

## United States Department of Agriculture Natural Resources Conservation Service

### Ecological Site Description

**Site Type:** Rangeland

**Site Name:** Very Shallow (VS) 5-9” Wind River Basin Precipitation Zone

**Site ID:** R032XY276WY

**Major Land Resource Area:** 32 – Northern Intermountain Desertic Basins

### 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>	4500	6600
<b>Slope (percent):</b>	0	60
<b>Water Table Depth (inches):</b>	None within 60 inches	
<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 5-9 inches per year. The normal precipitation pattern shows peaks in May and June and a secondary peak in September. This amounts to about 50% of the mean annual precipitation. Much of the moisture that falls in the latter part of the summer is lost by evaporation and much of the moisture that falls during the winter is lost by sublimation. Average snowfall is about 20 inches annually. 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.

High winds are generally blocked from the basin by high mountains, but can occur in conjunction with an occasional thunderstorm.

Growth of native cool-season plants begins about April 1 and continues to about July 1. Cool weather and moisture in September may produce some green up of cool season plants that will continue to late October.

The following information is from the “Pavillion” climate station:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
<b>Frost-free period (days):</b>	95	175	May 19 – September 19
<b>Freeze-free period (days):</b>	98	185	May 6 – October 3
<b>Mean Annual Precipitation (inches):</b>	2.50	12.54	

Mean annual precipitation: 7.85 inches

Mean annual air temperature: 44.53°F (30.5°F Avg. Min. to 58.5°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” Riverton”, “Arminto”, and “Lost Cabin”.

## 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

## 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. This site usually occurs on steep slopes, but may be on any slope. The bedrock will include all kinds except soft clay shales, igneous and some volcanic. The soil characteristic having the most influence on the plant community is the very shallow depth to bedrock, which drastically limits the available moisture.

Major Soil Series correlated to this site include:

Other Soil Series in MLRA 32 correlated to this site include:

**Parent Material Kind:** residuum

**Parent Material Origin:** sandstone

**Surface Texture:** loam, fine sandy loam, sandy loam

**Surface Texture Modifier:** none is most common, but channery may occur.

**Subsurface Texture Group:** loam

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

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

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

**Subsurface Fragments > 3” (% Volume):** typically 0, occasionally 5 to 25

	<u>Minimum</u>	<u>Maximum</u>
<b>Drainage Class:</b>	well	excessive
<b>Permeability Class:</b>	slow	moderately rapid
<b>Depth (inches):</b>	2	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>	NA	NA
<b>Available Water Capacity (inches) ≤30”:</b>	0.3	1.7
<b>Calcium Carbonate Equivalent (percent) ≤20”:</b>	0	5

## **Plant Communities**

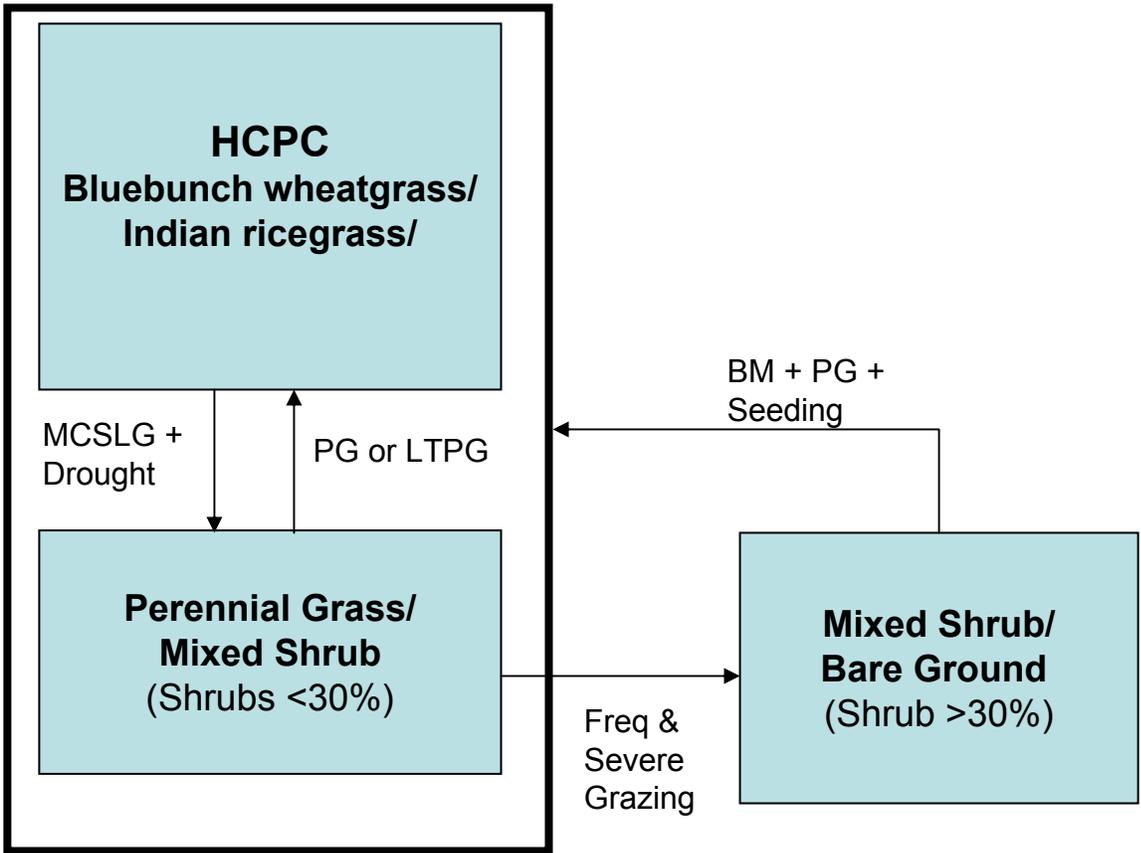
### **Ecological Dynamics of the Site:**

Potential vegetation on this site is dominated by a variety of mid cool-season perennial grasses. Other significant vegetation includes winterfat and a variety of forbs and shrubs. The expected potential composition for this site is about 65% grasses, 15% forbs and 20% woody plants. The composition and production will vary naturally due to historical use, fluctuating precipitation and fire frequency.

As this site deteriorates, species such as short warm-season grasses, badlands mules-ear, and shrubs will increase. Weedy annuals will invade. Cool season grasses such as bluebunch wheatgrass and Indian ricegrass will decrease in frequency and production.

The Historic Climax Plant Community (description follows the plant community 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 (states) 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.



- BM** - Brush Management (fire, chemical, mechanical)
- Freq. & Severe Grazing** - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season
- GLMT** - Grazing Land Mechanical Treatment
- LTPG** - Long-term Prescribed Grazing
- MCSLG** - Moderate, Continuous Season-long Grazing
- NU, NF** - No Use and No Fire
- PG** - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)
- VLTPG** - Very Long-term Prescribed Grazing (could possibly take generations)
- WF** - Wildfire

**Plant Community Composition and Group Annual Production  
 Reference Plant Community (HCPC)**

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year)		
			Group	lbs./acre	% Comp.
			Total: 175		
<b>GRASSES AND GRASS-LIKES</b>					
<b>GRASSES/GRASSLIKES</b>					
Griffiths wheatgrass or	Elymus albicans	ELAL7	1	26 - 53	15 - 30
Bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6			
Western wheatgrass	Pascopyrum smithii	PASM	2	9 - 26	5 - 15
Indian ricegrass	Achnatherum hymenoides	ACHY	3	9 - 35	5 - 20
Needleandthread grass	Hesperostipa comata	HECO26	4	9 - 35	5 - 20
<b>MISC. GRASSES/GRASSLIKES</b>			<b>5</b>	<b>9 - 35</b>	<b>5 - 20</b>
Blue grama	Bouteloua gracilis	BOGR2	5	0 - 9	0 - 5
Bottlebrush squirreltail	Elymus elymoides	ELELE	5	0 - 9	0 - 5
Fendler threeawn	Aristida purpurea longiseta	ARPUL	5	0 - 9	0 - 5
Little bluestem	Schizachyrium scoparium	SCSC	5	0 - 9	0 - 5
Prairie junegrass	Koeleria macrantha	KOMA	5	0 - 9	0 - 5
Sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 9	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 9	0 - 5
Threadleaf sedge	Carex filifolia	CAFI	5	0 - 9	0 - 5
other perennial grasses (native)		2GP	5	0 - 9	0 - 5
<b>FORBS</b>			<b>6</b>	<b>9 - 26</b>	<b>5 - 15</b>
Badlands mule's-ears	Wyethia scabra	WYSC	6	0 - 9	0 - 5
Cutleaf daisy	Erigeron compositus	ERCO4	6	0 - 9	0 - 5
Fleabane	Erigeron spp.	ERIGE2	6	0 - 9	0 - 5
Franklin's sagewort	Arenaria franklinii	ARFR	6	0 - 9	0 - 5
Fringed sagewort	Artemisia frigida	ARFR4	6	0 - 9	0 - 5
Hood's phlox	Phlox hoodii	PHHO	6	0 - 9	0 - 5
Miner's candle	Cryptantha virgata	CRVI4	6	0 - 9	0 - 5
Missouri milkvetch	Astragalus missouriensis	ASMI10	6	0 - 9	0 - 5
Nailwort	Paronychia spp.	PARON	6	0 - 9	0 - 5
Sulphur flower buckwheat	Eriogonum umbellatum	ERUM	6	0 - 9	0 - 5
Plains pricklypear cactus	Opuntia polyacantha	OPPO	6	0 - 9	0 - 5
Scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 9	0 - 5
Small-leaf pussytoes	Antennaria parvifolia	ANPA4	6	0 - 9	0 - 5
Stemless mock goldenweed	Stenotus acaulis	STACA	6	0 - 9	0 - 5
Tufted evening-primrose	Oenothera caespitosa	OECA10	6	0 - 9	0 - 5
Wavyleaf paintbrush	Castilleja applegatei martinii	CAAPM	6	0 - 9	0 - 5
Western yarrow	Achillea lanulosa	ACHIL	6	0 - 9	0 - 5
Woollypod milkvetch	Astragalus purshii	ASPU9	6	0 - 9	0 - 5
other perennial forbs (native)		2FP	6	0 - 9	0 - 5
<b>TREES/SHRUBS</b>			<b>7</b>	<b>18 - 44</b>	<b>10 - 25</b>
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	7	0 - 9	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 9	0 - 5
Skunkbush sumac	Rhus trilobata	RHTR	7	0 - 9	0 - 5
Soapweed yucca	Yucca glauca	YUGL	7	0 - 9	0 - 5
Spiny gilia	Leptodactylon pungens	LEPU	7	0 - 9	0 - 5
Utah juniper	Juniperus osteosperma	JUOS	7	0 - 9	0 - 5
Winterfat	Krascheninnikovia lanata	KRAL2	7	0 - 9	0 - 5
Wyoming big sagebrush	Artemisia tridentata wyomingensis	ARTRW8	7	0 - 9	0 - 5
other shrubs & half shrubs (native)		2SHRUB	7	0 - 9	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 tables shown above have 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 (DPC’s) 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.

**Bluebunch wheatgrass/Indian Ricegrass Plant Community**

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and droughty soils due to the limited water holding capacity. This plant community can be found on areas that are properly managed with grazing and on areas receiving occasional short periods of rest. Potential vegetation is about 65% grasses or grass-like plants, 15% forbs, and 20% woody plants. Cool season midgrasses dominate the state.

The major grasses include bluebunch wheatgrass, Indian ricegrass, needleandthread, and rhizomatous wheatgrasses. Other grasses and grass-likes occurring on the state include bottlebrush squirreltail, Sandberg bluegrass, Fendler threeawn, blue grama, and threadleaf sedge. Winterfat is a conspicuous element of this state and can make up 5% of the annual production. A variety of shrubs and forbs can be present and plant diversity is high (see Plant Composition Table).

The total annual production (air-dry weight) of this state is about 175 pounds per acre, but it can range from about 75 lbs./acre in unfavorable years to about 250 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal 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	10	50	25	5	0	10	0	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity)

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

- Moderate Continuous Season-Long Grazing will convert this plant community to the *Perennial Grass/Mixed Shrub Plant Community*. Prolonged Drought will exacerbate this transition.

**Perennial Grass/Mixed Shrub Plant Community**

Historically, this plant community evolved under grazing and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock and will be exacerbated by prolonged drought conditions. This plant community is still dominated by cool-season grasses, while short warm-season grasses and miscellaneous forbs account for the balance of the understory.

A variety of shrubs make up the overstory.

Dominant grasses include bluebunch wheatgrass, needleandthread, and rhizomatous wheatgrasses. Grasses and grass-likes of secondary importance include Sandberg bluegrass, blue grama, Fendler threeawn, and threadleaf sedge. Forbs commonly found in this plant community include badlands mules-ear, tufted evening primrose, stemless mock goldweed, Hood’s phlox, prairie sulfur flower buckwheat, and scarlet globemallow. A mixture of shrubs which include Wyoming big sagebrush, skunkbush sumac, green rabbitbrush, and yucca account for 20% to 30% of the total production. Rocky Mountain juniper and black sagebrush can be present but usually occur only at the upper end of the precipitation zone. Plains pricklypear can also occur.

When compared to the Historical Climax Plant Community, Wyoming big sagebrush and skunkbush sumac have increased. Indian ricegrass and bluebunch wheatgrass have decreased as the production of cool-season grasses has been reduced. Indian ricegrass may occur in only trace amounts under the sagebrush canopy or within the patches of pricklypear. Blue grama and threadleaf sedge have increased. Plains pricklypear cactus will also have increased, but occurs only in small patches. In addition, the amount of winterfat may or may not have changed depending on the season of use.

The total annual production (air-dry weight) of this state is about 110 pounds per acre, but it can range from about 50 lbs./acre in unfavorable years to about 200 lbs./acre in above average years.

The following is the growth curve of this plant community expected during a normal 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	10	50	25	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. The herbaceous component is mostly intact and plant vigor and replacement capabilities are sufficient. Water flow patterns and litter movement may be occurring but only on steeper slopes. Incidence of pedestalling is minimal. Soils are mostly stable and the surface shows minimum soil loss. The watershed is functioning and the biotic community is intact.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing or possibly long-term prescribed grazing, will convert this plant community to the *HCPC*. The probability of this occurring is high especially if rotational grazing along with short deferred grazing is implemented as part of a prescribed method of use. In addition, the removal of fire suppression will allow a somewhat natural fire regime to reoccur to more easily transition between this plant community and the *HCPC*. A prescribed fire treatment can be useful to hasten this transition, if desired. The wide gaps between plants, however, may create a problem in carrying a fire. A lengthy period of non use after a high precipitation year may be necessary in implementing this practice.
- Frequent and severe grazing over the long-term will convert this plant community to the *Mixed Shrub/Bare Ground vegetative state*.

**Mixed Shrub/Bare Ground Plant Community**

This vegetation state currently is found under heavy, season-long grazing by. Wyoming big sagebrush, skunkbush sumac, green rabbitbrush and yucca are significant components of this plant community. Rocky Mountain juniper and black sagebrush can be present but usually occur only at the upper end of the precipitation zone. Cool-season grasses have been reduced. Bare ground, warm season grasses, and annual plants dominate the understory.

The dominant grasses and grass-likes are threadleaf sedge and blue grama. Weedy annual species such as cheatgrass, and Russian thistle may occupy the site, if a seed source is available. Cactus and sageworts often increase. Noxious weeds such as Russian knapweed may invade the site if a seed source is available. The interspaces between plants have expanded significantly leaving the amount of bare ground more prevalent. As compared with the Perennial Grass/ Mixed Shrub Plant Community, the reduction in the annual production is not significant, as the shrub production off sets the decline in the herbaceous production.

The total annual production (air-dry weight) of this state is about 75 pounds per acre, but it can range from about 25 lbs./acre in unfavorable years to about 200 lbs./acre in above average years.

The following is the growth curve expected during a normal 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	10	50	25	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change. Continued frequent and severe grazing or the removal of grazing does not seem to affect the composition or structure of the plant community. Plant diversity is moderate to poor. The plant vigor is diminished and replacement capabilities are limited due to the reduced number of cool-season grasses. Plant litter is noticeably less when compared to the HCPC.

Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestalling are obvious. Infiltration is reduced and runoff is increased. Rill channels may be noticeable in the interspaces and gullies may be establishing where rills have concentrated down slope.

Transitional pathways leading to other plant communities are as follows:

- Brush management and prescribed grazing will return this state to near *Historic Climax Plant Community*. Seeding native perennials may be necessary to hasten establishment of these species.

**Ecological Site Interpretations**

**Animal Community – Wildlife Interpretations**

**Historic Climax Plant Community:** The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other

birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

**Perennial Grass/Mixed Shrub:** The combination of a shrub overstory and an understory of grasses and forbs provide a very diverse plant community for wildlife. This diversity provides important winter ranges, so mule deer and antelope may use this state for foraging year-round, as would cottontail and jack rabbits

**Mixed Shrub/Bare Ground:** This plant community can provide winter foraging for mule deer and antelope, as brush can approach 15% protein and 40-60% digestibility during that time. Due to the sparseness of the vegetation, this community does not provide escape and thermal cover for large ungulates or for nesting habitat for sage grouse.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 32XY, 5-9 inch Wind River Basin

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Mule Deer	Antelope
<b>GRASSES/GRASSLIKES</b>							
alkali bluegrass	<i>Poa secunda</i> ssp. <i>juncifolia</i>	POSEJ	DDDD	PPPP	DDDD	PPPP	PPPP
alkali cordgrass	<i>Spartina gracilis</i>	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
alkali sacaton	<i>Sporobolus airoides</i>	SPAI	PPPP	DDDD	PPPP	DDDD	DDDD
American manna grass	<i>Glyceria grandis</i>	GLGR	DDDD	UUUU	DDDD	UUUU	UUUU
American sloughgrass	<i>Beckmannia syzigachne</i>	BESY	DDDD	UUUU	DDDD	UUUU	UUUU
Baltic rush	<i>Juncus balticus</i>	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
basin wildrye	<i>Leymus cinereus</i>	LEC14	PPPP	PPPP	PPPP	DDDD	DDDD
beaked sedge	<i>Carex rostrata</i>	CAR06	DDDD	UUUU	DDDD	UUUU	UUUU
bearded wheatgrass	<i>Elymus caninus</i>	ELCA	PPPP	DDDD	PPPP	DDDD	DDDD
big bluegrass	<i>Poa ampla</i> (syn. to <i>Poa secunda</i> )	POAM (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
blue grama	<i>Bouteloua gracilis</i>	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
bottlebrush squirreltail	<i>Elymus elymoides</i>	ELELE	DDDD	DDDD	DDDD	UUUU	UUUU
bulrush	<i>Scirpus</i> spp.	SCIRP	DDDD	UUUU	DDDD	UUUU	UUUU
Canada wildrye	<i>Elymus canadensis</i>	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Fendler threawn	<i>Aristida purpurea longiseta</i>	ARPUL	UUUU	UUUU	UUUU	UUUU	UUUU
Indian ricegrass	<i>Achnatherum hymenoides</i>	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
inland saltgrass	<i>Distichlis spicata</i>	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
little bluestem	<i>Schizachyrium scoparium</i>	SCSC	PPPP	PPPP	PPPP	DDDD	DDDD
mat muhly	<i>Muhlenbergia richardsonis</i>	MURI	UUUU	UUUU	UUUU	UUUU	UUUU
Nebraska sedge	<i>Carex nebrascensis</i>	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
needleandthread	<i>Hesperostipa comata</i>	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
northern reedgrass	<i>Calamagrostis stricta</i>	CAST13	PPPP	DDDD	PPPP	UUUU	UUUU
Nuttall's alkaligrass	<i>Puccinellia nuttalliana</i>	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
plains reedgrass	<i>Calamagrostis montanensis</i>	CAMO	DDDD	DDDD	DDDD	DDDD	DDDD
prairie cordgrass	<i>Spartina pectinata</i>	SPPE	PPPP	DDDD	PPPP	UUUU	UUUU
prairie junegrass	<i>Koeleria macrantha</i>	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
prairie sandreed	<i>Calamovilfa longifolia</i>	CALO	PPPP	DDDD	PPPP	UUUU	UUUU
reed canarygrass	<i>Phalaris arundinacea</i>	PHAR3	DDDD	UUUU	DDDD	UUUU	UUUU
rush	<i>Juncus</i> spp.	JUNCU	DDDD	UUUU	DDDD	UUUU	UUUU
sand dropseed	<i>Sporobolus cryptandrus</i>	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	<i>Poa secunda</i>	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
slender wheatgrass	<i>Elymus trachycaulus</i>	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
spike sedge	<i>Carex nardina</i>	CANA2	DDDD	DDDD	DDDD	UUUU	UUUU
thickspike wheatgrass	<i>Elymus lanceolatus</i>	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
threadleaf sedge	<i>Carex filifolia</i>	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP
tufted hairgrass	<i>Deschampsia caespitosa</i>	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
water sedge	<i>Carex aquatilis</i>	CAAQ	DDDD	UUUU	DDDD	UUUU	UUUU
western wheatgrass	<i>Pascopyrum smithii</i>	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
<b>FORBS</b>							
American licorice	<i>Glycyrrhiza lepidota</i>	GLLE3	UUUU	UUUU	UUUU	UUUU	UUUU
American vetch	<i>Vicia americana</i>	VIAM	PPPP	PPPP	PPPP	PPPP	PPPP
arrowgrass	<i>Triglochin</i> spp.	TRIGL	T	T	T	T	T
asters	<i>Aster</i> spp.	ASTER	UUUU	UUUU	UUUU	UUUU	UUUU
badlands mule-ears	<i>Wyethia scabra</i>	WYSC	UUUU	UUUU	UUUU	UUUU	UUUU
beaked skeletonweed	<i>Shinnersoseris rostrata</i>	SHRO2	UUUU	UUUU	UUUU	UUUU	UUUU
biscuitroots	<i>Lomatium</i> spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
blue-eyed grass	<i>Sisyrinchium</i> spp.	SISYR	DDDD	PPPP	DDDD	DDDD	DDDD
breadroot scurfpea	<i>Pediemelum esculentum</i>	PEES	DDDD	DDDD	DDDD	DDDD	DDDD
buttercandle	<i>Cryptantha celosiodes</i>	CRCE	UUUU	UUUU	UUUU	UUUU	UUUU
cattail, broad-leaf	<i>Typha latifolia</i>	TYLA	DDDD	UUUU	DDDD	UUUU	UUUU
cattail, narrow-leaf	<i>Typha angustifolia</i>	TYAN	DDDD	UUUU	DDDD	UUUU	UUUU
desert princesplume	<i>Stanleya pinnata</i>	STPIP	T	T	T	T	T
Douglas' dusty maiden	<i>Chaenactis douglasii</i>	CHDO	UUUU	UUUU	UUUU	UUUU	UUUU
fleabane	<i>Erigeron</i> spp.	ERIGU	UUUU	UUUU	UUUU	UUUU	UUUU
foothills deathcamas	<i>Zigadenus paniculatus</i>	ZIPA2	T	T	T	T	T
fringed sagewort	<i>Artemisia frigida</i>	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU
green sagewort	<i>Artemisia dracunculus</i>	ARDR4	UUUU	UUUU	UUUU	UUUU	UUUU
hawkbeard	<i>Crepis acuminata</i>	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD
horsetails	<i>Equisetum</i> spp.	EQUIS	UUUU	UUUU	UUUU	UUUU	UUUU
Indian paintbrush	<i>Castilleja</i> spp.	CAST12	DDDD	DDDD	DDDD	DDDD	DDDD
iris	<i>Iris</i> spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
larkspur	<i>Delphinium</i> spp.	DELPH	DDDD	DDDD	DDDD	DDDD	DDDD
licorice-root	<i>Ligusticum</i> spp.	LIGUS	UUUU	UUUU	UUUU	UUUU	UUUU
lupine	<i>Lupinus</i> spp.	LUPIN	DDDD	T	DDDD	DDDD	DDDD
milkvetch	<i>Astragalus</i> spp.	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
miner's candle	<i>Cryptantha virgata</i>	CRV14	UUUU	UUUU	UUUU	UUUU	UUUU
mustard	<i>Brassica</i> spp.	BRASS2	UUUU	UUUU	UUUU	UUUU	UUUU
nailwort	<i>Paronychia</i> spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
Nuttall's povertyweed	<i>Monolepis nuttalliana</i>	MONU	UUUU	UUUU	UUUU	UUUU	UUUU
penstemon	<i>Penstemon</i> spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
phlox	<i>Phlox</i> spp.	PHLOX	UUUU	UUUU	UUUU	UUUU	UUUU
plains springparsley	<i>Cymopterus acaulis</i>	CYAC	UUUU	DDDD	UUUU	UUUU	UUUU
poison hemlock	<i>Conium maculatum</i>	COMA2	T	T	T	T	T
prairie bluebells	<i>Mertensia lanceolata</i>	MELA3	DDDD	PPPP	DDDD	DDDD	DDDD
Pursh seepweed	<i>Suaeda calceoliformis</i>	SUCA2	UUUU	UUUU	UUUU	UUUU	UUUU
rosy pussytoes	<i>Antennaria rosea</i>	ANRO2	UUUU	UUUU	UUUU	UUUU	UUUU
sandwort	<i>Arenaria</i> spp.	ARENA	UUUU	UUUU	UUUU	UUUU	UUUU
silverweed cinquefoil	<i>Argentina anserina</i>	ARAN7	UUUU	UUUU	UUUU	UUUU	UUUU
stemless goldenweed	<i>Haplopappus acaulis</i>	HAAC	UUUU	UUUU	UUUU	UUUU	UUUU
sulphur flower buckwheat	<i>Eriogonum umbellatum</i>	ERUM	UUUU	UUUU	UUUU	UUUU	UUUU
tufted evening-primrose	<i>Oenothera caespitosa</i>	OECA10	UUUU	UUUU	UUUU	UUUU	UUUU
twogrooved milkvetch	<i>Astragalus bisulcatus</i>	ASB12	T	T	T	T	T
water hemlocks	<i>Cicuta</i> spp.	CICUT	T	T	T	T	T
western buttercup	<i>Ranunculus occidentalis</i>	ROAOC	DDDD	DDDD	DDDD	DDDD	DDDD
western dock	<i>Rumex aquaticus</i>	RUAQ	UUUU	UUUU	UUUU	UUUU	UUUU
western yarrow	<i>Achillea lanulosa</i>	ACHIL	UUUU	UUUU	UUUU	UUUU	UUUU
wild onion	<i>Allium textile</i>	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
woodyaster	<i>Xylorhiza</i> spp.	XYLOR	T	T	T	T	T
woolly plantain	<i>Plantago patagonica</i>	PLPA2	UUUU	UUUU	UUUU	UUUU	UUUU

TREES, SHRUBS & HALF-SHRUBS							
big sagebrush	Artemisia tridentata	ARTR2	UUUU	DDDD	UUUU	DDDD	DDDD
birdfoot sagebrush	Artemisia pedatifida	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU
black greasewood	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
black sagebrush	Artemisia nova	ARNO4	DDDD	PPPP	UUUU	PPPP	PPPP
broom snakeweed	Gutierrezia sarothrae	GUSA2	UUUU	UUUU	UUUU	UUUU	UUUU
bud sagebrush	Picrothamnus desertorum	PIDE4	PPPP	PPPP	DDDD	PPPP	PPPP
fourwing saltbush	Atriplex canescens	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	Atriplex gardneri	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP
green rabbitbrush	Chrysothamnus viscidiflorus	CHV18	DDDD	DDDD	DDDD	DDDD	DDDD
plains cottonwood (sprouts)	Populus deltoides	PODEM	DDDD	DDDD	DDDD	DDDD	DDDD
Rocky Mountain juniper	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD
shadscale saltbush	Atriplex confertifolia	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU
shortspine horsebrush	Tetradymia spinosa	TESP2	UUUU	UUUU	UUUU	UUUU	UUUU
silver sagebrush	Artemisia cana	ARCAC5	DDDD	DDDD	DDDD	PPPP	PPPP
silverberry	Eleagnus commutata	ELCO	UUUU	UUUU	UUUU	DDDD	UUUU
skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD
spiny hopsage	Grayia spinosa	GRSP	UUUU	UUUU	UUUU	UUUU	UUUU
Utah juniper	Juniperus osteosperma	JUOS	UUUU	UUUU	UUUU	DDDD	UUUU
wax currant	Ribes cereum	RICE	UUUU	UUUU	UUUU	DDDD	DDDD
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU
wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
willows	Salix spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DDDD	DDDD	DDDD	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

## Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. 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 this 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. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (lb./ac)	Carrying Capacity* (AUM/ac)
Historic Climax Plant Community	75-250	.08
Perennial Grass/Mixed Shrub	50-200	.05
Mixed Shrub/Bare Ground	25-200	.02

\* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

## 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.)

Rills and gullies may be present, but should be small. Water flow patterns should be barely distinguishable. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

## Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which 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**

Shallow Sandy	032XY266WY
Shallow Loamy	032XY262WY

### **Similar Sites**

() – Very Shallow 10-14” Foothills and Basins East P.Z., 032X376WY has higher production than Very Shallow 5-9” WR.

### **Inventory Data References (narrative)**

Information presented here has been derived from NRCS inventory data. Field observations from range trained personnel were also used. Those involved in developing this site include: Chris Krassin, Range Management Specialist, NRCS and Everet Bainter, Range Management Specialist, NRCS. Other sources used as references include USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, USDI and USDA Interpreting Indicators of Rangeland Health Version 3, and USDA NRCS Soil Surveys from various counties.

### **Inventory Data References**

Ocular field estimations observed by trained personnel.

### **State Correlation**

The site occurs entirely in Wyoming.

### **Type Locality**

### **Field Offices**

Casper, Lander, Riverton, Dubious, Fort Washakie

### **Relationship to Other Established Classifications**

### **Other References**

### **Site Description Approval**

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State Range Management Specialist

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Date