

Ecological site R009XY030OR

South 17-22 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

R009XY016OR	<b>Clayey 17-22 PZ</b> Clayey 17-22" PZ
R009XY021OR	<b>Shallow Clayey 17-22 PZ</b> Shallow Clayey 17-22" PZ
R009XY025OR	<b>Very Shallow 14-18 PZ</b> Very shallow 14-18" PZ

Similar sites

R009XY029OR	<b>South 14-17 PZ</b> South 14-17" PZ (Lower production )
R009XY031OR	<b>Shallow South 14+ PZ</b> Shallow South 14"+ PZ (shallower, lower production)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified

Herbaceous	Not specified
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## Physiographic features

This site occurs within forestland on the backslopes of canyons, tablelands and mountain plateaus. It is typically on slopes with south and south west aspects as one of the last grassland sites before and within the forest. Slopes range from 12 to 90%. Elevation varies from 2000 to 4300 feet.

**Table 2. Representative physiographic features**

Landforms	(1) Mountain slope (2) Plateau (3) Canyon
Elevation	610–1,311 m
Slope	12–90%
Aspect	S, SW

## Climatic features

The annual precipitation ranges from 17 to 22 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 90 to 120 days. The optimum period for plant growth is from mid-March to late June.

**Table 3. Representative climatic features**

Frost-free period (average)	120 days
Freeze-free period (average)	0 days
Precipitation total (average)	559 mm

## Influencing water features

### Soil features

The soils of this site are moderately deep over basalt bedrock and are well drained. Areas of rock outcrop and talus are common. Typically the surface layer is a very cobbly silt clay loam or extremely stony silty clay loam. The subsoil includes a clay, cobbly clay, or an extremely cobbly clay. Depth to bedrock is typically less than 30 inches. Permeability is slow to very slow. The available water holding capacity (AWC) is about 2 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 silty clay loam (2) Extremely stony silty clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Slow to very slow

## Ecological dynamics

Range in Characteristics:

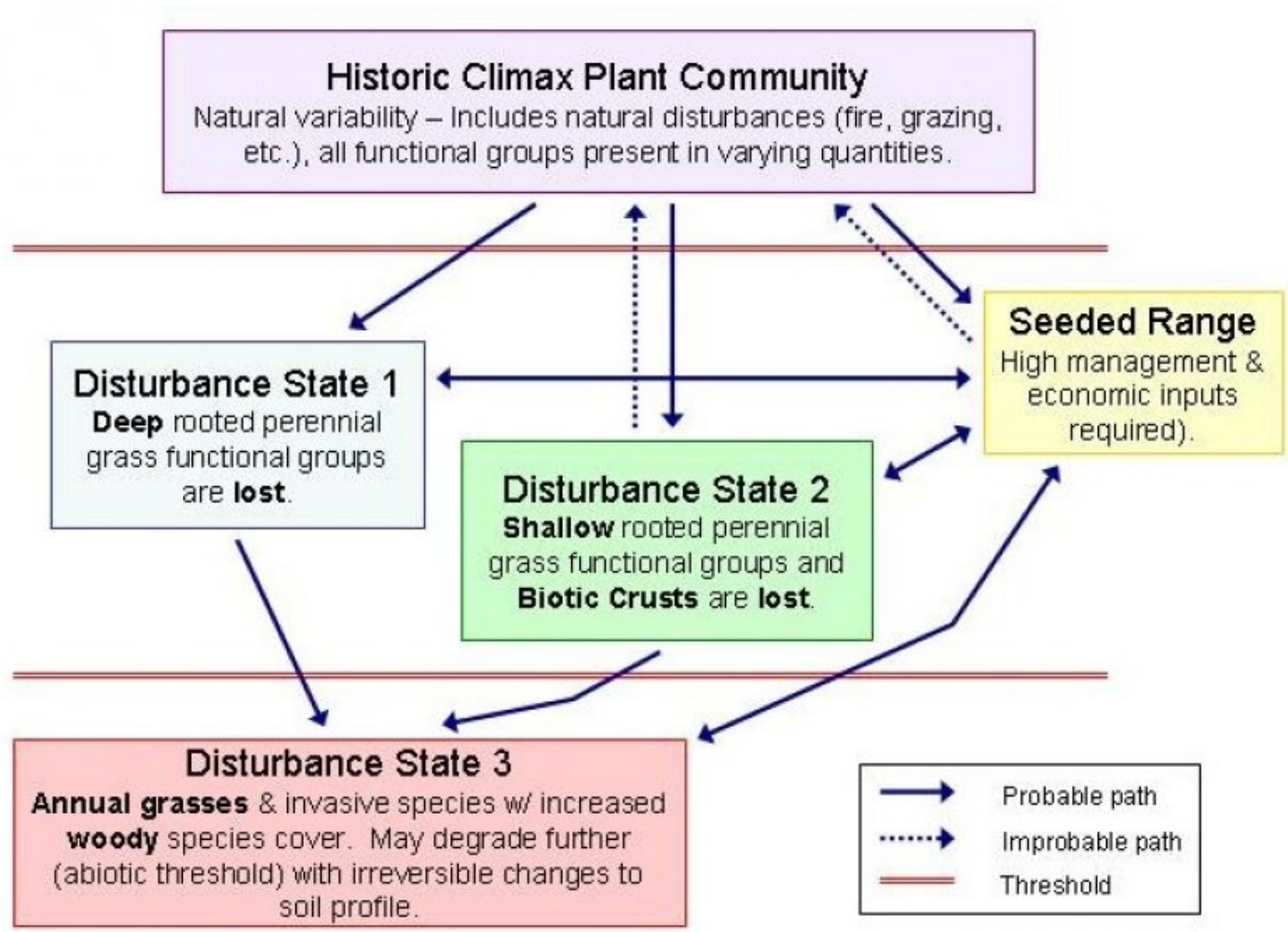
Variability in plant composition and yield is dependent on aspect and soil depth rather than on precipitation and elevation ranges that occur within the site. Steep due south slopes will have the most bluebunch wheatgrass.

Production is lowest as the soil approaches 20 inches of depth and coarse fragments increase. 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 southeasterly and westerly slopes and void on steep due south slopes. Shrubs occur sporadically, with taller shrubs becoming dominant on inclusions of deep colluvium.

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, common mullein, tarweed and a variety of other unpalatable forbs. Severe early spring grazing 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 Historic Climax Plant Community

#### Community 1.1 Historic Climax Plant Community

The potential native plant community is dominated by bluebunch wheatgrass and arrowleaf balsamroot. Idaho fescue, Sandberg's bluegrass, lupine, penstemon, dogbane, rose and a variety of other forbs and shrubs are prominent in the stand. The vegetative composition of the community is approximately 85 percent grasses, 10 percent forbs and 5 percent shrubs. Inclusions of shrub dominated deep coluviaum are often present.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	1473	1796	2118
Forb	101	212	323
Shrub/Vine	101	151	202
Total	1675	2159	2643

Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Perennial Deep-rooted Dominant</b>			1412–1816	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	1412–1816	–
2	<b>Perennial Deep-rooted Sub-dominant</b>			40–202	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	40–202	–
4	<b>Perennial Shallow-rooted Sub-dominant</b>			20–101	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	20–101	–
<b>Forb</b>					
7	<b>Perennial All Dominant</b>			40–101	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	40–101	–
8	<b>Perennial All Sub-dominant</b>			40–81	
	buckwheat	ERIOG	<i>Eriogonum</i>	20–40	–
	lupine	LUPIN	<i>Lupinus</i>	20–40	–
9	<b>PPFF</b>			20–141	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	2–12	–
	agoseris	AGOSE	<i>Agoseris</i>	2–12	–
	milkvetch	ASTRA	<i>Astragalus</i>	2–12	–
	Indian paintbrush	CASTI2	<i>Castilleja</i>	2–12	–
	hawksbeard	CREPI	<i>Crepis</i>	2–12	–
	fleabane	ERIGE2	<i>Erigeron</i>	2–12	–
	Scouler's woollyweed	HISC2	<i>Hieracium scouleri</i>	2–12	–
	western stone seed	LIRU4	<i>Lithospermum ruderales</i>	2–12	–
	desertparsley	LOMAT	<i>Lomatium</i>	2–12	–
	beardtongue	PENST	<i>Penstemon</i>	2–12	–
	mule-ears	WYAM	<i>Wyethia amplexicaulis</i>	2–12	–
<b>Shrub/Vine</b>					
11	<b>Perennial Evergreen Dominant</b>			20–40	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	20–40	–
13	<b>Perennial Deciduous Dominant</b>			61–121	
	dogbane	APOCY	<i>Apocynum</i>	20–40	–
	rose	ROSA5	<i>Rosa</i>	20–40	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	20–40	–
15	<b>SSSS</b>			20–40	
	Saskatoon serviceberry	AMAL2	<i>Amelanchier alnifolia</i>	3–7	–
	oceanspray	HOLOD	<i>Holodiscus</i>	3–7	–
	mock orange	PHILA	<i>Philadelphus</i>	3–7	–
	chokecherry	PRVI	<i>Prunus virginiana</i>	3–7	–
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	3–7	–
	elderberry	SAMBU	<i>Sambucus</i>	3–7	–

## Animal community

Livestock Grazing:

This site is suited to use by cattle and sheep in the late spring and fall. As this site 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 grazing 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. Adjacent to forested areas, these sites provide valuable escape, hiding and thermal cover. As a critical site for deer and elk adverse impacts can easily result without careful management.

#### 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), and hawks.

## Hydrological functions

The hydrologic cover condition is good at higher condition classes. The soils are in hydrologic groups C and 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 in the Blue Mountains where the forest fingers down the contrasting north slopes.

## Wood products

Scattered ponderosa pine occur on deeper soil inclusions. These provide limited economic benefits in terms of wood products, but are of value for shade and diversity.

## Other information

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

## 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

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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%
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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
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine - limited movement
- 
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, well drained, with areas of rock outcrop and talus and with a very cobbly silty clay loam, or extremely stony 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:** Moderate ground cover (60-70%) and very steep slopes (12-90%) 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
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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: Bluebunch wheatgrass > Idaho fescue > Arrowleaf balsamroot > dominant shrubs > Antelope bitterbrush > other forbs > Sandberg bluegrass > other dominant forbs > other shrubs
- 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: 2200, Normal: 1800, Unfavorable: 1400 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:** 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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