

Ecological site R021XY104OR SALINE MEADOW

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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.



Figure 1. Mapped extent

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

Associated sites

R021XY102OR	SODIC FLAT 10+ PZ
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Similar sites

R021XY102OR	SODIC FLAT 10+ PZ High alkalinity
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Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Sarcobatus vermiculatus</i> (2) <i>Chrysothamnus nauseosus</i>
Herbaceous	(1) <i>Puccinellia nuttalliana</i> (2) <i>Distichlis spicata</i>

Physiographic features

This site occurs in lake basins and on floodplains.

Table 2. Representative physiographic features

Landforms	(1) Basin floor (2) Flood plain
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to frequent
Ponding duration	Long (7 to 30 days)
Ponding frequency	None to frequent
Elevation	1,219–1,433 m
Slope	0–2%
Water table depth	0–152 cm
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 18 inches, most of which occurs in the form of snow during the months of October through April. The soil temperature regime is mesic with a mean annual air temperature of about 47 degrees F. Temperature extremes range from 110 to -30 degrees F. The frost free period ranges from 75 to 125 days. The optimum period for plant growth is from mid-April to July.

Table 3. Representative climatic features

Frost-free period (average)	125 days
Freeze-free period (average)	165 days
Precipitation total (average)	457 mm

Influencing water features

This site has a fluctuating water table which is at or near the surface during the spring. Saline and alkaline conditions dramatically reduce available water to plants when compared to other sites having similar textures and depth.

Soil features

The soils of this site are moderately alkaline. The soils are both saline and alkali. The presence of salts and sodium limit the use of these soils. These soils typically have a white and black crusted surface and are known as white and black alkali soils. The soils are very deep to bedrock and have fluctuating water table which is at or near the surface during the spring. Because of the salts, plant available water is dramatically reduced when compared to other soils having somewhat poorly or poorly drained. Texture is variable and ranges from loamy fine sand to silty clay loam in both the surface and subsoil. Runoff is very slow and in most cases the soils pond water. Erosion hazard from water is slight, but wind erosion can be a concern where the surface soil is exposed.

Table 4. Representative soil features

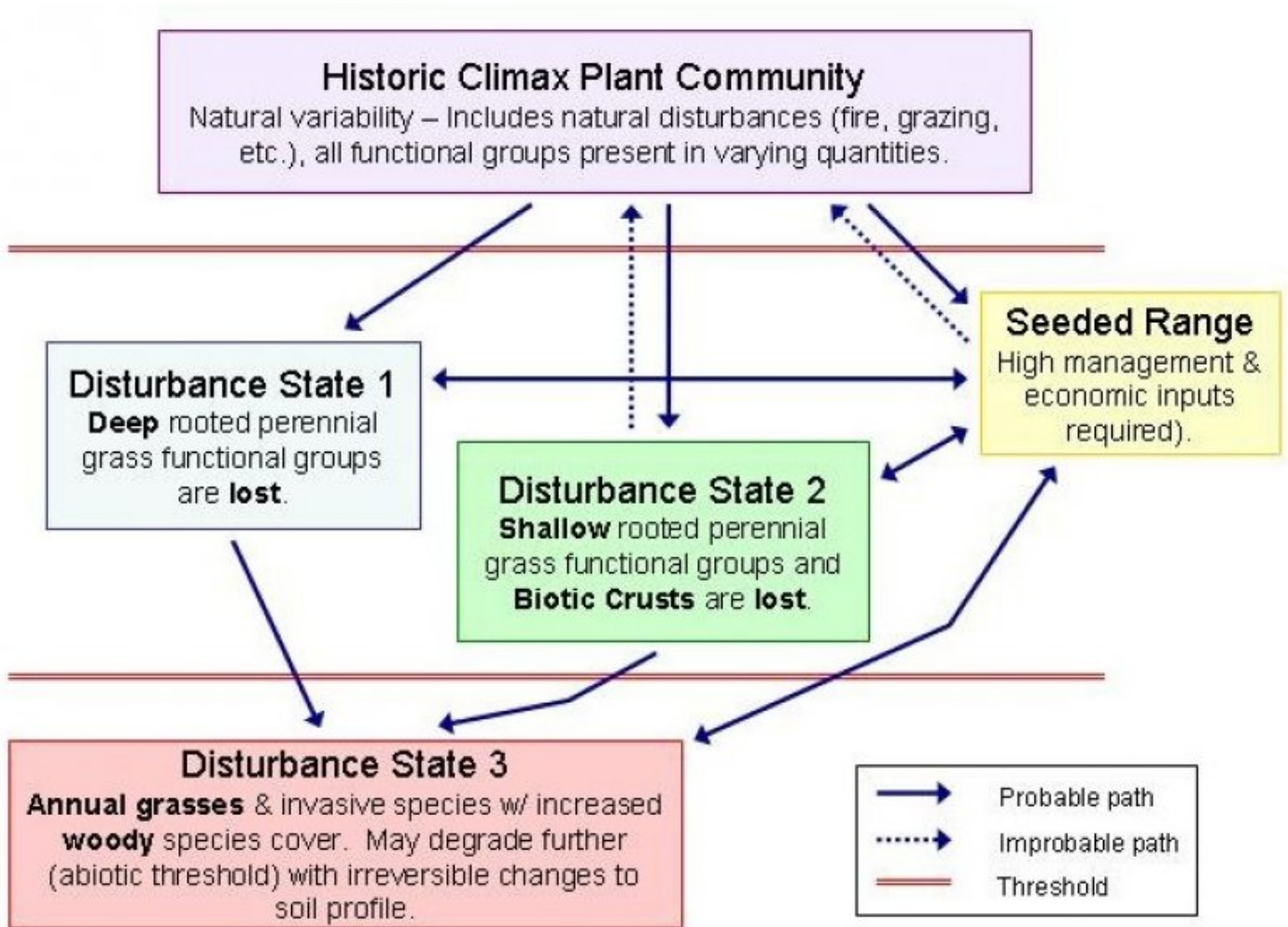
Surface texture	(1) Loamy fine sand (2) Silty clay loam
Family particle size	(1) Loamy
Drainage class	Somewhat poorly drained to poorly drained
Soil depth	152 cm

Ecological dynamics

If the condition of the site deteriorates as a result of overgrazing, Nuttall alkali-grass will decrease in the stand and inland saltgrass will become dominant. With further deterioration, black greasewood and rabbitbrush will increase. Foxtail barley and pepperweed will invade the site.

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



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1
HCPC, PUNU2-DISP

Community 1.1
HCPC, PUNU2-DISP

The potential native plant community is dominated by Nuttall alkali-grass and inland saltgrass with lesser amounts of sedges and bottlebrush squirreltail. Black greasewood and rabbitbrush may occur in the stand. Vegetative composition of the community is approximately 90% grasses, 5% forbs and 5% shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	807	1007	1199
Shrub/Vine	67	84	101
Forb	45	62	78
Total	919	1153	1378

Figure 5. Plant community growth curve (percent production by month).
OR5501, D21 Low Elev., NA, Meadow/Lakebed/Irr.. RPC Growth Curve.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	15	30	35	10	5	0	0	0

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Dominant deep rooted perennial grasses			560–785	
	Nuttall's alkaligrass	PUNU2	<i>Puccinellia nuttalliana</i>	560–785	–
2	Sub-dominant shallow rooted perennial grasses			247–415	
	saltgrass	DISP	<i>Distichlis spicata</i>	224–336	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	11–56	–
	sedge	CAREX	<i>Carex</i>	11–22	–
Forb					
7	Dominant perennial forbs			11–22	
	aster	EUCEP2	<i>Eucephalus</i>	11–22	–
10	Other annual forbs			34–56	
Shrub/Vine					
13	Dominant deciduous (or 1/2 shrubs) shrubs			67–101	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	22–34	–
	green rabbitbrush	ERTE18	<i>Ericameria teretifolia</i>	22–34	–
	greasewood	SAVE4	<i>Sarcobatus vermiculatus</i>	22–34	–

Animal community

When located near water, this site provides food and cover for mule deer and quail. Some shorebirds or waterfowl may use this site temporarily while water is ponded.

Hydrological functions

The soils are typically in hydrologic groups C or D, but may range to B.

Other products

This site is suited to livestock grazing in summer and fall when the soil is dry. This site can be damaged if heavily grazed during the winter and spring seasons while the soils are wet.

Other information

The soils in 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 for seeding due to the presence of salts and sodium.

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
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	08/21/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, slight sheet & rill erosion hazard
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2. **Presence of water flow patterns:** None
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3. **Number and height of erosional pedestals or terracettes:** None
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-15% black & white alkali spots are devoid of vegetation
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5. **Number of gullies and erosion associated with gullies:** None
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6. **Extent of wind scoured, blowouts and/or depositional areas:** None, slight wind erosion hazard: severe when soil is exposed and dry
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine to moderately coarse - limited movement

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Moderately resistant to erosion: aggregate stability = 3-4
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep, moderately alkaline, somewhat poorly or poorly drained loamy fine sands to silty clay loams: Low OM (<2%)
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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 (0-2%) effectively limits rainfall impact and overland flow, infiltration can be limited by excess thatch
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant: Nuttall alkali grass > Inland saltgrass > other forbs > shrubs > sedges = dominant 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):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 1500, Normal: 1000, Unfavorable: 700 lbs/acre/year at high RSI (HCPC)
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Perennial brush species will increase with deterioration of plant community. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.
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17. **Perennial plant reproductive capability:** All species should be capable of reproducing annually
