Iowa scientists look for signs of White-Nose Syndrome at Maquoketa Caves State Park.

A Guide to White-Nose Syndrome

CONTENTS

What is White-Nose Syndrome?..... pg. 2

Native Iowa Bats ..... pg. 3

A Serious Threat ..... pg. 4

What Is Being Done ..... pg. 5

How You Can Help..... pg. 6

For People Who Visit Caves..... pg. 7

More Information and Links..... pg. 7

Prepared by ISU Extension & Outreach and the Iowa Department of Natural Resources.

What is White-Nose Syndrome?

Bat infected with WNS.
Courtesy of United States Fish & Wildlife Service.

During the past several years, a newly discovered disease known as **White-Nose Syndrome** (WNS) has been affecting several cave-dwelling bat species.

The disease was first discovered when large groups of dead bats were found in the state of New York in February 2006. A cold-loving fungus, *Geomyces destructans,* is believed to be the cause of WNS. Since then, about 1 million hibernating bats have died from WNS. The disease, which typically shows as a white fungal ring around the nose of the bat, has been observed in numerous other states and Canada in recent years.

Although the cause of the fungus and mode of transmission is unknown, scientists have learned the reason for their resulting deaths. According to the Organization for Bat Conservation website, the dead bats seem to have "exhausted their fat reserves and the fungus is thought to be a causative agent. Recent research has shown that WNS-affected bats are awakening as often as every 3-4 days as opposed to the normal frequency of every 10-20 days." This change in behavior has caused about 90 percent of the affected bats to die from starvation.

Native Iowa Bats

Five of the cave-dwelling bat species affected by WNS in North America can be found in Iowa, including:

Species: **Big Brown Bat** (*Eptesicus fuscus*)
Coat: long, shiny and brown
Range: statewide
Habitat: attics, barns, caves, mines, bridges and trees
Food: insects

Species: **Little Brown Bat** (*Myotis lucifugus*)
Coat: shiny brown fur with black roots, dark brown ears and wings
Range: statewide
Habitat: bottomland forests, rivers and streams
Food: insects

Species: **Northern Myotis** (*Myotis septentrionalis)*
Coat: reddish-brown above and dull, gray-brown below
Range: scattered throughout Iowa; few in western Iowa
Habitat: bottomland forests
Food: insects

Species: **Tri-Colored Bat** (*Perimyotis subflavus*), formerly known as the Eastern Pipistrelle
Coat: varies from pale yellowish-brown to dark reddish-brown
Range: most common in eastern Iowa
Habitat: foliage and high tree cavities or crevices
Food: insects

Species: **Indiana Bat** (*Myotis sodalis*)
Coat: gray, black or chestnut
Range: southeast Iowa
Habitat: wooded and forest areas
Food: insects

A Serious Threat to Bats

WNS is having a significant impact on Little Brown Bat populations. Although traditionally the most common bat in the eastern United States, recent research indicates Little Browns could be lost as a species if the current spread and mortality of WNS continues. Three federally listed species are also threatened by WNS including the Indiana bat, which can be found in Iowa. Two other species, the Virginia big-eared bat and the gray bat, have not yet been affected by WNS, though WNS has been found in hibernacula used by these animals.

Currently, the effect of losing all these bats is unknown for local, regional and national insect populations. Bats eat about half of their body weight in insects every night, although precisely which insects are eaten and how much of each insect species is represented by bat diets is unknown. The effect on insect populations may become much more evident as bat numbers decline and insect numbers increase.

The WNS fungus is likely transmitted most often from bat to bat, but also between caves and mines by humans. The fungus does attach to clothing and gear, and thus can be carried to other caves or mines in any season. Disinfection protocols are available from the U.S. Fish and Wildlife Service, but these are not 100 percent effective.

WNS affects bats during hibernation. Bats awaken more often during hibernation and use up the fat reserves needed for survival through winter. They may also emerge from hibernation too early and starve or freeze to death.

What Is Being Done?

Several federal agencies and nation organizations such as the National Wildlife Health Center (NWHC) and the U.S. Fish and Wildlife Service are collaborating to investigate this newly emerged disease. While continually documenting the occurrence and spread of White Nose Syndrome (WNS) across the United States, the NWHC also is developing a quick test specifically for the identification of the disease. The two organizations also are conducting an "infection trial" to determine how WNS is transmitted from bat to bat and whether this fungus is the only cause of the disease (USGS, "*Investigating White-Nose Syndrome in Bats"*).

Several other research studies involving WNS are in process. Researchers are exploring all aspects of the disease so they can more fully understand and address the underlying causes of the disease and reduce its spread among bats. Participating agencies hope to accomplish multiple goals such as:

- Determine the origin of the fungus
- Predict the potential for future spread
- Investigate the lifecycle of the disease
- Develop strategies for control and spread of the fungus, and
- Identify bat survival strategies (Are there resistant bats?)

(USGS*, Investigating White-Nose Syndrome in Bats)*

The U.S. Fish and Wildlife Service has developed a national management plan to address White-Nose Syndrome. At the state and local levels, natural resource agencies, primarily in states where WNS has been confirmed, have developed control and prevention strategies for the future. The need to raise awareness of WNS, its spread, and implications for ecosystems has resulted in increased information sharing. Many states are attempting to educate people, especially cavers, about WNS and how to help slow and hopefully stop its spread by humans. More caves are being closed to minimize disturbance of hibernating bats and avoid human-aided spread of the disease. These smaller-scaled steps are as important as ongoing research.

While no cases of White-Nose Syndrome have been observed in Iowa yet, DNA of the fungus that causes the disease was detected from a swab sample of a bat collected in Maquoketa Caves in eastern Iowa in March 2012. DNR experts have been monitoring bat populations, and state park staff is educating the public while taking preventative measures to slow its potential spread.

How Can You Help?

Everyone has a role to play in slowing the spread of this disease. It is important understand the signs and symptoms of White-Nose Syndrome in bats, which can be found by visiting the U.S. Fish and Wildlife Service website at http://www.fws.gov/WhiteNoseSyndrome/about.html

If you observe unusual bat behavior or deaths during winter or early spring (especially large numbers of dead bats near cave or mine openings), the most important action is to **contact someone first** before handling any bat. Please notify one of the following agencies:

- Iowa Department of Natural Resources: kelly.poole@dnr.iowa.gov
- U.S. Fish and Wildlife Service:
  http://www.fws.gov/WhiteNoseSyndrome/about.html
  1-800-344-9453

When handling a bat with possible White-Nose Syndrome:

- Pick up the bat with a plastic bag over your gloved hand or use disposable gloves over thicker gloves.
- Place both the bat and the bag into another plastic bag, spray with disinfectant, close the bag securely, and dispose of it with your garbage.
- Thoroughly wash your hands and follow the decontamination protocol as described on the White-Nose Syndrome website of the U.S. Fish & Wildlife Service.

Although there is no known risk to humans from White-Nose Syndrome, it is necessary to take precautions when handling bats, whether dead or alive, and to avoid all possible exposure with the disease. Not only will this prevent any unforeseen health problems, it will also minimize transmission of the disease to other geographic areas or bats.

You can learn more about bats and teach others about bats and why they're important to us by checking out the resources for kids and educators on the United States Fish and Wildlife Service website.

(Source: White-nose Sydrome FAQ sheet on the U.S. Fish and Wildlife Service website)

For People Who Visit Caves

Following state and local regulations concerning hibernacula and other caves is helpful in slowing the possible spread of White-Nose Syndrome, and to protect bats and cave resources. Although WNS has not been reported in Iowa yet, its presence here in the near future is highly likely. It is imperative to be aware of possible protocol changes for caves you are visiting.

Avoid contact with any bat, dead or alive, that you suspect may be infected with WNS. Immediately notify the nearest wildlife professional or U.S. Fish & Wildlife Service field office. When going into hibernacula or caves at any point during the year, follow the U.S. Fish & Wildlife Service decontamination protocol. With decontamination, it is very important to clean and disinfect your gear before and after going into a cave. This will help slow the spread of the disease and reduce big jumps in the spread of WNS. This is also good protocol in general to avoid the spread of other diseases and invasive species.

More Information and Links:

- http://www.extension.iastate.edu/wildlife
- www.batconservation.org
- http://www.fws.gov/WhiteNoseSyndrome/
- http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/
- http://www.batcon.org/
- http://www.batconservation.org/