

## **Ecological site R025XY001ID ASPEN THICKET**

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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 Notes 25—Owyhee High Plateau**

This area is in Nevada (56 percent), Idaho (30 percent), Oregon (12 percent), and Utah (2 percent). It makes up about 27,443 square miles. MLRA 25 is characteristically cooler and wetter than the neighboring MLRAs of the Great Basin. The western boundary is marked by a gradual transition to the lower and warmer basins of MLRA 24. The boundary to the south-southeast, with MLRA 28B, is marked by gradual changes in geology marked by an increased dominance of singleleaf pinyon and Utah juniper and a reduced presence of Idaho fescue. The boundary to the north, with MLRA 11, is a rapid transition from the lava plateau topography to the lower elevation Snake River Plain.

#### **Physiography:**

All of this area lies within the Intermontane Plateaus. 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 province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Most of the northern half is in the Payette section, but the northeast corner is in the Snake River Plain section. Deep, narrow canyons draining into the Snake River have been incised into this broad basalt plain. Elevation ranges from 3,000 to 7,550 feet on rolling plateaus and in gently sloping basins. It is more than 9,840 feet on some steep mountains. The Humboldt River crosses the southern half of this area

#### **Geology:**

The dominant rock types in this MLRA are volcanic. They include andesite, basalt, tuff, and rhyolite. In the north and west parts of the area, Cretaceous granitic rocks are exposed among Miocene volcanic rocks in mountains. A Mesozoic igneous and metamorphic rock complex dominates the south and east parts of the area. Upper and Lower Paleozoic calcareous sediments, including oceanic deposits, are exposed with limited extent in the mountains. Alluvial fan and basin fill sediments occur in the valleys.

#### **Climate:**

The average annual precipitation in most of this area is typically 11 to 22 inches. It increases to as much as 49 inches at the higher elevations. Rainfall occurs in spring and sporadically in summer. Precipitation occurs mainly as snow in winter. The precipitation is distributed fairly evenly throughout fall, winter, and spring. The amount of precipitation is lowest from midsummer to early autumn. The average annual temperature is 33 to 51 degrees F. The freeze-free period averages 130 days and ranges from 65 to 190 days, decreasing in length with elevation. It is typically less than 70 days in the mountains.

#### **Water:**

The supply of water from precipitation and streamflow is small and unreliable, except along the Owyhee, Bruneau, and Humboldt Rivers. Streamflow depends largely on accumulated snow in the mountains. Surface water from mountain runoff is generally of excellent quality and suitable for all uses. The basin fill sediments in the narrow alluvial valleys between the mountain ranges provide some ground water for irrigation. The alluvial deposits along the large streams have the most ground water. Based on measurements of water quality in similar deposits in

adjacent areas, the basin fill deposits probably contain moderately hard water. The water is suitable for almost all uses. The carbonate rocks in this area are considered aquifers, but they are little used. Springs are common along the edges of the limestone outcrops.

#### Soils:

The dominant soil orders in this MLRA are Aridisols and Mollisols. The soils in the area dominantly have a mesic or frigid temperature regime and an aridic, aridic bordering on xeric, or xeric moisture regime. Soils with aquic moisture regimes are limited to drainage or spring areas, where moisture originates or runs on and through. These soils are of a very limited extent throughout the MLRA. They generally are well drained, clayey or loamy, and shallow or moderately deep. Most of the soils formed in mixed parent material. Volcanic ash and loess mantle the landscape. Surface soil textures are loam and silt loam with ashy texture modifiers in some areas. Argillic horizons occur on the more stable landforms. They are exposed nearer the soil surface on convex landforms, where ash and loess deposits are more likely to erode. Soils that formed in carbonatic parent material in areas that receive less than 12 inches of precipitation are characterized by calcic horizons throughout the profile, while soils in areas that receive more than 12 inches of precipitation do not have calcic horizons in the upper part of the profile. Soils that formed on stable landforms at the lower elevations are dominated by ochric horizons. Soils that formed at the middle and upper elevations are characterized by mollic epipedons. Soils in drainage areas at all elevations that receive moisture running on or through them are characterized by thicker mollic epipedons.

#### Biological Resources:

This MLRA supports shrub-grass vegetation. Lower elevations are characterized by Wyoming big sagebrush associated with bluebunch wheatgrass, western wheatgrass, and Thurber's needlegrass. Other important plants include bluegrass, squirreltail, penstemon, phlox, milkvetch, lupine, Indian paintbrush, aster, and rabbitbrush. Black sagebrush occurs but is less extensive. Singleleaf pinyon and Utah juniper occur in limited areas. With increasing elevation and precipitation, vast areas characterized by mountain big sagebrush or low sagebrush/early sagebrush in association with Idaho fescue, bluebunch wheatgrass, needlegrasses, and bluegrass become common.

Snowberry, curl-leaf mountain mahogany, ceanothus, and juniper also occur. Mountains at the highest elevations support whitebark pine, Douglas-fir, limber pine, Engelmann spruce, subalpine fir, aspen, and curl-leaf mountain mahogany.

Major wildlife species include mule deer, bighorn sheep, pronghorn, mountain lion, coyote, bobcat, badger, river otter, mink, weasel, golden eagle, red-tailed hawk, ferruginous hawk, Swainson's hawk, northern harrier, prairie falcon, kestrel, great horned owl, short-eared owl, long-eared owl, burrowing owl, pheasant, sage grouse, chukar, gray partridge, and California quail. Reptiles and amphibians include western racer, gopher snake, western rattlesnake, side-blotched lizard, western toad, and spotted frog. Fish species include bull, red band, and rainbow trout.

### **Ecological site concept**

This site has high wildlife, recreational, natural beauty and archeological values. It provides excellent hiding cover and browse for deer. Birds and small rodents and other small species frequent the site. The site provides high visual contrast with the surrounding sites. The site has high value for bird watching or hunting. This site may contain cultural values, especially when near sources of water, shelter, edible plants, native grazers and workable stones.

The plant community is dominated by low growing quaking aspen, also called "snowbank aspen". The trees are a scrubby form usually less than 10 feet (3 meters) tall at maturity. A variety of grasses and forbs are present but become more present at the outer margins of the stand. The composition by weight at below 4.5 feet (1.4 meters) is 20 to 30 percent grasses, 20 to 30 percent forbs and 40 to 60 percent shrubs.

Dominant grass or grass like species are Mountain Brome and Slender wheatgrass. Dominant forbs are Meadow rue, Groundsel and Arnica and dominant shrubs are Chokecherry, Bittercherry and Service berry.

Percent area covered is as follows:

foliage area- 10 to 30 percent

basal area- 5 to 10 percent

litter- 30 to 40 percent

rocks- (gravels, cobbles, stones) 5 to 15 percent

bare soil- 25 to 40 percent

tree canopy- 20 to 60 percent

This site used to be named: Aspen Thicket 16-22 Provisional POTR5

## Associated sites

R025XY052NV	<b>CEANOTHUS THICKET</b> Ceanothus Thicket typically has bedrock within 20 to 40 inches of the soil surface and usually has a platy surface structure. Dominant species is CEVE.
R025XY022ID	<b>LOAMY 16-22</b> Loamy 16-22 often times has a frigid temperature regime. Dominant species are ARTRV/FEID.
R025XY030ID	<b>MOUNTAIN BRUSH 18-22</b> Mountain Brush typically has bedrock within 20 to 40 inches. Dominant species are ARTRV/BRMA-AGCAM2.

## Similar sites

R025XY022ID	<b>LOAMY 16-22</b> Loamy 16-22 often times has a frigid temperature regime. Dominant species are ARTRV/FEID.
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Table 1. Dominant plant species

Tree	(1) <i>Populus tremuloides</i>
Shrub	(1) <i>Prunus virginiana</i>
Herbaceous	(1) <i>Bromus marginatus</i>

## Physiographic features

This site is on mountain slopes. Elevation ranges from 5300 to 9250 feet (1615 to 2819 meters). At the low end of the elevation, slopes occur from 5 to 40 percent and with increasing elevations slopes range from 15 to 60 percent.

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope
Runoff class	Medium to high
Flooding frequency	None
Ponding frequency	None
Elevation	5,300–9,250 ft
Slope	5–40%
Ponding depth	60 in
Water table depth	60 in
Aspect	W, NW, N, NE, E, SE, S, SW

## Climatic features

This site is found in locations with Mean Annual Air Temperatures ranging from 36 degrees F to 43 degrees F. Frost Free Days are between 30 and 60 Inches (76 and 152cm). Mean Annual Precipitation is between 18 and 28 inches (46 and 71cm).

\*The above data is averaged from the Jarbidge climate station, NASIS and, Western Regional Climate Center.

Table 3. Representative climatic features

Frost-free period (characteristic range)	30-60 days
Freeze-free period (characteristic range)	80-190 days
Precipitation total (characteristic range)	36-43 in

Frost-free period (actual range)	30-60 days
Freeze-free period (actual range)	80-190 days
Precipitation total (actual range)	18-43 in
Frost-free period (average)	45 days
Freeze-free period (average)	150 days
Precipitation total (average)	23 in

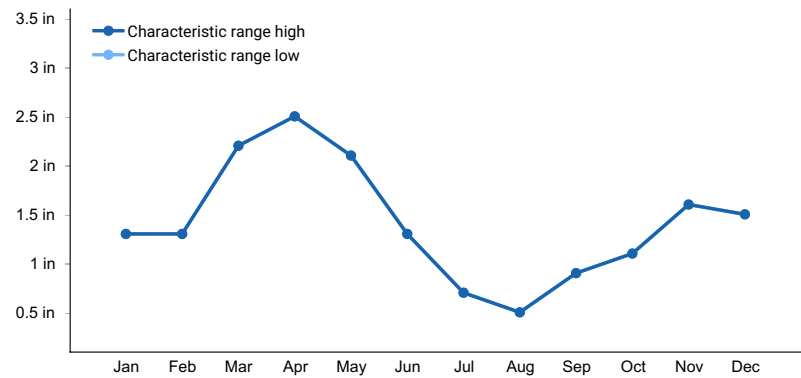


Figure 1. Monthly precipitation range

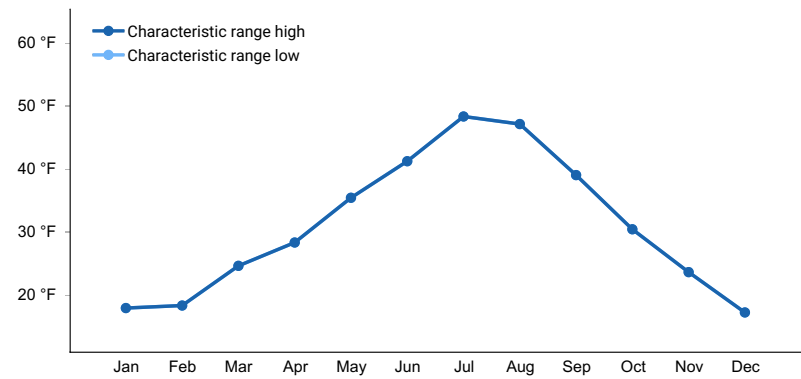


Figure 2. Monthly minimum temperature range

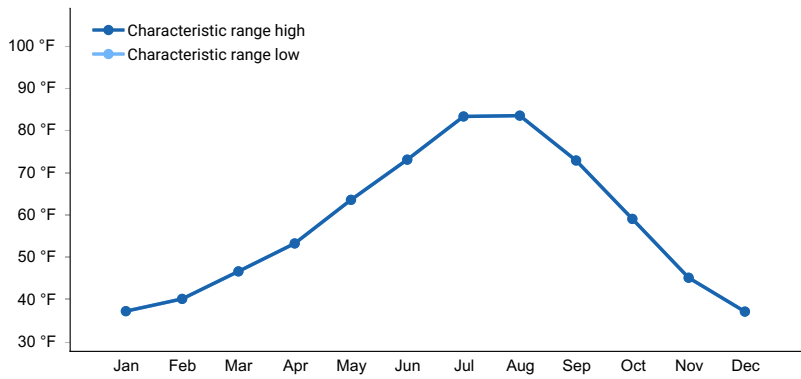
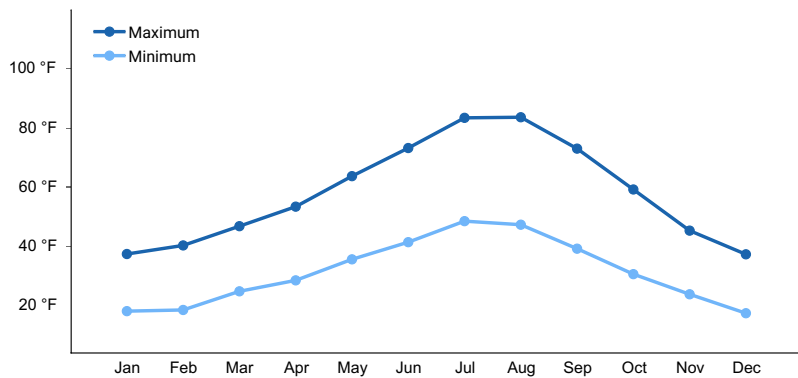
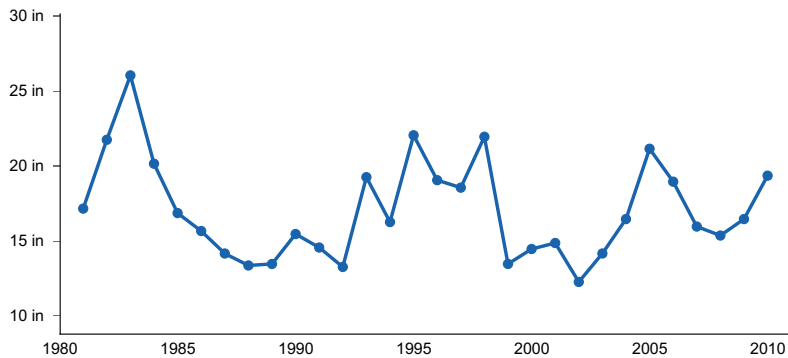


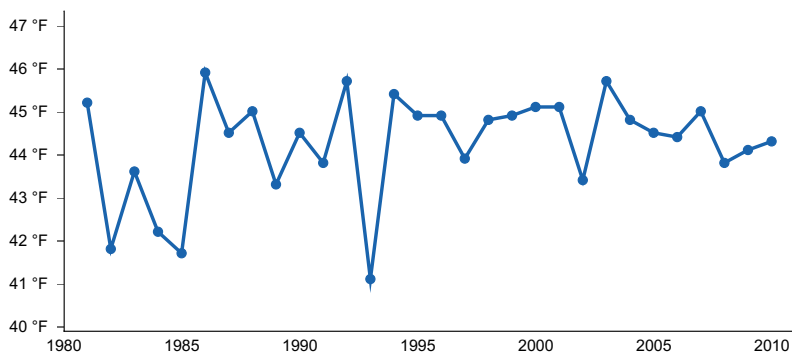
Figure 3. Monthly maximum temperature range



**Figure 4. Monthly average minimum and maximum temperature**



**Figure 5. Annual precipitation pattern**



**Figure 6. Annual average temperature pattern**

## Climate stations used

- (1) JARBIDGE 7 N [USC00264039], Jackpot, NV

## Influencing water features

Snowmelt provides moisture to this site throughout the spring and early summer.

## Soil features

The soils associated with this site are derived from colluvium and slope alluvium with a component of volcanic ash. Particles size control section is typically either fine-loamy or loamy skeletal. Subsurface rock fragments range from 20 to 60 percent.

The soil series correlated with this site are described at both the family and series level: Pachic Haplocryolls, Dehana and Povey.

**Table 4. Representative soil features**

Parent material	(1) Colluvium (2) Slope alluvium (3) Volcanic ash
Surface texture	(1) Gravelly loam (2) Stony loam (3) Loam
Family particle size	(1) Loamy-skeletal (2) Fine-loamy
Drainage class	Well drained
Permeability class	Moderately slow to moderate
Depth to restrictive layer	40–60 in
Soil depth	40–60 in
Surface fragment cover <=3"	8–25%
Surface fragment cover >3"	2–20%
Available water capacity (0-40in)	3.8–5.7 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	0 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	5.6–7.3
Subsurface fragment volume <=3" (Depth not specified)	20–25%
Subsurface fragment volume >3" (Depth not specified)	5–35%

## Ecological dynamics

### State and transition model

### Inventory data references

Physiographic and Soils Features were gathered from NASIS database.

## Approval

Kendra Moseley, 4/24/2024

## 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	05/05/2024
Approved by	Kendra Moseley
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

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

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

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

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

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

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

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

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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):**

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

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

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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):**

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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:

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):**
- 

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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