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## Scientists hopeful in fight to stop bat die-off

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MONTPELIER, Vt.—Scientists studying the mysterious ailment that has killed millions of bats in an epidemic that is spreading its way across North America say they have detected a tiny sliver of hope in their search for a way to end what has become known as white nose syndrome.

For unexplained reasons, scientists across the Northeast have been finding isolated colonies of little brown bats -- once the most common bat species in the region and the hardest hit by white nose syndrome -- surviving and healthy.

It's too soon to say if the surviving colonies represent a nucleus that could eventually repopulate the region where millions of bats once devoured tens of billions of insects every year, but scientists are planning to study the survivors in hopes of learning why.



“You’ve got a tiny little fingernail holding onto the cliff, and that’s good,” said Mollie Matteson, from the Richmond office of the nonprofit Center for Biological Diversity, which has been pushing for more federal research money for white nose.

The scientists are planning to meet next month in Pennsylvania to seek the best ways to learn from the survivors.

“It’s been a disease where there’s been one negative thing after another,” said Greg Turn-

er, a wildlife biologist for the Pennsylvania Game Commission, who is helping monitor an abandoned coal mine in Luzerne County, where an estimated 2,000 bats survive and appear to be healthy. “It’s finally nice to see some glimmer of hope.”

Before white nose, the mine held between 50,000 and 80,000 bats in the winter.

White nose, caused by a fungus that prompts bats to wake from their winter hibernation and die when they fly into the frigid, insect-less winter landscape, was first detected in New York’s Adirondack Mountains in 2006 and since then it has been spreading across North America. It’s believed to have killed at least a million bats. It’s reached as far west as Missouri and is also spreading west across Canada around the Great Lakes.

The leading hypothesis is that the fungus that causes white nose came from Europe where it has been found on bats, but

it does not have the mortality it does in North America, said Ann Froschauer, the lead spokeswoman for the U.S. Fish and Wildlife Service's investigation into white nose.

There's no reliable estimate about what the total bat population was before the arrival of white nose, but in some caves and abandoned mines where bats live, up to 99 percent have died, Turner said.

Even if the mortality were to end now it could be hundreds of years before populations of the slow-reproducing bats could rebound to where they were before white nose, Froschauer said.

The species known as little brown bats were once the most common in the northeast, and they were responsible for eating countless insects every year. Other bat species, such as the large brown bat, while still affected by white nose, aren't as hard hit.

"What we are trying to do is chip away at the (causes) of this disease," Turner said. "If there are individuals that are surviving, is there anything we can learn about why?"

In New York, biologists have found that some bats at Fort Drum exposed to white nose are reproducing.

"While it's still too early to make any long-term conclusions from the recent Fort Drum white nose study, the Department of Environmental Conservation is encouraged over the finding that some bats can survive and reproduce despite exposure to the syndrome during winter hibernation over two consecutive years," said DEC spokesman Rick Georgeson.

In Vermont, biologists have identified 15 colonies in the western part of the state where the numbers of little brown bats, while still far fewer than before white nose appeared, are surviving, said Vermont Fish and Wildlife Biologist Scott Darling.

"We visited each and every one of those colonies and to some degree, much to our surprise, they seem to be healthy," Darling said. "It begged the question, 'Why are you the lucky ones?'"

Darling said there are three basic hypotheses about the survivors that will be studied:

Are the bats behaving in ways that keep them from getting infected? Are they from areas that haven't been infected? Could they have some genetic resistance to white nose that is just beginning to appear?

Before white nose, 73 percent of the bats captured by Vermont biologists in summer studies were little browns and 5 percent were big browns. Now, the figure is almost exactly reversed. This summer, Darling said Vermont biologists are hoping to find any of the less common northern long eared bats.

Matteson said that while the survivors are good news, much needs to be done to protect the survivors and make it possible for them to reproduce. One method being tried is the use of special bat boxes where the bats would be able to roost in the summer and keep warm when raising their young