USDA Natural Resources Conservation Service

Ecological site R043BY462WY
Shallow Loamy (SwLy) 15-19” Northern Plains Precipitation Zone

Accessed: 05/10/2025

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

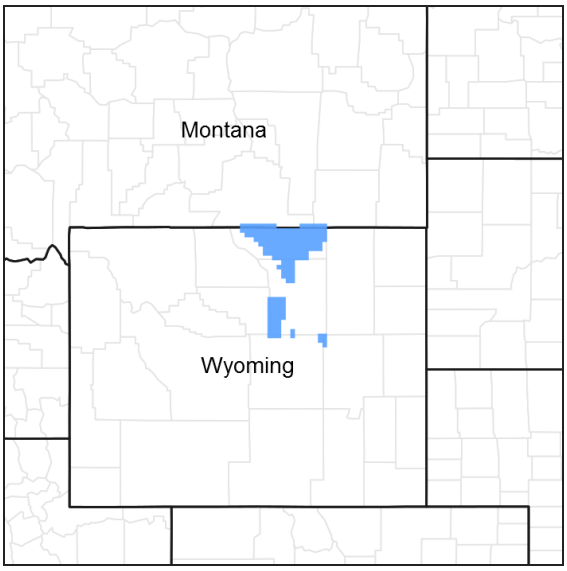


Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R043BY458WY	**Shallow Clayey (SwCy) 15-19” Northern Plains Precipitation Zone**
R043BY466WY	**Shallow Sandy (SwSy) 15-19” Northern Plains Precipitation Zone**

Similar sites

R058BY162WY	**Shallow Loamy (SwLy) 10-14” PZ** Shallow Loamy 10-14” Northern Plains P.Z., has lower production.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge (3) Stream terrace
Flooding frequency	None
Ponding frequency	None
Elevation	3,700–7,500 ft
Slope	20–50%
Ponding depth	0 in
Aspect	Aspect is not a significant factor

Climatic features

Annual precipitation ranges from 15" to 19" per year. May is generally the wettest month. July, August and September are somewhat drier with daily amounts rarely exceeding one inch. Snowfall is quite heavy in the mountainous area. Annual snowfall averages close to 70 inches.

Sunshine is abundant in the latter part of the summer, the greatest amount being in July and August. Sunshine possibility during these two months averages 70 to 75% possibility with only a 65% possibility for June and September. Winter averages about 40% sunshine.

Because of the varied topography, the wind will vary considerably for different parts of the area. The wind is usually much lighter at the lower elevations and in the valleys as compared with the higher terrain. The average winter wind velocity is 8.5 mph, while the summer wind velocity averages 7.5 mph. Winds during storms and on ridges may exceed 45 mph.

Temperatures show a wide range between summer and winter, and between daily maximums and minimums. Summer nights are cool and temperatures drop into the forties at most places before sunrise. Summer daytime temperatures are usually in the seventies and occasionally reach eighty, but rarely reach the mid nineties. Winters are cold with daily lows below freezing most of the time. January has the coldest temperatures with a range of near 10 deg. F at night to the mid thirties in the afternoon. Temperatures of well below zero to –30 deg. F are not uncommon in the winter months.

The growing season for the cool season plants will generally start about April 15 to May 1 and continue to about October 10.

The following information is from the “Sheridan Airport” climate station:
Frost-free period (32 °F): 95-156 days; (5 yrs. out of 10, these days will occur between May 21 – September 19)
Freeze-free period 28 °F): 116-187 days; (5 yrs. out of 10, these days will occur between May 4 – September 29)
Mean annual precipitation: 14.7 inches
Mean annual air temperature: 45.0 °F (31.2 °F Avg. Min. – 58.8 °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: “Parkman 5 WNW”

Table 3. Representative climatic features

Frost-free period (average)	156 days
Freeze-free period (average)	187 days
Precipitation total (average)	19 in

Influencing water features

Stream type: None

Soil features

The soils of this site are shallow (less than 20”to bedrock), well-drained, moderately permeable and may occur on all slopes. The bedrock may be of any kind except igneous and is virtually impenetrable to plant roots. The soil textures range from a very fine sandy loam to the light sandy clay loams, light silty clay loams and clay loams. Thin effectual layers of other textures are disregarded.

Table 4. Representative soil features

Surface texture	(1) Loam (2) Sandy loam (3) Clay loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to moderately rapid
Soil depth	10–20 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0–20%
Available water capacity (0-40in)	1.1–4.2 in
Calcium carbonate equivalent (0-40in)	0–5%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–5
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–15%
Subsurface fragment volume >3" (Depth not specified)	0%

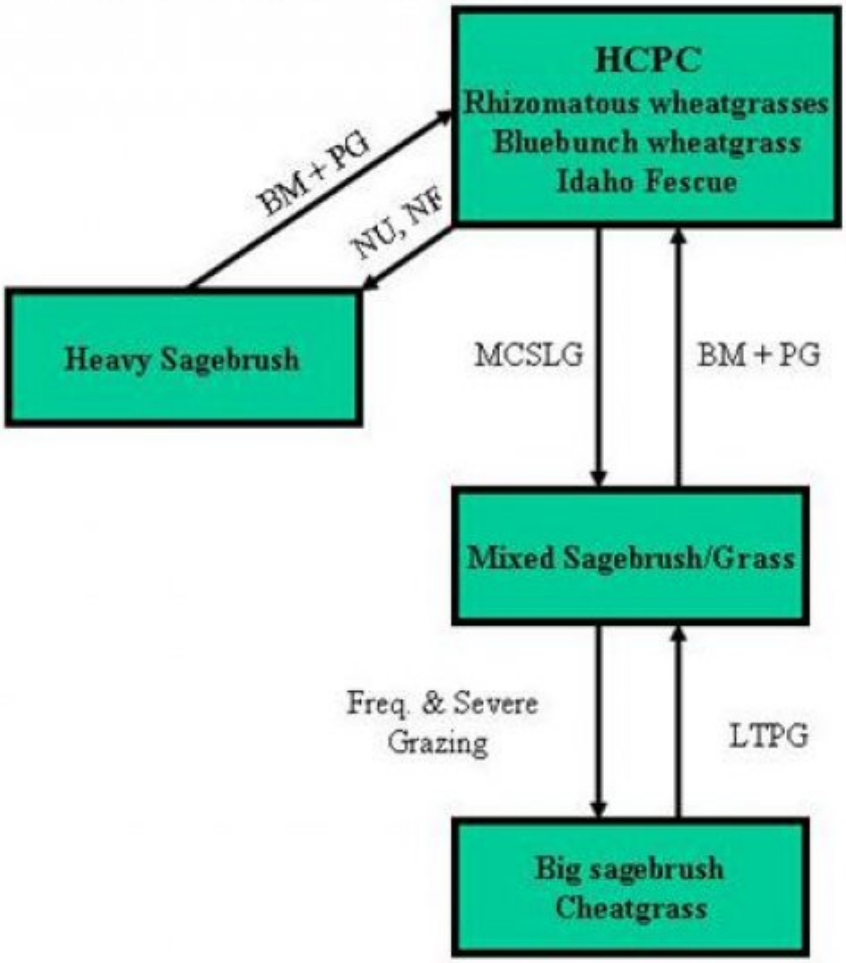
Ecological dynamics

As this site deteriorates from improper grazing management, species such as blue grama and big sagebrush will increase. Species such as cheatgrass will invade. Cool season grasses such as bluebunch wheatgrass, green needlegrass, Idaho fescue and western wheatgrass 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.

State and transition model



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-tem 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)
Na - found adjacent to a saline site

State 1
Rhizomatous Wheatgrasses, Bluebunch Wheatgrass, Idaho Fescue Plant Community

Community 1.1
Rhizomatous Wheatgrasses, Bluebunch Wheatgrass, Idaho Fescue Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs, and 10% woody plants. The state is dominated by cool season midgrasses. The major grasses include rhizomatous wheatgrasses, bluebunch wheatgrass, needleandthread, Idaho fescue, spike fescue, green needlegrass and little bluestem. Other grasses occurring on the state include Canby and Sandberg bluegrass, blue grama, one-spike oatgrass, mountain bromegrass, sideoats grama and prairie junegrass. Big sagebrush is a conspicuous element of this state, occurring in a mosaic pattern, and makes up 5 to 10% of the annual production. Big sagebrush may become dominant on some areas with absence of fire. Natural fire occurred frequently in this community and prevented sagebrush from being the dominant landscape. Wildfires are actively controlled in recent times so chemical control using herbicides has replaced the historic role of fire on this site. Recently, controlled burning has regained some popularity. Annual production on this state ranges from 900 to 1800 pounds depending on climatic conditions. This plant community is extremely stable and well adapted to the Northern Great Plains climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity). Transitions or pathways leading to other plant communities are as follows: • Protection from grazing and fire, will convert this plant community to the Heavy Sagebrush Vegetation State. • Moderate, continuous season-long grazing will convert the plant community to the Mixed Sagebrush/Grass Vegetation State. • Frequent and severe season-long grazing over the long term will convert the plant community to the Big Sagebrush/Cheatgrass Vegetation State.

Figure 3. Plant community growth curve (percent production by month). WY1301, 15-19NP Upland sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	45	35	10	0	5	0	0	0

State 2
Mixed Sagebrush/Grass Plant Community

Community 2.1
Mixed Sagebrush/Grass Plant Community

Historically, this plant community evolved under grazing by bison and a low fire frequency. Currently, it is found under moderate, season-long grazing by livestock in the absence of fire or brush control. Wyoming big sagebrush is a significant component of this plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs. Dominant grasses include bluebunch wheatgrass, rhizomatous wheatgrasses, needleandthread, and Idaho fescue. Grasses of secondary importance include little bluestem, prairie junegrass, and Sandberg bluegrass. Forbs, commonly found in this plant community, include Louisiana sagewort (cudweed), plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globemallow. Sagebrush canopy ranges from 20% to 30%. Fringed sagewort is commonly found. Plains pricklypear, skunkbush sumac and winterfat can also occur. When compared to the Historical Climax Plant Community, sagebrush and blue grama have increased. Bluebunch wheatgrass has decreased, often occurring only where protected from grazing by the sagebrush canopy. Production of cool-season grasses has also been reduced. Cheatgrass (downy brome) has invaded the site. The overstory of sagebrush and understory of grass and forbs provide a diverse plant community which will support domestic livestock and wildlife such as mule deer and antelope. Annual production ranges from 800 to 1400 pounds. The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. However, it can be at risk depending on how far a shift has occurred in plant composition toward blue grama, sagebrush, and/or cheatgrass. The watershed is usually functioning. However, it can become at risk when canopy cover of sagebrush, blue grama sod, and/or bare ground increases. Transitions or pathways leading to other plant communities are as follows: • Brush management followed by 1 or 2 years deferment and proper grazing use will return this state to near Historic Climax Plant Community. • Improper grazing management over the long-term will convert this state to the Big

sagebrush/Cheatgrass vegetation state.

Figure 4. Plant community growth curve (percent production by month). WY1301, 15-19NP Upland sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	45	35	10	0	5	0	0	0

State 3
Heavy Sagebrush Plant Community

Community 3.1
Heavy Sagebrush Plant Community

This plant community is the result of protection from grazing and fire. Sagebrush dominates this plant community with canopy cover often exceeding 50%. The understory of grass includes rhizomatous wheatgrasses, bluebunch wheatgrass, Idaho fescue, spike fescue, Sandberg bluegrass, and prairie junegrass. With complete protection from grazing and fire, the site will become dominated by big sagebrush. The cool season grasses are protected by the sagebrush canopy, but this protection makes them unavailable for grazing. Big sagebrush is long-lived and will persist for a long period. Production on this state ranges from 600 to 1200 pounds. This plant community is not resistant to change and is more vulnerable to severe disturbance than the HCPC. The introduction of grazing or fire quickly changes the plant community. Soil erosion is accelerated because of increased bare ground. Water flow patterns and pedestaling are obvious. Infiltration is reduced and runoff is increased. Transitions or pathways leading to other plant communities are as follows: • Brush control followed by deferment for 1 to 2 years and proper grazing management thereafter will return this state to near Historic Climax Plant Community. Care should be taken when planning brush control to exclude critical winter ranges.

Figure 5. Plant community growth curve (percent production by month). WY1301, 15-19NP Upland sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	45	35	10	0	5	0	0	0

State 4
Big Sagebrush/Cheatgrass Plant Community

Community 4.1
Big Sagebrush/Cheatgrass Plant Community

This plant community is the result of long-term, heavy, continuous, season-long grazing. It is dominated by big sagebrush and an understory of cheatgrass. Annual production on this state ranges from 400 to 1000 pounds. . While the site is protected from erosion, the grazing value for livestock and wildlife is decreased. This plant community is relatively stable with the rhizomatous wheatgrasses being somewhat resistant to overgrazing and the cheatgrass effectively competing against the establishment of perennial cool-season grasses. An increase in bare ground reduces water infiltration and increases soil erosion. The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community. Transitions or pathways leading to other plant communities are as follows: • Long Term Prescribed grazing will return this plant community to the Mixed Sagebrush/Grass Plant Community.

Figure 6. Plant community growth curve (percent production by month). WY1301, 15-19NP Upland sites.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	45	35	10	0	5	0	0	0

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				140–350	
	Idaho fescue	FEID	*Festuca idahoensis*	140–350	–
2				140–350	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	140–350	–
3				140–210	
	needle and thread	HECO26	*Hesperostipa comata*	140–210	–
4				70–210	
	little bluestem	SCSC	*Schizachyrium scoparium*	70–210	–
5				70–140	
	spike fescue	LEKI2	*Leucopoa kingii*	70–140	–
6				70–140	
	western wheatgrass	PASM	*Pascopyrum smithii*	70–140	–
7				70–140	
	green needlegrass	NAVI4	*Nassella viridula*	70–140	–
8				70–210	
	Grass, perennial	2GP	*Grass, perennial*	0–70	–
	Indian ricegrass	ACHY	*Achnatherum hymenoides*	0–70	–
	sideoats grama	BOCU	*Bouteloua curtipendula*	0–70	–
	blue grama	BOGR2	*Bouteloua gracilis*	0–70	–
	nodding brome	BRAN	*Bromus anomalus*	0–70	–
	Pumpelly's brome	BRINP5	*Bromus inermis ssp. pumpellianus var. pumpellianus*	0–70	–
	mountain brome	BRMA4	*Bromus marginatus*	0–70	–
	threadleaf sedge	CAFI	*Carex filifolia*	0–70	–
	onespike danthonia	DAUN	*Danthonia unispicata*	0–70	–
	Montana wheatgrass	ELAL7	*Elymus albicans*	0–70	–
	blue wildrye	ELGL	*Elymus glaucus*	0–70	–
	slender wheatgrass	ELTR7	*Elymus trachycaulus*	0–70	–
	slender wheatgrass	ELTRT	*Elymus trachycaulus ssp. trachycaulus*	0–70	–
	prairie Junegrass	KOMA	*Koeleria macrantha*	0–70	–
	plains muhly	MUCU3	*Muhlenbergia cuspidata*	0–70	–
	Sandberg bluegrass	POSE	*Poa secunda*	0–70	–
	spike trisetum	TRSP2	*Trisetum spicatum*	0–70	–
Forb					
9				70–140	
	Forb, perennial	2FP	*Forb, perennial*	0–70	–
	yarrow	ACHIL	*Achillea*	0–70	–
	rosy pussytoes	ANRO2	*Antennaria rosea*	0–70	–
	corn gromwell	BUAR3	*Buglossoides arvensis*	0–70	–
	field chickweed	CEAR4	*Cerastium arvense*	0–70	–
	bastard toadflax	COMAN	*Comandra*	0–70	–

	prairie clover	DALEA	*Dalea*	0–70	–
	larkspur	DELPH	*Delphinium*	0–70	–
	sanddune wallflower	ERCAC	*Erysimum capitatum var. capitatum*	0–70	–
	fleabane	ERIGE2	*Erigeron*	0–70	–
	aster	EUCEP2	*Eucephalus*	0–70	–
	desertparsley	LOMAT	*Lomatium*	0–70	–
	lupine	LUPIN	*Lupinus*	0–70	–
	bluebells	MERTE	*Mertensia*	0–70	–
	silverleaf Indian breadroot	PEAR6	*Pediomelum argophyllum*	0–70	–
	beardtongue	PENST	*Penstemon*	0–70	–
	phlox	PHLOX	*Phlox*	0–70	–
	upright prairie coneflower	RACO3	*Ratibida columnifera*	0–70	–
	stonecrop	SEDUM	*Sedum*	0–70	–
	mountain goldenbanner	THMOM3	*Thermopsis montana var. montana*	0–70	–
	American vetch	VIAM	*Vicia americana*	0–70	–
Shrub/Vine					
10				0–70	
	big sagebrush	ARTR2	*Artemisia tridentata*	0–70	–
11				0–70	
	rubber rabbitbrush	ERNA10	*Ericameria nauseosa*	0–70	–
12				0–70	
	silver sagebrush	ARCA13	*Artemisia cana*	0–70	–
13				0–70	
	skunkbush sumac	RHTR	*Rhus trilobata*	0–70	–
14				0–70	
	winterfat	KRLA2	*Krascheninnikovia lanata*	0–70	–
15				0–70	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	0–70	–

Animal community

Animal Community – Wildlife Interpretations
Rhizomatous Wheatgrasses, Bluebunch Wheatgrass, Idaho Fescue Plant Community (HCPC): 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.

Mixed Sagebrush/Grass Plant Community: The combination of an overstory of sagebrush and an understory of grasses and forbs provide a very diverse plant community for wildlife. The crowns of sagebrush tend to break up hard crusted snow on winter ranges, so mule deer and antelope may use this state for foraging and cover year-round, as would cottontail and jack rabbits. It provides important winter, nesting, brood-rearing, and foraging habitat for sage grouse. Brewer’s sparrows’ nest in big sagebrush plants, and hosts of other nesting birds utilize stands in the 20-30% cover range.

Heavy Sagebrush Plant Community: This plant community can provide important winter foraging for elk, mule deer and antelope, as sagebrush can approach 15% protein and 40-60% digestibility during that time. This community provides excellent escape and thermal cover for large ungulates, as well as nesting and brood rearing habitat for sage grouse.

Big Sagebrush/Cheatgrass Plant Community: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

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 Carrying Capacity*
(Lb./ac) (AUM/ac)
Rhizomatous WG, Bluebunch WG, Idaho Fescue 900-1800 .4
Heavy Sagebrush 600-1200 .3
Mixed Sagebrush/Grass 800-1400 .35
Big sagebrush/Cheatgrass 400-1000 .2

* - 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.

Hydrological functions

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

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses 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.

Inventory data references

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 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
Data Source Number of Records Sample Period State County
SCS-RANGE-417 1971-1994 WY
Ocular estimates 1990-1999 WY

Contributors

G. Mitchell

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	04/01/2005
Approved by	E. Bainter
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Rills should not be present

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2. **Presence of water flow patterns:** Barely observable

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3. **Number and height of erosional pedestals or terracettes:** Essentially non-existent

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare ground is 45-55% occurring in small areas throughout site

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5. **Number of gullies and erosion associated with gullies:** Active gullies should be restricted to areas of concentrated water flow patterns on steeper slopes

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6. **Extent of wind scoured, blowouts and/or depositional areas:** Small scoured sites may be observed

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7. **Amount of litter movement (describe size and distance expected to travel):** Litter movement is little to none based on topography and water flow patterns

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Plant cover and litter is at 55% or greater of soil surface and maintains soil surface integrity. Soil Stability class is anticipated to be 4 or greater.

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Use Soil Series description for depth and color of A-horizon

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Grass canopy and basal cover should reduce raindrop impact and slow overland flow providing increased time for infiltration to occur. Infiltration is moderate.

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** No compaction layer or soil surface crusting should be present.

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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional: Mid stature Cool Season Grasses > Mid Stature Warm Season Grasses > Shrubs > Forbs > Short Grasses/Grasslikes

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Very Low

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14. **Average percent litter cover (%) and depth (in):** Average litter cover is 20-30% with depths of 0.25 to 0.5 inches

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1400 lbs/ac

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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Blue grama, Big sagebrush, Fringed sagewort, Cheatgrass, Prickly Pear, Skunkbush sumac, and Species found on Noxious Weed List

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17. **Perennial plant reproductive capability:** All species are capable of reproducing

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