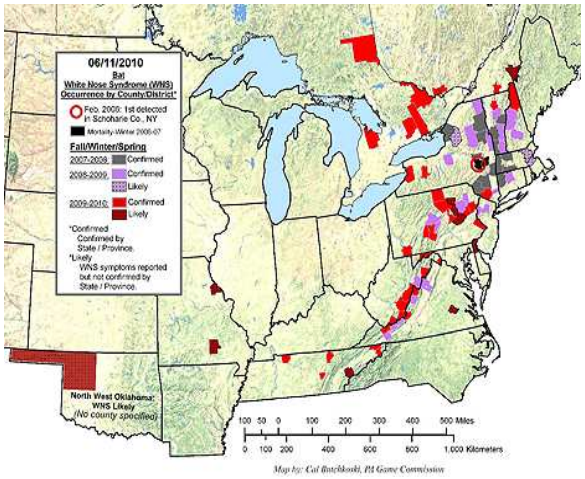
## The Spreading Infection

White Nose Syndrome has spread northwest to Ontario, and west to TN, MO, and OK.




## Taking Action

Scientists, private and university laboratories, wildlife officials, and non-profit organizations, including the National Speleological Society (NSS), have partnered to develop research strategies. Numerous field and laboratory projects are underway to discover the cause or causes of WNS, and determine how to fight it.

NSS members are providing vital manpower and skills for work underground and on the surface, and our scientists have provided important research in the laboratory and the field. Managing caves, WNS, and caving activities in the face of the disease are our primary concerns.

**Your support is needed!**

**Please honor cave closures.** Check with your local NSS grotto for the status of caves and caving in your area**.**

**Follow the recommended protocols to disinfect** caving clothing and equipment.

**Stay out of cave hibernation sites when bats are present**, to allow WNS-affected colonies to recover.

## Bats Need Your help!

**Report unusual bat behavior** or bats that appear diseased to your state wildlife agency. Unusual behaviors may include daytime flight, especially during very cold weather. Report dead or dying bats you find on the ground, trees, or buildings.

**Donate to the National Speleological Society's WNS Rapid Response Fund.** You can provide timely and much-needed support for WNS research. Grants from the Fund support important field and laboratory research on WNS, especially when other funding is not readily available.

**Your support is critical!**

**Send a check or call today:**
NSS WNS Rapid Response Fund
2813 Cave Ave.
Huntsville, AL 35810-4431
256-852-1300

**Donate securely online:**
caves.org/WNS/Rapid_Response.shtml

The NSS is a 501(c)3 non-profit organization. Donations are tax-deductible.

**For more information on WNS, including disinfection procedures, visit www.caves.org/WNS**

Project Underground

Updated June 2010

# What Is Killing Our Bats?

# The White Nose Syndrome Tragedy

Al Hicks

## White Nose Syndrome

Something is killing whole populations of bats in the eastern U.S. as they hibernate in caves and mines. Bats are losing their fat reserves (which are needed to survive hibernation) long before the winter is over and dying of starvation. Scientists estimate **over a million bats** have already died.

The earliest evidence of WNS was in a 2006 photograph taken in Howe's Cave, NY, the rarely visited, non-commercial section of Howe Caverns. However, the condition wasn't recognized until a year later, after hundreds of bats were found dead in four nearby caves.

Scientists describe WNS as **the most serious known decline in North American wildlife**. It threatens cave ecosystems and presents new challenges for broader cave conservation efforts.

For more than 65 years, the NSS and its members have been at the forefront of efforts to conserve and study caves, their unique geology and environments, and the life they contain. Now, we are collaborating with wildlife managers and scientists to combat WNS.

## The Cause

Its cause is unknown, but the affliction has been named "**White Nose Syndrome"** (WNS) because of the telltale white fungus growing on the noses of infected bats. This previously undescribed fungus, *Geomyces destructans,* may also appear on a bat's wings, ears, and tail. The fungus has also been found in the sediments of WNS-infected caves.

*Geomyces destructans* infects the skin of bats. However, the fungus isn't always apparent on affected bats, and they may instead display abnormal behavior.

Scientists still don't know if the fungus is the actual cause of WNS, or if it is merely an opportunistic pathogen, taking advantage of immune systems weakened by a biological, chemical, or other environmental factor.

## Bats Are Dying

Mortality rates of up to 100% have been documented in many hibernacula found to have WNS. **Little Brown bats,** our most common species, have the highest mortalities (90+%.) The federally **endangered Indiana bat** appears to be more resilient, with about a 50% mortality rate.

In caves where fewer than 100% of the bats died the first year, populations continued to decline in successive years. Damage to wings and bodies persists in bats that survive a winter in WNS-affected populations.

Cave microclimates (humidity and temperature) seem to affect the ability of the disease to progress. These factors, matched with the roosting preferences of different species of bats, may hold some hope for survival.

Photo: © J. Chenger

## Additional Signs of WNS

- Bats flying outside during the day in near- freezing weather.
- Bats clustered in the winter in sections of caves or mines not normally used for winter roosts, especially near the entrance.
- Dead or dying bats on the ground or on buildings, trees or other structures during the winter.
- Bats not arousing at all after being disturbed.

## How WNS Is Spread

- **Bat-to-Bat** - The pattern in which WNS has spread between caves over three years indicates that bat-to-bat is the primary method of transmission. Bat-to-bat transmission of *G. destructans* has been proven in a laboratory environment.
- **Cave to Humans to Bats?** – While not proven, many believe it possible that cavers, scientists, and other human cave visitors could inadvertently help spread WNS. As a precaution, clothes and equipment should be cleaned and decontaminated between caves.

  **It is particularly important for cavers not to use gear from a WNS site in caves outside a WNS-affected area.**

## Bats Matter!

Bats are an essential, beneficial part of our ecosystem.

Bats play critical roles in insect control, plant pollination, seed dissemination and cave ecosystems, and are food for other animals that prey on bats, including hawks, raccoons, skunks, and owls.

Consuming over half their body weight in insects each night, bats are the major predator of night-flying insects, and thus help reduce the need for insecticides. ***Bats in the U.S. eat thousands of tons of insects nightly.***

Bats play a significant role in science and medicine. Research conducted on bats has enabled advancements in sonar, vaccine development, blood coagulation, and artificial insemination, to name just a few.

Decimation of bat populations will cause a substantial ecological ripple effect, with far-reaching consequences.

**WNS not only affects bats.**
**It impacts our whole ecosystem.**
**WNS affects *us*.**