

Untouched cave to provide clues to Black Hills history

7 June 2015, by Kevin Burbach

The National Park Service is beginning to excavate the mouth of an unexplored cave in the Black Hills of South Dakota, and researchers believe it could help broaden our understanding of how the region's climate has changed over thousands of years.

A [park service](#) worker found Persistence Cave in 2004 on the grounds of Wind Cave National Park, in western South Dakota, but the agency kept it quiet, partly to prevent amateur spelunkers from trying to explore well-preserved site.

On Monday, a team of scientists led by East Tennessee State University professor Jim Mead will begin unearthing the entrance of the cave, hauling out bags of sediment and animal bones to be carefully analyzed. They have already found bones dating back nearly 11,000 years and the remains of at least three species that hadn't been found in the region before—the pika, pine marten and platygonus, an extinct relative of the modern-day peccary.

While it's always exciting to find an extinct species that once roamed the region, Mead said it's even more ecologically important to him to discover that an existing animal like the pika once lived there. The rodent-like mammal can still be found in cold, mountainous climates of North America, suggesting the environment of the Black Hills was once quite different, he said.

"What has changed to push it into Wyoming but not be in the Black Hills?"

The researchers will be studying the newfound fossils alongside those found at the famous Mammoth Site—a well-preserved graveyard of the prehistoric beasts—that was discovered in nearby Hot Springs in the 1970s. They'll use their findings to map how the region's climate has changed—the mammoths are believed to have died approximately 26,000 years ago, while the oldest

bones found at the mouth of Persistence Cave only date back about 11,000.

"In reconstructing the past environments of the Black Hills, it's nice to have a number of different points," Mead said. "What we're trying to do, centered through the Mammoth site, is to understand essentially the Ice Age environmental change through time."

Because they want to protect the cave and its contents, the park service won't publicly disclose the exact location of Persistence Cave yet, saying only that the entrance is about one-third of a mile from the known edge of Wind Cave's tunnel system.

The research being conducted by Mead and his team accounts for only half of Persistence Cave's newfound potential.

Once much of the sediment is removed from the cave's entrance, park service staffers and a team of spelunkers from South Dakota and Colorado will begin to try and explore further. Officials believe it could be very large because of the direction and speed of the wind that blows from its only known entrance.

"Something with this kind of potential and blowing this strong, we haven't found anything like that before (in the park)," said Rod Horrocks, a Wind Cave National Park scientist whose assistant discovered Persistence Cave.

Horrocks believes Persistence could connect to its famous neighbor, Wind Cave, through a passage that's inaccessible by humans or is filled with sediment, which might explain why nobody discovered it while exploring Wind Cave over the last century.

If the caves are connected, the park service could install an environmental gate that would allow

cavers to travel between the caves but keep them closed off most of the time to preserve their natural conditions, Horrocks said.

For now, Mead and his team will begin hauling bags and bags of sediment out of the entrance to Persistence—which can currently only accommodate about two people—and sifting through thousands of bones in hopes of stitching together the region's natural history.

"(The cave is) just a warehouse of information," he said. "I'd be surprised if we don't have at least 100,000 bones by the time we're done this summer."

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