



## Caving



Underneath the lava flows of El Malpais lie a hidden world of lava tube caves. With a free caving permit and proper equipment, you can explore fascinating geology and hidden ice formations.

### Caving Permits



Permits are required and available at the El Malpais Visitor Center, Information Center (seasonally), and the El Morro Visitor Center. Permits are free, and visitors must speak with a park ranger about cave safety, conservation

information and their level of caving experience. Cave permits are only valid for indicated times and specific caves. Talk with a park ranger and visit the park website to learn more: [www.nps.gov/elma](http://www.nps.gov/elma)

### Cave Safely

**Don't Go Alone** - Group exploration makes caving safer. Keep together, warn others about hazards or fragile formations, and always tell someone where you are going and when you will return.

**Prevent Exposure & Injury** - Dress appropriately for caves. Ambient temperatures in most caves is around 42 degrees (6 degrees celsius) year round, some are colder. Wear long sleeves, long pants, boots, and gloves. Cave ceilings are sharp, use helmets to protect yourself.

**Lots of Lights** - Each caver should carry three (3) light sources and extra batteries.

**Be Observant** - Pay attention to your route and remember junctions and landmarks.

**Know Your Limits** - Injuries and disorientation are more common when you are tired. Always choose a cave that is easy enough for the least experienced member of your group. Caves are not safe for small children.



### Cave Softly

**Leave No Trace** - Do not eat, drink, smoke, litter, or leave human waste inside caves. Many cave formations are delicate and can easily break - do not touch them.

**Cultural Artifacts** - Do not touch or disturb cultural artifacts such as pottery, arrowheads, or animal bones.

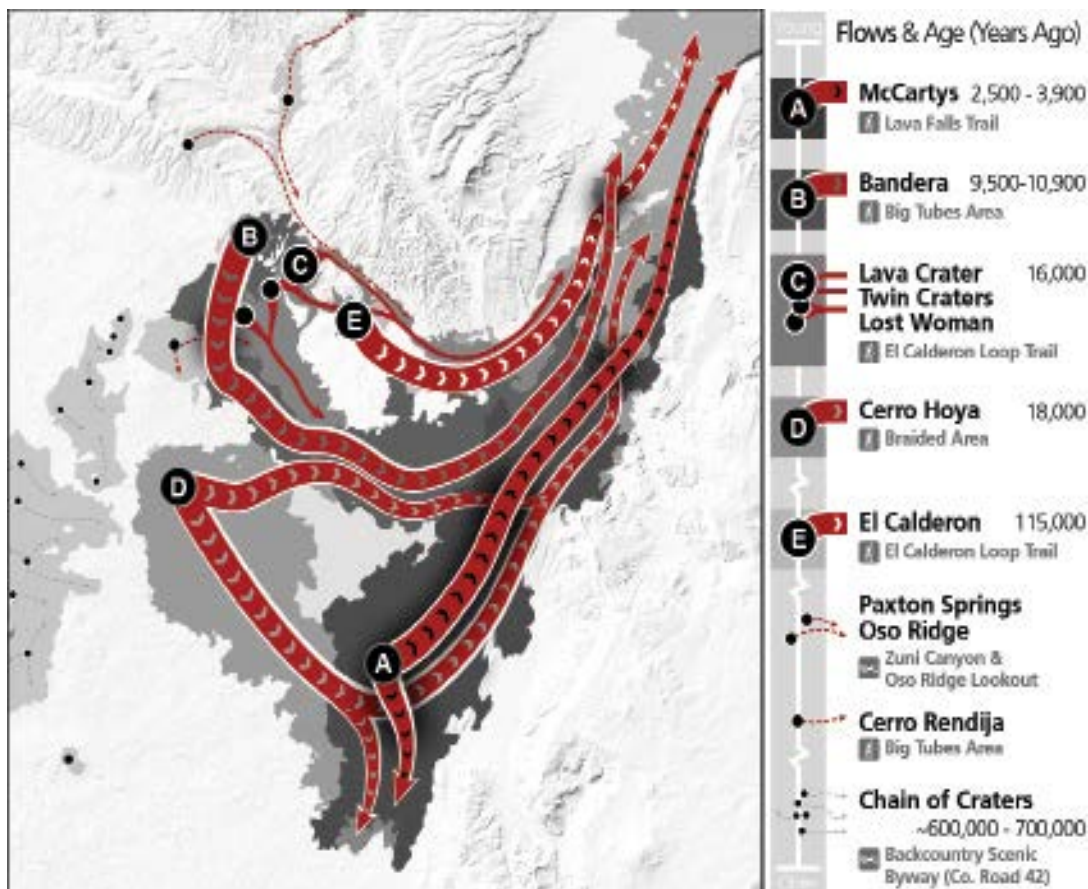
**Respect Bats** - Observe seasonal closures to protect bats while they are hibernating or

raising their young. If you do see a bat, stop talking, keep your light pointed away, leave the area as quietly as possible, and report the sighting to a ranger. This will help protect these important animals.

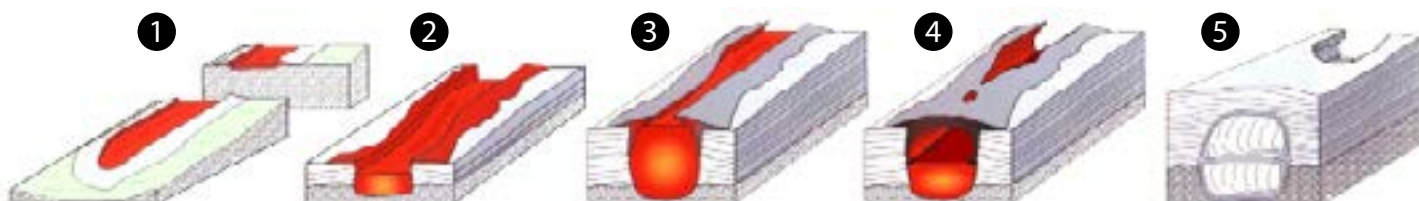
**Prohibited** - Campfires, smoking, camping, pets, and candles are not allowed in caves. These activities along with vandalism, including marking or defacing cave features, is illegal and punishable by law.

## Rivers of Fire

The El Malpais area was shaped by molten fire for the past million years, forming expansive lava fields and lava tubes. Tour the park to view a diversity of volcanic features and habitats that have evolved. McCarty's Flow, the youngest lava in the monument at 3,000 years old, can be seen along Hwy 117. Viewing the oldest volcanic rocks create a challenge, with years of soil and plants accumulating in the lava's cracks. Located northeast of the monument, the composite volcano Mount Taylor is home to the oldest lava flows of 1.5-3.3 million years old.



## How Lava Tubes Form



1 Lava flows from volcanic eruptions tend to become "channeled" into a few main streams .

2 The overflows of lava from these streams often cool and solidify, creating stacked layers of lava around the flow.

3 After many hours or days the lava melts downward into the ground giving the tube a taller, more narrow cross-section.

4 A solid crust can form overhead and enclose the tube. The tube then insulates the flowing lava within, allowing it to flow great distances.

5 After the eruption subsides and the flows harden, these lava tubes become a cave, sometimes with remnants of the ebbing lava flow preserved.

Bruce Rogers, USGS

## Bats & White-Nose Syndrome



At least 14 bat species are found in the monument. Many depend on lava tubes for shelter, reproduction, or hibernation. Bat Cave is home to a summer colony of ~ 40,000 Mexican free-tailed bats, the only colony of its kind for hundreds of miles. Watching them fly from the cave at dusk is an awe-inspiring event.

Bats are a critical part of our environment and provide great economic benefits. Many eat insects, including agricultural pests, saving American farmers millions of dollars in pesticides and crop damage annually. Fruit-eating bats pollinate the plants that provide us with cashews, bananas, coconuts, avocados, or tequila.

Bats are in peril from a European fungus, *Pseudogymnoascus destructans* that causes a disease known as White-Nose Syndrome that has killed over 6 million bats in the U.S. and Canada. To prevent the spread of this disease, all visitors requesting cave permits are screened for factors that make them a high risk for introducing the disease from their footwear or equipment.

To learn more about bats, visit Bat Conservation International's website: [www.BatCon.org](http://www.BatCon.org)

