



## A Walk on the Roof Trail

This ¼-mile self-guided trail explores the relationship between the surface and subsurface resources of Jewel Cave National Monument. Stop at the trail's numbered posts and use this brochure to learn more about the amazing worlds of Jewel Cave and its roof.

*The National Park Service cares for special places saved by the American people so that all may experience our heritage.*

## The Trail System at Jewel Cave National Monument

**Walk on the Roof Trail** is a ¼ mile hike that begins at the covered patio outside the visitor center lobby and returns to the north end of the visitor center.

The **Canyons Trail** is a 3.5-mile loop that begins at the covered patio area outside the visitor center lobby and winds its way down into Lithograph Canyon. Go through the gate that leads into Hell Canyon; follow the trail to the sign that leads to the historic area. Continue across the parking area to the trail back to the visitor center. The trail is 0.9 mile from the historic area to the visitor center.

**EXPERIENCE YOUR AMERICA**

## 1. At the Overlook

Take a look around you. The landscape you see is typical of the southern Black Hills. Ponderosa pines blanket the ridge tops. Deer, coyotes, turkeys, bats, birds, and other wildlife abound. Sub-zero temperatures and snowfall are common in winter. Thunderstorms often break the stillness of otherwise hot, sunny summer afternoons.



Now, consider the world below. Directly beneath your feet lies an underground world where the sound of dripping water is all that disturbs the silence. Over 127 miles of cave passages and rooms extend beneath four square surface miles. Down the hill in Lithograph Canyon, where an ancient stream has exposed gray cliffs, you can see the Pahasapa limestone layer which houses Jewel Cave. As you walk this trail imagine the cave below you, for it really is there, stretching in every direction.

## 2. Weather

If you dug straight down in this spot, you would need to dig through about 300 feet of Jewel Cave's "roof" to reach the cave. The roof is about six times deeper than the pines are tall. It blocks out light, sound and weather from the surface. The cave has its own temperature, 49°F (9°C), and its own humidity, about 88%. The cave does respond to external barometric pressure. When a low-pressure system enters this area, air is

drawn from the cave through all its surface openings, including the historic entrance, the elevator shaft, and perhaps entrances not yet discovered. When a high-pressure system arrives, air is pushed into the cave. This barometric wind has been clocked at speeds of 35 miles an hour at Hurricane Corner (a crawlway on the Spelunking Tour). Sometimes you can hear and feel the wind during a cave tour.



## 3. A Leaky Roof

When it rains, water runs into draws, like this one. Some of the water descends into the cave through a web of tiny cracks. As the water moves through the cave's "roof", it dissolves limestone and redeposits that limestone in the cave. This process creates and changes speleothems such as stalactites, stalagmites, flowstone, and draperies. The wet areas of the cave, with the most water-formed speleothems, are beneath these surface drainages. The Formation Room, one of the highlights of the Scenic Tour, lies under the intersection of this draw and the one you just crossed.



## 4. Thirsty Pine

Speleothems are not the only members of the monument's community that need water to grow. This pine took its first drink as a seedling around 1850, half a century before the first explorers set foot in Jewel Cave.

The ponderosa pine is a thirsty tree. Though its roots reach only three feet into the ground, a mature tree can drink hundreds of gallons of water in a day. Since tree density affects the amount of water that reaches the cave, the way the forest is managed influences the world below. The Jasper Fire of 2000 changed the surface of Jewel Cave. Scientists think more water will enter the cave and the water's chemistry may be different. You can see how the forest is recovering from the Jasper Fire as you walk this trail.

## 5. Stewardship

The National Park Service is entrusted with the challenge of providing visitor access to Jewel Cave while at the same time protecting the pristine cave system. Changes at the surface have the potential to impact the cave environment. Water flow into the cave might be affected by the construction of buildings and parking lots. Run-off from roads and parking lots might carry motor oil or road salt into the cave.



The National Park Service conducts research to monitor changes both on the surface and in the cave. We hope you will join us as stewards of Jewel Cave, working to preserve the cave for your enjoyment and for the enjoyment of future generations.