

Inside and Outside Carlsbad Caverns

by ReadWorks



Imagine watching hundreds of thousands of bats swirl around you, swarming to form a large, black mass that flies off into the horizon. At Carlsbad Caverns in New Mexico, this scene is a regular occurrence. The caverns, located in a United States National Park, are home to around 400,000 Mexican free-tailed bats that fly out into the night sky each evening at dusk to feed on nearby moths and insects, returning at dawn to their caves. The spectacle draws crowds from around the world into the Chihuahuan Desert, where the park is located. One such visitor was Laurel Mathews, who once visited the caves with her family on a road trip.

"At the entrance to one of the caves, there's stadium seating for visitors to watch the bats," she remembers. "We waited a long time to see them. Finally, they started circling out of the cave and they flew off-out came more and more and more, all of them flying in loops and then out into the sky. It was amazing that there were so many!"

Laurel also remembers the sound the bats made, describing the high, screeching noise. "It was really creepy, but also really cool," she says.

Laurel recalls her family's arrival at the Carlsbad Caverns National Park. "It didn't look very

spectacular when we first drove in," she admits. "But then we started exploring the big network of underground caves."

The formation of the caves is a result of a fossilized reef that existed 250 to 280 million years ago in an inland sea that has long since disappeared. Since limestone is typically made up of fragments of coral, a large limestone deposit eventually formed in the area. Today, you can still find several fossilized plants and animals in the caves' limestone that date back to a time before dinosaurs walked the earth. Starting sometime between four and six million years ago, water from the earth's surface began moving through the cracks in the stone deposit. There is a type of acid in surface water. When this water combined with rainwater, the two mixed to form another type of acid as a result of their chemical compositions. This acid slowly dissolved the limestone to eventually form the winding caves that exist today in Carlsbad Caverns. This is a very common process that happens to limestone-many caves all around the world exist in limestone deposits due to the stone's solubility (the ability of a substance to be dissolved) in a mixture of water and acid.

Eventually, speleothems-formations that arise from mineral deposits in caves-began to take shape in the lower levels of the caverns. In fact, these speleothems existed during the last ice age, when instead of a desert, a pine forest sat above the caves. Over the years, park employees and rangers have found clues that hint at the caves' history. For example, according to the National Park Service, people have found some bones of ancient ice age animals scattered around the entrance to some of the caves. In 2003, an employee found a part of a stone scraper dating back to the last ice age near a cave entrance as well. Clearly, the caves have a long history-researchers have discovered that American Indians first inhabited the area sometime between 12,000 and 14,000 years ago. Ever since then, the caves have been explored by several groups, including Spanish explorers in the 1500s, and later by American explorers and guides who drew attention from all across the country to the natural phenomenon.

Laurel remembers this phenomenon very well. "It took us between one and two hours to get all the way to the bottom," she says, recounting the windy pathway leading deeper and deeper into the heart of the caves. "The park had put in blue and red lights to highlight the beautiful rock formations."

Once they reached the bottom, Laurel says that she had to take an elevator to get back to the top. "My ears popped so much in the elevator!" she remembers. "It took a really long time to reach the top; I didn't realize how far down we were until we were on our way back up."

Inside and Outside Carlsbad Caverns

by ReadWorks



Carlsbad Caverns are caves in New Mexico where lots of bats live. Every evening 400,000 bats fly out of the caves. They swirl around and form a big black blob in the sky. They leave the caves to eat insects and come back in the morning.

People from around the world have come to see these bats fly out in the evening. One person who came to see them was Laurel Mathews. She visited the caves with her family. She says her family waited a long time to see the bats. "Finally, they started circling out of the cave, and they flew off," she says. "Out came more and more and more, all of them flying in loops and then out into the sky. It was amazing that there were so many!"

She also remembers the sound the bats made. It was a loud, high sound. "It was really creepy, but also really cool," she says.

Laurel remembers her family arriving at the caves. The caves are in a United States National Park. "It didn't look very spectacular when we first drove in," she says. "But then we started exploring the big network of underground caves."

The caves started to form millions of years ago. There used to be a sea with a coral reef where the caves are now. Then the sea disappeared, and limestone formed from pieces of

the coral reef. Water from the earth's surface began moving through cracks in the limestone. There is a type of acid in surface water. Then rainwater mixed with the surface water in the cracks. This mixture turned into another acid. The acid slowly dissolved some of the limestone, turning it from solid rock into liquid. More and more of the limestone was dissolved as time went by. The cracks and spaces in it got bigger and bigger. Eventually they became caves. In the lower levels of the caves, formations began to arise from the minerals there. These formations are known as speleothems.

The way that the caves of Carlsbad Caverns formed is not unusual. Caves around the world have formed in limestone in the same way. That is because limestone can be dissolved by a mixture of water and acid.

Clues about the history of Carlsbad Caverns have been found over the years. In 2003 someone found part of a stone scraper near an entrance to one of the caves. The scraper is from the last ice age. Back then there was a pine forest above the caves. (Now there is a desert above the caves.) People have also found bones of animals from the ice age around the entrance to some of the caves. Animal and plant fossils can be found in the limestone of the caves as well. These fossils come from a time before there were dinosaurs on Earth.

The caves clearly have a long history. People have discovered that American Indians started living around the caves about 13,000 years ago. Since then, the caves have been explored by different groups of people. These people include explorers from Spain in the 1500s. They also include Americans who explored the caves later on. These Americans brought the caves to the attention of people across the country.

Laurel remembers the caves well. "It took us between one and two hours to get all the way to the bottom," she says. She followed a winding path that led deeper and deeper into the caves. Lights had been put in the caves to display the beautiful rock formations inside, she says.

After she and her family got to the bottom, they had to take an elevator to get back to the top. "It took a really long time to reach the top," she says. "I didn't realize how far down we were until we were on our way back up."

Name: _____ Date: _____

1. According to the passage, what currently lives in the caves at Carlsbad Cavern National?

- A. Native Americans
- B. bats
- C. bears
- D. explorers

2. What does the author describe at the beginning of the passage?

- A. how speleothems are formed
- B. the formation of limestone caves
- C. fossils found in Carlsbad Cavern
- D. watching bats at Carlsbad Cavern

3. Limestone deposits can help researchers learn about what the area was like thousands of years ago. What evidence from the passage best supports this conclusion?

- A. Limestone can contain fossilized plants and animals.
- B. Acid can slowly dissolve limestone to form winding caves.
- C. Limestone is typically made up of coral fragments.
- D. Many caves around the world exist in limestone deposits.

4. "At the entrance to the cave, there's stadium seating for visitors to watch the bats." Based on this information, what can you conclude about the popularity of the bats at Carlsbad Cavern?

- A. The bats are not a popular attraction at Carlsbad Cavern.
- B. People go to Carlsbad Cavern to see the caves, not the bats.
- C. The bats are a popular attraction at Carlsbad Cavern.
- D. Most people who visit Carlsbad Cavern don't know about the bats.

5. What is this passage mostly about?

- A. Laurel Mathews' family vacation
- B. how bats navigate using sound
- C. how speleothems are formed
- D. caves at Carlsbad Cavern National Park

6. Read the following sentences: "The caverns, located in a United States National Park, are home to around 400,000 Mexican free-tailed bats that fly out into the night sky each evening at dusk to feed on nearby moths and insects, returning at dawn to their caves. The **spectacle** draws crowds from around the world into the Chihuahuan Desert, where the park is located."

As used in this sentence, what does the word "**spectacle**" mean?

- A. a very impressive show
- B. something that happens irregularly
- C. something that happens at night
- D. something that people watch with glasses

7. Choose the answer that best completes the sentence below.

_____, Laurel did not think the Carlsbad Cavern National Park looked very spectacular, but her opinion changed after she explored the caves.

- A. For instance
- B. Initially
- C. Particularly
- D. Therefore

8. What are speleothems?

9. Explain how the limestone caves at Carlsbad Cavern were formed.

10. Explain how researchers may learn about the history of the caves at Carlsbad Cavern. Support your answer using information from the passage.
