

Ecological site R009XY027OR
Cold Very Shallow
13+ PZ

Accessed: 08/20/2026

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.

Associated sites

R009XY017OR	Cold Loamy 13-17 PZ Mountain Loamy 13-17" PZ
R009XY018OR	Cold Loamy 17-24 PZ Mountain Loamy 17-24" PZ
R009XY034OR	Cold South 13-17 PZ Mountain South 13-17" PZ

Similar sites

R009XY022OR	Cold Shallow 13+ PZ Mountain Shallow 13"+ PZ (deeper soil, higher production).
--------------------	--

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on ridgetops and moderate south and southwest facing slopes of mountain plateaus and tablelands north of the Wallowa Mountains. Slopes range from 0 to 15%. Elevation varies from 3400 to 5000 feet.

Table 2. Representative physiographic features

Landforms	(1) Mountain (2) Plateau
Elevation	1,040 – 1,520 m
Slope	0 – 20 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 13 to 24 inches, most of which occurs in the form of snow during the months of November through March. Localized convectional storms occur during the summer and fall. The soil temperature regime is frigid with a mean annual air temperature of 43 degrees F. The frost-free period ranges from 60 to 100 days. The optimum period for plant growth is from mid-April to mid-June.

Table 3 Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	0 days
Precipitation total (average)	610 mm

Influencing water features

Soil features

The soils of this site are very shallow over basalt bedrock and are well drained. Areas of rock outcrop may occur. Typically the surface layer is a very cobbly or extremely cobbly silt loam. The subsoil is very gravelly loam. Bedrock occurs at less than 10 inches of soil depth. Permeability is moderate. The available water holding capacity (AWC) is about .5 to 1 inch for the profile. The potential for erosion particularly on moderate slopes, is severe.

Table 4. Representative soil features

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

Ecological dynamics

Range in Characteristics:

Variability in plant composition and yield is dependent on aspect, soil depth and bedrock fracture. The highest yield and most bluebunch wheatgrass occurs over fractured bedrock and/or on soils 6 to 10 inches in depth with southerly slopes. Idaho fescue is predominant on slight north and northeast pitches. Sandberg bluegrass and one-spoke oatgrass will occur on soils less than 4 inches thick over unfractured bedrock.

Response to Disturbance:

This site is most susceptible to heavy late winter and early spring use before Sandberg bluegrass produces seedstalks. Trampling damage is also most evident at this time due to saturated soil conditions. If the condition of the site as a result of overgrazing, bluebunch wheatgrass, Idaho fescue and one-spoke oatgrass decrease while Sandberg bluegrass increases. Bulbous bluegrass, soft chess and annual forbs invade. Under deteriorated conditions, excessive erosion in the bare interspaces will markedly reduce the potential of the site and contribute to downstream sedimentation.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Perennial Deep-rooted Dominant			135-269	
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	135-269	–
2	Perennial Deep-rooted Sub-dominant			9-54	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	4-45	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	4-9	–
4	Perennial Shallow-rooted Sub-dominant			58-256	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	45-179	–
	onespike danthonia	DAUN	<i>Danthonia unispicata</i>	9-67	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	4-9	–
Forb					
7	Perennial All Dominant			4-18	
	buckwheat	ERIOG	<i>Eriogonum</i>	4-18	–
8	Perennial All Sub-dominant			13-36	
	arrowleaf balsamroot	BASA3	<i>Balsamorhiza sagittata</i>	4-13	–
	desertparsley	LOMAT	<i>Lomatium</i>	4-13	–
	phlox	PHLOX	<i>Phlox</i>	4-9	–
9	PPFF			4-36	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	1-3	–
	onion	ALLIU	<i>Allium</i>	1-3	–
	pussytoes	ANTEN	<i>Antennaria</i>	1-3	–
	brodiaea	BRODI	<i>Brodiaea</i>	1-3	–
	fleabane	ERIGE2	<i>Erigeron</i>	1-3	–
	gumweed	GRIND	<i>Grindelia</i>	1-3	–
	bitter root	LERE7	<i>Lewisia rediviva</i>	1-3	–
	lupine	LUPIN	<i>Lupinus</i>	1-3	–
	beardtongue	PENST	<i>Penstemon</i>	1-3	–
	largehead clover	TRMA3	<i>Trifolium macrocephalum</i>	1-3	–
Shrub/Vine					
11	Perennial Evergreen Dominant			4-9	

	scabland sagebrush	ARRI2	<i>Artemisia rigida</i>	4-9	–
--	--------------------	-------	-------------------------	-----	---

Animal community

Livestock Grazing: This site is suited to use by sheep and cattle during a limited time period in the spring as winter soil saturation presents a severe limitation. Use should be postponed until the soils are firm enough to avoid early spring trampling damage. **Wildlife:** This site can be important as a spring feeding site for deer and elk. As the snow line retreats Sandbergs bluegrass initiates early growth and provides early succulent feed. At higher elevations nearby forested areas provide escape, hiding and thermal cover. Native Wildlife Associated With The Potential Climax Community: Rodents, Songbirds, Red-tailed hawk, Coyote, Mule deer, and Rocky Mountain elk.

Hydrological functions

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

Recreational uses

North of the Wallowa Mountains this site occurs in a complex with other grassland sites as extensive rolling grasslands. It provides a pleasing visual diversity with the distant canyons and meadows.

Other information

This site has low potential for range seeding because of coarse fragments.

Contributors

A. Bahn
Cici Brooks
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, Bruce Frannsen
Contact for lead author	
Date	07/11/2007
Approved by	
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 few

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

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): 10-20%

5. Number of gullies and erosion associated with gullies: None

6. Extent of wind scoured, blowouts and/or depositional areas: None, slight wind erosion hazard

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): Granular to sub-angular blocky structure; Dry color value 4-5; 2-4" thickness; low OM (1-2%)

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 gentle slopes (2-15%) moderately 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: Bluebunch wheatgrass > sandberg bluegrass

Sub-dominant: onespoke danthonia > idaho fescue

Other: forbs > other grasses > 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: 600, Normal: 400, Unfavorable: 200 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: Sandberg bluegrass will increase 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
-