

Ecological site R023XY215OR SHALLOW GRAVELLY LOAM 10-12 PZ

Accessed: 04/20/2026

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

R023XY212OR	LOAMY 10-12 PZ Loamy 10-12" PZ
R023XY300OR	SOUTH SLOPES 10-12 PZ South Slopes 8-12" PZ
R023XY308OR	NORTH SLOPES 10-12 PZ North Slopes 10-12" PZ

Similar sites

R023XY212OR	LOAMY 10-12 PZ Loamy 10-12" 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 plateaus and tablelands. Slopes range from 2 to 12 percent. Elevation varies from 5500 to 6500 feet.

Table 2. Representative physiographic features

Landforms	(1) Plateau
-----------	-------------

Elevation	150 – 1,980 m
Slope	0 – 10 %
Aspect	Aspect is not a significant factor

Climatic features

The annual precipitation ranges from 10 to 12 inches, most of which occurs in the form of snow during the months of December through March. Spring rains are common. Localized convection storms occasionally occur during the summer. The soil temperature regime is frigid with a mean annual air temperature of 44 degrees F. Temperature extremes range from 90 to -30 degrees F. The frost-free period ranges from less than 30 to 60 days. The optimum period for native plants is from April through June.

Table 3 Representative climatic features

Frost-free period (average)	60 days
Freeze-free period (average)	0 days
Precipitation total (average)	310 mm

Influencing water features

Soil features

The soils of this site are shallow over bedrock. The surface layer is a gravelly loam to gravelly clay loam, 6 to 8 inches thick. The subsoil is a silty clay or silty clay loam 6 to 10 inches thick. Depth to bedrock or an indurated pan is 10 to 20 inches. Permeability is moderate. The available water holding capacity (AWC) is about 2 to 4 inches for the profile. The potential for water erosion is moderate to severe.

Table 4. Representative soil features

Surface texture	(1) Gravelly loam (2) Clay loam
Family particle size	(1) Clayey
Drainage class	Well drained
Permeability class	Moderate
Soil depth	30 – 50 cm

Available water capacity (0-101.6cm)	5.08 – 10.16 cm
---	-----------------

Ecological dynamics

Range in Characteristics:

This site shows little variation in composition and production. Thurber needlegrass and bluebunch wheatgrass will increase as the soils become deeper. Sandberg bluegrass will increase as the soil becomes shallower.

Response to Disturbance:

If the condition of the site deteriorates as a result of overgrazing, Thurber needlegrass will decrease while low sagebrush, bottlebrush squirreltail, and Sandberg bluegrass will increase. Thurber needlegrass is the preferred species during all seasons. With further deterioration, a small percentage of annuals will invade and bareground will markedly increase. Excessive erosion in the bare soil interspaces reduces the site productivity and contributes 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			224-359	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	179-269	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	45-90	–
4	Perennial, shallow-rooted, sub-dominant			13-36	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	13-36	–
5	Other perennial grasses, all			22-67	
	squirreltail	ELEL5	<i>Elymus elymoides</i>	0-22	–
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	0-22	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	0-22	–
Forb					
7	Perennial, all, dominant			13-27	
	buckwheat	ERIOG	<i>Eriogonum</i>	4-9	–
	lupine	LUPIN	<i>Lupinus</i>	4-9	–
	phlox	PHLOX	<i>Phlox</i>	4-9	–
9	Other perennial forbs, all			4-18	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0-2	–
	agosaris	AGOSE	<i>Agoseris</i>	0-2	–
	balsamroot	BALSA	<i>Balsamorhiza</i>	0-2	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	0-2	–
	fleabane	ERIGE2	<i>Erigeron</i>	0-2	–
	aster	EUCEP2	<i>Eucephalus</i>	0-2	–
	stoneseed	LITHO3	<i>Lithospermum</i>	0-2	–
	desertparsley	LOMAT	<i>Lomatium</i>	0-2	–
	deathcamas	ZIGAD	<i>Zigadenus</i>	0-2	–

Shrub/Vine				
11	Perennial, evergreen, dominant			22-67
	little sagebrush	ARAR8	<i>Artemisia arbuscula</i>	22-67
				-

Animal community

Livestock Grazing: This site is suited to use by cattle, sheep, and horses in late spring, summer, and fall under a planned grazing system. Use should be postponed until the soils are firm enough to avoid trampling damage and soil compaction. Native Wildlife Associated with the Potential Climax Community: Deer Antelope Hawks Songbirds Rodents This site will offer food and cover for antelope, mule deer, rodents, and a variety of birds. It is an important wintering area for antelope and mule deer.

Hydrological functions

The soils are in hydrologic group D. The soils of this site have high runoff potential.

Contributors

M. Parks (OSU)
SCS/BLM Team - Hines, OR

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	08/16/2012
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills: None
-

2. Presence of water flow patterns: None

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

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground): 15-30%

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

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness): Shallow well drained gravelly clay loam (6-8 inches thick): Low OM (1-2%)

10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff: Low ground cover (20-35%) and gentle slopes (2-12%) slightly to 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: Thurber needlegrass > Bluebunch wheatgrass > Low sagebrush > other grasses > forbs

Sub-dominant:

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

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: 500, Normal: 400, Unfavorable: 300 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: Perennial brush species will increase with deterioration of plant community. Western Juniper readily invades the site. Cheatgrass and Medusahead invade sites that have lost deep rooted perennial grass functional groups.

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