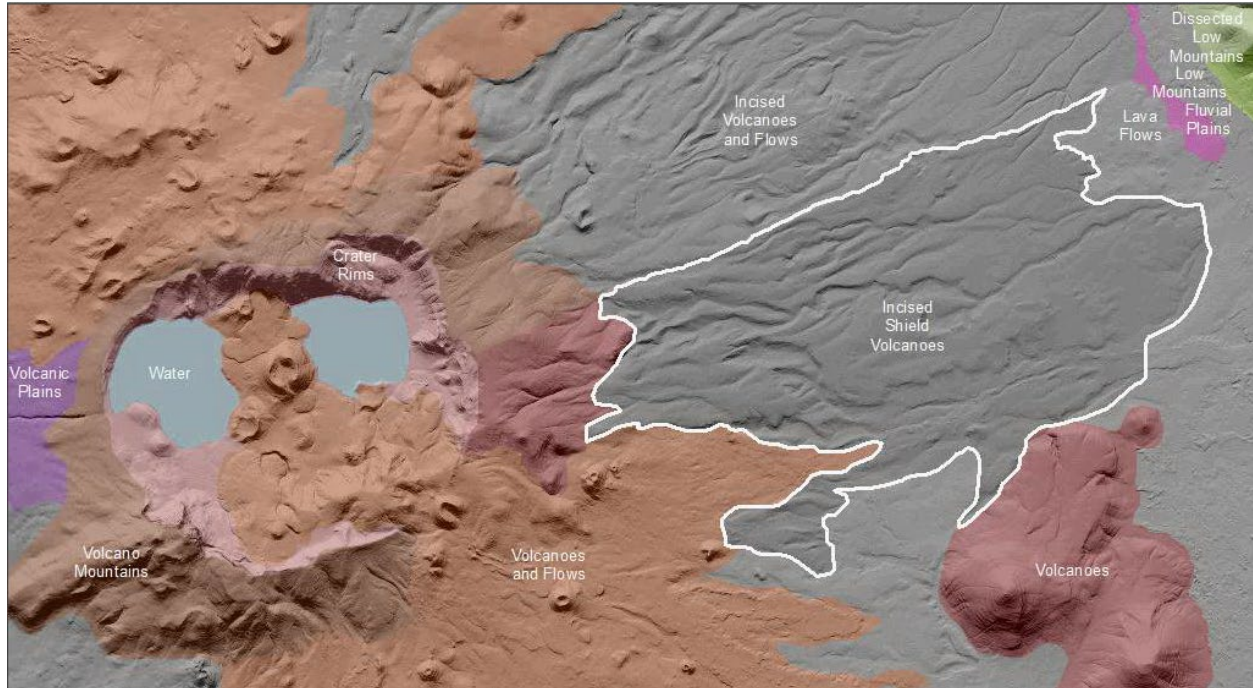


Eastern Cascades Incised Shield Volcanoes

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 – Incised Shield Volcanoes:



Incised Shield Volcanoes are shield volcanoes where weathering and erosion are just beginning to alter the topography of the area. Incised refers to landscapes and landforms that retain their outlines and the majority of their mass but are experiencing an initial alteration of form. The accumulation of fluid basalt from a central vent area yields a convex shield-like landform. The vent area may have developed a late-stage eruptive edifice with steep, rocky slopes. The shield may have locally accumulated tephra that issued from the vent, particularly late in the volcano's development.

Soils developed on this map unit vary from residual, thin rocky soils on the flows, to ashy horizons over this residual soil, to thicker, less-rocky soils in depressions and lower slope positions along fault zones.

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°)
Incised Shield Volcanoes	0.5%	11	1294	1522	1404	79%	21%
Incised Shield Volcanoes, Douglas-Fir	4.7%	13	1108	1282	1200	80%	20%
Incised Shield Volcanoes, Grand Fir-White Fir	9.9%	8	1154	1361	1268	86%	14%
Incised Shield Volcanoes, Grand Fir-White Fir - Ponderosa Pine	3.0%	15	1684	1965	1825	82%	18%
Incised Shield Volcanoes, Ponderosa Pine	76.8%	8	1179	1489	1316	80%	20%
Incised Shield Volcanoes, Shrub-Steppe	2.7%	9	1715	1920	1817	79%	21%
Incised Shield Volcanoes, Shrub-Steppe - Grand Fir-White Fir	2.9%	10	1712	1896	1788	68%	32%

Climate:

Landform Association/Landtype Association	Mean Annual Precipitation (mm)	Mean Annual Temperature °C	AET/PET Ratio July, Aug, Sept
Incised Shield Volcanoes	466	7	0.20
Incised Shield Volcanoes, Douglas-Fir	498	8	0.24
Incised Shield Volcanoes, Grand Fir-White Fir	545	7	0.27
Incised Shield Volcanoes, Grand Fir-White Fir - Ponderosa Pine	451	6	0.12
Incised Shield Volcanoes, Ponderosa Pine	427	7	0.19
Incised Shield Volcanoes, Shrub-Steppe	430	6	0.11
Incised Shield Volcanoes, Shrub-Steppe - Grand Fir-White Fir	424	6	0.16

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.ntsug.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).