El Malpais

National Park Service
U.S. Department of the Interior

El Malpais National Monument
www.nps.gov/ELMA

Big Tubes Area

The Big Tubes Area offers first hand exploration of a variety of the volcanic features and diverse environments that make up El Malpais National Monument. A lava wall, lava bridges, collapses and lava tube caves can be seen in this darkened land of beauty and mystery.

Exploring Big Tubes

To get to the Big Tubes Area, take County Road 42 to the Big Tubes Road and travel 4.5 miles to the parking area. Although normally accessible in a passenger car, these roads can be impassable during wet weather, even in four-wheel-drive vehicles. Please check road conditions before venturing to this area.

From the parking area, a cairn-marked route leads you over a portion of the Bandera lava flow, the second youngest lava flow in El Malpais. These rock cairn routes are made from the surrounding landscape and can be difficult to see. Be sure to have the next cairn in sight before leaving the one you are. Allow yourself plenty of daylight to enjoy your exploration. The surface trail is approximately 2 miles. If you hike the trail, and explore the caves, plan on spending at least 4 hours.

Exploring Lava Tube Caves

- carry three flashlights per person with extra batteries and bulbs
- wear a hard hat, gloves and protective clothing

Exploring the Big Tubes Area

- carry plenty of water
- wear sturdy hiking shoes
- pack a snack and a first aid kit
- tell someone of your plans

GPS Coordinates

Datum: NAD 27, Zone 12

- Parking Area

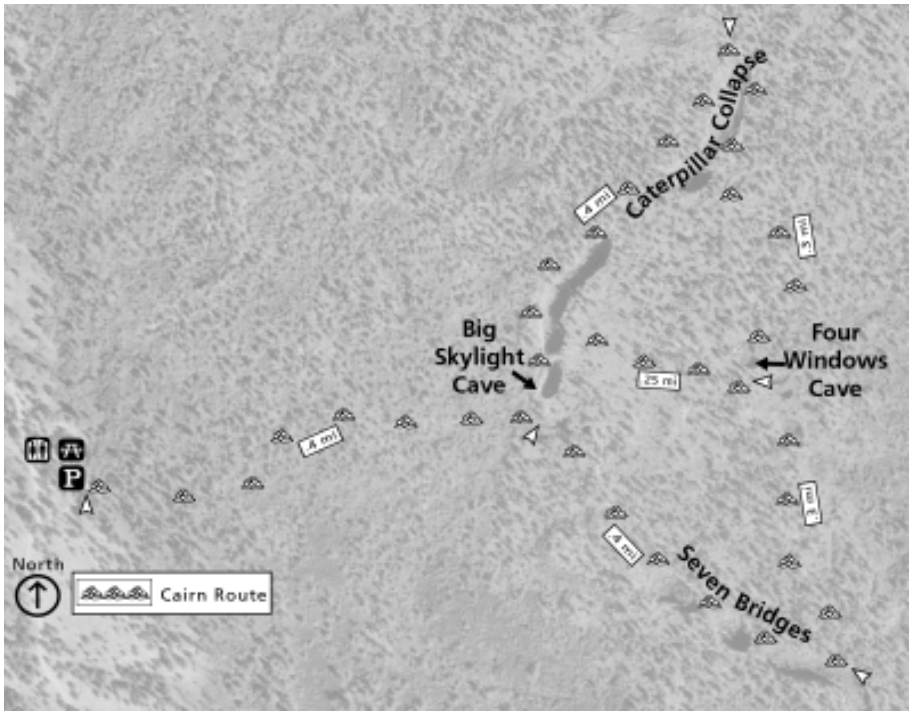
North 3870519.84	Latitude 34° 56.31' 44.20"N
East 764290.36	Longitude 108° 06' 22.20"W

- Big Skylight Cave

North 3870645.55	Latitude 34° 56' 43.91"N
East 764783.83	Longitude 108° 06' 02.59"W

- Four Windows Cave

North 3870674.56	Latitude 34° 56' 33.9"N
East 765021.47	Longitude 108° 05' 53.23"W



Bandera Crater and Flow


Rock cairn

Approximately ten thousand years ago, eruptive forces of magma broke through the Earth's crust. Small pieces of lava ash, or cinder, accumulated around the volcanic vent and built Bandera Crater. Hot, fluid lava eased out the base of the loosely structured cinder cone in a series of flows that lasted for several years.

Confined by channels of older *a'a* lava, the flows from Bandera Crater formed lava rivers that flowed to the south and east, skirting the Zuni Mountains to the north.

As the outer layer of lava cooled and hardened, it insulated the fluid underlying lava. Eventually, the lava ceased flowing and lava tubes were formed.

The Bandera lava flow created a seventeen-mile-long lava tube system, one of the longest in the Continental United States. The lava tube caves and collapses in the Big Tubes Area are part of this system.

The high volume basaltic flows ended with the collapse of the emptied magma chamber under the crater. This made Bandera Crater deeper than most volcanic cinder cones.

Caves and Collapses

As hot fluid lava eroded existing lava tubes, it deepened two of the monument's most spectacular lava tube caves. A large round opening near its entrance gives Big Skylight Cave its name, while four small openings near its entrance identify Four Windows Cave.

The sunlight that pours through these openings provides an opportunity for life to thrive where it might not otherwise. Spiders, mites, crick-ets and other small creatures live beneath the openings in gardens of delicate green moss.

Horizontal layers, or shelves, in Big Skylight Cave resulted when lava levels fluctuated during formation. Dripstone lava formed as the walls and ceiling of the tube remelted, then began to drip before they hardened. The floor of Big Skylight is littered with rubble that was once part of the ceiling, but fell as the lava cooled. This ceiling rubble makes for a rugged hike through the cave.

In contrast, the smooth floor of Four Windows Cave makes for easier exploration. Gypsum and calcium deposits and seasonal ice stalagmites are habitats for a variety of microscopic organisms that have adapted to life in complete darkness.

Life in all caves is delicate and your actions directly affect this fragile environment. Follow proper caving etiquette and tread softly. Do not take any food in the caves or leave foreign objects behind. Do not disturb cave life or formations and respect all area closures.

Both Caterpillar Collapse and Seven Bridges were once lava tubes whose roofs collapsed. The roof of Caterpillar Collapse crumbled slowly and completely, leaving the long, winding trench seen today.

The first bridge that makes up Seven Bridges is visible near the entrance of Big Skylight Cave. Here the roof fell rapidly, leaving bridges that were solid enough to withstand the downfall of surrounding rock.

These caves and collapses are only part of the extensive seventeen-mile-long lava tube system that originates from Bandera Crater and are examples of the volcanic forces that continue to shape the earth.

Lava Wall

Explore this area on your own as there is no marked route. Lava Wall can be found half a mile before you reach the Big Tubes parking area

Lava Wall was created when *a'a* flows originating from Bandera Crater stopped as they reached the northern slopes of Cerro Rendija. Huge blocks from the crater's walls were rafted on these flows and deposited several miles away. These blocks– some of which are fifty feet high–are visible in the Lava Wall area.

Xenoliths can also be seen in the basalt rocks of the Bandera flow. These foreign rocks are fragments of the Earth's mantle that were brought to the surface by fast-rising magma and encased as the lava cooled.

Venturing beyond Lava Wall, you will see some of the oldest living trees in the Southwest. Through tree-ring dating, scientists have dated Douglas firs here to be over 700 years old and still thriving.

El Malpais is a living laboratory for tree-ring scientists (dendrochronologists). The arid climate of the South-west combined with the rugged lava terrain has preserved many of the dead trees. Dendrochronologists have used these rare pieces of wood to reconstruct a weather and climate history to 200 BC and a fire history to AD 1700.

Pine, juniper and aspen trees have also found their niche here where the porous nature of lava supplies the water necessary for survival.

Wilderness

Most of El Malpais National Monument is under consideration for wilderness designation. Lack of developed trails illustrate the primitive environment required for a wilderness experience. You can help maintain this area by preparing for your outdoor adventure.

Leave No Trace ethics aid in the protection of backcountry and wilderness areas. Pack out everything you pack in. Leave all natural, cultural and historical objects as you find them. Do your part to keep this wilderness wild. Tread lightly and leave no trace of your visit.

For More Information

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