

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Shallow Sandy 12-17" Precipitation Zone

Site ID: R067XY166WY

Major Land Resource Area: 67 – North Central High Plains

Physiographic Features

This site occurs on uplands, but will also occur on all landscape positions.

Landform: hillsides, ridges, escarpments

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	4000	6500
Slope (percent):	0	50
Water Table Depth (inches):	none	none
Flooding:		
Frequency:	none	none
Duration:	none	none
Ponding:		
Depth (inches):	0	0
Frequency:	none	none
Duration:	none	none
Runoff Class:	very low	medium

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.

	<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 (Rosgen System)

Representative Soil Features

The soils of this site are shallow (less than 20" to bedrock) well-drained soils formed in eolian deposits, alluvium over residuum or residuum. The soils have moderately rapid to rapid permeability and may occur on all slopes. The bedrock may be of any kind except igneous or volcanic and is virtually impenetrable to plant roots.

Major Soil Series correlated to this site include: Aberone, Blackhall, Brownrigg, Byrnie, Mcfadden, Peetz, Taluce, Tassel, Trelona, Treon

Other Soil Series correlated to this site include: none

Parent Material Kind: alluvium, eolian deposits, residuum

Parent Material Origin: sandstone

Surface Texture: loamy fine sand, loamy sand, fine sand, sand

Surface Texture Modifier: none

Subsurface Texture Group: sandy

Surface Fragments ≤ 3" (% Cover): 0

Surface Fragments > 3" (%Cover): 0

Subsurface Fragments ≤ 3" (% Volume): 0-10

Subsurface Fragments > 3" (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well	excessive
Permeability Class:	rapid	very rapid
Depth (inches):	10	20
Electrical Conductivity (mmhos/cm) ≤20":	0	2
Sodium Absorption Ratio ≤20":	0	0
Soil Reaction (1:1 Water) ≤20":	6.6	7.8
Soil Reaction (0.1M CaCl2) ≤20":	N/A	N/A
Available Water Capacity (inches):	0	5.0
Calcium Carbonate Equivalent (percent) ≤20":	0	5

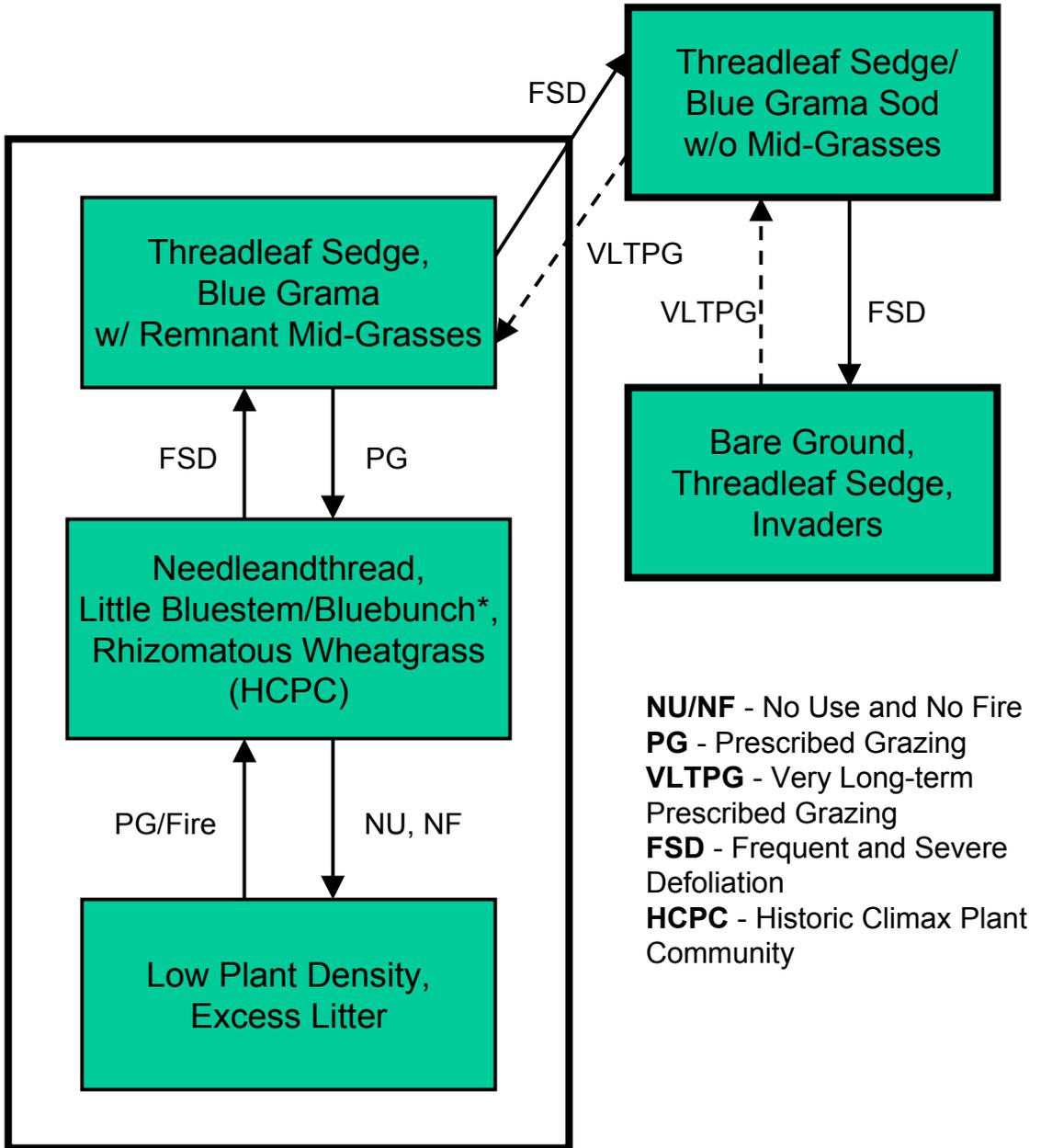
Plant Communities

Ecological Dynamics of the Site

As this site begins to deteriorate from a combination of frequent and severe grazing during the growing season, grasses such as little bluestem and sideoats grama will decrease in both frequency and production. Blue grama and threadleaf sedge will increase. Under continued frequent and severe defoliation, with no rest periods for the plants to recover, blue grama and threadleaf sedge will increase while needleandthread, rhizomatous wheatgrass, and prairie sandreed will begin to decrease. If continued, the plant community will become sod-bound, and all mid to tall grasses can eventually be removed from the plant community. Over the long-term, this continuous use in combination with high stock densities will result in a broken sod, with areas of bare ground developing, and species such as annual bromes and broom snakeweed invading.

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.



* Bluebunch wheatgrass is more prevalent on cooler sites in MLRA 67 than little bluestem.

Plant Community Composition and Group Annual Production

Needleandthread, Little Bluestem/Bluebunch, Rhizomatous Wheatgrass Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			Total: 900		
GRASSES AND GRASS-LIKES					
WARM-SEASON MID-TALL GRASSES			1	135 - 360	15 - 40
little bluestem	Schizachyrium scoparium	SCSC	1	90 - 180	10 - 20
prairie sandreed	Calamovilfa longifolia	CALO	1	45 - 90	5 - 10
sideoats grama	Bouteloua curtipendula	BOCU	1	0 - 90	0 - 10
COOL-SEASON MID-GRASSES			2	135 - 270	15 - 30
needleandthread	Hesperostipa comata	HECO26	2	135 - 225	15 - 25
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	2	0 - 90	0 - 10
WARM-SEASON SHORT GRASSES			3	90 - 135	10 - 15
blue grama	Bouteloua gracilis	BOGR2	3	90 - 135	10 - 15
RHIZOMATOUS WHEATGRASSES:			4	90 - 135	10 - 15
thickspike wheatgrass	Elymus lanceolatus	ELLA3	4	45 - 135	5 - 15
western wheatgrass	Pascopyrum smithii	PASM	4	45 - 135	5 - 15
MISCELLANEOUS GRASSES			5	45 - 90	5 - 10
Indian ricegrass	Achnatherum hymenoides	ACHY	5	0 - 45	0 - 5
plains muhly	Muhlenbergia cuspidata	MUCU3	5	0 - 45	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	5	0 - 45	0 - 5
sand bluestem	Andropogon hallii	ANHA	5	0 - 45	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 45	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 45	0 - 5
hairy grama	Bouteloua hirsuta	BOHI2	5	0 - 18	0 - 2
threeawns	Aristida spp.	ARIST	5	0 - 18	0 - 2
other perennial grasses (native)		2GP	5	0 - 45	0 - 5
SEDGES			6	45 - 135	5 - 15
threadleaf sedge	Carex filifolia	CAFI	6	45 - 135	5 - 15
other sedges	Carex spp.	CAREX	6	0 - 45	0 - 5
FORBS			7	45 - 135	5 - 15
buckwheats	Eriogonum spp.	ERIOG	7	0 - 18	0 - 2
cudweed sagewort	Artemisia ludoviciana	ARLU	7	0 - 18	0 - 2
dotted gayfeather	Liatris punctata	LIPU	7	0 - 18	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	7	0 - 45	0 - 5
green sagewort	Artemisia campestris	ARCA12	7	0 - 18	0 - 2
groundsels	Senecio spp.	SENEC	7	0 - 18	0 - 2
hairy goldaster	Heterotheca villosa	HEVI4	7	0 - 18	0 - 2
heath aster	Symphotrichum ericoides	SYER	7	0 - 18	0 - 2
lemon scurfpea	Psoralidium lanceolatum	PSLA3	7	0 - 18	0 - 2
milkvetches	Astragalus spp.	ASTRA	7	0 - 18	0 - 2
penstemons	Penstemon spp.	PENST	7	0 - 18	0 - 2
prairie clovers	Dalea spp.	DALEA	7	0 - 18	0 - 2
scarlet gaura	Gaura coccinea	GACO5	7	0 - 18	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	7	0 - 18	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	7	0 - 18	0 - 2
other perennial forbs (native)		2FP	7	0 - 45	0 - 5
SHRUBS			8	0 - 45	0 - 5
true mountainmahogany	Cercocarpus montanus	CEMO2	8	0 - 45	0 - 5
winterfat	Krascheninnikovia lanata	KRLA2	8	0 - 45	0 - 5
yucca	Yucca glauca	YUGL	8	0 - 45	0 - 5
broom snakeweed	Gutierrezia sarothrae	GUSA2	8	0 - 18	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	8	0 - 18	0 - 2
skunkbush sumac	Rhus trilobata	RHTR	8	0 - 18	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	8	0 - 45	0 - 5

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 Composition and Group Annual Production

Needleandthread, Little Bluestem/Bluebunch, Rhizomatous Wheatgrass Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			Total: 1100		
GRASSES AND GRASS-LIKES					
WARM-SEASON MID-TALL GRASSES			1	165 - 440	15 - 40
little bluestem	Schizachyrium scoparium	SCSC	1	110 - 220	10 - 20
prairie sandreed	Calamovilfa longifolia	CALO	1	55 - 110	5 - 10
sideoats grama	Bouteloua curtipendula	BOCU	1	0 - 110	0 - 10
COOL-SEASON MID-GRASSES			2	165 - 330	15 - 30
needleandthread	Hesperostipa comata	HECO26	2	165 - 275	15 - 25
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	2	0 - 110	0 - 10
WARM-SEASON SHORT GRASSES			3	110 - 165	10 - 15
blue grama	Bouteloua gracilis	BOGR2	3	110 - 165	10 - 15
RHIZOMATOUS WHEATGRASSES:			4	110 - 165	10 - 15
thickspike wheatgrass	Elymus lanceolatus	ELLA3	4	55 - 165	5 - 15
western wheatgrass	Pascopyrum smithii	PASM	4	55 - 165	5 - 15
MISCELLANEOUS GRASSES			5	55 - 110	5 - 10
Indian ricegrass	Achnatherum hymenoides	ACHY	5	0 - 55	0 - 5
plains muhly	Muhlenbergia cuspidata	MUCU3	5	0 - 55	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	5	0 - 55	0 - 5
sand bluestem	Andropogon hallii	ANHA	5	0 - 55	0 - 5
sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 55	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 55	0 - 5
hairy grama	Bouteloua hirsuta	BOHI2	5	0 - 22	0 - 2
threeawns	Aristida spp.	ARIST	5	0 - 22	0 - 2
other perennial grasses (native)		2GP	5	0 - 55	0 - 5
SEDGES			6	55 - 165	5 - 15
threadleaf sedge	Carex filifolia	CAFI	6	55 - 165	5 - 15
other sedges	Carex spp.	CAREX	6	0 - 55	0 - 5
FORBS			7	55 - 165	5 - 15
buckwheats	Eriogonum spp.	ERIOG	7	0 - 22	0 - 2
cudweed sagewort	Artemisia ludoviciana	ARLU	7	0 - 22	0 - 2
dotted gayfeather	Liatris punctata	LIPU	7	0 - 22	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	7	0 - 55	0 - 5
green sagewort	Artemisia campestris	ARCA12	7	0 - 22	0 - 2
groundsels	Senecio spp.	SENEC	7	0 - 22	0 - 2
hairy goldaster	Heterotheca villosa	HEVI4	7	0 - 22	0 - 2
heath aster	Symphotrichum ericoides	SYERE	7	0 - 22	0 - 2
lemon scurfpea	Psoralidium lanceolatum	PSLA3	7	0 - 22	0 - 2
milkvetches	Astragalus spp.	ASTRA	7	0 - 22	0 - 2
penstemons	Penstemon spp.	PENST	7	0 - 22	0 - 2
prairie clovers	Dalea spp.	DALEA	7	0 - 22	0 - 2
scarlet gaura	Gaura coccinea	GACO5	7	0 - 22	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	7	0 - 22	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	7	0 - 22	0 - 2
other perennial forbs (native)		2FP	7	0 - 55	0 - 5
SHRUBS			8	0 - 55	0 - 5
true mountainmahogany	Cercocarpus montanus	CEMO2	8	0 - 55	0 - 5
winterfat	Krascheninnikovia lanata	KRLA2	8	0 - 55	0 - 5
yucca	Yucca glauca	YUGL	8	0 - 55	0 - 5
broom snakeweed	Gutierrezia sarothrae	GUSA2	8	0 - 22	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	8	0 - 22	0 - 2
skunkbush sumac	Rhus trilobata	RHTR	8	0 - 22	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	8	0 - 55	0 - 5

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, 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.

Needleandthread, Little Bluestem/Bluebunch Wheatgrass, Rhizomatous Plant Community

This is the interpretive plant community and is considered to be the Historic Climax Plant Community (HCPC). This plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock and can be found on areas that are grazed and where the grazed plants receive adequate periods of rest during the growing season in order to recover. Historically, fires likely occurred infrequently.

The potential vegetation is about 80-95% grasses or grass-like plants, 5-15% forbs, and 0-5% woody plants. Combinations of warm and cool-season mid-grasses dominate the plant community. The major grasses and grass-likes include needleandthread, little bluestem, rhizomatous wheatgrasses, threadleaf sedge, and blue grama. Other grasses include prairie sandreed, sideoats grama, and bluebunch wheatgrass. Bluebunch wheatgrass is found in Wyoming, primarily in the western portion of the 15-17” Precipitation Zone at higher elevations. Dominant forbs are prairie clovers, dotted gayfeather, hairy goldaster, fringed sagewort, buckwheats, and lemon scurfpea. Commonly found shrubs include yucca, winterfat, and pricklypear cactus. Skunkbush sumac and true mountainmahogany can also be found primarily on rock outcrops.

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	540	805	1080
FORB	45	70	90
SHRUB	15	25	30
TREE	0	0	0
TOTAL	600	900	1200

15-17”P.Z.

	LOW	AVG	HIGH
GRASS/GRASSLIKE	675	985	1345
FORB	55	85	115
SHRUB	20	30	40
TREE	0	0	0
TOTAL	750	1100	1500

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	5	10	20	30	20	5	10	0	0	0

(monthly percentages of total annual growth)

This plant community is well adapted to the Northern Great Plains climate. This is a sustainable plant community (soil stability, watershed function, and biologic integrity). Infiltration rates are moderate due to the rapid intake rate of the soils and the relatively steep topography. Soil erosion is low.

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

- Frequent and severe defoliation will move this plant community towards the *Threadleaf Sedge, Blue Grama with Remnant Mid-grasses Plant Community*. Over a period of years, plant species less tolerant to frequent or severe defoliation will begin to decrease, and those more tolerant will begin to increase.
- No use and no fire will move this plant community towards the *Low Plant Density, Excess Litter Plant Community*. Initially, excess litter begins to build-up. Eventually native plant density begins to decrease and weeds and introduced species may begin to invade.

Threadleaf Sedge, Blue Grama with Remnant Mid-Grasses Plant Community

This plant community typically develops over a period of several years, under frequent and severe defoliation during the growing season of the mid-grasses. It typically is made up of sod-forming grasses with only remnants of mid-grasses remaining. Palatable forbs have been reduced.

Compared to the HCPC, threadleaf sedge and blue grama have increased noticeably. Many of the mid-grasses have been reduced. If the plant community received adequate rest periods only during the early part of the growing season, the little bluestem, prairie sandreed, and sideoats grama will have been reduced. If the plant community received adequate rest periods only during the later part of the growing season, the rhizomatous wheatgrasses, bluebunch wheatgrass, and needleandthread will have been reduced. Significant forbs include cudweed sagewort, hairy goldaster, western ragweed, and slimflower scurfpea. Common shrubs include broom snakeweed, yucca, and pricklypear cactus. Plant diversity is moderate.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 700 pounds per acre during an average year, but it can range from about 450 pounds per acre in unfavorable years to about 950 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 850 pounds per acre during an average year, but it can range from about 550 pounds per acre in unfavorable years to about 1,150 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	5	15	25	25	15	5	10	0	0	0

(monthly percentages of total annual growth)

Nearly all the plant species typically found in the HCPC are present and will respond to changes in grazing management. This plant community can become somewhat resistant to change, depending on how sod-bound the plant community has become.

While soil erosion is low, infiltration has been reduced, and overland flow has been increased. This can result in off-site gully erosion.

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

- Frequent and severe defoliation will over time move this plant community toward the Threadleaf Sedge/*Blue Grama Sod without Mid-grasses Plant Community*. Plants less tolerant to grazing will decrease and those more tolerant to grazing will increase or invade.
- Prescribed grazing will move this plant community towards the *Needleandthread, Little Bluestem/Bluebunch, Rhizomatous Wheatgrass Plant Community (HCPC)*. If the community has become sod-bound, grazing land mechanical treatment (such as chiseling on the contour) could accelerate this transition by increasing infiltration and breaking up the sod. However, this may not be economically feasible due to shallow soils and low production potential.

Low Plant Density, Excess Litter Plant Community

This plant community developed under the absence of grazing and fire. At first, excessive litter builds up shading out plants such as blue grama. Plants become decadent with low vigor. Bunch grasses, such as little bluestem and bluebunch wheatgrass, often develop dead centers. Eventually, the interspaces between the plants increase in size leaving more soil surface exposed.

The dominant plants are similar to those found in the HCPC, but with less vigor. Annual weeds, cool-season grasses, and cactus typically have increased. Blue grama is reduced and western wheatgrass is increased. Noxious weeds such as Canada thistle, leafy spurge, and Dalmatian toadflax will invade, if a seed source is readily available. Kentucky bluegrass also tends to invade under these conditions.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 800 pounds per acre during an average year, but it can range from about 550 pounds per acre in unfavorable years to about 1,050 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 1,000 pounds per acre during an average year, but it can range from about 650 pounds per acre in unfavorable years to about 1,350 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	20	35	25	5	10	0	0	0

(monthly percentages of total annual growth)

This plant community can be improved relatively quickly, if it has not been significantly eroded or invaded by noxious weeds. The introduction of grazing or fire will quickly move the plant community towards the HCPC.

Soil erosion can become accelerated because of increased bare ground, if these conditions are allowed to continue over the long-term. Water flow patterns and pedestaling can become obvious. At that point, infiltration is reduced and runoff is increased.

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

- Prescribed grazing or fire will move this plant community towards the *Needleandthread, Little Bluestem/Bluebunch, Rhizomatous Wheatgrass Plant Community (HCPC)*. This can occur relatively fast.

Threadleaf Sedge/Blue Grama Sod without Mid-Grasses Plant Community

This plant community develops under long-term frequent and severe defoliation. This typically occurs when the community has been continuously grazed with heavy stocking rates, throughout the growing season over a period of many years. It is a dense sod made up of sedges and warm season grasses. The mid-grasses and palatable forbs have been nearly eliminated.

Compared to the HCPC, threadleaf sedge and blue grama have greatly increased and now dominate. Little bluestem, sideoats grama, bluebunch wheatgrass, and needleandthread have been removed. Only remnants of rhizomatous wheatgrasses typically remain. Plant diversity is very low.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 550 pounds per acre during an average year, but it can range from about 350 pounds per acre in unfavorable years to about 750 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 650 pounds per acre during an average year, but it can range from about 450 pounds per acre in unfavorable years to about 850 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	5	20	35	20	10	5	5	0	0	0

(monthly percentages of total annual growth)

Even with the best range management, this plant community is extremely resistant to change. This is due to the fact that many of the plant species are missing and a seed source is not readily available. Also, the sod-forming grasses tend to maintain themselves due to their resistance to any further overgrazing. If disturbed, it will usually return to a plant community very similar to that found prior to the treatment.

The soil erosion is very low due to the sod-bound condition. Greatly reduced infiltration and increased runoff typically cause off-site gully erosion. This significantly reduces the amount of precipitation available for plant growth.

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

- Frequent and severe defoliation can move this plant community to a *Bare Ground, Threadleaf sedge, Invaders Plant Community*.

- Very long-term prescribed grazing may eventually result in the *Threadleaf Sedge, Blue Grama with Remnant Mid-Grasses Plant Community*. This change may take generations depending on the availability of an adequate seed/vegetative source. Range or pasture planting may be the only option to return this community to a productive condition in a realistic time frame; however, this may not be economically feasible due to the shallowness of the soils and low production potential.

Bare Ground, Threadleaf sedge, Invaders Plant Community

This plant community occurs where the rangeland is grazed year-round, at high stock densities. Physical impact such as trampling, soil compaction, and trailing typically contribute to this transition. The plant composition is made of annuals with a few species of perennial forbs and grasses that are very tolerant to frequent and severe defoliation. The dominant perennial grasses and grass-likes include threadleaf sedge, blue grama, and threeawns. Annual grasses such as cheatgrass and sixweeks fescue have increased. The dominant forbs include curlycup gumweed, phlox, sandwort, hairy goldaster, green sagewort, and annuals. Broom snakeweed, yucca, and pricklypear cactus are increasing.

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 450 pounds per acre during an average year, but it can range from about 300 pounds per acre in unfavorable years to about 600 pounds per acre in above average years.

In the 15 to 17 inch precipitation zone, the total annual production (air-dry weight) is about 550 pounds per acre during an average year, but it can range from about 350 pounds per acre in unfavorable years to about 750 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	5	10	25	30	20	5	5	0	0	0

(monthly percentages of total annual growth)

This plant community is very resistant to change. Even with the best range management, this plant community may never return to the HCPC. If disturbed, it will usually return to the plant community found prior to the treatment, sometimes only affecting production for a short time.

Soil erosion can be highly variable depending on the amount of ground cover. Typically there is a large amount of bare ground unless covered by annuals. Typically, runoff is high and infiltration is low.

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

- Very long-term prescribed grazing will move this plant community toward the *Threadleaf Sedge/Blue Grama Sod without Mid-Grasses Plant Community* over many years. Range or pasture planting may be the only option to return this community to a productive condition in a realistic time frame; however, this may not be economically feasible due to shallow soils and low production potential.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Needleandthread, Little bluestem/Bluebunch, Rhizomatous Wheatgrasses Community (HCPC):

The predominance of grasses plus high forb diversity in this community favors large grazers such as pronghorn and elk. Suitable thermal and escape cover for mule deer is limited due to low shrub cover. White-tailed and black-tailed jackrabbit, badger, and coyote commonly use this community. This community also provides habitat for a wide array of smaller mammals, so diverse prey populations are available for raptors such as ferruginous and Swainson's hawks. Birds such as western kingbird, western meadowlark, lark bunting, and grasshopper sparrow will utilize this community for nesting and foraging.

Threadleaf Sedge, Blue Grama w/ Remnant Mid-grasses Community: The reduction in taller grasses in this community results in decreased use by lark buntings and western meadowlarks. Use by long-billed curlew increases, provided there is standing water within ¼ mile. Killdeer, horned larks, and McCown's longspurs will also make significant use of this community. Pronghorn may forage in this community.

Threadleaf Sedge, Blue Grama Sod w/o Mid-grasses Community: This community provides limited foraging for antelope and other grazers. Ground-nesting birds favoring sparse vegetation may use this community. Long-billed curlews will use this community if standing water is present within ¼ mile. Generally, this is not a target vegetative community for wildlife habitat management.

Bare Ground, Threadleaf Sedge, Invaders Community: Sparse vegetation and greater amounts of bare ground provide suitable habitat for prairie dogs, horned larks and McCown's longspurs. However, a lack of complex vegetation structure and residual cover makes this community poor habitat in general for most ground-nesting birds and big game species.

Low Plant Density, Excess Litter Community: This community has low habitat value for most wildlife species. Horned larks may nest in this community.

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	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
alkali sacaton	<i>Sporobolus airoides</i>	SPAI	UDPU	UPDU	UPDU	UDUU	UDUU	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	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
blue grama	<i>Bouteloua gracilis</i>	BOGR2	UDPU	UDPU	UDPU	UDUU	UDUU	UDUU
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	UDUU	UDUU	UDUU
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	UDUU	UDUU	UDUU
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	UDUU	UDUU	UDPU
muhly	<i>Muhlenbergia spp.</i>	MUHLE	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
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>	CAST13	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	UDUU	NUNN	UDUU	NUNN	NUNN	UDUU
plains bluegrass	<i>Poa arida</i>	POAR3	NPUN	NPUN	NPUN	NDUN	NDUN	NPUN
plains muhly	<i>Muhlenbergia cuspidata</i>	MUCU3	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
plains reedgrass	<i>Calamagrostis montanensis</i>	CAMO	UPDU	UDUU	UPDU	UDUU	UDUU	UPDU
prairie cordgrass	<i>Spartina pectinata</i>	SPPE	UDPD	UDDU	UDPD	UDUU	UDUU	UDPD
prairie junegrass	<i>Koeleria macrantha</i>	KOMA	UDUU	NDNU	UDUU	UDUU	UDUU	UDUU
prairie sandreed	<i>Calamovilfa longifolia</i>	CALO	UDPU	UDUU	UDDU	UDUU	UDUU	UDUU
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	UDUU	UDUU	UDPD
sand dropseed	<i>Sporobolus cryptandrus</i>	SPCR	NUUN	NUUN	NUUN	NUUN	NUUN	NUUN
sand lovegrass	<i>Eragrostis trichodes</i>	ERTR3	UDPU	UDUU	UDDU	UDUU	UDUU	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	UDUU	UDUU	UDUU	UDUU	UDUU	UDUU
sedge	<i>Carex spp.</i>	CAREX	UDUD	UPND	UDUD	UPND	UPND	UDUD
sideoats grama	<i>Bouteloua curtipendula</i>	BOCU	UDPU	UPDU	UPDU	UDUU	UDUU	UDUU
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	UDUU	UDUU	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	UDUU	UDDU	UDUU	UDDU	UDUU	UDDU
blue-eyed grass	<i>Sisyrinchium spp.</i>	SISYR	UDUU	UPUU	UDUU	UDUU	UDUU	UDUU
breadroot	<i>Pediomelum spp.</i>	PEDIO2	NUUN	UDUU	NUUN	UDUU	UDUU	UDUU
broadleaf cattail	<i>Typha latifolia</i>	TYLA	UDUU	UUUU	UDUU	UUUU	UDUU	UDUU
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	UDUU	UUUU	UDUU	UDUU	UDUU
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 12-14" Precipitation	Production (lbs./acre)	Carrying Capacity (AUM/acre)
Needleandthread, Little Bluestem/Bluebunch, Rhiz. Wheatgrass (HCPC)	900	0.30
Threadleaf Sedge, Blue Grama w/ Remnant Mid-Grasses	700	0.22
Threadleaf Sedge/Blue Grama Sod w/o Mid-Grasses	550	0.17
Bare Ground, Threadleaf Sedge, Invaders	450	0.10
Low Plant Density, Excess Litter	800	0.25

Plant Community 15-17" Precipitation	Production (lbs./acre)	Carrying Capacity (AUM/acre)
Needleandthread, Little Bluestem/Bluebunch, Rhiz. Wheatgrass (HCPC)	1100	0.35
Threadleaf Sedge, Blue Grama w/ Remnant Mid-Grasses	850	0.27
Threadleaf Sedge/Blue Grama Sod w/o Mid-Grasses	650	0.20
Bare Ground, Threadleaf Sedge, Invaders	550	0.15
Low Plant Density, Excess Litter	1000	0.30

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 is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C. Infiltration ranges from rapid to very rapid. Runoff potential for this site varies from low to moderate 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).

Exposed areas of sandstone are inherent to this site. Where slopes are gentle, water flow paths should be broken, irregular in appearance or discontinuous with numerous debris dams or vegetative barriers and exhibit slight to no evidence of rills, wind scoured areas or pedestaled plants. As slopes become steep and bare areas increase, expect to find evidence of wind scouring, water flow patterns,

and pedestaled plants. Sub-surface soil layers, where not affected by bedrock, are non-restrictive to water movement and root penetration.

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

(R067XY150WY) – Sandy 12-17" P.Z.

(R067XY176WY) – Very Shallow 12-17" P.Z.

Similar Sites

(R067XY150WY) – Sandy 12-17" P.Z. is more productive

(R067XY162WY) – Shallow Loamy 12-17" P.Z. has more western wheatgrass, less needleandthread

(R067XY176WY) – Very Shallow 12-17" P.Z. is less productive

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