

## United States Department of Agriculture Natural Resources Conservation Service

### Ecological Site Description

**Site Type:** Rangeland

**Site Name:** Saline Subirrigated (SS) 10-14" Foothills and Basins East Precipitation Zone

**Site ID:** R032XY342WY

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

### Physiographic Features

This site occurs on relatively level lands adjacent to perennial streams, lakes, ponds and springs.

**Landform:** alluvial fans & stream terraces

**Aspect:** N/A

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	5400	7500
<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 10-14 inches per year. The normal precipitation pattern shows the least amount of precipitation in December, January, and February, increasing to a peak during the latter part of May. Amounts decrease through June, July, and August and then increase some in September. 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 exceeds 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.

Winds are generally not strong as compared to the rest of the state. Daytime winds are generally stronger than nighttime and occasional strong storms may bring brief periods of high winds with gusts to more than 75 mph.

Growth of native cool-season plants begins about April 15 and continues to about July 15. 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 “Thermopolis 2” climate station:

	<u>Minimum</u>	<u>Maximum</u>	<u>5 yrs. out of 10 between</u>
<b>Frost-free period (days):</b>	74	149	May 23 – September 16
<b>Freeze-free period (days):</b>	112	180	May 8 – October 1
<b>Annual Precipitation (inches):</b>	7.6	21.9	

Mean annual precipitation: 12.35 inches

Mean annual air temperature: 46.2 °F (30.1°F Avg. Min. to 62.3°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 “Grass Creek 1E”, “Thermopolis”, Thermopolis 25NW”, “Buffalo Bill Dam” and “Black Mountain”.

## 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) <math>\leq 20</math>"</b> :	4	16
<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

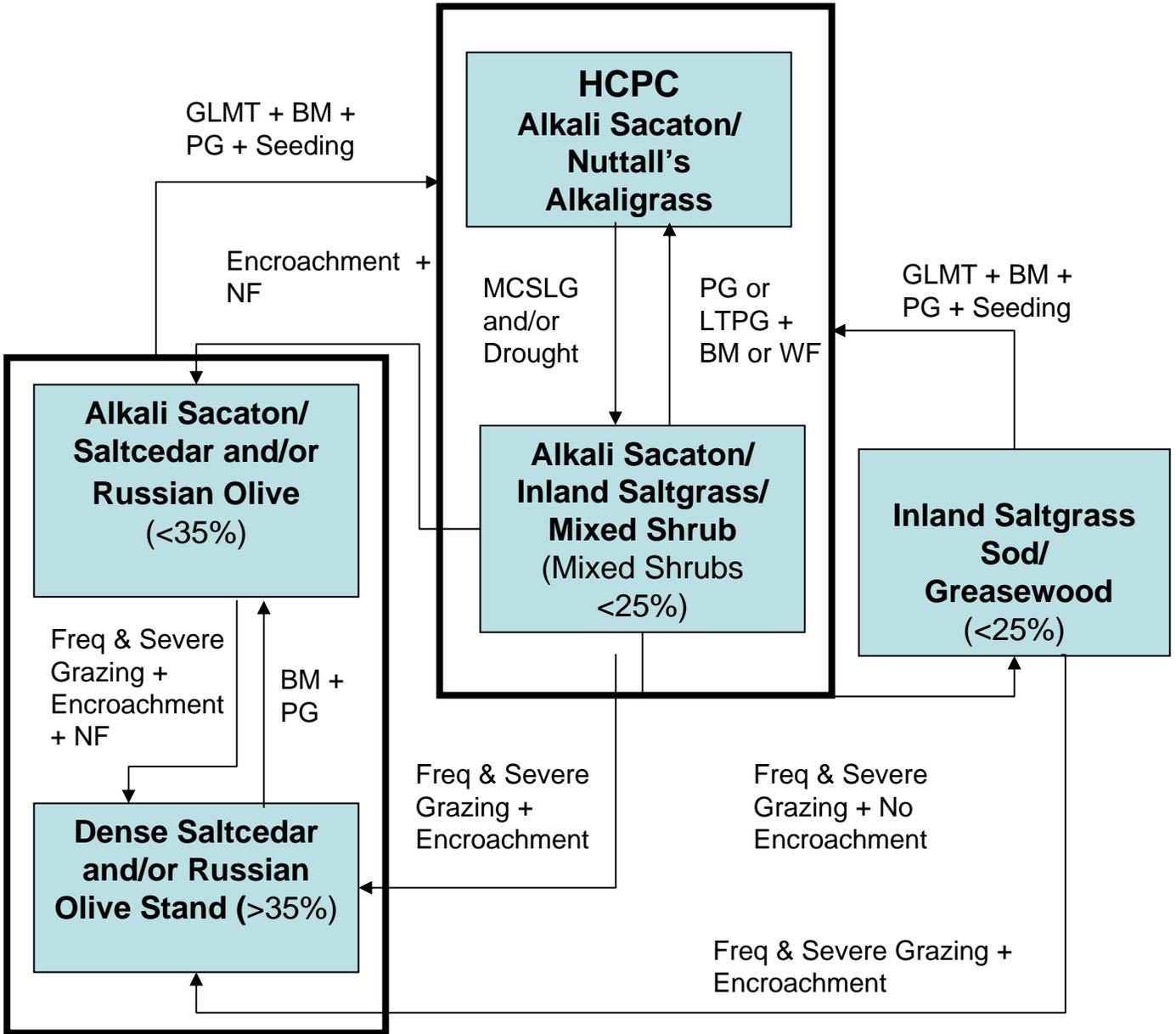
### Ecological Dynamics of the Site:

Potential vegetation on this site is dominated by plants that can tolerate soils that are saline and/or alkaline and have a water table near the surface for most of the growing season. The expected potential composition for this site is about 80% grasses, 5% forbs and 15% 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 and foxtail barley 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.
			Total: 3200		
<b>GRASSES AND GRASS-LIKES</b>					
<b>GRASSES/GRASSLIKES</b>					
Alkali sacaton	Sporobolus airoides	SPAI	1	960 - 1280	30 - 40
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	2	800 - 960	25 - 30
Basin wildrye	Leymus cinereus	LECI4	3	160 - 480	5 - 15
Alkali cordgrass	Spartina gracilis	SPGR	4	0 - 320	0 - 10
<b>MISC. GRASSES/GRASSLIKES</b>			<b>5</b>	<b>0 - 320</b>	<b>0 - 10</b>
Alkali bluegrass	Poa juncifolia	POSE	5	0 - 160	0 - 5
Baltic rush	Juncus balticus	JUBA	5	0 - 160	0 - 5
Chairmaker's bulrush	Schoenoplectus americanus	SCAM6	5	0 - 160	0 - 5
Inland saltgrass	Distichlis spicata	DISP	5	0 - 160	0 - 5
Mat muhly	Muhlenbergia richardsonis	MURI	5	0 - 160	0 - 5
Tufted hairgrass	Deschampsia caespitosa	DECA18	5	0 - 160	0 - 5
Western wheatgrass	Pascopyrum smithii	PASM	5	0 - 160	0 - 5
other perennial grasses (native)		2GP	5	0 - 160	0 - 5
<b>FORBS</b>			<b>6</b>	<b>0 - 320</b>	<b>0 - 10</b>
Alkali seepweed	Suaeda spp.	SUAED	6	0 - 160	0 - 5
Arrowgrass	Triglochin spp.	TRIGL	6	0 - 160	0 - 5
Common plantain	Plantago major	PLMA2	6	0 - 160	0 - 5
Dock	Rumex spp.	RUMEX	6	0 - 160	0 - 5
Horsetail	Equisetum spp.	EQUIS	6	0 - 160	0 - 5
Povertyweed	Iva axillaris	IVAX	6	0 - 160	0 - 5
Pursh seepweed	Suaeda calceoliformis	SUCA2	6	0 - 160	0 - 5
Silverweed cinquefoil	Argentina anserina	ARAN7	6	0 - 160	0 - 5
other perennial forbs (native)		2FP	6	0 - 160	0 - 5
<b>TREES/SHRUBS</b>			<b>7</b>	<b>160 - 480</b>	<b>5 - 15</b>
Greasewood	Sarcobatus vermiculatus	SAVE4	7	0 - 160	0 - 5
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	7	0 - 160	0 - 5
Silver buffaloberry	Shepherdia argentea	SHAR	7	0 - 160	0 - 5
Wild rose	Rosa woodsii var. woodsii	ROWOW	7	0 - 160	0 - 5
other shrubs & half shrubs (native)		2SHRUB	7	0 - 160	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, 5% forbs and 15% woody plants. The major grasses include alkali sacaton, Nuttall’s alkaligrass, and basin wildrye. Grasses of lesser importance are Baltic rush, Chairmaker’s bulrush, western wheatgrass, alkali cordgrass, inland saltgrass, and tufted hairgrass. Woody plants are primarily rubber rabbitbrush, silver buffaloberry, wild rose, 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 3200 pounds per acre, but it can range from about 2800 lbs./acre in unfavorable years to about 3600 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	5	20	30	20	10	15	0	0	0

(Monthly percentages of total annual growth)

The state is stable and well adapted to the Northern Intermountain Desertic Basins climate. 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.

The 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. Greasewood and rubber rabbitbrush comprise 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, Nuttall’s alkaligrass, and tufted hairgrass have decreased. Inland saltgrass, forbs, greasewood, and rubber rabbitbrush have increased. Annual weedy plants have invaded, but occur in small patches.

The total annual production (air-dry weight) of this state is about 2800 pounds per acre, but it can range from about 2200 lbs./acre in unfavorable years to about 3400 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	5	20	30	20	10	15	0	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 or possibly 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 will convert this plant community to the *Inland Saltgrass Sod/Greasewood 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/Greasewood 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. Greasewood, the primary shrub, comprises less than 25% of the annual production, and shrub numbers are kept in check by the herbaceous sod understory.

The dominant grasses are inland saltgrass, mat muhly, big bluegrass, Baltic rush and Chairmaker’s bulrush. Forbs such as seaside arrowgrass, licorice root, curly dock, and smooth horsetail are common. Greasewood is the primary overstory species in this plant community, but rubber rabbitbrush can also become abundant. Noxious weeds such as Russian knapweed and Canada thistle often invade the site 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 warm season grasses are dominant and weedy annuals are common. Shrubs will have increased as a percentage of the total production, but will not dominate as 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 1500 pounds per acre, but it can range from about 1200 lbs./acre in unfavorable years to about 2000 lbs./acre in above average years.

The following is the growth curve expected during an average 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	5	20	30	20	10	15	0	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 consider 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 two plants. An 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 still be infested. Saline and flood tolerant perennial plants make up the dominant understory species in this plant community.

The 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 usually make up greater than 35% of the annual production.

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

The total annual production (air-dry weight) of this state is about 2200 pounds per acre, but it can range from about 1600 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:

Growth curve name:

Growth curve description:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	30	20	10	15	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 and further encroachment of saltcedar and/or 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 more Encroachment will convert the plant community to the *Dense Saltcedar and/or Russian Olive Stand Plant Community*.
- Grazing land mechanical treatment, brush management, and prescribed grazing may convert this plant community to the *Historic Climax Plant Community*, but recovery is mostly impractical as removal of salt cedar and/or Russian olive is expensive and total removal is typically not obtainable. Salt cedar and Russian olive will still probably persist as suppression and containment of this plant is optimal. Any methods of control should be followed by revegetation to reduce regeneration of these plants and other weedy species.

**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 grasses and the amount of bare ground. The increase in woody species compensates for some of this loss.

The total annual production (air-dry weight) of this state is about 1800 pounds per acre, but it can range from about 1500 lbs./acre in unfavorable years to about 2000 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	5	20	30	20	10	15	0	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 is 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*. Controlling both Saltcedar and Russian olive is a priority when these species have invaded. Any methods of control should be followed by revegetation to reduce regeneration of these two species and other weedy plants.
- Grazing land mechanical treatment, brush management, and prescribed grazing may convert this plant community to the *Historic Climax Plant Community*, but recovery is mostly impractical as removal of salt cedar and/or Russian olive is both expensive and total removal is typically not obtainable. Salt cedar and Russian olive will still probably persist as suppression and containment of this plant is optimal. Any methods of control should be followed by revegetation to reduce regeneration of this plant and other weedy 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. Good grasshopper habitat equals good foraging for birds.

**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. Good grasshopper habitat equals good foraging for birds.

**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. Many grassland obligate small mammals would occur here.

**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 and some foraging value if Russian olive trees are present. The plant community composition comprises little diversity, and thus, 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. Many grassland obligate small mammals would occur here.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occurring plants in MLRA 32, 10-14 inch Foothills and Basins East

COMMON NAME/ GROUP NAME	SCIENTIFIC NAME	SCIENTIFIC SYMBOL	Cattle	Sheep	Horses	Mule Deer	Antelope	Elk	Moose	Mtn. Sheep
<b>GRASSES/GRASSLIKES</b>										
Alkali bluegrass	Poa juncea (syn. P. secunda)	POJU (POSE)	DDDD	PPPP	DDDD	PPPP	PPPP	DDDD	DDDD	DDDD
Alkali cordgrass	Spartina gracilis	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU	DDDD	DDDD	UUUU
Alkali sacaton	Sporobolus airoides	SPA1	PPPP	DDDD	PPPP	DDDD	DDDD	PPPP	DDDD	DDDD
Baltic rush	Juncus balticus	JUBA	DDDD	UUUU	DDDD	UUUU	UUUU	DDDD	UUUU	UUUU
Basin wildrye	Leymus cinereus	LECI4	PPPP	PPPP	PPPP	DDDD	DDDD	PPPP	DDDD	PPPP
Big bluegrass	Poa Ampla (syn. P. secunda)	POAM (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD	PPPP	PPPP	DDDD
Bluejoint reedgrass	Calamagrostis canadensis	CACAM	PPPP	DDDD	PPPP	UUUU	UUUU	PPPP	DDDD	DDDD
Bottlebrush squirreltail	Elymus elymoides	ELELE	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Bulrush	Scirpus spp.	SCRIP	DDDD	UUUU	DDDD	UUUU	UUUU	DDDD	DDDD	DDDD
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD	PPPP	PPPP	PPPP
Canby bluegrass	Poa canbyi (syn. to Poa secunda)	POCA (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Golden sedge	Carex aurea	CAAU3	DDDD	DDDD	DDDD	UUUU	UUUU	DDDD	UUUU	DDDD
Green needlegrass	Nassella viridula	NAV14	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Inland saltgrass	Distichlis spicata	DISP	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Inland sedge	Carex interior	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU	DDDD	DDDD	DDDD
Mat muhly	Muhlenbergia richardsonis	MURI	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Griffith's wheatgrass	Elymus albicans	ELAL7	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Nebraska sedge	Carex nebrascensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD	PPPP	DDDD	DDDD
Needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Nuttall's alkaligrass	Puccinellia nuttalliana	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Prairie sandreed	Calamovilfa longifolia	CALO	PPPP	DDDD	PPPP	UUUU	UUUU	PPPP	DDDD	DDDD
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Sand dropseed	Sporobolus cryptandrus	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU	DDDD	UUUU	UUUU
Slender wheatgrass	Elymus trachycaulus	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD	PPPP	DDDD	DDDD
Slough sedge	Carex obnupta	CAOB3	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Spike fescue	Leucophaea kingii	LEKI2	PPPP	DDDD	PPPP	PPPP	DDDD	PPPP	DDDD	DDDD
Streambank wheatgrass	Elymus lanceolatus	ELLAL3	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Thickspike wheatgrass	Elymus lanceolatus	ELLAL3	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP	DDDD	DDDD	DDDD
Tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD	PPPP	DDDD	DDDD
Upland sedge	Carex spp.	CAREX	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Water sedge	Carex aquatilis	CAAQ	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
<b>FORBS</b>										
Alkali seepweed	Suaeda vera	SUVE2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
American bistort	Polygonum bistortoides	POBI16	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Arrowgrass	Triglochin spp.	TRIGL	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
Asters	Eucephalus spp.	EUCEP2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Biscuitroots	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD	DDDD	DDDD
Cinquefoil	Potentilla spp.	POTEN	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Deathcamas	Zigadenus Michx.	ZIGAD	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
Dock	Rumex spp.	RUMEX	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Evening primrose	Oenothera caespitosa	OECA10	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
False carrot	Turgenia spp.	TURGE	UUUU	DDDD	UUUU	UUUU	UUUU	UUUU	UUUU	DDDD
Fleabanes	Erigeron spp.	ERIGE2	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Fringed sagewort	Artemisia frigida	ARFR4	UUUU	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU	UUUU
Goldenweed	Stenotus acaulis	STAC	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Gromwell	Buglossoides arvensis	BUAR3	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Hawksbeard	Crepis acuminata	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD	UUUU	DDDD	DDDD
Horsetails	Equisetum spp.	EQUIS	UUUU	UUUU	TTTT	UUUU	UUUU	UUUU	UUUU	UUUU
Iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Larkspur	Delphinium spp.	DELPH	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Milkvetch	Astragalus spp.	ASTRA	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Painbrush	Castilleja spp.	CAST	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Phlox	Phlox spp.	PHLOX	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Prairie thermopsis	Thermopsis rhombifolia	THRH	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Princessplume	Stanleya spp.	STANL	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
Nuttall's povertyweed	Monoecis nuttalliana	MONU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Pussytoes	Antennaria spp.	ANTEN	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Salsify	Tragopogon porrifolius	TRPO	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Scarlet globemallow	Sphaeralcea coccinea	SPCO	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Stemless hymenoxys	Tetranneuris acaulis	TEACA2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Wild onion	Allium textile	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD
Winterfat	Krascheninnikovia lanata	KRAL2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Woody aster	Xylorhiza spp.	XYLOR	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT	TTTT
Woolly groundsel	Packera cana	PACA15	TTTT	UUUU	TTTT	UUUU	UUUU	TTTT	UUUU	UUUU
<b>TREES, SHRUBS &amp; HALF-SHRUBS</b>										
Antelope bitterbrush	Purshia tridentata	PUTR2	PPPP	PPPP	DDDD	PPPP	PPPP	PPPP	PPPP	PPPP
Boxelder	Acer negundo L. var. interius	ACNE12	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Silver sagebrush	Artemisia cana	ARCA13	DDDD	DDDD	PPPP	PPPP	PPPP	DDDD	DDDD	DDDD
Big sagebrush	Artemisia tridentata	ARTR2	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD	DDDD	DDDD
Birdfoot sagebrush	Artemisia pedatifida	ARPE6	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Black sagebrush	Artemisia nova	ARNO4	UUUU	PPPP	UUUU	PPPP	PPPP	UUUU	UUUU	DDDD
Cottonwoods (sprouts)	Populus spp.	POPUL	DDDD	DDDD	DDDD	DDDD	UUUU	DDDD	DDDD	UUUU
Curleaf mountainmahogany	Cercocarpus ledifolius	CELE3	PPPP	PPPP	DDDD	PPPP	UUUU	PPPP	PPPP	DDDD
Gardners saltbush	Atriplex gardneri	ATGA	PPPP	PPPP	DDDD	PPPP	PPPP	PPPP	PPPP	DDDD
Greasewood	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD	UUUU	UUUU
Green rabbitbrush	Chrysothamnus viscidiflorus	CHVI8	PPPP	DDDD	PPPP	PPPP	PPPP	PPPP	DDDD	DDDD
Limber pine	Pinus flexilis	PINF2	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	PPPP	UUUU	DDDD	PPPP	UUUU	UUUU	DDDD
Rocky Mountain juniper	Juniperus scopulorum	JUSC2	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU	UUUU	UUUU
Shadscale	Atriplex confertifolia	ATCO	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
Shrubby cinquefoil	Dasiphora floribunda	DAFL3	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	DDDD	UUUU
Silver buffalobery	Shepherdia argentea	SHAR	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU	UUUU
skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD	DDDD	UUUU	UUUU
Snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU	UUUU	UUUU
Utah juniper	Juniperus osteosperma	JUOS	UUUU	UUUU	UUUU	DDDD	UUUU	UUUU	UUUU	UUUU
Wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD	DDDD	DDDD
Willows	Salix spp.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU	PPPP	PPPP	DDDD
Winterfat	Krascheninnikovia lanata	KRAL2	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP	PPPP
Yucca	Yucca spp.	YUCCA	DDDD	DDDD	UUUU	DDDD	DDDD	DDDD	UUUU	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	2800-3600	1.8
Alkali Sacaton/Inland Saltgrass/Mixed Shrub	2200-3400	1.3
Inland Saltgrass Sod/Greasewood	1200-2000	0.8
Alkali Sacaton/Saltcedar and/or Russian Olive	1600-2600	0.4
Dense Saltcedar and/or Russian Olive Stand	1500-2000	1.0

\* - 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	032XY328WY
Wetland	032XY378WY

### Similar Sites

- () – Saline Subirrigated 5-9" Wind River Basin P.Z. 032XY242WY
  - Saline Subirrigated 5-9" Big Horn Basin P.Z. 032XY142WY
- [Lower production than the Saline Subirrigated 10-14" E]

### 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 Everett Bainter, Range Management Specialist. 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, Cody, Dubois, Fort Washakie, Greybull, Lander, Powell, Riverton, Thermopolis, Worland,

### Relationship to Other Established Classifications

### Other References

### Site Description Approval

---

State Range Management Specialist

---

Date