White-nose Syndrome: Questions and Answers

Why are bats dying in North America?
More than 1 million bats have died over the past five years because of an outbreak of white-nose syndrome, a fast-moving disease that has wiped out entire colonies and left caves littered with the bones of dead bats. The epidemic is considered the worst wildlife disease outbreak in North American history and shows no signs of slowing down. It threatens to drive some bats extinct and could do real harm to the pest-killing services that bats provide, worth billions of dollars each year, in the United States.

What is white-nose syndrome, and how does it kill bats?
White-nose syndrome is the result of a fungus called *Geomyces destructans* that invades and ingests the skin of hibernating bats, including the wings. It causes bats to wake up more frequently during the winter, possibly because of water loss from damaged tissue. Bats aroused from hibernation burn up large amounts of limited winter fat reserves and often starve to death because of a lack of insects during the cold months. In some cases, their wings are too damaged to fly. Dead or dying bats are frequently observed with a white fuzz around their muzzles, hence the name “white nose syndrome.”

How deadly is it?
Typically, the disease kills 70 percent to 90 percent of bats in an affected hibernaculum (the area where bats gather to hibernate for the winter). In some cases, the mortality rate has been 100 percent, wiping out entire colonies. Some caves that once hosted hundreds of thousands of bats are now virtually empty.

Where did the fungus come from?
Although the exact origins are unclear, there’s strong evidence that the fungus was brought to North America by people. It has been found in 12 countries in Europe, where bats appear to be adapted to, and unaffected by, the fungus. Because bats do not travel between the continents, this strongly suggests the fungus was newly introduced to North America by people — likely cavers who transported it on their gear or clothing. This pattern is much like the diseases that ravaged American Indian people when Europeans first colonized. White-nose syndrome was first discovered in North America in upstate New York in February 2006.

Does it affect all bats in North America?
So far, white-nose syndrome appears to affect only bats that hibernate, which make up about half of the 45 bat species in the United States. Pollinating bats and long-distance migrants that don’t hibernate don’t seem to be affected.

How many bat species have been affected, and which ones are they?
Eleven species (including four endangered species) have been affected by the disease or are immediately threatened by it. The disease has affected: the big brown bat, eastern small-footed bat, Indiana bat (endangered), little brown bat, northern long-eared bat and
tricolored bat. The fungus has also been found on the cave bat, gray bat (endangered) and southeastern bat. Other endangered bats living in areas where the fungus is present are the Virginia big-eared bat and the Ozark big-eared bat.

**Where has white-nose syndrome been found?**
The disease has been confirmed in 16 U.S. states and four Canadian provinces: Connecticut, Delaware, Indiana, Kentucky, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Vermont, Virginia and West Virginia in the United States and New Brunswick, Nova Scotia, Ontario and Quebec in Canada. The fungus causing the disease has also been found in Missouri and Oklahoma. See an animation of the disease’s spread [here](#).

**How many bats have died?**
More than 1 million bats have died in North America.

**How does this disease spread?**
It is passed from one bat to another, or from the cave environment to bats, but it also likely spreads when people inadvertently carry it from one cave to another on their shoes, clothes or equipment.

**Are there ways to stem its spread?**
Yes. One of the most important is to close caves and abandoned mines to all but essential human travel. The Center for Biological Diversity [filed a petition](#) in January 2010 to close all caves and abandoned mines on federally controlled lands in the lower 48 states.

**Have enough caves been closed?**
No. Although there have been widespread cave closures in the eastern United States, where the disease is most prevalent, land managers in the West — where the disease is expected to arrive soon — have yet to take the threat of this wildlife crisis seriously. Although some caves in the West have been closed, it’s **not nearly enough** to slow the spread of this deadly disease.

**Is there a cure?**
No, but researchers are learning more about how the disease kills bats, which is an important step toward developing an effective treatment. Also, European bats appear to be immune to the fungus, and finding out why could provide vital clues to a cure for North American bats.

**Is the federal government doing enough about this wildlife crisis?**
No. Four years after the outbreak began, the U.S. Fish and Wildlife Service has yet to come out with a final, approved plan for white-nose syndrome. Instead, last fall the agency released a draft plan that provides only a conceptual framework for responding to the disease. It lists no specific action items and makes no concrete recommendations for research and management of the disease.

**Why are bats important?**
Bats account for about 25 percent of all mammals on Earth and provide enormous ecosystem services. One of the most important is controlling insects. A single bat can eat thousands of insects in a single night.

**Do bats have an economic value in the United States?**
Yes. Bats consume millions of pounds of night-flying insects each year and help keep in check bugs that are problematic for agriculture and forestry. A recent study found that the value of bats’ pest-control services in the United States ranges from $3.7 billion to $53 billion per year.

**Could some bat species go extinct?**
Yes. Of particular concern are those bats already on the endangered species list, including the Indiana bat, gray bat, Virginia big-eared bat and Ozark big-eared bat. Even the little brown bat, one of the most common bats in North America, could be in trouble. A leading bat scientist says the little brown bat is “in imminent danger of extinction” in the core of its Northeast habitat because of white-nose syndrome. The Center and others have requested that the government review the little brown bats’ status in light of the disease. The Center has also petitioned for the endangered species listing of the eastern small-footed bat and northern long-eared bat.

**What can I do?**
We need your help to save America’s bats from this deadly disease. By lending your voice to this effort, you’re letting Congress, the president and other decision-makers around the country know something must be done now to address this unprecedented wildlife crisis. You can start today by signing this petition, writing a letter to the editor of your local newspaper, liking our Facebook page and sharing it with friends and family.