

Ecological site R009XY031OR

Shallow South 14+ 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
R009XY016OR	Clayey 17-22 PZ Clayey 17-22" PZ
R009XY020OR	Shallow Clayey 14-17 PZ Shallow clayey 14-17" PZ
R009XY021OR	Shallow Clayey 17-22 PZ Shallow Clayey 17-22" PZ

Similar sites

R009XY030OR	South 17-22 PZ South 17-22" PZ (deeper, higher production)
R009XY029OR	South 14-17 PZ South 14-17" PZ (deeper, higher production)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	(1) <i>Pseudoroegneria spicata</i> (2) <i>Festuca idahoensis</i>

Physiographic features

This site occurs near and within forestland on the backslopes of canyons, tablelands and mountain plateaus. It is typically on slopes with south and southwest aspects. Slopes range from 12 to 90%. Elevation varies from 1600 to 4300 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain slope (2) Canyon (3) Plateau
Flooding frequency	None
Ponding frequency	None
Elevation	488–1,311 m
Slope	12–90%
Aspect	S, SW

Climatic features

The annual precipitation ranges from 14 to 24 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, convective 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)	0 days
Precipitation total (average)	610 mm

Influencing water features

Soil features

The soils of this site are shallow over basalt bedrock and are well drained. Areas of rock outcrop and talus are common. Typically the surface layer is a very cobbly, cobbly silt loam, or extremely stony silty clay loam. The subsoil varies from a very cobbly silty clay loam to an extremely cobbly clay. Permeability is slow to very low. The available water holding capacity (AWC) is about 0.5 to 2 inches for the profile. The potential for erosion, particularly on steep slopes, is severe.

Table 4. Representative soil features

Parent material	(1) Loess–basalt
Surface texture	(1) Very cobbly silt loam (2) Extremely stony loam (3) Very gravelly

Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Soil depth	25–51 cm
Surface fragment cover <=3"	10–25%
Surface fragment cover >3"	25–40%
Available water capacity (0-101.6cm)	1.27–5.33 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	6.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	14–25%
Subsurface fragment volume >3" (Depth not specified)	25–40%

Ecological dynamics

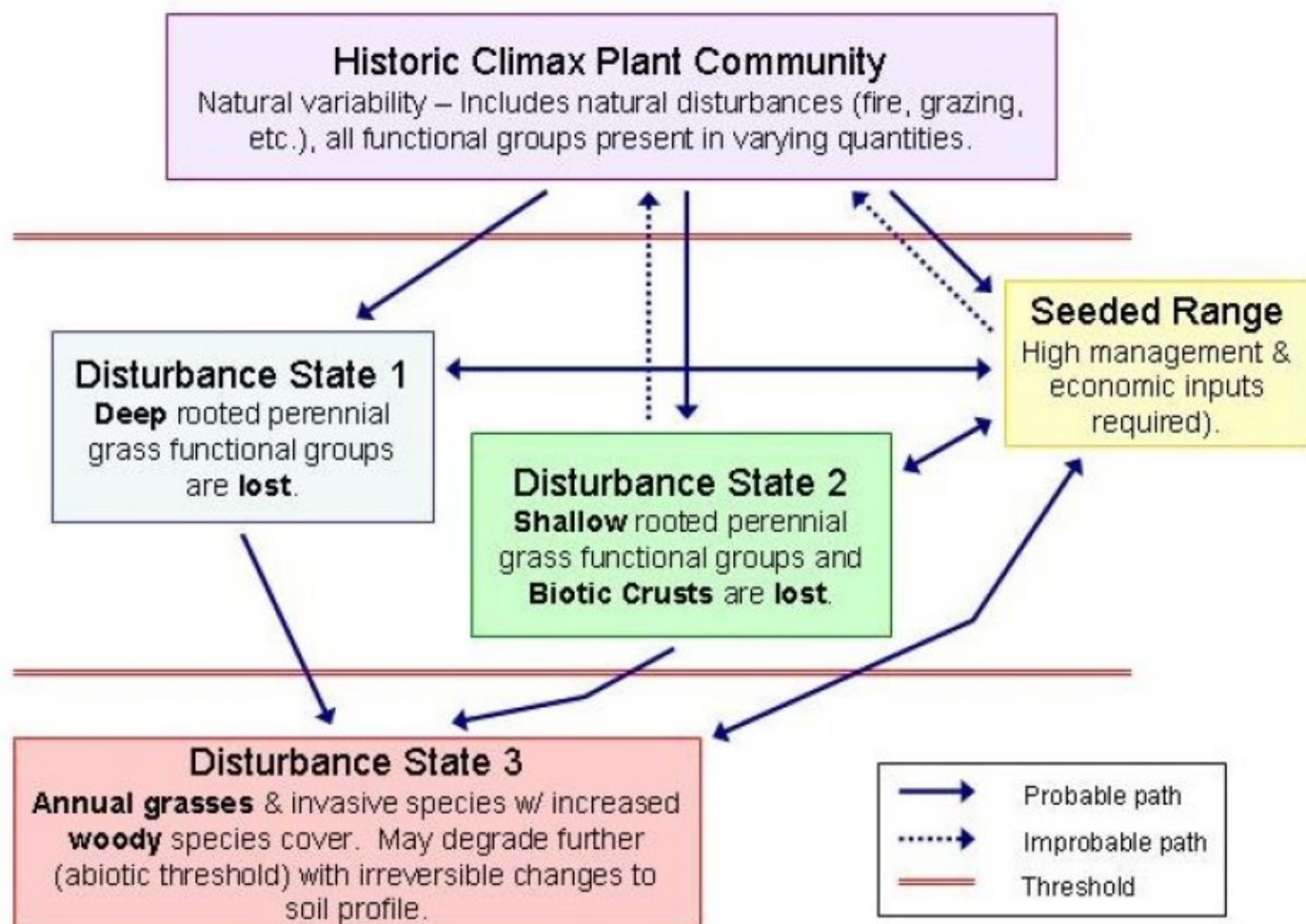
Range in Characteristics:

Variability in plant composition and yield is dependent on aspect, coarse fragments and soil depth rather than on precipitation and elevation ranges within the site. There tends to be a higher proportion of bluebunch wheatgrass and a lower total production on steep south and southwesterly slopes with 10 inches of depth and coarse fragments. Conversely, soils with 20 inches of depth and few coarse fragments will have the highest production. Idaho fescue will be the highest in composition on moderate southeast and west slopes and void on steep due south slopes. Antelope bitterbrush occurs where there is higher precipitation and on fractured bedrock zones.

Response to Disturbance:

As the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Idaho fescue decreases. Cheatgrasses and soft chess rapidly invade along with china lettuce, moth mullein and other unpalatable forbs. Medusahead may invade. 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 pollution.

State and transition model



GENERAL MODEL FOR COOL-SEASON BUNCHGRASS RANGELANDS

State 1 Historic Climax Plant Community

Community 1.1 Reference Plant Community

The potential native plant community is dominated by bluebunch wheatgrass. Idaho fescue, Sandberg's bluegrass, arrowleaf balsamroot, lomatium, and a variety of other forbs are prominent in the stand. The vegetative composition of the community is approximately 85 percent grasses, 13 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	381	667	1143
Forb	58	102	175
Shrub/Vine	9	16	27
Total	448	785	1345

Figure 4. Plant community growth curve (percent production by month).
OR2791, B9 Souths RPC. B9 Souths RPC.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	5	15	20	25	20	5	0	5	5	0	0

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 moderately deep-rooted bunchgrass			549–628	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	549–628	–
2	Perennial moderately deep-rooted bunchgrass			39–157	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	39–157	–
4	Shallow-rooted perennial bunchgrass			8–55	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	8–39	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0–16	–
Forb					
7	Perennial Forbs			16–31	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	16–31	–
8	Perennial Forbs			16–47	
	buckwheat	ERIOG	<i>Eriogonum</i>	8–24	–
	desertparsley	LOMAT	<i>Lomatium</i>	8–24	–
9	Other perennial forbs			8–55	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–16	–
	pussytoes	ANTEN	<i>Antennaria</i>	0–16	–
	milkvetch	ASTRA	<i>Astragalus</i>	0–16	–
	hawksbeard	CREPI	<i>Crepis</i>	0–16	–
	fleabane	ERIGE2	<i>Erigeron</i>	0–16	–
	western stone seed	LIRU4	<i>Lithospermum ruderale</i>	0–16	–
	lupine	LUPIN	<i>Lupinus</i>	0–16	–
	beardtongue	PENST	<i>Penstemon</i>	0–16	–
	phlox	PHLOX	<i>Phlox</i>	0–16	–
Shrub/Vine					
11	Evergreen shrub			8–16	
	rubber rabbitbrush	ERNA10	<i>Ericameria nauseosa</i>	8–16	–
13	Deciduous Shrub			8–16	
	rose	ROSA5	<i>Rosa</i>	8–16	–
15	Other deciduous shrubs			8–16	
	antelope bitterbrush	PUTR2	<i>Purshia tridentata</i>	0–8	–
	smooth sumac	RHGL	<i>Rhus glabra</i>	0–8	–
	common snowberry	SYAL	<i>Symphoricarpos albus</i>	0–8	–

Animal community

Livestock Grazing:

This site is suited to 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. Its value increases when it is adjacent to forested areas where escape, hiding and thermal cover is available.

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, and White-tailed deer.

Hydrological functions

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

Recreational uses

Sulfur lupine and arrowleaf balsamroot are the two forbs that stand out in the spring and early summer with yellow and gold dotting the hillsides. In the foothills of the blue mountains where the forest fingers down the north slopes of the drainages, this site provides a pleasing visual diversity from the forests.

Wood products

At higher elevations with increases precipitation, a few 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 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 and Bruce Franssen
Contact for lead author	Oregon NRCS State Rangeland Management Specialist
Date	04/01/2007
Approved by	Bob Gillaspay
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** None to some.

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):** 10-20%.
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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.
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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):** Moderate fine subangular blocky to granular structure, dry color values 4 - 5, 3 - 7 inch thickness, low to moderate OM (1-5%).
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Sparse ground cover (30-40%) and very steep slopes (12-90%) only slightly 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: Moderately deep rooted perennial bunchgrasses
- Sub-dominant: Shallow rooted perennial bunchgrasses
- Other: Forbs > Shrubs
- 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: 1200, Normal: 700, Unfavorable: 400 lbs/acre/year.

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:** Annual bromes and medusahead invade sites that have lost moderately deep rooted perennial grass functional groups.

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