

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Sands (Sa) 5-9” Big Horn Basin Precipitation Zone

Site ID: 032XY146WY

Major Land Resource Area: 32 – Northern Intermountain Desertic Basins

Physiographic Features

This site occurs on nearly level to 30% slopes.

Landform: Alluvial fans, hillsides, plateaus, ridges & stream terraces

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	3700	6000
Slope (percent):	0	30
Water Table Depth (inches):	None within 60 inches	
Flooding:		
Frequency:	None	None
Duration:	None	None
Ponding:		
Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None
Runoff Class:	negligible	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 “Emblem” climate station:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
Frost-free period (days):	98	171	May 13 – September 19
Freeze-free period (days):	120	184	May 1 – October 5
Mean Annual Precipitation (inches):	3.22	10.97	

Mean annual precipitation: 7.42 inches

Mean annual air temperature: 45.01°F (31.2°F Avg. Min. to 58.7°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 “Basin”, “Deaver”, “Lovell”, and “Worland”.

Influencing Water Features

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

Stream Type: None

Representative Soil Features

The soils of this site are moderately deep (greater than 20” to bedrock) to very deep, well-drained soils that formed in alluvium, alluvium over residuum, or eolian deposits. These soils have moderate, moderately rapid, or rapid permeability. The surface soil will vary from 3 to 6 inches deep. The coarser topsoils may be included if underlain by finer textured subsoil. The soil characteristic having the most influence on plant community is the light texture which can affect the available moisture.

Major Soil Series correlated to this site include:

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

Parent Material Kind: alluvium, eolian deposits, residuum

Parent Material Origin: sandstone, unspecified

Surface Texture: fine sandy loam, sandy loam, loamy very fine sand

Surface Texture Modifier: none

Subsurface Texture Group: sandy loam, sandy, coarse loamy

Surface Fragments ≤ 3” (% Cover): 0

Surface Fragments > 3” (%Cover): 0

Subsurface Fragments ≤ 3” (% Volume): 0

Subsurface Fragments > 3” (% Volume): 0

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well drained	excessively drained
Permeability Class:	moderately rapid	rapid

Site Type: Rangeland
MLRA: 32 – Northern Intermountain Desertic Basins

Sands (Sa) 5-9 BH
R032XY146WY

Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤ 20" :	0	4
Sodium Absorption Ratio ≤ 20" :	0	5
Soil Reaction (1:1 Water) ≤ 20" :	6.6	8.4
Soil Reaction (0.1M CaCl₂) ≤ 20" :	NA	NA
Available Water Capacity (inches) ≤ 30" :	1.8	4.2
Calcium Carbonate Equivalent (percent) ≤ 20" :	0	5

Plant Communities

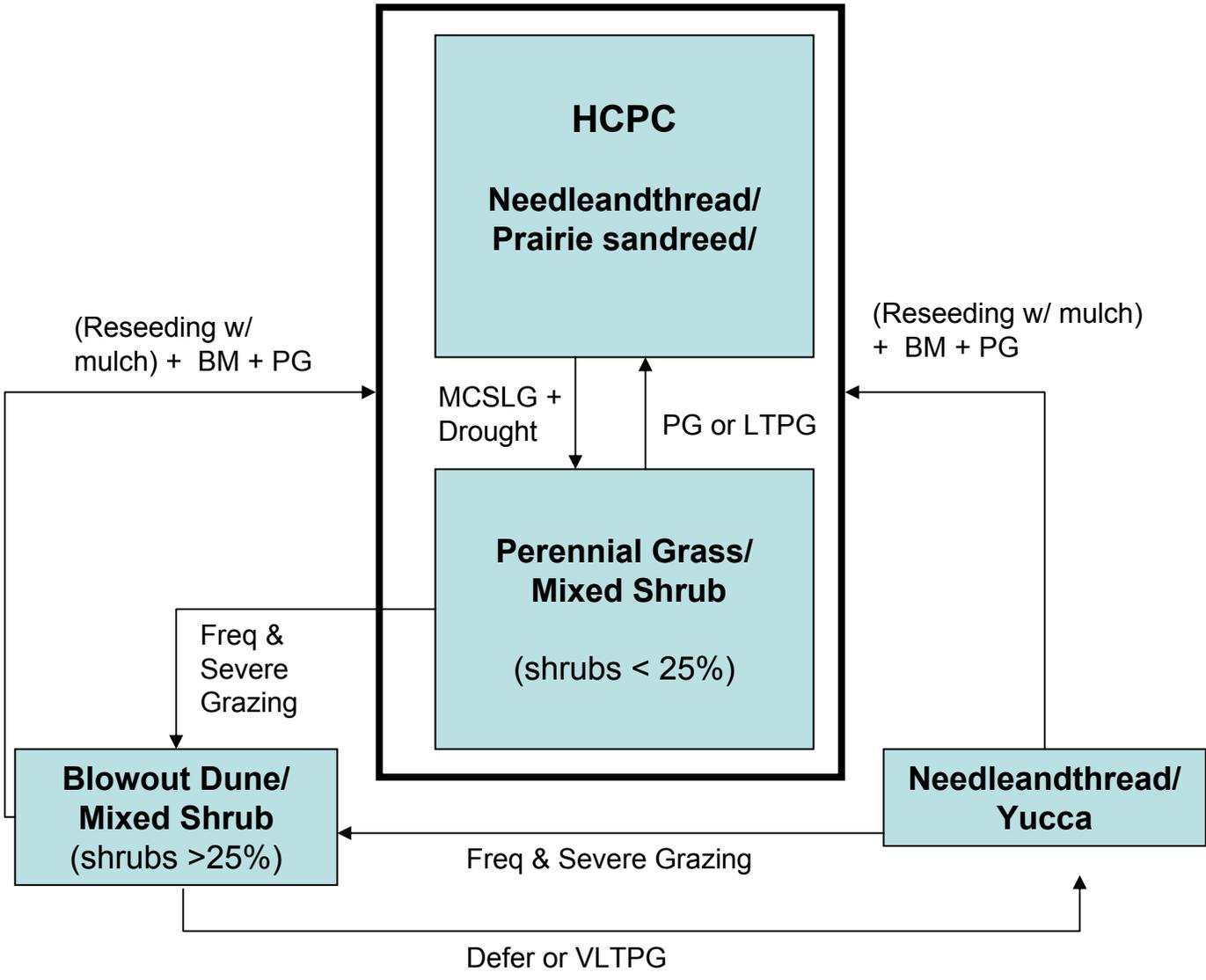
Ecological Dynamics of the Site:

Potential vegetation on this site is dominated by tall and mid perennial grasses. Other significant vegetation includes winterfat, fourwing saltbush, and silver and big sagebrush, and a variety of forbs. The expected potential composition for this site is about 70% grasses, 10% 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 silver sagebrush, green and rubber rabbitbrush, and big sagebrush will increase. Plains pricklypear and weedy annuals will invade. Mid-grasses such as needleandthread, prairie sandreed 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: 500		
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Rhizomatous wheatgrass			1	25 - 50	5 - 10
Western wheatgrass	Pascopyrum smithii	PASM			
Thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	ELLAL			
Streambank wheatgrass	Elymus lanceolatus	ELLA3			
Needleandthread grass	Hesperostipa comata	HECO26	2	100 - 200	20 - 40
Prairie sandreed	Calamovilfa longifolia	CALO	3	100 - 150	20 - 30
Indian ricegrass	Achnatherum hymenoides	ACHY	4	50 - 100	10 - 20
MISC. GRASSES/GRASSLIKES					
Blue grama	Bouteloua gracilis	BOGR2	5	0 - 25	0 - 5
Sand dropseed	Sporobolus cryptandrus	SPCR	5	0 - 25	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 25	0 - 5
Threeawns	Aristida spp.	ARIST	5	0 - 25	0 - 5
other perennial grasses (native)		2GP	5	0 - 25	0 - 5
FORBS					
False carrot	Turgenia spp.	TURGE	6	0 - 25	0 - 5
Phlox	Phlox spp.	PHLOX	6	0 - 25	0 - 5
Scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 25	0 - 5
Wild onion	Allium textile	ALTE	6	0 - 25	0 - 5
other perennial forbs (native)		2FP	6	0 - 25	0 - 5
TREES/SHRUBS					
Silver sagebrush	Artemisia cana	ARCA13	7	0 - 50	0 - 10
Spiny hopsage	Grayia spinosa	GRSP	8	0 - 50	0 - 10
MISC. SHRUBS					
Big sagebrush	Artemisia tridentata	ARTR2	9	0 - 25	0 - 5
Fourwing saltbush	Atriplex canescens	ATCA2	9	0 - 25	0 - 5
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	9	0 - 25	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	9	0 - 25	0 - 5
Shadscale	Atriplex confertifolia	ATCO	9	0 - 25	0 - 5
Winterfat	Krascheninnikovia lanata	KRAL2	9	0 - 25	0 - 5
Yucca	Yucca spp.	YUCCA	9	0 - 25	0 - 5
other shrubs & half shrubs (native)		2SHRUB	9	0 - 25	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.

Needleandthread/Prairie sandreed Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and periodic fires. The cyclical natural of the fire regime in this community prevented big sagebrush from being the dominant landscape. This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and on areas receiving occasional short periods of rest. The state is a mix of warm and cool season mid and tall grasses. Potential vegetation is about 70% grasses or grass-like plants, 10% forbs, and 20% woody plants.

The major grasses include needleandthread, prairie sandreed, and Indian ricegrass. Other grasses occurring in the state include rhizomatous wheatgrasses, Sandberg bluegrass, blue grama and red threeawn. Fourwing saltbush, winterfat and silver and big sagebrush are conspicuous components of this state. A variety of forbs also occurs in this state and plant diversity is high (see Plant Composition Table).

The total annual production (air-dry weight) of this state is about 500 pounds per acre, but it can range from about 350 lbs. /acre in unfavorable years to about 700 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the Northern Intermountain Desertic Basins 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 the 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 by bison and a low fire frequency. Currently, this site normally is found under a moderate, season-long grazing regime and extended periods without fire is now common. Prolonged drought can also play an important role under these grazing regimes and will exacerbate these conditions. Shrubs such as silver and big sagebrushes, yucca, and green rabbitbrush, make up less than 25% of the total annual production. Mid and tall perennial grasses make up the majority of the understory with the balance made up of short, warm-season grasses, and miscellaneous forbs.

The understory of grass and grass-like plants includes needleandthread, prairie sandreed, rhizomatous wheatgrasses, blue grama and red threeawn. Forbs commonly found in this plant community include scarlet globemallow, fringed sagewort, lemon scurfpea, sulfur buckwheat, sandwort, hairy goldaster, and phlox. The overstory of brush and understory of grass and forbs provide a diverse plant community.

When compared to the Historic Climax Plant Community, Indian ricegrass, and winterfat have decreased. Indian ricegrass may occur in only trace amounts under the sagebrush canopy or within the patches of pricklypear. Blue grama, big and silver sagebrush, and yucca have increased. Plains pricklypear cactus will also have increased, but occurs only in small patches.

The total annual production (air-dry weight) of this state is about 400 pounds per acre, but it can range from about 200 lbs. /acre in unfavorable years to about 525 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501
 Growth curve name: 5-9BH, UPLAND SITES
 Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	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. Incidence of pedestalling is minimal. Soils are mostly stable, but areas of wind-scouring and deposition are noticeable in small patches. 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 is needed to return this state to near *Historic Climax Plant Community* condition.
- Frequent and severe grazing, will convert the plant community to the *Blowout Dune/Mixed Shrub Plant Community*.

Blowout Dune/Mixed Shrub Plant Community

This plant community is the result of frequent and severe grazing and protection from fire. Bare sand and shrubs dominate this plant community, as the annual production of sagebrush, green rabbitbrush and yucca will exceed 25% of the total. Yucca can become a dominant plant on this site especially if

browsing of the yucca during the bloom growth stage is removed. These shrub species are a significant component of the plant community and the preferred cool season grasses have been eliminated or greatly reduced.

The dominant grasses are Sandberg bluegrass and blue grama. Weedy annual species such as cheatgrass, Russian thistle, kochia, and a variety of mustards may occupy the site if seed sources are available. Patches of pricklypear cactus can be noticeable. The interspaces between plants have expanded leaving the amount of bare ground more prevalent. Grass production as well as total production is significantly reduced.

The total annual production (air-dry weight) of this state is about 150 pounds per acre, but it can range from about 100 lbs. /acre in unfavorable years to about 300 lbs. /acre in above average years.

The following is the growth curve of the plant community expected during a normal year:

Growth curve number: WYO501

Growth curve name: 5-9BH, UPLAND SITES

Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This plant community is relatively resistant to change. Continued frequent and severe grazing does not seem to affect the plant composition or structure of the plant community. These areas are more resistant to fire as less fine fuels are available and the bare ground between the shrub plants is increased. Plant diversity is poor. Production is reduced and plant vigor is diminished due to herbivore grazing and blowing sand, which can defoliate the vegetative parts of the grass plants.

The soils are not protected from wind as erosion is accelerated and blowouts will increase. Pedestalling is pervasive and eolian deposits (dunes) form around the clumped vegetation. This situation is normally extensive.

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

- Deferment of use or very long-term grazing prescribed grazing, will convert this plant community to the *Needleandthread/Yucca Plant Community*.
- Reseeding with mulch with brush management and prescribed grazing is necessary to return a protective vegetation cover to this state so as to convert this to near *HCPC*. The grazing prescription most commonly used is complete deferment during the growing season with limited use in the winter. This will provide as much plant litter cover as possible to protect the soil surface.

Needleandthread/Yucca Plant Community

This plant community can occur where the Blowout Dune/Mixed Shrub Plant Community is deferred from grazing or under very long term prescribed grazing practices. Shrubs and especially yucca remain a significant component of the plant community but grasses, especially needleandthread, have reestablished on the bare sands areas. Pricklypear cactus can also become established in dense patches. The shrub and yucca component is present but is mostly localized to the original areas occupied on the ridgeline of the dunes. The blowout areas and dune slopes are now mostly covered with needleandthread.

Other important grasses are the rhizomatous wheatgrasses when present, threeawns, and Sandberg bluegrass. Patches of annuals such as cheatgrass and other weedy annual forbs such as halogeton, Russian thistle, and kochia, will persist on this site. Noxious weeds such as Russian knapweed may also remain if not treated. The interspaces between plants will have diminished in size.

When compared with the HCPC or the Mixed Shrub/ Perennial Grass Plant Communities, the annual production is less. Most of the climax grasses are not present such as Indian ricegrass and prairie sandreed.

The total annual production (air-dry weight) of this state is about 250 pounds per acre, but it can range from about 100 lbs. /acre in unfavorable years to about 325 lbs. /acre in above average years.

The following is the growth curve of this plant community expected during a normal year:

Growth curve number: WYO501
 Growth curve name: 5-9BH, UPLAND SITES
 Growth curve description: ALL UPLAND SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	15	50	20	5	0	10	0	0	0

(Monthly percentages of total annual growth)

This state is some what resistant to change under moderate grazing and the reestablishment of perennial mid and tall grasses is difficult in this situation. The biotic integrity of this state is minimally functional and plant diversity is moderate to low.

Erosion has been diminished as the grassed areas are resistant to wind erosive processes. The remnant dune formations should not be confused with current wind erosion processes. Pedestalling is still apparent along the grassed edges, but is not progressing.

Transitional pathways leading to other plant communities are as follows:

- Reseeding with mulch with brush management and prescribed grazing is necessary to return a protective vegetation cover to this state so as to convert this to near *HCPC*. The grazing prescription most commonly used is complete deferment during the growing season with limited use in the winter. This will provide as much plant litter cover as possible to protect the soil surface.
- Frequent and severe grazing will return the plant community to the *Blowout Dune/Mixed Shrub Plant Community*.

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: These communities provide limited grazing for antelope and other herbivores. They may be used as a foraging site by sage grouse if proximal to woody cover.

Blowout Dune/Mixed Shrub Plant Community: This community may provide foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Mixed Shrub/Perennial Grass Plant Community is limiting. Generally, these are not target plant communities for wildlife habitat management.

Needleandthread/Yucca Plant Community: This community may provide foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover and if the Historic Climax Plant Community or the Mixed Shrub/Perennial Grass Plant Community is limited.

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

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Deer	Antelope
GRASSES/GRASSLIKES							
Alkali bluegrass	<i>Poa juncifolia</i> (syn. <i>P. secunda</i>)	POJU (POSE)	DDDD	PPPP	DDDD	PPPP	PPPP
Alkali cordgrass	<i>Spartina gracilis</i>	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
Alkali sacaton	<i>Sporobolus airoides</i>	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD
Baltic rush	<i>Juncus balticus</i>	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU
Basin wildrye	<i>Leymus cinereus</i>	LECI4	PPPP	PPPP	PPPP	DDDD	DDDD
Beaked sedge	<i>Carex rostrata</i>	CAR06	DDDD	UUUU	DDDD	UUUU	UUUU
Blue grama	<i>Bouteloua gracilis</i>	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
Bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	PSSF6	PPPP	PPPP	PPPP	DDDD	DDDD
Bottlebrush squirreltail	<i>Elymus elymoides</i>	ELEL5	DDDD	DDDD	DDDD	UUUU	DDDD
Canada wildrye	<i>Elymus canadensis</i>	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Golden sedge	<i>Carex aurea</i>	CAAU3	DDDD	DDDD	DDDD	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
Inland sedge	<i>Carex interior</i>	CAIN11	DDDD	DDDD	DDDD	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
Nuttall's alkilgrass	<i>Puccinellia nuttalliana</i>	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
Prairie junegrass	<i>Koeleria macrantha</i>	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
Prairie sandreed	<i>Calamovilfa longifolia</i>	CALO	PPPP	UUUU	PPPP	UUUU	UUUU
Red threeawn	<i>Aristida purpurea</i>	ARPUL	UUUU	UUUU	UUUU	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 trachycalyx</i>	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
Streambank wheatgrass	<i>Elymus lanceolatus</i>	ELLA3	DDDD	DDDD	DDDD	DDDD	DDDD
Thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
Threadleaf sedge	<i>Carex filifolia</i>	CAFI	DDDD	DDDD	DDDD	DDDD	DDDD
Threeawns	<i>Aristida</i> spp.	ARIST	UUUU	UUUU	UUUU	UUUU	UUUU
Tufted hairgrass	<i>Deschampsia caespitosa</i>	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
Upland sedge	<i>Carex</i> spp.	CAREX	DDDD	DDDD	DDDD	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
FORBS							
Alkali seepweed	<i>Suaeda</i> spp.	AGOSE	UUUU	UUUU	UUUU	UUUU	UUUU
Arrowgrass	<i>Triglochin</i> spp.	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT
Asters	<i>Eucephalus</i> spp.	EUCEP2	UUUU	UUUU	UUUU	UUUU	UUUU
Biscuitroot	<i>Lomatium</i> spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
Blue-eyed grass	<i>Sisyrinchium</i> spp.	SISYR	UUUU	UUUU	UUUU	UUUU	UUUU
Buckwheats	<i>Eriogonum</i> spp.	ERIOG	UUUU	DDDD	UUUU	UUUU	UUUU
Dock	<i>Rumex</i> spp.	RUMEX	UUUU	UUUU	UUUU	UUUU	UUUU
Evening primrose	<i>Oenothera caespitosa</i>	OECA10	UUUU	UUUU	UUUU	UUUU	UUUU
False carrot	<i>Turgenia</i> spp.	TURGE	UUUU	DDDD	UUUU	UUUU	UUUU
Fleabanes	<i>Erigeron</i> spp.	ERIGE2	DDDD	DDDD	DDDD	DDDD	DDDD
Horsetails	<i>Equisetum</i> spp.	EQUIS	UUUU	UUUU	TTTT	UUUU	UUUU
Iris	<i>Iris</i> spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
Larkspur (poisonous in spring before flowering)	<i>Delphinium</i> spp.	DELPH	DDDD	DDDD	DDDD	DDDD	DDDD
Milkvetch	<i>Astragalus</i> spp.	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD
Nailwort	<i>Paronychia</i> spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
Paintbrush	<i>Castilleja</i> spp.	CAST	DDDD	DDDD	DDDD	DDDD	DDDD
Penstemons	<i>Penstemon</i> spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
Phlox	<i>Phlox</i> spp.	PHLOX	UUUU	UUUU	UUUU	UUUU	UUUU
Princesplume	<i>Stanleya</i> spp.	STANL	TTTT	TTTT	TTTT	TTTT	TTTT
Pussytoes	<i>Antennaria</i> spp.	ANTEN	UUUU	UUUU	UUUU	UUUU	UUUU
Salsify	<i>Tragopogon porrifolius</i>	TRPO	UUUU	UUUU	UUUU	UUUU	UUUU
Scarlet globemallow	<i>Sphaeralcea coccinea</i>	SPCO	DDDD	DDDD	DDDD	DDDD	DDDD
Stemless hymenoxys	<i>Tetraeneuris acaulis</i>	TEACA2	UUUU	UUUU	UUUU	UUUU	UUUU
Stonecrop	<i>Sedum</i> spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
Toadflax	<i>Comandra umbellata</i>	COUMP	UUUU	UUUU	UUUU	UUUU	UUUU
Wild onion	<i>Allium textile</i>	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
Woody aster	<i>Xylorhiza</i> spp.	XYLOR	TTTT	TTTT	TTTT	TTTT	TTTT
TREES, SHRUBS & HALF-SHRUBS							
Big sagebrush	<i>Artemisia tridentata</i>	ARTR2	DDDD	DDDD	UUUU	DDDD	DDDD
Birdfoot sagebrush	<i>Artemisia pedatifida</i>	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU
Black sagebrush	<i>Artemisia nova</i>	ARNO4	UUUU	PPPP	UUUU	PPPP	PPPP
Bud sagebrush	<i>Picrothamnus desertorum</i>	PIDE4	PPPP	PPPP	DDDD	PPPP	PPPP
Cottonwoods (sprouts)	<i>Populus</i> spp.	POPUL	PPPP	PPPP	PPPP	PPPP	UUUU
Fourwing saltbush	<i>Atriplex canescens</i>	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	<i>Atriplex gardneri</i>	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP
Greasewood (toxic in large amounts)	<i>Sarcobatus vermiculatus</i>	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
Junipers	<i>Juniperus scopulorum</i>	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU
Green rabbitbrush	<i>Chrysothamnus viscidiflorus</i>	CHV18	DDDD	DDDD	UUUU	PPPP	PPPP
Rubber rabbitbrush	<i>Ericameria nauseosa</i>	ERNA10	UUUU	PPPP	UUUU	DDDD	PPPP
Shadscale	<i>Atriplex confertifolia</i>	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU
Silver buffaloberry	<i>Shepherdia argentea</i>	SHAR	UUUU	UUUU	UUUU	UUUU	UUUU
Silver sagebrush	<i>Artemisia cana</i>	ARCA13	DDDD	DDDD	DDDD	PPPP	PPPP
Skunkbush sumac	<i>Rhus trilobata</i>	RHTR	DDDD	DDDD	UUUU	DDDD	DDDD
Spiny hopsage	<i>Grayia spinosa</i>	GRSP	UUUU	UUUU	UUUU	UUUU	UUUU
Wildrose	<i>Rosa woodsii</i> var. <i>woodsii</i>	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
Willows	<i>Salix</i> spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
Winterfat	<i>Krascheninnikovia lanata</i>	KRAL2	PPPP	PPPP	PPPP	PPPP	PPPP
Yucca	<i>Yucca</i> spp.	YUCCA	DDDD	DDDD	UUUU	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	350-700	.20
Perennial Grass/Mixed Shrub	200-525	.16
Blowout Dune/Mixed Shrub	75-300	.05
Needleandthread/Yucca	100-325	.10

* - 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 dominated by soils in hydrologic group B, with localized areas in hydrologic group C. Infiltration potential for this site varies from moderately rapid to rapid depending on soil hydrologic group and ground cover. Runoff varies from low to moderate. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts 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 varieties 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 032XY166WY

Similar Sites

() – Sands 10-14” Foothills and Basins East P.Z., R032XY346WY has higher production.

Inventory Data References (narrative)

Information presented here has been derived from NRCS inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

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	19	1965-1986	WY	Park & others

State Correlation

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Cody, Greybull, Lovell, Powell, Thermopolis, Worland

Relationship to Other Established Classifications

Other References

Site Description Approval

State Range Management Specialist

Date