

## United States Department of Agriculture Natural Resources Conservation Service

### Ecological Site Description

**Site Type:** Rangeland

**Site Name:** Very Shallow 12-17” Precipitation Zone

**Site ID:** R067AY176WY

**Major Land Resource Area:** 67 – North Central High Plains

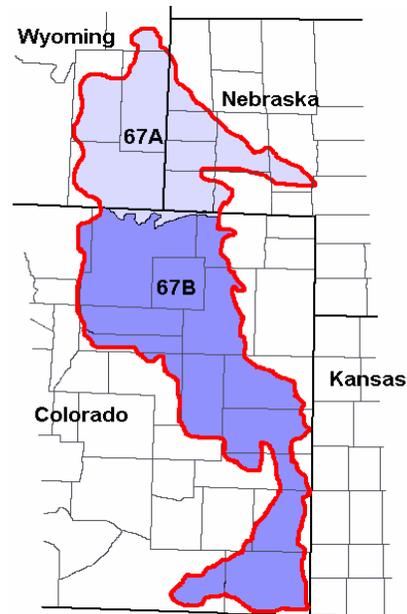
### Physiographic Features

This site occurs on steep slopes and ridge tops but may occur on all slopes.

**Landform:** hillsides, ridges, escarpments

**Aspect:** N/A

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	3800	6500
<b>Slope (percent):</b>	0	30
<b>Water Table Depth (inches):</b>	none	none
<b>Flooding:</b>		
<b>Frequency:</b>	none	none
<b>Duration:</b>	none	none
<b>Ponding:</b>		
<b>Depth (inches):</b>	0	0
<b>Frequency:</b>	none	none
<b>Duration:</b>	none	none
<b>Runoff Class:</b>	negligible	high



### 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>
<b>Frost-free period (days):</b>	74	148
<b>Freeze-free period (days):</b>	101	181
<b>Mean Annual Precipitation (inches):</b>	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

<b>Wetland Description:</b>	<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 very shallow (less than 10”to bedrock) well drained. Soils formed in residuum. These soils have rapid to slow permeability and can be of any texture. The bedrock will include all kinds except igneous. Layers of the soil most influential to the plant community vary from 3 to 6 inches.

Major Soil Series correlated to this site include: Byrnie-thin solum, Sunup, Taluce-thin solum, Tyzak-thin solum, Treon-thin solum, Blazon-thin solum

Other Soil Series correlated to this site include: none

**Parent Material Kind:** residuum

**Parent Material Origin:** sandstone, shale

**Surface Texture:** Loam, clay loam, fine sandy loam, channery loam, channery fine sandy loam

**Surface Texture Modifier:** gravelly

**Subsurface Texture Group:** loamy

**Surface Fragments ≤ 3” (% Cover):** 0 - 20

**Surface Fragments > 3” (%Cover):** 0 - 20

**Subsurface Fragments ≤ 3” (% Volume):** 0 – 15, occasionally 35 - 75

**Subsurface Fragments > 3” (% Volume):** 0 - 25

	<u>Minimum</u>	<u>Maximum</u>
<b>Drainage Class:</b>	well	excessive
<b>Permeability Class:</b>	slow	very rapid
<b>Depth (inches):</b>	0	10
<b>Electrical Conductivity (mmhos/cm) ≤20”:</b>	0	4
<b>Sodium Absorption Ratio ≤20”:</b>	0	5
<b>Soil Reaction (1:1 Water) ≤20”:</b>	6.6	8.4
<b>Soil Reaction (0.1M CaCl2) ≤20”:</b>	N/A	N/A
<b>Available Water Capacity (inches) ≤30”:</b>	0.3	2.0
<b>Calcium Carbonate Equivalent (percent) ≤20”:</b>	0	5

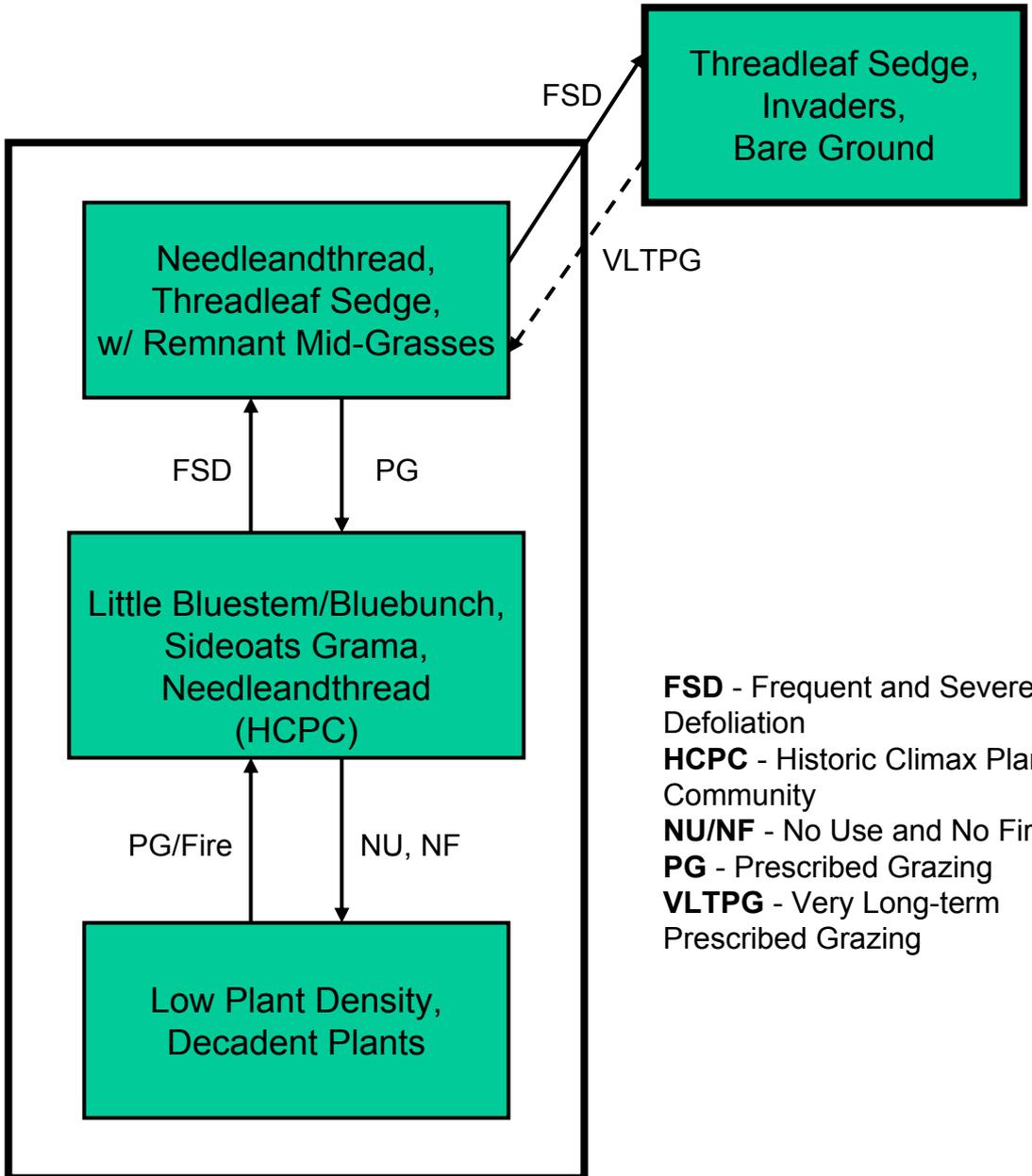
## **Plant Communities**

### **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, bluebunch wheatgrass, sideoats grams, and needleandthread will decrease in both frequency and production. Grasses such as blue grama, threeawn and threadleaf sedge will increase. Under continued frequent and severe defoliation, with no rest periods for the plants to recover, western wheatgrass will also begin to decrease. If continued, all mid grasses that are not resistant to grazing can eventually be removed from the plant community. Over the long-term, continuous use in combination with high stock densities will result in areas of bare ground developing, and species such as cheatgrass and broom snakeweed invading. Non-use and lack of fire will eventually cause various plants to become decadent.

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  
**HCPC** - Historic Climax Plant Community  
**NU/NF** - No Use and No Fire  
**PG** - Prescribed Grazing  
**VLTPG** - Very Long-term Prescribed Grazing

**Plant Community Composition and Group Annual Production**

Little Bluestem/Bluebunch, Sideoats Grama, Needleandthread Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			<b>Total: 550</b>		
<b>GRASSES AND GRASS-LIKES</b>					
<b>COOL-SEASON MID-GRASSES</b>					
			<b>1</b>	<b>137.5 - 275</b>	<b>25 - 50</b>
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	1	0 - 165	0 - 30
western wheatgrass	Pascopyrum smithii	PASM	1	55 - 83	10 - 15
needleandthread	Hesperostipa comata	HECO26	1	28 - 83	5 - 15
Indian ricegrass	Achnatherum hymenoides	ACHY	1	28 - 55	5 - 10
<b>WARM-SEASON MID-TALL GRASSES</b>					
			<b>2</b>	<b>83 - 165</b>	<b>15 - 30</b>
little bluestem	Schizachyrium scoparium	SCSC	2	55 - 110	10 - 20
sideoats grama	Bouteloua curtipendula	BOCU	2	28 - 55	5 - 10
<b>WARM-SEASON SHORT GRASSES</b>					
			<b>3</b>	<b>28 - 55</b>	<b>5 - 10</b>
blue grama	Bouteloua gracilis	BOGR2	3	28 - 55	5 - 10
<b>MISCELLANEOUS GRASSES</b>					
			<b>4</b>	<b>28 - 55</b>	<b>5 - 10</b>
plains muhly	Muhlenbergia cuspidata	MUCU3	4	0 - 28	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	4	0 - 28	0 - 5
prairie sandreed	Calamagrostis montanensis	CAMO	4	0 - 28	0 - 5
Sandberg bluegrass	Poa secunda	POSE	4	0 - 28	0 - 5
threeawns	Aristida spp.	ARIST	4	0 - 11	0 - 2
other perennial grasses (native)		2GP	4	0 - 28	0 - 5
<b>SEDGES</b>					
			<b>5</b>	<b>28 - 55</b>	<b>5 - 10</b>
threadleaf sedge	Carex filifolia	CAFI	5	0 - 28	0 - 5
other sedges	Carex spp.	CAREX	5	0 - 28	0 - 5
<b>FORBS</b>					
			<b>6</b>	<b>55 - 83</b>	<b>10 - 15</b>
buckwheats	Eriogonum spp.	ERIOG	6	0 - 11	0 - 2
dotted gayfeather	Liatris punctata	LIPU	6	0 - 11	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	6	0 - 11	0 - 2
goldenrods	Solidago spp.	SOLID	6	0 - 11	0 - 2
groundsels	Senecio spp.	SENEC	6	0 - 11	0 - 2
hairy goldaster	Heterotheca villosa	HEVI4	6	0 - 11	0 - 2
heath aster	Symphotrichum ericoides	SYER	6	0 - 11	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 11	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 11	0 - 2
penstemons	Penstemon spp.	PENST	6	0 - 11	0 - 2
phlox	Phlox spp.	PHLOX	6	0 - 11	0 - 2
prairie clovers	Dalea spp.	DALEA	6	0 - 11	0 - 2
pussytoes	Antennaria spp.	ANTEN	6	0 - 11	0 - 2
sandworts	Arenaria spp.	ARENA	6	0 - 11	0 - 2
scarlet gaura	Gaura coccinea	GACO5	6	0 - 11	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 11	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	6	0 - 11	0 - 2
other perennial forbs (native)		2FP	6	0 - 28	0 - 5
<b>SHRUBS</b>					
			<b>7</b>	<b>0 - 28</b>	<b>0 - 5</b>
true mountainmahogany	Cercocarpus montanus	CEMO2	7	0 - 28	0 - 5
antelope bitterbrush	Purshia tridentata	PUTR2	7	0 - 11	0 - 2
broom snakeweed	Gutierrezia sarothrae	GUSA2	7	0 - 11	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	7	0 - 11	0 - 2
skunkbush sumac	Rhus trilobata	RHTR	7	0 - 11	0 - 2
winterfat	Krascheninnikovia lanata	KRLA2	7	0 - 11	0 - 2
yucca	Yucca glauca	YUGL	7	0 - 11	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	7	0 - 28	0 - 5
<b>TREES</b>					
			<b>8</b>	<b>0 - 28</b>	<b>0 - 5</b>
Rocky Mountain juniper	Juniperus scopolorum	JUSC2	8	0 - 28	0 - 5
ponderosa pine	Pinus ponderosa var. scopolorum	PIPOS	8	0 - 28	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**

Little Bluestem/Bluebunch, Sideoats Grama, Needleandthread Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			<b>Total: 600</b>		
<b>GRASSES AND GRASS-LIKES</b>					
<b>COOL-SEASON MID-GRASSES</b>			<b>1</b>	<b>150 - 300</b>	<b>25 - 50</b>
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	1	0 - 180	0 - 30
western wheatgrass	Pascopyrum smithii	PASM	1	60 - 90	10 - 15
needleandthread	Hesperostipa comata	HECO26	1	30 - 90	5 - 15
Indian ricegrass	Achnatherum hymenoides	ACHY	1	30 - 60	5 - 10
<b>WARM-SEASON MID-TALL GRASSES</b>			<b>2</b>	<b>90 - 180</b>	<b>15 - 30</b>
little bluestem	Schizachyrium scoparium	SCSC	2	60 - 120	10 - 20
sideoats grama	Bouteloua curtipendula	BOCU	2	30 - 60	5 - 10
<b>WARM-SEASON SHORT GRASSES</b>			<b>3</b>	<b>30 - 60</b>	<b>5 - 10</b>
blue grama	Bouteloua gracilis	BOGR2	3	30 - 60	5 - 10
<b>MISCELLANEOUS GRASSES</b>			<b>4</b>	<b>30 - 60</b>	<b>5 - 10</b>
plains muhly	Muhlenbergia cuspidata	MUCU3	4	0 - 30	0 - 5
prairie junegrass	Koeleria macrantha	KOMA	4	0 - 30	0 - 5
prairie sandreed	Calamagrostis montanensis	CAMO	4	0 - 30	0 - 5
Sandberg bluegrass	Poa secunda	POSE	4	0 - 30	0 - 5
threeawns	Aristida spp.	ARIST	4	0 - 11	0 - 2
other perennial grasses (native)		2GP	4	0 - 30	0 - 5
<b>SEDGES</b>			<b>5</b>	<b>30 - 60</b>	<b>5 - 10</b>
threadleaf sedge	Carex filifolia	CAFI	5	0 - 30	0 - 5
other sedges	Carex spp.	CAREX	5	0 - 30	0 - 5
<b>FORBS</b>			<b>6</b>	<b>60 - 90</b>	<b>10 - 15</b>
buckwheats	Eriogonum spp.	ERIOG	6	0 - 12	0 - 2
dotted gayfeather	Liatris punctata	LIPU	6	0 - 12	0 - 2
fringed sagewort	Artemisia frigida	ARFR4	6	0 - 12	0 - 2
goldenrods	Solidago spp.	SOLID	6	0 - 12	0 - 2
groundsels	Senecio spp.	SENEC	6	0 - 12	0 - 2
hairy goldaster	Heterotheca villosa	HEVI4	6	0 - 12	0 - 2
heath aster	Symphotrichum ericoides	SYER	6	0 - 12	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 12	0 - 2
milkvetches	Astragalus spp.	ASTRA	6	0 - 12	0 - 2
penstemons	Penstemon spp.	PENST	6	0 - 12	0 - 2
phlox	Phlox spp.	PHLOX	6	0 - 12	0 - 2
prairie clovers	Dalea spp.	DALEA	6	0 - 12	0 - 2
pussytoes	Antennaria spp.	ANTEN	6	0 - 12	0 - 2
sandworts	Arenaria spp.	ARENA	6	0 - 12	0 - 2
scarlet gaura	Gaura coccinea	GACO5	6	0 - 12	0 - 2
scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 12	0 - 2
western ragweed	Ambrosia psilostachya	AMPS	6	0 - 12	0 - 2
other perennial forbs (native)		2FP	6	0 - 30	0 - 5
<b>SHRUBS</b>			<b>7</b>	<b>0 - 30</b>	<b>0 - 5</b>
true mountainmahogany	Cercocarpus montanus	CEMO2	7	0 - 30	0 - 5
antelope bitterbrush	Purshia tridentata	PUTR2	7	0 - 12	0 - 2
broom snakeweed	Gutierrezia sarothrae	GUSA2	7	0 - 12	0 - 2
plains pricklypear	Opuntia polyacantha	OPPO	7	0 - 12	0 - 2
skunkbush sumac	Rhus trilobata	RHTR	7	0 - 12	0 - 2
winterfat	Krascheninnikovia lanata	KRLA2	7	0 - 12	0 - 2
yucca	Yucca glauca	YUGL	7	0 - 12	0 - 2
other shrubs and half-shrubs (native)		2SHRUB	7	0 - 30	0 - 5
<b>TREES</b>			<b>8</b>	<b>0 - 30</b>	<b>0 - 5</b>
Rocky Mountain juniper	Juniperus scopolorum	JUSC2	8	0 - 30	0 - 5
ponderosa pine	Pinus ponderosa var. scopolorum	PIPOS	8	0 - 30	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.

### Little Bluestem/Bluebunch Wheatgrass, Sideoats Grama, Needleandthread 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 75-90% grasses, 10-15% forbs, 0-5% woody plants and 0-5% trees. Mid cool season grasses dominate the community. The principal grasses are little bluestem, bluebunch wheatgrass, western wheatgrass, sideoats grama and needleandthread. Bluebunch wheatgrass is found in Wyoming, primarily in the western portion of the 15-17” precipitation zone at higher elevations. Secondary grasses are blue grama and Indian ricegrass. Threadleaf sedge occurs as an understory. Dominant forbs and shrubs include prairie clovers, dotted gayfeather, fringed sagewort, hairy goldaster, buckwheats, scarlet globemallow, true mountainmahogany, antelope bitterbrush, yucca and pricklypear cactus. Rocky Mountain juniper, ponderosa pine and skunkbush sumac are found in rock outcrop areas where there is somewhat of a microclimate.

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	370	450	530
FORB	60	70	80
SHRUB	10	15	20
TREE	10	15	20
TOTAL	450	550	650

15-17” P.Z.

	LOW	AVG	HIGH
GRASS/GRASSLIKE	395	495	595
FORB	60	75	90
SHRUB	10	15	20
TREE	10	15	20
TOTAL	475	600	725

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

Growth Curve Number:

Growth Curve Name:

Site Type: Rangeland  
 MLRA: 67 – North Central High Plains  
 Growth Curve Description:

Very Shallow 12-17” P.Z.  
 R067AY176WY

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	10	20	25	25	15	5	0	0	0

(monthly percentages of total annual growth)

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

- Frequent and severe defoliation of mid-grasses will move this plant community to the *Needleandthread, Threadleaf Sedge, with Remnant Mid-Grasses Plant Community*.
- No Use and No Fire will move this plant community to the *Low Plant Density, Decadent Plants Plant Community*. Lack of use causes the plants to become less vigorous, crowns of plants begin to die, and plant canopy begins to open up with more bare ground apparent.

### **Needleandthread, Threadleaf Sedge with Remnant Mid-Grasses Plant Community**

This plant community developed with frequent and severe defoliation during the growing season. The dominant grasses include needleandthread and threadleaf sedge. Remnant amounts of little bluestem, bluebunch wheatgrass, sideoats grama and western wheatgrass are still present. Significant forbs include heath aster, hairy goldaster, western ragweed, fringed sagewort and scarlet globemallow. Yucca, broom snakeweed, and pricklypear cactus have increased.

Management changes cannot easily move this plant community toward HCPC. Soil erosion is moderate. Infiltration is minimal because runoff is high. Areas that are devoid of vegetation are subject to extreme erosion and runoff.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 400 pounds per acre during an average year, but it can range from about 300 pounds per acre in unfavorable years to about 500 pounds per acre in above average years.

In the 15 to 17 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 350 pounds per acre in unfavorable years to about 550 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	15	25	20	20	15	5	0	0	0

(monthly percentages of total annual growth)

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

- Frequent and severe defoliation of mid-grasses will move this plant community to the *Threadleaf Sedge, Invaders, Bare Ground Plant Community*. Weedy species are starting to invade, and almost all mid-grasses are removed resulting in a decrease in palatable forage.
- Prescribed grazing will shift this plant community toward the *Little Bluestem/Bluebunch Wheatgrass, Sideoats Grama, Needleandthread Plant Community (HCPC)*. The advantage of having this plant community at HCPC is increased desirable plant diversity, production and soil organic matter.

**Low Plant Density, Decadent Plant Community**

This plant community developed under many years with no defoliation and no fire. In advanced stages, plant vigor can become greatly reduced. Organic matter tends to oxidize in the air rather than being incorporated into the soil. Bunchgrasses typically develop dead centers and rhizomatous wheatgrasses form small communities because of a lack of stimulation by grazers. Plant species resemble the HCPC however, frequency and production will be reduced. In advanced stages of non-use and lack of fire, little bluestem, bluebunch wheatgrass and sideoats grama will decrease.

Management changes can easily shift this plant community. Soil erosion is low when adequate ground cover exists, but increases as mortality and bare ground increase. Areas that are devoid of vegetation are subject to high erosion by wind and water.

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 400 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 450 pounds per acre in unfavorable years to about 650 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	30	30	15	5	0	0	0

(monthly percentages of total annual growth)

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

- Prescribed grazing or fire will shift this plant community towards the *Little Bluestem/Bluebunch Wheatgrass, Sideoats Grama, Needleandthread Plant Community (HCPC)*. The advantage of having this Plant Community at HCPC is increased desirable plant diversity, production, plant vigor and soil organic matter.

**Threadleaf Sedge, Invaders, Bare Ground Plant Community**

This plant community developed under frequent and severe defoliation during the growing season. Threadleaf sedge dominates this plant community and can develop into a broken sod bound appearance. Other grasses include blue grama, and threeawns. Mid-grasses that flourished in the HCPC have been removed. Forbs that have increased are fringed sagewort, western ragweed, phlox, sandwort, and hairy goldaster. Yucca will increase unless grazing has occurred in winter months. Pricklypear cactus will also tend to increase. Cheatgrass and sixweeks fescue have invaded or increased.

Management changes cannot easily move this plant community toward HCPC. Soil erosion is severe. Infiltration is minimal because runoff is high. Areas that are devoid of vegetation are subject to extreme erosion and runoff.

In the 12 to 14 inch precipitation zone, the total annual production (air-dry weight) is about 275 pounds per acre during an average year, but it can range from about 225 pounds per acre in unfavorable years to about 325 pounds per acre in above average years.

In the 15 to 17 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 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	15	35	25	15	5	5	0	0	0

(monthly percentages of total annual growth)

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

- Very long term prescribed grazing will move this plant community toward the *Needleandthread, Threadleaf Sedge with Remnant Mid-Grasses Plant Community* and eventually to the *HCPC* assuming an adequate seed/vegetative source is available. This transition will take a lone time to achieve due to the shallowness of the soils and droughty conditions.

## Ecological Site Interpretations

### Animal Community – Wildlife Interpretations

**Little Bluestem/Bluebunch, Sideoats Grama, Needleandthread 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.

**Needleandthread, Threadleaf Sedge, 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, Invaders, Bare Ground 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, Decadent Plants 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
<b>GRASSES/GRASSLIKES</b>								
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
<b>FORBS</b>								
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
<b>TREES, SHRUBS, AND HALF-SHRUBS</b>								
antelope bitterbrush	Purshia tridentata	PUTR2	PDDD	PDDD	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	PDDD	DDDD	UNNU	PDDP	PDDD
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.

<b>Plant Community 12-14” Precipitation</b>	<b>Production (lbs./acre)</b>	<b>Carrying Capacity (AUM/acre)</b>
Little Bluestem/Bluebunch, Sideoats Grama, Needleandthread (HCPC)	550	0.17
Needleandthread, Threadleaf Sedge with Remnant Mid-Grasses	400	0.13
Threadleaf Sedge, Invaders, Bare Ground	275	0.09
Low Plant Density, Decadent Plants	500	0.15

<b>Plant Community 15-17” Precipitation</b>	<b>Production (lbs./acre)</b>	<b>Carrying Capacity (AUM/acre)</b>
Little Bluestem/Bluebunch, Sideoats Grama, Needleandthread (HCPC)	600	0.20
Needleandthread, Threadleaf Sedge with Remnant Mid-Grasses	450	0.15
Threadleaf Sedge, Invaders, Bare Ground	300	0.10
Low Plant Density, Decadent Plants	550	0.17

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 highly variable and is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from slow to very rapid. Runoff potential for this site varies from moderate to high depending on soil hydrologic group, slope 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 bare ground between plants 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 water flow

Site Type: Rangeland

Very Shallow 12-17" P.Z.

MLRA: 67 – North Central High Plains

R067AY176WY

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

(R067AY162WY) – Shallow Loamy 12-17" P.Z.

(R067AY166WY) – Shallow Sandy 12-17" P.Z.

### Similar Sites

(R067AY112WY) – Gravelly 12-17" P.Z. has more little bluestem

(R067AY162WY) – Shallow Loamy 12-17" P.Z. is more productive

(R067AY166WY) – Shallow Sandy 12-17" P.Z. is more 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 Type: Rangeland  
MLRA: 67 – North Central High Plains

**Very Shallow 12-17” P.Z.  
R067AY176WY**

## 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:    /    /    MLRA:   67A   Ecological Site: R067AY176WY Very Shallow (VS)

\_\_\_\_\_ 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><b>Indicators.</b> 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 <b>each</b> community within the reference state, when appropriate &amp; (3) cite data. Continue descriptions on separate sheet.</p>
<p><b>1. Number and extent of rills:</b> Due to the wide slope range associated with this site, the number and extent of rills will vary from none on slope &lt; 9% to common on slopes &gt; 25%</p>
<p><b>2. Presence of water flow patterns:</b> Due to the wide slope range associated with this site, water flow patterns vary from barely observable on slopes of &lt; 9% from broken and irregular in appearance to continuous on slopes &gt; 25%</p>
<p><b>3. Number and height of erosional pedestals or terracettes:</b> Not evident on slopes &lt; 9% present on slopes &gt; 9%</p>
<p><b>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground):</b> Bare ground is 40-50%</p>
<p><b>5. Number of gullies and erosion associated with gullies:</b> Active restricted to concentrated water flow patterns on steeper slopes</p>
<p><b>6. Extent of wind scoured, blowouts and/or depositional areas:</b> None</p>
<p><b>7. Amount of litter movement (describe size and distance expected to travel):</b> Little to no plant litter movement on slopes &lt; 9%. Litter movement does occur on slopes &gt; 9%</p>
<p><b>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):</b> 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><b>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):</b> Use Soil Series description for depth and color of A-horizon</p>
<p><b>10. Effect of plant community composition (relative proportion of different functional groups) &amp; spatial distribution on infiltration &amp; runoff:</b> Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Infiltration varies with soil texture from slow to very rapid.</p>
<p><b>11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):</b> No compaction layer or soil surface crusting should be present.</p>
<p><b>12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: &gt;&gt;, &gt;, = to indicate much greater than, greater than, and equal to):</b> Mid stature Cool Season Grasses &gt; Mid stature Warm Season Grasses &gt; Short stature Grasses/Grasslike = Forbs &gt; Shrubs/Trees</p>
<p><b>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):</b> Some plant mortality and decadence is expected</p>
<p><b>14. Average percent litter cover and depth :</b> Average litter cover is 10-15% with depths of 0.10 to 0.25 inches</p>
<p><b>15. Expected annual production (this is all above-ground production, not just forage production):</b>                  12"-14" Precipitation Zone = 550 lbs/ac 15"-17" Precipitation Zone = 600 lbs/ac</p>
<p><b>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":</b> Broom Snakeweed, Threadleaf sedge, Threeawns, and Species found on Noxious Weed List</p>
<p><b>17. Perennial plant reproductive capability:</b> May be limited due to effective moisture and seed to soil contact</p>