

# White Nose Syndrome

National Park Service  
U.S. Department of the Interior

Jewel Cave National Monument



## What is WNS?

White Nose Syndrome (WNS) is a contagious disease that affects populations of hibernating bats. A fungus spreads along the skin of susceptible species causing infected bats to abnormally rouse from their hibernation. This excessive activity uses up fat reserves necessary to survive the winter. With the lack of insects during the hibernation months, bats can easily starve to death. The fungus primarily damages the wings of bats, which in addition to flight, are critical to other physiological functions. Nearly six million bats in Eastern North America have died from WNS since its discovery in 2006. WNS is currently affecting seven species of bats in 31 U.S. states and 5 Canadian provinces.

## Origins of WNS

The fungus that causes WNS is believed to have originated in Europe or Asia. It has been confirmed that the disease is being spread through bat-to-bat transmission. It is also possible that the disease may spread by human activity.

The first identified case of WNS in North America was discovered in Schoharie County, New York in February of 2006. Within the first five years of its discovery, WNS had spread

over 1,200 miles from the original site.

The disease is caused by a cold-loving fungus known as *Pseudogymnoascus destructans*. This fungus thrives in dark, humid and low temperature (40-50 degrees Fahrenheit) environments. Unlike typical fungi, *Pseudogymnoascus destructans* cannot grow above 68 degrees Fahrenheit, making underground bat hibernacula (caves or mines) ideal for growth of this pathogen.

## Why Are Bats Important?

The importance of bats to ecosystems around the world is well established. Many species consume insects that would otherwise affect human health or damage crops and forests. Without bats to control insect populations, farmers would be forced to use more pesticides. This, in turn, would result in an increase in the price of certain foods.

It is estimated that by eating insects, bats save the agricultural industry over \$23 billion each year. Other bat species are valuable in the pollination of plants and the dispersal of plant seeds.



*Did you know that bug eating bats in North America can eat 2,000 to 6,000 insects in one night? Many of these insects can include crop pests, as well as flies, mosquitoes, and gnats.*

## Rate of Spread

Along with the millions of bats already killed by WNS, mortality rates of 90-100% have been documented in some areas. Researchers predict the extinction of certain species in northeastern states within twenty years. Researchers expect WNS to continue to spread across the United States and Canada.

A geographic database concerning the effects of WNS is being developed to track the location of infected species.

WNS does not currently affect the bat populations at Jewel Cave National Monument. With your help, we aim to keep it that way within the Black Hills.

## Bat Species Affected by WNS

Currently, WNS is impacting seven hibernating species of bats that inhabit higher latitudes of North America. The decimation, or possible extinction, of many hibernating bat populations of North America is possible; many bat species only live for five to fifteen years and produce only one offspring per year.

There are forty-five species of bats inhabiting the United States; bats represent about 20% of all mammal species in the world. Most bat populations are stable and do not fluctuate widely over time. Little brown bats (*Myotis lucifugus*), the northern long-eared bat (*Myotis septentrionalis*), and the Federally-endangered Indiana bat (*Myotis sodalis*) have been hit particularly hard by WNS.

Jewel Cave supports one of the largest known hibernating colonies (over 700 members) of Townsend big-eared bats (*Corynorhinus townsendii*) in the West. Other bat species that live at the Monument include ...

- *Eptesicus fuscus* (Big brown bat)
- *Lasionycteris noctivagans* (Silver-haired bat)
- *Lasiurus cinereus* (Hoary bat)
- *Myotis lucifugus* (Little brown bat)
- *Myotis volans* (Long-legged bat)
- *Myotis ciliolabrum* (Western small-footed bat)
- *Myotis septentrionalis* (Northern long-eared bat)
- *Myotis thysanodes pahasapensis* (Black Hills fringed-tail bat)

## Your Role With WNS

So, how can you help stop the spread of WNS? Do not handle any bats, living or dead. If you come across bats suspected of having WNS, contact any nearby wildlife agency. If you have visited caves or mines suspected to contain WNS, follow appropriate decontamination protocols to prevent transmission of the disease.

You can also help bats when they are not hibernating by planting moth-attracting wildflower gardens and by

installing bat houses to provide additional habitat.

Most importantly, you can increase awareness among your friends and family by talking about WNS and the importance of bats.

For more information on White Nose Syndrome and the decontamination process prior to visiting caves, please visit,

[www.WhiteNoseSyndrome.org](http://www.WhiteNoseSyndrome.org)

### Help Protect Our Bats

In order to protect the bats at Jewel Cave, a visit to the Monument may involve the following questions:

- Have you visited any other caves recently?
- Are you wearing any of the same articles of clothing, such as boots, shoes, or coats?
- Are you bringing any personal items into the cave from this previous trip?

If you answer yes to any of these questions, you may need to decontaminate or store these items in your vehicle. Please ask a Park Ranger for more information.

