

THE GREAT BASIN DESERT

The Great Basin Desert lies predominantly in the Intermountain West, a region bounded on the west by the Sierra Nevada–Cascade mountain axis and on the east by the Rocky Mountains. The mid-nineteenth century explorer Captain John C. Fremont perceived the landscape to be a gigantic enclosed basin; convinced by his 1843–44 explorations that the area lacked an outlet to the sea, he named it the Great Basin.

In fact, the name is somewhat misleading in that it suggests a single large basin. Actually, the Intermountain West is composed of 150 basins and approximately 160 discrete mountain ranges. This landscape of alternating mountain ranges and their adjacent basins is the physiographic zone known as the Basin and Range Province.

The Province has valley floors at high elevations, often more than 4000 feet. Protruding from the basins are mountain ranges, which were raised through the process of faulting. Most of the ranges have a north-south orientation, and many have peaks higher than 10,000 feet; several exceed 12,000 feet. This means that in some areas mountain peaks rise 5000 to 6000 feet above the surrounding basins.

The wearing away of the mountains by the inexorable forces of wind and water has filled many of the valleys with deep sediments, often forming broad plains. The low areas of these plains or valleys frequently contain ephemeral lakes, called playas, which seldom contain water except during years of unusually high precipitation.

During the late Pleistocene epoch, beginning about 75,000 years ago and ending 8000 to 12,000 years ago, many of the valleys contained somewhat more permanent lakes. Two of these ancient lakes are especially notable, because at one time or another they covered vast areas, and the sediments derived from them continue to affect the distribution of plants and animals even today. More important, there are existing lakes that originated from these bodies of water. One of the Pleistocene lakes, Lake Lahontan, existed in an area that today includes northwestern Nevada, southern Oregon, and northeastern California. Lake Lahontan once covered 8495 square miles and was 886 feet deep. Today it persists mainly in a few scattered remnants, including Pyramid and Walker lakes, in Nevada. Another lake, Lake Winnemucca, existed until 1938; however, a diversion dam built for irrigation caused Lake Winnemucca to go dry.

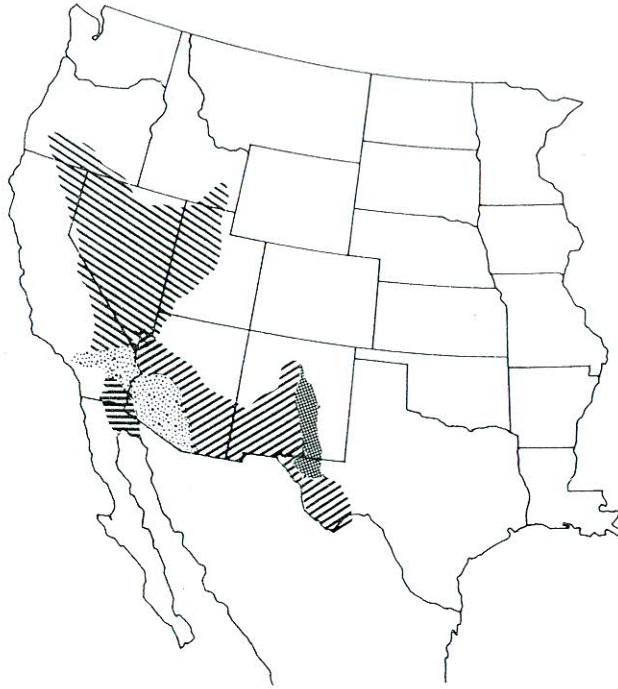
Pyramid Lake remains a viable, only slightly salty, lake covering an area approximately thirty miles long and seven miles wide. A form of trout, the Lahontan Cutthroat, occurs in the lake. This species is a relict from the time when it was the only predatory fish in Lake Lahontan. The Lahontan is the largest cutthroat known; a specimen taken in 1925 from Pyramid Lake weighed forty-one pounds. Other fish, native and introduced, occur in the lake and are the source of food for a large American White Pelican colony on Anaho Island, at the southeastern end of the lake.

The second large Pleistocene lake occupied more than 20,000





Lahontan Cutthroat
Salmo clarki henshawi

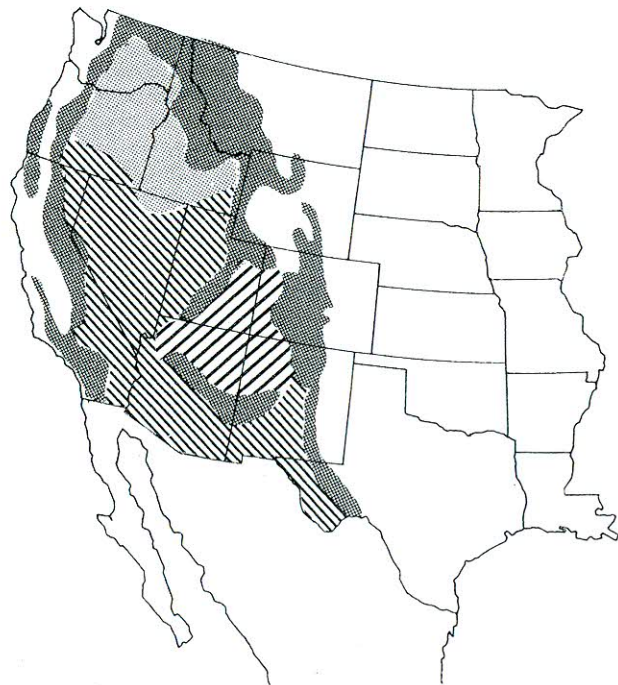
Physiographic Sections of the Basin and Range Province

-  Great Basin
-  Sonoran Desert
-  Salton Trough
-  Mexican Highland
-  Sacramento



Physiographic Provinces of Deserts and Surrounding Areas

-  Mountains
-  Columbia Plateau
-  Basin and Range
-  Colorado Plateau



Brine Shrimp *Artemia salina*

square miles in Utah, Nevada, and Idaho. This body of water, Lake Bonneville, was approximately 1083 feet deep. The remainders of the shores of Lake Bonneville form a series of terraces at roughly 5150 feet in elevation, and can easily be seen today along the Wasatch Mountains of Utah. The remnants of Lake Bonneville include the Great Salt Lake and Utah Lake in northern Utah, and Sevier Lake, a large playa in west-central Utah.

The Great Salt Lake

Since 1851, the date from which accurate records have been maintained, the Great Salt Lake has experienced dramatic changes in water level. Until recently, the lake surface had fluctuated between a high elevation of about 4211 feet (in 1873) and a low of 4191 feet (in 1963). Currently the water level, although varying, stands at 4208 feet. When the water is at an elevation of 4200 feet the lake covers an area that is about eighty miles long and thirty miles wide, and has a maximum depth of slightly over thirty feet.

Although the Great Salt Lake is too salty for fish, a variety of other organisms occur and give it its characteristic colors. Until the summer of 1984, the northern and southern portions of the lake were separated by a railroad causeway. The northern portion was much more saline (about twenty-seven percent solids by weight) than the southern portion (about thirteen percent solids by weight), and its characteristic bacteria and algae gave the water a pinkish color that varied in hue. The southern portion of the lake was dominated by blue-green algae (*Dunelilla*), which imparted blue and green tints to the lake's waters. In 1984, the causeway was breached as a flood control measure. The long-range physical and biological changes that will be caused by the breaching are not yet known. Brine shrimp exist in great abundance in some parts of the lake. These small crustaceans are harvested and sold as fish food to the home aquarist. Of more commercial significance is the extraction of various chemicals from the saline waters. The sale of magnesium, chlorine, sodium chloride, potassium sulfate, as well as by-products resulting from the extraction of these chemicals, form a multimillion-dollar industry in Utah. Until the recent floods of 1983 and 1984, and the consequent rise in the lake's level, the north end of the lake was a birder's paradise. The area was dominated by vast freshwater marshlands, which had formed behind extensive dike systems holding out the salty water of the lake. Dozens of species of waterfowl and shorebirds nested in this area and congregated in enormous numbers. Because the extent of flood damage has not been entirely assessed, the ultimate fate of the area is unclear.

Plant Life

The Great Basin Desert contains fewer plant species and life forms than do other North American deserts. The plentiful native annual plants found in our hot deserts are lacking here. Also noticeably absent are the many forms of cacti, agaves, and yuccas. Additionally, watercourses are not lined with

