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## White-nose Syndrome in Tennessee

### WNS Background

White-nose Syndrome is a mysterious disease that is killing bats across the northeast United States. WNS was first discovered in New York in the winter of 2006/2007, since then the syndrome has spread dramatically and can now be found in Tennessee.

The cause of the syndrome is unknown at this point. WNS is characterized and named as such due to a novel white fungus *Geomyces destructans* (Blehert and Gargas) that grows on the muzzle, ears, and wings of affected bats (Gargas et al. 2009). This fungus invades the epidermis of the bats, unlike many other fungal infections (Meteyer et al. 2009). How WNS kills bats is unknown at this time. A leading hypothesis is that *G. destructans* infections affect the arousal periods of hibernating bats, causing them to use their fat reserves prior to emergence, essentially starving the bats. Mortality at affected caves has been documented at 80 to 97% (Blehert et al. 2009). Mortality rates differ among species, with little brown bats being the hardest hit. The fungus persists in cave sediments, which may act as a reservoir for re-infection and transport between caves. Human transport of the fungus to new areas has not been proven, but appears to be a possible mechanism for transport. Bat to bat transfer is by far the most common way WNS spreads.



photo by: Cory Holliday

To reduce the potential for the spread of WNS the USFWS issued a cave advisory in March 2009 urging the closure of all caves in the affected area and bordering states. Commercial caves and WNS research were to continue. A disinfection protocol was developed to treat cave gear and restrict the use of cave gear between sites. Many public agencies followed this advisory and issued closure notices. In TN the National Park Service, The Nature Conservancy, Tennessee Wildlife Resources Agency, Tennessee Valley Authority, Tennessee Department of Environment and Conservation, and the Tennessee Division of Forestry **closed access to caves on their properties**. This closure order has been extended through June 2013.

### Current Tennessee WNS Distribution Map



### WNS Research

## Bats of Tennessee

- Little Brown Bat
- Southeastern Bat
- Gray Bat
- Northern Long-eared Bat
- Indiana Bat
- Eastern Small-footed Bat
- Tri-colored Bat
- Big Brown Bat
- Rafinesque's Big-eared Bat
- Townsend's Big-eared Bat
- Eastern Red Bat
- Seminole Bat
- Hoary Bat
- Silver-haired Bat
- Evening Bat
- Brazilian Free-tailed Bat

## Related Links

- Bat Conservation International
- Southeastern Bat Diversity Network
- Alabama Bat Working Group
- Georgia Bat Working Group
- The Nature Conservancy of TN
- National Institute for Mathematical and Biological Synthesis
- Tennessee Wildlife Resources Agency
- U.S. Fish and Wildlife Service WNS Page
- NSS White Nose Syndrome Page
- Southeastern Cave Conservancy, Inc.
- Tennessee Cave Survey, Inc.
- American Cave Conservation

**Association**  
**TN Natural History Inventory**  
**Program**

Many research projects are underway to help in the fight against WNS, from researching fungicides to modeling the spread and affects of the syndrome. If you would like to help there are many ways in which you can.

- Report any unusual bat activity (bats flying in the daytime) or unexplained bat deaths to your regional TWRA office. Or check out the **Report a Bat Link** on this website.
- Donate to a number of funds collecting money for WNS research (see National Speleological Society and Bat Conservation International pages below).
- Adhere to state and federal cave closure advisories.
- Encourage state and federal agencies to assist in WNS research and monitoring activities.

#### **WNS Reponse Plans and Resources**

- **Coordinated Monitoring and Surveillance Response Plan for Tennessee**
- **2017 Bat Hibernacula Surveys and WNS Monitoring**
- **2016 Bat Hibernacula Surveys and WNS Monitoring**
- **2015 Bat Hibernacula Surveys and WNS Monitoring**
- **2014 Bat Hibernacula Surveys and WNS Monitoring**
- **2013 Bat Population Monitoring and White Nose Syndrome Surveillance**
- **2012 White-nose Syndrome Monitoring in Tennessee**
- **2011 White-nose Syndrome Monitoring and Bat Population Survey of Hibernacula in Tennessee**
- **2009-2010 WNS Report for Tennessee**
- **National and State Plans**
- **BCI WNS Fact Sheet**
- **NPS WNS Fact Sheet**
- **USFWS WNS Fact Sheet**
- **NSS Brochure**

#### Literature Cited

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