDD	UDUU	UDUU	DPDD
big bluestem	<i>Andropogon gerardii</i>	ANGE	UDPD	UDDU	UDPD	UDUU	UDUU	UDPD
blowout grass	<i>Redfieldia flexuosa</i>	REFL	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
blue grama	<i>Bouteloua gracilis</i>	BOGR2	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSP6	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
bluegrasses	<i>Poa spp.</i>	POA	UPUU	UPND	UPUU	UPND	UPND	UPUU
bluejoint reedgrass	<i>Calamagrostis canadensis</i>	CACA4	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
buffalograss	<i>Buchloe dactyloides</i>	BUDA	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
bulrush	<i>Scirpus spp.</i>	SCIRP	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Canada wildrye	<i>Elymus canadensis</i>	ELCA4	UDUU	NUNN	UDUU	NUNN	NUNN	UDUU
Fendler's threeawn	<i>Aristida purpurea var. fendleriana</i>	ARPUF	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
foxtail barley	<i>Hordeum jubatum</i>	HOJU	NDNN	NDNN	NDNN	NDNN	NDNN	NDNN
green needlegrass	<i>Nassella viridula</i>	NAV14	DPPD	UPDU	DPPD	UDUU	UDUU	DPPD
hairy grama	<i>Bouteloua hirsuta</i>	BOHI2	UDPU	UDPU	UDPU	UUDU	UUDU	UUDU
Indian ricegrass	<i>Achnatherum hymenoides</i>	ACHY	DPPD	UPDU	DPPD	UDUU	UDUU	DPPD
Indiangrass	<i>Sorghastrum nutans</i>	SONU2	UDPD	UDDU	UDPD	UDUU	UDUU	UDPD
inland saltgrass	<i>Distichlis spicata</i>	DISP	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
little bluestem	<i>Schizachyrium scoparium</i>	SCSC	UDPU	UPDU	UPDU	UUDU	UUDU	UDPU
muhly	<i>Muhlenbergia spp.</i>	MUHLE	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
Nebraska sedge	<i>Carex nebrascensis</i>	CANE2	UDUD	UPND	UDUD	UPND	UPND	UDUD
needleandthread	<i>Hesperostipa comata ssp. comata</i>	HECOC8	DPDD	UPDU	DPDD	UDUU	UDUU	DPDD
northern reedgrass	<i>Calamagrostis stricta ssp. inexpansa</i>	CASTI3	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
Nuttall's alkaligrass	<i>Puccinellia nuttalliana</i>	PUNU2	DPUD	NPND	DPUD	UDUU	UDUU	DPPD
panicgrass	<i>Dichanthelium wilcoxianum</i>	DIWI5	UUDU	NUNN	UUDU	NUNN	NUNN	UUDU
plains bluegrass	<i>Poa arida</i>	POAR3	NPUN	NPUN	NPUN	NDUN	NDUN	NPUN
plains muhly	<i>Muhlenbergia cuspidata</i>	MUCU3	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
plains reedgrass	<i>Calamagrostis montanensis</i>	CAMO	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
prairie cordgrass	<i>Spartina pectinata</i>	SPPE	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
prairie junegrass	<i>Koeleria macrantha</i>	KOMA	UDUU	NDNU	UDUU	UDUU	UDUU	UDUU
prairie sandreed	<i>Calamovilfa longifolia</i>	CALO	UDPU	UDUU	UDDU	UUDU	UUDU	UUDU
reed canarygrass	<i>Phalaris arundinacea</i>	PHAR3	UDUU	NUNN	UDUU	NUNN	NUNN	UDUU
rushes	<i>Juncus spp.</i>	JUNCU	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
sand bluestem	<i>Andropogon hallii</i>	ANHA	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
sand dropseed	<i>Sporobolus cryptandrus</i>	SPCR	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
sand lovegrass	<i>Eragrostis trichodes</i>	ERTR3	UDPU	UUDU	UDDU	UUDU	UUDU	UDDU
sand paspalum	<i>Paspalum setaceum</i>	PASE5	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
Sandberg bluegrass	<i>Poa secunda</i>	POSE	NPUN	NPUN	NPUN	NDUN	NDUN	NPUN
sandhill muhly	<i>Muhlenbergia pungens</i>	MUPU2	UUDU	UUDU	UUDU	UUDU	UUDU	UUDU
sedge	<i>Carex spp.</i>	CAREX	UDUD	UPND	UDUD	UPND	UPND	UDUD
sideoats grama	<i>Bouteloua curtipendula</i>	BOCU	UDPU	UPDU	UPDU	UUDU	UUDU	UUDU
slender wheatgrass	<i>Elymus trachycaulus ssp. trachycaulus</i>	ELTRT	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
spikerush	<i>Eleocharis spp.</i>	ELEOC	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
switchgrass	<i>Panicum virgatum</i>	PAVI2	UDPD	UDDU	UDPD	UUDU	UUDU	UDPD
thickspike wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	ELLAL	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
threadleaf sedge	<i>Carex filifolia</i>	CAFI	UDUD	UPND	UDUD	UPND	UPND	UDUD
threeawn	<i>Aristida spp.</i>	ARIST	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
western wheatgrass	<i>Pascopyrum smithii</i>	PASM	DPDD	UPDD	DPDD	UDUU	UDUU	DPDD
FORBS								
American licorice	<i>Glycyrrhiza lepidota</i>	GLLE3	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
American vetch	<i>Vicia americana</i>	VIAM	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
arrowgrass	<i>Triglochin spp.</i>	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
aster	<i>Aster spp.</i>	ASTER	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
biscuitroot	<i>Lomatium spp.</i>	LOMAT	UUDU	UDDU	UUDU	UDDU	UDDU	UDDU
blue-eyed grass	<i>Sisyrinchium spp.</i>	SISYR	UUDU	UUPU	UUDU	UUDU	UUDU	UUDU
breadroot	<i>Pediomelum spp.</i>	PEDIO2	NUUN	UDUU	NUUN	UDUU	UDUU	UDUU
broadleaf cattail	<i>Typha latifolia</i>	TYLA	UUDU	UUUU	UUDU	UUUU	UUDU	UUDU
buckwheat	<i>Eriogonum spp.</i>	ERIOG	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
bush morningglory	<i>Ipomoea leptophylla</i>	IPLE	UUUU	UUUU	NNNN	UUUU	UUUU	UUUU
cinquefoil	<i>Potentilla spp.</i>	POTEN	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
cudweed sagewort	<i>Artemisia ludoviciana</i>	ARLU	UUUU	UUDU	UUUU	UUDU	UUDU	UUDU
curlycup gumweed	<i>Grindelia squarrosa</i>	GRSQ	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
deathcamas	<i>Zigadenus venenosus</i>	ZIVE	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
dotted gayfeather	<i>Liatris punctata</i>	LIPU	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
evening primroses	<i>Oenothera spp.</i>	OENOT	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
false boneset	<i>Brickellia eupatorioides</i>	BREU	NDUN	NDUN	NNNN	NDUN	NDUN	NDUN
fringed sagewort	<i>Artemisia frigida</i>	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
goldenrod	<i>Solidago spp.</i>	SOLID	NUNN	NUNN	NNNN	NUNN	NUNN	NUNN

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 67 North

green sawwort	Artemisia campestris	ARCA12	NNNN	NUUN	NNNN	NUUN	NUUN	NNNN
greenthread	Thelesperma spp.	THELE	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
groundsel	Senecio spp.	SENEC	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
hairy goldaster	Heterotheca villosa	HEV14	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
heath aster	Symphotrichum ericoides	SYER	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
iris	Iris spp.	IRIS	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
ironweed	Vernonia spp.	VERNO	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Lambert crazyweed	Oxytropis lambertii	OXLA3	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
larkspur	Delphinium spp.	DELPH	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
lemon scurfpea	Psoraleidum lanceolatum	PSLA3	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
Maximilian sunflower	Helianthus maximiliani	HEMA2	UDPU	UDPU	UDPU	UDPU	UDPU	UDPU
milkvetch	Astragalus spp.	ASTRA	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
nailwort	Paronychia spp.	PARON	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
Pennsylvania smartweed	Polygonum pensylvanicum	POPE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
penstemons	Penstemon spp.	PENST	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
perennial sunflowers	Helianthus spp.	HELIA3	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
phlox	Phlox spp.	PHLOX	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
poison hemlock	Conium maculatum	COMA2	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
prairie clovers	Dalea spp.	DALEA	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
prairie coneflower	Ratibida columnifera	RACO3	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
purple prairie clover	Dalea purpurea	DAPU5	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
Pursh seepweed	Suaeda calceoliformis	SUCA2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
pussytoes	Antennaria spp.	ANTEN	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
rush skeletonplant	Lygodesmia juncea	LYJU	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
sandwort	Arenaria spp.	ARENA	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
scarlet gaura	Gaura coccinea	GACO5	NNNN	NUUN	NNNN	NUUN	NUUN	NNNN
scarlet globemallow	Sphaeralcea coccinea	SPCO	UUUU	UUUU	UUUU	UPPU	UUUU	UUUU
scurfpea	Psoraleidum spp.	PSORA2	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
showy peavine	Lathyrus polymorphus	LAPO2	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
silky prairie clover	Dalea villosa	DAVI	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
slimflower scurfpea	Psoraleidum tenuiflorum	PSTE5	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
spiderworts	Tradescantia spp.	TRADE	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
stiff sunflower	Helianthus pauciflorus	HEPA19	UDPU	UDPU	UDPU	UDPU	UDPU	UDPU
swamp smartweed	Polygonum hydropiperoides	POHY2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
tenpetal blazingstar	Mentzelia decapetala	MEDE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
veiny dock	Rumex venosus	RUVE2	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
water hemlock	Cicuta spp.	CICUT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
western ragweed	Ambrosia psilostachya	AMPS	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
western yarrow	Achillea millefolium	ACMI2	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
white prairie clover	Dalea candida	DACA7	UPPU	UPPU	UPPU	UPPU	UPPU	UPPU
whiteflower gilia	Ipomopsis longiflora ssp. longiflora	IPLOL	NUUN	NUUN	NNNN	NUUN	NUUN	NUUN
wild onion	Allium textile	ALTE	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
wild strawberry	Fragaria virginiana	FRVI	NNNN	NUUN	NNNN	NUUN	NUUN	NUUN
woollywhite hymenopappus	Hymenopappus tenuifolius	HYTE2	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
TREES, SHRUBS, AND HALF-SHRUBS								
antelope bitterbrush	Purshia tridentata	PUTR2	PDD	PDD	DDUD	PDDP	PDDP	PDDP
Arkansas rose	Rosa arkansana	ROAR3	UDDU	UDDU	NUUN	UDDU	UDDU	UDDU
big sagebrush	Artemisia tridentata	ARTR2	UNUU	DUUD	UNNU	PPPP	PUDP	DUUU
boxelder	Acer negundo	ACNE2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
brittle cactus	Opuntia fragilis	OPFR	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
broom snakeweed	Gutierrezia sarothrae	GUSA2	NNNN	UUUU	NNNN	UUUU	UUUU	UUUU
fourwing saltbush	Atriplex canescens	ATCA2	PDDP	PDDP	PDDP	PDDP	PDDP	PDDP
Gardner's saltbush	Atriplex gardneri	ATGA	PDDP	PDDP	DUUD	PDDP	PDDP	PDDP
greasewood (Toxic in large amounts)	Sarcobatus vermiculatus	SAVE4	DUUD	DUUD	DUUD	DUUD	DUUD	DUUD
green ash	Fraxinus pennsylvanica	FRPE	UUUU	UUUU	UUUU	UDDU	UDDU	UUUU
green rabbitbrush	Chrysothamnus viscidiflorus	CHV18	DUUD	DUUD	UNNU	PUDP	PUDP	DUUD
leadplant	Amorpha canescens	AMCA6	UPDU	UPDU	UDDU	UPDU	UPDU	UPDU
plains cottonwood	Populus deltoides ssp. monilifera	PODEM	DUDD	DUDD	DUDD	DUDD	DUDD	DUDD
plains pricklypear	Opuntia polyacantha	OPPO	NNNN	NNNN	NNNN	NNNN	NNNN	NNNN
ponderosa pine	Pinus ponderosa var. scopulorum	PIPOS	UTTU	UNNU	UNNU	UNNU	UNNU	UNNU
Rocky Mountain juniper	Juniperus scopulorum	JUSC2	UNNU	UNNU	UNNU	UNNU	DUUD	UNNU
rose	Rosa spp.	ROSA5	UDDU	UDDU	NUUN	UDDU	UDDU	UDDU
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DUUD	UUUU	UDDU	DUUD	DUUU
sand sagebrush	Artemisia filifolia	ARF12	UNNU	UNNU	UNNU	UNNU	UNNU	UNNU
silver buffaloberry	Shepherdia argentea	SHAR	DUUU	DUUU	UUUU	UUUU	PUDP	DUUU
silver sagebrush	Artemisia cana	ARCA13	DUUD	DUUD	UNNU	PPPP	PDDP	DUUD
skunkbush sumac	Rhus trilobata	RHTR	DUUD	DUUD	UUUU	DUUD	DUUD	DUUD
spreading buckwheat	Eriogonum effusum	EREF	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
true mountainmahogany	Cercocarpus montanus	CEMO2	DDDD	PDD	DDDD	UNNU	PDDP	PDD
western sandcherry	Prunus pumila var. besseyi	PRPUB	DUUD	DUUD	DUUD	DUUD	PUDP	PUUP
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	UUUU	DUUD	DUUU
willows	Salix spp.	SALIX	PUDP	PUDP	DUUD	UUUU	PUDP	PUDP
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DUUD	DUUD	UUUU	DUUD	DUUD	DUUD

Animal Community – Grazing Interpretations

The following tables list 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 typically 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 as 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)	Carrying Capacity (AUM/acre)
Western wheatgrass, Blue grama, Fourwing saltbush (HCPC)	700	0.2
Western Wheatgrass, Buffalograss/Inland Saltgrass	500	0.17
Buffalograss/Inland Saltgrass Sod, Broom snakeweed, Annuals	300	0.10
Bare Ground, Invaders	300	0.05

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.

Hydrology Functions

Water and salinity are the principal factors limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from slow to moderate. Runoff potential for this site varies from moderate to high depending on soil hydrologic group and 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 short-grasses 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 Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts may be present. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

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

(R067AY144WY) – Saline Lowland

Similar Sites

(R067AY138WY) – Saline Lowland is more productive and has more alkali sacaton

Inventory Data References (narrative)

Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel was also used.

Inventory Data References

<u>Data Source</u>	<u>Number of Records</u>	<u>Sample Period</u>	<u>State</u>	<u>County</u>
SCS-RANGE-417	110	1963 -1987	WY	Platte & others

State Correlation

This site has been correlated with Wyoming, Colorado, and Nebraska.

Type Locality

Field Offices

Wyoming: Cheyenne, Douglas, Lusk, Torrington, Wheatland

Nebraska: Bridgeport, Harrisburg, Kimball, Oshkosh, Scottsbluff, Sidney

Colorado: Greeley, Sterling

Relationship to Other Established Classifications

Other References

Other sources used as references include: High Plains Regional Climate Center, USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Site Description Approval

State Range Management Specialist

Date

State Range Management Specialist

Date

State Range Management Specialist

Date

Ecological Reference Worksheet

Author(s)/participant(s): _____
 Contact for lead author: _____ Reference site used? Yes/No
 Date: __1/05__ MLRA: __67A__ Ecological Site: R067AY144WY Saline Upland (SU)

____ This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

<p>Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years for each community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.</p>
<p>1. Number and extent of rills: Rills should not be present</p>
<p>2. Presence of water flow patterns: Barely observable</p>
<p>3. Number and height of erosional pedestals or terracettes: Essentially non-existent</p>
<p>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground): Bare ground is 30-40%</p>
<p>5. Number of gullies and erosion associated with gullies: Active gullies should not be present</p>
<p>6. Extent of wind scoured, blowouts and/or depositional areas: None</p>
<p>7. Amount of litter movement (describe size and distance expected to travel): Little to no plant litter movement. Plant litter remains in place and is not moved by erosional forces.</p>
<p>8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values for both plant canopy and interspaces, if different): Plant cover and litter is at 50% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.</p>
<p>9. Soil surface structure and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different): Use Soil Series description for depth and color of A-horizon</p>
<p>10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Healthy deep rooted native grasses enhance infiltration and reduce runoff. Infiltration is slow to moderate.</p>
<p>11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): No compaction layer or soil surface crusting should be present.</p>
<p>12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: >>, >, = to indicate much greater than, greater than, and equal to): Mid stature Cool Season Rhizomatous Grasses > Mid stature Cool Season Bunch Grasses > Short stature Warm Season Grasses > Shrubs > Forbs</p>
<p>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Very Low</p>
<p>14. Average percent litter cover and depth : Average litter cover is 10-15% with depths of 0.1 to 0.5 inches</p>
<p>15. Expected annual production (this is all above-ground production, not just forage production): 12"-14" Precipitation Zone = 700 lbs/ac</p>
<p>16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site": Buffalograss, Inland saltgrass, Broom Snakeweed, and Species found on Noxious Weed List</p>
<p>17. Perennial plant reproductive capability: All species are capable of reproducing</p>