

## United States Department of Agriculture Natural Resources Conservation Service

### Ecological Site Description

**Site Type:** Rangeland

**Site Name:** Saline Subirrigated (SS) 5-9” Big Horn Basin Precipitation Zone

**Site ID:** 032XY142WY

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

### Physiographic Features

This site occurs on gently undulating rolling land.

**Landform:** alluvial fans & stream terraces

**Aspect:** N/A

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	3700	6000
<b>Slope (percent):</b>	0	6
<b>Water Table Depth (inches):</b>	0	40
<b>Flooding:</b>		
<b>Frequency:</b>	rare	occasional
<b>Duration:</b>	very brief	brief
<b>Ponding:</b>		
<b>Depth (inches):</b>	0	3
<b>Frequency:</b>	none	frequent
<b>Duration:</b>	none	brief
<b>Runoff Class:</b>	negligible	low

### Climatic Features

Annual precipitation ranges from 5-9 inches per year. The normal precipitation pattern shows peaks in May, June and July. 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>
<b>Frost-free period (days):</b>	98	171	May 13 – September 19
<b>Freeze-free period (days):</b>	120	184	May 1 – October 5
<b>Mean Annual Precipitation (inches):</b>	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

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

**Stream Type:** C (Rosgen)

## Representative Soil Features

The soils of this site are moderately deep to very deep (greater than 20”to bedrock) poorly drained to moderately well drained soils formed in alluvium. These soils have water tables below the surface for all of the growing season. These areas may have water over the surface from run-in but only for short periods of time. The soil characteristics having the most influence on the plant community are depth to a water table during the growing season and the amount of soluble salts.

Major Soil Series correlated to this site include: Fluvaquents

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

**Parent Material Kind:** alluvium

**Parent Material Origin:** sandstone, shale

**Surface Texture:** loam, clay loam, silt loam, fine sandy loam, sandy loam, clay, loamy sand

**Surface Texture Modifier:** none

**Subsurface Texture Group:** clay loam, loamy, sandy loam, loamy sand, fine sandy loam

**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>
<b>Drainage Class:</b>	very poorly drained	well drained
<b>Permeability Class:</b>	moderately slow	moderately rapid
<b>Depth (inches):</b>	20	>60
<b>Electrical Conductivity (mmhos/cm) ≤20”:</b>	4	16

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

**Saline Subirrigated (SS) 5-9 BH  
R032XY142WY**

<b>Sodium Absorption Ratio <math>\leq 20''</math>:</b>	8	>16
<b>Soil Reaction (1:1 Water) <math>\leq 20''</math>:</b>	7.4	9.0
<b>Soil Reaction (0.1M CaCl<sub>2</sub>) <math>\leq 20''</math>:</b>	NA	NA
<b>Available Water Capacity (inches) <math>\leq 30''</math>:</b>	2.8	6.2
<b>Calcium Carbonate Equivalent (percent) <math>\leq 20''</math>:</b>	0	15

## Plant Communities

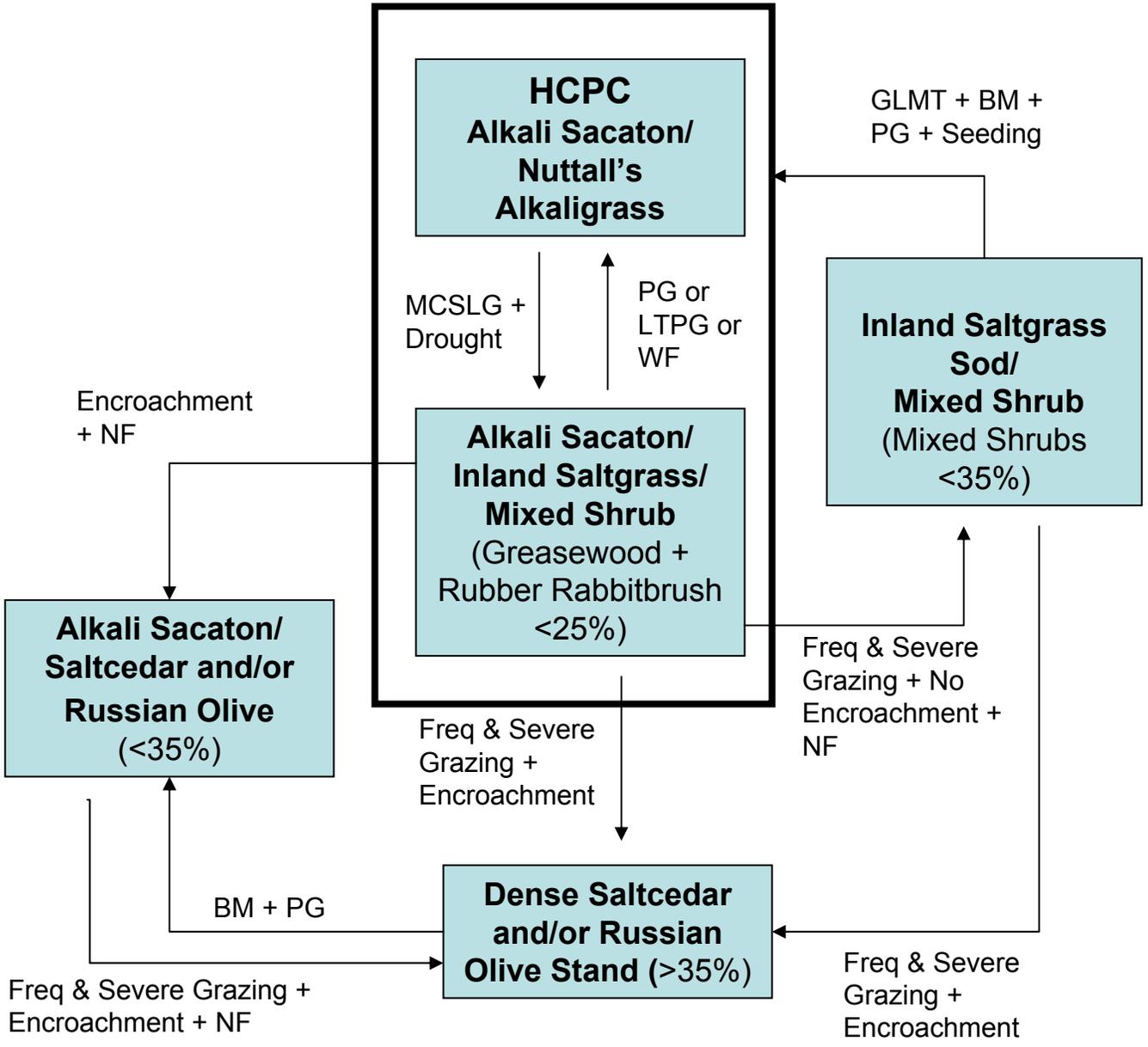
### Ecological Dynamics of the Site:

Plants that can tolerate soils which are saline and/or alkaline and have a water table near the surface for most of the growing season dominate the potential vegetation on this site. The expected potential composition for this site is about 80% grasses, 10% forbs and 10% 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 inland saltgrass and greasewood increase and species such as Russian olive, saltcedar, foxtail barley, and a host of weedy forbs invade the site. Grasses such as alkali sacaton, Nuttall's alkaligrass, and basin wildrye 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.
<b>GRASSES AND GRASS-LIKES</b>			<b>Total: 2400</b>		
<b>GRASSES/GRASSLIKES</b>					
Alkali sacaton	Sporobolus airoides	SPAI	1	960 - 1200	40 - 50
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	2	360 - 600	15 - 25
Basin wildrye	Leymus cinereus	LECI4	3	120 - 360	5 - 15
Alkali cordgrass	Spartina gracilis	SPGR	4	0 - 240	0 - 10
<b>MISC. GRASSES/GRASSLIKES</b>			<b>5</b>	<b>0 - 240</b>	<b>0 - 10</b>
Alkali bluegrass	Poa juncifolius (syn. Poa secunda)	POJU	5	0 - 120	0 - 5
Baltic rush	Juncus balticus	JUBA	5	0 - 120	0 - 5
Inland saltgrass	Distichilis spicata	DISP	5	0 - 120	0 - 5
Western wheatgrass	Pascopyrum smithii	PASM	5	0 - 120	0 - 5
other perennial grasses (native)		2GP	5	0 - 120	0 - 5
<b>FORBS</b>			<b>6</b>	<b>0 - 240</b>	<b>0 - 10</b>
Alkali seepweed	Suaeda spp.	SUAED	6	0 - 120	0 - 5
Arrowgrass	Triglochin spp.	TRIGL	6	0 - 120	0 - 5
Dock	Rumex spp.	RUMEX	6	0 - 120	0 - 5
other perennial forbs (native)		2FP	6	0 - 120	0 - 5
<b>TREES/SHRUBS</b>					
<b>MISC. SHRUBS</b>			<b>7</b>	<b>0 - 240</b>	<b>0 - 10</b>
Greasewood	Sarcobatus vermiculatus	SAVE4	7	0 - 120	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 120	0 - 5
Silver buffaloberry	Shepherdia argentea	SHAR	7	0 - 120	0 - 5
Wild rose	Rosa woodsii var. woodsii	ROWOW	7	0 - 120	0 - 5
other shrubs & half shrubs (native)		2SHRUB	7	0 - 120	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.

**Alkali Sacaton/Nuttall’s Alkaligrass Plant Community**

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores, periodic fires, supplemental moisture, and saline and/or alkali soils. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs and 10% woody plants. The major grasses include alkali sacaton, Nuttall’s alkaligrass, and basin wildrye. Grasses/grasslikes of lesser importance are Baltic rush, alkali bluegrass, western wheatgrass, alkali cordgrass and inland saltgrass. Woody plants are primarily rubber rabbitbrush and greasewood. 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 2400 pounds per acre, but it can range from about 1800 lbs. /acre in unfavorable years to about 2600 lbs. /acre in above average years.

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

Growth curve number: WYO503

Growth curve name: 5-9BH, FREE WATER SITES

Growth curve description: WL, SB, SS, FREE WATER SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	30	30	20	5	5	5	0	0

(Monthly percentages of total annual growth)

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

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

- Moderate, continuous season-long grazing will convert this plant community to the *Alkali Sacaton/Inland Saltgrass/Mixed Shrub Plant Community*. Prolonged drought will exacerbate this transition.

**Alkali Sacaton/Inland Saltgrass/Mixed Shrub Plant Community**

Historically, this plant community evolved under moderate grazing by domestic livestock and low fire frequency. Currently, this site is normally found under a moderate, season-long grazing regime and in the absence of fire or brush control. Prolonged drought can also play an important role and will exacerbate these conditions. Saline and flood tolerant perennial plants make up the dominant species in this plant community.

Dominant grasses/grasslikes include alkali sacaton, inland saltgrass, western wheatgrass, alkali cordgrass, and Baltic rush. Forbs commonly found in this plant community include alkali seepweed, silverweed, American licorice, seaside arrowgrass, and smooth horsetail. Greasewood and rubber rabbitbrush comprises the majority of the woody species and make up less than 25% of the annual production.

When compared to the Historical Climax Plant Community, basin Wildrye and Nuttall’s alkaligrass have decreased. Inland saltgrass, forbs, greasewood, and rubber rabbitbrush have increased. Annual herbaceous weedy plants have increased, but occur in small patches. Invasion of saltcedar or Russian olive should be considered serious and should be controlled.

The total annual production (air-dry weight) of this state is about 2000 pounds per acre, but it can range from about 1500 lbs. /acre in unfavorable years to about 2500 lbs. /acre in above average years.

The following is the growth curve expected during a normal year:  
 Growth curve number: WYO503  
 Growth curve name: 5-9BH, FREE WATER SITES  
 Growth curve description: WL, SB, SS, FREE WATER SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	30	30	20	5	5	5	0	0

This state is stable and protected from excessive erosion. The herbaceous component is mostly intact and plant vigor and replacement capabilities are sufficient. Only minimal occurrences of water flow patterns and litter movement is evident. Incidence of pedestalling is minimal. Soils are mostly stable and the surface shows minimum soil loss. The watershed is functioning and the biotic community is intact.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing and possible long-term prescribed grazing will result in a plant community very similar to the *Historic Climax Plant Community*, except that greasewood will persist without a return to a normal fire regime or some form of brush control.
- Frequent and severe grazing plus no encroachment plus no fire will convert this plant community to the *Inland Saltgrass Sod/Mixed Shrub Plant Community*.
- Encroachment and no fire will convert this plant community to the *Alkali Sacaton/ Saltcedar and/or Russian Olive Plant Community*.
- Frequent and Severe grazing plus encroachment will convert this plant community to a *Dense Saltcedar and/or Russian Olive Stand Plant Community*.

**Inland Saltgrass Sod/Mixed Shrub Plant Community**

This plant community is the result of frequent and severe grazing with periodic overflows and no fire or brush control. This plant community is dominated by a dense short grass sod and includes a mosaic shrub overstory. Shrubs comprise less than 35% of the annual production, and are kept in check by the herbaceous sod understory.

The dominant grasses are inland saltgrass and mat muhly. Forbs such as seaside arrowgrass, licorice root, curly dock, and smooth horsetail are common. Greasewood and rubber rabbitbrush are the primary overstory species in this plant community. Noxious weeds such as saltcedar, Russian olive, Russian knapweed and Canada thistle invade the site, especially if a seed source is available. Plant diversity is moderate to poor.

When compared to the Historic Climax Plant Community, the tall and medium grasses are significantly reduced or absent. Short grasses are dominant and weedy annuals are common. Shrubs have increased as a percentage of the total production, but will not dominate since the sod prevents a homogeneous shrub cover. Areas of bare ground may have increased in patches and total production has decreased as the short grasses have replaced the tall and mid grasses.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 800 lbs. /acre in unfavorable years to about 1600 lbs. /acre in above average years.

The following is the growth curve expected during an average year.

Growth curve number: WYO503

Growth curve name: 5-9BH, FREE WATER SITES

Growth curve description: WL, SB, SS, FREE WATER SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	30	30	20	5	5	5	0	0

(Monthly percentages of total annual growth)

The sod component of this plant community is extremely resistant to change and continued frequent and severe grazing or the removal of grazing does not seem to affect the plant composition or structure of the plant community. The biotic integrity of this state is generally not functional as plant diversity is poor, especially the amount of herbaceous species. The vegetative structure has shifted as the shrubs and short grasses now occupy the majority of the site.

This sod bound plant community is very resistant to water infiltration. While this sod protects the site itself, excessive runoff increases erosion on bare ground and can cause rill channels and gully erosion. Water flow patterns are obvious in the bare ground areas and shrubs and sod patches are pedestalled. Rill channels are noticeable in the interspaces and gullies may be establishing where rills have concentrated. The watershed may not be functioning, as runoff is excessive and erosional processes are accelerated.

Transitional pathways leading to other plant communities are as follows:

- Grazing land mechanical treatment (chiseling, etc.) and brush management followed by prescribed grazing and, if necessary seeding will return this plant community to near *Historic Climax Plant Community*.
- Frequent and severe grazing plus encroachment will convert this plant community to the *Dense Saltcedar and/or Russian Olive Stand Plant Community*. Prolonged drought will exacerbate this transition. Invasion of saltcedar or Russian olive should be considered serious and should be controlled.

**Alkali Sacaton/Saltcedar and/or Russian Olive Plant Community**

This plant community occurs where saltcedar and/or Russian olive encroaches into a saline subirrigated site and becomes established. This occurs with or without grazing and is the result of conditions conducive to the colonization of these plants. Increase in bare ground is likely to increase the potential for colonization. However, areas that have been deferred or removed from grazing and had a healthy stand of alkali sacaton can be infested. Saline and flood tolerant perennial plants make up the dominant understory species in this plant community.

Dominant grasses include alkali sacaton, inland saltgrass, western wheatgrass, alkali cordgrass, and Baltic rush. Forbs commonly found in this plant community include alkali seepweed, silverweed, American licorice, seaside arrowgrass, and smooth horsetail. Saltcedar and/or Russian olive comprise the majority of the woody species and make up less than 35% of the annual production. Invasion of saltcedar or Russian olive should be considered serious and should be controlled.

When compared to the Historical Climax Plant Community, alkali sacaton, basin wildrye and Nuttall’s alkaligrass have decreased. Inland saltgrass and forbs have increased. Saltcedar and Russian olive have invaded. Total production is similar to the Alkali Sacaton/Mixed Shrub plant community.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 800 lbs. /acre in unfavorable years to about 1800 lbs. /acre in above average years.

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

Growth curve number: WYO503

Growth curve name: 5-9BH, FREE WATER SITES

Growth curve description: WL, SB, SS, FREE WATER SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	30	30	20	5	5	5	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 and further encroachment of saltcedar and Russian olive. The herbaceous component is stable and plant vigor and replacement capabilities are sufficient. The biotic community is not intact due to the encroachment of these invasive species. Plant diversity is moderate.

Soils are mostly stabilized. Only minimal occurrences of water flow patterns and litter movement is evident. Incidence of pedestalling is minimal. Soils are mostly stable and the surface shows minimum soil loss. The watershed may or may not be functional.

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

- Frequent and severe grazing plus Encroachment and no fire will convert the plant community to the *Dense Saltcedar and/or Russian Olive Stand Plant Community*.
- Recovery to near *Historic Climax Plant Community* condition is impractical and suppression or containment of these two species is optimal. Any methods of control should be followed by revegetation to reduce regeneration of these two species and other weedy plants.

### Dense Saltcedar and/or Russian Olive Stand Plant Community

This plant community evolved under frequent and severe grazing with the absence of fire and encroachment of saltcedar and/or Russian olive. Saltcedar and/or Russian olive dominate this plant community. Most of the tall and medium grasses are eliminated and an understory of weedy herbaceous plants is prevalent. The interspaces between woody plants have expanded leaving more soil surface exposed to erosive elements or invaders.

The weedy plants, such as foxtail barley, curly dock, kochia, halogeton, swainsonpea, Russian knapweed, and Russian thistle, make up the dominant understory. Total annual production is mostly from shrubs and these weedy plants. Saltcedar and/or Russian olive make up greater than 35% of the total annual production. When compared with the HCPC, the annual production is less due to the removal of the perennial grass and amount of bare ground. The increase in woody species, however, compensates for some of this loss.

The total annual production (air-dry weight) of this state is about 1200 pounds per acre, but it can range from about 800 lbs. /acre in unfavorable years to about 1600 lbs. /acre in above average years.

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

Growth curve number: WYO503

Growth curve name: 5-9BH, FREE WATER SITES

Growth curve description: WL, SB, SS, FREE WATER SITES

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	30	30	20	5	5	5	0	0

(Monthly percentages of total annual growth)

This plant community is resistant to change as the stand becomes denser. These areas may actually be 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 plant composition or structure of the plant community. Saltcedar, Russian olive, annual grasses, weedy species and bare ground compromise the biotic integrity. Plant diversity is poor and the potential for native grasses to reproduce is absent. The shift in the vegetative structure and function is extreme and the biotic integrity is lost.

The soil of this state is not protected as erosion has 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. The watershed is not functional due to excessive runoff, erosion and bare ground.

Transitional pathways leading to other plant communities are as follows:

- Brush management and prescribed grazing will result in an *Alkali Sacaton/ Saltcedar and/or Russian Olive Plant Community*.
- Recovery to near *Historic Climax Plant Community* condition is impractical and suppression or containment of saltcedar and Russian olive is needed. Any methods of control should be followed by revegetation to reduce regeneration of these two species.

## Ecological Site Interpretations

### Animal Community – Wildlife Interpretations

**Historic Climax Plant Community:** The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. This plant community may provide brood rearing/foraging areas for sage grouse. Other birds that would frequent this plant community include western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

**Alkali Sacaton/Inland Saltgrass/Mixed Shrub:** 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.

**Inland Saltgrass Sod/Mixed Shrub:** 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.

**Alkali Sacaton/Saltcedar and/or Russian Olive:** This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community is less productive, and thus, less apt to meet the seasonal needs of these animals. The shrub cover does provide good thermal and escape cover for both large animals and upland birds. Russian olive may provide a good source of food for some upland game birds and large animals.

**Dense Saltcedar and/or Russian Olive Stand Plant Community:** This plant community can provide important winter cover for mule deer and antelope during that time but little foraging value. The plant community composition provides little diversity, and is less apt to meet the seasonal needs of large grazers. The dense shrub cover does provide good thermal and escape cover for both large animals and upland birds. Russian olive may provide a good source of food for some upland game birds and large animals.

**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
<b>GRASSES/GRASSLIKES</b>							
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 alkaligrass	<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
<b>FORBS</b>							
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
<b>TREES, SHRUBS &amp; HALF-SHRUBS</b>							
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	1800-2600	1.2
Alkali Sacaton/Inland Saltgrass/Mixed Shrub	1500-2500	1.0
Inland Saltgrass/Mixed Shrub	800-1600	0.6
Alkali Sacaton/Saltcedar and/or Russian Olive	800-1800	0.8
Dense Saltcedar and/or Russian Olive Stand	800-1600	0.2

\* - 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.

## Hydrology Functions

Climate 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 moderately slow 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. 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

Saline Lowland	032XY138WY
Wetland	032XY178WY

### Similar Sites

() – Saline Subirrigated 10-14" Foothills and Basins East P.Z., 032XY342WY 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

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State Range Management Specialist

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Date