

Study: Rotting trees caused mysterious holes in huge dunes

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In this Aug. 14, 2014 file photo, a researcher uses large equipment to study Indiana Dunes National Lakeshore's Mount Baldy in Michigan City, Ind. Mysterious holes that forced the closure of a massive dune at an Indiana national park after a 6-year-old boy fell into one and nearly died were caused by sand-covered trees that left cavities behind as they decayed over the years, researchers have found. (Robert Franklin/South Bend Tribune via AP)

Mysterious holes that forced the closure of a massive dune at an Indiana

national park after a 6-year-old boy fell into one and nearly died were caused by sand-covered trees that left cavities behind as they decayed over the years, researchers have found.

Fungi on the covered trees formed a sort of cement that allowed the sand to keep its hollowed out shape as the wood decayed and collapsed inward, leaving [holes](#) more than 10 feet (3 meters) deep in the dune known as Mount Baldy at the Indiana Dunes National Lakeshore, according to a study published in December by Erin Argyilan, who heads Indiana University Northwest's department of geosciences. She said the phenomenon likely explains similar holes found in migrating dunes in Oregon and Michigan.

Although she determined the holes to be more of a nuisance than a hazard, Argyilan said they could present an unseen geological hazard in heavily visited natural places like Mount Baldy. The popular dune has been closed except for small ranger-led tours since the July 2013 rescue of the Illinois boy, who was trapped under sand for more than three hours.

The question facing the National Park Service is whether to keep Mount Baldy closed to the unsupervised public or to find a way to safely reopen it, at least partially.

Bruce Rowe, a spokesman for the park, declined to comment on Argyilan's study or an ongoing Indiana Geological Survey study that supports her findings. He said it wouldn't be appropriate to comment until the agency had the chance to review both. G. William Monaghan, a senior research scientist at the IGS, said he hopes to have its completed study to the Park Service by Aug. 1.



In this Aug. 14, 2014 file photo, Geologist G. William Monaghan points out some equipment his team is using during a press conference to talk about efforts to study Indiana Dunes National Lakeshore's Mount Baldy in Michigan City, Ind. Mysterious holes that forced the closure of a massive dune at an Indiana national park after a 6-year-old boy fell into one and nearly died were caused by sand-covered trees that left cavities behind as they decayed over the years, researchers have found. (Robert Franklin/South Bend Tribune via AP)

Monaghan said the IGS study, which Argylan is also involved in, will include a map of potentially hazardous areas based on 1930s photos that show the location of trees before the sand buried them. The scientists said reopening Mount Baldy would be a risk-management decision that the Park Service would have to make.

Kevin Kincare, a U.S. Geological Survey research geologist, said he agrees with the studies' findings.

"I was impressed with the work they did," he said. "I agree with them

that the void the child fell into was the result of a decayed tree that had been buried."

He said the studies show it takes unique conditions to create these voids.

Mount Baldy, which is a popular attraction at the [national park](#) along the Lake Michigan coast near Indiana's border with Michigan, formed about 4,000 years ago and moves faster than most coastal dunes. Monaghan said it has moved an average of about 10 to 13 feet (3 to 4 meters) a year since about 1930.



In this Aug. 14, 2016 file photo Geologist Erin Argyilan speaks as Indiana Geological Survey Assistant Director Todd Thompson, right, looks on during a press conference to talk about efforts to study Indiana Dunes National Lakeshore's Mount Baldy in Michigan City, Ind. Mysterious holes that forced the closure of a massive dune at an Indiana national park after a 6-year-old boy fell into one and nearly died were caused by sand-covered trees that left cavities behind as they decayed over the years, researchers have found. (Robert Franklin/South Bend Tribune via AP)

Argyilan said similar holes have been reported in migrating dunes at the Oregon Dunes National Recreation Area in Florence, Oregon, and Silver Lake State Park in Mears, Michigan, but the holes at Mount Baldy provided the first opportunity to directly study them. Ten holes had been found in the dune when her research was published. The deepest was the 10-foot (3-meter) hole that the boy fell into, but most were a yard (meter) or less deep, she said.

Monaghan said voids only create holes when the thickness of the dune from the hole to the surface is 20 feet (6 meters) or less. When it's greater than that, the void being filled doesn't create a big enough hole to present a danger. When the thickness is less than 5 feet (1.5 meters), the hole created is so small that it's not a danger, he said.

Argyilan said there's still a lot to be learned about what is happening at Mount Baldy.

"There are moving dunes all around the world. Why is this one forming holes? Why do certain ones form holes and other ones don't? Is it all about the tree? Is it the sediment itself?" she asked. "There's a lot that we need to know."

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