

Ecological site R023XY215OR

SHALLOW GRAVELLY LOAM 10-12 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

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

Similar sites

R023XY212OR	<b>LOAMY 10-12 PZ</b> Loamy 10-12" PZ (deeper soil, higher production)
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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	152–1,981 m
Slope	2–12%
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)	305 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	25–51 cm
Available water capacity (0–101.6cm)	5.08–10.16 cm

## Ecological dynamics

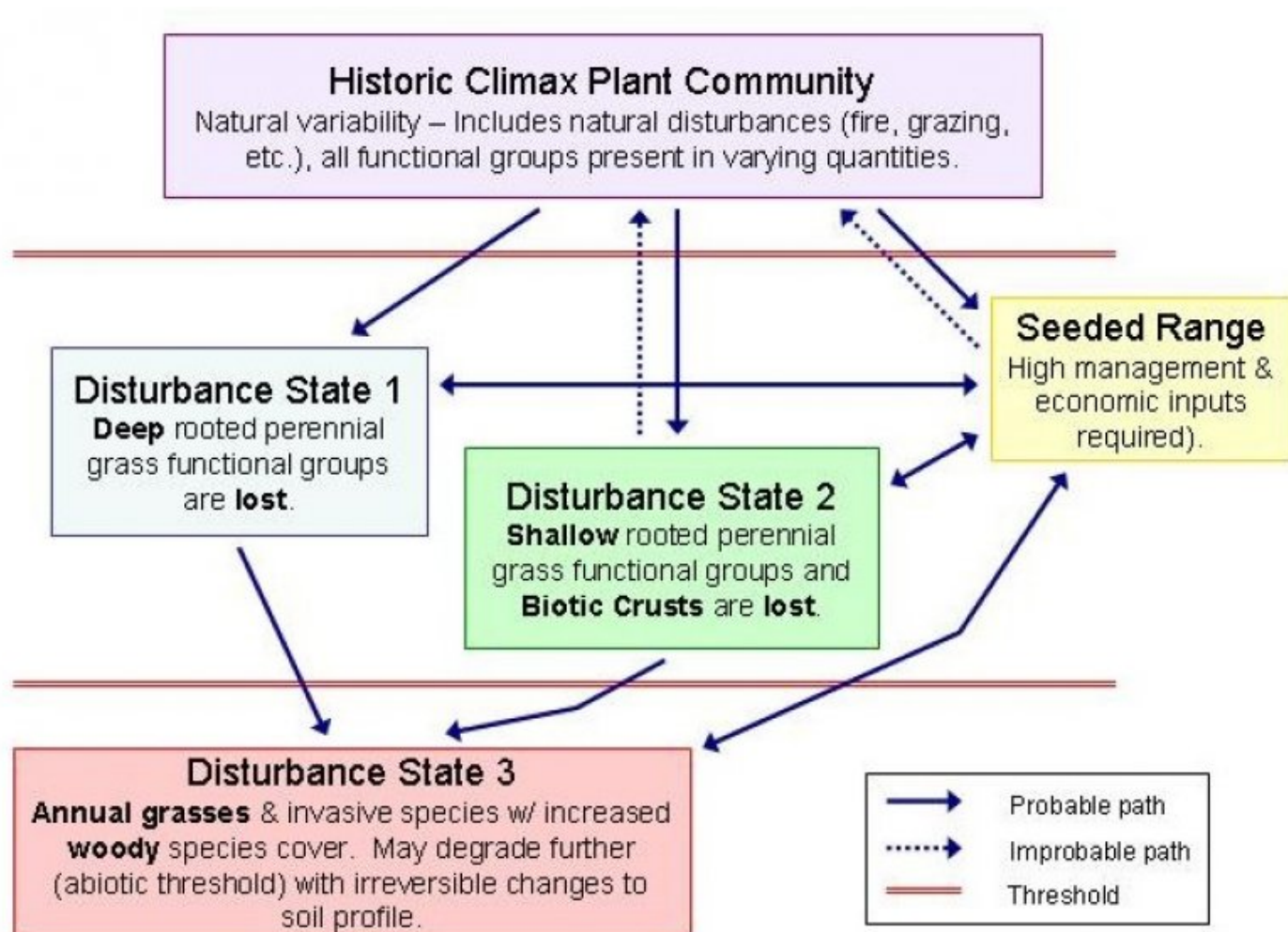
Range in Characteristics:

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



## 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 low sagebrush and Thurber needlegrass. Sandberg bluegrass is prominent. The vegetative composition of the community is approximately 85 percent grass, 5 percent forbs, and 10 percent shrubs.

Table 5. Annual production by plant type

Plant Type	Low (Kg/Hectare)	Representative Value (Kg/Hectare)	High (Kg/Hectare)
Grass/Grasslike	260	361	462
Shrub/Vine	22	45	67
Forb	18	31	45
<b>Total</b>	<b>300</b>	<b>437</b>	<b>574</b>

## Additional community tables

Table 6. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Kg/Hectare)	Foliar Cover (%)
<b>Grass/Grasslike</b>					
1	<b>Perennial, deep-rooted, dominant</b>			224–359	
	Thurber's needlegrass	ACTH7	<i>Achnatherum thurberianum</i>	179–269	–
	bluebunch wheatgrass	PSSP6	<i>Pseudoroegneria spicata</i>	45–90	–
4	<b>Perennial, shallow-rooted, sub-dominant</b>			13–36	
	Sandberg bluegrass	POSE	<i>Poa secunda</i>	13–36	–
5	<b>Other perennial grasses, all</b>			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	–
<b>Forb</b>					
7	<b>Perennial, all, dominant</b>			13–27	
	buckwheat	ERIOG	<i>Eriogonum</i>	4–9	–
	lupine	LUPIN	<i>Lupinus</i>	4–9	–
	phlox	PHLOX	<i>Phlox</i>	4–9	–
9	<b>Other perennial forbs, all</b>			4–18	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	0–2	–
	agoseris	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	–
<b>Shrub/Vine</b>					
11	<b>Perennial, evergreen, dominant</b>			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

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

## Indicators

1. **Number and extent of rills:** None

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

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

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

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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 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):** Shallow well drained gravelly clay loam (6-8 inches thick): Low OM (1-2%)
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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
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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: Thurber needlegrass > Bluebunch wheatgrass > Low sagebrush > other grasses > forbs
- 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: 500, Normal: 400, Unfavorable: 300 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. Western Juniper readily invades the 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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