

Bats Need Your Help How can you help?

- Follow all permit requirements. Do not enter any cave at Craters of the Moon without first obtaining a permit.
- Do not use equipment, gear, or clothing in western caves or mines that has been used in caves or mines east of the Rocky Mountains.
- Decontaminate equipment, gear, and clothing between caving sites.
- Use decontaminated equipment, clothing, and decontamination procedures when entering mines and caves.
- Report unusual bat behavior to a park ranger. Unusual behaviors may include daytime flight, especially during very cold weather. Report dead or dying bats found on the ground, trees, or buildings.
- Never handle sick or dying bats. Even healthy bats will bite if handled.



Bats hibernating with WNS

We will never have more power to build a defense against this ecologically devastating disease than before it arrives.

More Information

- National Park Service white nose information: http://www.nature.nps.gov/biology/wildlifehealth/white_nose_syndrome.cfm
- Decontamination procedures: <http://www.fws.gov/whitenosesyndrome/research.html>
- Western Bat Working Group: <http://www.wbwg.org/conservation/whitenosesyndrome/whitenose.html>
- The National Speleological Society website: <http://www.caves.org/WNS/>
- The NSS and USFWS collaborative WNS site: <http://www.batmanagement.com/wns/wns.html>
- USGS Wildlife Health Center website: http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/index.jsp
- Bat Conservation International: <http://www.batcon.org>



National Park Service
U.S. Department of the Interior

Craters of the Moon
National Monument and Preserve



White-Nose Syndrome in Bats



Little Brown Bat roosting in cave
Photo by: Al Hicks

*What Do We Need to
Know Before It Comes
to Craters of the Moon?*

White-Nose Syndrome

Something is killing whole wintering populations of bats in North America as they hibernate in caves and mines.

This affliction has been given the name white-nose syndrome (WNS) because of the telltale white fungus growing on the noses of some infected bats. Only recently described as a new species, *Geomyces destructans* may appear on the wings, ears, and/or tail membranes of afflicted bats, but may also be absent.

White-nose syndrome is not well understood and scientists are investigating all potential aspects of this mysterious disease. One popular hypothesis focuses on the fungus itself, a cold-loving fungus that thrives in temperatures from 40 to 55°F, the same range of temperatures typical of bat hibernation sites. *G. destructans* infects hibernating bats because their bodies are cold and amenable to its growth. Infected bats may arouse from hibernation to attempt to deal with the fungal infection and in doing so prematurely burn up their fat stores and starve to death in midwinter.

The earliest evidence of WNS was at a cave in New York in 2006. Since then, hundreds of thousands of bats have died.

WNS out West

In the eastern United States, mortality typically exceeds 90% in hibernating colonies affected by WNS.

While WNS has not been reported in the western United States, the general consensus is that it will eventually spread to many regions of North America.

Bats in the western US tend to hibernate in small groups and are dispersed across large expanses and among various types of underground hibernation sites. This dispersed winter distribution may be beneficial to western bats in slowing the spread of WNS. On the other hand, the extensive distribution and inaccessibility of western hibernation sites could make it difficult to initially detect and subsequently document the effects of WNS. Most survey efforts of caves and mines for bats in the West have focused on Townsend's big-eared bat (*Corynorhinus townsendii*) and less is known about western winter habits of *Myotis* species and other species that have shown high rates of susceptibility to WNS in affected areas.

Bats Matter

Bats are an essential and beneficial part of the ecosystem. Bats play critical roles in insect control, plant pollination, seed dissemination, cave ecosystems, and provide food for other animals.

Signs of WNS

- White fungus growing on the nose, wings, ears, and/or tail membrane.
- Bats flying outside during the day in winter.
- Bats clustered during winter in sections of caves and mines not normally used for winter roosts, especially near the entrance.



Photo by: Meteyer et al.

- Dead or dying bats on the ground or on buildings, trees or other structures during the winter.
- Bats not arousing at all after being disturbed.

How WNS Is Spread

- Bat to Bat – Bat to bat transmission of *Geomyces destructans* has been documented in lab conditions and the geographic pattern of spread appears to support lab findings. It is also possible that other unknown agents associated with WNS are spread bat to bat.
- Cave to Humans to Bats – Aspects of the geographic spread suggest that humans may transmit WNS from infected sites to clean sites. This kind of spread is most likely occurring from clothing and equipment that are not properly cleaned and decontaminated between sites. Formal testing of human spread WNS is ongoing. Because of the devastating effects of WNS, it is critical that people assume responsibility for the potential spread of WNS.