

Ecological site R023XY218OR

THIN SURFACE CLAYPAN 10-16 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.

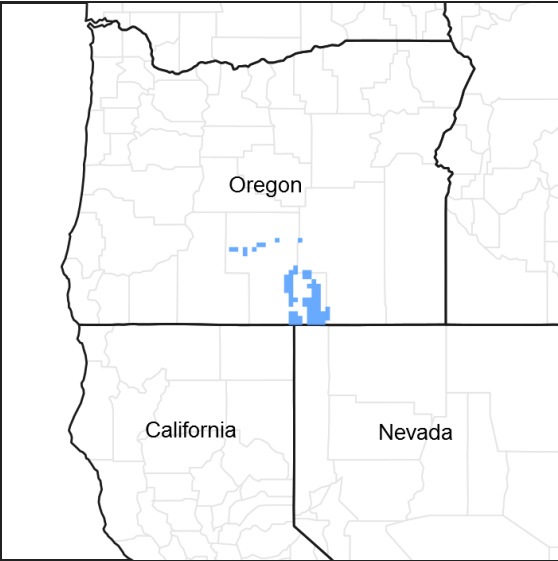


Figure 1. Mapped extent

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

R023XY214OR	CLAYPAN 10-12 PZ Claypan 10-12" PZ
R023XY216OR	CLAYPAN 12-16 PZ Claypan 12-16" PZ
R023XY318OR	LOAMY 12-16 PZ Loamy 12-16" PZ

Similar sites

R023XY214OR	CLAYPAN 10-12 PZ Claypan 10-12" PZ (thicker soil surface)
R023XY216OR	CLAYPAN 12-16 PZ Claypan 12-16" PZ (thicker soil surface)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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Physiographic features

This site occurs on nearly level to gently sloping tablelands, ridgetops, and alluvial fans. Slopes range from 2 to 15 percent. Elevation ranges from 4800 to 6500 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan (2) Ridge
Elevation	1,463–1,981 m
Slope	2–15%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 16 inches, most of which occurs in the form of snow during November to March. Spring rains are common. The soil temperature regime is frigid. Extreme air temperatures range from 100 degrees F to -30 degrees F. The frost-free period ranges from 50 to 100 days. The optimum period for plant growth is from mid-May to mid-July.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	406 mm

Influencing water features

Soil features

The soils of this site are shallow to bedrock and/or indurated pan and are well-drained. The surface layer is less than 4 inches thick over a claypan. The boundary between the surface layer and the subsoil is abrupt. The subsoil contains 45 to 60 percent clay. The permeability of the surface is moderate over a subsoil with slow or very slow permability. The available water holding capacity (AWC) is less than 4 inches for the profile. These soils commonly have a saturated soil suface during late winter and early spring. The surface is typically covered with 15 to 70 percent rock fragments. A vesicular crust is usually formed on the surface between plants. After rainfall or snowmelt, ponding occurs due to the vesicular crust.

Table 4. Representative soil features

Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate to very slow
Surface fragment cover <=3"	15–70%
Available water capacity (0-101.6cm)	10.16 cm

Ecological dynamics

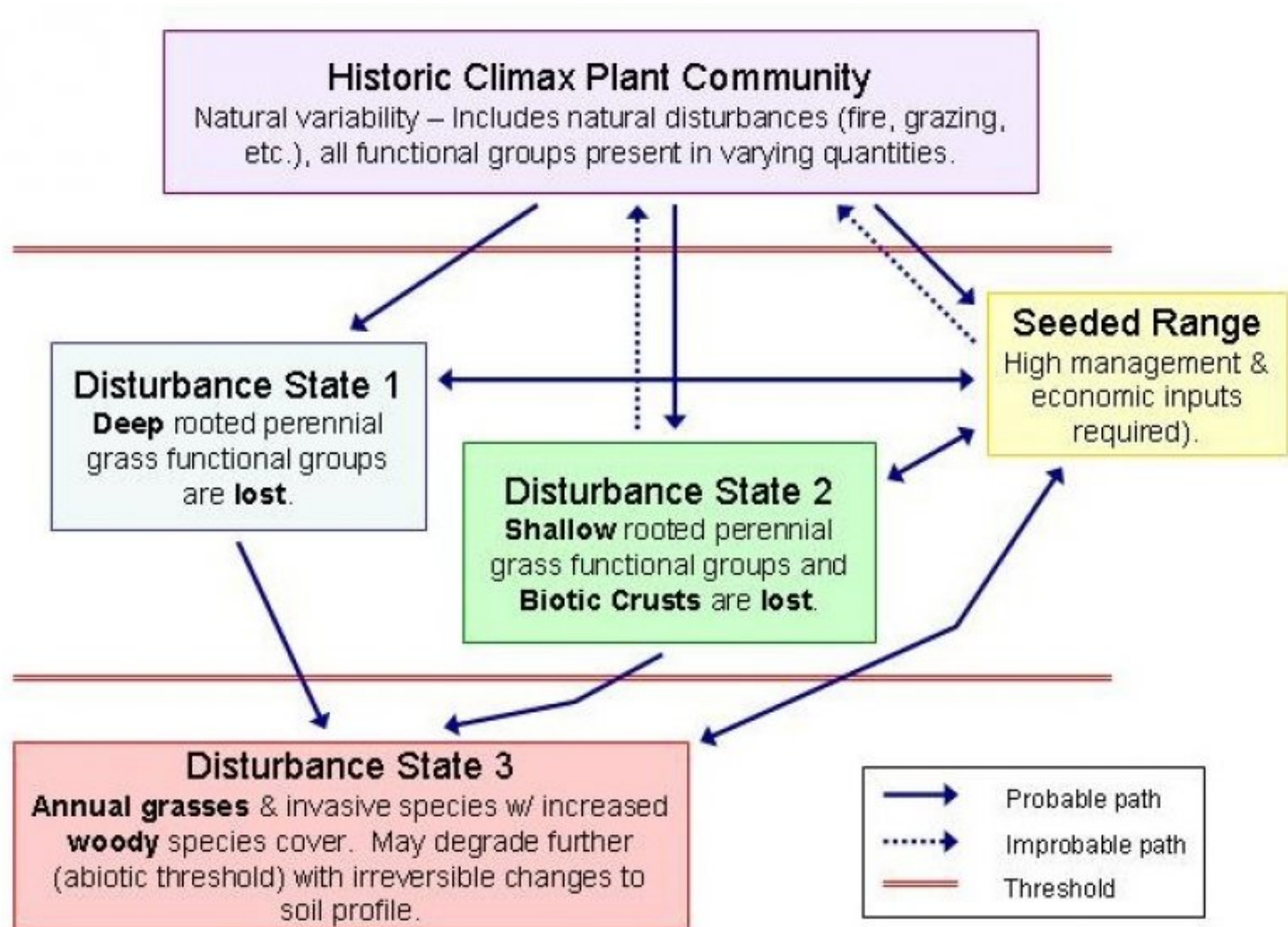
Range in Characteristics:

This site may be considered an eroded phase of the claypan site. The thin surface layer limits the productivity and diversity of this site. As the surface layer increases in thickness, there is a corresponding increase in production and plant density.

Response to Disturbance:

If heavy grazing causes further site deterioration, desirable grasses will decline in vigor and density. Low sagebrush may increase but eventually yield to green rabbitbrush if deterioration continues. Cheatgrass, mustards, and especially medusa-head, are likely to invade the site when the natural vegetation and soil surface are further disturbed. The fragile nature of this site makes it susceptible to damage by off-road vehicles and poor management.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Historic Climax Plant Community

Community 1.1 Historic Climax Plant Community

The potential native plant community is dominated by low sagebrush and Sandberg bluegrass. Bottlebrush squirreltail and Thurber needlegrass are other important grasses associated with this site. Vegetative composition is about 60 percent grass, 10 percent forbs, and 30 percent shrubs. Approximate ground cover is 15-20 percent (basal and crown).

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	74	104	135
Shrub/Vine	25	48	72
Forb	13	22	31
Total	112	174	238

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					
3	Perennial, shallow-rooted, dominant			67–123	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	67–123	–
5	Other perennial grasses, all			7–11	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	0–6	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0–6	–
Forb					
7	Perennial, all, dominant			4–11	
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	4–11	–
8	Perennial, all, sub-dominant			4–9	
	dwarf yellow fleabane	ERCH4	<i>Erigeron chrysopsidis</i>	2–4	–
	phlox	PHLOX	<i>Phlox</i>	2–4	–
9	Other perennial forbs, all			4–11	
	agosseris	AGOSE	<i>Agoseris</i>	0–1	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–1	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–1	–
	buckwheat	ERIOG	<i>Eriogonum</i>	0–1	–
	Lava aster	IOAL	<i>Ionactis alpina</i>	0–1	–
	bitter root	LERE7	<i>Lewisia rediviva</i>	0–1	–
	desertparsley	LOMAT	<i>Lomatium</i>	0–1	–
	beardtongue	PENST	<i>Penstemon</i>	0–1	–
Shrub/Vine					
11	Perennial, evergreen, dominant			22–67	
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	22–67	–
12	Perennial, evergreen, sub-dominant			2–4	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	2–4	–

Animal community

Livestock Grazing:

This site usually provides spring grazing on Sandberg bluegrass. Some grazing by livestock and wildlife of the shrub component occurs in the late summer and fall. Grazing management should be keyed to soil moisture to prevent soil compaction and damage to plant crowns and root systems.

Native Wildlife Associated with the Potential Climax Community:

Mule deer
Pronghorn antelope
Sage grouse

This site can be important for sage grouse strutting and feeding grounds. Pronghorn antelope will use the site when forage is succulent and during fawning periods. During spring, mule deer will feed in the area.

Hydrological functions

The soils of this site have moderate infiltration rates and slow to medium runoff potential. The hydrologic soil group is D.

Other information

This site has low potential for range seeding because of the thin soil surface above the restrictive layer. Fence, pipeline, and cattleguard installation will require special design consideration because of limited soil depth.

Contributors

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MAS

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	08/16/2012
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None

2. **Presence of water flow patterns:** None

3. **Number and height of erosional pedestals or terracettes:** None to very few pedestals

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 15-40%

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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
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - 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 = 3-5
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow well drained gravelly loam to very stony silt loam (1-4 inches thick) over claypan: Low OM (1-2%)
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Low ground cover (15-20%) and gentle slopes (2-15%) slightly to moderately limit rainfall impact and overland flow
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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: Sandberg bluegrass > Low sagebrush > forbs > other grasses > other shrubs
- 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
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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: 300, Normal: 200, Unfavorable: 100 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 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
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