

# Lava Beds

NATIONAL MONUMENT

*California*



# Lava Beds

## NATIONAL MONUMENT

This region of comparatively recent lava flows, with their attendant lava tubes, or caves, and related volcanic features, was the principal scene of the Modoc Indian War of 1872-73, the last important war of its kind fought in California.

### VOLCANIC FEATURES

Centuries ago, flaming volcanoes in northeastern California erupted masses of molten basaltic lava, which spread over the more level land below in rivers of liquid rock. Upon cooling, they formed one of the interesting regions in California.

Even though from a distance the area looks fairly level, it slopes downward to the north, and symmetrical cinder cones with craters are scattered over its surface. From these cones extend dark, winding trenches that mark the collapsed roofs of the main distributing lava tubes. The altitude of the monument ranges from about 4,000 to 5,000 feet above sea level. In the distance, on the Tule Lake peninsula, are three blocks of Columbia River basalt; the northernmost one rises 1,000 feet in an almost sheer precipice; the center block is the Petroglyph Section of the monument.

It is not until you come close to the lava beds that you notice the rugged nature of the terrain. Throughout the area are yawning chasms, some of them 100 feet deep; masses of lava cooled into a great variety of shapes; and caves large and small, of which more than 200 have been discovered.

The smooth cinder cones are conspicuous in the monument. These miniature volcanoes rise 100 to 300 feet from the adjacent lava. Schonchin Butte, named after the famous war chief of the Modocs, is the largest of these cones and is composed entirely of cinders. There are about 17 cinder cones in the monument, most of them in the southern part.

*The National Park System, of which this area is a unit, is dedicated to conserving the scenic, scientific, and historic heritage of the United States for the benefit and enjoyment of its people.*

Of equal interest are the spatter, or dribble, cones on the lava flows. Some of these form large tubelike structures resembling chimneys, and others have deep holes extending down into the earth. One such hole at Fleener Chimneys, northwest of headquarters, is 3 feet in diameter and more than 100 feet in depth.

Eruptions within the monument were of two general types—gaseous and fissure. The gaseous type created the cinder cones in the southern part of the area. The fissure type of eruption produced very fluid lava which flowed like frothy molasses from deep cracks in the earth's crust. Lava tubes, also known as caves, occur in this type of lava, called pahoehoe. These resulted from the cooling and hardening of the surface lava into a strong crust. The lava underneath, cooling more slowly, continued to flow from under the crust, thus leaving a tube. Today, the collapsed parts form serpent-like trenches of broken rock 20 to 100 feet deep and 50 to 250 feet wide, with occasional narrow, unbroken strips of roof bridging the trenches.

When the flow in the lava tubes began to diminish, "lavacicles" were formed. These lava-stalactites resulted from the cooling of liquid lava splashing against the ceiling of the tubes, or from the remelting of ceiling rock heated by the gases escaping from the molten lava below. Rivulets of lava on the side walls of the tubes hardened into ribs in some tubes.

### THE CAVES

Most of the caves are on the Cave Loop Road in the headquarters area. Here, there is a series of about 12 caves which exhibit most of the lava-tube features. Sentinel is so named because of the guardian figures which adorn its passageway. Catacombs Cave, one of the most striking in the whole region, derives its name from the peculiar niches in the wall, resembling the burial places of ancient Rome. The floors of this cave, with 1½ miles of passages, are for the most part very smooth.

Along the main road, which traverses the monument approximately southeast and northwest, are two large caves. Northwest of headquarters on the main road is the junction to Merrill Ice Cave. This cave contains a frozen waterfall and a river of ice which remain year after year.

Skull Ice Cave has three levels and is one of the largest in the region in height and width. The roof, rising 75 feet above the floor, is beautifully domed. The lower level has a thick floor of ice. The cave is so named because scores of skulls of mountain sheep and pronghorn were once found here.

Valentine Cave contains excellent examples of varying flow levels, where pauses occurred in the subsiding flow of lava through the tube, permitting the edges of the lava

stream to cool and form crusts along the borders of the channel.

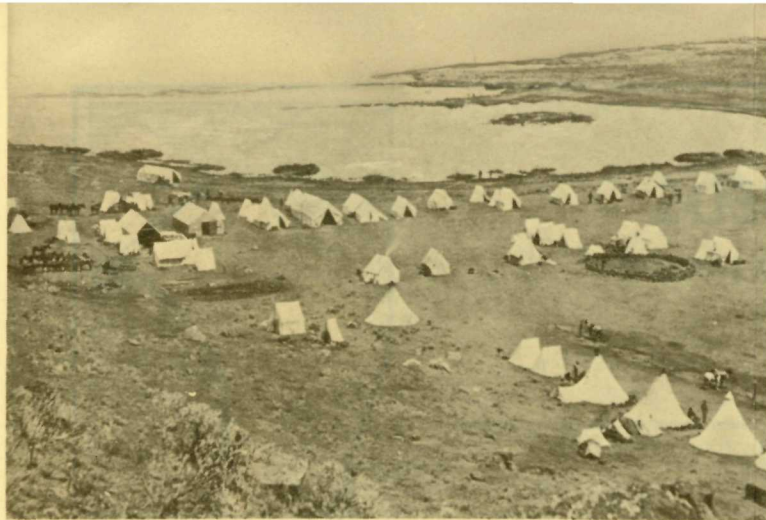
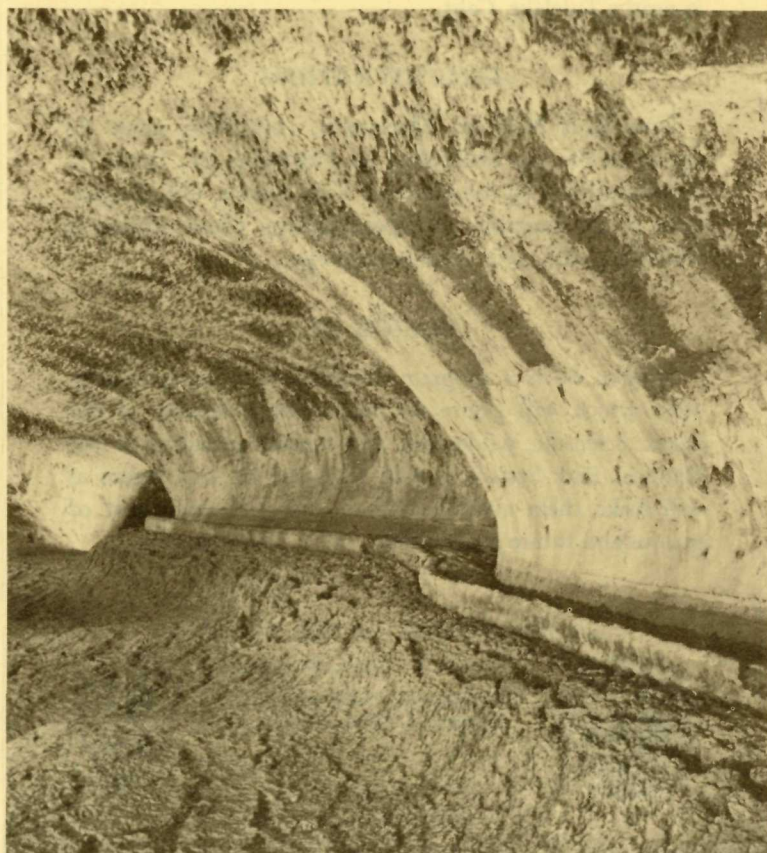
### THE MODOC WAR

The Modoc War of 1872-73 was one of the last in the long series of clashes between Indians and white men for possession of North America. On the basis of the number of Indians involved, it was probably the most costly Indian campaign the United States ever fought.

Trouble started when settlers began to cross the traditional lands of the Modocs in the vicinity of Tule Lake and Lost River. In 1864, the Modocs agreed to move to the Klamath Indian Reservation, but one small band, led by Captain Jack, grew dissatisfied with conditions there and returned to its former home of Lost River. Here friction developed with the ranchers who, meanwhile, had occupied the region.

On November 29, 1872, troops, aided by settlers, attempted to force the Modocs back to the reservation. In a brief fight at Lost River, the Indians inflicted enough casualties to permit their escape to the natural fortress in the lava beds that is now known as Captain Jack's Stronghold. During the retreat, the Modocs murdered more than a dozen settlers at isolated ranches.

*Lava formations in Valentine Cave.*



*Gillem's Camp in the spring of 1873.*

Nearly 400 soldiers and volunteers attacked the stronghold on January 17, 1873, but were repulsed with a loss of 10 percent of their number. The Indian defenders were about 70 fighting men and their families—some 160 in all.

The Government next attempted to negotiate with the Indians, but this course abruptly ended on April 11, 1873, when the Modocs murdered Brig. Gen. E. R. S. Canby and another peace commissioner under a flag of truce. Four days later the final attack on the stronghold was launched by about 800 soldiers. Cut off from water and torn by dissension, the Modocs abandoned their fortress during the night of April 16 and retreated southward.

On April 26 the Indians ambushed 69 soldiers under Capt. Evan Thomas at Hardin Butte. Nearly two-thirds of the troops were killed or wounded. The army won its first battle on May 9, 1873, when a surprise attack by the Modocs was repulsed at Dry Lake.

The end then came quickly for the Modocs. Divided by quarrels, two-thirds of the band surrendered. Captain Jack was tracked down and captured by June 1. He and three other Modocs were convicted of murder and were hanged at Fort Klamath on October 3, 1873. The remainder of the band was removed to Oklahoma.

The main battlefields of the Modoc War, located in the monument, are practically the same today as they were in 1873. The rock forts marking the scenes of desperate fighting are preserved and protected by the National Park Service.

### INDIAN SYMBOLIC ART

There are two types of Indian symbolic art in the monument: paintings (pictographs) of red, yellow, and green mineral pigments on the walls of caves and the sides of natural bridges; and carvings (petroglyphs), which are

confined entirely to rocky bluffs in the Tule Lake peninsula where the rocks were soft enough to be pecked by stone tools.

Pictographs, most of which are less than 10 inches high, are in Big Painted, Little Painted, and Indian Well Caves, and on Symbol Bridge. Petroglyphs are on the bluffs of the Tule Lake peninsula, in a detached section of the monument. They are deeply carved in the face of the rock, and some have been painted with yellow ochre.

### PLANTS AND ANIMALS

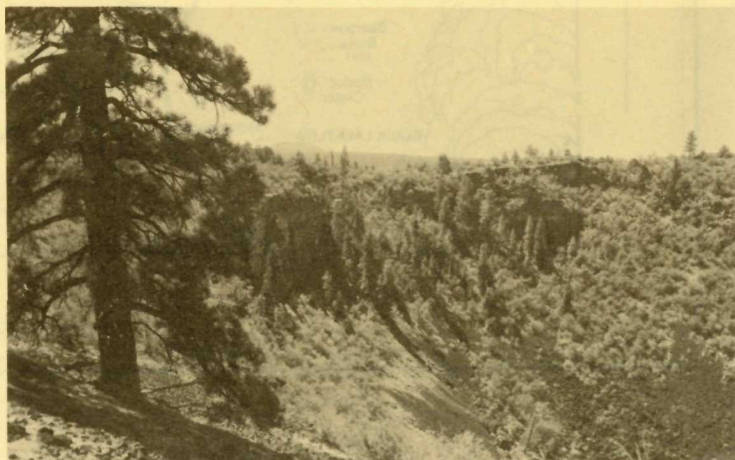
The plantlife of the area is unexpectedly colorful. In the spring and early summer, the region at times is a veritable garden, with flowers blooming profusely wherever there is sufficient soil for plant growth. About 250 species of plants grow in the area, and their reds, yellows, and whites contrast vividly against the black lava flows and the many shadings of green found in scattered junipers, western yellow pine, flowering antelope bitterbrush, mountain-mahogany, and wild currant.

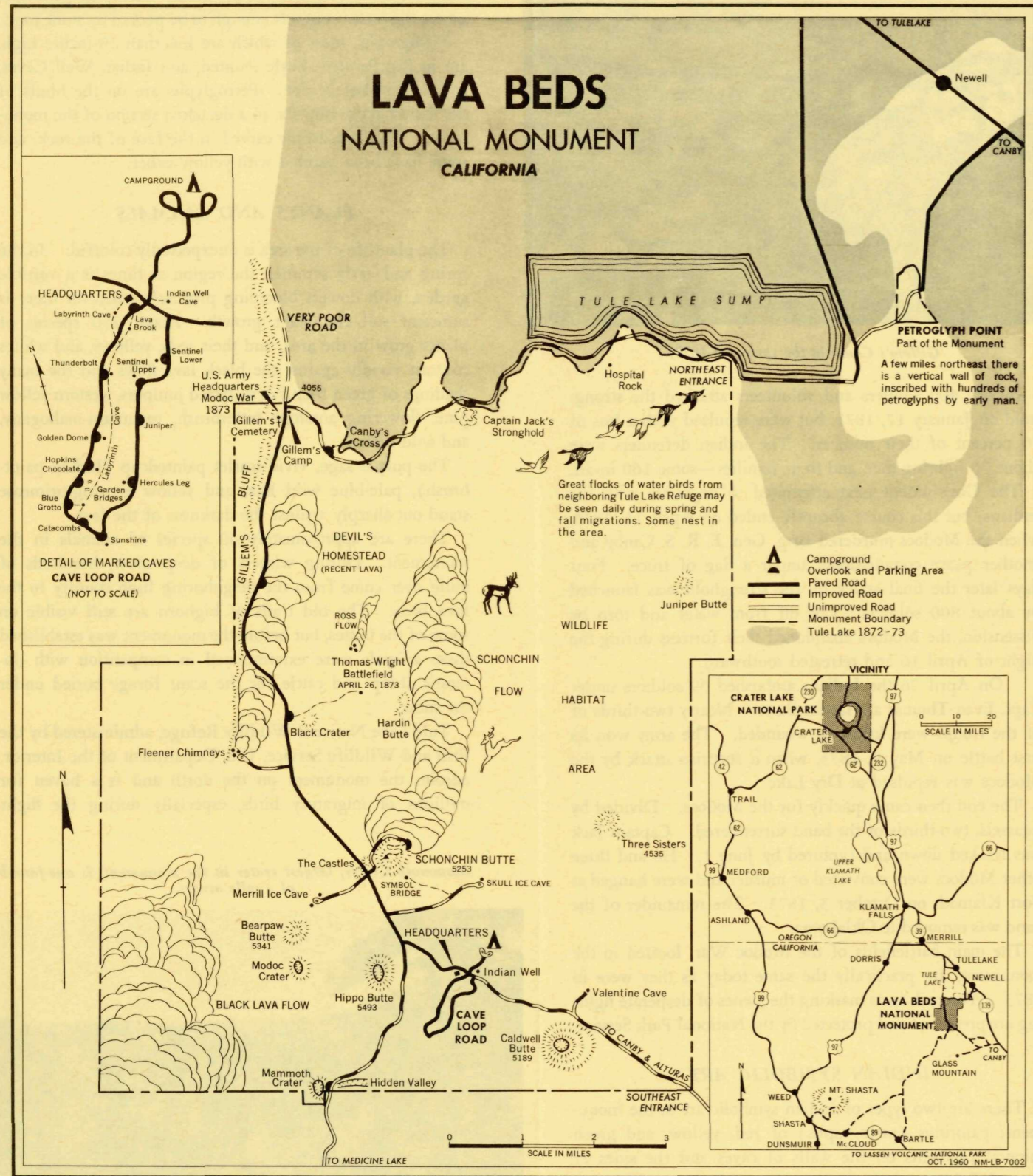
The purple sage, vivid-scarlet paintedcup (Indian paintbrush), pale-blue wild flax, and yellow evening-primrose stand out sharply against the darkness of the lava.

There are approximately 40 species of animals in the monument. During winters of deep snow, hundreds of mule deer come from the neighboring high country to the lava beds. The old trails of bighorn are still visible on some of the buttes, but before the monument was established these animals were exterminated in competition with domestic sheep and cattle for the scant forage buried under the snow.

Tule Lake National Wildlife Refuge, administered by the Fish and Wildlife Service, U.S. Department of the Interior, adjoins the monument on the north and is a haven for millions of migratory birds, especially during the flight

*Mammoth Crater, largest crater in the monument, is one-fourth of a mile across.*





*Devil's Homestead lava flow.*

season each spring and autumn. The checklist of birds of the Lava Beds area comprises more than 100 species.

### ABOUT YOUR VISIT

The monument is located in California near the Oregon-California line between U.S. 97 and California State Route 139. It is 41 miles south of Klamath Falls, Oreg., the nearest large town.

There is an improved free campground at headquarters and a picnic area (no water available and fires are prohibited) at Fleener Chimneys. Lodging, food, gasoline, etc., are not available in the monument but may be obtained in nearby Tulelake, Calif.

### ADMINISTRATION

Lava Beds National Monument, containing about 72 square miles, was established on November 21, 1925. It is administered by the National Park Service, U.S. Department of the Interior. A superintendent, whose address is Tulelake, Calif., is in immediate charge.

### MISSION 66

Mission 66 is a program designed to be completed by 1966 which will assure the maximum protection of the scenic, scientific, wilderness, and historic resources of the National Park System in such ways and by such means as will make them available for the use and enjoyment of present and future generations.

U.S. DEPARTMENT OF THE INTERIOR

Stewart L. Udall, *Secretary*

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