

providence mountains

state recreation area

MITCHELL CAVERNS
NATURAL PRESERVE



Providence Mountains State Recreation Area, which includes Mitchell Caverns Natural Preserve, is located about eighty air miles east of Barstow in a vast, arid, sparsely populated portion of the eastern Mojave Desert. Although it is only a small segment of the vast Mojave, the Providence Mountains provide outstanding examples of the variety of environments to be found in the desert. From lowland sage to the piñon and juniper gracing the mountain peaks, you see the changing patterns of this dynamic land. The 5,900-acre recreation area is situated on the eastern slope of the Providence Mountains where the land sweeps up from Clipper Valley to high, heavily weathered rhyolite crags ranging to 7,171 feet in elevation.

Park headquarters at 4,300 feet overlooks some three hundred square miles of desert valleys and mountains. Due in large part to the elevation, temperatures in the park are usually moderate the year around, though the months from October to May are favored by visitors. The caverns, filled with intricate limestone formations, remain at a nearly constant 65 degrees. El Pakiva and Tecopa Caverns are open to the public and have been equipped with stairs, railings, and special lighting to facilitate the guided tours conducted daily from September 15 through June 15. Weekday tours start at 1:30 p.m.; weekend and holiday tours start at 10:00 a.m., 1:30 p.m. and 3:00 p.m. Special tours may be arranged for schools and other groups by contacting the park staff.

Entry to Winding Stair Cave, which goes down 320 feet in a series of free-fall drops that vary from 50 to 180 feet, is restricted to experienced spelunking groups that have obtained a special permit.

Facilities

There are only six primitive campsites on the flat below area headquarters, but much of the surrounding area is within the Bureau of Land Management's Piute Planning Area and is open to camping. When you visit, bring water (park supplies are very limited) as well as extra food and gasoline as a normal precaution when traveling in the desert. In the winter and spring, be prepared for cold, wet, and very windy weather and



even occasional snow. Nearest services are in Essex (23 miles) and Golfs (33 miles).

Other Features of the Area

You can take the self-guiding Mary Beal Nature Trail near the Visitor Center to become acquainted with some of the plants of this desert landscape. For those who would explore further there is a trail up into the Providence Mountains, starting at the Visitors Center. For a scenic view of the desert valley, the Niña Mora Trail leads east of the campground to a ridgecrest above Cooks Well.

The desert is a sun-scorched land with broad valleys filled with creosote bush and cactus; boulder-strewn washes which cut deep into the alluvial fans that spread from the base of piñon-clad mountain ranges. At first glance the landscape may seem barren and desolate, but a closer look reveals a complex interaction between plants and animals.

Along with the drought-resistant single-leaf piñon pines there are junipers and scrub oaks. Perennials such as mormon tea, cliff rose, squawberry and blue sage share the upland areas with barrel cactus, Mojave and banana yucca, cholla (pronounced "choh-yah") and many others. Depending on rainfall the spring and early summer wildflower display is usually rich and varied.

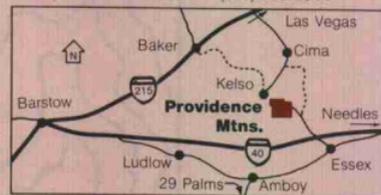
Wildlife includes numerous antelope, ground squirrels, cottontails and jackrabbits, badgers, ringtail cats, bobcats, lizards, snakes and other small animals. Bighorn sheep are seen occasionally, as are the extremely shy wild burros. Coyotes, gray foxes and other small predators



also live here. Gambel's quail, piñon jays, white crowned sparrows, roadrunners and the noisy cactus wren are just a few of the permanent residents while a wide variety of migrating finches, warblers and orioles can be seen in April and May.

The state park system holds in trust for generations yet unborn a small but very valuable portion of this state's rich heritage — your heritage. Help protect it for your children — and theirs.

Providence Mountains
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**MOJAVE RIVER
NATURAL
HISTORY
ASSOCIATION**

Special Thanks to:
Aline McDonald
Park Interpretive Specialist

History

Archeological work in the caverns turned up the bones of a Pleistocene ground sloth, one of the prehistoric animals that apparently ranged this area ten to fifteen thousand years ago. Smoke-blackened walls and hidden caches of food and tools indicate that the Chemehuevi Indians used the caverns for perhaps five hundred years, at least on a seasonal basis, while hunting for game. They also collected the nuts of the piñon pine and used many desert plants for food or medicine.

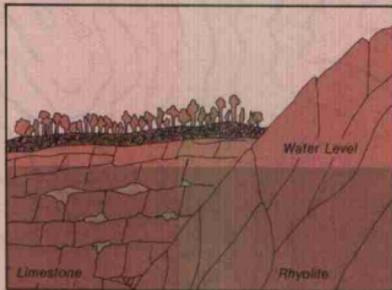
The first European to visit this part of the desert, Father Francisco Garces, crossed the Mojave in June 1776 on his way to San Gabriel Mission. Fifty years later, Jedediah Smith led his party of fur trappers along the same route into California.

In the early 1860s the U.S. Army built a wagon road, the Mojave Road, from the port of Wilmington to Fort Mojave on the Colorado River. Camps were established at springs approximately one day's travel apart. Then, after the Civil War, silver was discovered in the vicinity, and prospectors and miners began to arrive. A number of mines were established that operated until the silver market crash of 1893.

In 1929, while prospecting for silver, Jack Mitchell became fascinated with what were then called the "Providence" or "Crystal" Caves, and in 1932 he closed down his business in Los Angeles to move to the desert. For a time he worked at various silver-mining projects, but his real interest was in the caverns and their tourist potential. He built a road and several stone houses, which are now used as area headquarters. Jack and his wife, Ida, provided food, lodging, and guided tours of the caverns. Famous for his tall tales, Mitchell also gave the caverns their present names, El Pavika and Tecopa, after a Shoshonean chieftain.

In 1954 the State of California purchased 97 acres from the Mitchell family. A grand opening celebration was held in 1959. Improvements over the years to trails and the caverns themselves have made Mitchell Caverns accessible to thousands of visitors every year.

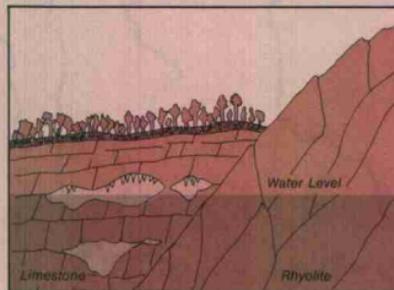
how mitchell caverns were formed



Phase I

The story of cavern formation starts some 250 million years ago at the bottom of an ancient ocean. As vast changes took place on the surface of the earth, this area was alternately dry and covered by broad shallow seas. Great masses of simple shells and plant material accumulated at the bottom of these seas; and then, as the centuries went by, natural chemical processes slowly converted these lime-rich deposits into primeval ooze. Still later the ooze was pressed and compacted into limestone rock.

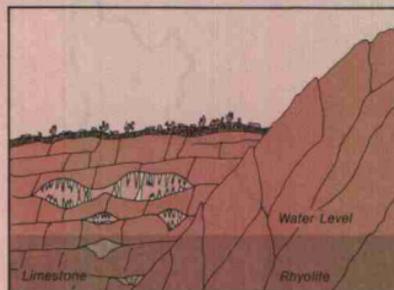
As the earth's surface continued to shift and buckle, new mountain ranges were thrust upward and the limestone deposits were lifted high above the ocean floor. As the deposits were uplifted, they were also tilted and cracked by the enormous pressures that were at work. These cracks made it possible for slowly-moving underground water to seep into the limestone and begin the process of cavern formation.



Phase II

Roughly 12 million years ago there was a period of abundant rainfall and the surface of the earth above the limestone deposits was covered with a luxuriant rain forest. Rainwater trickled down through thick layers of humus, absorbing carbon dioxide from decomposing vegetable matter. A weak solution of carbonic acid was formed, and as this dissolving agent passed through the layered beds of tilted limestone it expanded little cracks and pockets into large cavities that eventually joined to form great water-filled subterranean chambers and passageways.

As climatic conditions changed once again and rainfall became less plentiful, the water table in this area began to fall until the caverns were left empty. By this time millions of years had been involved in forming the caverns, but still more thousands of years would be required to ornament them with the intricate formations that fascinate visitors today.



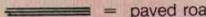
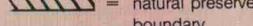
Phase III

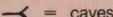
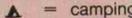
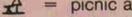
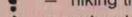
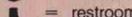
As the lime-filled, acidic water reached the now dry caverns and came into contact with air, carbon dioxide escaped from it just as when the cap is removed from a bottle of soda pop. Then the water could no longer retain all of its dissolved limestone, which it began to deposit in the form of calcite crystals. Each drop of water falling from the cavern ceiling left behind a tiny stain of calcite. Over the centuries countless drops of water slowly fashioned the beautiful underground formations known as speleothems — stalactites growing downward from the ceiling, stalagmites forming on the floor and building upward, flowstones and erratics.

The abundant rainfall slowly decreased and the area was transformed into desert. Today the caverns are dry and all formation within them has stopped. But they continue to change, responding to barely perceptible shifts in temperature and humidity. They are slowly weathering and, like the ancient ocean, will eventually — thousands of years hence — disappear.

providence mountains

state recreation area

-  = paved road
-  = dirt road
-  = dry wash
-  = trail
-  = natural preserve boundary

-  = caves
-  = camping
-  = picnic area
-  = hiking trail
-  = nature trail
-  = view point
-  = restrooms

0 1,000 2,000 3,000

SCALE IN FEET: 1:12,000
CONTOUR INTERVAL: 200 FT.

