USDA Natural Resources
Conservation Service

Ecological site R009XY034OR
Cold South 13-17 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.

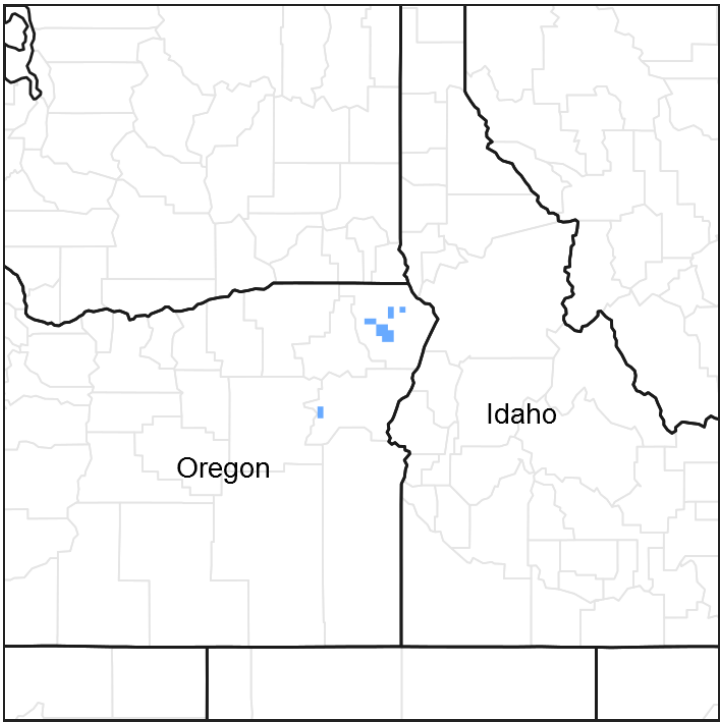


Figure 1. Mapped extent

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

R009XY017OR	**Cold Loamy 13-17 PZ** Mountain Loamy 13-17" PZ
R009XY022OR	**Cold Shallow 13+ PZ** Mountain Shallow 13"+ PZ

Similar sites

R009XY035OR	**Cold South 17-24 PZ** Mountain South 17-24" PZ (higher production)
R009XY036OR	**Cold Shallow South 13+ PZ** Mountain Shallow South 13"+ PZ (lower production)

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs near forestLand on the backslope of canyons, tablelands, and mountian plateaus, north of the Wallowa Mountains. It is typically on slopes with south and southwest aspects as one of the last open grassland sites before the forest. Slopes range from 12 to 30%. Elevation varies from 4000 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Plateau (3) Canyon
Elevation	1,219–1,524 m
Slope	12–30%
Aspect	S, SW

Climatic features

The annaul precipitation ranges from 13 to 17 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 frigid with a mean annual air temperture of 44 degrees F. The frost-free period ranges from 70 to 95 days. The optimum peiod for plant growth is from late March to mid-June.

Table 3. Representative climatic features

Frost-free period (average)	95 days
Freeze-free period (average)	
Precipitation total (average)	432 mm

Influencing water features

Soil features

The soils of this site are moderatley 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 loam to a very stony clay loam. The subsoil varies from a very cobbly clay loam to an extremely cobbly clay. Depth to bedrock is typically less than 30 iches. PErmeability is moderately slow and the available water holding capacity (AWC) is about 3 to 5 inches for the profile. The potential for erosion, particularly on steep slopes, is severe.

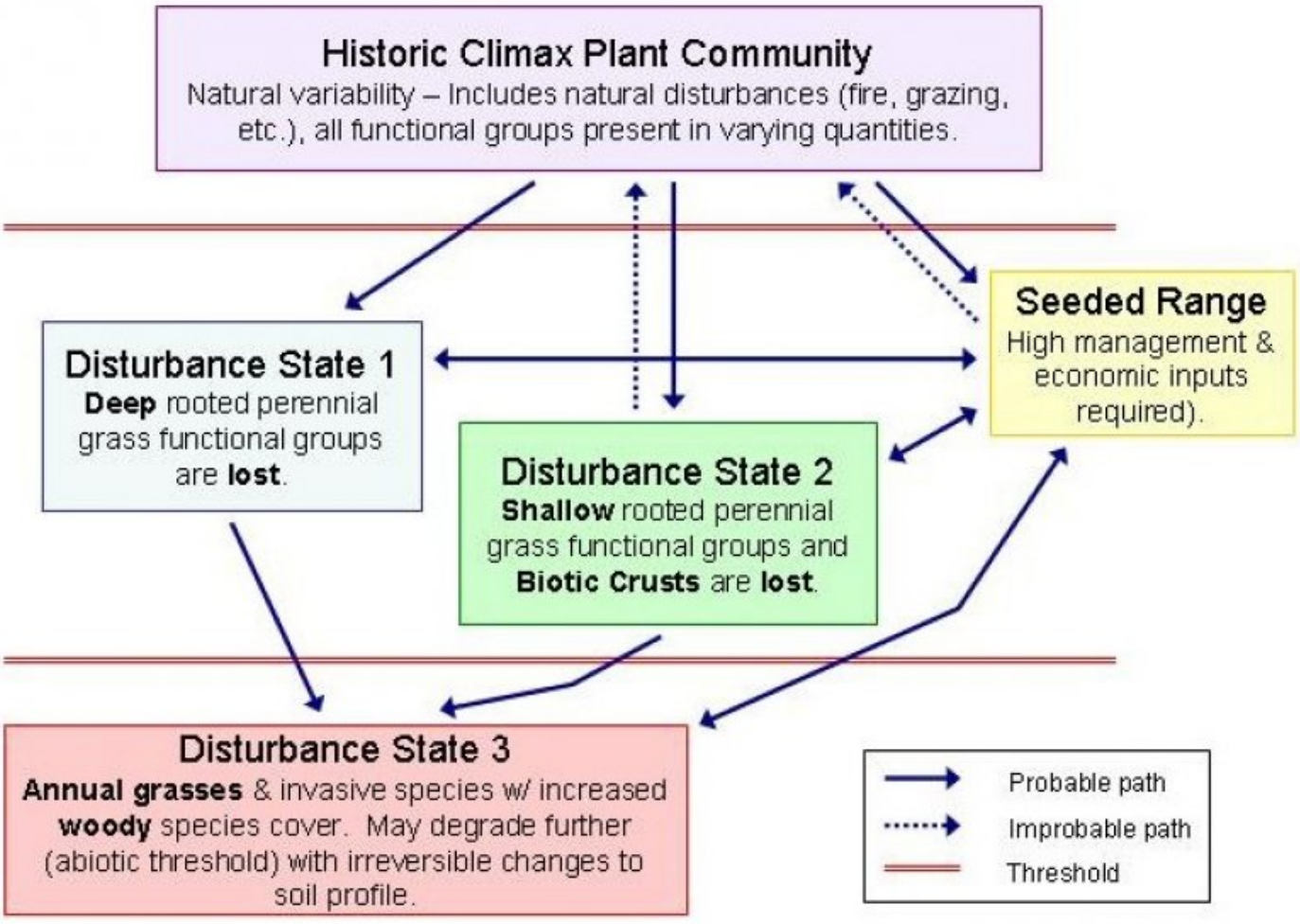
Table 4. Representative soil features

Surface texture	(1) Very cobbly silt loam (2) Very stony clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderately slow

Ecological dynamics

Range in Characterisitcs:
Variablity in plant compositon 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 total production on steep south slopes with 20 inches of depth and coarse fragments. Idaho fescue will be highest in composition on moderatley southeasterly and west slopes. Soils close to 40 inches of depth and with few coarse fragments will have the highest production.
Response to Disturbance:
If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Idaho fescue decreases. Sandberg bluegrass, unpalatble forbs and green rabbitbrush increases. Bulbous bluegrass, other bluegrasses, soft chess and cheatgrass invade. Severe early spring grazing 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, Idaho fescue and lupine. Sandberg bluegrass, arrowleaf balsamroot, buckwheat, and a variety of other forbs, are prominent in the stand. The vegetative composition of the community is approximately 90 percent grasses and 10 percent forbs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	807	1098	1390
Forb	45	95	146
Shrub/Vine	11	17	22
Total	**863**	**1210**	**1558**

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 Deep-rooted Dominant**			785–1345	
	bluebunch wheatgrass	PSSP6	*Pseudoroegneria spicata*	560–897	–
	Idaho fescue	FEID	*Festuca idahoensis*	224–448	–
4	**Perennial Shallow-rooted Sub-dominant**			22–45	
	prairie Junegrass	KOMA	*Koeleria macrantha*	11–22	–
	Sandberg bluegrass	POSE	*Poa secunda*	11–22	–
9	**PPFF**			11–78	
	common yarrow	ACMI2	*Achillea millefolium*	1–8	–
	milkvetch	ASTRA	*Astragalus*	1–8	–
	mariposa lily	CALOC	*Calochortus*	1–8	–
	hawksbeard	CREPI	*Crepis*	1–8	–
	fleabane	ERIGE2	*Erigeron*	1–8	–
	buckwheat	ERIOG	*Eriogonum*	1–8	–
	old man's whiskers	GETR	*Geum triflorum*	1–8	–
	western stoneseed	LIRU4	*Lithospermum ruderale*	1–8	–
	desertparsley	LOMAT	*Lomatium*	1–8	–
	phlox	PHLOX	*Phlox*	1–8	–
Forb					
7	**Perennial All Dominant**			22–45	
	lupine	LUPIN	*Lupinus*	22–45	–
8	**Perennial All Sub-dominant**			11–22	
	arrowleaf balsamroot	BASA3	*Balsamorhiza sagittata*	11–22	–
Shrub/Vine					
11	**Perennial Evergreen Dominant**			11–22	
	green rabbitbrush	ERTE18	*Ericameria teretifolia*	11–22	–

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 taekn to avoid trampling damage and soil compaction when soils are wet.
Wildlife:
This site is importatnas a winter and early spring grazing site for deer and elk. It is often free of snow during the late winter and one of the first soi areas to warm up. Early green feed is provided. 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, Rocky Mountain elk, Mule deer, White-tail deer.

Hydrological functions

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

Recreational uses

North of the Wallowa Mountains this ite occurs in complex with other sites in the open rolling grasslands. These open grasslands provide a pleasing view with the distant mountians.

Other information

This site has a low potential for range seeding due to presence of coarse fragments, the steepness of slopes, or because it is generally in a complex with shallow sites.

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

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

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

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, slight wind erosion haard

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):** Moderately deep, well drained, with areas of rock outcrop and talus and with a very cobbly silt loam to a very stony clay 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 to significant ground cover (60-80%) and very steep slopes (12-90%) 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 > dominant forbs > other 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

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: 1300, Normal: 1000, Unfavorable: 800 lbs/acre/year at high RSI (HCPC)

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, bulbous bluegrass, annual bromes, and medusahead invade sites that have lost deep rooted perennial grass functional groups. Excessive erosion may occur, deteriorating site potential.

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