

# A dire threat for LI's



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- Invasive fungus causes white nose syndrome
- Disease has killed a million nationwide since '06

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It's the time of year when Long Island's little brown bats, which spend the warmer months here gobbling bugs, leave to hibernate in caves and mine shafts in the Hudson Valley and beyond.

But inside those winter shelters lurks a silent assassin: a disease known as white nose syndrome that has killed at least a million bats nationwide since 2006. Linked to a fungus that invades bats' skin as they hibernate, the disease has spread rapidly across the Northeast since it was first detected four years ago in an upstate New York cave. This month state biologists reported that white nose syndrome has been documented at 32 sites in New York, and is probably present at all places in the state where bats hibernate.

Now conservation agencies and biologists find themselves in a race against time. Even as they struggle to learn more about the fungus, many researchers say that in the next decade or so white nose syndrome could wipe out cave-hibernating bats as far west as Oklahoma and as far south as Tennessee. The die-off could have serious consequences for agriculture and public health, because bats are the main predators of night-flying insects such as moths and mosquitoes.

"Bats have never faced an extinction threat like this before," said Bill Schutt, a board member of the North American Society for Bat Research and an associate professor of biology at the C.W. Post Campus of Long Island University in Brookville. "It's impossibly grim."

Worst-hit is the little brown bat, or *Myotis lucifugus* — the most common species found on Long Island. Little brown bat populations have declined more than 90 percent since

2006, according to winter cave surveys by the state Department of Environmental Conservation.

"It's an absolute certainty that the summer bat population on Long Island has been severely reduced by the problem," said DEC biologist Carl Herzog.

## First found west of Albany

The disease first came to light in 2006, when a man exploring a cave west of Albany noticed some hibernating bats with a strange white substance on their muzzles. More were reported next year, as were dead bats and bats flying outside in midwinter. A DEC investigation documented white nose syndrome in January 2007.

The white substance turned out to be *Geomyces destructans*, a newly identified type of soil-loving fungus that thrives in cold conditions. Scientists think it somehow triggers the disease when it invades bat tissues. It poses no apparent danger to humans.

Bats affected by white nose syndrome tend to arouse from hibernation more often, something scientists suspect depletes fat reserves they need to make it through the winter. Some bats starve, Herzog said, while others leave the hibernation site in a desperate search for food and either freeze or are picked off by predators.

Researchers are still piecing together where the fungus came from, how it spreads and whether its advance across the U.S. can be halted.

Scientists think bats are the primary carriers, spreading spores during summer migrations or while mating. Some think cave explorers may have brought it here on their clothing or equipment. In the U.S., access to many caves has been limited to prevent people from accidentally spreading the fungus. A similar fun-

# bat population

## BAT FACTS

**A** fast-spreading disease called white nose syndrome has killed off at least one million bats in the Northeast since 2006. It affects bats that hibernate over the winter in caves and mine shafts. Scientists fear that at least six species of cave-hibernating bats could be wiped out from the region in a decade or so.

### Why are the bats dying?

Scientists think the syndrome is linked to a fungus that invades the skin of bats. Affected bats often have a white substance on their muzzles and wings and depleted body fat compared to healthy bats. They arouse from hibernation more often, burning through winter fat reserves. Some starve; others fly off in search of food and are killed off by predators or freeze to death.

### How bad is it?

In New York, the population of little brown bats — the most common bat on Long Island — has dropped by 90 percent since 2006. Northern and tri-colored bats have seen similar declines, and the population of the endangered Indiana bat is down 60 percent.



Little brown bats with white nose syndrome on the ceiling of Haile's Cave in Albany County

STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PHOTO

### How will the die-off affect the insects around us?

Bats are the primary predators of mosquitoes, moths and other night-flying insects. While the full ecological consequences are not yet known, researchers say a widespread bat decline could cause insect populations to swell — a concern for crops vulnerable to infestations and because of mosquito-borne diseases such as West Nile virus.

### How far has it spread?

First detected in New York in 2006, white nose syndrome has since been confirmed in bats in Connecticut, Massachusetts, New Hampshire, New Jersey, Maryland, Pennsylvania, Tennessee, Virginia, Vermont and West Virginia. The fungus linked to the disease has been detected as far west as Oklahoma.

gus has been found in European caves, although it does not appear to have the same effect on bat populations there.

"The pace at which this appears to be spreading is extremely rapid," said Jeremy Coleman, the national white nose syndrome coordinator for the U.S. Fish and Wildlife Service. "In 2007, it was in four sites in New York State within about 10 miles. The next year it jumped up to Waukegan and western New England . . . Next year it jumped to nine states, and spread very quickly down the Appalachian Mountains."

The Service has spent \$5.5 million thus far to investigate

and track the disease. It also issued a draft plan this fall that maps out the national response to the disease and sets standards for data collection.

### Bat sightings seen falling

Little brown bats are still a common sight at dusk at Connetquot River State Park Preserve in Oakdale, one of Long Island's prime bat-watching spots, according to park manager Gil Bergen.

That could soon change, a number of researchers said.

"I would venture to say all of Long Island is affected by this disease," Coleman said. "Very soon, if people aren't aware of it now, they are going to be seeing

fewer bats than in the past."

That might bring an attendant rise in insect populations. Schutt said he has gotten reports of increased numbers of dragonflies, which also eat insects and could benefit from reduced competition for food.

"Bats in the Northeast remove literally hundreds of thousands of tons of insects a night during the warm weather months," said Nancy Simmons, chair of the vertebrate biology division at the American Museum of Natural History. "Wiping out all the hibernating bats in the Northeast could have huge effects on insect populations and on the humans who don't like to be bothered by biting

gnats and mosquitoes."

As the fungus spreads, scientists are working to create a library of genetic samples from bat species nationwide. Hundreds of small plastic vials containing tissue from affected and unaffected bats are now in cryogenic storage in the basement of the American Museum of Natural History. Scientists can use the samples for laboratory tests, or to obtain DNA sequences for bats or the fungus.

"Can this be eradicated? We don't know," Simmons said. "There's no sign that it's abating in any way. There's no sign that animals become resistant to it with time . . . This really is an unprecedented event."

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**CORRECTIONS**

The 1971 Milwaukee Bucks' 20-game win streak surpassed the 1969 Knicks' 18-game streak before the 1971-72 Lakers set the current NBA record with 33 wins in a row. Milwaukee's streak was omitted in the New York Moment in yesterday's sports section.

**THIS DATE IN HISTORY**

**1947** UN General Assembly passed a resolution calling for partitioning of Palestine between Arabs and Jews.  
**1967** Secretary of Defense Robert S. McNamara said he would leave post to become president of the World Bank.  
**1981** Actress Natalie Wood drowned in a boating accident off Santa Catalina Island, Calif., at age 43.