

Ecological site R009XY029OR **South 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.

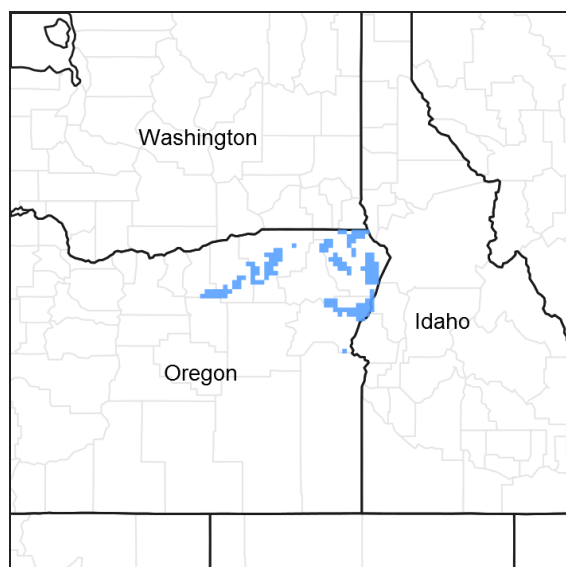


Figure 1. Mapped extent

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

R009XY015OR	Clayey 14-17 PZ Clayey 14-17" PZ
R009XY020OR	Shallow Clayey 14-17 PZ Shallow Clayey 14-17" PZ
R009XY025OR	Very Shallow 14-18 PZ Very Shallow 14"+ PZ

Similar sites

R009XY030OR	South 17-22 PZ South 17-22" PZ (Higher ppt.)
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs near forestland on the backslopes of canyons, table lands and mountain plateaus. It is typically on slopes with south and southwest aspects as one of the last grassland sites before the forest. Slopes range from 7 to 90%. Elevation varies from 1600 to 4300 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau (2) Canyon (3) Mountain slope
Elevation	1,600–4,300 ft
Slope	7–90%
Aspect	S, SW

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 50 degrees F. The frost-free period ranges from 90 to 150 days. The optimum period for plant growth is from mid-March to mid-June.

Table 3. Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	
Precipitation total (average)	17 in

Influencing water features

Soil features

The soils of this site are dominantly moderately deep to deep over basalt bedrock. Areas of rock outcrop and talus are common. The soils are well drained. Typically the surface layer is a very cobbly silt loam, silt loam, or silty clay loam. The subsoil varies from a gravelly or cobbly silty clay loam, clay loam, or silt loam to an extremely cobbly clay. Depth to bedrock is typically less than 30 inches. Permeability ranges from moderate to very slow. The available water holding capacity (AWC) is about 3 to 7 inches for the profile. The potential for erosion, particularly on moderate and steep slopes, is severe.

Table 4. Representative soil features

Surface texture	(1) Very cobbly silt loam (2) Very cobbly silt loam (3) Very cobbly silty clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate to very slow

Ecological dynamics

Range in Characteristics:

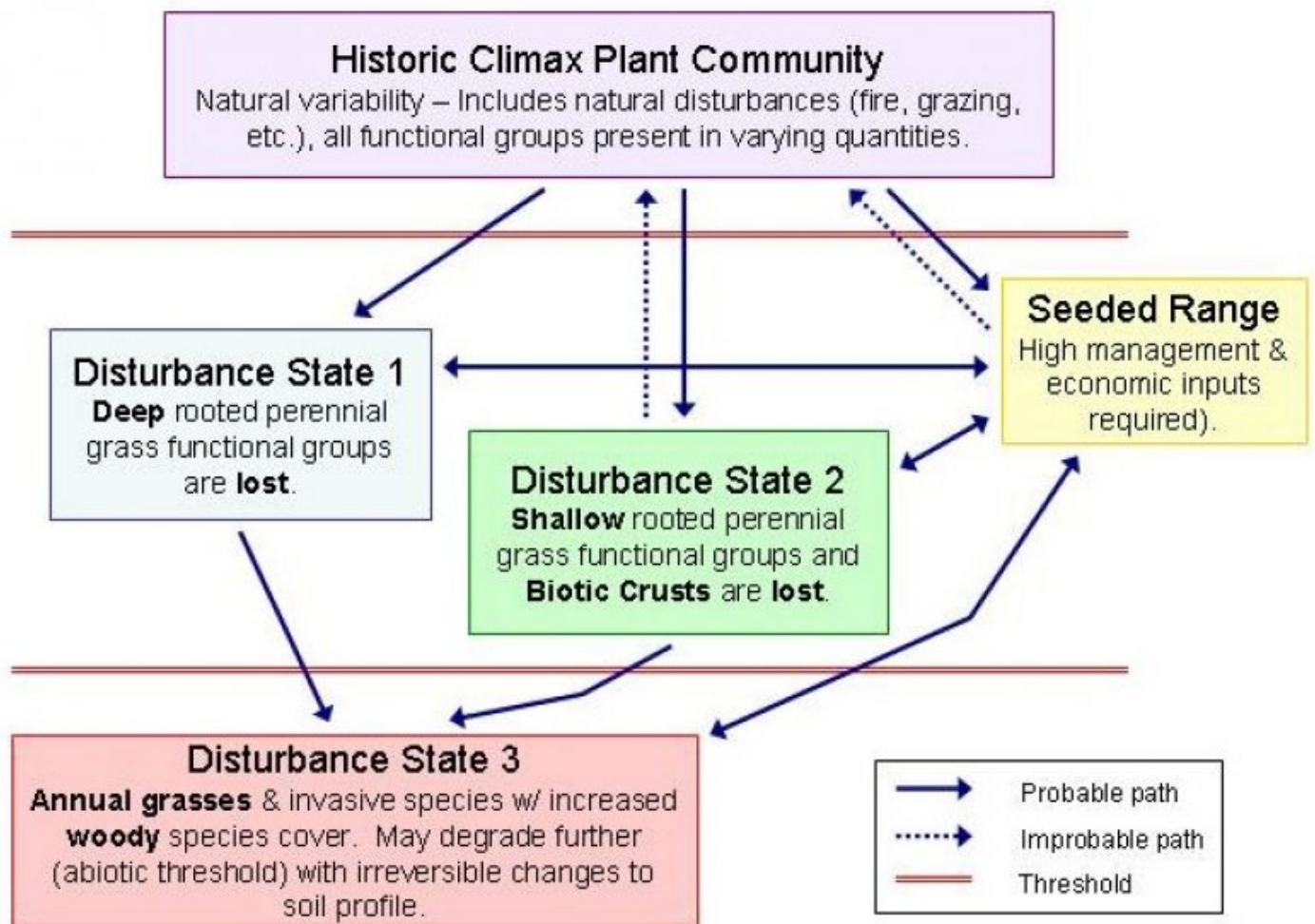
Variability in precipitation and elevation have little effect on composition and yield. There tends to be a higher proportion of bluebunch wheatgrass and lower total production on south and southwesterly slopes with 20 inches of

depth and coarse fragments. Conversely, soils with close to 40 inches of depth and few coarse fragments will have the highest production. Idaho fescue will be highest in composition on moderate southeast and west slopes. Antelope bitterbrush occurs where there is higher precipitation and on fractured bedrock zones.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Idaho fescue decreases. Cheatgrass and soft chess rapidly invade along with china lettuce, moth mullein and other unpalatable forbs. Medusahead may invade. Severe early spring use particularly by deer, elk and sheep will decrease ground cover. Under deteriorated conditions, excessive erosion in the bare interspaces markedly reduces the potential of the site and contributes to downstream sedimentation.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Reference

Community 1.1 Histroic Climax Plant Community

The potential native plant community is dominated by bluebunch wheatgrass and arrowleaf balsamroot. Idaho fescue, sandberg bluegrass, buckwheat, and a variety of other forbs, are prominent in the stand. The vegetative composition of the community is approximatley 83 percent grasses, 15 percent forbs and 2 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	882	1106	1330
Forb	70	189	308
Shrub/Vine	56	105	154
Total	1008	1400	1792

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Perennial Deep-rooted Dominant			840–1120	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	840–1120	–
2	Perennial Deep-rooted Sub-dominant			28–140	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	28–140	–
4	Perennial Shallow-rooted Sub-dominant			14–70	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	14–70	–
Forb					
7	Perennial All Dominant			28–140	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	28–140	–
8	Perennial All Sub-dominant			28–70	
	buckwheat	ERIOG	<i>Eriogonum</i>	14–42	–
	lupine	LUPIN	<i>Lupinus</i>	14–28	–
9	PPFF			14–98	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	2–14	–
	milkvetch	ASTRA	<i>Astragalus</i>	2–14	–
	hawksbeard	CREPI	<i>Crepis</i>	2–14	–
	fleabane	ERIGE2	<i>Erigeron</i>	2–14	–
	western stoneseed	LIRU4	<i>Lithospermum ruderales</i>	2–14	–
	desertparsley	LOMAT	<i>Lomatium</i>	2–14	–
	phacelia	PHACE	<i>Phacelia</i>	2–14	–
Shrub/Vine					
11	Perennial Evergreen Dominant			14–70	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	14–70	–
14	Perennial Deciduous Sub-Dominant			28–56	
	rose	ROSA5	<i>Rosa</i>	14–28	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	14–28	–
15	SSSS			14–28	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata ssp. tridentata</i>	5–9	–
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	5–9	–
	smooth sumac	RHGL	<i>Rhus glabra</i>	5–9	–

Animal community

Livestock Grazing:

This site is suited for use by cattle and sheep in the late spring and fall. As this site quite often occurs on both steep and rocky slopes, these limitations need to be carefully considered in developing alternatives. Care should be taken to avoid trampling damage and soil compaction when soils are wet.

Wildlife:

This site is important as a winter and early spring feeding site for deer and elk. It is often free of snow during the winter and one of the first soil areas to warm up. Early green feed is provided.

Native Wildlife Associated With The Potential Climax Community:

Rodents, Songbirds, Red-tailed hawk, Coyote, Mule deer, Rocky Mountain elk, Ground Squirrels, Valley and mountain quail, Ruffed grouse (where this site is adjacent to timber), Hawks, Falcons, Owls, Cottontail rabbits, Badgers, Yellow-bellied marmot, White-tailed deer.

Hydrological functions

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

Recreational uses

Arrowleaf balsamroot stands out in the spring and early summer with yellow and gold dotting the hillsides. It provides a pleasing visual diversity.

Other information

This site has a low potential for range sediment because of coarse fragments and/or steepness of slope.

Contributors

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Approval

Kirt Walstad, 3/11/2025

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	Kirt Walstad
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

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2. **Presence of water flow patterns:** None to some
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3. **Number and height of erosional pedestals or terracettes:** None to some
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 5-10%
-
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
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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
-
9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**
Moderately deep to deep, well drained, with areas of rock outcrop and with a very cobbly silt loam, silt loam, or silty clay loam surface. Depth to bedrock is typically less than 30"; 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:** Sparse to moderate ground cover (50-60%) and very steep slopes (7-90%) 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
-
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: Bluebunch wheatgrass > Idaho fescue > Arrowleaf balsamroot > other forbs > Antelope bitterbrush = Sandberg bluegrass > other dominant forbs > 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

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: 1800, Normal: 1400, Unfavorable: 1100 lbs/acre/year at high RSI (HCPC)

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:** 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.

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