

Craters of the Moon

National Monument and Preserve
Idaho

National Park Service
Bureau of Land Management
U.S. Department of the Interior



"The surface of the moon as seen through a telescope" is how geologist Harold T. Stearns described this area in 1923. Stearns saw a place where "the dark craters and the cold lava [were] nearly destitute of vegetation." Its strangeness stirred local legends, wider public interest, and then a feature story in *National Geographic* magazine. In 1924, responding to growing public concern, President Calvin Coolidge used the 1906 Antiquities Act to proclaim Craters of the Moon National Monument, preserving "a weird and scenic landscape, peculiar to itself."

Many lava flows exist on Earth's actual moon, but astronauts confirmed that most lunar craters resulted from meteorite impacts, not volcanism. The craters of Craters of the Moon, however, are definitely of volcanic origin. But where is the volcano? These vast volumes of lava issued not from one volcano but from a series of deep fissures—known collectively as the Great Rift—that cross the Snake River Plain. Beginning 15,000 years ago lava welled up from the Great Rift to produce this vast ocean of rock. The most recent eruption occurred a mere 2,000 years ago, and geologists believe that future events are likely.



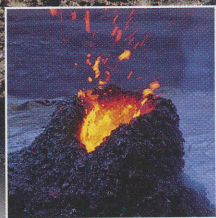
The Snake River Plain forms a conspicuously flat volcanic arc across otherwise mountainous Idaho.

A line of spatter cones (top) identifies the park's volcanic rift zone.

© KIRKENDALL-SPRING

Comparisons with Active Volcanics Show How Park Features Formed

SPATTER CONES



The Spatter Cones (above and top) are excellent examples of these miniature volcanoes. This active spatter cone (inset, from Hawaii) shows how these features form as the ejected globs of tacky lava weld together.

TOP: © DAVID MUENCH / CORBIS; INSET: © G. BRAD LEWIS



Very fluid flowing lava forms smooth, rope-like pahoehoe lava, shown here in Hawaii.

© G. BRAD LEWIS



When thicker and more viscous lava emerges, rubble-like, crusty 'a'ā lava results, as shown here in Hawaii.

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Big globs of lava blown out of cinder cones may harden in flight, forming lava bombs that can take many shapes.

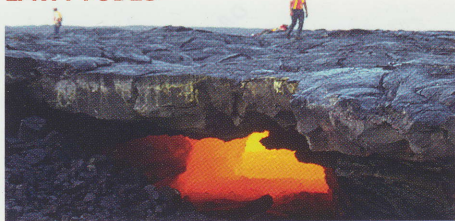
CINDER CONES



The trail leading beyond the Spatter Cones (above) provides access to the Big Craters cinder cone complex. When lava with high gas content is erupted (inset, from Alaska), foamy cinders accumulate near the vent.

TOP: NPS; INSET: US GEOLOGICAL SURVEY

LAVA TUBES



© SCOTT ROWLAND

Indian Tunnel (*below*) is a lava tube, a lava flow that hardened on the outside while the lava still flowed within. A lava tube in Hawaii (*above*), with molten lava still flowing inside, shows how these caves form.



© MARK E. GIBSON / CORBIS



© GLENN EMBREE PHOTOGRAPHY

FISSURES and RIFTS

An aerial photo shows a portion of the 52-mile-long fissure called the Great Rift (*above*). Active volcanism in Hawaii (*below*) shows how molten lava spreads from a fissure. As parts of an erupting fissure become clogged, fountains of lava accumulate to form cinder cones and other features.



US GEOLOGICAL SURVEY

KIPUKAS



US GEOLOGICAL SURVEY

Young lava flows that surround older flows can form island-like kipukas. The same searing lava flows that destroyed everything in their path today protect some of the last refuges of natural sagebrush steppe vegetation in this region (*below*). This photo from Hawaii (*above*) shows a new kipuka forming.



NPS

Erupting with Life

While seemingly barren, the park's lava fields and arid sagebrush areas sustain a surprising diversity of plant and animal life. The most startling example of this can be seen when annual wildflower blooms peak in mid-June. Delicate annuals bloom beginning in late May as snowmelt and occasional rains provide needed moisture. Summer dryness allows the more drought-resistant plants to grow and bloom through mid-September.

Dwarf buckwheat plants (*large photo*) grow with such regular spacing that you might think someone planted them. But the regular spacing occurs because the plants compete for water through their extensive root systems. Many plants here are adapted to resist losing moisture from the heat and wind. Some have small leaves that minimize water loss. Many grow in crevices that give them shade and wind protection and collect precious moisture.

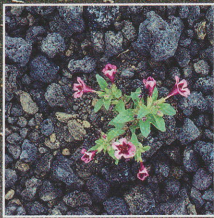
Islands of vegetation—called kipukas—that are surrounded by younger lava flows preserve important areas of the sagebrush steppe plant-and-animal community. These provide relatively undisturbed havens for native plants and animals. Kipukas can also show scientists what the native vegetation was like—before livestock grazing and the invasion by non-native plants like cheat grass—and how native plant communities might now be restored.



Lichen
NPS



Limber pine seedlings
NPS / JOEL F. MUR



Monkeyflower
© CHARLEY GURCHE



Bitterroot
NPS / JOEL F. MUR



Paintbrush
NPS / RICHARD SCHNEIDER



Syringa
NPS / DAVE CLARK

Life on Lava

Pikas store dry grasses to eat under the snow in winter. Summer heat here would kill them but for the cool havens of cracks, crevices, and openings beneath the lava surface. Hardy limber pines are the first trees to pioneer lava habitat.

Photos, left to right:



Life in the Sagebrush
Kipukas and other sagebrush covered areas are home to sage grouse, famous for their spring mating displays. These birds are missing from one-third of their historic range in southern Idaho because of the loss of habitat.

BACKGROUND: © ED DEGGINGER

Pika
© TOM AND PAT LEESON

Antelope bitterbrush
© PRISCILLA ALEXANDER EASTMAN

Prickly pear cactus
© ERIC AND DAVID HOSKING / CORBIS

Sage grouse (male)
© D. ROBERT AND LORI FRANZ / CORBIS

Big sagebrush
© ROBERT J. ERWIN/PHOTO RESEARCHERS, INC.

Pygmy rabbit
© KEITH LAZELLE

Exploration and Preservation of Craters of the Moon

For much of this area's early history the lava lands were a mysterious blank spot on maps. But the Northern Shoshone are known to have passed through the area on their annual migration from the Snake River to the Camas Prairie to the west. They left behind well-worn trails and rock structures like windbreaks and mysterious stone circles on top of the lava.

In the 1800s, people searching for gold or farm and ranch lands mostly avoided the lavas. Early traces, some still visible along US 20/26/93, were left by emigrants who

followed Goodale's Cutoff of the Oregon Trail. In the 1850s and 1860s pioneers took this alternate route to avoid conflicts that had flared up with the Shoshone along the Oregon Trail's main route.

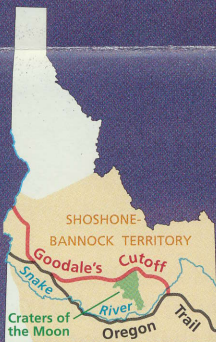
Craters of the Moon finally became known through sheer curiosity. Federal geologists explored here in 1901 and again in 1923. Also in the 1920s a taxidermist and Idaho promoter, Robert Limbert, made three epic journeys through the lava. His lectures and articles about these lava lands helped to publicize the area and contributed to the

establishment of a national monument here in 1924. In 1970 Congress designated much of the national monument as wilderness, one of the first in the National Park System. In 2000 most of the Great Rift and associated lava fields were added to the national monument. In 2002 Congress established the national preserve. Today the National Park Service and Bureau of Land Management, along with the American people, share the responsibility for taking care of this special place.



Archeological evidence and oral traditions both indicate that Shoshone likely witnessed some volcanic eruptions along the Great Rift.

NATIONAL ARCHIVES



Oregon-bound pioneers followed the Goodale's Cutoff along the northern edge of the lava lands in the mid-1800s. Present-day Idaho was in the Oregon Territory then. In 1863 it became the Idaho Territory and a state in 1890.



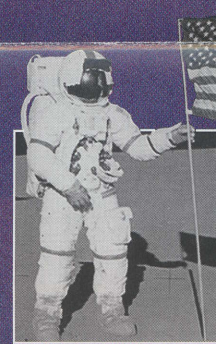
Robert Limbert, Idaho taxidermist and part-time explorer, hiked the length of the Great Rift in 1920. His work drew national attention to the fascinating volcanic formations here—and to the need to protect them.

NPS



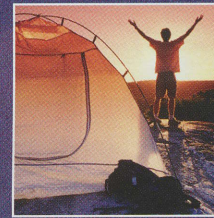
Harold Stearns, a geologist, described this area as the nation's "most recent fissure eruption" (outside of Hawaii) in 1923. He soon became an outspoken advocate for preserving the area as a national monument.

© WESLEYAN UNIVERSITY



NASA's Apollo Astronauts Alan Shepard, Edgar Mitchell, Eugene Cernan, and Joe Engle learned basic volcanic geology here in 1969 as they prepared for their moon missions.

NATIONAL ARCHIVES



Backpackers enjoy the challenge and solitude of the Craters of the Moon Wilderness.

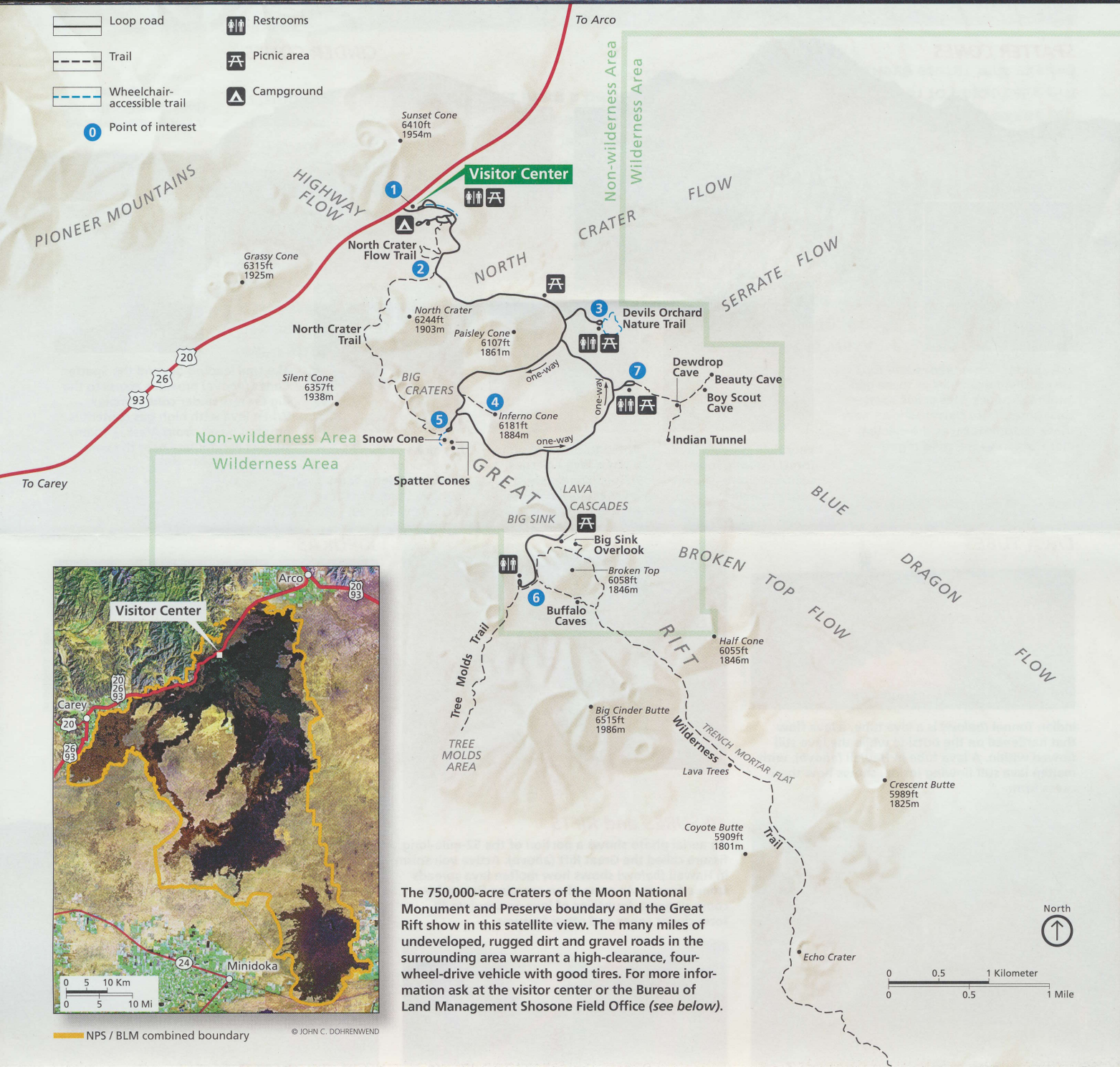
© LWA-STEPHEN WELSTEAD / CORBIS

A moonlit, southeastward view from the Great Rift shows part of the Craters of the Moon Wilderness.

NPS

-  Loop road
-  Trail
-  Wheelchair-accessible trail
-  Point of interest

-  Restrooms
-  Picnic area
-  Campground



The 750,000-acre Craters of the Moon National Monument and Preserve boundary and the Great Rift show in this satellite view. The many miles of undeveloped, rugged dirt and gravel roads in the surrounding area warrant a high-clearance, four-wheel-drive vehicle with good tires. For more information ask at the visitor center or the Bureau of Land Management Shoshone Field Office (see below).

Exploring Craters of the Moon by the Loop Road

The scenic 7-mile loop road provides access to trails that take you over, under, and around the various volcanic features. Trail mileages are one-way distances. Allow a half-hour for the drive itself and more time for stopping at viewpoints and for hiking the trails.

1 Visitor Center Begin here with films, exhibits, and the schedule of ranger-led walks and evening programs. The Craters of the Moon Natural History Association bookstore is in the visitor center.

2 North Crater Flow A 0.3-mile trail crosses one of the youngest flows to monoliths, crater fragments rafted here by lava flows. Nearby, a 1.8-mile trail winds through the vent of North Crater and exits at the Spatter Cones/Big Craters parking lot.

3 Devils Orchard Island-like lava fragments stand in a sea of cinders. Take the spur road and short walk (0.5-mile, accessible) through these weird features. Learn about human impacts on the park and how the park is being protected today.

4 Inferno Cone From atop this cone (a short, steep 0.2-mile walk) you see cinder cones lined up along the Great Rift. Big Cinder Butte, towering above the lava plain to the south, is one of the world's largest basaltic cinder cones.

5 Spatter Cones and Big Craters Area A short, wheelchair-accessible trail leads to these miniature volcanoes. You can view the spectacular Big Craters by hiking a steep 0.25-mile part of the North Crater trail that branches off to the west.

6 Trails to Tree Molds, Broken Top, and Wilderness A spur road after stop 5 leads to this trailhead. View the imprint of lava-charred trees along the 1-mile Tree Molds Trail. Broken Top Trail (self-guiding) goes around a cinder cone (1.8 miles). The Wilderness Trail leads to molds of upright trees called lava trees (2 miles) and the wilderness area beyond.

7 Cave Area See lava tubes—Dewdrop, Boy Scout, Beauty, and Indian Tunnel—via a 0.8-mile trail across the lava. **Obtain a permit**, carry a flashlight, and wear sturdy, close-toed shoes before entering any cave. **Warning:** Exploring these natural, wild caves can be dangerous. Stay out of the hazardous sections marked with signs or barriers.

Planning Your Visit

Craters of the Moon visitor center is 18 miles southwest of Arco, ID, on US 20/26/93 (*map at right*). The visitor center, campground, and trails shown in red above are wheelchair-accessible. The visitor center offers water and restrooms year-round. A campground (first-come, first-served; no reservations accepted) offers water, restrooms, charcoal grills, and picnic tables but no hookups. Wood is scarce; *wood fires are prohibited*. A separate camping area serves groups of 10–30; visit www.recreation.gov to reserve. The campground and stops 3, 6, and 7 (*large map*) have waterless restrooms. The loop drive, closed November–April, is excellent for skiing and snowshoeing then. For firearms regulations ask a ranger or visit the park website.

Accessibility We strive to make our facilities, services, and programs accessible to all. For information go to the visitor center, ask a ranger, call, or check our websites. This area includes two of over 400 parks in the National Park System (www.nps.gov) and one of 27 national monuments in the Bureau of Land Management's National Landscape Conservation System (www.blm.gov).

More Information



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www.nps.gov/crmo



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