

East Cascades Dissected Verrucated Mountains

Terrain Class: Mountains - No one process responsible for construction of mountains. They can be uplifted, tectonic, subduction of plates, folding, uplift, up and down warping of the mantle, inflation of molten lower crustal (batholiths), etc. Erosion of mountain systems occurs over time. The rate of erosion is dependent on the geomorphic process, the underlying rock structure, and the climate, including both freeze thaw and the amount and intensity of precipitation and runoff. Mountains are further defined and distinguished based on morphology, including the pattern and density of drainages, depth of drainages, overall morphology of the area between the drainages, evidence of a strong imprint of a surficial process such as glaciation, and presence of visible underlying rock structure.

Mountains have simple to very complex forms that have arisen due to inherited rock structure, rock history, and are the net result of local to regional spatial scales of competing rates of upbuilding/uplift and downgrading/erosion. Mountains will have an inherited history from weathering and degradation of the underlying stack of earth materials that forms them. Vegetation, habitat, water interception, collection and transport will share a similar history in the same type of uplift and rock.

Landform Association: Dissected Verrucated Mountains



Dissected Verrucated Mountains are mountainous areas with few deep, V-shaped drainages eroded into uplands with a hummocky, warty morphology. Although the term hummocky is commonly used to describe the overall appearance of this map unit, mass failure cannot be definitely ascribed as the

dominant surface process. Origins for this type of Landform Association include ancient landslides that have been eroded, such as exhumed deep-marine landslides incorporated in a bedrock formation, or exhumed ancient volcanic flows in bedrock strata. In this map unit, drainages are poorly integrated, leading to variable routing of surface water through this type of landscape. Because of irregular slopes and aspect, as well as varied surface water availability. Potential vegetation and habitat are quite variable across these map units.

This Landform Association has a common spatial extent 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 Association.

Landform Association/Landtype Association	% of LfA	Mean % Slope	Minimum Elevation (m)	Maximum Elevation (m)	Mean Elevation (m)	% Northerly Aspect (226° -	% Southerly Aspect (135° -
Dissected Verrucated Mountains	1.6%	21	1541	1857	1667	71%	29%
Dissected Verrucated Mountains, Grand Fir-White Fir	54.4%	27	1523	2035	1764	85%	15%
Dissected Verrucated Mountains, Grand Fir-White Fir - Ponderosa Pine	1.1%	26	1545	1758	1628	78%	22%
Dissected Verrucated Mountains, Ponderosa Pine	37.0%	19	1554	1839	1646	64%	36%
Dissected Verrucated Mountains, Ponderosa Pine - Shrub-	2.1%	16	1575	1800	1653	70%	30%
Dissected Verrucated Mountains, Shrub-Steppe	2.7%	17	1529	1696	1582	61%	39%
Dissected Verrucated Mountains, Shrub-Steppe - Riparian Shrub / Hardwood Forest	0.4%	11	1591	1742	1620	79%	21%
Dissected Verrucated Mountains, Shrub-Steppe - Western Juniper	1.4%	22	1479	1839	1597	78%	22%
Dissected Verrucated Mountains, Western Juniper	0.6%	24	1446	1739	1612	63%	37%
Dissected Verrucated Mountains, Western Juniper - Grand Fir-White Fir	0.4%	33	1677	2184	1871	68%	32%

Climate:

Landform Association/Landtype Association	Mean Annual Precipitation (mm)	Mean Annual Temperature °C	AET/PET Ratio July, Aug, Sept
Dissected Verrucated Mountains	447	7	0.12
Dissected Verrucated Mountains, Grand Fir-White Fir	498	7	0.14
Dissected Verrucated Mountains, Grand Fir-White Fir - Ponderosa Pine	407	7	0.14
Dissected Verrucated Mountains, Ponderosa Pine	447	7	0.13
Dissected Verrucated Mountains, Ponderosa Pine - Shrub-Steppe	438	7	0.13
Dissected Verrucated Mountains, Shrub-Steppe	398	7	0.08
Dissected Verrucated Mountains, Shrub-Steppe - Riparian Shrub / Hardwood Forest	433	7	0.11
Dissected Verrucated Mountains, Shrub-Steppe - Western Juniper	387	8	0.06
Dissected Verrucated Mountains, Western Juniper	405	7	0.09
Dissected Verrucated Mountains, Western Juniper - Grand Fir-White Fir	567	6	0.08

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.ntsg.umn.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).