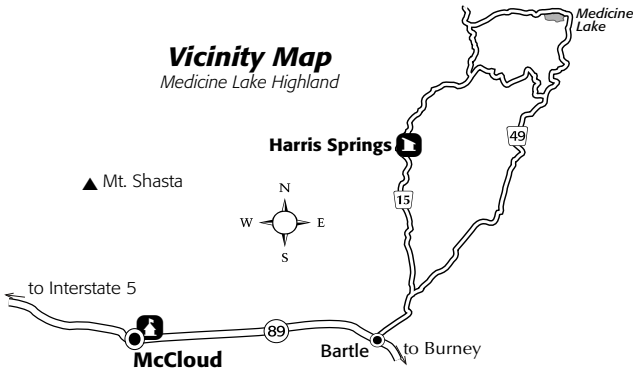


Medicine Lake Highlands: Self Guided Roadside Geology Tour

McCloud Station • Shasta-McCloud Management Unit • Shasta-Trinity National Forest



Overview... One of the most diverse and least visited volcanos in the state of California is Medicine Lake Volcano. It lies east of the main volcanic axis of the Cascades, and is much different than the more typical Cascade Mountains stratovolcanos, such as Mt. Shasta and Mt. Lassen which stand nearby. Because this subrange of the Cascades is somewhat remote, the fascinating nature of this area is largely unappreciated.

Medicine Lake Highlands is the largest identified volcano (in total area) within California. The large Hawaiian type shield volcano's broad, gently sloping profile (stretching some 15 miles from east to west and nearly 25 miles north and south) belies the fact that it is actually larger in mass than nearby Mt. Shasta. Approximately 100,000 years ago, the great volcano underwent a series of eruptions which undermined the center of the mountain and the crest subsided to create a huge crater or caldera. Around the margins of this subsidence, new, smaller volcanos arose; they are called rampart volcanos. Medicine Lake now partially fills the crater.

Geologists speculate over what events took place that caused the unusual shapes and features to form and how a series of eruptions changed the face of the countryside in the area. One thing is clear, however, more than a million years of volcanic activity have produced a landscape that is perhaps California's most diverse volcanic field. Volcanic formations such as glass flows, pumice deposits, lava tubes and cinder cones are found throughout the Medicine Lake Highlands. Following are some descriptions and examples of these features...

Glass flows... One of the more unique features of the Medicine Lake Highlands is the glass or obsidian flows. The smooth, black, glassy rock was often used by the Indians to make tools and arrowheads. The two major glass flows on the McCloud District are:

Little Glass Mountain (stop S on the tour)

Grasshopper Flat Batholith (a mostly buried rhyolitic obsidian flow)

Pumice deposits... As you travel up the Medicine Lake Volcano on Road 15 (between stops L and M) you will begin to see white or light gray rocks (gravel) covering the land surface. These rocks are pumice which shot from Little Glass Mountain during its last eruption. Pumice is a frothy form of obsidian which is light enough to float on water. The pumice deposit can be as thick as 10 feet in some areas near the source of the eruption.

There are many lava tubes and caves, some undiscovered, scattered throughout the Medicine Lake Highlands. These features were formed when molten lava flows cooled and solidified on the surface while the fluid interior continued to flow, forming a cave like tube. Natural bridges formed when these tubes collapsed on either side. Two of the most accessible tube and bridge formations are...

Roadside Cave Complex (stop H on the tour)

Jot Dean Ice Cave (stop I on the tour)

Cinder Cones... These cones were formed by gaseous, explosive eruptions in which cinders piled up around the opening. Usually there is a crater at the apex of these cones. Sometimes one of the walls of the crater is breached by a lava flow, leaving a horseshoe shaped cinder cone. There are many cinder cones on the flanks of the Medicine Lake Volcano. Several of them are:

Stud Hill

Little Mount Hoffman

Paint Pot Crater (stop O on the tour)

Pumice Stone Mountain (stop Q on the tour)

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Shasta-Trinity National Forest

This road log begins at the intersection of Highways 89 and Forest Road 15 (Harris Springs Road), 0.2 miles east of the Bartle Store, located approximately 16 miles east of McCloud. Depending upon which route you choose, it will end at either Little Glass Mountain or Medicine Lake. Except for the last 0.6 miles from Road 15 to Little Glass Mountain, the entire tour is on paved roads, suitable for passenger vehicles. Most of the stops can be viewed from your vehicle or by parking and walking a short distance. Enjoy your trip, but be sure to watch out for traffic on these often heavily travelled roads.

Self Guided Roadside Geology Tour...

Mile	Stop	Description
0	Begin	This tour begins at the junction of Highway 89 and Forest Road 15 (the Powder Hill Road).
1.9	A	Deadhorse Ridge... The prominent ridge on the right is the upthrown block of thrust fault or horst. At one time (many thousands of years ago), the top of that ridge and the ground where you are now traveling were at the same elevation.
3.1	B	McIntosh Vista... The parking area on the left side of the road offers a great viewing opportunity. Mt. Shasta is on the far right, and to the left of it you can see Castle Crags in the distance. The plantation you see below you was planted in 1969.
4.3	C	Powder Hill Road Turnoff... This is the point at which you must decide whether you want to follow the route to Medicine Lake or to Little Glass Mountain. If you choose to go to Medicine Lake turn right on Forest Road 49 and continue the tour with stop D. Continue straight on forest road 15 if you want to go to Little Glass Mountain and continue your tour with stop K.
13.1	D	Hunters Hill Escarpment... The hill you have just climbed and are now descending is Hunters Hill. The fairly sharp decline is the result of another fault, very similar to the one at Deadhorse Ridge.
13.5	E	Giant Crater Lava Flow... This is the first glimpse of the flow which is an unbroken field of jumbled and broken rock that originated as lava flowing from Giant Crater about ten miles to the north. You will see it many more times along this road. This is a good time to remind you to keep an eye out for the large and sometimes very gnarled Ponderosa Pine and Incense Cedar trees you will see growing right out of the rocks.
15.1	F	Medicine Lake Highlands View... At this point you will be able to see what remains of the broad flanks of Medicine Lake Volcano. This shield volcano is the largest (in total area) in California. Around 100,000 years ago, a series of eruptions undermined the center of the volcano and the crest subsided to create a huge crater or caldera. Medicine Lake partially fills the ancient crater.
15.6	G	Flanks of Medicine Lake Volcano... From this point to the rim of the caldera at Medicine Lake, you will be climbing up the various flows and around the rampart cones of what used to be Medicine Lake Volcano.
20.3	H	Roadside Cave Complex... There is a place to pull off on the left side of the road. Watch for traffic. If you walk a short distance, you will see a number of caves, tubes, and natural bridges. The caves and tubes were formed when molten lava began to cool at the surface while the interior continued to flow. They are often multitiered and may extend for miles. The Giant Crater Lava Tube extends for almost 18 miles and forms the longest known tube system in the world. Natural bridges formed when tubes collapsed on either side leaving the wall between. The caves and tubes can be very cold and VERY dark. Wear a coat and carry a flashlight!
21.9	I	Jot Dean Ice Cave... There is a small parking lot on the left side of the road. Many of the caves, like this one, tend to collect cold air. Ice, which forms inside the caves in the winter, can persist throughout the summer.

30.5 **J** **Medicine Lake...** The lake partially fills the caldera which was formed when Medicine Lake Volcano collapsed. This caldera is 4.5 miles wide and 6.5 miles long. At this point, follow the signs to the picnic area, boat launch or campgrounds. If you follow the signs past the campground, the road will continue around past Little Mount Hoffman and on to Glass Mountain.

Begin the route to Little Glass Mountain from Stop C on Forest Road 15.

Mileages are from Highway 89.

Mile	Stop	Description
10.5	K	Dry Lake... If you want to visit the lake bed itself you will have to slow down and look for the short dirt road on the right which goes out onto the lake. Otherwise you can view it through the trees. This is a Pleistocene (10,000 to 100,000 years ago) lake bed. Water ponds up in it nearly every year. In 1982 and 1983 there was water in it year round. If you look carefully, you can see the water marks about 4' up the tree trunks surrounding the lake.
14.8	L	Harris Springs Campground Turnoff... There is a USDA Forest Service campground with drinking water, pit toilets and a ranger station (open during the summer). It is about 3.4 of a mile off the paved road.
20.2	M	Doe Peak and Twin Crater Mountain... The peak on the right is an andesitic composite cone. The vent has migrated southward and the result is two cones, side by side. As you can tell by the name, the more southerly peak has two large craters on it.
23.3	N	Tilted Rock Lava Flow... This flow is 3/4 of a mile off the paved road. It cooled enough to form a surface crust that sometimes broke and turned on edge during later movement. The red color is caused by a high iron content in the lava.
24.7	O	View of Paint Pot Crater... This is one of the best views of Paint Pot Crater from the road. It is a cinder cone composed of pumice and red and black cinders. In the background you can see Pumice Stone Mountain.
26.3	P	View of Little Glass Mountain... This is the best view of Little Glass Mountain.
27.0	Q	Pumice Stone Well... There is a small parking lot on the left side of the road with a good view of Pumice Stone Mountain, a cinder cone with a deep layer of pumice that fell from the air during the Little Glass Mountain eruption. There is a seasonal pond here which is often a favorite hangout for wildlife.
27.2	R	Little Glass Mountain Turnoff... Leave Forest Highway 15 and drive east towards Medicine Lake or on to Highway 97. This is not a paved road it is wash board pumice.
27.8	S	Little Glass Mountain... This is a rhyolite, pumice and obsidian flow about 1100 years old. Native Americans did not use this obsidian because the extensive white intrusions of crytaubolite make it flake erratically. Park in the parking lot here... it is VERY easy to get stuck in the pumice.

Remember... Back country travelers may encounter a variety of dangerous conditions. It is your responsibility to inform yourself about these inherent risks and take precautions.

There is a Map of the Self Guided Tour on the back of this Recreation Opportunity Guide...

for more information contact us on the world wide web: www.fs.fed.us/r5/shastatrinity

