

United States Department of Agriculture Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Shallow Clayey (SwCy) 5-9" Wind River Basin Precipitation Zone

Site ID: R032XY258WY

Major Land Resource Area: 32 – Northern Intermountain Desertic Basins

Physiographic Features

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

Landform: Hillsides, ridges & escarpments

Aspect: N/A

	<u>Minimum</u>	<u>Maximum</u>
Elevation (feet):	4500	6600
Slope (percent):	0	60
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	very 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>
Frost-free period (days):	95	175	May 19 – September 19
Freeze-free period (days):	98	185	May 6 – October 3
Mean Annual Precipitation (inches):	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

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 shallow (less than 20”to bedrock) well-drained soils formed in alluvium or residuum. These soils have moderately slow to very slow permeability and may occur on all aspects. The bedrock is clay shale which is virtually impenetrable to plant roots. Thin ineffectual layers of other soil textures are disregarded. The soil characteristics having the most influence on the plant community are the shallow depths, heavy textures, and the potential for elevated quantities of soluble salts.

Major Soil Series correlated to this site includes: Persayo

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

Parent Material Kind: residuum, alluvium

Parent Material Origin: shale, unspecified

Surface Texture: clay loam, clay, silty clay loam, silty clay, loam

Surface Texture Modifier: none

Subsurface Texture Group: silty loam clay loam, sandy clay loam, clay

Surface Fragments ≤ 3” (% Cover): typically 0 occasionally to 25

Surface Fragments > 3” (%Cover): 0 to10

Subsurface Fragments ≤ 3” (% Volume): 5 to 15

Subsurface Fragments > 3” (% Volume): 0 to 10

	<u>Minimum</u>	<u>Maximum</u>
Drainage Class:	well	well
Permeability Class:	very slow	moderately slow
Depth (inches):	10	20
Electrical Conductivity (mmhos/cm) ≤20”:	0	8

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

**Shallow Clayey (SwCy) 5-9 WR
R032XY258WY**

Sodium Absorption Ratio ≤ 20" :	0	12
Soil Reaction (1:1 Water) ≤ 20" :	7.4	9.0
Soil Reaction (0.1M CaCl₂) ≤ 20" :	NA	NA
Available Water Capacity (inches) ≤ 30" :	1.4	4.2
Calcium Carbonate Equivalent (percent) ≤ 20" :	0	14

Plant Communities

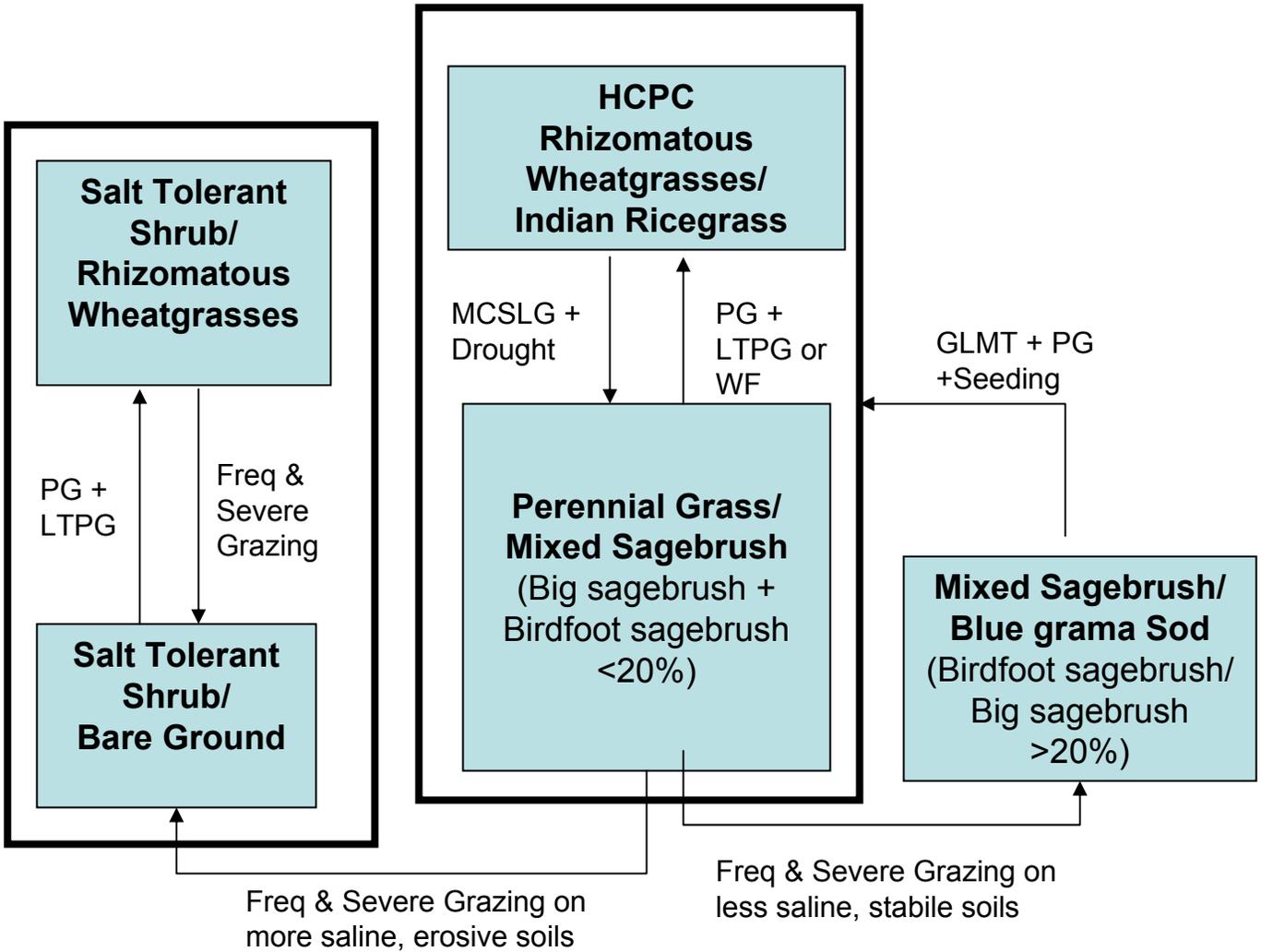
Ecological Dynamics of the Site:

Potential vegetation on this site is dominated by mid cool-season perennial grasses. Other significant vegetation includes winterfat, Gardner saltbush, birdfoot 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 blue grama, birdfoot sagebrush and big sagebrush will increase. Weedy annuals will invade. Cool season grasses such as rhizomatous wheatgrasses, bottlebrush squirreltail, 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 (Natural or Human Caused)

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: 250		
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Western wheatgrass	Pascopyrum smithii	PASM	1	50 - 75	20 - 30
Griffiths wheatgrass or Bluebunch wheatgrass	Elymus albicans	ELAL7	2	13 - 38	5 - 15
Bottlebrush squirreltail	Pseudoroegneria spicata	PSSP6			
Indian ricegrass	Elymus elymoides	ELELE	3	13 - 38	5 - 15
	Achnatherum hymenoides	ACHY	4	13 - 38	5 - 15
MISC. GRASSES/GRASSLIKES			5	13 - 50	5 - 20
Blue grama	Bouteloua gracilis	BOGR2	5	0 - 13	0 - 5
Fendler threeawn	Aristida purpurea longiseta	ARPUL	5	0 - 13	0 - 5
Needleandthread grass	Hesperostipa comata	HECO26	5	0 - 13	0 - 5
Prairie junegrass	Koeleria macrantha	KOMA	5	0 - 13	0 - 5
Sandberg bluegrass	Poa secunda	POSE	5	0 - 13	0 - 5
Threadleaf sedge	Carex filifolia	CAFI	5	0 - 13	0 - 5
other perennial grasses (native)		2GP	5	0 - 13	0 - 5
FORBS			6	13 - 38	5 - 15
American vetch	Vicia americana	VIAM	6	0 - 13	0 - 5
Cous biscuitroot	Lomatium cous	LOCO4	6	0 - 13	0 - 5
Hood's phlox	Phlox hoodii	PHHO	6	0 - 13	0 - 5
Leafy wildparsley	Musineon divaricatum	MUDI	6	0 - 13	0 - 5
Missouri milkvetch	Astragalus missouriensis	ASMI10	6	0 - 13	0 - 5
Parsnipflower buckwheat	Eriogonum heracleoides	ERHE2	6	0 - 13	0 - 5
Plains pricklypear cactus	Opuntia polyacantha	OPPO	6	0 - 13	0 - 5
Scarlet globemallow	Sphaeralcea coccinea	SPCO	6	0 - 13	0 - 5
Small-leaf pussytoes	Antennaria parvifolia	ANPA4	6	0 - 13	0 - 5
Smooth woodyaster	Xylorhiza glabruiscula	XUGL	6	0 - 13	0 - 5
Western aster	Symphotrichum ascendens	SYAS3	6	0 - 13	0 - 5
Wild onion	Allium textile	ALTE	6	0 - 13	0 - 5
other perennial forbs (native)		2FP	6	0 - 13	0 - 5
TREES/SHRUBS					
Wyoming big sagebrush	Artemisia tridentata wyomingensis	ARTRW8	7	13 - 25	5 - 10
Gardner's saltbush	Atriplex gardneri	ATGA	8	0 - 13	0 - 5
Winterfat	Krascheninnikovia lanata	KRAL2	9	0 - 13	0 - 5
MISC. SHRUBS			10	13 - 38	5 - 15
Birdfoot sagebrush	Artemisia pedatifida	ARPE6	10	0 - 13	0 - 5
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	10	0 - 13	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	10	0 - 13	0 - 5
Shadscale	Atriplex confertifolia	ATCO	10	0 - 13	0 - 5
other shrubs & half shrubs (native)		2SHRUB	10	0 - 13	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.

Rhizomatous Wheatgrasses/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, soil less than 20 inches, and periodic fires. The cyclical natural of the fire regime in this community prevented big sagebrush from being the dominant landscape. The state is mostly cool season mid-grasses and a variety of forbs and woody species. Potential vegetation is about 70% grasses or grass-like plants, 10% forbs, and 10% woody plants.

The major grasses include rhizomatous wheatgrasses, Indian ricegrass, bottlebrush squirreltail, and bluebunch wheatgrass. Other grasses occurring on the state may include Sandberg bluegrass, blue grama, and Fendler threeawn. Big sagebrush, Gardner’s saltbush, and winterfat are conspicuous elements of this state, and make up 20% of the annual production. Big sagebrush may become dominant on some areas with absence of fire. 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 250 pounds per acre, but it can range from about 125 lbs./acre in unfavorable years to about 350 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 extremely 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:

- Long-term, moderate, continuous season-long grazing will convert the plant community to the *Perennial Grass/Mixed Sagebrush Plant Community*. Prolonged Drought will exacerbate this transition.

Perennial Grass/Mixed Sagebrush 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. In addition, the fire regime for this site has been modified and extended periods

without fire is now common. 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 is now a conspicuous part of the overall production.

Dominant grasses include western wheatgrass, and bottlebrush squirreltail. Grasses and grass-like species of secondary importance include blue grama, Sandberg bluegrass, Fendler threeawn, and threadleaf sedge. Forbs commonly found in this plant community include scarlet globemallow, wild onion, smooth woodyaster, leafy wildparsley, and Hood’s phlox. Big sagebrush, birdfoot sagebrush, Gardner’s saltbush, and shadscale saltbush dominate the overstory. Big sagebrush and birdfoot sagebrush can make up to 20% of the annual production. Plains pricklypear cactus can also occur.

When compared to the Historic Climax Plant Community, big sagebrush and blue grama have increased. Plains pricklypear cactus will also have increased, but occurs only in small patches. Indian ricegrass has decreased and may occur in only trace amounts under the sagebrush canopy or within the patches of pricklypear. In addition, 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 200 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 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.

Transitions or 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.
- Frequent and severe grazing on more saline soils will convert the plant community to the *Salt Tolerant Shrub/Bare Ground Plant Community*.
- Frequent and severe grazing (yearlong grazing) on less saline soils, will convert the plant community to the *Mixed Sagebrush/Blue Grama Sod Plant Community*.

Mixed Sagebrush/Blue Grama Sod Plant Community

This plant community is the result of frequent and severe yearlong grazing. Soils on these sites are usually less saline. It is dominated by a dense sod of blue grama and includes a mosaic shrub overstory. Big sagebrush may be present but usually birdfoot sagebrush is the most important shrub in this plant community. Pricklypear cactus can become dense in areas so that large animals cannot graze forage growing within the cactus clumps.

When the historic climax plant community is replaced by warm season grasses total annual production is reduced and the ability of perennial cool season grasses are not able to remain as part of the plant composition.

The total annual production (air-dry weight) of this state is about 75 pounds per acre, but it can range from about 50 lbs./acre in unfavorable years to about 150 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 state is relatively stable and protected from excessive erosion where the sod cover is excessive. The sod formed by these grasses is resistant to water infiltration. While the soil is protected by this sod, excessive runoff may occur off-site and also occur on-site where sod is more patchy. As a result, rills or other more severe erosion can occur on unprotected areas. The watershed may or may not be functioning as runoff may affect adjoining sites. The biotic integrity of this plant community is not intact. Plant diversity is extremely low.

Transitional pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling and seeding, etc.) followed by prescribed grazing and if necessary seeding will return this plant community to near *Historic Climax Plant Community*.

Salt Tolerant Shrub/Bare Ground Plant Community

This plant community can occur on sites subjected to continuous yearlong grazing and where soils are influenced by elevated amount of soluble salts. Salt tolerant shrubs are a significant component of the plant community and the preferred cool season grasses have been eliminated or greatly reduced. Wyoming big sagebrush makes up a minor component of the plant community.

This site is dominated by an overstory of salt tolerant shrubs, such as greasewood, birdfoot sagebrush and saltbushes, but can vary widely in their composition and production. This variation results from the varying quantity of soluble salts present in the soils and the availability of shrubs to occupy the site. Big sagebrush and rubber rabbitbrush are present but are mostly in small patches.

Perennial cool season mid-grasses have been removed leaving mostly patches of blue grama and annuals. Cheatgrass and weedy annual forbs such as halogeton, Russian thistle, and kochia, will occupy the site if a seed source is available. Noxious weeds such as Russian knapweed may also invade this site. Plant diversity is moderate to poor. When compared to the HCPC, grass production has diminished but is compensated by the increase in shrub production.

The interspaces between plants have expanded leaving the amount of bare ground more prevalent. Surface salts have increased, especially on sites dominated by greasewood and saltbushes. The leaves of these plants contain high amounts of sodium and other salts, and when shed these soluble salts are transferred to the soils underneath the plants. Consequently, the soil can exhibit wide variations in soluble salts, which can explain the variation in shrub composition.

The total annual production (air-dry weight) of this state is about 150 pounds per acre, but it can range from about 75 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. These areas are actually more resistant to fire as less fine fuels are available and the bare ground between the shrubs has increased. 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 biotic integrity of this state is mostly dysfunctional because of the predominant salt tolerant shrub overstory and absence of perennial cool season grasses.

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.

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

- Prescribed grazing or possibly long-term prescribed grazing, will convert this plant community to the *Salt Tolerant Shrub/Rhizomatous Wheatgrass Vegetative State*. Recovery to near *Historic Climax Plant Community* condition is difficult to impossible due to the resistance of these shrubs to herbicides and other brush management techniques. In addition, the increase in surface salts has had accumulated effects on the soil so most of the herbaceous plants associated with the HCPC are no longer suitable for this site. The most notable exception is the rhizomatous wheatgrasses and bottlebrush squirreltail. Soil remediation to reduce the surface salts is not recommended, as this is mostly ineffective and extremely costly. Seeding more salt-tolerant native grasses and forbs will improve plant cover and the productivity of the site.

Salt Tolerant Shrub/Rhizomatous Wheatgrasses Plant Community

This plant community can occur where the Salt Tolerant/Bare Ground Plant Community is rested and a prescribed grazing management practice is implemented. Salt tolerant shrubs remain a significant component of the plant community, but desirable cool season grasses have reestablished.

This site is dominated by an overstory of salt tolerant shrubs, such as birdfoot sagebrush, saltbushes, and greasewood, but can exhibit a wide variety of shrub composition and production. Some perennial cool season mid-grasses have once again reestablished such as rhizomatous wheatgrasses and bottlebrush squirreltail. Other grasses include Sandberg bluegrass, blue grama, and Fendler threeawn. 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.

The total annual production (air-dry weight) of this state is about 200 pounds per acre, but it can range from about 125 lbs./acre in unfavorable years to about 300 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 mostly resistant to change, but species composition can be altered through long-term overgrazing. The herbaceous component is stable and plant vigor and replacement capabilities are sufficient. The watershed may or may not be functioning and the biotic community is not intact because of the predominant salt tolerant shrub overstory. Plant diversity is moderate

Soils are mostly stable and recent soil loss is minimal. This should not be confused with evidence of remnant erosion. Water flow patterns and litter movement is stable but is still occurring on steeper slopes. Incidence of pedestalling has decreased compared to the Salt Tolerant Shrub/Bare Ground Plant Community.

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

- Frequent and severe grazing will convert the plant community to the *Salt Tolerant Shrub/Bare Ground Plant Community*.
- Recovery to near *Historic Climax Plant Community* condition is difficult to impossible due to the resistance of these shrubs to herbicides and other brush management techniques. In addition, the increase in surface salts has had accumulated effects on the soil so most of the herbaceous plants associated with the HCPC are no longer suitable for this site. The most notable exception is the rhizomatous wheatgrasses and bottlebrush squirreltail. Soil remediation to reduce the surface salts is not recommended, as this is mostly ineffective and extremely costly. Seeding more salt-tolerant grasses and forbs will improve plant cover and the productivity of the site, but will not improve the biotic integrity.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Rhizomatous Wheatgrasses/Indian Ricegrass (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.

Perennial Grass/Mixed Sagebrush 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 and hosts of other nesting birds utilize stands in the 20-30% cover range.

Mixed Sagebrush/Blue Grama Sod Plant Community: This community provides limited 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 Perennial Grass/ Mixed Sagebrush Plant Community is limited. Generally, these are not target plant communities for wildlife habitat management.

Salt Tolerant Shrub/Bare Ground Plant Community: This plant community exhibits a low level of plant species diversity due to the accumulation of salts near the soil surface. In most cases, it is not a desirable plant community to select as a wildlife habitat management objective.

Salt Tolerant Shrub/Rhizomatous Wheatgrass Plant Community: This community provides some foraging for antelope and other grazers. They may be used as a foraging site by sage grouse if proximal to woody cover.

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
GRASSES/GRASSLIKES							
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>	CARO6	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
FORBS							
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 dracunculoides</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	DDDD
birdfoot sagebrush	Artemisia pedatifida	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
black greasewood	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD
black sagebrush	Artemisia nova	ARNO4	DDDD	PPPP	UUUU	PPPP	PPPP	PPPP
broom snakeweed	Gutierrezia sarothrae	GUSA2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
bud sagebrush	Picrothamnus desertorum	PIDE4	PPPP	PPPP	DDDD	PPPP	PPPP	PPPP
fourwing saltbush	Atriplex canescens	ATCA2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Gardners saltbush	Atriplex gardneri	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP	PPPP
green rabbitbrush	Chrysothamnus viscidiflorus	CHV18	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
plains cottonwood (sprouts)	Populus deltoides	PODEM	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Rocky Mountain juniper	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD	DDDD
shadscale saltbush	Atriplex confertifolia	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
shortspine horsebrush	Tetradymia spinosa	TESP2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
silver sagebrush	Artemisia cana	ARCAC5	DDDD	DDDD	DDDD	PPPP	PPPP	PPPP
silverberry	Eleagnus commutata	ELCO	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU
skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
spiny hopsage	Grayia spinosa	GRSP	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Utah juniper	Juniperus osteosperma	JUOS	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU
wax currant	Ribes cereum	RICE	UUUU	UUUU	UUUU	DDDD	DDDD	DDDD
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU
wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD
willows	Salix spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU	UUUU
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DDDD	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	125-350	.10
Perennial Grass/Mixed Sagebrush	100-300	.08
Mixed Sagebrush/Blue Grama Sod	50-150	.03
Salt Tolerant Shrub/Bare Ground	75-200	.03
Salt Tolerant Shrub/Rhizomatous Wheatgrasses	125-300	.05

* - 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 C and D. Infiltration ranges from very slow to moderately slow. 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.

Supporting Information

Associated Sites

Clayey	032XY204WY
Shallow Loamy	032XY262WY
Gravelly	032XY212WY

Similar Sites

() – Shallow Clayey 10-14” Foothills and Basins East P.Z., 032XY358WY has higher production than Shallow Clayey 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

This site occurs entirely within Wyoming.

Type Locality

Field Offices

Casper, Lander, Riverton, Dubious, Fort Washakie

Relationship to Other Established Classifications

Other References

Site Description Approval

State Range Management Specialist

Date