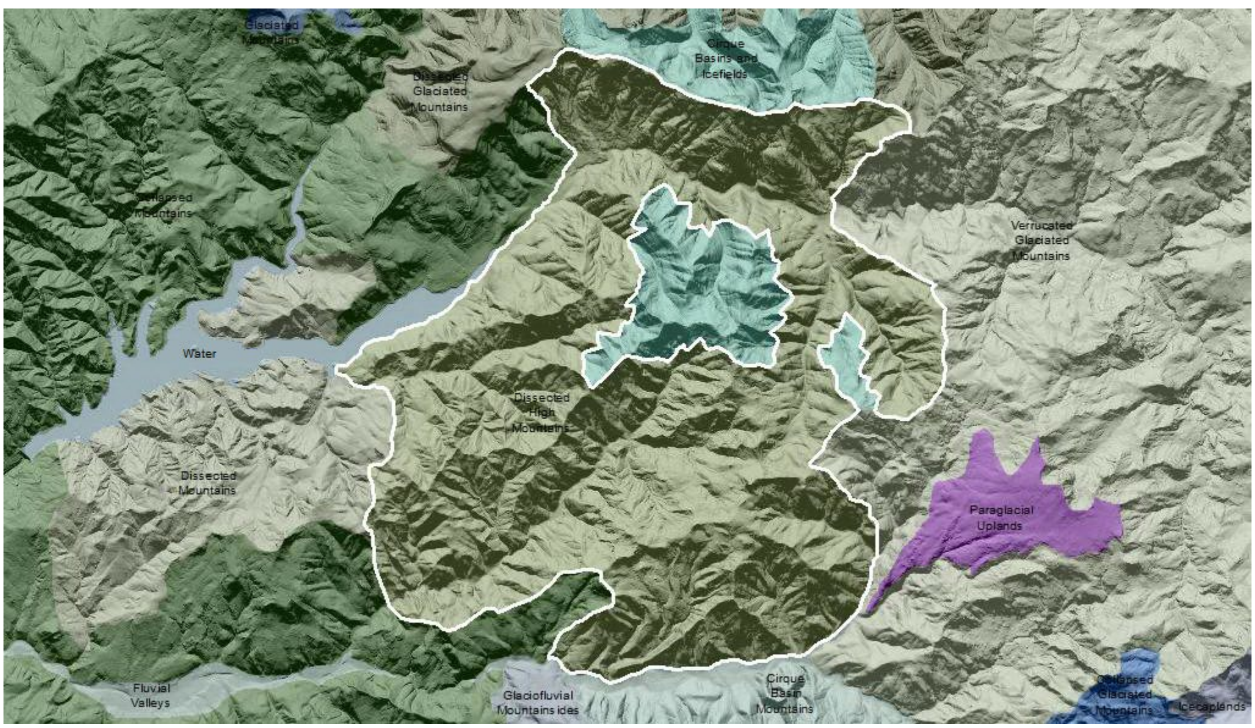
Cascades Dissected High Mountains

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 High Mountains



Dissected High Mountains are mountainous areas below the equilibrium line altitude for ice accumulation to have formed glaciers and that have a high degree of dissection. These areas belong to the "high" relief class. 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 limited 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 High Mountains, Grand Fir-White Fir - Douglas-Fir	0.3%	49	767	1210	1009	40%	60%
Dissected High Mountains, Grand Fir-White Fir - Pacific Silver Fir	1.8%	36	1001	1430	1257	76%	24%
Dissected High Mountains, Grand Fir-White Fir - Western Hemlock	17.0%	44	754	1413	1070	65%	35%
Dissected High Mountains, Mountain Hemlock	5.9%	40	1210	1739	1486	87%	13%
Dissected High Mountains, Mountain Hemlock - Grand Fir-White Fir	0.7%	51	995	1692	1368	96%	4%
Dissected High Mountains, Mountain Hemlock - Pacific Silver Fir	1.3%	44	1217	1788	1518	93%	7%
Dissected High Mountains, Pacific Silver Fir	8.0%	48	741	1409	1114	72%	28%
Dissected High Mountains, Pacific Silver Fir - Grand Fir-White Fir	2.5%	49	1134	1660	1423	64%	36%
Dissected High Mountains, Pacific Silver Fir - Western Hemlock	1.5%	33	1093	1550	1275	80%	20%
Dissected High Mountains, Western Hemlock	54.6%	46	600	1262	888	81%	19%
Dissected High Mountains, Western Hemlock - Grand Fir-White Fir	1.5%	62	646	1512	1058	89%	11%
Dissected High Mountains, Western Hemlock - Pacific Silver Fir	2.9%	43	892	1564	1205	76%	24%

Climate:

Landtype Assocation	Mean Annual Temperature ^{o}C	AET/PET Ratio July, Aug, Sept
Dissected Glaciated Mountains, Western Hemlock	9	0.57
Dissected High Mountains	**9**	**0.52**
Dissected High Mountains, Grand Fir-White Fir	9	0.58
Dissected High Mountains, Grand Fir-White Fir - Douglas-Fir	10	0.46
Dissected High Mountains, Grand Fir-White Fir - Pacific Silver Fir	8	0.53
Dissected High Mountains, Grand Fir-White Fir - Western Hemlock	9	0.52
Dissected High Mountains, Mountain Hemlock	7	0.48
Dissected High Mountains, Mountain Hemlock - Grand Fir-White Fir	8	0.46
Dissected High Mountains, Mountain Hemlock - Pacific Silver Fir	7	0.54
Dissected High Mountains, Pacific Silver Fir	8	0.57
Dissected High Mountains, Pacific Silver Fir - Grand Fir-White Fir	7	0.53
Dissected High Mountains, Pacific Silver Fir - Western Hemlock	8	0.52
Dissected High Mountains, Western Hemlock	10	0.52
Dissected High Mountains, Western Hemlock - Grand Fir-White Fir	9	0.45
Dissected High Mountains, Western Hemlock - Pacific Silver Fir	8	0.49

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.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 1means that the Actual Evapotranspiration is below potential based on this climatic zone (Ringo, et. al. 2016 in draft).