USDA Natural Resources
Conservation Service

Ecological site R009XY013OR
Loamy 17-22 PZ

Accessed: 05/12/2025

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

R009XY021OR	**Shallow Clayey 17-22 PZ** Shallow South 14"+ PZ
R009XY025OR	**Very Shallow 14-18 PZ** Shallow Clayey 17-22" PZ
R009XY031OR	**Shallow South 14+ PZ** Shallow South 14" PZ

Similar sites

R009XY016OR	**Clayey 17-22 PZ** Clayey 17-22" PZ (finer texture soil, lower production)
R009XY014OR	**Deep Loam 17-22 PZ** Deep Loamy 17-22" PZ (deeper soil, higher 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 outwash terraces, tablelands and mountain plateaus. Slopes range from 0 to 12%. It sis typically within the northern portion of the Blue Mountains. Elevation varies from 2000 to 3400 feet.

Table 2. Representative physiographic features

Landforms	(1) Alluvial flat
Elevation	2,000–3,400 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 months of November through March followed by ample spring rainfall. Localized convectional storms occasionally occur during the summer. The soil temperature regime is mesic approaching frigid with a mean annual air temperature of 48 degrees F. Temperature extremes range from 110 to -40 degrees F. The frost-free period ranges from 110 to 170 days. The optimum period for plant growth is from late April to late July.

Table 3. Representative climatic features

Frost-free period (average)	170 days
Freeze-free period (average)	0 days
Precipitation total (average)	22 in

Influencing water features

Soil features

The soils of this site are moderately deep to deep over basalt bedrock and are well drained. Typically the surface layer is a silt loam or very cobbly loam. The subsoil includes loam, clay loam, and very cobbly or extremely cobbly loam. Permeability is moderate to moderately slow. The available water holding capacity (AWC) is about 5 to 7 inches for the profile. The potential for erosion is moderate.

Table 4. Representative soil features

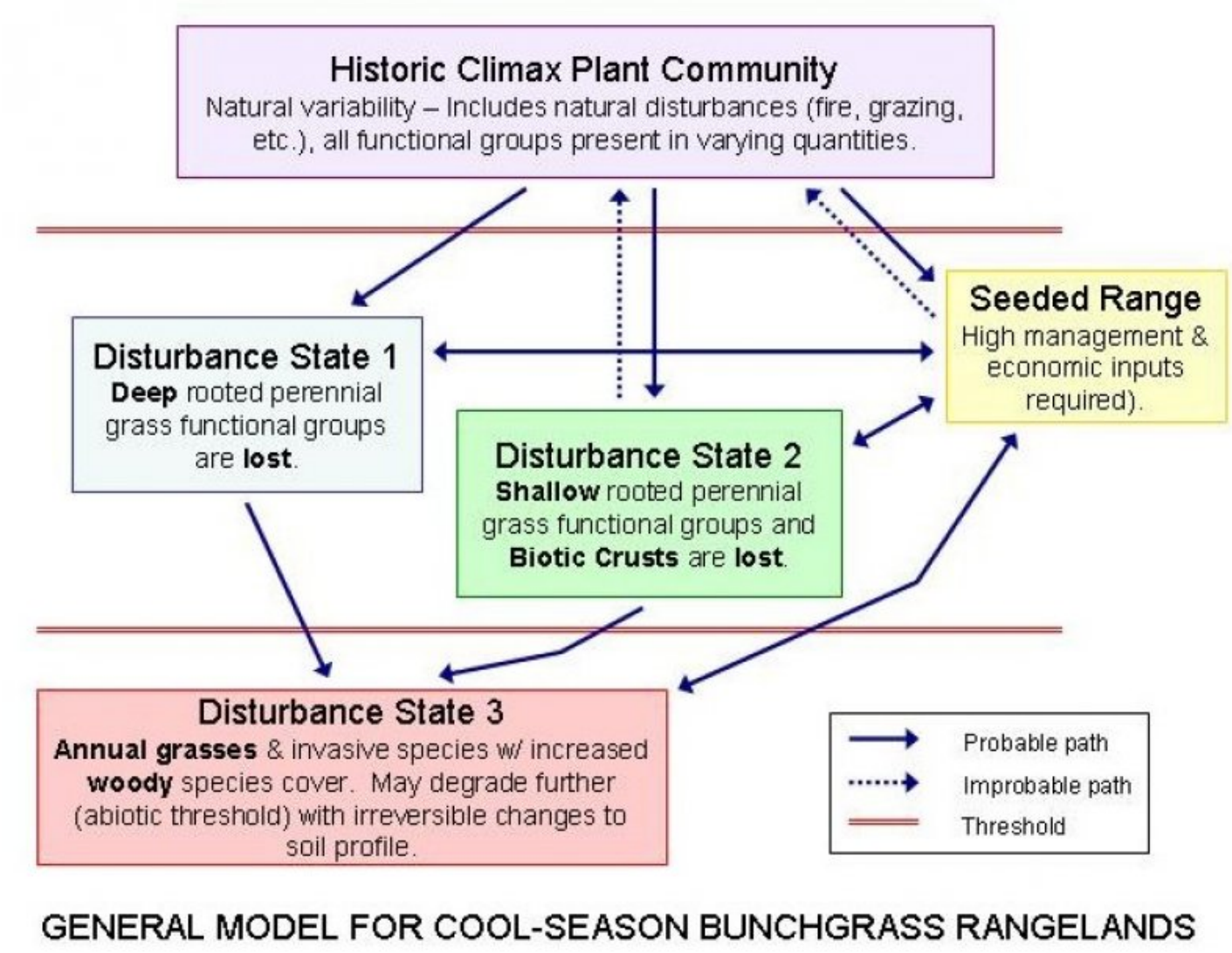
Surface texture	(1) Silt loam (2) Very cobbly loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to moderately slow

Ecological dynamics

Range in Characteristics:
Variability in plant composition and yeild is dependent on aspect and soil depth rather than on precipitation and elevation ranges that occur within the site. There tends to be a higher proportion of bluebunch wheatgrass and lower overall productionon shallower south and southwesterly slopes. Conversely, Idaho fescue is in higher proportion with higher overall production on north slopes with approximately 40 inches depth.
Response to Disturbance:

If the condiditon of the site deteriorates as a result of overgrazing, Idaho fescue decreases and bluebunch wheatgrass increases. 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, Kentucy bluegrass invades, where present diffuse knapweed invades and increases. Under deteriorated conditions, annuals and unpalatble forbs dominate the site.

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 dominatned by Idaho fescue. Bluebunch wheatgrass and a variety of forbs are predominant in the stand. The vegetative composition of the community is approximately 90 percent grasses, 8 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	1640	1860	2080
Forb	80	190	300
Shrub/Vine	60	90	120
Total	**1780**	**2140**	**2500**

Figure 3. Plant community growth curve (percent production by month). OR2761, B9 Fans, Loamy, Clayey RPC. B9 Fans, Loamy, Clayey RPC.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	10	20	30	20	10	0	5	5	0	0

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**			1400–1600	
	Idaho fescue	FEID	*Festuca idahoensis*	1400–1600	–
2	**Perennial Deep-rooted Dominant**			200–400	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	200–400	–
4	**Perennial Deep-rooted Subdominant**			40–80	
	prairie Junegrass	KOMA	*Koeleria macrantha*	20–40	–
	Sandberg bluegrass	POSE	*Poa secunda*	20–40	–
Forb					
7	**Perennial Deep-rooted Subdominant**			40–120	
	buckwheat	ERIOG	*Eriogonum*	20–60	–
	cinquefoil	POTEN	*Potentilla*	20–60	–
8	**Perennial All Subdominant**			20–40	
	lupine	LUPIN	*Lupinus*	20–40	–
9	**PPFF**			20–140	
	common yarrow	ACMI2	*Achillea millefolium*	3–18	–
	agoseris	AGOSE	*Agoseris*	3–18	–
	milkvetch	ASTRA	*Astragalus*	3–18	–
	brodiaea	BRODI	*Brodiaea*	3–18	–
	hawksbeard	CREPI	*Crepis*	3–18	–
	Scouler's woollyweed	HISC2	*Hieracium scouleri*	3–18	–
	desertparsley	LOMAT	*Lomatium*	3–18	–
	beardtongue	PENST	*Penstemon*	3–18	–
Shrub/Vine					
13	**Perennial Deciduous Dominant**			60–120	
	hawthorn	CRATA	*Crataegus*	20–40	–
	rose	ROSA5	*Rosa*	20–40	–
	common snowberry	SYAL	*Symphoricarpos albus*	20–40	–

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 is important as a spring, summer and fall feeding site for deer and elk. The sites are usually adjacent to forested areas which provide hiding and thermal cover.
Native Wildlife Associated With Teh 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 occurs on the ridgetops interfingering with the forest. It provides a pleasing visual diversity witht he forests.

Wood products

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

Other information

This site has the potential for rnage seeding when it occurs in large enough units. As a complex with shallow sites the potential for range seeding is often low because it occurs as small mounds (biscuits).

Contributors

AV Bahn, J. Anderson
Justin Gredvig

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	State Rangeland Management Specialist for NRCS in Oregon
Date	04/24/2003
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

2. **Presence of water flow patterns:** None to some

3. **Number and height of erosional pedestals or terracettes:** None

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

6. **Extent of wind scoured, blowouts and/or depositional areas:** None

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 = 2-4

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** moderate fine granular to strong very fine subangular blocky structure, dry color value 4, 9 -926 inches thick; moderate OM (2-4%)

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Significant ground cover (80-90%) and gentle slopes (0-12%) effectively limit rainfall impact and overland flow

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: Deep-rooted, cool-season, bunchgrasses (FEID >> PSSP6 > others)

    Sub-dominant: Perennial forbs > shrubs

    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

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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: 2500, Normal: 2000, Unfavorable: 1500 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:** Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups

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

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