

Cascades Fluvial Valleys

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:

Fluvial Valleys



Fluvial Valleys are characterized by a broad valley floor, a plain related to a watercourse with broad terraces and parallel or sub-parallel boundaries. The valley is mostly contiguous with a direct relation between the flowing water and its surrounding floodplain. Soils will have redox features from numerous wet/dry cycles, high primary productivity is found due to low slope angles, sufficient moisture, and well-developed soil horizons with generous amounts of organic matter. In and near the channels, sandy to boulder, well-drained soil expedites hyporheic flow. The dynamic nature of the channel and water level fluctuation creates lakes and sloughs as well as seasonal and permanent wetlands adjacent to the stream and in currently abandoned streambeds. Mollisols, Inceptisols, and Alfisols are common depending on parent material and elevation above the valley floor.

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.

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°)
Fluvial Valleys	0.2%	11	360	515	414	71%	29%
Fluvial Valleys, Developed	0.7%	13	212	267	229	23%	77%
Fluvial Valleys, Douglas-Fir	10.2%	4	330	403	359	82%	18%
Fluvial Valleys, Grand Fir - Western Hemlock	12.5%	13	284	488	337	73%	27%
Fluvial Valleys, Water	10.9%	2	471	549	472	95%	5%
Fluvial Valleys, Western Hemlock	58.2%	15	353	556	428	69%	31%
Fluvial Valleys, Western Hemlock - Douglas-Fir	2.1%	7	471	541	481	93%	7%
Fluvial Valleys, Western Hemlock - Grand Fir	2.7%	14	255	438	312	58%	42%
Fluvial Valleys, Western Hemlock - Grand Fir-White Fir	2.7%	12	615	769	685	62%	38%

Climate:

Landform Association/Landtype Association	Mean Annual Precipitation (mm)	Mean Annual Temperature °C	AET/PET Ratio July, Aug, Sept
Fluvial Valleys	1563	10	0.51
Fluvial Valleys, Developed	1202	12	0.46
Fluvial Valleys, Douglas-Fir	1342	11	0.47
Fluvial Valleys, Grand Fir - Western Hemlock	1325	11	0.52
Fluvial Valleys, Water	1329	10	0.39
Fluvial Valleys, Western Hemlock	1792	10	0.52
Fluvial Valleys, Western Hemlock - Douglas-Fir	1422	10	0.61
Fluvial Valleys, Western Hemlock - Grand Fir	1341	11	0.53
Fluvial Valleys, Western Hemlock - Grand Fir-White Fir	1367	10	0.58

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