

Ecological site R021XY102OR

SODIC FLAT

10+ PZ

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General information

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

Associated sites

R021XY104OR	SALINE MEADOW
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Similar sites

R021XY104OR	SALINE MEADOW Lower sodium
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs in lake basins. This site may also occur on steeper slopes adjacent to basins where the wind has deposited soil particles which are high in sodium.

Table 2. Representative physiographic features

Landforms	(1) Basin floor
Elevation	1,220 – 1,430 m
Slope	0 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 14 inches, most of which occurs in the form of snow during the months of November through April with spring and fall rains. The soil temperature regime is mesic with the mean annual air temperature of about 47 degrees F. Temperature extremes range from 110 to -30 degrees F. The frost free period ranges from 70 to 110 days. The optimum period for plant growth is from mid-April to June.

Table 3 Representative climatic features

Frost-free period (average)	110 days
Freeze-free period (average)	0 days
Precipitation total (average)	360 mm

Influencing water features

Soil features

The soils of this site are strongly or very strongly alkaline. The presence of sodium and salts limit the use of these soils. The soils are very deep to bedrock but typically have a water table at or near the surface during the spring. Because of the sodium, soil structure is poor and puddling of the surface layer is common. Along with the sodium, salts are usually present and plant available water is dramatically reduced. In some cases the soils have a black, crusted surface. This condition supports little or no vegetation. The soils are somewhat poorly or poorly drained. Typically the surface is silt loam with a clay loam or clay subsoil. Permeability is moderate to slow. Runoff is very slow. Erosion hazard from water is slight but wind erosion can be a concern where the surface soil is exposed and is dry.

Table 4. Representative soil features

Surface texture	(1) Silt loam
Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained to poorly drained
Permeability class	Slow to moderate
Soil depth	150 cm

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, basin wildrye will decrease while inland saltgrass will become the dominant grass. Further deterioration will reduce soil cover and accelerate soil moisture evaporation leading to an increased concentration of salts and alkali on the soil surface.

The typical plant composition of this site results from poor soil drainage and accumulations of salts and sodium. Where small elevational increases occur and drainage is improved, there is an increase in plants less tolerant of salts and sodium.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Dominant deep rooted perennial grasses			841-1177	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	841-1177	–
2	Sub-dominant deep rooted perennial grasses			84-252	
	saltgrass	DISP	<i>Distichlis spicata</i>	84-252	–
3	Dominant shallow rooted perennial grasses			118-252	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	118-252	–
5	Other perennial grasses			34-84	
	sedge	CAREX	<i>Carex</i>	0-6	–
	rush	JUNCU	<i>Juncus</i>	0-6	–
Forb					
7	Dominant perennial shrubs			67-135	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	17-34	–
	fleabane	ERIGE2	<i>Erigeron</i>	17-34	–
	povertyweed	IVAX	<i>Iva axillaris</i>	17-34	–
	pepperweed	LEPID	<i>Lepidium</i>	17-34	–
Shrub/Vine					
12	Sub-dominant evergreen shrubs			34-84	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	34-84	–
13	Dominant deciduous (or 1/2 shrubs) shrubs			84-168	
	greasewood	SAVE4	<i>Sarcobatus vermiculatus</i>	84-168	–

Animal community

When located near water, this site provides food and cover for mule deer and quail.

Hydrological functions

The soils are typically in hydrologic group D.

Other products

This site is suited to grazing by livestock in most seasons under a planned grazing system. This site can be damaged if heavily grazed during spring and early summer.

Other information

The soils of this site typically reflect hydric soil characteristics. Chemical conditions in the soil may make it corrosive to concrete and steel. This site is not well suited to reseeding. Salt concentrations inhibit germination of most presently available species.

Contributors

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Rangeland health reference sheet

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

Author(s)/participant(s)	Jeff Repp
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Date	08/21/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills: None, slight sheet & rill erosion hazard

2. Presence of water flow patterns: None

3. Number and height of erosional pedestals or terracettes: None

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):
5-25% black alkali spots are devoid of vegetation

5. Number of gullies and erosion associated with gullies: None

6. Extent of wind scoured, blowouts and/or depositional areas: None, slight wind erosion hazard: severe when soil is exposed and dry

7. Amount of litter movement (describe size and distance expected to travel): Fine to moderately coarse - limited movement

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):
Moderately resistant to erosion: aggregate stability = 3-4

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Very deep strongly or very strongly alkaline, somewhat poorly or poorly drained loams, silt loams, and silty clay loams: Low OM (1-2%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: High ground cover (75-85%) and gentle slopes (0-1%) effectively limits rainfall impact and overland flow, infiltration can be limited by excess thatch

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None

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

Dominant: Basin wildrye > Inland saltgrass > Alkali bluegrass = Black greasewood > other shrubs = other grasses > forbs

Sub-dominant:

Other:

Additional:

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

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production): Favorable: 2200, Normal: 1500, Unfavorable: 1000 lbs/acre/year at high RSI (HCPC)

16. Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site: Perennial brush species will increase with deterioration of plant community. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

17. Perennial plant reproductive capability: All species should be capable of reproducing annually
