USDA Natural Resources
Conservation Service

Ecological site R009XY052OR
Loamy Shallow South 10-15 PZ

Last updated: 5/05/2025
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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.

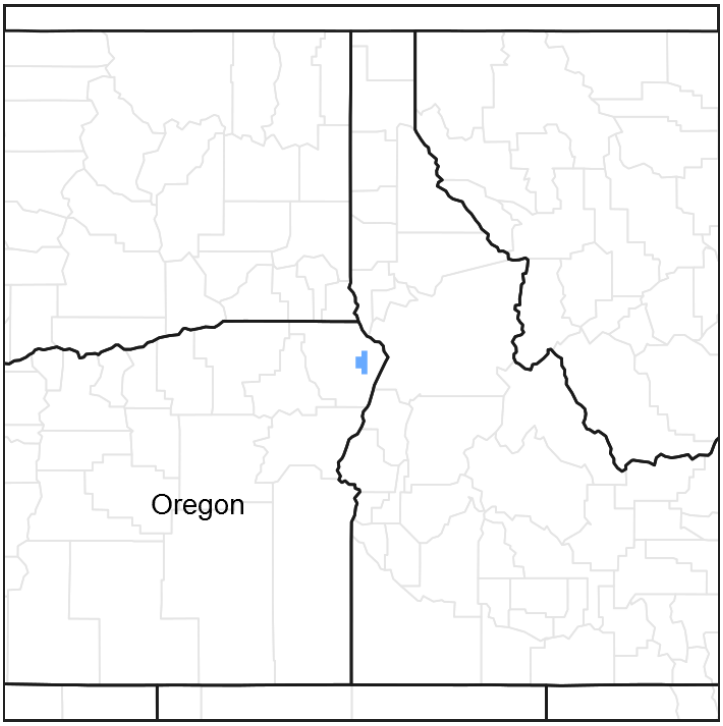


Figure 1. Mapped extent

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

R009XY003OR	**Fan 10-15 PZ** Fan 10-15" PZ
R009XY050OR	**Loamy Bench 10-15 PZ** Loamy Bench 10-15" PZ

R009XY051OR	**Loamy South 10-15 PZ** Loamy South 10-15" PZ
R009XY053OR	**Very Shallow South 10-15 PZ** Very Shallow South 10-15" Pz
R009XY054OR	**Loamy North 10-15 PZ** Loamy North 10-15" PZ

Similar sites

R009XY051OR	**Loamy South 10-15 PZ** Loamy South 10-15" PZ

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on south facing aspects along the lower slopes of canyons. Slopes range from 2 to 60% with slopes of 30 to 60% being the most typical. Elevation varies from 800 to 2800 feet.

Table 2. Representative physiographic features

Landforms	(1) Canyon
Elevation	2,800–800 ft
Slope	2–60%
Aspect	S

Climatic features

The annual precipitation ranges from 10 to 15 inches. The precipitation occurs as rain and snowduring the months of November through March. Localized, occasionally severe, convection storms occur during the summer. The mean annual air temperature is approximatley 50 degrees F. Extreme temperatures range from 100 degrees F. to -20 degrees F. Soil temperature regimes are mesic. The frost-free period ranges from 90 to 140 days. The period of optimum plant growth is from early April through June.

Table 3. Representative climatic features

Frost-free period (average)	140 days
Freeze-free period (average)	
Precipitation total (average)	15 in

Influencing water features

Soil features

The soils of this site are formed in colluvium and loess over old, lower Miocene basalt bedrock. They are shallow. Typically the surface layer is a very stony to extremely cobbly loam over a extremely cobbly heavy loam subsoil. Stoniness is variable. Soil permeability is moderate. The available water holding capacity (AWC) is 2 to 3 inches. The erosion potential is high.

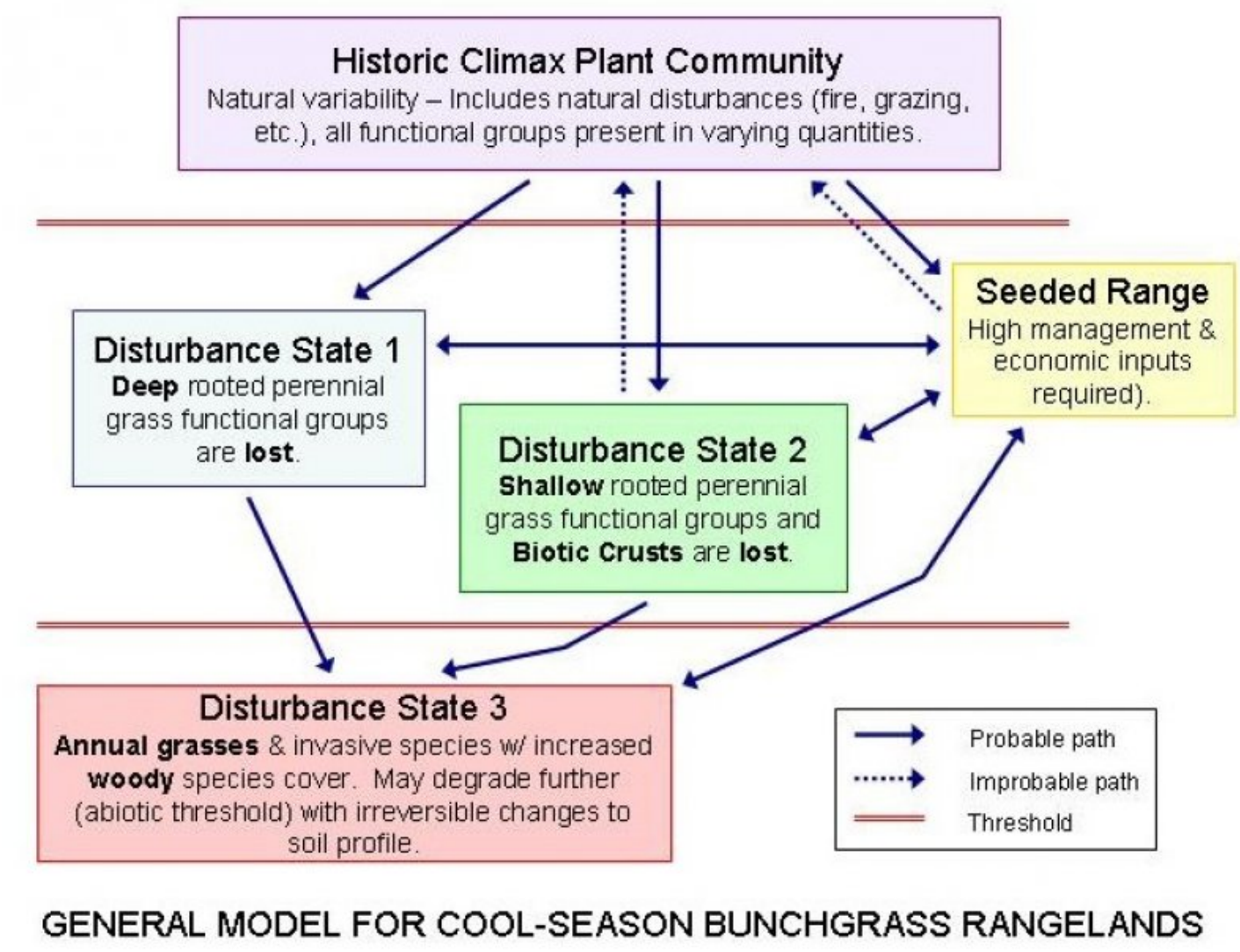
Table 4. Representative soil features

Surface texture	(1) Extremely cobbly loam (2) Very stony loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate

Ecological dynamics

Range in Characteristics:
Variablity in plant composition and production is dependent on soil depth, surface texture and aspect. Bluebunch wheatgrass increases on fine textured surfaces. Sand dropseed increases on coarse textured surfaces and on southerly, low elevation droughty slopes. Production increases with soil depth.
Response to Disturbance:
If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass decreases. Sand dropseed increases along with lesser amounts of red threeawn. Cheatgrass, Japanese brome, annual fescues and a variety of unpalatable forbs invade. With further deterioration, sand dropseed decreases, annuals and threeawn continue to increase, forage production decreases, areas of bare ground appear and soil erosion accelerates.

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 dominanted by bluebunch wheatgrass. Sand dropseed is common. Sandberg bluegrass is present along with a variety of forbs. Shrubs are minor. The potential vegetative composition is approximately 90 percent grass, 5 percent forbs and 5 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	516	570	624
Forb	24	54	84
Shrub/Vine	6	24	18
Total	**546**	**648**	**726**

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**			480–540	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	480–540	–
2	**Perennial Deep-rooted Sub-dominant**			18–48	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	18–48	–
5	**PPGG**			18–36	
	purple threeawn	ARPU9	*Aristida purpurea*	9–18	–
	Sandberg bluegrass	POSE	*Poa secunda*	9–18	–
Forb					
7	**Perennial All Dominant**			18–54	
	common yarrow	ACMI2	*Achillea millefolium*	6–18	–
	milkvetch	ASTRA	*Astragalus*	6–18	–
	plains pricklypear	OPPO	*Opuntia polyacantha*	6–18	–
9	**PPFF**			6–30	
	agoseris	AGOSE	*Agoseris*	1–3	–
	buckwheat	ERIOG	*Eriogonum*	1–3	–
	shaggy fleabane	ERPU2	*Erigeron pumilus*	1–3	–
	aster	EUCEP2	*Eucephalus*	1–3	–
	hairy false goldenaster	HEVI4	*Heterotheca villosa*	1–3	–
	hawkweed	HIERA	*Hieracium*	1–3	–
	desertparsley	LOMAT	*Lomatium*	1–3	–

	lupine	LUPIN	*Lupinus*	1–3	–
	beardtongue	PENST	*Penstemon*	1–3	–
	phacelia	PHACE	*Phacelia*	1–3	–
	phlox	PHLOX	*Phlox*	1–3	–
	narrowleaf skullcap	SCAN3	*Scutellaria angustifolia*	1–3	–
Shrub/Vine					
11	**Perennial Evergreen Dominant**			6–18	
	spiny greasebush	GLSP	*Glossopetalon spinescens*	6–18	–

Animal community

Livestock Grazing:
This site is suited to spring, fall and winter use by cattle, sheep and hrses under a planned grazing system. The key species is bluebunch wheatgrass. Bluebunch wheatgrass can be damaged if heavily grazed during periods of flowering and seed formation when root reserves and soil moisture is low. Use in the spring should be postponed until the soils are firm enough to prevent trampling damdge and sol compaction and mass movement.
Wildlife:
When the ecological condition is high this site provides food for deer, elk, other mammals and upland birds. It is an important wintering area for deer and elk.
Native Wildlife Associated With The Potential Climax Community:
Mule deer, white-tail deer, elk, rodents and a variety of upland birds use this site.

Hydrological functions

The soils of this site have low water holding capacities providing little late season water for plant growth. the hydrologic cover condition is fair when the ecological condition is high.

Other information

When in poor condition this site has virtually no potential for range seeding because it is droughty, stony and usually steep. Technology for seeding is currently not available.

Contributors

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Approval

Kirt Walstad, 5/05/2025

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):** 5-15%

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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

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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 to significantly resistant to erosion; aggregate stability = 3-6

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Shallow, well drained, with a very stony to extremely cobbly loam surface; 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:** Moderate ground cover (60-70%) and steep slopes (2-60%) 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 > Sand dropseed > forbs > other grasses > 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: 800, Normal: 600, Unfavorable: 400 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:** Sand dropseed and three-awn will increase with deterioration of plant community. Annual bromes and annual fescues 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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