

Cascades Dissected 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 Mountains



Dissected Mountains are mountainous areas with a high degree of dissection. Fluvial erosion and mass wasting over time has resulted in a highly dissected landscape with deep V-shaped valley walls, planar in form, that are contiguous from ridge-top to valley bottom. It is no longer evident what the landscape was like previously. Some slope angles are greater than repose and are bare rock or outcroppings. Thickest soils gather in valley bottoms and collect in tributary gullies.

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° - 134°)	% Southerly Aspect (135° - 225°)
Dissected Mountains	2.8%	41	789	1377	1066	70%	30%
Dissected Mountains, Douglas-Fir	0.5%	41	390	989	687	65%	35%
Dissected Mountains, Douglas-Fir - Grand Fir	0.2%	41	395	787	579	49%	51%
Dissected Mountains, Douglas-Fir - Grand Fir-White Fir	0.1%	57	576	1205	931	43%	57%
Dissected Mountains, Douglas-Fir - Grasslands / Meadows - mix	0.0%	45	1048	1221	1136	15%	85%
Dissected Mountains, Douglas-Fir - Western Hemlock	0.1%	48	352	794	571	98%	2%
Dissected Mountains, Grand Fir - Douglas-Fir	0.1%	25	381	604	478	77%	23%
Dissected Mountains, Grand Fir-White Fir	10.8%	41	796	1453	1107	71%	29%
Dissected Mountains, Grand Fir-White Fir - Douglas-Fir	2.1%	48	579	1414	1067	67%	33%
Dissected Mountains, Grand Fir-White Fir - Western Hemlock	13.8%	42	832	1502	1141	68%	32%
Dissected Mountains, Grand Fir-White Fir - Western Red-cedar	0.4%	47	337	935	585	45%	55%
Dissected Mountains, Mountain Hemlock	0.7%	35	1330	1790	1573	62%	38%
Dissected Mountains, Mountain Hemlock - Grand Fir-White Fir	0.1%	23	1326	1701	1483	92%	8%
Dissected Mountains, Pacific Silver Fir	0.3%	34	989	1475	1233	97%	3%
Dissected Mountains, Pacific Silver Fir - Grand Fir-White Fir	0.9%	39	1042	1557	1307	88%	12%
Dissected Mountains, Pacific Silver Fir - Mountain Hemlock	1.1%	44	1204	1692	1455	77%	23%
Dissected Mountains, Pacific Silver Fir - Western Hemlock	1.2%	32	1084	1543	1280	78%	22%
Dissected Mountains, Western Hemlock	59.2%	38	641	1328	939	72%	28%
Dissected Mountains, Western Hemlock - Douglas-Fir	0.8%	54	491	1018	736	64%	36%
Dissected Mountains, Western Hemlock - Douglas-Fir - mix	0.6%	57	382	1154	644	36%	64%
Dissected Mountains, Western Hemlock - Grand Fir	0.1%	46	327	794	544	43%	57%
Dissected Mountains, Western Hemlock - Grand Fir-White Fir	5.3%	41	783	1368	1084	73%	27%
Dissected Mountains, Western Hemlock - Grand Fir-White Fir - mix	0.6%	25	1126	1454	1236	69%	31%
Dissected Mountains, Western Hemlock - Mountain Hemlock	0.1%	22	1103	1236	1147	82%	18%
Dissected Mountains, Western Hemlock - Pacific Silver Fir	0.9%	42	1001	1592	1268	70%	30%

Climate:

Landtype Association	Mean Annual Temperature °C	AET/PET Ratio July, Aug, Sept
Dissected Mountains	9	0.51
Dissected Mountains, Douglas-Fir	10	0.47
Dissected Mountains, Douglas-Fir - Grand Fir	10	0.58
Dissected Mountains, Douglas-Fir - Grand Fir-White Fir	10	0.50
Dissected Mountains, Douglas-Fir - Grasslands / Meadows - mix	9	0.34
Dissected Mountains, Douglas-Fir - Western Hemlock	12	0.26
Dissected Mountains, Grand Fir - Douglas-Fir	11	0.49
Dissected Mountains, Grand Fir-White Fir	9	0.55
Dissected Mountains, Grand Fir-White Fir - Douglas-Fir	9	0.46
Dissected Mountains, Grand Fir-White Fir - Western Hemlock	9	0.50
Dissected Mountains, Grand Fir-White Fir - Western Red-cedar	11	0.57
Dissected Mountains, Mountain Hemlock	6	0.54
Dissected Mountains, Mountain Hemlock - Grand Fir-White Fir	7	0.55
Dissected Mountains, Pacific Silver Fir	8	0.51
Dissected Mountains, Pacific Silver Fir - Grand Fir-White Fir	8	0.55
Dissected Mountains, Pacific Silver Fir - Mountain Hemlock	8	0.55
Dissected Mountains, Pacific Silver Fir - Western Hemlock	8	0.54
Dissected Mountains, Western Hemlock	9	0.54
Dissected Mountains, Western Hemlock - Douglas-Fir	11	0.44
Dissected Mountains, Western Hemlock - Douglas-Fir - mix	11	0.45
Dissected Mountains, Western Hemlock - Grand Fir	10	0.46
Dissected Mountains, Western Hemlock - Grand Fir-White Fir	9	0.51
Dissected Mountains, Western Hemlock - Grand Fir-White Fir - mix	8	0.52
Dissected Mountains, Western Hemlock - Mountain Hemlock	8	0.50
Dissected Mountains, Western Hemlock - Pacific Silver Fir	8	0.44

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.umd.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).