# Coast Ranges Geomorphic Province

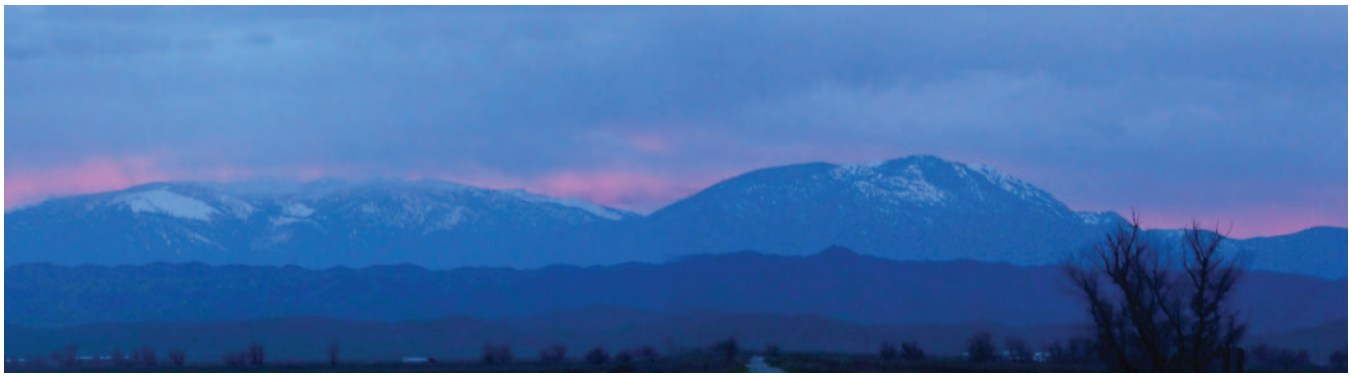


*Photo: Jennifer Lotery*

The **Coast Ranges** are a series of relatively low mountain ranges and associated valleys that trend northwest, subparallel to the active San Andreas Fault. Elevations of the ranges are typically 2,000 to 4,000 feet, sometimes reaching 6,000 feet above sea level. The Coast Ranges are predominantly composed of thick late Mesozoic and Cenozoic (251 million years ago to present) sedimentary rocks. The northern and southern portions of the province are separated by a depression containing the San Francisco Bay.

In some areas of the Coast Ranges, the topography is dominated by irregular, knobby outcrops of the landslide-prone rocks of the Franciscan Complex. In the Sonoma and Clear Lake regions Pliocene and younger volcanic flows, ash deposits, and cones are prominent. In the southern Coast Ranges, granitic and metamorphic rocks of the Salinian block lie to the west of the San Andreas Fault and extend from the southern extremity of the Coast Ranges, north to the Farallon Islands.

## Tectonic Setting

The Coast Ranges record both an ancient period of subduction and a subsequent regime of sideways deformation that persists today.

The rocks of the Coast Ranges (referred to as the Franciscan Complex) formed as a massive pile of rock and sediment in an ancient subduction zone. The bulk of the formation is a sheared matrix with large blocks of various rock types (mélange). Adjacent enclosed blocks exhibit distinctively different metamorphic histories. Pieces of the former subducting oceanic plate, known as the Coast Range ophiolite, are scattered throughout the province.

The San Andreas Fault system, consisting of numerous splays, runs almost the entire length of the Coast Ranges. To some degree, the San Andreas Fault system

has shaped the landscape across the whole province south of the Mendocino triple junction. The movement along the faults for the past 20 million years has been generally strike-slip. The landscape reflects this sideways deformation with local areas of uplift or subsidence often reflected as parallel sequences of linear valleys and ridges.

## GeoGems

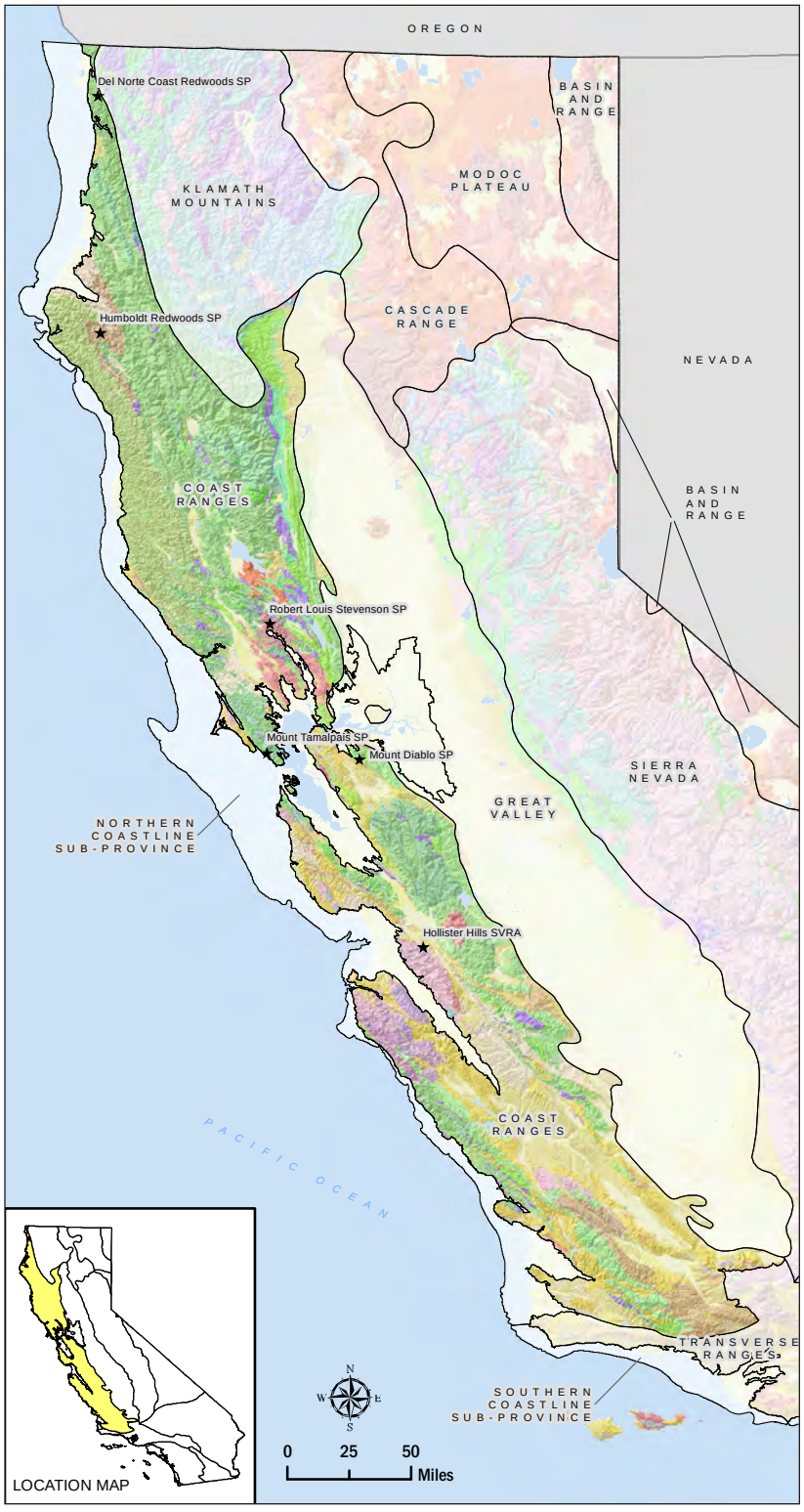
**Del Norte Coast Redwoods State Park** lies in the northernmost portion of the California Coast Ranges inland of the Cascadia Subduction zone where the North American plate plows over the descending Juan de Fuca plate. **Humboldt Redwoods State Park** represents the earthquake-prone region of the Mendocino triple junction where the Cascadia Subduction zone meets with the northern extent of the San Andreas Fault zone.

**Mount Tamalpais State Park** and **Mount Diablo State Park** are localized uplifts associated with the San Andreas Fault system. Inland, the San Andreas Fault figures prominently at **Hollister Hills State Vehicular Recreation Area. Robert Louis Stevenson State Park** illustrates volcanic activity associated with the growth of the San Andreas Fault.

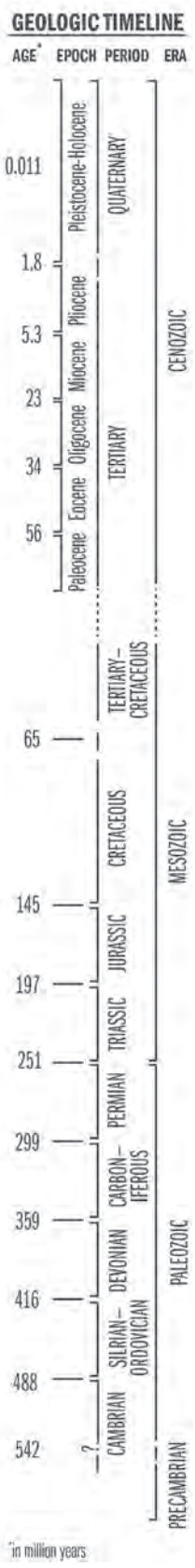
Along the coastline, this sideways deformation is featured at **Salt Point State Park, Fort Ross State Historic Park,** and **Sinkyone Wilderness State Park.**

*Written by Mike Fuller and others, California Geological Survey*

# Simplified Geologic Map | Coast Ranges Geomorphic Province







NOTES:

Prepared by California Geological Survey, Department of Conservation | www.conservation.ca.gov/cgs
for California State Parks | www.parks.ca.gov

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