

# DARK DAYS FOR VIRGINIA'S BATS



Gray Bat

A MYSTERIOUS FUNGUS IS KILLING CAVE-DWELLING BATS FROM VERMONT TO VIRGINIA.

by Cristina Santiestevan  
illustrations by Spike Knuth

When a New York caver took photographs of hibernating bats with mysterious white noses in February 2006, there wasn't a name for the condition. It had never been seen before. Now, four years later, white-nose syndrome has killed hundreds of thousands of bats, from New England to Virginia. Some estimates put the toll at closer to a million bats, with more dying every winter. "We are looking at some very significant changes in bat populations and species composition," says Rick Reynolds, a wildlife biologist

with the Virginia Department of Game and Inland Fisheries. Extinctions, according to Reynolds, are a very real possibility.

Those first photographs were taken in Howe Caverns, about 40 miles west of Albany, New York. A year later, the condition had spread to four neighboring caves in New York. By the following winter, white-nose syndrome was recognized as a serious threat to bat survival, and had been identified in Connecticut, Massachusetts, and Vermont, as well as additional locations within New York. Then, in early April 2009, the Department (DGIF) received some very bad news from the U.S. Geological Survey National Wildlife Health Center in Madison, Wisconsin. White-nose syndrome (WNS) had made it to Virginia, as confirmed by laboratory analysis of several specimens DGIF had sent to the National Wildlife Health Center for testing. As



Indiana Bat

of early 2010, white-nose syndrome has been confirmed in five Virginia counties: Bath, Bland, Giles, Rockingham, and Smyth.

The affected bats' white noses—and ears, wings, and tails—are the product of a previously unknown type of fungus, *Geomyces destructans*. The fungus thrives in the cold and humid conditions that are typical of bats' preferred hibernation sites, and produces a fuzzy growth of white fungal fibers, known as hyphae, on their bodies.

Before it appeared on America's bats, this fungus had never been seen. No one knows where it came from, or why it has begun to appear now. No one knows whether the fungus is actually killing the bats, or if it is just a side-effect of some other condition. And, no one really knows why white-nose syndrome may be killing bats. In fact, beyond its undeniable lethality, there is precious little we do know about white-nose syndrome. And this may be the biggest problem with the fungus. "It's so new and different that we just don't know what to expect," explains Reynolds. "We just learn as we go."

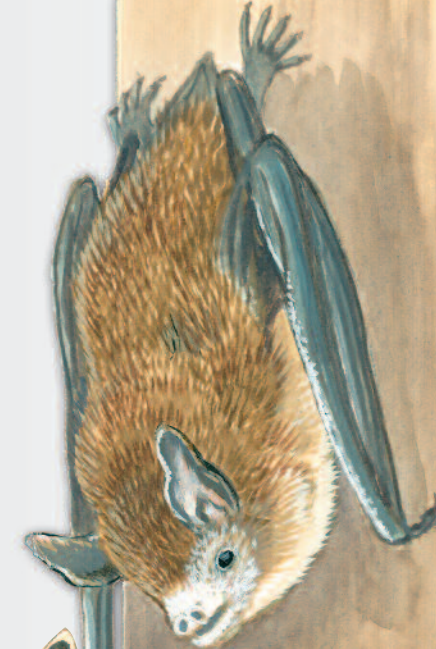
White-nose syndrome could be devastating to Virginia, which is home to three federally endangered bat species: the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and Virginia big-eared bat (*Corynorhinus townsendii virginianus*).

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Southeastern Bat

Virginia Big-eared Bat



Little Brown Bat

## KNOW THE SYMPTOMS OF WHITE-NOSE SYNDROME

To date, white-nose syndrome has been confirmed in only a handful of Virginia counties. But, if New England is any example, we can expect the fungal infection to expand rapidly in the coming years. We need your eyes to help us track white-nose syndrome in our bat population. Please contact the Department if you find a dead or dying bat, or if you see a live bat displaying any of these symptoms:

- ✘ white fungus on the nose, face, body, or wings
- ✘ flying outside during the day, especially during the winter and early spring
- ✘ trouble flying, or the appearance of confusion or disorientation



Eastern Big-eared Bat

When bats hibernate, their metabolism slows. But, once they wake up, their metabolism speeds up, and they begin burning through their valuable energy stores. If a hibernating bat is disturbed enough by the discomfort of the fungus, it could theoretically use up all its energy reserves long before the winter ends. Hungry and confused, the emaciated bats fly from their caves in search of insects. Instead, they find nothing more than sunlight and snowscapes and starve long before the spring thaw.

The impacts of WNS are also showing up at maternity sites where researchers are finding a decrease in reproductive capability (the percentage of pregnant females and percentage of young produced). The reproductive strategy of bats is delayed fertilization. If a female is weak or compromised from WNS, she may choose to abandon reproduction in order to sustain her own health.

An itchy fungal infection with lethal timing is one theory. Others suspect that the fungus is only a symptom of a larger problem, perhaps a

systemic infection or disease. Whatever the cause, white-nose syndrome kills bats with a terrifying efficiency. Some caves in New York have lost 90 to 100% of their bats. Whole populations are disappearing, and in the timeframe of just a year or two. Biologists are beginning to worry that we will lose entire species of bats.

Some might be tempted to mutter “good riddance” at the thought of bat extinctions. But bats play a critical role in our environment, on our farms, and in our backyards and gardens. A single bat can eat up to its weight in bugs every night. This adds up quickly. Across the United States, bats eat literally tons of moths, beetles, mosquitoes, and other insects every night. If white-nose syndrome continues to decimate bat populations, those uneaten insects will need

to be controlled in other ways, increasing the time and expense required to manage our yards and gardens, farms, and forestland. Here in Virginia—with three endangered species of bats and a large network of caves and caverns—we could be hit especially hard by white-nose syndrome. According to Reynolds, biologists in West Virginia have already discovered caves with “buckets-full” of dead bats. Reynolds believes, “We will see a lot of the same here ... it’s probably just a matter of time.” □

Cristina Santiestevan writes about wildlife and the environment from her home in Virginia’s Blue Ridge Mountains.

ACT WILD

Here are three simple ways you can help give Virginia’s bats a fighting chance against white-nose syndrome:

- ✘ Biologists believe the fungus may spread through bat-to-bat contact, as well as through contaminated clothing or caving gear. For that reason, biologists have called for a complete moratorium on caving until they better understand WNS and how to treat it. At a minimum, you can help reduce the risk of infection by observing all cave closures, in Virginia and elsewhere. Visit [www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/](http://www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/) for a current list of cave closures.
- ✘ Learn the symptoms of white-nose syndrome and report any suspicious bat activity to DGIF at the following site: [www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/wns-observation.asp](http://www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/wns-observation.asp).
- ✘ Share information about white-nose syndrome with friends and family, and support programs that are working to save bats, such as Virginia’s Nongame Fund ([www.dgif.virginia.gov/ads/?campaign=nongame-fund](http://www.dgif.virginia.gov/ads/?campaign=nongame-fund)) and Bat Conservation International ([www.batcon.org](http://www.batcon.org)).

These bats, along with the eastern big-eared bat (*Corynorhinus rafinesquii*), eastern small-footed bat (*Myotis leibii*) and southeastern bat (*Myotis austroriparius*), are considered species of greatest conservation need in the state of Virginia, and are a priority for conservation specialists and biologists. With the arrival of white-nose syndrome in Virginia, some biologists believe that *all* of Virginia’s cave-dwelling bats should be included on this list. This would bring the list of conservation-priority species to eight—approximately half of Virginia’s entire visiting bat population.

The trouble strikes cave-dwelling bats during the winter months, when they should be hibernating quietly in caves and caverns. But, for unknown reasons, bats affected with white-nose syndrome are waking up in the middle of the winter. Some simply shift around in their caves, but others actually fly off in search of food—sometimes in the middle of the day. This, of course, defies years of evolutionary adaptation to hibernating through the winter months when their food source—insects—is absent. Some biologists speculate that the fungus is uncomfortable, and disturbs the bats enough to wake them up.



Northern Long-eared Bat



Eastern Small-footed Bat