

Ecological site F043AY578ID

Ashy Metasedimentary Mountain Slopes

30-45" PZ Cryic

Bitterroot Metasedimentary Zone

Last updated: 10/14/2020

Accessed: 09/11/2026

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 43A11 (Bitterroot Metasedimentary Zone). Also found in areas of 43A10 (Clearwater Mountains). 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 is distinguished by an overstory of subalpine fir or mountain hemlock and a diverse understory. Shrubs include rustyleaf menziesia, sitka alder, blue huckleberry, big huckleberry, twinflower and grouse whortleberry. Forbs include Piper's anemone, queencup beadlelily, 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 residuum and colluvium from metasedimentary rock. The soils are moderately deep or very deep and have adequate available water capacity to a depth of 40 inches. The soils are well-drained.

Table 1. Dominant plant species

Tree	(1) <i>Abies lasiocarpa</i> (2) <i>Tsuga mertensiana</i>
Shrub	(1) <i>Vaccinium membranaceum</i> (2) <i>Menziesia ferruginea</i>

Herbaceous	(1) <i>Clintonia uniflora</i> (2) <i>Xerophyllum tenax</i>
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Physiographic features

Physiographic Features

Landscapes: Mountains,

Landform: mountain slopes, ridges

Elevation (m): Total range = 1115 to 1970 m
(3,655 to 6,460 feet)

Central tendency = 1440 to 1650 m
(4,725 to 5,410 feet)

Slope (percent): Total range = 0 to 90 percent
Central tendency = 25 to 50 percent

Aspect: Range: 205-355-155
Central tendency: 290-355-70

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope (2) Mountains > Ridge
Flooding frequency	None
Ponding frequency	None
Elevation	1,440 – 1,650 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	1,110 – 1,970 m
Slope	0 – 90 %

Water table depth	200 cm
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Climatic features

Climatic Features

Frost-free period (days): Total range = 65 to 115 days

Central tendency = 90 to 105 days

Mean annual precipitation (cm): Total range = 990 to 1730 mm

(39 to 68 inches)

Central tendency = 1270 to 1455 mm

(50 to 57 inches)

MAAT (C): Total range = 2.6 to 7.1

(37 to 45 F)

Central tendency = 4.5 to 5.8

(40 to 42 F)

Climate Stations: none

Influencing water features

Water Table Depth: >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. Latour, Kintla, Vaywood, Berthahill, Hucberit, and Huckleberry). The soil components are Typic Haplocryands or Typic Vitricryands. These soils have developed in thick (>7 inches) Mazama tephra deposits over residuum and colluvium from metasedimentary rock. The soils are moderately deep or very deep and have adequate available water capacity to a depth of 40 inches. The soils are well-drained.

Fragment content of surface: 0 to 35 percent (median = 10%)

Content Fragments

Table 4. Representative soil features

Parent material	(1) Volcanic ash (2) Colluvium – metasedimentary rock (3) Residuum – metasedimentary rock
Surface texture	(1) Medial silt loam (2) Gravelly, medial silt loam (3) Medial loam

Drainage class	Well drained
Permeability class	Moderate
Soil depth	200 cm
Available water capacity (0-101.6cm)	13.97 cm
Calcium carbonate equivalent (0-152.4cm)	Not specified
Electrical conductivity (0-152.4cm)	Not specified
Soil reaction (1:1 water) (0-25.4cm)	6.1
Subsurface fragment volume <=3" (25.4-152.4cm)	20 %
Subsurface fragment volume >3" (25.4-152.4cm)	30 %

Table 5. Representative soil features (actual values)

Drainage class	Well drained
Permeability class	Moderate
Soil depth	50 – 200 cm
Available water capacity (0-101.6cm)	9.65 – 16.76 cm

Calcium carbonate equivalent (0-152.4cm)	0 %
Electrical conductivity (0-152.4cm)	0 mmhos/cm
Soil reaction (1:1 water) (0-25.4cm)	5.6 – 7.3
Subsurface fragment volume <=3" (25.4-152.4cm)	10 – 50 %
Subsurface fragment volume >3" (25.4-152.4cm)	10 – 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 (%)
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Table 7. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 1.3 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 1.4 plant community composition

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

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.

Williams, C.K. and T.R. Lillybridge. 1983. Forested Plant Associations of the Okanogan National Forest
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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	09/11/2026
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):

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:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):

14. Average percent litter cover (%) and depth (in):

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:

17. Perennial plant reproductive capability:
