



White-nose Syndrome: The Deadly Invader



What Is White-nose Syndrome?

White-nose syndrome (WNS) has caused the most precipitous decline of North American wildlife in recorded history. WNS is a disease responsible for the death of millions of bats in the U.S. and Canada. Evidence shows that the fungus (*Pseudogymnoascus destructans*, formerly called *Geomyces destructans*) may have been introduced to the U.S. from Europe via a human vector. The disease is caused by a white, powdery fungus that grows on the affected bat's nose, ears, and wing membranes. The bats with WNS are more inclined to wake up during hibernation and fly around. As a result, they expend part of their fat reserve which they need to survive winter. If they expend too much fat, they die.

Bats At Lava Beds



Fourteen different species of bats call Lava Beds home. All bats are in the order Chiroptera, meaning hand-wing. This is due to the fact that their wing is very similar in structure to a human hand. All of the bats at Lava Beds eat insects and the majority live inside caves, although a few species dwell in trees or buildings.

During the warm summer evenings, bats are commonly seen hunting insects around the campgrounds and amphitheater. You might be delighted by the flying agility of a Townsend's Big-eared Bat (*Corynorhinus townsendii*) or the Brazilian Free-tailed Bat (*Tadarida brasiliensis*).

In addition to those two species, we have:

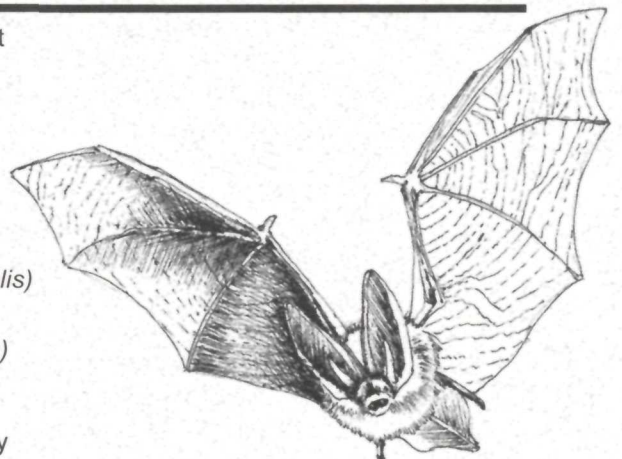
- Pallid Bat (*Antrozous pallidus*)
- Silver-haired Bat (*Lasionycteris noctivagans*)
- Little Brown Bat (*Myotis lucifugus*)
- Hoary Bat (*Lasiurus cinereus*)
- California Myotis (*Myotis californicus*)
- Western Small-footed Myotis (*Myotis ciliolabrum*)
- Fringed Myotis (*Myotis thysanodes*)
- Long-legged Myotis (*Myotis volans*)
- Yuma Myotis (*Myotis yumanensis*)
- Canyon Bat (*Parastrellus hesperus*)
- Long-eared Myotis (*Myotis evotis*)
- Big Brown Bat (*Eptesicus fuscus*)

Which Bats Are Affected By WNS?

There are currently seven species of bats that are being affected by the WNS fungus:

- Big Brown Bat (*Eptesicus fuscus*)
- Eastern Small-footed Myotis (*Myotis leibii*)
- Little Brown Bat (*Myotis lucifugus*)
- Northern Myotis (*Myotis septentrionalis*)
- Indiana Myotis (*Myotis sodalis*)
- Tri-colored Bat (*Perimyotis subflavus*)
- Gray Bat (*Myotis grisescens*)

Two of seven species known to be affected by WNS live here in Lava Beds National Monument. They are the Big Brown Bat (*Eptesicus fuscus*) and the Little Brown Bat (*Myotis lucifugus*). An additional 9 hibernating species could be at risk if *Pseudogymnoascus destructans* is introduced to Lava Beds.



Normal Bat Behavior

Hibernation and Migration

Many Lava Beds bats hibernate within the monument over the winter. Hibernation occurs when their body temperature is reduced to near freezing to conserve precious energy used all winter long. The Brazilian Free-tailed Bat remains active throughout the year by migrating to warmer climates.

Echolocation

Echolocation is the production of high frequency sound waves that reflect and return to the bat's ear. This allows bats to determine the size of prey and their distance from it and other objects. ALL Lava Beds' bats only eat insects (insectivores). The cave-dwelling bats leave their roosts as early as two hours before sundown to search for insects using echolocation. This is when you are most likely to see flying bats.

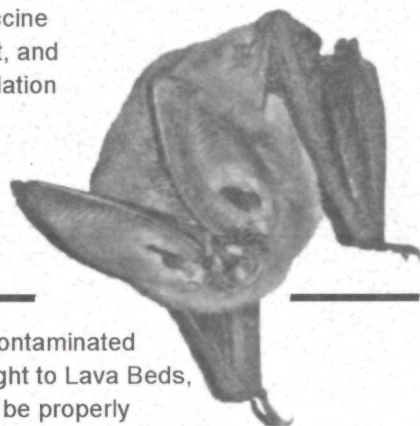
Why Are Bats Important?

Bats are an important and beneficial part of our ecosystem. The loss of bats due to WNS has already started affecting the ecosystem. If bats were to disappear altogether, the effects would be catastrophic.

Worldwide, bats control insect populations, pollinate plants and crops, disperse seeds, and play a critical role in cave ecosystems. A single bat can consume half of its body weight in insects every night. They also serve as a food source for other animals. Bats that roost in caves are considered keystone species (a species with an abnormally large effect on the rest of the

ecosystem) because bat guano provides essential cave nutrients at the base of the food chain within the cave.

Research involving bats has led to advancements in sonar, vaccine development, and blood coagulation techniques.



What Are We Doing?

At Lava Beds we are doing our part to slow or even stop the spread of WNS by screening all visitors that enter the monument. We request all caving gear and/or equipment, including shoes and cameras that have been in caves or mines east of the rockies, Canada, or Europe, not be used in Lava Beds caves.

If gear from contaminated areas is brought to Lava Beds, we ask that it be properly decontaminated by staff at the Visitor Center. For details on the decontamination process, please ask a ranger at the Visitor Center or visit our web page at www.nps.gov/labe. Lava Beds' resource management staff monitors our bat populations within the park throughout the year. To protect bat populations, caves where bats roost or hibernate may be seasonally closed to prevent disturbance to bats. **Please respect all cave closures.**



How Can You Help?

It's obvious that something has to be done to prevent the spread of WNS and to save the bats, but what? There are several ways **you** can help:

- ✓ Please honor all cave closures.
- ✓ Please stop by the Visitor Center to go through the screening process and have any gear decontaminated if needed.
- ✓ Please support our bats through the purchase of an Adopt-A-Bat Kit available at the visitor center.

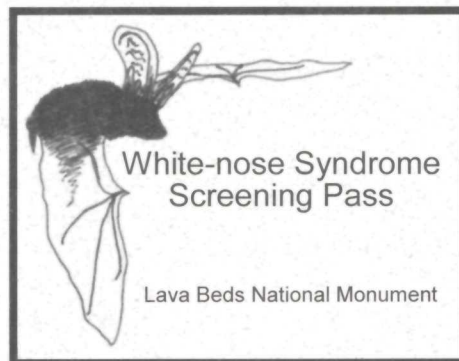
- ✓ Please spread the word about the importance of bats and destructive affects of WNS.
- ✓ Please stay out of caves where WNS is present to slow the spread of the disease

Be Bat-Friendly

Bats are very sensitive to human disturbance. If disturbed in the summer, adult bats may vacate an area, abandoning their young, called pups, before the pups are able to care for themselves. This is why some of our caves are closed during the summer season when maternal colonies are present. In winter, hibernating bats can waste precious body fat when they warm themselves up to respond to a disturbance, and can die as a result.

What To Do If You See Bats

Take a moment to admire their special beauty. Be as quiet as possible. Talking in a low voice is better than whispering and try not to shuffle your feet. Bats are disturbed by a wide range of noises humans can't hear.



Keep lights down. Bats are nocturnal and are accustomed to the dark. A bright light can be disturbing. (no flash cameras, please!)

Leave the area as quickly as you can without causing further disturbance and report the sighting to the Visitor Center or a ranger. Please note whether it was a few single bats or a colony or group.

White-nose syndrome affects much more than bats, it affects entire ecosystems.

White-nose syndrome affects us. 