

Ecological site R023XY119OR BASIN WILLOW

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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.

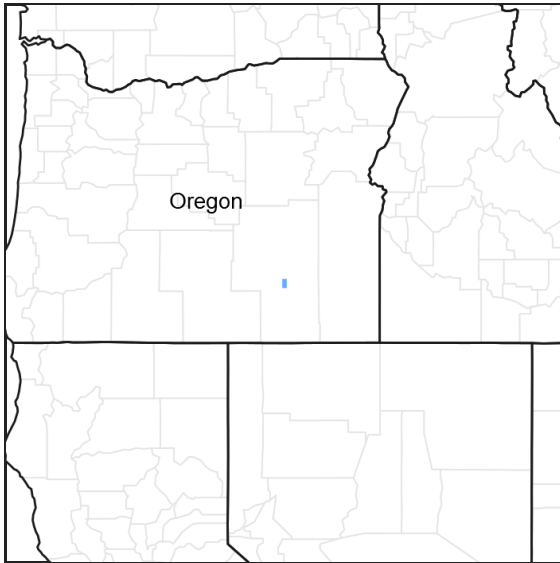


Figure 1. Mapped extent

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

R023XY104OR	LOAMY BOTTOM Loamy Bottom
R023XY116OR	SEMI-WET MARSH Semi-Wet Marsh
R023XY117OR	BASIN WET MEADOW Basin Wet Meadow
R023XY118OR	BASIN DRY MEADOW Basin Dry Meadow

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) <i>Salix exigua</i>
Herbaceous	Not specified

Physiographic features

This site occurs in dry lake basins and valleys. It typically occurs on banks of perennial or intermittent drainage

systems. Slopes range from 0 to 3 percent. Elevation varies from 4000 to 4600 feet.

Table 2. Representative physiographic features

Landforms	(1) Valley (2) Lakebed
Flooding frequency	Occasional
Elevation	1,219–1,402 m
Slope	0–3%
Water table depth	25–76 cm
Aspect	Aspect is not a significant factor

Climatic features

Influencing water features

Soil features

The soils of this site are very deep over lacustrine and alluvial sediments. Influenced by periodic flooding they are quite variable, often occurring as small naturally built-up levees along stream edges. Typically they have a loamy surface over a loamy to clay loam subsoil. Gravels are common. Along banks and berms localized seasonal surface drainage and aeration is good. This is desirable for willow growth and root structure. However, they are hydric with an overall drainage classification of somewhat poor. A seasonal water table occurs at 10 to 30 inches. Permeability is moderate. The available water holding capacity (AWC) is 6 to 10 inches.

Table 3. Representative soil features

Surface texture	(1) Gravelly loam
Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained
Permeability class	Moderate
Available water capacity (0-101.6cm)	15.24–25.4 cm

Ecological dynamics

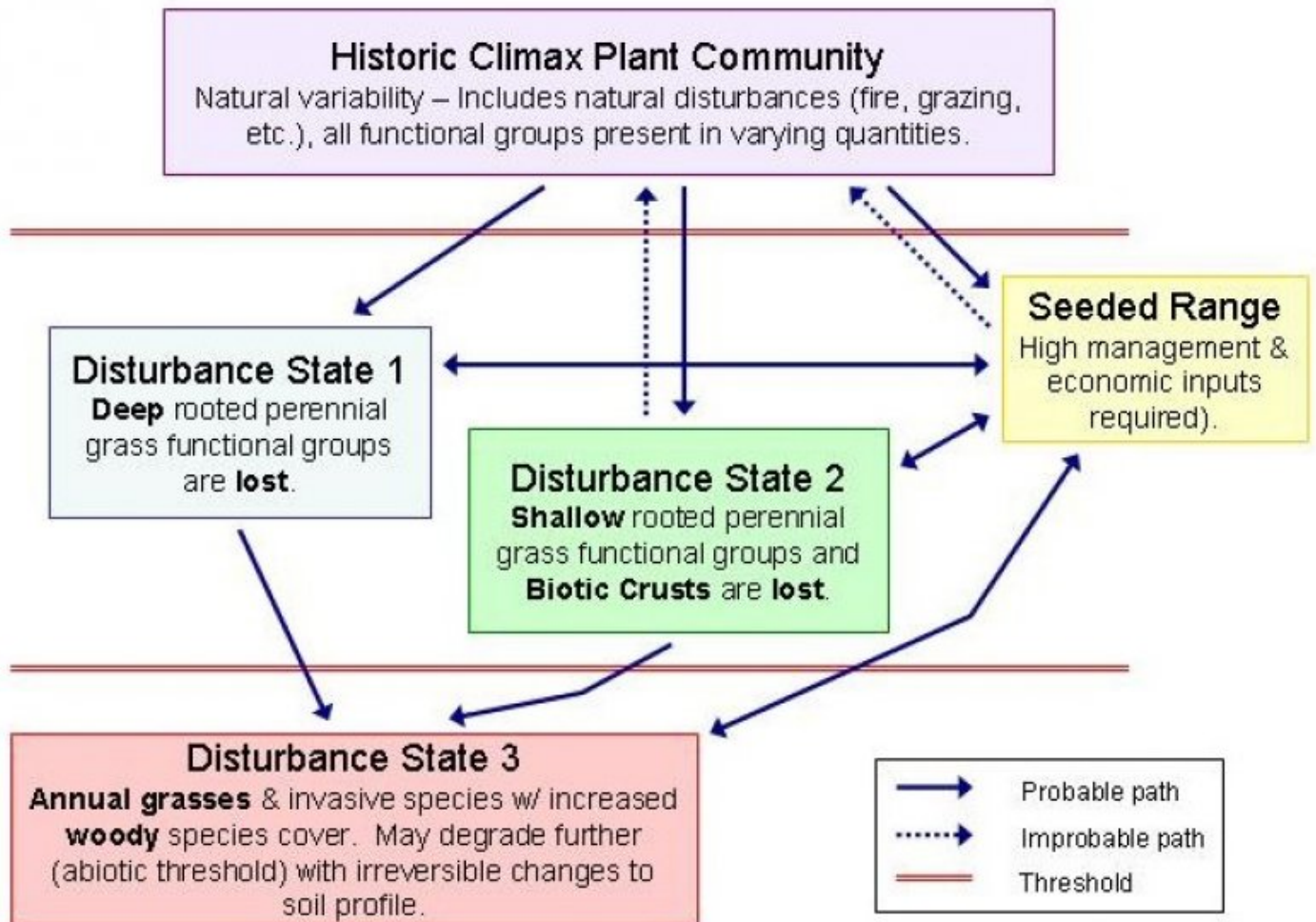
Range in Characteristics:

Seasonal availability and depth to groundwater influences the productivity of willow and other overstory species. With an increase in fire frequency, basin big sagebrush will decrease and basin wildrye will increase.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing or drainage, basin wildrye will decrease while creeping wildrye, basin big sagebrush, gray rabbitbrush, and greasewood will increase. Heavy summer and fall use results in heavy hedging of willow. With further deterioration, banks become unstable, streams become incised and groundwater tables are lowered. Shrubs will continue to increase, annual invade, and areas of bareground increase. The stand of willows will develop a "tunnelled" appearance.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Reference State

Community 1.1 Reference Plant Community

The potential native plant community is strongly dominated by willows. Coyote willow, a rhizomatous species, is clearly dominant followed by yellow and Pacific willow. Other shrubs and a variety of forbs and grasses are present. The potential vegetative composition is approximately 80 percent shrubs, 10 percent grass and grass-like, and 5 percent forbs. Approximate ground cover is 80-120 percent (basal and crown).

Table 4. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Shrub/Vine	1681	2522	3363
Grass/Grasslike	448	673	897
Forb	112	168	224
Total	2241	3363	4484

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
Grass/Grasslike					
1	Perennial, rhizomatous grass			168–336	
	beardless wildrye	LETR5	<i>Leymus triticoides</i>	168–336	–
2	Other grasslike			135–538	
	sedge	CAREX	<i>Carex</i>	67–269	–
5	Other perennial grasses			67–269	
	shortawn foxtail	ALAE	<i>Alopecurus aequalis</i>	0–67	–
	teal lovegrass	ERHY	<i>Eragrostis hypnoides</i>	0–67	–
	basin wildrye	LECI4	<i>Leymus cinereus</i>	0–67	–
	bluegrass	POA	<i>Poa</i>	0–67	–
Forb					
9	Other perennial forbs			34–269	
	silverweed cinquefoil	ARAN7	<i>Argentina anserina</i>	0–67	–
	cowparsnip	HERAC	<i>Heracleum</i>	0–67	–
	biennial cinquefoil	POBI7	<i>Potentilla biennis</i>	0–67	–
	dock	RUMEX	<i>Rumex</i>	0–67	–
	ragwort	SENEC	<i>Senecio</i>	0–67	–
Shrub/Vine					
12	Rhizomatous, deciduous, wetland obligate shrub			673–1345	
	narrowleaf willow	SAEX	<i>Salix exigua</i>	673–1345	–
13	Deciduous, wetland obligate shrub			504–841	
	yellow willow	SALU2	<i>Salix lutea</i>	504–841	–
14	Deciduous, facultative wetland shrub			504–841	
	Pacific willow	SALUL	<i>Salix lucida ssp. lasiandra</i>	504–841	–
15	Other shrubs			34–269	
	gray alder	ALIN2	<i>Alnus incana</i>	0–34	–
	golden currant	RIAU	<i>Ribes aureum</i>	0–34	–
	Woods' rose	ROWO	<i>Rosa woodsii</i>	0–34	–
	red elderberry	SARA2	<i>Sambucus racemosa</i>	0–34	–
Tree					
18	Deciduous			0–34	
	balsam poplar	POBA2	<i>Populus balsamifera</i>	0–34	–

Animal community

Livestock Grazing:

This site is suited to summer, fall, and winter use by cattle and horses under a planned grazing system. The key species is willow. Palatable shrubs such as willow can be damaged if heavily grazed during periods when the herbaceous species are mature or dormant. Grazing prescriptions should be based on both vegetative and stream function goals.

Native Wildlife Associated with the Potential Climax Community:

Mammals and a variety of waterfowl and upland birds including savannah sparrows, bobolinks, and meadowlarks utilize this site for food and cover. It provides a high degree of diversity and high quality habitat for a large variety of

wildlife. Cover and habitat value is excellent when the ecological condition is high. The value of the site increases when it is near wet marshes, perennial streams, and open water areas.

Hydrological functions

The hydrologic cover condition is excellent when the ecological condition is high.

Other information

In fair condition with a remnant stand of willow, this site rapidly responds to good management.

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	08/09/2012
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

- 2. Presence of water flow patterns:** None to some. With reduced vegetative cover streambanks become unstable, streams become incised and groundwater tables are lowered.

- 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):** 0-5%

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None, moderate wind erosion hazard
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine to 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 = 3-5
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Very deep somewhat poorly drained loams: Moderate to high OM (3-6%)
-
10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (80-120%) and gentle slopes (0-3%) significantly 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: Coyote willow > Yellow willow = Pacific willow > Creeping wildrye > Baltic rush = sedges = other grasses & grass-likes > 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):**
-
15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable: 4000, Normal: 3000, Unfavorable: 2000 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.

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