

Eastern Cascades Volcanic Terrain

Terrain Class - Volcanoes: Volcanoes are edifices, typically conical in shape, with a central summit vent that erupts effusive magmatic material as ash, cinder, blocks and or lava that accumulates and build up the landform.

Landform Association – Shield Volcanoes:



Volcanic Terrain is a miscellaneous map unit that includes diverse landform elements associated with the numerous volcanoes in the volcanic fields of central and eastern Oregon. This is a diverse terrain all with a volcanic origin including volcanoes, flows, lava tubes and caves, parasitic volcanoes superimposed on a volcano or a flow. This terrain is dominantly constructive topography associated with basaltic volcanoes, including cinder cones, conical volcanoes, shield volcanoes and maars. The extensive lava flows of these volcanoes are not differentiated. Tephra from local volcanic sources, pumiceous tephra from Mt. Mazama, and or andesitic tephra from the Cascade Range volcanoes blanket some or this entire map unit.

Weathering, fluvial erosion and, to a large degree, mass wasting have degraded these constructional landforms. Shed sediments are deposited in fluvial fans, plains and terraces which can represent significant extents within this map unit. Soils are thin to absent on the rocky slopes and thick and rocky along lower (footslope, toeslope) slope positions. Soil taxa are typically Andisols, Alfisos and Mollisols.

This Landform Association is rare on National Forest System Lands.

Landtype Associations: Landtype Associations are formed by intersecting vegetation series or groups of vegetation series with Landform Associations.

Topography:

The following tables represent the average conditions for the Landform Association. Only lands within and adjacent to National Forest System Lands were mapped by this project. The entire EPA Level III Ecoregion is not covered by this mapping.

The percent of Landform Association (% of LfA) in bold in the table below refers to the percent of the Ecoregion represented by that Landform Association. The (% of LfA) numbers not in bold in the table below refer to the percent of each Landtype Association within the Landform Associations.

Landform Association/Landtype Association	% of LfA	Mean % Slope	Minimum Elevation (m)	Maximum Elevation (m)	Mean Elevation (m)	% Northerly Aspect (226° - 134°)	% Southerly Aspect (135° - 225°)
Volcanic Terrain	0.9%	11	1371	1562	1463	74%	26%
Volcanic Terrain, Grand Fir-White Fir	70.5%	16	1367	1753	1535	72%	28%
Volcanic Terrain, Grand Fir-White Fir - Ponderosa Pine	1.3%	7	1536	1656	1596	82%	18%
Volcanic Terrain, Mountain Hemlock	0.8%	23	1641	1922	1747	96%	4%
Volcanic Terrain, Ponderosa Pine	26.5%	9	1317	1431	1384	70%	30%
Volcanic Terrain, Ponderosa Pine - Grasslands / Meadows	0.9%	4	1381	1401	1393	79%	21%

Climate:

Landform Association/Landtype Association	Mean Annual Precipitation (mm)	Mean Annual Temperature °C	AET/PET Ratio July, Aug, Sept
Volcanic Terrain	706	7	0.28
Volcanic Terrain, Grand Fir-White Fir	856	7	0.37
Volcanic Terrain, Grand Fir-White Fir - Ponderosa Pine	1004	7	0.26
Volcanic Terrain, Mountain Hemlock	1091	6	0.44
Volcanic Terrain, Ponderosa Pine	569	7	0.23
Volcanic Terrain, Ponderosa Pine - Grasslands / Meadows	519	6	0.19

The ratio of Actual Evapotranspiration to Potential Evapotranspiration (AET/PET) is used as a broad-scale indicator of potential drought stress. We obtained modeled actual and potential evapotranspiration datasets from the Numerical Terradynamic Simulation Group at the University of Montana (<http://www.nts.g.umt.edu/project/mod16>) for a 30 year climate average. AET/PET ratio in the table above is based on a scale of zero to one. A value closer to 1 means the vegetation is transpiring close to its potential. A value farther from 1 means that the Actual Evapotranspiration is below potential based on this climatic zone (Ringo, et. al. 2016 in draft).