USDA Natural Resources
Conservation Service

Ecological site R009XY042OR
Low Elevation North 14-17 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.

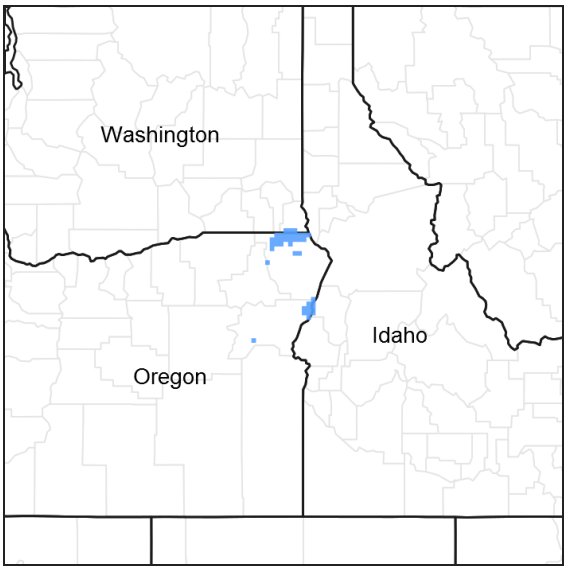


Figure 1. Mapped extent

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

R009XY029OR	**South 14-17 PZ** South 14-17" PZ
R009XY031OR	**Shallow South 14+ PZ** Shallow South 14"+ PZ

Similar sites

R009XY043OR	**Low Elevation Deep North 14-17 PZ** Low Elevation Deep North 14-17" PZ (higher production, different composition)
R009XY040OR	**North 14-17 PZ** North 14-17" PZ (frigid, different composition)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site in the lower elevations of the canyonlands of northeast Oregon. It is typically on steep slopes having north and northeast aspects. Slopes range from 1600 to 3400 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon
Elevation	488–1,036 m
Slope	30–90%
Aspect	N, NE

Climatic features

The annual precipitation ranges from 14 to 17 inches most of which occurs in the form of snow during the months of November through March followed by ample spring rainfall. Localized, occasionally severe, convectional storms occur during the summer. The soil temperature regime is mesic with a mean annual air temperature of 48 degrees F. The frost-free period ranges from 110 to 145 days. The optimum period for plant growth is from late April to mid-July.

Table 3. Representative climatic features

Frost-free period (average)	145 days
Freeze-free period (average)	0 days
Precipitation total (average)	432 mm

Influencing water features

Soil features

The soils of this site are moderately deep and deep over basalt bedrock and are well drained. Areas of rock outcrop and talus are common. Typically the surface layer is a very stony silt loam or a silt loam. The subsoil includes gravelly silty clay loam or very cobbly clay loam over a very stony clay. Depth to bedrock averages 24 to 36 inches but ranges to over 60 inches. Permeability is slow. The available water holding capacity (AWC) is about 4 to 8 inches for the profile. The potential for erosion is high.

Table 4. Representative soil features

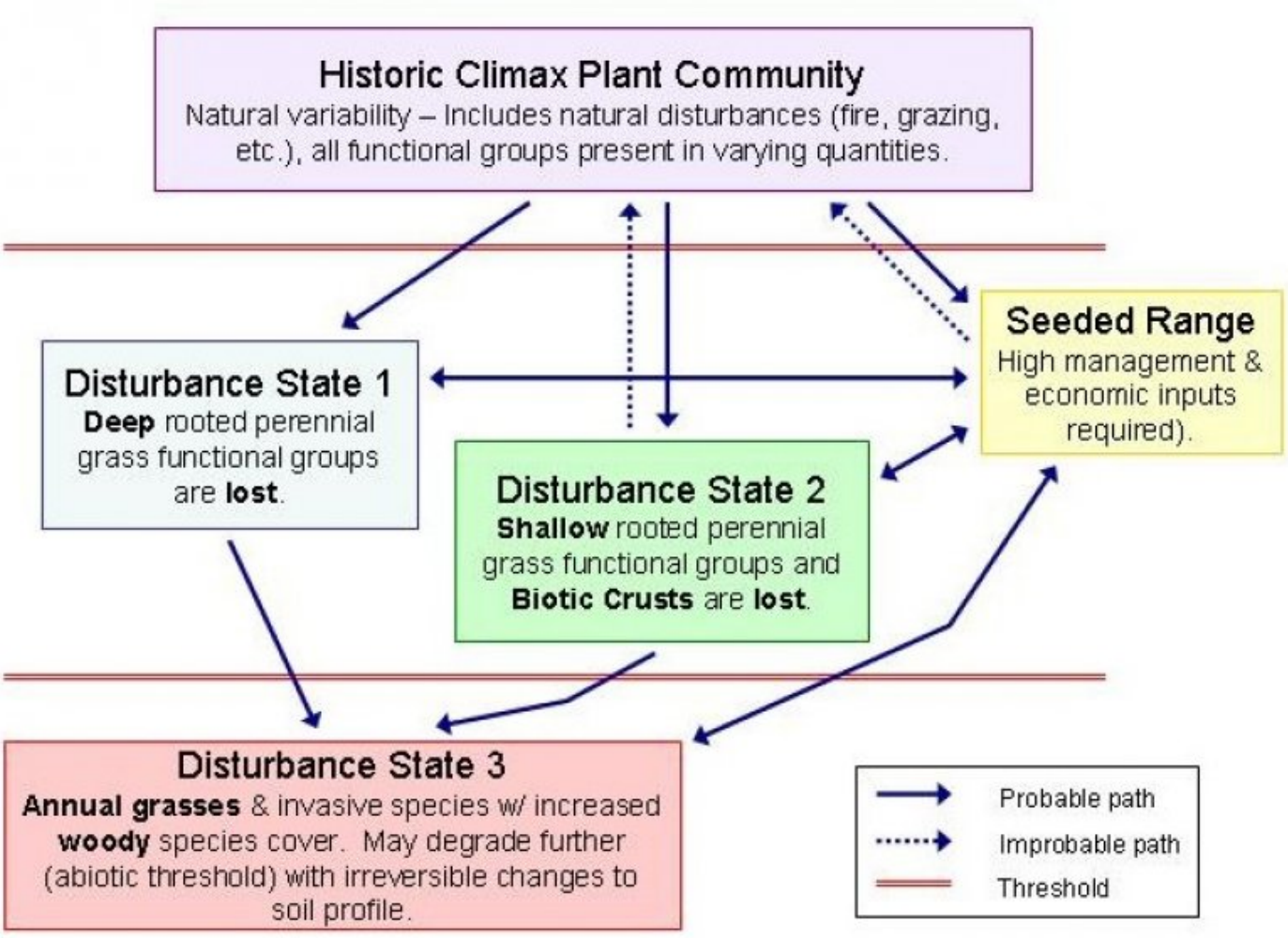
Surface texture	(1) Very stony silt loam (2) Silt loam
Family particle size	(1) Clayey
Drainage class	Somewhat poorly drained to well drained
Permeability class	Slow

Ecological dynamics

Range in Characterisitics:
Variabilty in plant composition and yeild is dependent on aspect and soil depth rather than on precipitation and elevation ranges that occur within the site. Higher amounts of bluebunch wheatgrass occur as aspect changes to northeast or northwest. The highest yields occur as soil depths approach 40 inches. Lower yields occur on soils with high coarse fragments and as depths appoach 20 inches. Shrubs are scattered. They increase with soil depth and are present on inclusions of colluvium.
Response To Disturbance:
The original condition of the site, with Idaho fescue dominant, has low stability due to the sites warm low elevation

position. If the condition of the site deteriorates as a result of overgrazing, Idaho fescue decreases and bluebunch wheatgrass increases. Idaho fescue is the preferred species during early summer use. With further deterioration, bluebunch whetgrass decreases and cheatgrass, soft chess and other annuals rapidly invade. Rhizomatous shrubs increase slightly. Under deteriorated conditions, annuals and unpalatable forbs dominate. Areas of bare ground increase and erosion is accelerated.

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 Idaho fescue and bluebunch wheatgrass. These occur as codominants. Arrowleaf balsamroot, yarrow and a variety of other forbs are present. Shrubs, snowberry and rose are minor and widely scattered. Teh vegetative composition of the community is approximatley 90 percent grasses, 8 percent forbs, and 2 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1273	1641	2009
Forb	72	152	233
Shrub/Vine	36	72	108
Total	**1381**	**1865**	**2350**

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**			1255–1973	
	Idaho fescue	FEID	*Festuca idahoensis*	717–1076	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	538–897	–
4	**Perennial Shallow-rooted Sub-dominant**			18–36	
	Sandberg bluegrass	POSE	*Poa secunda*	18–36	–
Forb					
7	**Perennial All Dominant**			18–54	
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	18–54	–
8	**Perennial All Sub-dominant**			36–72	
	common yarrow	ACMI2	*Achillea millefolium*	18–36	–
	desertparsley	LOMAT	*Lomatium*	18–36	–
9	**PPFF**			18–108	
	agoseris	AGOSE	*Agoseris*	3–21	–
	milkvetch	ASTRA	*Astragalus*	3–21	–
	hawksbeard	CREPI	*Crepis*	3–21	–
	buckwheat	ERIOG	*Eriogonum*	3–21	–
	western stoneseed	LIRU4	*Lithospermum ruderale*	3–21	–
Shrub/Vine					
13	**Perennial Deciduous Dominant**			36–108	
	rose	ROSA5	*Rosa*	18–54	–
	common snowberry	SYAL	*Symphoricarpos albus*	18–54	–

Animal community

Livestock Grazing:
This site is suited to use by cattle and sheep in the summer and fall. As this site often occurs on steep and rocky slopes these limitations need to be carefully considered in developing alternatives. Care should be taken to aviod trampling damage and soil compaction when soils are wet.
Wildlife:
This site is important as a winter, spring, summer and fall grazing site for deer and elk. Adverse impacts can easily result to palatable species such as Idaho fescue without careful management.
Native Wildlife Associated With The Potential Climax Community:
Mule deer, Rocky Mountain elk, Hawks, Coyote, and Rodents.

Hydrological functions

The hydrologic cover condition is good at higher condition classes. The soils are in hydrologic group C.

Recreational uses

In the Snake River Canyon area this site occurs on steep slopes interfingering with deeper and south slope sites. It provides a visual diversity as part of the steep lower canyon slopes.

Other information

This site has a low potential for rnage seeding because of steepness of slope. Aerial seeding after burns is not practical because of a generally low burn intensity and the recovery of perennial crowns and/or annual competition.

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	07/30/2012
Approved by	Bob Gillaspy
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to some, severe sheet & rill erosion hazard

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

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

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, slight wind erosion hazard

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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):** Significantly resistant to erosion; aggregate stability = 4-6

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Moderately deep and deep, well drained, with areas of rock outcrop and talus and with a very stony silt loam or silt loam surface - depth to bedrock ranges from 24 to 36 and sometimes, 60 inches; low to moderate OM (1-3%)

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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 (80-100%) and very steep slopes (7-90%) 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: Idaho fescue > Bluebunch wheatgrass > forbs > shrubs > other grasses

    Sub-dominant:

    Other:

    Additional:

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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: 2000, Normal: 1600, Unfavorable: 1200 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. Annual bromes and Medusahead invade sites that have lost deep rooted perennial grass functional groups. Excessive erosion may occur, deteriorating site potential.

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

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