



Cascade Range Geomorphic Province



Photo: Shannon Utley

The **Cascade Range**, a chain of volcanic cones, extends from southern British Columbia through Washington and Oregon into northern California. Cascade volcanoes are large cone-shaped mountains built by very explosive eruptions that produced extreme volumes of ash deposits. In California, Mount Shasta, a glacier mantled volcanic cone, rises 14,162 feet above sea level and is one of the world's largest composite volcanoes. At the southern end of the Cascade Range is Lassen Peak, a very large plug dome, which last erupted during the period of 1914 to 1921. Between these two volcanic centers, the Cascade Range is transected by the deep canyon of the Pit River, which eventually joins with the Sacramento River. Prehistoric eruptions within this mountain range left several enormous calderas, such as Crater Lake and the area partially occupied by Mount Lassen.

Just 30 miles east of Mount Shasta lies Medicine Lake volcano, a large shield volcano—so named for its broad and rounded, low profile. Despite its low profile, it is believed to be the largest of the Cascade volcanoes. Medicine Lake occupies a large caldera. Its different shape relates to the less viscous (more fluid) magma that feeds it.



Photo: Chris Wills

Tectonic Setting

The Cascade volcanic rocks result from the subduction and partial melting of the Gorda tectonic plate in the active Cascadia subduction zone. The Mendocino triple junction marks the southern limit of the subduction zone. Many of the Cascade volcanoes are either active or potentially active.

At Medicine Lake, the magma and style of volcanism is more characteristic in regions undergoing crustal thinning and extension such as in the Modoc Plateau and the Basin and Range provinces. But it also shows characteristics of the Cascades. This is an excellent example of overlap in geomorphic boundary zones.

GeoGem

McArthur-Burney Falls Memorial State Park, like Ahjumawi Lava Springs State Park, is along the boundary between the Cascade Range and the Modoc Plateau geomorphic provinces. The flat-lying lava flows that blanket the park are a few million years old, similar to the flows that cover much of the Modoc Plateau. Like Ahjumawi Lava Springs State Park, much of the water flowing over Burney Falls originates as groundwater that flows mostly in fractures, openings and cavities of the volcanic lava deposits.

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Simplified Geologic Map | Cascade Range Geomorphic Province



