

# Lava Beds

National Monument

National Park Service

## Putting the Lava in the Lava Beds

### Reporting

To the average layman, perhaps, it may seem that when geologists write reports, they write them for other geologists to read and study. They speak to each other in a language that only they can fully comprehend. Most of us have difficulty understanding all their terms and how they are used and simple processes can become too complex to comprehend.

### Understanding

We have an advantage here when we study the geology of Lava Beds National Monument. We do not have to identify several different types of sandstone, different types of limestones, various qualities of shales, or different granites, quartzes, or mineral ores. We have one basic rock to study and that is lava. While there are four types of lava (basalt, andesite, dacite, and rhyolite), it takes a trained geologist to tell one from the other; to most of us, they are all just lava. They differ only in the amounts of silica they contain. As you may know, clear glass is nearly all silica. Rhyolite may contain as much as 77% silica and thus is responsible for the forming of obsidian, or "volcanic glass." Basalt, on the other hand, is less than one-half silica and is therefore less spectacular and looks more like what we might expect cooled, hardened lava to be. Over 90% of the lava we see in Lava Beds National Monument is basalt. Andesite, with only slightly more silica, accounts for nearly all the rest.

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## **Volcanism**

Many visitors ask if these lava flows were formed by the eruptions of Mount Shasta. Shasta is indeed a beautiful, mighty, awe inspiring, extremely high, typical volcano. Its eruptions, however, covered only approximately 60 square miles of land with lava. These lava beds were formed by the activity of the Medicine Lake shield volcano. The action of this mighty volcano covered more than 750 square miles of the landscape with the lava we see today. Lava Beds National Monument encompasses about 10%, or roughly 75 square miles, of this spectacular coverage.

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## **Formations**

Lava Beds National Monument offers many different features of volcanic activity including cinder cones, spatter cones, chimneys, lava flows, forested buttes, craters, Glass Mountain (just outside the monument) and, of course, our famous lava tube caves. Connected to the earliest activity is the formation known as Gillem Bluff which resulted from faulting of the earth's crust. The bluff displays layers of basalt that are believed to be over a million years old. Covering almost the entire monument are small bits of pumice which formed as fallout from the eruptions of Glass Mountain and Little Glass Mountain about 1,000 years ago. This was the latest major volcanic activity.

One other feature is known as tuff. This is a material that is formed when lava interacts with water. A fine example of this can be seen at Petroglyph Point. The tuff layers are easily seen and tell the story of the action that took place when frothy lava erupted in ancient Tule Lake. The material is easily worn away by wind and water and we can see this quite clearly. Continuing erosion will some day steal our petroglyphs away.

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## **Summing Up**

One can see spectacular eruptions at Hawaii Volcanoes National Park. Great lava flows can be seen there. Craters of the Moon has some of the features found here. However, Lava Beds displays a much greater variety of volcanic features than do the others--all in a relatively small area.

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