

White-Nose Syndrome



Overview:

White-nose syndrome (WNS) is a newly emerging fungal disease that is severely depleting populations of bats across eastern North America. It was first detected near Albany, New York, in 2006; since then, WNS has quickly spread to 17 U.S. states and four Canadian provinces, as of May 2011. Between 2006 and 2011, WNS was responsible for the deaths of well over one million bats across eastern North America.

The Disease:

The disease is called white-nose syndrome because infected bats develop white fuzz on their nose, face, ears and wings. It is caused by a newly described fungus, *Geomyces destructans*, which thrives in cold damp environments like caves. It is currently unknown how the disease actually kills bats but it is believed that the disease awakens them often throughout their hibernation period. This increased activity depletes their fat reserves and they starve to death since there is no food available to them during winter. Another theory is that infected bats lose water through their wings that have been damaged by the fungus, and they eventually die from dehydration.

White-Nose Syndrome in New Brunswick:

White-nose syndrome was first detected in New Brunswick in a cave in Albert County near Moncton in March 2011. This cave is the province's most important bat hibernaculum (overwintering site). Approximately 6,000 bats use this site each year to overwinter. Researchers from the New Brunswick Museum discovered dead and dying bats around the entrance and inside the cave in March, and over the next few months, estimated that 80 to 90 per cent of the bat population in that cave had died. In addition, a bat that tested positive for WNS was found in Fundy National Park in March 2011 and another near Saint John in May 2011.



NB Museum/K. Vanderwolf photo

Importance of Bats:

Bats are valuable components of our natural ecosystem. Each night, individual bats can consume thousands of moths, flies, mosquitoes and beetles. Some of these insects may be agricultural and forest pests or vectors of human or wildlife diseases. One study estimated that the reduction in bat populations will result in losses to the U.S. agriculture industry of more than \$3 billion a year and could result in increased pesticide use and higher food prices.

Threat to Humans:

At this point, it is not believed that WNS is directly harmful to humans but research on the disease is continuing. However, bats may carry other diseases such as rabies, which can be lethal to humans, so people should not handle dead bats.

Bats in New Brunswick:

Certain bat species seem more susceptible to WNS than others, including the Little Brown Bat (*Myotis lucifugus*), Northern Long-eared Bat (*Myotis septentrionalis*) and Tri-coloured Bat, formerly known as Eastern Pipistrelle (*Pipistrellus subflavus*). These are the species which overwinter in colonies in New Brunswick caves and abandoned mines. The Big Brown Bat (*Eptesicus fuscus*), a species also susceptible to WNS, overwinters in small numbers in buildings in southern New Brunswick. Other bat species in the province are migratory and do not overwinter here. These are the Red Bat (*Lasiurus borealis*), Hoary Bat (*Lasiurus cinereus*) and Silver-haired Bat (*Lasionycteris noctivagans*).

The Little Brown Bat is one of the most abundant species in North America and is New Brunswick's most common bat species. There is great concern for this species, since its numbers are declining at a rapid rate due to white-nose syndrome. Some populations have decreased by more than 90 per cent. If these declines continue, the species may disappear from the region in the next 20 years.

The Northern Long-eared Bat is another common species in New Brunswick. Due to drastic declines in its numbers throughout the eastern United States, the U.S. Fish and Wildlife Service is currently determining if it should be considered an Endangered Species.

What Can We Do?

The New Brunswick Department of Natural Resources (DNR) is working with the New Brunswick Museum to track the spread of WNS throughout New Brunswick and to understand the impacts of the disease to our bat populations. ***If you see day-flying bats during the winter (December to April), please call DNR Fish & Wildlife Branch, Species at Risk Program, in Fredericton at (506) 453-3826, or Dr. Donald F. McAlpine at the New Brunswick Museum, Zoology Section, in Saint John at (506) 643-2345.*** Day-flying by bats during the hibernation period is considered abnormal and may indicate that a WNS-infected hibernation site is nearby.



NB Museum/K. Vanderwolf photo

The Department of Natural Resources is asking people to avoid entering caves and abandoned mines that are known overwintering sites for bats. It is possible that people visiting caves could unknowingly spread the disease from one site to another. While it is more likely that bats, being very mobile, are spreading the disease amongst themselves, we should make every effort to minimize our impact on bat populations during this critical time. Entering hibernation sites when bats are present can disturb bats and increase mortality.

Research is ongoing to determine potential treatment options for affected bats as well as methods of reducing disease transmission to unaffected bats and areas. It is hoped that enough individuals will have a natural immunity to the disease to allow persistence of the various species.



NB Museum/K. Vanderwolf photo

Decontamination Protocols:

If people feel they must enter caves and mines that are used by bats, they should decontaminate all their equipment used at the site, including footwear, rain suits, clothes, helmets, headlamps, gloves and ropes before re-use. A different set of gear should be used at each cave site. People conducting scientific research on bats must follow even stricter decontamination protocols. Details on decontamination techniques can be accessed at the links below.

Additional Information:

For additional information on white-nose syndrome, please visit the following web sites:

White-Nose Syndrome in New Brunswick:

http://www.nbm-mnb.ca/index.php?option=com_content&view=article&id=576&Itemid=1304

White-Nose Syndrome in North America:

<http://whitenosesyndrome.org/>

http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/wns_news.jsp

Decontamination Protocols:

<http://whitenosesyndrome.org/topics/decontamination>