

## **Ecological site R025XY012OR LOAMY 11-13 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.

### **MLRA notes**

Major Land Resource Area (MLRA): 025X–Owyhee High Plateau

MLRA 25 lies within the Intermontane Plateaus physiographic province. The southern half is in the Great Basin Section of the Basin and Range Province. This part of the MLRA is characterized by isolated, uplifted fault-block mountain ranges separated by narrow, aggraded desert plains. This geologically older terrain has been dissected by numerous streams draining to the Humboldt River. The northern half of the area lies within the Columbia Plateaus geologic province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Deep, narrow canyons drain to the Snake River which incise the broad volcanic plain. The Humboldt River, route of a major western pioneer trail, crosses the southern half of this area. Reaches of the Owyhee River in this area have been designated as National Wild and Scenic Rivers.

### **Associated sites**

R025XY010OR	<b>LOAMY 8-11 PZ</b> Loamy 8-11 PZ
R025XY016OR	<b>SHALLOW CLAYPAN 11-13 PZ</b> Shallow Claypan 11-13 PZ
R025XY020OR	<b>SOUTH SLOPES 11-13 PZ</b> South Slopes 11-13 PZ
R025XY025OR	<b>ASHY PLATEAU 11-13 PZ</b> Ashy Plateau 11-13 PZ
R025XY032OR	<b>NORTH SLOPES 11-13 PZ</b> North Slopes 11-13 PZ

## Similar sites

R025XY010OR	<b>LOAMY 8-11 PZ</b> Loamy 8-11" PZ (warmer, lower precipitation & production)
R025XY025OR	<b>ASHY PLATEAU 11-13 PZ</b> Ashy Plateau 11-13 PZ (higher elevation, different composition)

**Table 1. Dominant plant species**

Tree	Not specified
Shrub	(1) <i>Artemisia tridentata subsp. trifida</i>
Herbaceous	(1) <i>Pseudoroegneria spicata subsp. spicata</i> (2) <i>Festuca idahoensis</i>

## Physiographic features

This site occurs on tablelands. Slopes range from 2 to 12%. Elevation varies from 4,500 to 5,000 feet.

**Table 2. Representative physiographic features**

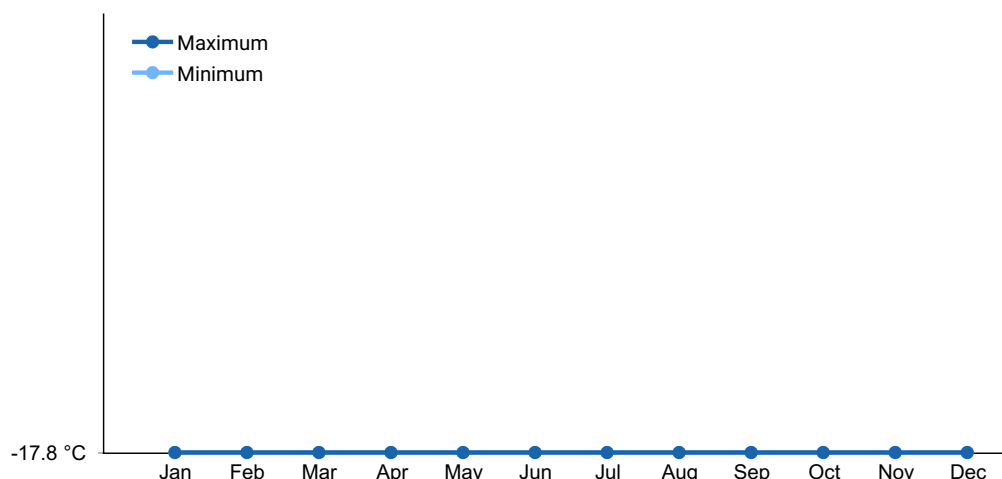
Landforms	(1) Plateau
Flooding frequency	None
Ponding frequency	None
Elevation	1,372–1,524 m
Slope	2–12%
Aspect	Aspect is not a significant factor

## Climatic features

The annual precipitation ranges from 11 to 13 inches, most of which occurs in the form of snow during the months of December through March. Localized convection storms occasionally occur during the summer. The soil temperature regime is frigid to near frigid with a mean annual air temperature of 45 degrees F. Temperature extremes range from 90 to -30 degrees F. The frost-free period ranges from 30 to 90 days. The optimum growth period for native plants is from April through June.

**Table 3. Representative climatic features**

Frost-free period (average)	90 days
Freeze-free period (average)	0 days
Precipitation total (average)	330 mm



**Figure 1. Monthly average minimum and maximum temperature**

## Influencing water features

### Soil features

The soils of this site are shallow to moderately deep and well drained. Typically the surface layer is a silt loam about 8 to 10 inches thick. The subsoil is a silty clay loam about 10 to 20 inches thick. Depth to bedrock or an indurated pan is 20 to 40 inches. Permeability is moderate. The available water holding capacity is about 4 to 6 inches for the profile. The potential for erosion is moderate.

**Table 4. Representative soil features**

Surface texture	(1) Silt loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate
Soil depth	25–102 cm
Available water capacity (0-101.6cm)	10.16–15.24 cm

## Ecological dynamics

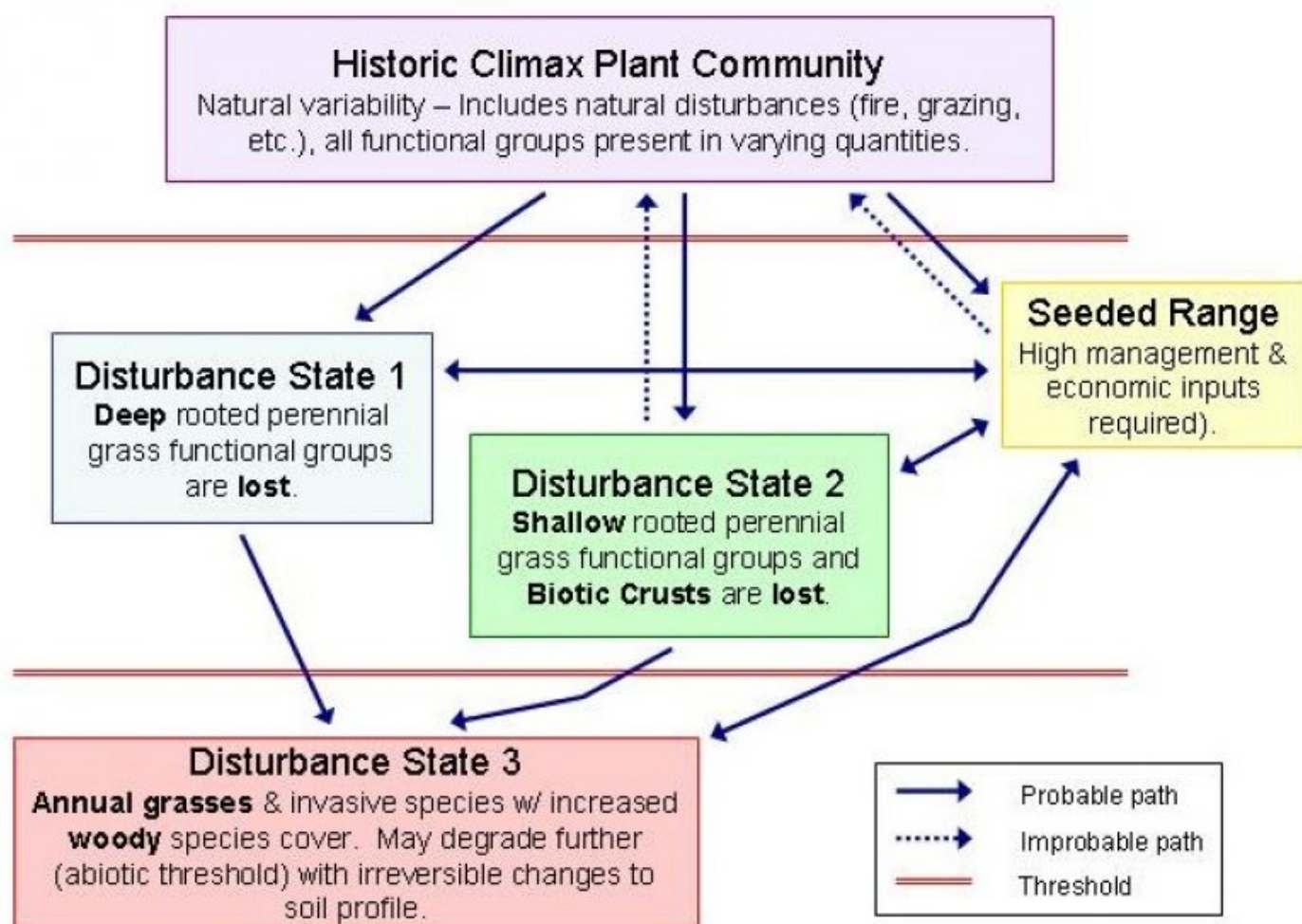
The potential native plant community is dominated by basin big sagebrush and bluebunch wheatgrass. Idaho fescue and Sandberg bluegrass are present in the stand. Vegetative composition of the community is approximately 85 percent grasses, 5 percent forbs and 10 percent shrubs.

This site shows little variation in composition and production. Idaho fescue will increase on

slight north aspects. Production will increase on deeper soils and at the upper end of the precipitation zone.

If the condition of the site deteriorates as a result of overgrazing, bluebunch wheatgrass and Idaho fescue decreases while basin big sagebrush and Sandberg bluegrass increase. With further deterioration, cheatgrass and other annuals invade. Bare ground increases and 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

Figure 2. HCPC

### State 1

### Historic Climax Plant Community

### Community 1.1

### Reference Plant Community



Figure 3. RPC

The potential native plant community is dominated by basin big sagebrush and bluebunch wheatgrass. Idaho fescue and Sandberg bluegrass are present in the stand. Vegetative composition of the community is approximately 85 percent grasses, 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	572	857	1143
Shrub/Vine	67	101	135
Forb	34	50	67
Total	673	1008	1345

### 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>Dominant, perennial, deep rooted grasses</b>			471–628	
	bluebunch wheatgrass	PSSPS	<i>Pseudoroegneria spicata</i> <i>ssp. spicata</i>	605–807	–
2	<b>Sub-dominant, perennial, deep rooted grasses</b>			50–202	
	Idaho fescue	FEID	<i>Festuca idahoensis</i>	50–202	–
3	<b>Sub-dominant, perennial, shallow rooted grasses</b>			20–50	
	Sandberg	POSE	<i>Poa secunda</i>	20–50	–

	bluegrass				
4	<b>Other perennial grasses</b>			40–111	
	Cusick's bluegrass	POCU3	<i>Poa cusickii</i>	20–50	–
	squirreltail	ELEL5	<i>Elymus elymoides</i>	10–30	–
	prairie Junegrass	KOMA	<i>Koeleria macrantha</i>	10–30	–
<b>Forb</b>					
5	<b>Dominant, perennial forbs</b>			20–40	
	fleabane	ERIGE2	<i>Erigeron</i>	10–20	–
	lupine	LUPIN	<i>Lupinus</i>	10–20	–
6	<b>Other perennial forbs</b>			28–54	
	common yarrow	ACMI2	<i>Achillea millefolium</i>	4–10	–
	milkvetch	ASTRA	<i>Astragalus</i>	4–10	–
	tapertip hawksbeard	CRAC2	<i>Crepis acuminata</i>	4–10	–
	buckwheat	ERIOG	<i>Eriogonum</i>	4–10	–
	desertparsley	LOMAT	<i>Lomatium</i>	3–7	–
	phlox	PHLOX	<i>Phlox</i>	3–7	–
	buttercup	RANUN	<i>Ranunculus</i>	1–3	–
	deathcamas	ZIGAD	<i>Zigadenus</i>	1–3	–
	pussytoes	ANTEN	<i>Antennaria</i>	1–3	–
<b>Shrub/Vine</b>					
7	<b>Dominant evergreen shrubs</b>			50–101	
	basin big sagebrush	ARTRT	<i>Artemisia tridentata</i> ssp. <i>tridentata</i>	50–101	–
8	<b>Other shrubs</b>			9–20	
	yellow rabbitbrush	CHVI8	<i>Chrysothamnus viscidiflorus</i>	4–10	–

## Animal community

This site offers 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 B. The soils of this site have moderately low runoff

potential.

## Other products

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 prevent trampling damage and soil compaction.

## 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.

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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:** Water flow patterns are none to rare. In areas subject to summer convection storms and rapid snowmelt, short (<1m) and stable flow patterns can be

expected. Flow paths are not connected.

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3. **Number and height of erosional pedestals or terracettes:** Pedestals are none to few on this site. As clay content in soil increases slight pedestalling may occur.
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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Bare Ground 20-40% depending on amount of surface rock fragments.
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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.
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7. **Amount of litter movement (describe size and distance expected to travel):** Fine litter (foliage from grasses and annual & perennial forbs) – limited movement; expected to move no more than the distance of slope length during intense summer convection storms or rapid snowmelt events. Persistent litter (large woody material) will remain in place except during large rainfall events.
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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):** Moderate resistance to erosion. Aggregate stability values should be 2-4 on most soil textures found on this site.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Surface texture is typically ash silt loam. Soil surface color is typically brown (10YR3/3) (dry). Surface structure is weak thin platy (A1--0-9 cm) and medium and fine subangular blocky (A2--9-27 cm)(Babala). \*Draft Soil Survey-subject to change.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Typical vegetation composition



is 85 percent grasses. 5 percent forbs and 10 percent shrubs. Perennial herbaceous plants (i.e. bluebunch wheatgrass & Idaho fescue) help slow runoff and increase infiltration. Shrub canopy and associated litter break raindrop impact and provide opportunity for snow catch and accumulation on site.

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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):** Compacted layers are none. Weak thin platy structure near surface and fine subangular blocky structure or subsoil argillic horizons are not to be interpreted as compacted layers.
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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: Deep-rooted, cool season, perennial bunchgrasses (bluebunch wheatgrass > Idaho fescue)

Sub-dominant: tall shrubs (basin big sagebrush)

Other: other perennial grasses > forbs = other shrubs

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 for this site is expected to be low 2-5%. As composition of sagebrush increases decadence and mortality will also increase. Some decadence common in center of older bluebunch wheatgrass crowns (2-5%).
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14. **Average percent litter cover (%) and depth ( in):** This is in plant interspaces.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** Favorable – 1200 lbs/ac, Average -- 900 lbs/ac, Unfavorable – 600 lbs/ac. Spring moisture significantly affects total production.

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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: Potential invaders include cheatgrass, medusahead, annual mustards in response to disturbance.
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17. **Perennial plant reproductive capability:** All functional groups should reproduce in average (or normal) and above average growing season years. Reduced growth and reproduction occur during extreme or extended drought conditions.
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