USDA Natural Resources
Conservation Service

# Ecological site R023XY607OR
# PUMICE PLAINS 8-11 PZ

Last updated: 4/10/2025
Accessed: 05/21/2025

## 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.

**Table 1. Dominant plant species**

| | |
|---|---|
| Tree | Not specified |
| Shrub | Not specified |
| Herbaceous | Not specified |

## Physiographic features

This site occurs on terraces and plains in old lake basins. Occasionally, it occurs in swales and small valleys within hill topography. Slopes typically range from 0-3% but may reach 20% on some slopes. Elevations range from 4300-4800 feet.

**Table 2. Representative physiographic features**

| | |
|---|---|
| Landforms | (1) Terrace<br>(2) Plain<br>(3) Basin floor |
| Elevation | 1,311–1,463 m |
| Slope | 0–20% |
| Aspect | Aspect is not a significant factor |

## Climatic features

The annual precipitation averages 8-10 inches, most of which occurs during the months of October through March. The mean annual air temperature is 48 degrees F. Temperature extremes range from 110 to -30 degrees F. The period for optimum plant growth is from April through early June. Some fall growth may occur during October and November if

these months are unusually warm and moist.

**Table 3. Representative climatic features**

| | |
|---|---|
| Frost-free period (average) | 70 days |
| Freeze-free period (average) | 100 days |
| Precipitation total (average) | 254 mm |

## Climate stations used

- (1) THE POPLARS [USC00358420], Silver Lake, OR
- (2) SILVER LAKE RS [USC00357817], Silver Lake, OR

## Influencing water features

## Soil features

The soils of this site are typically moderately deep or deep (rarely shallow), well to somewhat excessively drained and sandy loam to gravelly, loamy sand in texture. They are generally formed in/from wind deposited volcanic ash/pumice and lacustrine deposits. Permeability is rapid to very rapid, and the available water holding capacity is typically 3-7 inches for the profile (1-3 on shallow soils). The potential for water erosion is low and high for wind erosion.

**Table 4. Representative soil features**

| | |
|---|---|
| Surface texture | (1) Sandy loam<br>(2) Gravelly loamy sand |
| Family particle size | (1) Sandy |
| Drainage class | Well drained to somewhat excessively drained |
| Permeability class | Rapid to very rapid |
| Soil depth | 0 cm |
| Available water capacity (0-101.6cm) | 7.62–17.78 cm |
| Calcium carbonate equivalent (0-101.6cm) | 2% |
| Electrical conductivity (0-101.6cm) | 0 mmhos/cm |
| Sodium adsorption ratio (0-101.6cm) | 0 |

| | |
|---|---|
| Soil reaction (1:1 water) (0-101.6cm) | 7 |

## Ecological dynamics

The potential native plant community is dominated by mountain big sagebrush and needleandthread. On droughty positions and in locations trasitional to a warmer, drier climate, basin big sagebrush is also present or more dominant than mountain sagebrush. Gray rabbitbrush and western needlegrass are also common in the stand. Minor amounts of other woody species are present including low green rabbitbrush and granite pricklygilia. Ross sedge, squirreltail, Thurber needlegrass and Indian ricegrass are common. Minor occurrences of basin wildrye or thickspike wheatgrass are sometimes present.

## State and transition model

**Ecosystem states**

1. Historic Climax Plant Community

**State 1 submodel, plant communities**

1.1. Historic Climax Plant Community

## State 1
## Historic Climax Plant Community

## Community 1.1
## Historic Climax Plant Community

HCPC

**Table 5. Annual production by plant type**

| Plant Type | Low (Kg/Hectare) | Representative Value (Kg/Hectare) | High (Kg/Hectare) |
|---|---|---|---|
| Grass/Grasslike | 729 | 785 | 841 |
| Shrub/Vine | 168 | 224 | 280 |
| Forb | 56 | 84 | 112 |
| **Total** | **953** | **1093** | **1233** |

## 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 | | | | 400–588 | |
| | needle and thread | HECO26 | *Hesperostipa comata* | 353–510 | – |
| | western needlegrass | ACOCO | *Achnatherum occidentale ssp. occidentale* | 39–55 | – |
| | Thurber's needlegrass | ACTH7 | *Achnatherum thurberianum* | 8–24 | – |
| 2 | | | | 24–63 | |
| | Indian ricegrass | ACHY | *Achnatherum hymenoides* | 16–39 | – |
| | squirreltail | ELEL5 | *Elymus elymoides* | 8–24 | – |
| 3 | | | | 16–31 | |
| | basin wildrye | LECI4 | *Leymus cinereus* | 8–16 | – |
| | beardless wildrye | LETR5 | *Leymus triticoides* | 8–16 | – |
| 4 | | | | 8–16 | |
| | Idaho fescue | FEID | *Festuca idahoensis* | 8–16 | – |
| 5 | | | | 16–39 | |
| | Ross' sedge | CARO5 | *Carex rossii* | 16–39 | – |
| **Forb** | | | | | |
| 6 | | | | 7–20 | |
| | rockcress | ARABI2 | *Arabis* | 1–3 | – |
| | woollypod milkvetch | ASPU9 | *Astragalus purshii* | 1–3 | – |

| | | | | | |
|---|---|---|---|---|---|
| | milkvetch | ASTRA | *Astragalus* | 1–3 | – |
| | Douglas' dustymaiden | CHDO | *Chaenactis douglasii* | 1–3 | – |
| | blue eyed Mary | COLLI | *Collinsia* | 1–3 | – |
| | Cascade knotweed | POCA9 | *Polygonum cascadense* | 1–3 | – |
| **Shrub/Vine** | | | | | |
| 7 | | | | 16–67 | |
| | basin big sagebrush | ARTRT | *Artemisia tridentata ssp. tridentata* | 11–56 | – |
| | rubber rabbitbrush | ERNA10 | *Ericameria nauseosa* | 4–11 | – |
| 8 | | | | 7–13 | |
| | yellow rabbitbrush | CHVI8 | *Chrysothamnus viscidiflorus* | 2–4 | – |
| | yellow rabbitbrush | CHVIS5 | *Chrysothamnus viscidiflorus ssp. viscidiflorus var. stenophyllus* | 2–4 | – |

## Animal community

Grazing- This site is suited to spring grazing by cattle and horses under a planned grazing system. Needleandthread, Thurber needlegrass and Indian ricegrass are the key species for management in high condition stands. After maturity of needleandthread, the sharp needle-like seeds sometimes cause mouth injuries to livestock.
Wildlife- This site is commonly used by rabbits, rodents, an assorted variety of birds and their associated avian and terrestrial predators.

## Hydrological functions

The soils of this site have high infiltration rates and a low runoff potential. The hydrologic cover is good when ecological condition is high. The hydrologic soil group is A.

## Other information

This site consists of two phases. A cool phase associated with mountain big sagebrush occurs in cold air drainage areas nearest the mountains. A warm phase associated with warmer locations occurs further from the mountains or in droughty microsites. A transition may occur between the phases where both sagebrush varieties occur. Also, shallow soils have lower production of mountain sagebrush. Soil transitions to moist or more favorable effective environments may have minor amounts of Idaho fescue present.
If the condition of the site deteriorates as a result of overgrazing needleandthread will decrease, while western needlegrass will increase and may eventually dominate if the

grazing pressure is severe enough in some stands. Ricegrass and Thurber needlegrass also tend to decline with overgrazing. Rabbitbrush generally incrases, and invaders such as cheatgrass, crytantha and mustard may appear.
Fire reduces big sagebrush in the stand, but stimulates rabbitbrush allowing it to incrase. Needleandthread has high mortality with early summer burns but is little damaged by late summer or fall burns. Thurber needlegrass suffers high mortallity from summer burns.

## Contributors

C Tackman

## Approval

Kendra Moseley, 4/10/2025

## 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) | |
| Contact for lead author | |
| Date | 05/21/2025 |
| Approved by | Kendra Moseley |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

## Indicators

1. **Number and extent of rills:**

   _____

2. **Presence of water flow patterns:**

   _____

3. **Number and height of erosional pedestals or terracettes:**

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

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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:

    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):**

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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):**

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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:**

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17. **Perennial plant reproductive capability:**

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