USDA Natural Resources
Conservation Service

Ecological site R009XY014OR
Deep Loam 17-22 PZ

Accessed: 05/10/2025

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	**Clayey 17-22 PZ** Clayey 17-22" PZ
R009XY021OR	**Shallow Clayey 17-22 PZ** Shallow Clayey 17-22" PZ
R009XY030OR	**South 17-22 PZ** South 17-22" PZ
R009XY031OR	**Shallow South 14+ PZ** Shallow South 14"+ PZ
R009XY045OR	**North 17-24 PZ** North 17-24" PZ

Similar sites

R009XY013OR	**Loamy 17-22 PZ** Loamy 17-22" PZ (moderately deep soil, lower production)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs near and within forestland on table lands and mountain plateaus. Slopes range from 0 to 12%. It is typically within the northern portion of the Blue Mountains. Elevation varies from 2000 to 3800 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial fan
Elevation	2,000–3,800 ft
Slope	0–12%
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 17 to 22 inches, most of which occurs in the form of snow during the monthes of November through March followed by ample spring rainfall. Localized convectional storms occasionally occur during the summer. The soil temperature regime is mesic with the mean annual air temperature of 48 degrees F. The frost-free period ranges from 110 to 180 days. The optimum period for plant growth is from late April to late July.

Table 3. Representative climatic features

Frost-free period (average)	180 days
Freeze-free period (average)	0 days
Precipitation total (average)	22 in

Influencing water features

Soil features

The soils of this site are deep to very deep over basalt bedrock and are moderately well drained to well drained. Typically the surface layer is silt loam. The subsoil varies from a silt loam to a silty clay loam. Permeability is moderate. The available water holding capacity (AWC) is about 8 to 12 inches for the profile. The potential for erosion is moderate.

Table 4. Representative soil features

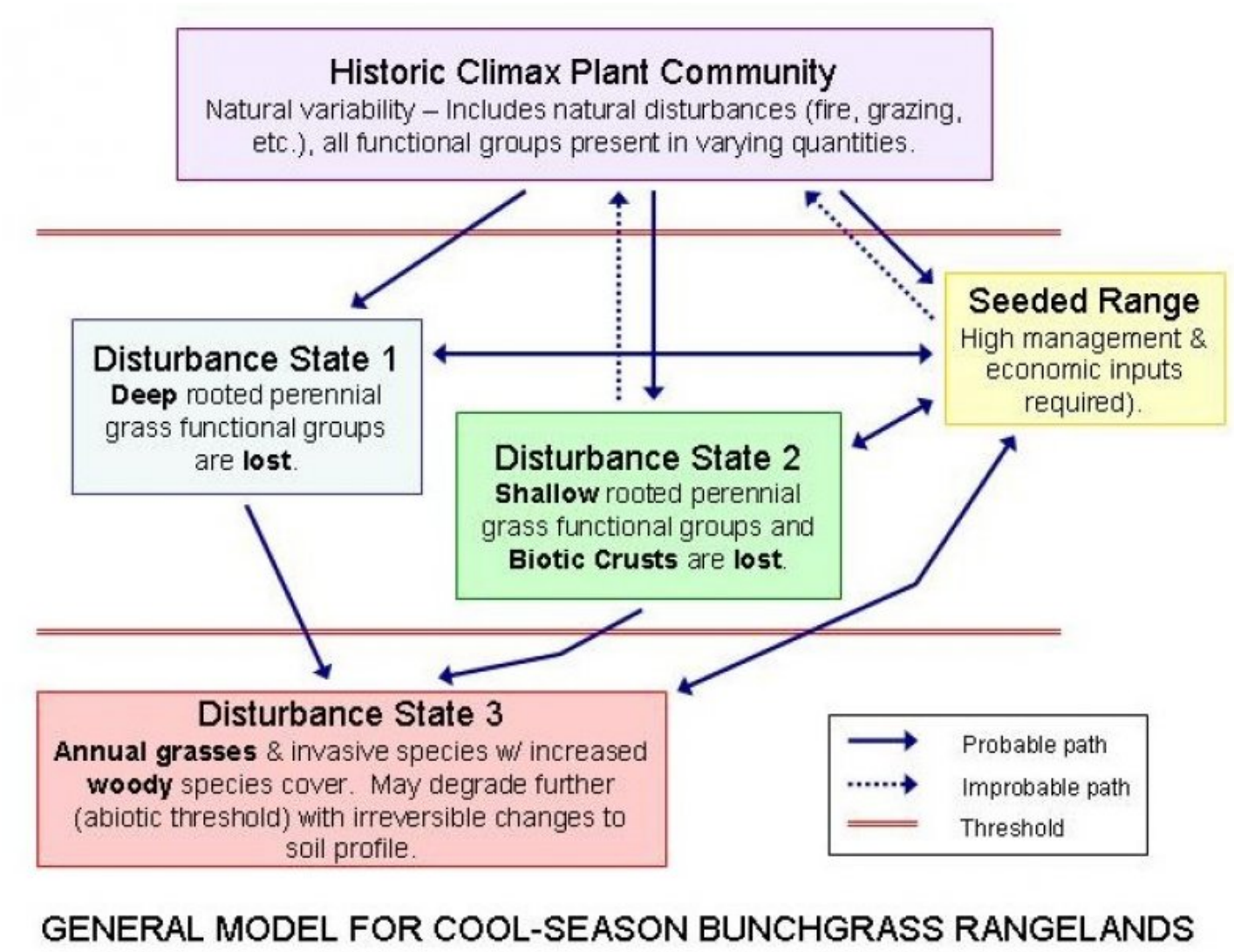
Surface texture	(1) Silt loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderate

Ecological dynamics

Range in Characterisitcs:
Variablity in precipitation and elevation have little effect on compostion and yeild. There tends to be higher proportion of bluebunch wheatgrass on south and southwesterly slopes. Conversely, Idaho fescue increases on north slopes. Shrubs occuring in dense patches compete strongly with grasses and forbs for space, water, nutrients and sunlight. An occasional ponderosa pine bearing fire scars may be present.

Response to Disturbance:
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 wheatgrass decreases, forbs increase and cheatgrass, tarweed and other annuals rapidly invade. Mulesear wyethia increases, Kentucky bluegrass invades, and where present, diffuse knapweed invades and increases. Under deteriorated conditions, annuals and unpalatable forbs dominate the site. This site is susceptable to fire having variable to high furel loads. Root sprouting shrubs respond well to these conditions and maintain a prominent popsition in the plant community.

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 poptential native plant communtiy is dominanted by Idaho fescue. Bluebunch wheatgrass and a variety of forbs are prominent in the stand. Shrubs are also prominent with hawthorn, chokecherry, serviceberry and snowberry occuring in dense random patches. The vegetative composition of the comunity is approximatley 70 percent grasses, 25 percent shrubs, and 5 percent forbs.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1550	2075	2600
Shrub/Vine	200	563	925
Forb	100	225	350
Total	**1850**	**2863**	**3875**

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**			1500–2500	
	Idaho fescue	FEID	*Festuca idahoensis*	1000–1500	–
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	500–1000	–
4	**Perennial Deep-rooted Dominant**			50–100	
	prairie Junegrass	KOMA	*Koeleria macrantha*	25–50	–
	Sandberg bluegrass	POSE	*Poa secunda*	25–50	–
Forb					
7	**Perennial All Dominant**			50–125	
	cinquefoil	POTEN	*Potentilla*	25–75	–
	buckwheat	ERIOG	*Eriogonum*	25–50	–
8	**Perennial All Subdominant**			25–50	
	lupine	LUPIN	*Lupinus*	25–50	–
9	**PPFF**			25–175	
	common yarrow	ACMI2	*Achillea millefolium*	3–19	–
	agoseris	AGOSE	*Agoseris*	3–19	–
	milkvetch	ASTRA	*Astragalus*	3–19	–
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	3–19	–
	brodiaea	BRODI	*Brodiaea*	3–19	–
	hawksbeard	CREPI	*Crepis*	3–19	–
	Scouler's woollyweed	HISC2	*Hieracium scouleri*	3–19	–
	desertparsley	LOMAT	*Lomatium*	3–19	–
	beardtongue	PENST	*Penstemon*	3–19	–
Shrub/Vine					
13	**Perennial Deciduous Domianant**			100–400	
	hawthorn	CRATA	*Crataegus*	50–200	–
	chokecherry	PRVI	*Prunus virginiana*	50–200	–
14	**Perennial Deciduous Subdominant**			75–375	
	Saskatoon serviceberry	AMAL2	*Amelanchier alnifolia*	25–125	–
	rose	ROSA5	*Rosa*	25–125	–
	common snowberry	SYAL	*Symphoricarpos albus*	25–125	–
15	**SSSS**			25–150	
	mock orange	PHILA	*Philadelphus*	6–38	–
	mallow ninebark	PHMA5	*Physocarpus malvaceus*	6–38	–
	currant	RIBES	*Ribes*	6–38	–
	elderberry	SAMBU	*Sambucus*	6–38	–

Animal community

Livestock Grazing:
This site is suited to use by cattle and sheep in the summer and fall. It has few limitations. Care should be taken to avoid trampling damage and soil compaction when soils are wet.
Wildlife:
This site can be important as a winter, spring, and fall feeding site for deeer and elk. The sites are occasionally

adjacent to forested areas which provide hiding and thermal cover.
Native Wildlife Associated With The Potential Climax Community:
Mule deer, Rocky Mountain elk, hawks, coyote, rodents, and white-tailed deer.

Hydrological functions

The hydrologic cover condition is good at higher condition classes. The soils are in hydrologic groups B and C.

Recreational uses

In the Blue Mountains this site provides a pleasing visual diversity with higher elevation sites.

Wood products

A few scattered ponderosa pine may occur. These provide limited benefits in terms of wood products, shade and diversity.

Other information

This site is used primariy as cropland and has a good potential for range seeding.

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, moderate 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

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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

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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 = 2-4

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Deep, miderately well drained, with a silt loam surface; moderate OM (2-4%)

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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 (90-100%) and gentle slopes (0-12%) effectively 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 > hawthorn = Chokecherry > other forbs > other shrubs > dominant shrubs > dominant forbs > dominant 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: 3500, Normal: 2500, Unfavorable: 1800 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. Bluegrasses, cheatgrass, and medusahead invade sited that have lost deep rooted perennial grass functional groups. Site is susceptible to fire with variable fuel loads.

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

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