

Ecological site F003XY701OR

High Cascades Wet

Last updated: 2/03/2025
Accessed: 08/23/2026

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.

Table 1. Dominant plant species

Tree	(1) <i>Tsuga mertensiana</i>
Shrub	(1) <i>Vaccinium scoparium</i>
Herbaceous	(1) <i>Chimaphila umbellata</i>

Physiographic features

The site is on deep, moderately well drained and moderate to steeply sloping soils cindercones, glacial moraines and pumice and ash flow deposits.

Table 2. Representative physiographic features

Landforms	(1) Ground moraine (2) Cinder cone (3) Ash flow
Flooding frequency	None
Ponding frequency	None
Elevation	1,370 – 2,290 m
Slope	0 – 60 %
Water table depth	150 cm
Aspect	N

Climatic features

Precipitation comes mostly as snow. Winters are snowy and cold. Summers are cool and dry. Summer thunderstorms do occur, providing occasional summer precipitation.

Table 3 Representative climatic features

Frost-free period (average)	50 days
Freeze-free period (average)	90 days
Precipitation total (average)	2,540 mm

Influencing water features

None

Soil features

Soils derived from the volcanic activity of Mount Mazama. They formed from ash flows from the eruption and as cinder cones developed on the flanks of the volcano. Soils that developed from glacial activity are also included.

Table 4. Representative soil features

Surface texture	(1) Paragravelly loamy sand (2) Gravelly loam
Family particle size	(1) Sandy
Drainage class	Moderately well drained to excessively drained
Permeability class	Moderate to very rapid
Soil depth	50 – 150 cm
Surface fragment cover <=3"	10 – 40 %
Surface fragment cover >3"	0 – 40 %
Available water capacity (0-101.6cm)	8.64 – 37.34 cm

Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	5.6 – 6.5
Subsurface fragment volume <=3" (Depth not specified)	20 – 50 %
Subsurface fragment volume >3" (Depth not specified)	0 – 50 %

Ecological dynamics

Mountain hemlock is the dominant specie in the overstory, with lesser amounts of Shasta red fir and Western white pine present. The major disturbance factor in this site is fire and disease.

Due to the high elevation and long periods of snow cover, fire return intervals are long (possibly 400+ years). When fire does occur it is usually a stand replacement fire, consuming all trees. After such a fire Lodgepole pine, a pioneer specie, establishes and starts the succession process all over again.

Older mountain hemlock trees are susceptible to disease, especially laminated root rot (phellinus weirii). The disease kills trees creating openings for grass/forb/shrub growth or for new seedlings to become established.

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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Contributors

Approval

Kirt Walstad, 2/03/2025

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	08/23/2026
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:
