

ENVIRONMENT

Cave in southeast Minnesota sees another dramatic decline in bat population

By Demetria Lee | 03/20/2019



REUTERS/U.S. Geological Survey/Greg Turner

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In July 2006, John Ackerman and two other cavers entered Bat River Cave, in southeast Minnesota, to inspect a sump — an especially dangerous passage within a cave that is

completely submerged by water. Cave divers swimming through sumps are both underwater and underground, which means they can't swim to the surface if something goes wrong — and they can't always tell which direction the surface would be anyway.

A few months later, Ackerman was back in the cave when he swam through the sump and emerged in what would later be called the bat gallery — a chamber with an underground waterfall and thousands of bats. Looking at the walls, thick with bats, it was impossible to imagine that in 13 years, most of these bats would be dead.

But that's what's happened. A few years ago, Bat River Cave was the biggest hibernaculum in southeastern Minnesota. As of this winter, its bat population has declined by 98 percent. A bat count conducted in February confirmed that Bat River Cave, in which more than 4,000 bats spent the winter in 2011, now holds fewer than 100 bats.

A 98 percent decline

Bats are dying in 33 states and seven Canadian provinces from white-nose syndrome (WNS), a disease caused by a fungus that was unknown before it began decimating North America's bat population. Turns out the fungus had long existed in Europe and Asia, where bats had developed resistance to it, and was most likely brought back to the U.S. from somewhere in Europe on someone's shoes or gear.

The fungus grows on hibernating bats' exposed skin, like their faces and wings, which irritates them and wakes them up. That's the problem. Bats have just enough fat to make it through winter, and the energy they expend by waking up depletes their supply. Some bats leave the cave to look for food, wasting precious energy in a futile search for insects that won't be around, dying of exhaustion by spring, when they would normally be waking up.

WNS first appeared in northeastern Minnesota in 2013 when some bats in the state's largest hibernaculum, the Soudan Underground Mine, showed signs of illness. It wasn't until the winter of 2015-2016, however, that large numbers of bats began dying. Two years later, the mine's bat population had declined by 90 percent.

The Minnesota Department of Natural Resources confirmed the presence of WNS in the southeastern portion of the state — the driftless zone which holds most of Minnesota's natural limestone caves — in the winter of 2016-2017. Bat River Cave was among those affected, and the population was found to have decreased 31 percent — from 4,112 to 2,836 between 2011 and 2017.

“We noticed dead bats in the water,” said Martin Larsen, president of the Minnesota Caving Club, which was founded by Ackerman. “Two-thirds to three-quarters of the bats that were in the cave had visual symptoms, so we could see the white nose.”

The next winter, the bats of Bat River Cave were not counted, but Ackerman and Larsen visited the entrances of this and several of the preserve’s other large caves. “We saw bats just flailing and flying around helplessly outside the cave in bitterly cold temperatures, some of them lying in the snow just shaking, and some of them dead,” said Ackerman. “It’s not natural for bats to be flying around in broad daylight in the snow, and so we knew it was just a matter of time before things were going to change.”

The most recent bat count confirms that things have, in fact, changed. On Feb. 9, Ackerman, Larsen, and four other cavers including two bat specialists, counted only 82 bats in Bat River Cave — a 98 percent decline from 2011. The species of bats particularly hard hit by WNS — like the little brown and tricolored bat — now face regional extinction. The DNR, the state’s primary agency for WNS response, will publish their findings from this winter’s fieldwork in late March or early April.

Preventing the further spread of the fungus is a major part of international efforts to combat WNS by government, researchers and wildlife advocacy groups. But combatting WNS is difficult, since bats travel between caves and can infect one another with WNS. Administering bat vaccines, conducting genetic modification, employing antifungals, and wielding the fungus’s nemesis — UV light — have all been proposed, but none have seen practical applications.