Ecological site F043AY579ID
Ashy Mountain Slopes
30-45" PZ Cryic
Clearwater Mountains

Last updated: 10/14/2020
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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): 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.

Ecological site concept

This ESD in distinguished by an overstory of subalpine fir or mountain hemlock and a diverse understory. Shrubs include rustyleaf menzesia, sitka alder, blue huckleberry, big huckleberry, twinflower and grouse whortleberry. Forbs include Piper’s anemone, queencup beadlily, wild ginger, mountain arnica, Idaho goldthread, rattlesnake plantain, western meadowrue, coolwort foamflower and round leaved violet. These soils have developed in thick (>7 inches) Mazama tephra deposits over alluvium or residuum and colluvium from granitic and metamorphic rock. Some may have till associated with local montane glaciation. 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.

Table 1. Dominant plant species

Tree	(1) *Abies lasiocarpa* (2) *Tsuga mertensiana*
Shrub	(1) *Vaccinium membranaceum* (2) *Menziesia ferruginea*

Herbaceous	(1) *Clintonia uniflora* (2) *Xerophyllum tenax*

Physiographic features

Physiographic Features
Landscapes: Mountains, Foothills
Landform: mountain slopes, ridges, floodplains, stream terraces, structural benches

Elevation (m): Total range = 1085 to 2205 m
(3,560 to 7,230 feet)
Central tendency = 1435 to 1670 m
(4,700 to 5,475 feet)

Slope (percent): Total range = 0 to 85 percent
Central tendency = 25 to 45 percent

Aspect: Range: 230-10-175
Central tendency: 285-10-75

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope (2) Mountains > Ridge (3) Mountains > Flood plain (4) Mountains > Stream terrace (5) Mountains > Structural bench
Flooding frequency	None
Ponding frequency	None
Elevation	1,430 – 1,670 m
Slope	30 – 50 %
Water table depth	200 cm
Aspect	NW, N, NE

Table 3. Representative physiographic features (actual ranges)

Flooding frequency	None
Ponding frequency	None

Elevation	1,090 – 2,200 m
Slope	0 – 90 %
Water table depth	60 – 200 cm

Climatic features

Climatic Features
Frost-free period (days): Total range = 35 to 125 days
Central tendency = 50 to 80 days

Mean annual precipitation (cm): Total range = 840 to 1985 mm
(33 to 78 inches)
Central tendency = 1265 to 1455 mm
(50 to 60 inches)

MAAT (C): Total range = 2.6 to 7.5
(37 to 46 F)
Central tendency = 4.5 to 5.7
(40 to 42 F)

Climate Stations: none

Influencing water features

Water Table Depth: 24 to >80 inches (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. Entic Cryandepts, Redraven, Andic Cryochrepts, Hucberit, Vaywood, Narnett, Trappercreek, Amook, Fico, McCay, Fluvents, Baldeagle, Andic Cryumbrepts, Meadowport, and Ericson). The soil components can be grouped into: Typic Haplocryands, Andic Haplocryepts, Andic Haplocryalfs, Typic Vitricryands, Andic Dystrocryepts, and Andic Humicryepts. These soils have developed in thick (>7 inches) Mazama tephra deposits over alluvium or residuum and colluvium from granitic and metamorphic rock. Some may have till associated with local montane glaciation. 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.

Fragment content of surface: 0 to 15 percent (median = 5%)
Content Fragments

Table 4. Representative soil features

Parent material	(1) Volcanic ash (2) Alluvium (3) Colluvium – granite (4) Colluvium – metamorphic rock (5) Residuum – granite (6) Residuum – metamorphic rock
Surface texture	(1) Medial silt loam (2) Gravelly, medial silt loam (3) Medial 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)	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)	20 %

Subsurface fragment volume >3" (25.4-152.4cm)	20 %

Table 5. Representative soil features (actual values)

Drainage class	Moderately well drained to well drained
Permeability class	Slow to moderately rapid
Depth to restrictive layer	50 – 200 cm
Surface fragment cover >3"	0 – 0.1 %
Available water capacity (0-101.6cm)	9.4 – 20.32 cm
Calcium carbonate equivalent (0-152.4cm)	0 %
Electrical conductivity (0-152.4cm)	0 mmhos/cm
Soil reaction (1:1 water) (0-152.4cm)	4.5 – 7.3
Subsurface fragment volume <=3" (25.4-152.4cm)	10 – 70 %
Subsurface fragment volume >3" (25.4-152.4cm)	0 – 50 %

Ecological dynamics

Ecological Dynamics of the Site
Forests in this ESD have substantial herbaceous and shrub cover, and often have a closed canopy. Climax stands are dominated by subalpine fir and mountain hemlock. Large spruces persist for centuries in old-growth stands. A variety of species, including climax species and spruce, occur in early succession. Seral lodgepole pine can dominate in several habitat types, but it dies out 120 to 160 years after stand establishment (Cooper and others 1991). Western larch is common on sites with good drainage. Douglas-fir, grand fir, and western white pine occur on moderate sites, but rarely dominate. Whitebark pine intergrades with lodgepole pine at high elevations.

Most stands regenerate readily after fire. Species composition varies because of variation in drainage, moisture and temperature

regimes, seed source, and fire history. Patchy, mixed-severity burns further complicate structural development and species composition. Where severe fires were less than about 160 years apart in presettlement times, lodgepole pine may dominate seral stands. Lodgepole pine may also codominate with Engelmann spruce, or may occur in combination with other seral species and climax species. Cold temperatures, wet soils, and luxuriant undergrowth favor early dominance by Engelmann spruce and climax species, especially if long fire-free intervals have excluded lodgepole pine. Stands that were drier before fire follow this pathway if water tables rise appreciably after canopy removal. (from Smith and Fischer, 1997, pp. 75-78)

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

. 1998. NRCS National Forestry Manual.

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, 10/14/2020

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	04/22/2026
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:**

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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:**
