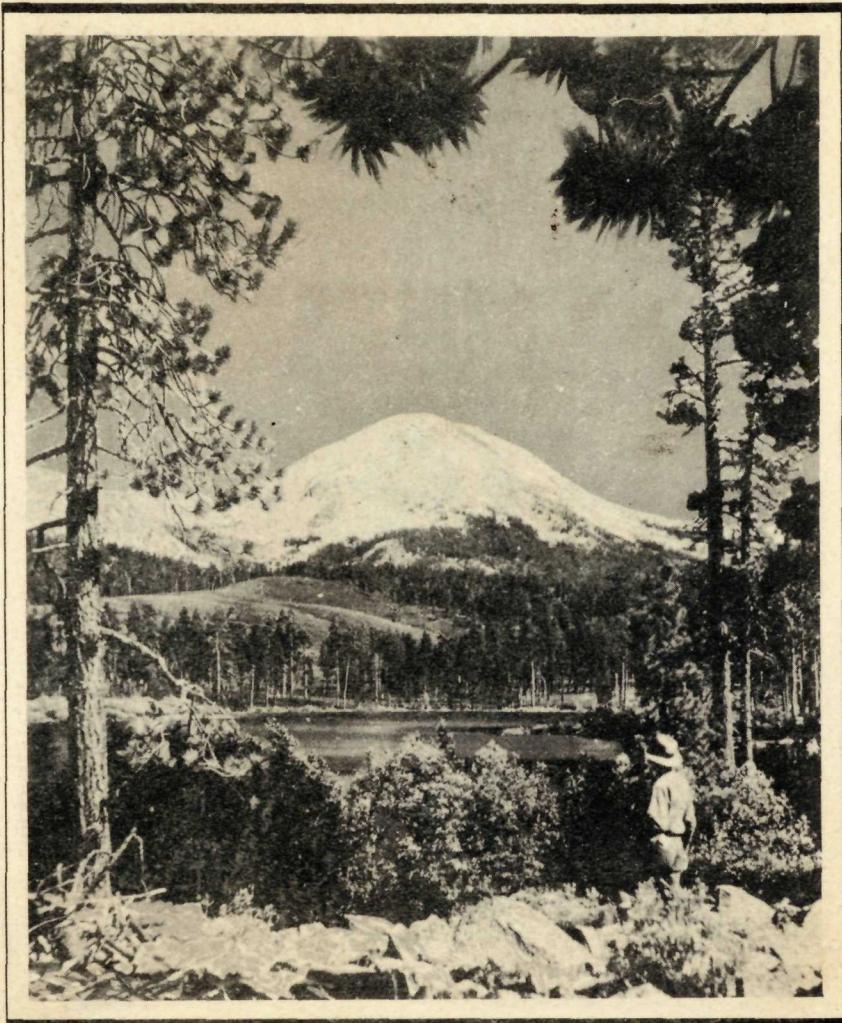


LASSEN VOLCANIC NATIONAL PARK

• CALIFORNIA •



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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HAROLD L. ICKES, Secretary

NATIONAL PARK SERVICE

ARNO B. CAMMERER, Director

LASSEN VOLCANIC
NATIONAL PARK
CALIFORNIA



SEASON FROM JUNE 1 TO SEPTEMBER 30

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RULES AND REGULATIONS

The park regulations are designed for the protection of the natural beauties as well as for the comfort and convenience of visitors. The complete regulations may be seen at the office of the superintendent of the park and at all ranger stations. The following synopsis is for the general guidance of visitors, who are requested to assist in the administration of the park by observing the rules.

Automobiles.—Many sharp unexpected curves exist on the Lassen Peak Loop Highway, and fast driving—over 25 miles per hour in most places—is dangerous. Drive slowly, keeping always well to the right, and enjoy the scenery. Fee for automobile permit is \$1.

Specimens and souvenirs.—In order that future visitors may enjoy the park unimpaired and unmolested, it is strictly prohibited to break any formation; to take any minerals, lava, pumice, sulphur, or other rock specimens; to injure or molest or disturb any animal, bird, tree, flower, or shrub in the park. Driving nails in trees or cutting the bark of trees in camp grounds is likewise prohibited and the regulation strictly enforced. Deadwood may be gathered for camp fires.

Trash.—Scraps of paper, lunch refuse, orange peelings, kodak cartons, chewing-gum wrappers, and similar trash scattered along the roads and trails and camp grounds and parking areas are most objectionable and unsightly. Consider the park as yours. Help us keep it clean and attractive, and assist by carrying trash with you until it can be burned, buried, or placed in receptacles.

Camping.—Camp only in designated areas. Keep your camp clean. As far as possible, burn garbage in camp fire, and empty cans and residue into garbage cans provided for that purpose.

Trails.—Cutting corners and taking short cuts on trails is a dangerous practice, and causes considerable damage to the trails. This practice is prohibited and the regulation strictly enforced.

Fishing.—State license required. Limit: 10 pounds and 1 fish or 10 fish.

Fires.—Light carefully and in designated places. Extinguish *completely* before leaving camp, even for temporary absence.

Hot Spring areas.—Dangerous. Do not take chances. Keep on trails or step where others have stepped before. Injuries have resulted from carelessness in these areas.

Park rangers.—The rangers are on duty to help and advise you as well as enforce the regulations. When in doubt, ask a ranger.

WHAT TO DO AND SEE

ONE-DAY TRIP

Only a small portion of Lassen Park can be seen in one day, but those who cannot stay longer will find the following suggestions helpful:

Obtain the schedule of conducted trips and hikes from the ranger at the checking station.

Drive over the entire Lassen Park Loop Highway (30 miles) from one checking station to the other, stopping en route at:

The Sulphur Works
The Soda Spring
Lake Emerald
The Devastated Area
Chaos Jumbles and Dwarf Forest
The Mae Loomis Memorial Museum

If time permits, climb Lassen Peak (allow at least 3 hours for the round trip) or hike into Bumpas Hell (2 hours is the average time required).

Lunch and supplies are available at Manzanita Lake.

TWO DAYS AND LONGER

Stay at Manzanita Lake Lodge (see accommodations), or at private resorts elsewhere in the park.

If camping, the Manzanita Lake camp ground, equipped with tables and fireplaces, running water, and modern sanitary comfort stations, is recommended. Fishing is good in Manzanita Lake; groceries and supplies are available at this point; and all daily conducted trips and hikes by ranger-naturalists originate here.

Nightly camp-fire programs, consisting of informal talks, music, stories, and stunts by campers and rangers, are held at Manzanita Lake, and occasionally in the other camp grounds.

OTHER SECTIONS OF PARK

WARNER VALLEY

Famous Boiling Lake and Devil's Kitchen. Several private resorts in this section offer comfortable accommodations and feature guided horseback trips to various points of interest in the park. A good dirt road leads in from Chester. Camp grounds are located beyond the ranger station.

Lassen Volcanic National Park—Oregon

JUNIPER LAKE

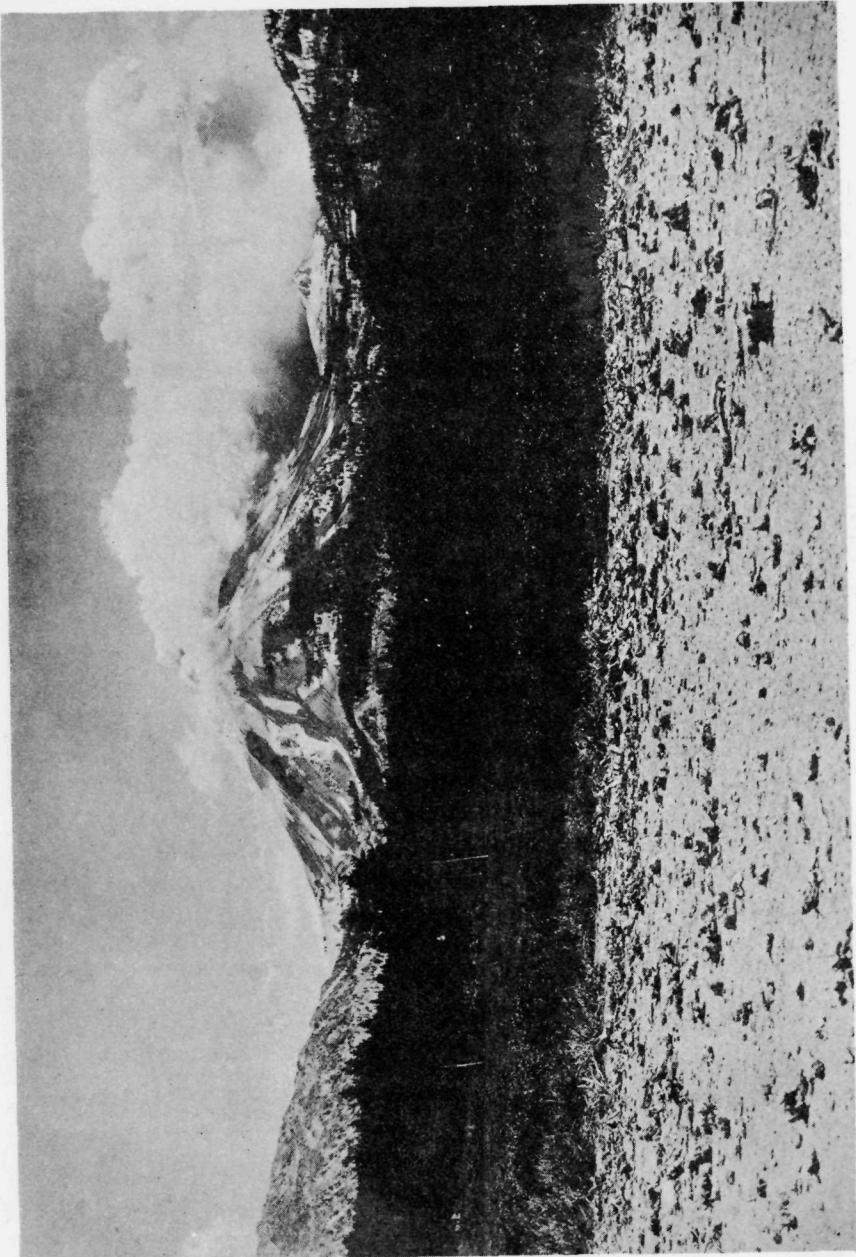
In the neighborhood of splendid fishing. A private resort on Juniper Lake offers tent and cabin accommodations, with a grocery store post office, and boats for rent. There is a free public camp ground at the south end of the lake, the largest body of water in the park; 12 miles from Chester; low-grade dirt road.

BUTTE LAKE

Perhaps the most unusual section of the park. The remarkable Cinder Cone is only a short hike from the lake. Excellent camp grounds, but no accommodations or supplies are available. Accessible from the east by the Westwood-Pittville Road; from the south and west by the Lassen Peak Loop Highway and Hat Creek Road. About 15 miles of poor road from either direction.

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The last vigorous activity of Lassen Peak in 1915.

LASSEN VOLCANIC NATIONAL PARK

LASSEN PEAK, which stands at the southern end of the Cascades, where these mountains join the Sierra Nevada, is the only recently active volcano in the United States, exclusive of Alaska and Hawaii. Within the area of the park nature has wrought the greatest physical changes that are known to have occurred on the earth's surface in recent centuries, and the comparatively mild renewal of Lassen Peak activity between 1914 and 1917 drew the attention of the scientific world as well as the interest of travelers to the park's many unique exhibits. In addition to Lassen Peak, which rises 10,453 feet in altitude, and Cinder Cone, 6,913 feet, other interesting volcanic cones are Prospect Peak, 8,342 feet high, and Harkness Peak, 8,039 feet. Then there are smaller volcanic peaks and fantastic lava fields, both ancient and modern, fumaroles, hot springs, and mud volcanoes, as well as boiling lakes and other interesting phenomena of a volcanic region. The cones, which are easily climbed and studied, have remained nearly perfect. The west front of the park exhibits a magnificent skyline, culminating on the north in pink-toned lava crags which rise to a height of over 8,500 feet above sea level, and over 3,300 feet above the older lava flows upon which they rest. The central cone of the crags rises to a height of two-thirds of a mile above the crater, and at its base is approximately 1 mile in diameter.

Cinder Cone, with its fantastic lava beds and multicolored volcanic ejecta, is unusually beautiful. It is bare of vegetation and leaves the impression of having been formed so recently that the heat of creation should still be present. Evidence has been found, both historical and scientific, to indicate that some of the flows seen here did occur as late as 1850-51. Adjoining Cinder Cone on the south and east are the chromatic dunes, colorful heaps of volcanic ash. Cinder Cone itself is nearly all of a reddish, dark brown, or cinder slate color.

For a period of about 200 years Lassen Peak was quiescent, then in the spring of 1914 started a series of comparatively small eruptions. Since the close of its most vigorous activity in 1915 it has remained relatively quiet, although many hot springs and other minor phenomena are proof of its internal heat, and from time to time, at decreasing intervals, the volcano emits quantities of steam and smoke. There may be future explosions, but Lassen's history as a dying volcano does not lead one to expect any great outbreaks. Today it can be classed between semiactive and active.

Lassen Volcanic National Park, in northeastern California, was created by act of Congress approved August 9, 1916, and later was enlarged to its present area of 163 square miles. It is under the control and supervision of the National Park Service of the Department of the Interior. Ten years prior to the establishment of the national park two of the cones, considered the best examples of recent volcanism, Lassen Peak and Cinder Cone, were set aside by President Taft as the Lassen Peak and Cinder Cone National Monuments, and these, of course, were included in the Lassen Volcanic National Park.

GEOLOGIC HISTORY

Lassen Peak is a volcano of large type surrounded by many smaller ones of later date, built up of a variety of lavas. The volcanic activity which resulted in the upbuilding of Lassen Peak began near the close of the Eocene. The lava flows appear to have been largest and most numerous in the Miocene and Pliocene, successive flows decreasing in size during the Quaternary to near extinction in recent times. (According to Bulletin No. 80 of the National Research Council, the Eocene period occurred 55,000,000 years ago, the Miocene, 19,000,000 years ago, and the Pliocene 7,000,000 years ago.)

There were long periods of intermittent activity separated by long intervals of quiescence. During the active periods both explosive and effusive eruptions were common, the one forming cinder cones and sheets of volcanic agglomerate and tuff, the other forming rugged lava fields.

As the volcanic center developed, the most active crater migrated. The first crater was at the head of Mill Creek. It is not only the oldest but also the largest crater, more than a mile in diameter. The peak named "Broke-off Mountain" is the most prominent remnant of this great crater at the head of Mill Creek.

The second crater opened on the northern edge of the first and erupted dacite, building up Lassen Peak to its present height with a summit crater about a quarter of a mile in diameter.

The third crater, about 4 miles a little west of north from the first, opened only a few centuries ago at the northwest base of Lassen Peak, and formed Chaos Crags.

The products of this eruption in Chaos Crags are well preserved and their relations clearly visible. The eruption began by a succession of explosions that spread a thin layer of volcanic ash and dust over the surrounding country and ended in the extrusion of dacitic lava, rich in volcanic glass, generally of dark color, somewhat pumiceous, and full of inclusions like the dacites of Lassen Peak.

The last eruptions (1914–17) began by a slight explosion within the old crater on the summit of Lassen Peak. Only a small mass of material was erupted, but activity continued steadily for some time. Like the eruption of a few centuries ago at Chaos Crags, it had two phases—one explosive, the other an extrusive flow.

During the first phase the explosive eruptions carried out rock fragments and dust only. The size of the crater increased with each eruption. The second phase, which was extrusive, included also an eruption of lava, which formed a lid on the volcano and overflowed to the west and northeast.



Lassen Peak.

In the beginning the new crater was confined to the loose material filling the old crater, but later it reached the solid rock of the old crater rim, and finally, after more than 150 eruptions, it attained, near the end of March 1915, a diameter of about 700 to 1,000 feet.

At about this time, the old crater having been thoroughly cleaned out by explosive eruptions and the overlying lava largely removed, the magma began to rise in the volcanic conduit and initiated the second or extrusive stage of the volcanic activity. The hot magma, apparently more or less

viscous in the volcanic conduit, gradually was forced upward by pressure of magma or gas from beneath until it reached the surface as new lava, and as a lava table filled not only the new but also the old crater, so as to form a lid on the volcano. The lava issuing from the edge of the lid through a notch in the old rim passed down the west slope of Lassen Peak about 1,000 feet, and also over the northeast rim.

On the night of May 19 and on the afternoon of May 22, 1915, there were violent eruptions. A mushroom-shaped cloud was formed at a height of about 4 miles above the summit of the mountain and afforded a magnificent spectacle as seen from the Sacramento Valley. At night flashes of light from the mountain summit, flying rocketlike bodies, and cloud glows over the crater reflecting the light from incandescent lavas below were seen by many observers from various points of view.

Although the extrusion of the new lava, with the formation of the lava lid, was the main feature of the great eruptions in May 1915, it was far surpassed in interest and wonder by the remarkable horizontal eruptions of the hot blasts that devasted Lost and Hat Creeks. It appears that the body of super-heated gases which accumulated beneath the lid, forcing it up, escaped from under the edge with terrific force down the deep snow-covered northeast slope of Lassen Peak toward Lost and Hat Creeks. The snow was instantly converted into water, and the mighty onrush of water and blast of hot gases swept everything before them for more than 10 miles along Lost Creek, forming a devasted belt from a few hundred yards to a mile in width. Meadows were buried beneath fine debris and large boulders broken off from the edge of the lava lid far above. Trees 3 feet in diameter were broken off or uprooted and the country scoured as by a mighty sand blast. The fine green leaves of the pine trees left standing along the borders of the blast were killed by the heat and turned brown. Locally, on favorable slopes, the heat was so great that the green leaves were charred; not only those of the pine but also those of the manzanita, several acres of which, at a distance, had the general appearance of an area swept by a forest fire. It was reported by the forest ranger in the vicinity that two fires were actually kindled by the eruption.

Fumaroles have developed at a number of points on the north and west slopes of Lassen Peak within 800 feet of the summit, but all the violent eruptions have occurred at or very near the summit. No fumaroles have appeared on the south and east slopes, the direction of easiest approach, where at lower levels, 5,800 to 7,400 feet, fumaroles and solfataras are such active features. These solfataras within 3 miles of Lassen Peak, have been active with but little change during the past 50 years. They are on the

strongest side of Lassen Peak and have not been affected by the eruption at its summit, 4,000 feet above them.

The foregoing statement is from the *Volcanic History of Lassen Peak*, by J. S. Diller of the United States Geological Survey.

THE ANCIENT BROKEOFF CRATER

Another "Crater Lake", including its Wizard Island, might have existed in this park had not Mill Creek broken through the south side of the



Bumpas Hell.

original huge crater south of Lassen Peak and eroded the crater wall, forming a deep canyon instead of a lake.

Looking across this canyon from the Sulphur Works Checking Station, the steep lava cliffs beneath Black Butte can be seen. These were part of the crater's sides. Farther along the highway Brokeoff Mountain itself can be seen to the southwest. Brokeoff and Black Butte were once connected, forming the south rim of this immense old crater. Note the line of high peaks that run north and east from Brokeoff Mountain, thence the circular head of the Mill Creek Canyon, and back on the east to Black Butte, and the

Lassen Volcanic National Park—California

crater is complete. Lava from this old volcano built up the high country now comprising this section of the park, and Lassen Peak itself is actually only a small edifice on the north rim of this Brokeoff Crater.

The rugged mass of lava rocks cemented together and protruding up from the bottom of the Brokeoff Crater is called Diamond Peak. The road circles this steep mound of agglomerate lava, and, if the old crater were filled with water, Diamond Peak would rise above the level of the lake similar to Wizard



Steam vents and boiling pools in Bumpas Hell.

Island in Crater Lake National Park. Although the crater is ancient, yet in the Sulphur Works and Steamboat Springs solfataras remnants of the old activity can still be seen. The Brokeoff Crater is not dead yet!

SOLFATARAS

In the southern half of the park, following roughly a semicircular course, are located six distinct spots wherein are to be seen active manifestations of volcanic activity.

The highly colored earth, the sulphurous odors that rise from the ground, the roar of live steam coming up under pressure from vents, the gurgling mud pots, and the noise of fumaroles, steamers, and small geyserlike formations all contribute to the weird and supernatural atmosphere that seems to pervade most of these areas.

Lassen Volcanic National Park—California

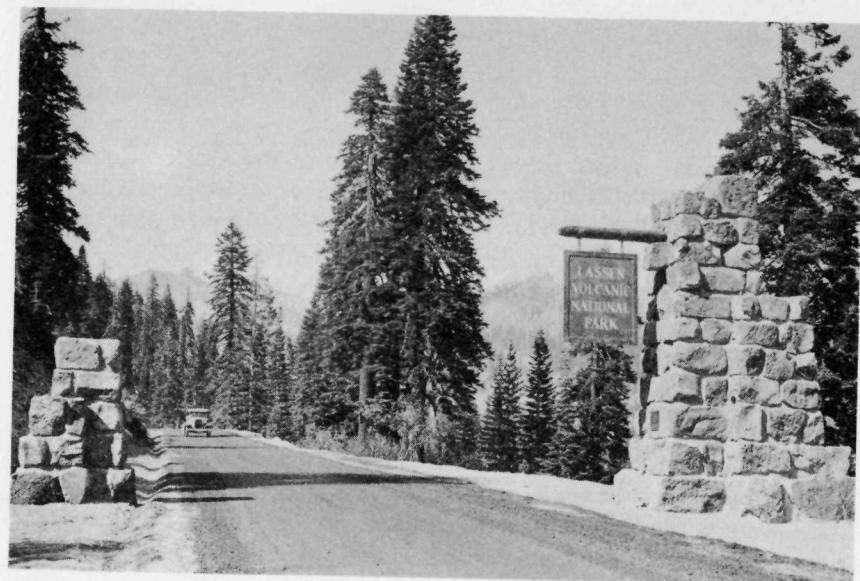
SOLFATARAS FOUND IN THE PARK

Name	Location—How reached	Remarks
Bumpas Hell.....	Southeast of Lake Helen via Loop Highway.	Trail, 1.3 miles from Lake Helen; 10 acres of activity.
Sulphur Works...	On Loop Highway.....	Only solfatara accessible by car.
Steamboat Springs	In Little Hot Springs Valley.....	No trail as yet constructed.
Boiling Lake.....	Warner Valley via Chester.....	A hot, simmering caldron. Shore Line, 2,000 feet; trail, $\frac{1}{2}$ mile.
Devils Kitchen.....	do.....	From Drakesbad, 1.7 miles by trail. This is a spectacular area in a beautiful setting.
Terminal Geyser.....	do.....	A small area but with several large geyserlike fountains playing. By trail from Drakesbad and Kelly Camp.

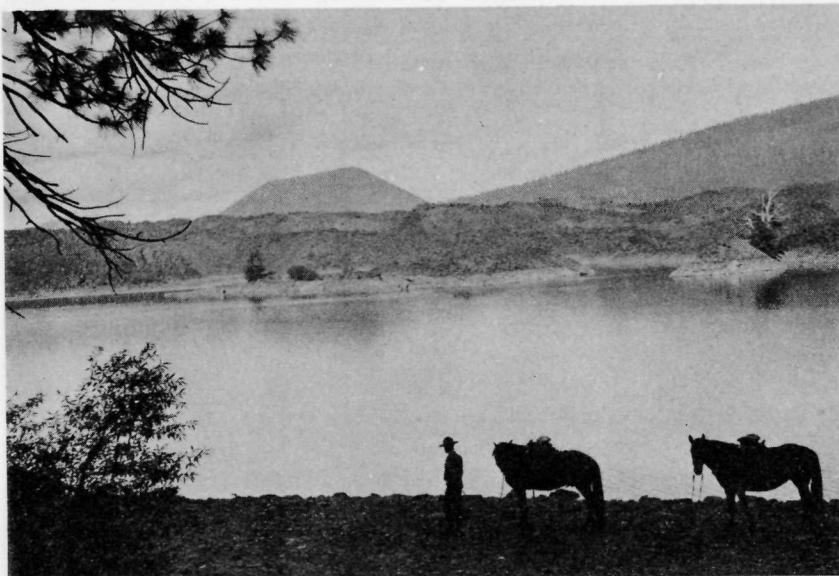
The best time to see these areas to full advantage is in the morning or late evening, when the colder atmosphere causes rapid condensation of the steam. Several of these areas are dangerous if proper precautions are not taken. Keep on the trails or walk only where others have walked before. Do not take chances or go too close to the boilers and steam vents.

THE CINDER CONE

The Cinder Cone, with its fantastic lava beds and multicolored volcanic ejecta, is beautiful and unusual. It is almost beyond description, and is



The Raker Memorial Gate on the Lassen Loop Highway.



Butte Lake with Cinder Cone in distance.

perhaps the most outstanding feature in the park. The cone and lava flows are bare of vegetation, except for one lone willow tree, and leave the impression of having been formed so recently that the heat of creation should still be present.

Lava flows from the base of the Cone spread out in fan-shape formation, the apex of which flowed into an old lake, forming what is now two lakes—Butte and Snag. When viewed from the top of the Cinder Cone, this great lava fan, with its highly colored ash dunes, is a spectacular and impressive sight. Extensive forests of Jeffrey pine, lodgepole pine, and fir surround this barren area, creating a scene of vivid contrasts.

The Cinder Cone is accessible by (1) road to Butte Lake and short hike; (2) by saddle horse from Warner Valley and Juniper Lake resorts; (3) from Summit Lake by trail; and (4) by road as far as Badger Flat and trail the rest of the way. The Butte Lake and Badger Flat roads are still in poor condition.

MOUNTAINS

All of the larger mountains and peaks in the park are of volcanic origin. Some were volcanoes which once erupted fire and lava. This type of mountain is usually flat-topped, conical, and with a definite crater in the

top. Hat Mountain, above Summit Lake, is an excellent example of an extinct volcano.

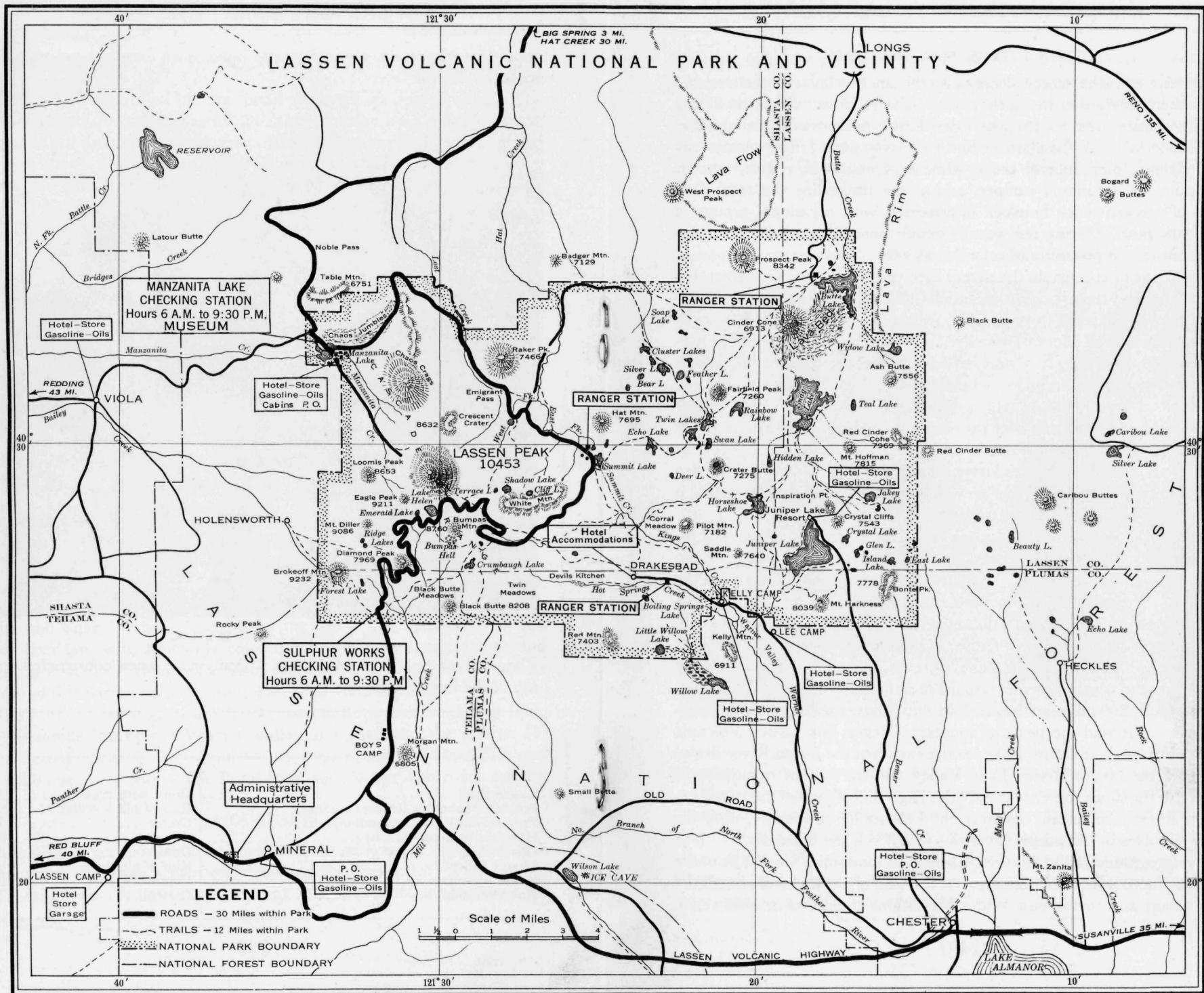
Volcanic domes, on the other hand, are old lava plugs existing in the crater of some dead volcano which have been pushed up bodily into the air by tremendous pressure beneath, very much like a cork in the neck of a bottle being squeezed out as the air within expands and creates pressure. Domes are usually barren, rocky, jagged topped mountains, such as the



Summit Lake Camp Ground.

Chaos Crags or White Mountain. Trails have been constructed to the top of the first four mountains listed.

Name	Type	Elevation
Lassen Peak	Dome with crater	10, 453
Brokeoff Mountain (lookout station)	Rim of old volcano	9, 230
Prospect Peak (lookout station)	Crater	8, 342
Harkness (lookout station)	do	8, 039
Chaos Crags	Domes	8, 540
Mount Diller	Rim of old volcano	9, 086
White Mountain	Domes	8, 695
Hat Mountain	Crater	7, 695



OTHER INTERESTING FEATURES

Impressive canyons, scored deeply into the ancient lavas in the westerly and southerly regions of the park, add to its attractions. Primeval forests cover the entire area, except where the loftier peaks rear their summits above timberline. In the main we find ponderosa pine, Jeffrey pine, sugar pine, lodgepole pine, incense cedar, white fir, Douglas fir, red fir, western white pine, an occasional juniper, and at the timberline the rich, dark masses of western black hemlock interspersed with occasional groups of white-bark pine. During the warm summer months a variety of flowers further enrich the profusion of color found here.

Through the forest curtain the silvery sheen and shimmer of innumerable alpine lakes greet the eye. The splendid Chain-of-Lakes in the eastern region of the park extends from Juniper, with a shore line of 5 or 6 miles at the northerly base of Mount Harkness to the northward, including Horseshoe Lake, which divides its waters between the Feather and the Pit, to flow apart for several hundred miles and meet again; then linking in Snag Lake with its broad breaches of volcanic sand formed by the ejecta from Cinder Cone; and on to Butte Lake near the eastern base of Prospect Peak with its rugged shores of lava and its scenic setting. Through the clear waters of Snag Lake, and at many places above the surface of the water, can be seen standing the remains of trees that grew at the south end of the lake before it was dammed by the lava flow and raised to its present shore level.

At a point 1.3 miles from the Lassen Peak Loop Highway are the beautiful Kings Creek Falls. The trail starts at Kings Creek Meadows at the lower crossing of the highway. By following down the left-hand side of the creek both the cascades and the falls can be seen.

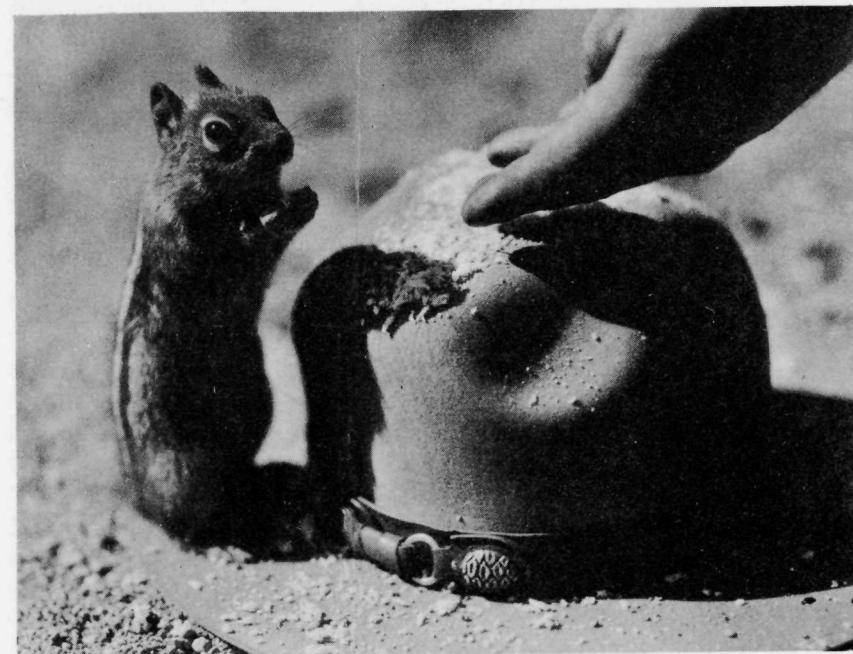
A most inspiring view may be obtained from the summit of Lassen Peak. For a radius of 150 miles the magnificent panorama unfolds. To the west and southwest the Sacramento Valley spreads, like a great map, from the base of Shasta to where it merges into the great Central Valley of California, a sweep of fully 200 miles; to the north Mount Shasta looms in splendid majesty, and far beyond the peaks of southern Oregon link Lassen Volcanic with its sister park at Crater Lake; to the eastward the Susan River drainage guides the eye to Honey Lake Valley and the distant mountains of Nevada; to the south the view is over the High Sierra, across the broad expanse of forested mountain region in the Feather River country, until the picture dissolves in the purple mysteries which veil the distances.

In the foreground of the picture the splendid mountains viewed from the lower elevations now seem pygmies. At the base of Lassen to the north the Chaos Crags and to the east White Mountains stand out in bold relief.

Curving from the southerly base the serrated edges of the ancient crater rim, with Lake Helen, a gemlike setting in its crescent, include six peaks which attain a height of over 9,000 feet above sea level. Brokeoff Mountain and Mount Diller stand out prominently among the encircling peaks which form the amphitheater marking the location of the once dominating volcano of the region. Compared with this ancient mountain our Lassen Peak is very recent.

WILDLIFE

Lassen Volcanic National Park, like all the other national parks, is an absolute game sanctuary. Before active administration of the park began,

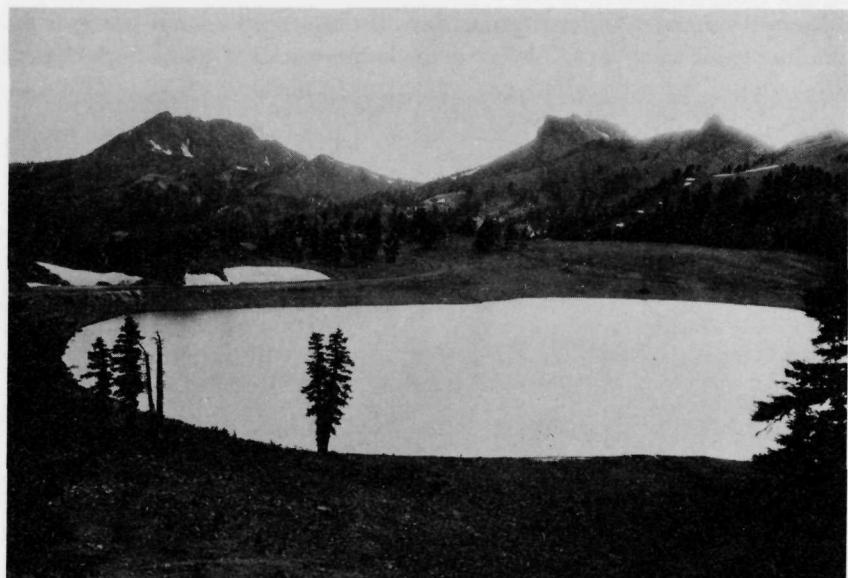


A ranger's pet.

hunting in certain sections was carried on excessively, and consequently wild game was seldom seen in any quantity. Under the protection afforded during the past few years, the park has apparently succeeded in establishing itself as a sanctuary for wild animals, which are now more numerous than before. Blacktail and mule deer may be seen in most any section of the park, and a variety of smaller animals affords much pleasure to visitors. Occasionally a black bear appears.

FISHING

There are dozens of lakes and streams in Lassen Volcanic National Park that have been regularly stocked for years and but relatively seldom fished. The great number of lakes, the fact that they have hitherto been rather inaccessible, and the intensive fish-planting program have made this park one of the finest fishing areas in the State. The most numerous species is the rainbow trout. Brown trout, loch leven, and eastern brook are also



Lake Helen. In the distance are Brokeoff, Diller, and Pilot Pinnacle Mountains.

found in abundance. The waters of the park are very cold, and the clean, sandy bottoms of the lakes and plentiful food supply make the trout very fine eating.

All fishing waters in the park are now within an easy half day's hike from some entering road. The completion of the Lassen Peak Loop Highway brought such well-stocked waters as Cluster Lakes, Twin Lakes, Lower Kings Creek, and the White Lakes within easy walking distance from the road. Manzanita and Reflection Lakes usually offer the best fishing on the highway, with Kings Creek, Hat Creek, and Summit Lake good at times. In Manzanita Lake, bait (hellgramites and eggs) is most successful, although at times the trout will rise to flies and spinners very well. In the approximate center of the park are a group of lakes known

as the Twin Lakes. They are reached by trail from Summit Lake, going by Echo Lake and thence down the long draw terminating at the upper Twin Lakes. The distance is $3\frac{1}{2}$ miles. The Cluster Lakes also offer good fishing, and are most easily reached by driving to Badger Flat and hiking to the lakes on the marked trail. Distance, $2\frac{1}{2}$ miles. Cluster and Twin Lakes are at their best from the 1st to the middle of July and again from September 15 to October 31.

In the northeastern section of the park Butte Lake has long been famous for the size of its trout. Near Butte Lake and accessible by trail are Snag and Widow Lakes, two excellent fishing waters.

Perhaps the most consistently good fly lake in the park is Horseshoe Lake. It is reached after a mile hike from the end of the Juniper Lake Road. The Twin Lakes group is not far from Juniper Lake. The best creek fishing is in Warner Valley. Upper Kings Creek may be reached on the Lassen Peak Loop Highway and by trail from Summit Lake.

The trout in park waters will almost always rise to a fly. The wet fly is usually the most successful. The Professor, Black Gnat, Blue Upright, Queen of the Waters, Improved Governor, mosquito, and gray hackle flies are recommended.

In the early spring and throughout the summer an insect known as the hellgramite is found under logs and debris along the edges of many of the park lakes. This insect makes very good bait. Salmon eggs are extensively used, and in the early spring trolling with a no. 2 or 3 spinner is recommended. To prevent carp and other objectionable species from taking over the fishing waters in the park, the use of live bait not obtained in the park is strictly prohibited.

The limit for a day's catch is 10 pounds and 1 fish, with a maximum of 10 fish, and State angling license is required. Where not inconsistent with special park regulations, the fishing laws of the State of California apply and are enforced.

CAMPING

Lassen Volcanic National Park is primarily a campers' park. On the Lassen Peak Loop Highway, three ideal camping spots have been selected, developed, and set aside as free public camp grounds. Summit Lake Camp Ground is the most central to all points, and is excellently located for fishermen who desire to hike to the wilderness lakes. Kings Creek Camp Ground has the advantage of being near Lassen Peak and Bumpas Hell. Manzanita Lake Camp Ground, situated near the northwest entrance to the park, is located beside a good fishing lake, and is convenient to supplies. It is at present the best developed as to conveniences.

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While the days are warm, nights are often chilly, and it is well to have plenty of warm bedding. Camp-fire programs are given nightly in the larger camp grounds.

HOW TO REACH THE PARK

Stages connect with Southern Pacific trains at Red Bluff, Calif., and Reno, Nev., and with the Western Pacific Railroad at Keddie. These stages serve only the Warner Valley and Juniper Lake entrances at this time.

The park may be reached by automobile over all-paved highways from Redding and Red Bluff, on Pacific Highway U S 99, and from Reno on the Lincoln Highway. Roads also extend down to the park from the Redding-Alturas lateral at Burney and Pittville. The State highway from Red Bluff to Reno passes within a few miles of the park, connecting with three park entrance roads. Several roads from the south connect with this highway.

High speed, de luxe airplane service from all points in the United States to Reno, Nev., Medford, Oreg., and Sacramento, Calif., is available through United Air Lines. For persons of limited time this provides an excellent opportunity to visit the park.

ACCOMMODATIONS AND EXPENSES

Manzanita Lake Lodge is operated by the Lassen National Park Camp, Ltd., under Government supervision. It is a half mile from the Manzanita Lake entrance. Modern housekeeping cabins may be rented on practically any basis the traveler wishes. Without bedding, kitchen equipment, and



Manzanita Lake Lodge.

Lassen Volcanic National Park—California

maid service, the cost is \$2 a day for 2 persons. If this service is furnished, the price is \$3. No charge is made for children under 3 years old. From 3 to 11 years, half rates are charged. A 15-percent discount is allowed to



The Loomis Photographic Shop at Manzanita Lake.

persons staying a week, and 20 percent for 2 weeks or more. Rowboats are available at a cost of from 35 cents an hour to \$7 a week.

B. F. Loomis maintains a photographic shop at Manzanita Lake. Groceries, gasoline, and other supplies may also be purchased at this concentration point.

Mail for guests or campers in this section of the park should be addressed to Manzanita Lake, Calif., and it will be held at the post office until called for.

Juniper Lake and Drakesbad.—These two resorts are located on private lands within the park, and are operated entirely as private enterprises without any supervision by the Government. At Juniper Lake, tent and cabin American-plan accommodations are available at prices ranging from \$4 a day to \$27.50 a week for 1 person. Saddle horses are available at \$3 a day. Rowboats cost 50 cents an hour and motorboats \$1.50. The services of a guide may be obtained for \$6 a day. At Drakesbad, in the upper end of Warner Valley near the Devils Kitchen and Boiling Lake, similar accommodations are available at \$4 a day or \$24 a week, and up. Saddle horses cost \$2 a day, and guide service is \$5.

This booklet is issued once a year. The rates mentioned herein may have changed slightly since issuance, but the latest rates approved by the Secretary of the Interior are on file with the superintendent and park operator.



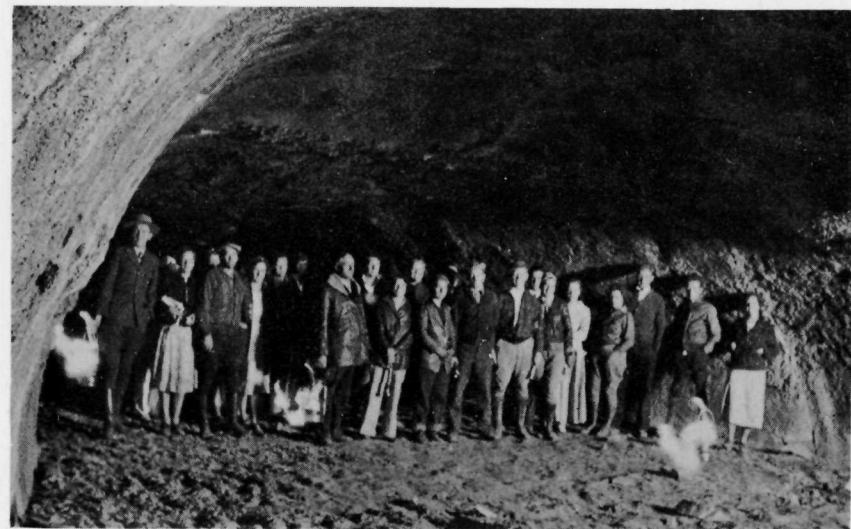
Early fall skiing on the shores of Lake Helen.

ADMINISTRATION

The park is administered by the Department of the Interior through the National Park Service, with the superintendent, L. W. Collins, in immediate charge. His office is located at administrative headquarters, one-half mile west of Mineral on the Red Bluff-Susanville State Highway. Maps, information, and bulletins may be obtained there. Address communications for the superintendent to Mineral, via Red Bluff, Calif. Mail for campers and the park utility operator should go to Manzanita Lake, Calif.

INTERESTING PLACES NEAR THE PARK

Subway Cave.—Seventeen miles north of the park, on the Hat Creek Road to Burney, an old lava tube has been discovered. This tube is several hundred feet long, with a flat, level floor, 6 to 25 feet high, and runs through an old lava flow. It can safely be explored with flashlights and makes a very interesting side trip from the park.



In Subway Cave, a lava tube 14 miles north of the park.

Lumber Mill, Westwood.—One mile off of the Red Bluff-Susanville Highway is the town of Westwood, owned and operated by the Red River Lumber Co. This huge mill normally employs several thousand men.

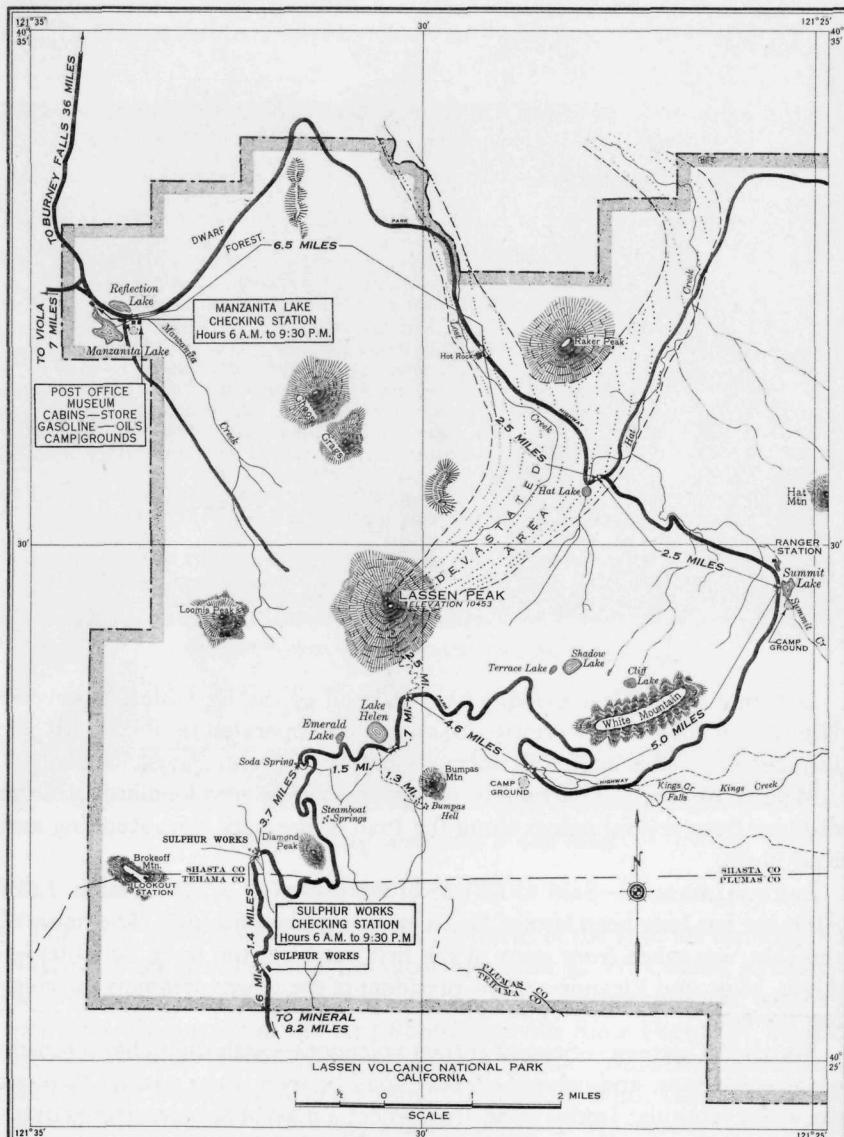
Mount Shasta.—This famous mountain may be seen looming up in the distance from several points along the road to the park from Redding and Red Bluff.

Lake Almanor.—Said to be one of the largest of artificial lakes, Lake Almanor has long been known for its excellent trout fishing. The name of this lake was taken from parts of the first names of the three daughters—Alma, May, and Eleanor—of the president of the power company developing the lake.

Foothill Craters.—Several extinct volcanoes—with their characteristic craters, flat tops, and conical shapes—may be seen when passing through the valley foothills. In this same area, where a mass of boulders strews over the acres of land a short distance out of Red Bluff, are broken lava rock

Lassen Volcanic National Park—California

carried down in mud flows and landslides from volcanoes higher up. Later the lighter soil surrounding these boulders eroded, with the result that today the ground is covered with thousands of lava blocks.



Lassen Peak Loop Highway.

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Lassen Volcanic National Park—California

POINTS OF INTEREST—LASSEN PEAK LOOP HIGHWAY

Miles from south-west entrance	Name	Remarks	Miles from north-west entrance
0.0	SOUTHWEST PARK BOUNDARY.	Raker Memorial Gateway. Elevation, 6,550 feet. Mineral, 8.2 miles. Viola, 36.7 miles.	29.7
0.6	SULPHUR WORKS—CHECKING STATION.	Stop and obtain permit. Firearms must be declared and sealed.	29.1
2.0	SULPHUR Works.....	Steam vents, boilers, mud pots, etc., can be seen from the road.	27.7
4.0	DIAMOND PEAK.....	The highway from the park boundary to Lake Emerald winds up inside of the old original Brokeoff Crater, one side of it having been broken through by Mill Creek. Rounding Diamond Peak a ragged agglomerate point sticking up in the center, it is often possible to see steam vents in the old crater wall across the canyon and Steamboat Springs in the bottom of Little Hot Springs Valley.	25.7
5.7	SODA SPRING.....	Water considered medicinal.....	24.0
6.7	LAKE EMERALD.....	Rainbow trout in lake can be seen from bank.	23.0
7.1	BUMPAS HELL TRAIL....	Bumpas Hell, one of the largest areas of spectacular hot springs, mud pots, boiling pools, and other types of volcanic activity, is reached from this point by trail, 1.3 miles long. About 2½ hours.	22.6
7.2	LAKE HELEN.....	Named after the first white woman to climb Lassen Peak, Helen Tanner Brodt.	22.5
7.9	LASSEN PEAK TRAIL....	A good trail, 2½ miles in length, to the top of the only recently active volcano in continental United States. About 3 hours.	21.8
8.2	SUMMIT OF HIGHWAY...	Elevation, 8,512 feet. Descending and going east, Lake Almanor and surrounding country are seen in the distance.	21.5
12.6	KINGS CREEK MEADOWS.	Free public camp ground. Elevation, 7,400 feet.	17.2
17.5	SUMMIT LAKE.....	Excellent camp ground, convenient for hikes, fishing, and to points of interest.	12.2
20.0	DEVASTATED AREA....	An extensive area denuded of all vegetation by hot blasts and mud flows from the May 1915 eruptions of Lassen Peak.	9.7

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Lassen Volcanic National Park—California

POINTS OF INTEREST—LASSEN PEAK LOOP HIGHWAY—Continued

Miles from south-west entrance	Name	Remarks	Miles from north-west entrance
22.5	HOT ROCK.....	Large black lava rock carried by mud flow from Lassen Peak. Observers state this rock remained quite warm over a week.	7.2
27.5	CHAOS CRAGS AND CHAOS JUMBLES.	The Chaos Crags are old lava plugs, believed to have been pushed up only 200 years ago, the top of which broke off and avalanched down to form Chaos Jumbles.	2.2
29.0	MANZANITA LAKE—EDUCATIONAL HEADQUARTERS, POST OFFICE, STORES, LODGE.	Mae Loomis Memorial Museum. Free public camp ground; cabins, lunches, groceries, rowboats, gas and oil, photographs, and supplies.	0.7
29.4	MANZANITA LAKE—CHECKING STATION.	Stop and obtain permit. Declare and have guns sealed.	0.3
29.7	NORTHWEST PARK BOUNDARY.	Viola, 6.3 miles. Butte Lake, 30 miles. Mineral 37.9 miles.	0.0

For information, service, or assistance of any kind, ASK A PARK RANGER.

Lassen Volcanic National Park—California

DISTANCES TO PRINCIPAL PLACES

BY AUTOMOBILE FROM MINERAL, PARK HEADQUARTERS

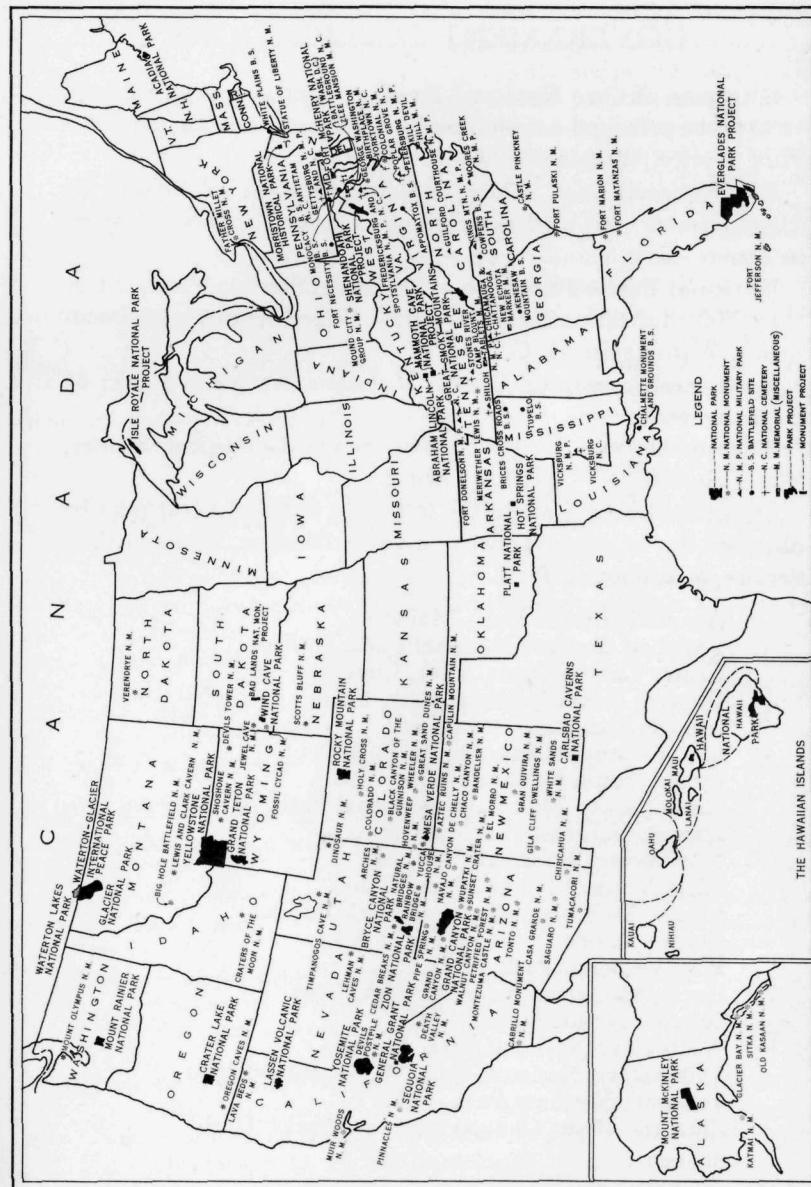
To—	Distance between points	Distance from Mineral	Remarks
Manzanita Lake:			
Park boundary.....	8.2	8.2	Elevation, 6,300 feet; declare guns.
Summit	8.2	16.4	Elevation, 8,512 feet.
Manzanita Lake.....	20.8	37.2	Museum, cabins, store, gas, camping.
Park boundary.....	.8	37.9	Road continues on to Redding and Red Bluff, to Hat Creek, and to Butte Lake.
Warner Valley (Devil's Kitchen and Boiling Lake):			
Chester	32	32	Red River Lumber Co. holdings.
Lee Camp.....	12	44	Resort accommodations.
Kelly Camp.....	2	46	Do.
Ranger Station.....	.5	46.5	Park boundary, information, maps.
Drakesbad (Warner Valley).	2.5	49	Resort accommodations (private land). 25 cents charge for nonpatrons.
Juniper Lake:			
Chester	32	32	On south shore of Juniper Lake.
Juniper Lake Camp Ground.	11	43	
Juniper Lake Resort..	1	44	Resort accommodations (private land).
Butte Lake:			
Chester	32	32	Turn right on Pittville Road.
Westwood	13	45	12 miles of rough, dangerous road.
Park boundary.....	45	90	Good fishing, Cinder Cone (via trail) 2 miles.
Butte Lake.....	2	92	
Butte Lake via Lassen Peak Loop Highway:			
Park boundary.....	8.2	8.2	See Mineral to Manzanita Lake.
Summit	16.4	16.4	Elevation 8,512 feet.
Manzanita Lake.....	37.2	37.2	Educational headquarters.
Old station.....	13.3	50.5	Store, gasoline, post office.
Subway Caves.....	.9	51.4	Interesting lava tubes.
Butte Lake.....	17.2	69	When approaching Butte Lake over sand stay strictly in ruts in the road.

BY TRAIL FROM THE LOOP HIGHWAY TO—

	Miles
Lassen Peak.....	2.5
Bumpas Hell.....	1.2
Brokeoff Mountain Lookout.....	3.0
Kings Creek Falls.....	1.3
Echo Lake.....	1.8
Twin Lakes.....	3.2
Cluster Lakes (from Badger Flat).....	2.7
Shadow Lake.....	0.8
Cliff Lake.....	1.5
Devil's Kitchen (from Summit Lake).....	5.3

DO YOU KNOW YOUR NATIONAL PARKS

- Acadia, Maine.**—Combination of mountain and seacoast scenery. Established 1919; 21.61 square miles.
- Bryce Canyon, Utah.**—Canyons filled with exquisitely colored pinnacles. Established 1928; 55.06 square miles.
- Carlsbad Caverns, New Mexico.**—Beautifully decorated limestone caverns believed largest in the world. Established 1930; 15.56 square miles.
- Crater Lake, Oregon.**—Astonishingly beautiful lake in crater of extinct volcano. Established 1902; 250.52 square miles.
- General Grant, California.**—Celebrated General Grant Tree and grove of Big Trees. Established 1890; 3.96 square miles.
- Glacier, Montana.**—Unsurpassed alpine scenery; 250 lakes; 60 glaciers. Established 1910; 1,533.88 square miles.
- Grand Canyon, Arizona.**—World's greatest example of erosion. Established 1919; 1,009.08 square miles.
- Grand Teton, Wyoming.**—Most spectacular portion of Teton Mountains. Established 1929; 150 square miles.
- Great Smoky Mountains: North Carolina, Tennessee.**—Massive mountain uplift covered with magnificent forests. Gorgeous wild flowers. Established for protection 1930; 615.76 square miles.
- Hawaii: Islands of Hawaii and Maui.**—Volcanic areas of great interest, including Kilauea, famous for frequent spectacular outbursts. Established 1916; 245 square miles.
- Hot Springs, Arkansas.**—Forty-seven hot springs reserved by the Federal Government in 1832 to prevent exploitation of waters. Made national park in 1921; 1.48 square miles.
- Lassen Volcanic, California.**—Only recently active volcano in United States. Established 1916; 163.32 square miles.
- Mesa Verde, Colorado.**—Most notable cliff dwellings in United States. Established 1906; 80.21 square miles.
- Mount McKinley, Alaska.**—Highest mountain in North America. Established 1917; 3,030.46 square miles.
- Mount Rainier, Washington.**—Largest accessible single-peak glacier system. Third highest mountain in United States outside Alaska. Established 1899; 377.78 square miles.
- Platt, Oklahoma.**—Sulphur and other springs. Established 1902; 1.33 square miles.
- Rocky Mountain, Colorado.**—Peaks from 11,000 to 14,255 feet in heart of Rockies. Established 1915; 405.33 square miles.
- Sequoia, California.**—General Sherman, largest and oldest tree in the world; outstanding groves of Sequoia gigantea. Established 1890; 604 square miles.
- Wind Cave, South Dakota.**—Beautiful cavern of peculiar formations. No stalactites or stalagmites. Established 1903; 18.47 square miles.
- Yellowstone: Wyoming, Montana, Idaho.**—World's greatest geyser area, and an outstanding game preserve. Established 1872; 3,437.88 square miles.
- Yosemite, California.**—Valley of world-famous beauty; spectacular waterfalls; magnificent high Sierra country. Established 1890; 1,176.16 square miles.
- Zion, Utah.**—Beautiful Zion Canyon 1,500 to 2,500 feet deep. Spectacular coloring. Established 1919; 148.26 square miles.



LOCATIONS OF 24 NATIONAL PARKS, 1 NATIONAL HISTORICAL PARK, 10 BATTLEFIELD SITES, 11 NATIONAL MONUMENTS, AND 4 MISCELLANEOUS MEMORIALS ADMINISTERED BY THE NATIONAL PARK SERVICE.

GOVERNMENT PUBLICATIONS

Glimpses of Our National Parks. Contains brief descriptions of the principal national parks. Address Director, National Park Service, Washington, D. C. Free.

Recreational map. Shows principal recreational areas in the United States with brief descriptions of principal ones. Address as above. Free.

National Parks Portfolio. By Robert Sterling Yard. More than 300 illustrations; cloth-bound. Superintendent of Documents, Washington, D. C. \$1.50.

Topographic map of Lassen Volcanic National Park; 24 by 20 inches.

Address Director of the United States Geological Survey, Washington, D. C. Price, 10 cents.

Illustrated booklets about the following national parks may be obtained free of charge by writing to the Director, National Park Service, Washington, D. C.:

Acadia National Park, Maine
Carlsbad Caverns National Park, N. Mex.
Crater Lake National Park, Oreg.
General Grant National Park, Calif.
Glacier National Park, Mont.
Grand Canyon National Park, Ariz.
Grand Teton National Park, Wyo.
Great Smoky Mountains National Park, N. C.-Tenn.
Hawaii National Park, Hawaii
Hot Springs National Park, Ark.
Mesa Verde National Park, Colo.
Mount McKinley National Park, Alaska
Mount Rainer National Park, Wash.
Platt National Park, Okla.
Rocky Mountain National Park, Colo.
Sequoia National Park, Calif.
Wind Cave National Park, S. Dak.
Yellowstone National Park, Wyo.-Mont.-Idaho
Yosemite National Park, Calif.
Zion and Bryce Canyon National Parks, Utah