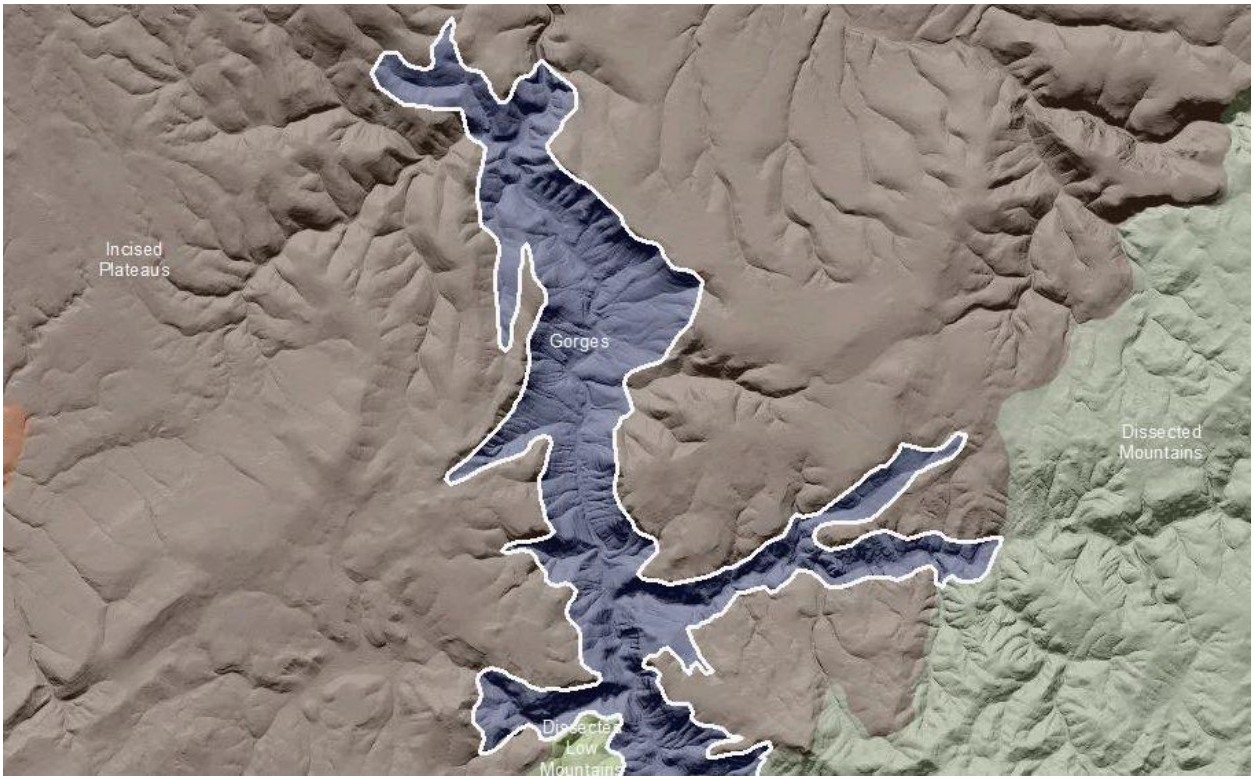
**Cascades Gorges**

**Valley** [Landscape Term] (a) Any low-lying land bordered by higher ground; esp. an elongate, relatively large, gently sloping depression of the Earth's surface, commonly situated between two mountains or between ranges of hills or mountains, and often containing a stream with an outlet. It is usually developed by stream erosion, but may be formed by faulting. (b) A broad area of generally flat land extending inland for a considerable distance, drained or watered by a large river and its tributaries; a river basin. (Bates and Jackson, 1995)

## Landform Association:
## Gorges




**Gorges** are deep, box-shaped valleys typically created by higher than normal discharges. These gorge-forming discharges are the result of a restriction or stoppage of normal flows upstream of this landform that upon release create a catastrophic flood. The gorge-forming flows have originated from a landslide formed lake, which was catastrophically breached, or a glacier-dammed lake breaching the restricting ice, as in the Missoula Floods. A gorge is identified by its vertical or overhanging walls, narrow slotted shape and higher relief slopes than the canyon or valley adjoining or bounding it. Gorges are spatially shorter along a channel reach than a canyon or valley. Soils are thin to not present on the scoured bedrock slopes. Local accumulations of colluvium and rock fall have immature soils.

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°)** |
|---|---|---|---|---|---|---|---|
| **Gorges** | **0.2%** | **39** | **528** | **1042** | **743** | **80%** | **20%** |
| Gorges, Pacific Silver Fir | 2.7% | 43 | 661 | 1092 | 884 | 94% | 6% |
| Gorges, Pacific Silver Fir - Western Hemlock | 2.8% | 35 | 797 | 1052 | 917 | 72% | 28% |
| Gorges, Western Hemlock | 93.9% | 48 | 155 | 1043 | 489 | 74% | 26% |
| Gorges, Western Hemlock - Grand Fir | 0.6% | 20 | 871 | 983 | 934 | 89% | 11% |

**Climate:**

| **Landform Association/**Landtype Association | **Mean Annual Precipitation (mm)** | **Mean Annual Temperature °C** | **AET/PET Ratio July, Aug, Sept** |
|---|---|---|---|
| **Gorges** | **2070** | **8** | **0.56** |
| Gorges, Pacific Silver Fir | 2702 | 8 | 0.59 |
| Gorges, Pacific Silver Fir - Western Hemlock | 2033 | 7 | 0.53 |
| Gorges, Western Hemlock | 1915 | 10 | 0.54 |
| Gorges, Western Hemlock - Grand Fir | 1787 | 7 | 0.59 |

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).