

White-nose syndrome

The devastating disease of hibernating bats in North America
November 2011

What is white-nose syndrome?

White-nose syndrome is a disease affecting hibernating bats. Named for the white fungus that appears on the muzzle and other body parts of hibernating bats, WNS is associated with extensive mortality of bats in eastern North America. First documented in New York in the winter of 2006-2007, WNS has spread rapidly across the eastern United States and Canada, and the fungus that causes WNS has been detected as far west as Oklahoma.

Bats with WNS exhibit uncharacteristic behavior during cold winter months, including flying outside in the day and clustering near the entrances of hibernacula. Bats have been found sick and dying in unprecedented numbers in and around caves and mines. WNS has killed more than 1 million bats in the Northeast and Canada. In some hibernacula, 90 to 100 percent of bats have died.



Marvin Moriarty/USFWS

Bat with white-nose syndrome

Numerous laboratories and state and federal biologists are investigating the cause of the bat deaths. A newly discovered fungus, *Geomyces destructans*, has been demonstrated to cause WNS. Scientists are investigating the dynamics of fungal infection and transmission, and searching for a way to control it.

What bats are being affected?

More than half of the 45 bat species living in the United States rely on hibernation for winter survival. Eleven cave-hibernating bats, including four endangered species and subspecies are already affected by or are potentially at risk from WNS.

Bat species affected by WNS:

- Big brown bat (*Eptesicus fuscus*)
- Eastern small-footed bat (*Myotis leibii*)
- Indiana bat (*Myotis sodalis*) **endangered**
- Little brown bat (*Myotis lucifugus*)
- Northern long-eared bat (*Myotis septentrionalis*)
- Tricolored bat (*Perimyotis subflavus*)

Bat species on which *Geomyces destructans* has been detected:

- Cave bat (*Myotis velifer*)
- Gray bat (*Myotis grisescens*) **endangered**
- Southeastern bat (*Myotis austroriparius*)

Federally listed species found in the affected area that have not yet been confirmed with WNS or fungal infection:

- Virginia big-eared bat (*Corynorhinus townsendii virginianus*) **endangered**
- Ozarks big-eared bat (*Corynorhinus townsendii ingens*) **endangered**

Where is it now?

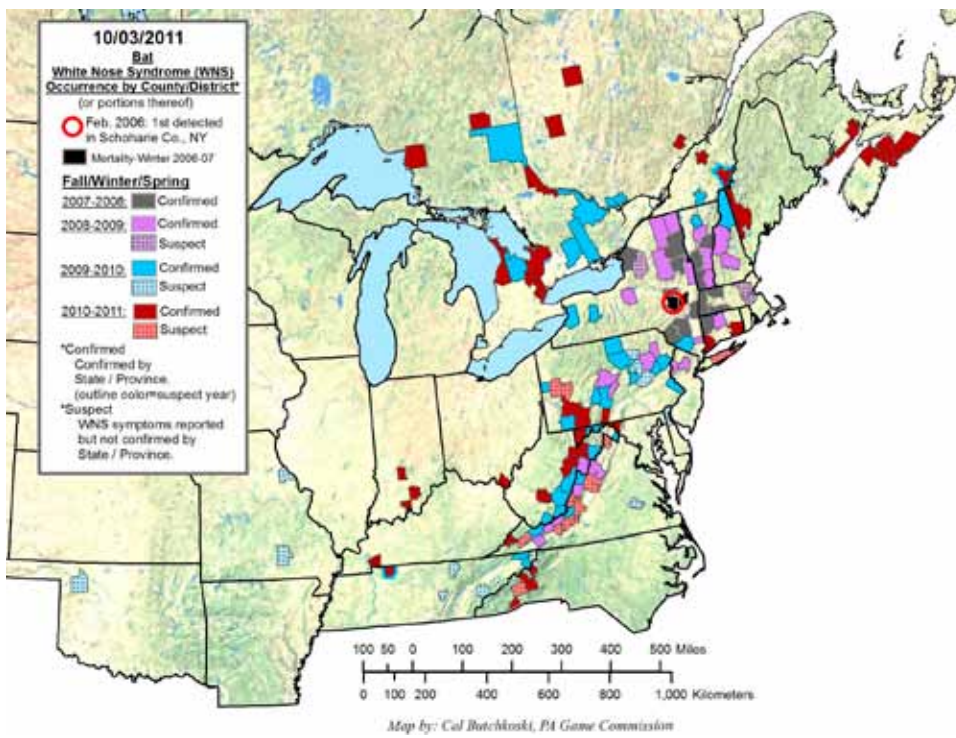
White-nose syndrome has continued to spread rapidly. At the end of the 2010-2011 hibernating season, bats with WNS were confirmed in 16 states and four Canadian provinces:

- Connecticut
- Indiana
- Kentucky
- Maine
- Maryland



Marvin Moriarty/USFWS

Biologist entering cave to assess the effects of WNS on bats



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

**Federal Relay Service
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**U.S. Fish & Wildlife Service
1 800/344 WILD
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- Massachusetts
- New Hampshire
- New Jersey
- New York
- North Carolina
- Ohio
- Pennsylvania
- Tennessee
- Vermont
- Virginia
- West Virginia
- New Brunswick, Canada
- Nova Scotia, Canada
- Ontario, Canada
- Quebec, Canada

The fungus that causes WNS, *Geomyces destructans*, has been confirmed in three additional states:

- Delaware
- Missouri
- Oklahoma

What is being done?

Partnerships

The U.S. Fish and Wildlife Service leads an extensive network of state and federal agencies, tribes, organizations, institutions and individuals in working cooperatively to investigate the source, spread and cause of bat deaths associated with WNS and develop management strategies to minimize the impacts of WNS.

WNS National Plan

In 2009 and 2010, the Service led a team of federal and state agencies and tribes in preparing a national white-nose syndrome management plan

to address the threat to hibernating bats. The plan provides a framework for coordinating and managing the national investigation and response to WNS. The **National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats** outlines the actions necessary for state, federal and tribal coordination, and provides an overall strategy for investigating the cause of WNS and finding ways to manage it.

Research

In October 2010, the Service announced six grants totaling approximately \$1.6 million to investigate the cause of WNS and identify ways to manage it. Grants were provided through the Service's Preventing Extinction program and a congressional appropriation for WNS work.

Funded projects include detailed studies of *Geomyces destructans*, the fungus associated with WNS; improving WNS detection techniques; developing a better understanding of how WNS is transmitted; determining the mechanics of *G. destructans* infections in bats, including the susceptibility and resistance of bats to infection; and determining how persistent the fungus is in the environment.

This new round of funding builds on approximately \$1.7 million that the Service has dedicated to WNS research and monitoring starting in 2008.