



White-Nose Syndrome: A Crisis for America's Bats

For up-to-date information about WNS, visit www.batcon.org/wns

Updated July 18, 2014

What is White-nose Syndrome? White-nose Syndrome (WNS) is a disease that is causing the most precipitous decline of North American wildlife in the past century. It has killed at least 5.7 million bats since it appeared in 2006 and threatens to devastate bat populations across the continent. Nearly 100 percent of bats have died at some sites.

Why is it called White-nose Syndrome?

This affliction was given its name because of a telltale white fungus that grows on the noses (and sometimes wings, ears and tails) of most infected bats and causes WNS. This fungus is new to science and has been named *Pseudogymnoascus destructans* (formerly *Geomyces destructans*).

Which bats are dying? Seven bat species have been affected by WNS so far: little brown myotis (*Myotis lucifugus*), big brown bats (*Eptesicus fuscus*), tri-colored bats (*Perimyotis subflavus*), northern myotis (*Myotis septentrionalis*), eastern small-footed myotis (*Myotis leibii*), the endangered Indiana myotis (*Myotis sodalis*) and the endangered gray myotis (*Myotis grisescens*). Two additional species and one subspecies have been detected with WNS-associated fungus: southeastern myotis (*Myotis austroriparius*) and silver-haired bat (*Lasiorycteris noctivagans*) and the endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*). These species have not yet been diagnosed with the disease. If current infection and mortality patterns continue, 25 species of hibernating bats in the United States could decline, and WNS could threaten some previously common species with extinction.

How is it transmitted? Although bat-to-bat transmission is believed to be the primary route, circumstantial evidence suggests humans may also inadvertently carry WNS from infected sites to clean sites.

How fast is it spreading? WNS, first detected in New York in February 2006, has spread rapidly throughout Eastern North America. WNS is now confirmed in 25 U.S. states and 5 Canadian provinces. The fungus, but not the disease, has been confirmed in two additional states. A current map of WNS spread can be found at www.batcon.org/wns.

Why do bat die-offs from WNS matter?

The number of insects consumed annually by one million bats is staggering: just under 700 tons. These bats have extraordinary value in maintaining the health of nearly all terrestrial and aquatic ecosystems. And since many of the insects eaten by bats are crop pests, losing large numbers of bats will likely have expensive impacts on agriculture.

How soon will bat populations recover? Bats are long-lived but slow-reproducing mammals. Bats of most species have an average lifespan of more than 20 years and give birth to only one pup each year. Where WNS has killed large numbers, it is unlikely bat populations will recover to pre-WNS levels in our lifetime – if ever.

How does WNS kill bats? Although the exact mechanisms of mortality are still under investigation, we now know that the newly described fungus *P. destructans* causes WNS. Hibernating bats affected by WNS are characterized by some or all of these symptoms:

1) a white fungus that grows on the nose, ears and wing membranes; 2) depleted fat reserves due to increased winter arousals long before bats normally emerge from hibernation in the spring; 3) a compromised immune response during hibernation; 4) damage or scarring of the wings; and 5) abnormal bat behavior (for example, bats emerge too soon from hibernation and are often seen flying around in midwinter, which usually means they will freeze or starve to death).

What is being done to slow the spread of WNS?

The only tool currently available to slow the spread of WNS is restricting access to caves. Regional and local cave closures have been implemented in an attempt to slow the spread of WNS by reducing the likelihood of human transmission (www.caves.org/WNS). Anyone that goes underground or captures bats should follow decontamination protocols. Researchers are exploring the feasibility of several potential treatments against WNS. Applying treatments is very complicated because we dare not risk damaging these sensitive and complex cave ecosystems by introducing fungicides or other treatments without making sure they are safe.

What about Mexico's bats? The ecological and geographical limits of White-nose Syndrome are not yet understood. Any hibernating bats are likely at risk for WNS, although preliminary evidence suggests bats that do not hibernate for long periods may experience lower mortality rates.

At this point, we do not know what effect WNS may have on bats in Mexico. Although there is no projected timeline for when WNS might reach Mexico, it is prudent to follow decontamination guidelines for caving and bat-capture gear to reduce the chance of human transmission.

What Can You Do to Help? Urgent and effective conservation action is critical if we are to avoid endangering additional species and perhaps even seeing some species become extinct!

There are things you can do to help:

- Educate your friends and families about the benefits of bats and the threat of White-nose Syndrome.
- Encourage your state and federal legislators to allocate funding for efforts to understand and fight this devastating disease.
- Report unusual late-winter bat behavior (such as bats flying during the daytime) or unexplained bat deaths to your state wildlife agency.
- Adhere to state, federal and local cave advisories and closures to help prevent the transmission of WNS.
- When you enter caves or mines, carefully follow decontamination protocols outlined by the U.S. Fish and Wildlife Service. You'll find updated protocols at www.whitenosesyndrome.org.
- Donate to BCI's WNS Rapid Response Fund at batcon.org/wnsdonate.



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Bat Conservation International (BCI) is a non-profit organization dedicated to conservation, education, and research initiatives involving bats and the ecosystems they serve. For more information visit: www.batcon.org