

Ecological site R010XY006OR Mountain Loamy Bottom

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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.

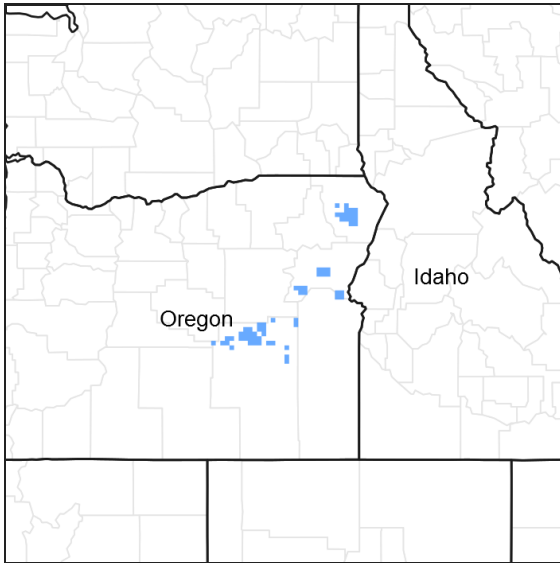


Figure 1. Mapped extent

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

R010XY001OR	Cold Wet Meadow Wet Mountain Meadow.
R010XY002OR	Cold Meadow Mountain Meadow.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Leymus cinereus</i>

Physiographic features

This site occurs mainly on the floodplains of perennial streams and rivers. It is near channels occupying secondary terraces. Slopes generally range from 0 to 3%. Elevation range from 3500 to 5500 feet.

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Channel (3) Terrace
Elevation	1,067–1,676 m
Slope	0–3%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 9 to 18 inches, most of which occurs in the form of snow during the months of November through March. A perennial supply of subsurface moisture augments the precipitation. Localized convectional storms occasionally occur during the summer. The soil temperature regime is frigid with a mean annual air temperature of 43 degrees F. Temperature extremes range from 90 to -30 degrees F. the frost free period ranges from less than 30 to 90 days. The optimum growth period for native plants is from May through July.

Table 3. Representative climatic features

Frost-free period (average)	90 days
Freeze-free period (average)	0 days
Precipitation total (average)	457 mm

Influencing water features

Soil features

The soils of this site are recent, very deep and well drained. Typically the surface layer is a silt loam about 12 inches thick. The subsoil is a silty clay loam over 36 inches. Alluvium generally occurs at depths greater than 60 inches. Permeability is moderate. The available water holding capacity is about 10 to 12 inches for the profile. Perennial to near perennial subsurface flows augment the available water. The potential for erosion is moderate.

Table 4. Representative soil features

Surface texture	(1) Silt loam
Family particle size	(1) Clayey
Permeability class	Moderate
Soil depth	0–152 cm
Available water capacity (0-101.6cm)	25.4–30.48 cm

Ecological dynamics

Range in Characteristics-

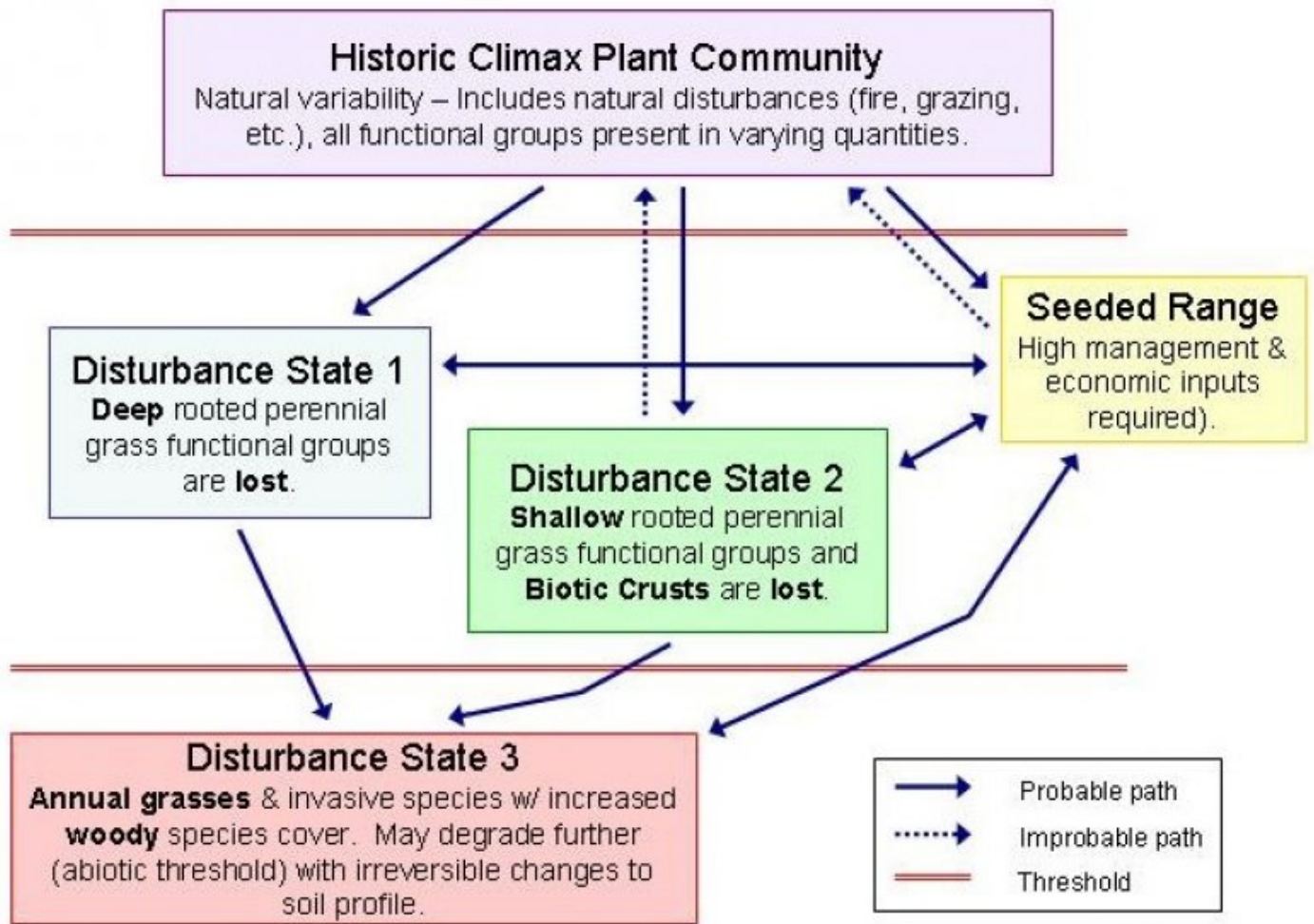
Basin wildrye is dominant with production dependent on the extent and duration of subsurface water flows. Willows increase where the water table is high, particularly on sites next to streams. On upper ends of and in bottomland areas receiving limited subsurface flows, production decreases. As a site susceptible to fire, the amount of mountain and basin big sagebrush is influenced by fire frequency.

Response to Disturbance-

If the condition of the site deteriorates as a result of overgrazing basin wildrye decreases while bluegrasses increase. Quackgrass and sod-forming bluegrasses invade particularly in areas with higher water tables near streams. With further deterioration basin big sagebrush increases and annuals invade. Streambanks become unstable from loss of vegetation and channels degrade, becoming deeper and wider in the process. Subsurface flows are affected. The water table drops and storage of water for late season flows is reduced. Plants well adapted to a drier climatic

regime increase or invade and production drops.

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 basin wildrye. Short stature willows are common. Mountain big sagebrush, basin big sagebrush and rabbitbrush are present in the stand. Vegetative composition of the community is approximately 90 percent grasses, 2 percent forbs, and 8 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	3497	4237	4977
Shrub/Vine	628	1188	1749
Forb	45	90	135
Total	4170	5515	6861

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	Perennial, Deep-rooted, Dominant			3138–4035	
	basin wildrye	LECI4	<i>Leymus cinereus</i>	3138–4035	–
2	Perennial, Deep-rooted, Sub-Dominant			90–224	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	90–224	–
4	Perennial, Shallow rooted, Sub-dominant			90–224	
	bluegrass	POA	<i>Poa</i>	90–224	–
5	Perennial, Other (PPGG), All			90–224	
	needlegrass	ACHNA	<i>Achnatherum</i>	18–45	–
	sedge	CAREX	<i>Carex</i>	18–45	–
	squirreldtail	ELEL5	<i>Elymus elymoides</i>	18–45	–
	western wheatgrass	PASM	<i>Pascopyrum smithii</i>	18–45	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	18–45	–
Forb					
9	Perennial, Other (PPFF), ALL]			45–135	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	11–34	–
	white sagebrush	ARLU	<i>Artemisia ludoviciana</i>	11–34	–
	lupine	LUPIN	<i>Lupinus</i>	11–34	–
	cinquefoil	POTEN	<i>Potentilla</i>	11–34	–
Shrub/Vine					
12	Perennial, Evergreen, Sub-Dominant			135–314	
	mountain big sagebrush	ARTRV	<i>Artemisia tridentata ssp. vaseyana</i>	45–135	–
	rabbitbrush	CHRYS9	<i>Chrysothamnus</i>	45–90	–
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	45–90	–
13	Perennial, Deciduous, Dominant			448–1345	
	willow	SALIX	<i>Salix</i>	448–1345	–
14	Perennial, Deciduous, sub-dominant`			45–90	
	rose	ROSA5	<i>Rosa</i>	45–90	–

Animal community

Wildlife-

This site offers food and cover for mule deer, elk, rodents, and a variety of birds. It is an important wintering area for mule deer and elk.

Livestock grazing-

This site is suited to use by cattle, sheep and horses in all seasons. Limitation in the spring are saturated wet soils and unstable banks. Use should be postponed until the soils are firm enough to prevent trampling damage and soil compaction, yet while soil moisture is adequate to allow the completion of the plant growth cycle. Improvement and/or maintenance of willow and herbaceous bank protection should be considered during all seasons, particularly in the fall and winter for spring high flow periods.

Hydrological functions

Watershed-

The soils are in hydrologic group B. The soils of this site have moderately low runoff potential. This site is potentially subject to three high flow periods: low elevation snowmelt, high elevation snowmelt, and summer cloudburst flow.

Other information

The soils of this site have excellent water holding capacities providing late season water for plant growth and slow water release to streams. When incised channels are present, rehabilitation will markedly improve production and restore good hydrologic characteristics. On altered sites the reintroduction of desirable deep rooted plants may be needed to fully restore the site potential.

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	08/07/2012
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None, moderate sheet & rill erosion hazard
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2. **Presence of water flow patterns:** Occasional flooding with seasonal high water table
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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):** 0-10%
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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
-
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 to significantly resistant to erosion: aggregate stability = 3-6
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep, very deep, well drained with a loam, silt loam surface about 12" thick: Moderate to high OM (3-6%)
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (80-90%) and very gentle slopes (0-3%) effectively 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
-
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 > Willow > other grasses > other shrubs > 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: 5000, Normal: 4000, Unfavorable: 3000 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 forb and brush species will increase with deterioration of plant community. Kentucky bluegrass and quackgrass invade sites that have lost deep rooted native perennial grass functional groups.

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