**North Cascades Glaciofluvial Valleys, Serpetinitic**

**Terrain Class: 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: Glaciofluvial Valleys**



**Glaciofluvial Valleys** contain the full extent of glacial valley bottoms principally formed by meltwaters of Pleistocene glaciers. They resulted from both continental and alpine glaciation. Areas of glacially deposited sediments and scours mixed in with fluvial aggradation and erosion. Glaciofluvial valleys experienced channelized flows that often deeply incised into the valley bottom. Parent streams carried heavy sediment loads. As a consequence, thick, sandy to gravelly deposits are the norm. It may be difficult to distinguish the two origins but fluvial processes are commonly more recent and overly or are inset to glacially derived sediments in the plain. Some deposits formed in a flow direction counter to modern day drainages. As a result, sediment particle size classes are the reverse of expected. Coarse rounded cobbly and bouldery deposits are found. As a general rule, the modern hydrologic and sediment regime supports a meandering stream course.

Serpentinitic is a term attached to the Landtype Association if the base geology is peridotite or serpentine (from geologic maps). The resultant chemical imbalance (low Ca/Mg ratio) may or may not dominate the above ground vegetation assemblages. In some areas, the chemical imbalance may be obscured by landslide activity which neutralizes the affect by mixing multiple parent materials.

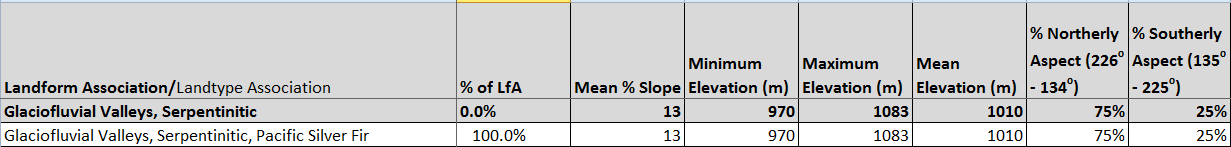
This Landform Association is rare on National Forest System Lands.

**Landtype Associations:** Landtype Associations are formed by intersecting vegetation series or groups of vegetation series with Landform Associations.

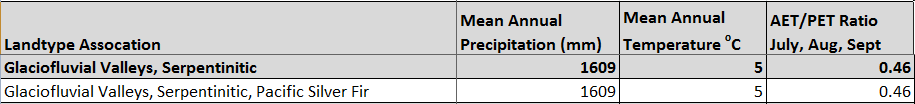
**Topography**:

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 Association.



**Climate:**



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).