# Lava Beds

National Monument
California

National Park Service
U.S. Department of the Interior

Snow-covered Schonchin Butte

## A Turbulent Past

Man's activities in this rugged landscape have been nearly as violent as the natural forces that created it. For a million years the volcano has spewed forth lava, gases, and cinders, creating what seems to be an inhospitable landscape. Yet the youngest cinder cones—1,000 years old—are covered by vegetation that provides food and shelter for wildlife. For centuries this area was home to the Modoc Indians, who hunted in the valleys and mountains, fished in the rivers and lakes, and used the tules (reeds) that grew around the lake to make their homes, boats, and other items. Their way of life was changed forever by the arrival of settlers in the 1850s. After repeated confrontations and much bloodshed, the Bureau of Indian Affairs negotiated with all the Klamath bands in October 1864. The settlers were relieved, but the negotiations were disastrous for the Modocs. They were asked to give up their homeland and to live on a reservation with bands who were their traditional enemies. Finally, the Modocs agreed to try living on the reservation, but within a few months they began to leave. They returned to their old homes saying that they wanted a reservation for themselves on their ancestral land. Even more Modocs left the reservation in 1867.

By late 1872, the U.S. Army was ordered to return the Modocs, by force if necessary, to the reservation. On the morning of November 29, 1872, an Army patrol went out to bring in the Indians, but fighting broke out. Initially victorious, the Modocs, under the leadership of Captain Jack, drove off the troops and sought safety in the lava beds, where for almost five months 52 warriors held off a growing army, eventually 20 times larger. An effort to end the war by negotiation ended in even more bloodshed. By late May almost all the Modocs had been captured, and on June 1, 1873, Captain Jack surrendered. On October 3, 1873, he and three other Modoc leaders were hanged. The remaining members of Jack's band were sent to a reservation in Oklahoma.

Library of Congress

Interest in the Modoc War was widespread. The engraving (above) of the battleground is from the *Illustrated London News*. The photograph (below left) bears out the rough nature of the terrain. The three men (below center) took part in the first battle at Lost River. Gillem's Camp (below right) was near the shores of Tule Lake.

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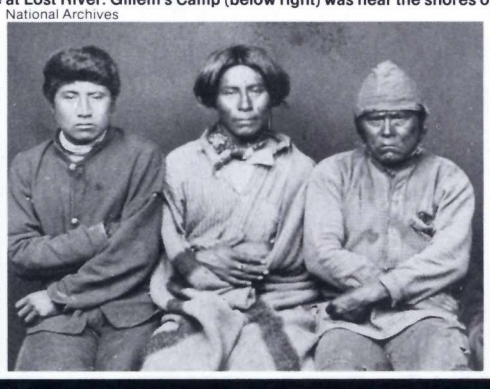

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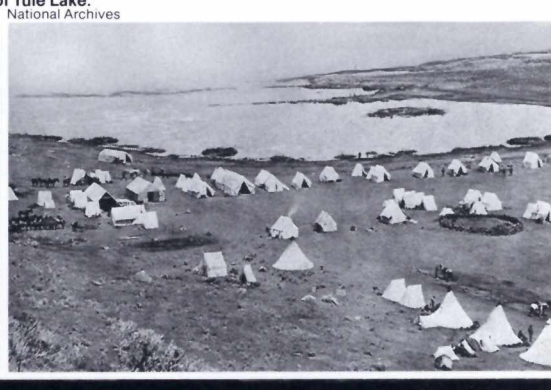


## A Natural Wealth

At first glance the land looks barren, covered by scrawny grasses and clumps of sagebrush. Closer examination reveals much more. In the north end of the monument, which is also the lowest in elevation, grasslands dominate and few trees are to be seen. Farther south, and higher, the vegetation gradually changes as more and more junipers intrude on the grasslands. In the extreme southern reaches, the grasslands disappear altogether, and the junipers give way to a pine forest.

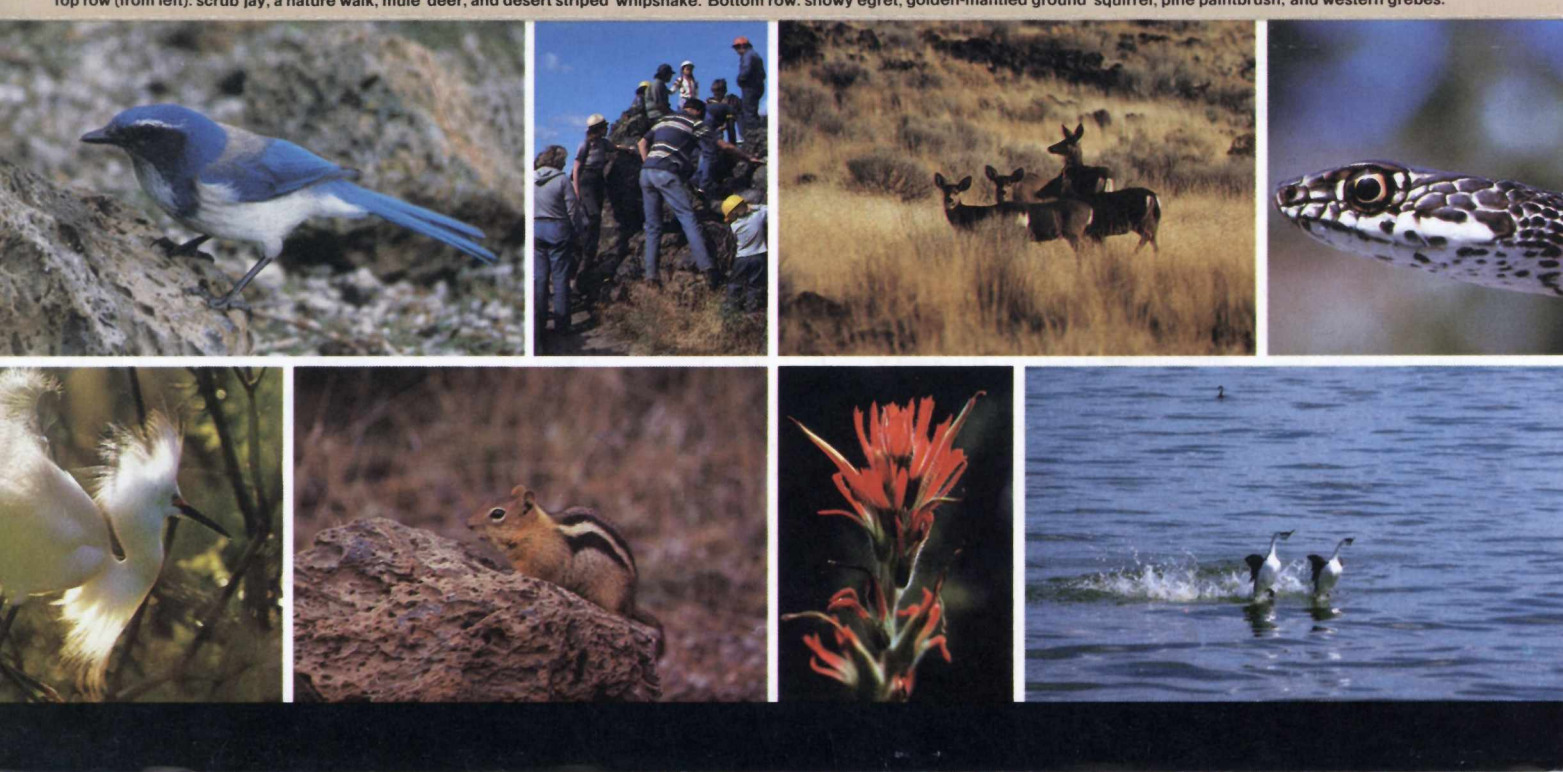
All of this land is volcanic in origin and making soil that can support plantlife takes a long time. Once established, the vegetation provides shelter, food, and refuge for small animals who in turn are a source of food for predatory animals and birds of prey. In the northern grasslands, squirrels, kangaroo rats, yellow-bellied marmots, jackrabbits, California quail, meadowlarks, and the rare sage grouse can be found. During the winter, mule deer come from the other side of the volcano to feed in the monument, where snowfall is less and does not last as long.

An unusually large concentration of raptor birds dwells in the monument and throughout the Klamath Basin. Several factors make this environment favorable. The area is home to many rodents—rats, mice, squirrels—for the birds to feed upon. The cliffs overlooking Tule Lake also provide the kinds of nesting areas that these birds require, for the cliffs are inaccessible to nearly all predators and strategically positioned so the birds can scan the countryside and take quick notice of any and all activity. Chief among the raptors is the bald eagle that winters here in numbers greater than any place outside Alaska. Twenty-four species of hawks, falcons, owls, and other birds of prey can be seen in the monument. Since rodents are their chief form of food, the birds are an important check on what could easily be an infestation with the attendant problems of disease and the devastation of crops in the surrounding countryside.

The semiannual migration of birds along the Pacific Flyway is a truly spectacular occurence in this area. Waterfowl nest on the lakes of the Klamath Basin, and in late spring the waters are covered with thousands of ducklings, goslings, and the offspring of other waterfowl. Despite the magnificence of the springtime numbers, however, the fall gathering is even more remarkable, for approximately 1 million ducks and half a million geese stop here to rest and feed on their way south, some birds coming from as far away as Siberia. There are times when the sky is literally darkened by the arrival of a very large flock of birds, an increasingly rare event in North America. The road from the northeast entrance into the monument is parallel to the common boundary of the monument and the Tule Lake Unit of the Klamath Basin National Wildlife Refuge. From vantage points along the way you can watch more than 20 species of ducks, plus many varieties of geese, grebes, pelicans, herons, cormorants, gulls, coots, terns, avocets, and other water birds.

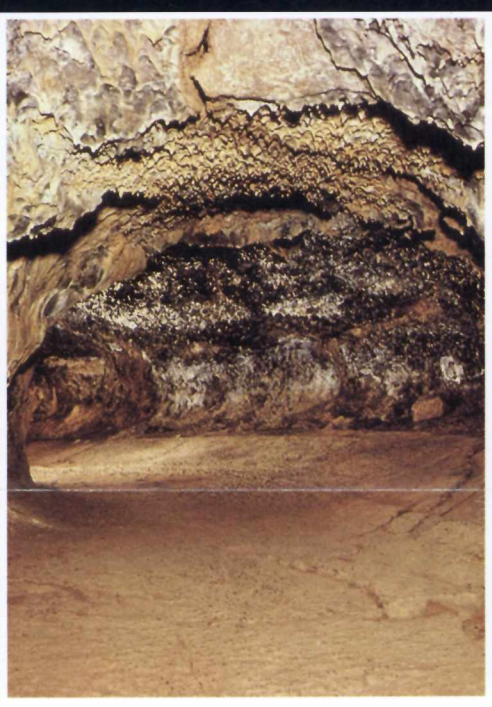
Enjoy your visit and the variety—both in history and natural wonders.

Top row (from left): scrub jay, a nature walk, mule deer, and desert striped whipsnake. Bottom row: snowy egret, golden-mantled ground squirrel, pine paintbrush, and western grebes.



# Lava Beds

**Regulations**
- All natural and historical objects must be left in place and undisturbed.
- Pets must be kept on a leash. They are not permitted on trails or in caves or public buildings.
- Hunting, gathering specimens, and collecting souvenirs are prohibited.
- Do not feed or molest wildlife.
- All weapons must be broken down or cased.
- Base hunting camps are not permitted.
- Be careful with all fire, including cigarettes, and make sure your campfire is out and all embers are extinguished.
- Vehicles are restricted to roads.



**Collapsed roofs, crustose lichens, perfectly formed tubes, and year-round ice are just samples of what you can expect to find in the lava caves. Exploring them can be exciting, if you take the proper precautions and use common sense. Make sure that you wear something on your head; hard hats are for sale in the visitor center. Wear hard-soled shoes, because the lava can be sharp. And carry at least three different sources of light; free lights are available in the visitor center. Do not explore the caves alone.**

## A Hidden World

This area of northern California has a history of volcanism. The legacy of those times—and it should not be assumed that all volcanic activity is a thing of the past—is all around. Cinder cones, shield volcanoes, strato-volcanoes, lava tubes, both pahoehoe (smooth and ropy) and aa (rough and clinker-like) lava, spatter cones, and chimneys are all a part of this legacy. Perhaps one of the most striking volcanic features in Lava Beds is the phenomenon of lava tube caves.

Lava tubes are not particularly unusual in a volcanic area nor is their formation difficult to explain or understand. More than 300 caves have been counted within the monument, making this formation an especially prominent feature.

When lava pours from a volcano it is hot, about 1800°F. The outer edges and surface of the flow cool rapidly, however, and begin to slow down and harden. This outside layer acts as insulating material while the rest of the flow beneath it remains hot and fast-moving. The flow continues on, somewhat like a river that keeps on flowing even though the surface has frozen over. When the eruption stops and the river of lava drains, a tunnel or tube—the outer shell—is left. Lava tubes can lie atop one another, the result of subsequent flows. Many of the tubes here were formed about 30,000 years ago after an eruption at Mammoth Crater on the southern boundary.

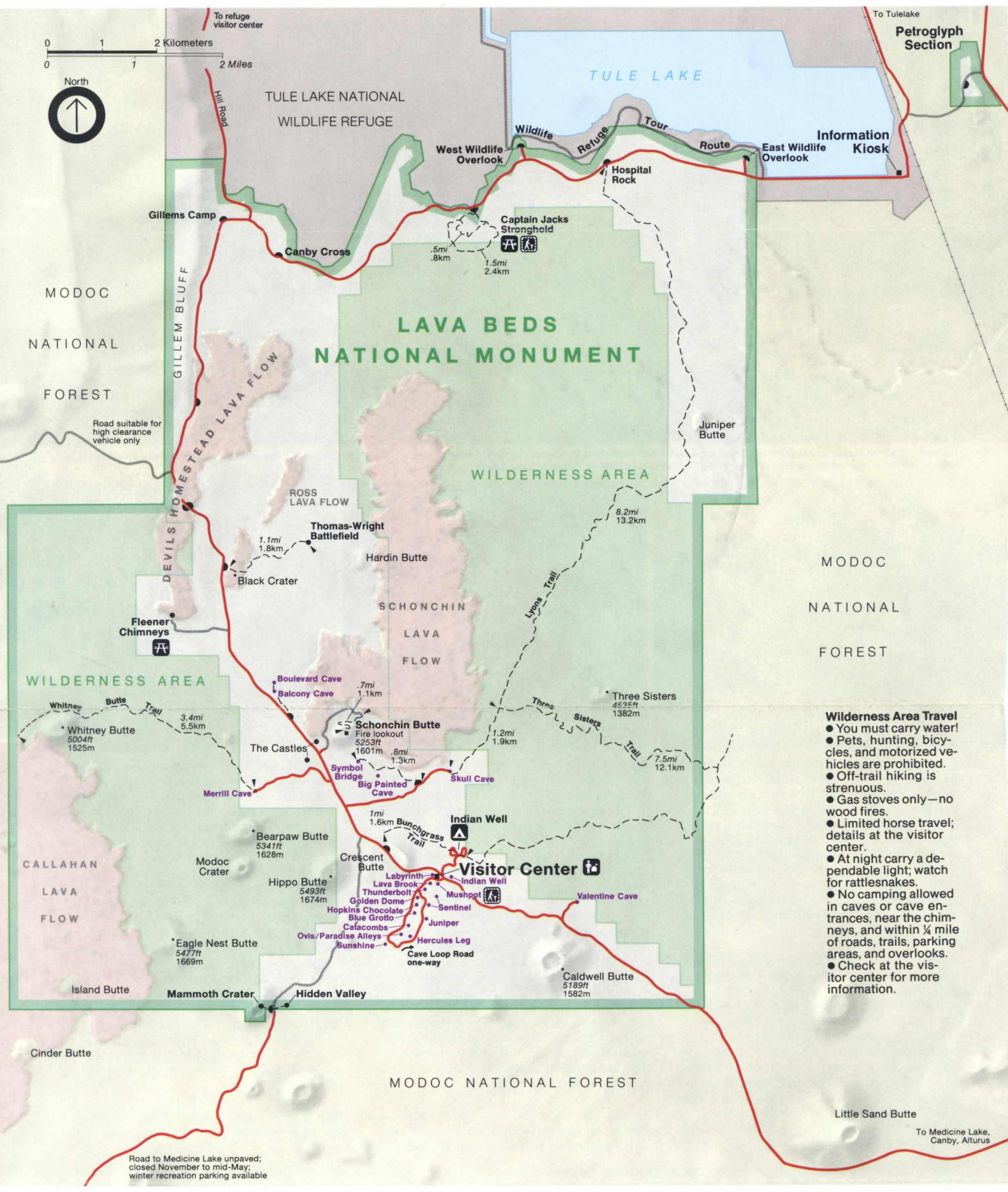
Sometimes portions of a tube's roof may collapse as it cools. These openings allow plants, animals, and precipitation to enter and create a world of life within. A few of the tubes are ice caves; rain collects in them and the air temperature remains constantly below freezing. Even when temperatures outside reach 100°F, lava is such a good insulator that the air remains below freezing and ice formations can be found year round.

Many of the caves were first explored and named by J.D. Howard, a local miller. The names he painted on the walls are still visible in most of the caves. In many of the caves, trails have been laid out and ladders installed to make access easy. Many of these caves lie off Cave Loop Road, southwest of the visitor center. Mushpot Cave, an extension of the visitor center, is the only cave in which lights have been installed.

**Because of the fragile cave environment, the following are not permitted in the caves: food, smoking, pets, and light sources that are not battery-powered.**

**Before entering any cave check at the Visitor Center for information on specific caves and for general safety information.**

Cave Entrance · Trail · Turnout · Unpaved road · Lava flow · Ranger station · Interpretive trail · Picnic area · Campground



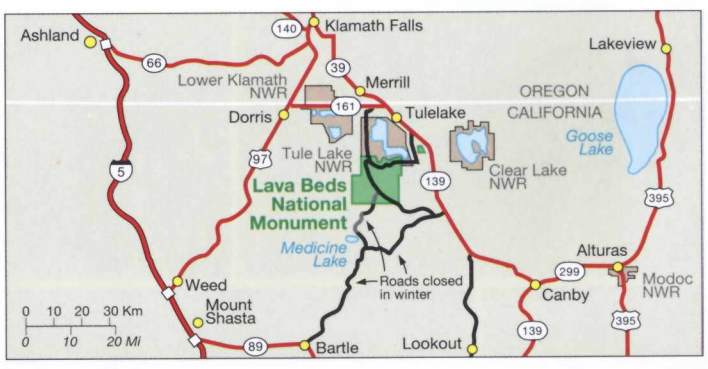

**Wilderness Area Travel**
- You must carry water!
- Pets, hunting, bicycles, and motorized vehicles are prohibited.
- Off-trail hiking is strenuous.
- Gas stoves only—no wood fires.
- Limited horse travel; details at the visitor center.
- At night carry a dependable light; watch for rattlesnakes.
- No camping allowed in caves or cave entrances, near the chimneys, and within ¼ mile of roads, trails, parking areas, and overlooks.
- Check at the visitor center for more information.

## Things You Need to Know

**Tourist Information**
Food, lodging, and auto services are available in Tulelake and Klamath Falls. Near the visitor center a 40-unit campground for tents, pickup campers, and small trailers is open all year. There are no hookups. Water is available during the summer. From September 15 to May 15 water is available at the visitor center. The Fleener Chimneys and Captain Jacks Stronghold picnic areas have no water; open fires are prohibited.

In the summer rangers conduct walks, cave trips, and campfire programs. Check bulletin boards and the visitor center for schedules. Elevations in the park range from 4,000 to 5,700 feet. Cold weather is possible any time of the year, and snow has been recorded in all months. Winter daytime highs average 40°F; lows average 20°F, and fog is frequent. Summer daytime highs average 75° to 80°F; lows average 50°F. Summer precipitation averages 1.25 inches per month.

**Safety**
- Due to soft road shoulders and fragile roadside plant species, vehicle parking is allowed only at designated parking lots and turnouts. If you must stop because of animals, do not pull off the road.
- There is a large population of ground squirrels and other rodents here. They can harbor fleas that carry a bacterium which causes Bubonic Plague. Avoid all rodents.
- Deer are abundant; at dawn and dusk many can be found on roads. Be alert when you are driving. If deer approach you or your vehicle, do not feed or touch them.
- Owls often sit on the roads, so be alert for them at night.
- When exploring caves you will encounter a number of hazards, such as low ceilings, steep trails, and uneven footing. Take more than one light source and wear protective headgear. Cave temperatures are cool; wear ample clothing.
- Rattlesnakes are found throughout the monument; do not put your hands and feet in places where you cannot see. Snakes are an important and protected part of this ecosystem.




If you have questions, please ask any park ranger. For information write: Superintendent, Lava Beds National Monument, Box 867, Tulelake, CA 96134, or call (916) 667-2282.

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