

Lava Beds

National Monument
California

National Park Service
U.S. Department of the Interior



A Turbulent Past

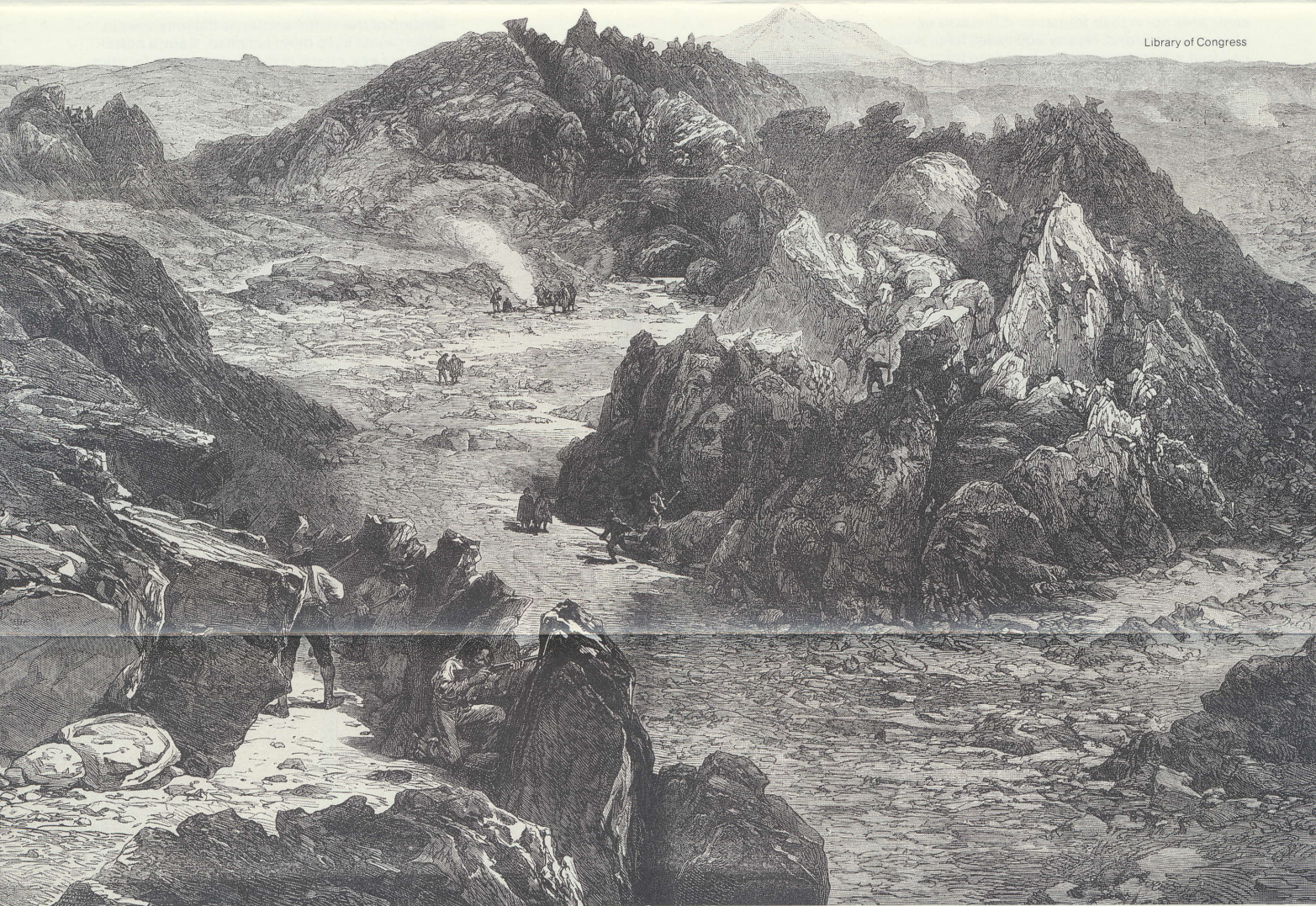
Man's activities in this rugged landscape have been nearly as violent as the natural forces that created it. For a million years the volcano has spewed forth lava, gases, and cinders, creating what seems to be an inhospitable landscape. Yet the youngest cinder cones—1,000 years old—are covered by vegetation 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.



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 park, which is also the lowest in elevation, these grasslands dominate and few trees are to be seen. Further south, and higher, the vegetation gradually changes as more and more junipers intrude on the grasslands. Eventually, in the extreme southern reaches of the park, 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 on the grasses in the park, where snowfall is less and does not last as long. Indeed, so many deer spend the winter in the park that watching deer

is a popular pastime for visitors and local people.

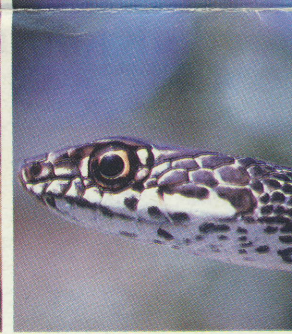
An unusually large concentration of raptor birds dwells in the park and throughout the Klamath Basin. Several factors make this environment favorable. This area is home to many rodents—rats, mice, squirrels—for the birds to feed upon. The cliffs at the northern edge of the park overlooking Tule Lake Sump provide the kinds of nesting that these birds require. Nests are inaccessible to nearly all predators and strategically positioned so the birds can scan the countryside and take quick notice of any 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 park. 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 outside the park.

For some, the most spectacular aspect of the wildlife in the area surrounding the park is the semiannual migration of birdlife along the Pacific

Flyway. Many 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 spectacular, for approximately 2 million ducks and 1 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 park is parallel to the common boundary of the park 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 birds.

Enjoy your visit to the park and the variety—both in history and natural wonders—that it has to offer.

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 commonsense. Make sure that you wear some-

thing 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, for this region is considered active—is all around. Cinder cones, shield volcanoes, strato-volcanoes, lava tubes, flows of 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. Nearly 200 caves have been counted within the park, making these formations an especially prominent feature.

When lava pours from a volcano it is extremely 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 ceases, a tunnel or tube—the outer shell—is left. The number of tubes in any one flow varies. Lava tubes lie atop one another, the result of subsequent flows. The most recent tubes in the park were formed about 30,000 years ago from lava flows that came from Mammoth Crater on the park's southern boundary.

During the cooling process, portions of the tubes' roofs collapse. These openings make it possible for plants, animals, and precipitation to enter the caves and create a world of life within them. A few of the tubes are ice caves; rain collects in them

and the air temperature remains fairly constant—below freezing. Even when temperatures reach 100°F outside, lava is such a good insulator that the air remains cold and ice formations can be found the year round.

Many of the caves were first explored and named by J.D. Howard, a local rancher. 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 park headquarters. *Mushpot Cave*, an extension of the visitor center, is the only cave in which lights have been installed. Before entering any cave, check at the visitor center for information on specific caves and for general safety information.

Lava flow

Trail

Cave entrance

Ranger station

Campground

Unpaved road

Overlook

Interpretive trail

Lookout tower

Picnic area



0 1 Kilometer 2

0 1 Mile 2

Petroglyph Section

TULE LAKE SUMP

TULE LAKE NATIONAL WILDLIFE REFUGE

Dike Road Information Kiosk

Northeast Entrance

Gillem's Camp
US Army Headquarters
in Modoc War, 1873

Canby's Cross

West Wildlife Overlook

Wildlife Refuge

Tour Route

Hospital Rock

Captain Jack's Stronghold

.5 mi loop
1.5 mi loop

MODOC NATIONAL FOREST

GILLEM'S BLUFF

WILDERNESS AREA

DEVIL'S HORSESTEAD LAVA FLOW

ROSS LAVA FLOW

Thomas-Wright Battlefield
April 26, 1873

Black Crater

SCHONCHIN LAVA FLOW

MODOC NATIONAL FOREST

Fleener Chimneys

WILDERNESS AREA

Boulevard Cave
Balcony Cave

Fire Lookout
Schonchin Butte
1601m
5253ft

THREE SISTERS
1382m
4535ft

WHITNEY BUTTE
1525m
5004ft

The Castles

Symbol Bridge Cave

Skull Ice Cave

Merrill Ice Cave

BEARPAW BUTTE
1628m
5341ft

Big Painted Cave

Indian Well Campground

CRESCENT BUTTE

Visitor Center

BLACK (CALLAHAN) LAVA FLOW

MODOC CRATER

HIPPO BUTTE
1674m
5493ft

Labyrinth
Lava Brook
Thunderbolt
Golden Dome
Hopkins Chocolate
Blue Grotto
Sentinel
Catalcombs
Paradise Alley
Ovis
Sunshine
Hercules Leg
One-Way
Cave Loop Road

Valentine Cave

EAGLE NEST BUTTE
1669m
5477ft

CALDWELL BUTTE
1582m
5189ft

Southeast Entrance

MODOC NATIONAL FOREST

CINDER BUTTE

MAMMOTH CRATER

HIDDEN VALLEY

To Canby and Alturas

To Medicine Lake

Burnington Northern Railroad

Park Information

Park headquarters for Lava Beds National Monument is 30 miles from Tulelake, Calif., and 58 miles from Klamath Falls, Ore. Watch for signs on Calif. 139, 5 miles south of Tulelake and 26 miles north of Canby. Airlines serve Medford and Klamath Falls where rental cars are available.

Tourist Information

Food, lodging, gasoline, oil, and auto repairs are available in Tulelake and Klamath Falls. Near the visitor center a 40-unit campground with sites suitable 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

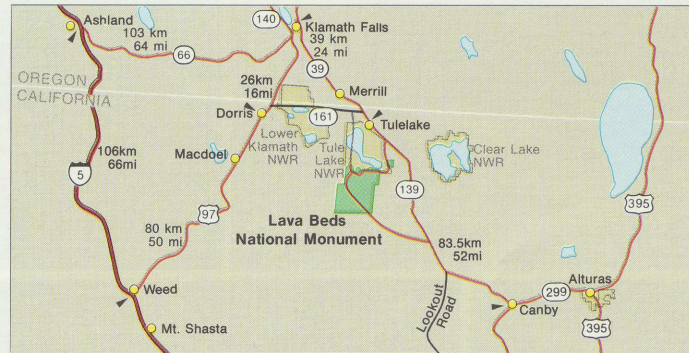
the visitor center. The Fleener Chimneys picnic area has no water, and open fires may not be built there.

In the summer park rangers lead daily walks and cave trips and conduct campfire programs. Check bulletin boards or ask at the visitor center for the schedule. The park ranges in elevation from 4,000 to 5,700 feet, and at these heights cold weather is possible any time of the year. Snow has been recorded in nearly all months. In the winter daily high temperatures average around 40°F; lows are 20°F. Fog is frequent throughout the winter. Summers are moderate, with daytime highs averaging from 75° to 80°F and lows about

50°F. Precipitation during the summer averages 1.25 inches or less per month.

Safety

- There is a large population of ground squirrels and other rodents in the park. Rodents are known to harbor fleas that carry a bacterium that causes Bubonic Plague. Leave all rodents alone.
- In the winter large numbers of deer are in the park, and especially at dawn and dusk they can be found on the roads. Be alert when you are driving.
- Owls, too, often sit on the roads, so be alert for them at night.
- When you are exploring caves, you will encounter a number of potential hazards. Watch out for low ceilings, steep trails, and



uneven footing. Take more than one light source and wear protective headgear. Cave temperatures are cool, so wear adequate clothing. Get a permit from a park ranger to go into a cave other than those shown on the

map in this folder.

- Rattlesnakes are found throughout the park; 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 or comments, ask any park ranger. We are here to help you. For further information, write to: Superintendent, Lava Beds National Monument, Box 867, Tulelake, CA 96134.