

The white-nose syndrome mystery

Something is killing our bats

In February 2006 some 40 miles west of Albany, N.Y., a caver photographed hibernating bats with an unusual white substance on their muzzles. He noticed several dead bats. The following winter, New York Department of Environmental Conservation biologists documented what they called white-nose syndrome after seeing bats behaving erratically, bats with white noses and a few hundred dead bats in several caves. More than a million hibernating bats have died since then, making WNS the worst wildlife health crises in memory.

Bat death zone

Biologists have found sick, dying and dead bats in unprecedented numbers in and around caves and mines from New Hampshire south to Tennessee and in the Canadian provinces of Ontario and Quebec. WNS is suspected in states as far west as Oklahoma. In some hibernacula (caves and mines where bats hibernate in the winter) 90 to 100 percent of the bats are dying.

In a hibernaculum, affected bats usually have white fungus on their muzzles and other parts of their bodies. They frequently lack adequate body fat to survive until spring. These bats may exhibit uncharacteristic behavior such as moving to cold parts of the hibernaculum, and flying during the day and during cold winter weather when the insects they feed upon are not available.

Working together to find answers

A broad partnership of nearly 100 federal and state agencies, academia, researchers, non-government organizations and international partners are working in concert to solve the WNS mystery. State biologists are on the front line, doing

the bulk of the survey work in bat hibernacula. The U.S. Fish and Wildlife Service is supporting and coordinating the partnership.

Researchers are exploring a variety of avenues they hope will lead to solving this wildlife health crisis. Despite the continuing search to find the source of WNS, the cause of the bat deaths remains unknown. People in agencies and organizations are committed to finding answers and are doing everything they can within their resources to stop WNS.

Identification of the fungus *Geomyces destructans* found on affected bats may be one step toward an answer. The fungus thrives in the cold and humid conditions characteristic of bat hibernacula. The fungus may not be readily visible on the bats, especially after they leave the hibernaculum and groom themselves.

Spreading WNS

WNS is transmitted primarily by bat-to-bat contact. Biologists believe that people are inadvertently contributing to the spread since some caves used by people have WNS-affected bats, while other, nearby caves not used by people are not affected. Biologists have found the fungus in caves that no longer have bats.

The Service issued a cave advisory in 2009 asking people to stay out of caves in affected states and adjoining states. The advisory also asks cavers - when visiting caves outside of the affected and adjoining states - to refrain from using clothing and gear that has been used in affected and adjoining states. The Service hopes that compliance with the cave advisory will help slow the spread of WNS until researchers



Marvin Moriarty/USFWS

Bat affected with white-nose syndrome

can determine how to stop it entirely. Many federal and state agencies, organizations, and private individuals have closed caves on land they own.

As a precaution, biologists and researchers wear protective clothing when visiting WNS-affected hibernacula, although there is no known human health risk associated with WNS.

The future of bats

Until we discover how to eradicate WNS, we face the real possibility of losing entire bat species. The majority of bats dying in the Northeast has been little brown bats, one of the most abundant bats in the United States. Other affected bat species include tri-colored, northern long-eared, big brown, small-footed and endangered Indiana bats. Cave myotis and endangered Virginia big-eared and gray bats may be affected.

Losing huge numbers of bats could affect the remaining bats' ability to survive and adapt in the future through loss of genetic variation.

Insect-eating bats are voracious predators of insects such as beetles, moths, aquatic flies and mosquitoes. The number of moths and beetles that damage our forests and crops could increase as we lose the bats that eat them. Increased pesticide applications might be needed to protect them from insects like forest tent caterpillars. Backyard gardeners may see increases in moth caterpillars or beetles preying on their gardens and may need to use pesticides or handpick pests from their plants.

The many people who enjoy watching the silent flight of bats through the trees or over wetlands in the night sky may no longer have that privilege. With lower numbers of bats, our environment is already changing. We have no idea what our world could be like with a complete absence of bats.

For more information see <http://www.fws.gov/WhiteNoseSyndrome>

U.S. Fish & Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035
413/253 8200

Federal Relay Service
for the deaf and hard-of-hearing
1 800/877 8339

U.S. Fish & Wildlife Service
1 800/344 WILD
<http://www.fws.gov>

May 2010

