Ecological site F043AY583ID
Ashy Mountain Slopes
30-45" PZ Cryic
Clearwater Mountains

Last updated: 10/15/2020
Accessed: 08/21/2026

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

Major Land Resource Area (MLRA): 043A–Northern Rocky Mountains Description of MLRAs can be found in: United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. Available electronically at: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_053624#handbook

LRU notes

Most commonly found in LRU 43A10 (Clearwater Mountains). Also found in areas of 43A11 (Bitterroot Metasedimentary Zone). Climate parameters were obtained from PRISM and other models for the area. Landscape descriptors are estimated from USGS DEM products and their derivatives.

Classification relationships

Relationship to Other Established Classifications: United States National Vegetation Classification (2008) – A3614 Abies lasiocarpa – Picea engelmannii Rocky Mountain Forest & Woodland Alliance Washington Natural Heritage Program. Ecosystems of Washington State, A Guide to Identification, Rocchio and Crawford, 2015 – Subalpine – Montane Mesic Forest Description of Ecoregions of the United States, USFS PN # 1391, 1995 - M333 Northern 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 and Foothills, 15w Western Selkirk Maritime Forest, 15x Okanogan Highland Dry Forest, 15y Selkirk Mountains. This ecological site includes the following USDA Forest Service Plant Associations: Abies lasiocarpa Series; ABLA/MEFE and ABLA/XETE Habitat Types and Tsuga mertensiana Series; TSME/MEFE and TSME/XETE Habitat Types. (Cooper et al., 1987)

Ecological site concept

This ESD in distinguished by an overstory of subalpine fir or mountain hemlock and an understory shrub component of menzesia and huckleberry. On some exposures shrubs are absent and beargrass dominates the understory. It occurs on upper slopes of mountainsides, and ridges. These soils have developed in thick (>7 inches) Mazama tephra deposits over local till or residuum and colluvium from granitic and metamorphic rock. The soils range from moderately deep to very deep and have adequate available water capacity to a depth of 40 inches. The soils are moderately well or well-drained. Water tables, when present, are perched and >30 inches below the surface during May-Oct. This ESD fits into the National Vegetation Classification's Subalpine Fir - Engelmann Spruce Rocky Mountain Moist Forest Alliance and Washington State Natural Heritage Program's Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest.

Table 1. Dominant plant species

Tree	(1) *Abies lasiocarpa* (2) *Tsuga mertensiana*

Shrub	(1) *Menziesia ferruginea* (2) *Vaccinium membranaceum*
Herbaceous	(1) *Xerophyllum tenax* (2) *Goodyera oblongifolia*

Physiographic features

Physiographic Features
Landscapes: Mountains,
Landform: mountain slopes, ridges, glacial-valley walls

Elevation (m): Total range = 1185 to 2185 m
(3,850 to 7,165 feet)
Central tendency = 1560 to 1810 m
(5,115 to 5,935 feet)

Slope (percent): Total range = 0 to 85 percent
Central tendency = 25 to 50 percent

Aspect: none dominant

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope (2) Mountains > Ridge (3) Mountains > Glacial-valley wall (4) Mountains > Glacial-valley floor
Flooding frequency	None
Ponding frequency	None
Elevation	1,560 – 1,810 m
Slope	30 – 50 %
Water table depth	200 cm
Aspect	Aspect is not a significant factor

Table 3. Representative physiographic features (actual ranges)

Flooding frequency	None
Ponding frequency	None

Elevation	1,170 – 2,180 m
Slope	0 – 90 %
Water table depth	90 – 200 cm

Climatic features

Climatic Features
Frost-free period (days): Total range = 35 to 105 days
Central tendency = 40 to 65 days

Mean annual precipitation (cm): Total range = 780 to 2235 mm
(31 to 88 inches)
Central tendency = 1325 to 1690 mm
(52 to 67 inches)

MAAT (C): Total range = 4.4 to 6.8
(40 to 44 F)
Central tendency = 3.8 to 5.0
(39 to 41 F)

Climate Stations: none

Influencing water features

Water Table Depth: 35 to >80 inches during Mar-Jun (median= >80 inches)

Flooding:
Frequency: None
Duration: None

Ponding:
Frequency: None
Duration: None

Soil features

Representative Soil Features

This ecological site is associated with several soil components (e.g. Andic Cryochrepts, McCay, Redraven, Typic Haplocryands, Rubycreek, Daveggio, Katka, Fico, Vay, and Roman). The soil components can be grouped into: Andic Haplocryepts, Typic Haplocryands, Andic Dystrocryepts, Typic Fulvicryands, Typic Vitricryands, and Vitric Haplocryands. These soils have developed in thick (>7 inches) Mazama tephra deposits over local till or residuum and colluvium from granitic and metamorphic rock. The soils range from moderately deep to very deep and have adequate available water capacity to a depth of 40 inches. The soils are moderately well or well-drained. Water tables, when present, are perched and >30 inches below the surface during May-Oct

Fragment content of surface: 0 to 20 percent (median = 0%)
Content Fragments

Table 4. Representative soil features

Parent material	(1) Volcanic ash (2) Till (3) Colluvium – granite (4) Colluvium – metamorphic rock (5) Residuum – granite (6) Residuum – metamorphic rock
Surface texture	(1) Medial silt loam (2) Gravelly, medial loam (3) Medial loam
Drainage class	Well drained
Permeability class	Moderate
Depth to restrictive layer	200 cm
Soil depth	200 cm
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	13.46 cm
Calcium carbonate equivalent (0-152.4cm)	Not specified
Electrical conductivity (0-152.4cm)	Not specified
Soil reaction (1:1 water) (0-152.4cm)	5.8
Subsurface fragment volume <=3" (25.4-152.4cm)	10 %

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

Table 5. Representative soil features (actual values)

Drainage class	Moderately well drained to well drained
Permeability class	Slow to moderate
Depth to restrictive layer	50 – 200 cm
Soil depth	50 – 200 cm
Surface fragment cover >3"	0 %
Available water capacity (0-101.6cm)	8.38 – 14.48 cm
Calcium carbonate equivalent (0-152.4cm)	0 %
Electrical conductivity (0-152.4cm)	0 mmhos/cm
Soil reaction (1:1 water) (0-152.4cm)	5.1 – 7.3
Subsurface fragment volume <=3" (25.4-152.4cm)	10 – 60 %
Subsurface fragment volume >3" (25.4-152.4cm)	0 – 60 %

Ecological dynamics

Ecological Dynamics of the Site

The four main US Forest Service habitat types (HT) incorporated into this ecological site all are located high elevation mountain slopes and ridges. They can occur at lower elevations as ecotypes of their higher elevation sites due to cold air drainage and/or frosty conditions. The ABLA/MEFE (Subalpine fir/rustyleaf menzesia) and TSME/MEFE (Mountain hemlock/rustyleaf menzesia) HTs are moister than ABLA/XETE (ABLA/beargrass) or TSME/XETE (Mountain hemlock/beargrass) and capable of having more Engelmann

spruce in the overstory and understory. In the ABLA/XETE and TSME/XETE HTs, subalpine fir will have higher presence in the overstory and understory with fire exclusion. Some stands are in early to mid-seral condition with Douglas-fir (PSME), western larch (LAOC), and lodgepole pine (PICO) as the main overstory component. Subalpine fir (ABLA), Mountain hemlock (TSME) and/or Engelmann spruce (PIEN) can be present in the understory. Historically western white pine (PIMO3) played an important role as a seral species.

State and transition model

Additional community tables

Table 6. Community 1.1 plant community composition

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

Table 7. Community 1.2 plant community composition

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

Table 8. Community 1.3 plant community composition

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

Table 9. Community 1.4 plant community composition

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

References

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

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.

Williams, C.K. and T.R. Lillybridge. 1983. Forested Plant Associations of the Okanogan National Forest R6-Ecol-132b-1983.

Approval

Curtis Talbot, 10/15/2020

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	08/21/2026
Approved by	
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):**

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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:**
