

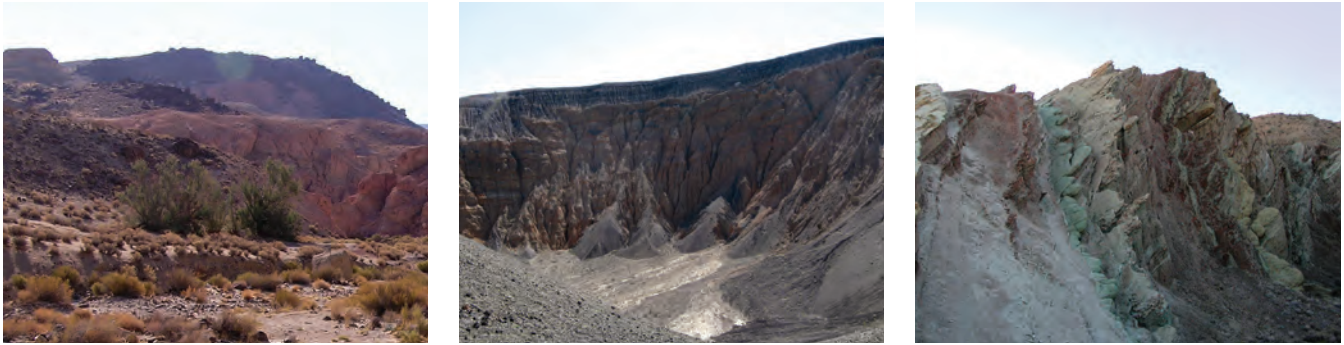


## Basin and Range Geomorphic Province



Photo: Mike Fuller

The Basin and Range geomorphic province is characterized by subparallel, fault-bounded mountain ranges separated by down-dropped basins. Death Valley, the lowest area in the United States, is one of these down-dropped basins. Badwater, the lowest point in Death Valley, lies at 280 feet below sea level. In general, most of the valleys in the Basin and Range are actually elevated, with valley floors lying at more than 3,000 feet above sea level. The northernmost portion of the Basin and Range geomorphic province in California includes the Honey Lake Basin. The Basin and Range province is the westernmost part of the much larger Great Basin that extends across several states. The region is characterized by interior drainage with lakes and playas.



Photos: Will Harris (left), Mike Fuller (center and right)

## Tectonic Setting

The basin and range landscape forms in response to crustal thinning and extension (stretching and pulling apart from deep dynamic forces). California lies along the western edge of the province. For the last 40 million years, the Basin and Range has been stretching from east to west, resulting in tilt block mountains and intervening down-dropped basins. The State of Nevada is actually growing in area as a result of these extensional processes.

## GeoGems

**Mono Lake Tufa State Natural Reserve** and **Red Rock Canyon State Park** are the GeoGems that represent the Basin and Range. Both are located along the boundary with the Sierra Nevada. Mono Lake sits in the westernmost basin of the province below the eastern escarpment of the Sierra Nevada, essentially the westernmost range of the province—although treated as a distinct province. Recent earthquakes show this a very active boundary as the Basin and Range extension moves westward.

Red Rock Canyon lies near the boundaries of two other geomorphic provinces: Sierra Nevada and Mojave Desert. The early history of the Basin and Range province is revealed at Red Rock Canyon State Park. About 20 million years ago, roughly coincident with the birth of the San Andreas Fault system, the Basin and Range began to form. The sediments that deposited in one of the early basins now form the colorful cliffs in Red Rock Canyon.

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



## Simplified Geologic Map | Basin and Range Geomorphic Province

