

# Ecological site F043AY535ID

## Loamy Canyons and Terraces

### 23-25" PZ Mesic

### Clearwater Canyons

Last updated: 4/09/2025

Accessed: 04/21/2026

#### 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.

#### MLRA notes

Major Land Resource Area (MLRA): 043A–Northern Rocky Mountains

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#### LRU notes

Most commonly found in LRU 43A08 (Clearwater Canyons). Also present in 43A09 (Western Bitterroot Foothills), and 43A07 (Eastern Columbia Plateau Embayments). Climate parameters were obtained from PRISM and other models for the area. Landscape descriptors are derived from USGS DEM products and their derivatives.

#### Classification relationships

Relationship to Other Established Classifications: United States National Vegetation Classification (2008) – A3447 Ponderosa Pine / Herbaceous Understory Central Rocky Mt. Forest & Woodland Alliance Washington Natural Heritage Program. Ecosystems of Washington State, A Guide to Identification, Rocchio and Crawford, 2015 – Northern Rocky Mountain Ponderosa Pine Woodland and Savanna Description of Ecoregions of the United States, USFS PN # 1391, 1995 - M332 Middle Rocky Mt. Forest-Steppe-Coniferous Forest-Alpine Meadow Province Level III and IV Ecoregions of WA, US EPA, June 2010 - 15r Okanogan – Colville Xeric Valleys & Foothills and 15s Spokane Valley Outwash Plains This ecological site includes the following USDA Forest Service Plant Associations: PIPO/PSSP, PIPO/FEID, and PIPO-PSME/PSSP. (Williams et. al. 1995)

#### Ecological site concept

This ESD is distinguished by an overstory of Ponderosa pine. Understory is grass dominated. Grass species are dominantly bluebunch wheatgrass and Idaho fescue. Forbs include arrowleaf balsamroot, sticky geranium, yarrow and lupine.. It occurs on foothills, canyon sides, and terraces. Soils are loamy with moderate to high available water capacity. Water tables are at >30 inches and drainage class is moderately well to well drained. This ESD fits into the National Vegetation Standard's Ponderosa Pine / Herbaceous Understory Central Rocky Mt. Forest & Woodland Alliance and Washington State's Natural Heritage Program's Northern Rocky Mountain Ponderosa Pine Woodland and Savanna.

Table 1. Dominant plant species

Tree	(1) <i>Pinus ponderosa</i>
Shrub	Not specified

<b>Herbaceous</b>	(1) <i>Pseudoroegneria spicata</i> (2) <i>Festuca idahoensis</i>
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## Physiographic features

### Physiographic Features

Landscapes: Canyonlands

Landform: canyon walls, stream terraces

Elevation (m): Total range = 295 to 1285 m  
(965 to 4,210 feet)

Central tendency = 540 to 840 m  
(1,770 to 2,755 feet)

Slope (percent): Total range = 0 to 90 percent  
Central tendency = 12 to 45 percent

Aspect (degrees):  
100-225-40  
Central tendency = 160-225-290

**Table 2. Representative physiographic features**

<b>Landforms</b>	(1) Canyonlands > Canyon wall (2) Canyonlands > Stream terrace
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## Climatic features

### Climatic Features

Frost-free period (days): Total range = 90 to 160 days  
Central tendency = 110 to 135 days

Mean annual precipitation (cm): Total range = 455 to 945 mm  
(18 to 37 inches)  
Central tendency = 600 to 740 mm  
(24 to 29 inches)

MAAT Total range = 6.0 to 11.5 C  
(43 to 53 F)  
Central tendency = 7.9 to 9.8 C  
(46 to 50 F)

Climate Stations: Dworshak Dam, Dworshak Fish Hatchery, Orofino, Orofino Telemark

## Influencing water features

Water Table Depth (cm): 76 to >200 cm (30 to >80 inches)  
Median = >200cm(>80 inches)

### Flooding:

Frequency: None

Duration: None

### Ponding:

Frequency: None

Duration: None

## Soil features

### Representative Soil Features

This ecological subsite is associated with several soil series (e.g. Ahsahka, Fordcreek, Itzee, Larkin, Southwick, Tekoa, Texascreek). The soil components can be grouped into Cumulic Ultic Haploxerolls, Typic Argixerolls, Ultic Argixerolls, Ultic Haploxeralfs, and Ultic Haploxerolls. These soils have developed in mixed material from granite, quartzite, loess and alluvium with a volcanic ash influence. The soils are moderately deep to very deep and have moderate available water capacity to a depth of 1 m. The soils are mostly well drained. Fragment content of surface layers (% Volume)

**Table 3. Representative soil features**

Parent material	(1) Loess (2) Alluvium (3) Colluvium – granite (4) Colluvium – quartzite (5) Residuum – granite (6) Residuum – quartzite
Surface texture	(1) Gravelly silt loam (2) Silt loam (3) Loam
Drainage class	Well drained
Permeability class	Moderate
Depth to restrictive layer	200 cm
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	17.78 cm
Calcium carbonate equivalent (0-152.4cm)	Not specified
Electrical conductivity (0-152.4cm)	Not specified
Soil reaction (1:1 water) (0-152.4cm)	6.5

Subsurface fragment volume <=3" (25.4-152.4cm)	30 %
Subsurface fragment volume >3" (25.4-152.4cm)	10 %

Table 4. Representative soil features (actual values)

Drainage class	Moderately well drained to somewhat excessively drained
Permeability class	Moderate to rapid
Depth to restrictive layer	50 – 200 cm
Surface fragment cover >3"	0 – 10 %
Available water capacity (0-101.6cm)	7.87 – 18.29 cm
Calcium carbonate equivalent (0-152.4cm)	0 %
Electrical conductivity (0-152.4cm)	0 mmhos/cm
Soil reaction (1:1 water) (0-152.4cm)	5.6 – 7.3
Subsurface fragment volume <=3" (25.4-152.4cm)	0 – 40 %
Subsurface fragment volume >3" (25.4-152.4cm)	0 – 30 %

### Ecological dynamics

#### Ecological Dynamics of the Site

This reference site is located on very warm dry slopes with ponderosa pine the only tree species with an understory of mainly bluebunch wheatgrass, Idaho Fescue, and some needle and thread grass. Tree stocking is low with large open grown ponderosa pine and small

amounts of sapling/pole size pine in understory. Frequent ground fires every 10-15 years kept pine regeneration low and perpetuated this condition with a dominant grass understory. With fire exclusion a mosaic of pine cohorts underneath the large pine survive and a patchy woodland develops. In addition, some woodland shrubs may establish and an occasional Douglas-fir may be present. Stands in this altered state are subject to beetle kill and mistletoe infestation. Soils are mainly sandy loams or loamy sands. The main habitat types included in this ecological site are Ponderosa pine/blunhwheat grass and Ponderosa pine/Idaho fescue.. The bluebunch wheatgrass sites occur on the warmer drier slopes and the Idaho fescue sites occur on the lower slopes and more level terrain. Both habitat types have similar ecological processes as described above. The fescue sites will have more pine stand density due to a little more moisture and topographic position.

## 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 (%)
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Table 6. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 1.3 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 1.4 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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## References

. 1998. NRCS National Forestry Manual.

. 2017. NRCS Soil and Site Index data for NE WA and N. Idaho.

Cooper, S.V., K.E. Neiman, R. Steele, and D.W. Roberts. 1991. Forest Habitat types of Northern Idaho, A Second Approximation.

Daubenmire, R. and J. Daubenmire. 1968. Forest Vegetation of Eastern Washington and Northern Idaho.

Finklin, A.I. 1983. Climate of Priest River Experimental Forest, northern Idaho. Gen. Tech. Rep. INT-159. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Ogden, UT. 53.

Smith and Fischer. 1997. Fire Ecology of the Forest Habitat Types of Northern Idaho.

Williams, C.K., B.F. Kelley, B.G. Smith, and T.R. Lillybridge. October, 1995. Forested Plant Associations of the Colville National Forest.

Zack, A. 1997. Biophysical Classification- Habitat Groups and Description of Northern Idaho and Northwestern Montana, Lower Clarkfork and Adjacent Areas..

## Approval

## 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	12/18/2020
Approved by	
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):

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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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