



Colorado Desert Geomorphic Province



Photo: Cheryl Hayhurst

The Colorado Desert geomorphic province, between the Mojave Desert and the Peninsular Ranges geomorphic provinces, occupies a major boundary zone, the plate boundary. The province is mostly below sea level and is the on-land extension of the Gulf of California. The low-lying arid basin is occupied by the Salton Sea (surface elevation about 245 feet below sea level). Surrounding the Salton Sea are the ancient beach lines and silt deposits of extinct Lake Cahuilla. As a testament to the near-surface tectonic activity, there are several developed geothermal areas in the southern section.

The province hasn't always been so dry. The Colorado River that runs from Colorado and through the Grand Canyon has long delivered its heavy sediment load to the Gulf of California. The precise areas of sediment deposition shifted back and forth over time. Eventually the river delta became large enough to plug the Gulf and exclude the seawater from California. The seawater trapped in this province evaporated. On several occasions the lower Colorado River shifted course and sent water and sediment north of the plug instead of south. This resulted in a series of large freshwater lakes that eventually evaporated.



Photo: Mike Fuller

Tectonic Setting

The mid-oceanic ridge runs the length of the Gulf of California and is a major rift zone between oceanic plates. Based on seismic activity, the rift appears to be advancing northward into the Colorado Desert geomorphic province. The San Andreas Fault system joins into the growing rift in very complex and confounding ways. This is one of the most seismically active places in California. The crust is so thin that geothermal energy is abundant in this very hot, parched place.

GeoGems

Anza-Borrego, being the largest state park, provides three separate GeoGems. **Anza-Borrego Desert State Park** and **Ocotillo Wells State Vehicular Recreation Area** are the GeoGems that represent the Colorado Desert province. They lie along the province boundary with the Peninsular Ranges. Ocotillo Wells and the eastern and southern portions of Anza-Borrego consist of badlands formed in the uplifted, ancient sediments of the Colorado River. Eastern portions of Ocotillo Wells are very flat, where occupied by Lake Cahuilla only 300 years ago.

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Simplified Geologic Map | Colorado Desert Geomorphic Province



