

DID YOU KNOW
A WILDLIFE
HEALTH CRISIS
MAY AFFECT
BATS IN B.C.?

SPECIAL
POINTS OF
INTEREST:

- WNS is a fungal disease that has been associated with mass die-off of hibernating bats
- WNS has not yet been detected in B.C.
- You can help by learning more about WNS and what you can do to prevent its spread

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White-Nose Syndrome Alert

BAT CONSERVATION FACT SHEET I

FALL 2009

What is White-Nose Syndrome (WNS)?

White-nose Syndrome (WNS) is a fungal disease that has been associated with mass die-off of hibernating bats in North America. The name refers to a white fungus that grows on the muzzles and bodies of bats found in mass die-offs since 2006. In the past few years it has been associated with over one million bat mortalities at a number of bat hibernacula (caves) in the eastern U.S. Mortality rates at many sites are 80-100%. Since 2006, six species of bats have been affected: little brown bat (*Myotis lucifugus*), Indiana bat (*M. sodalis*), eastern small-footed Myotis (*M. leibii*), northern Myotis (*M. septentrionalis*), tricolored bat (*Perimyotis subflavus*), and big brown bat (*Eptesicus fuscus*).

White-nose Syndrome appears to be caused by a newly discovered fungus species in the genus *Geomyces*. This strain of fungus grows best at the low temperatures seen in locations where bats hibernate (5–10°C). As the fungus starts to grow, bats awaken from hibernation to groom to remove the fungus.

The energy required to arouse from hibernation and groom uses overwinter fat reserves, resulting in extreme weight loss. It appears that bats die of starvation while trying to fight off the fungal infection. An intensive research program is looking at alternative theories and possible underlying causes of the bat deaths.



Little brown bats with white-nose syndrome, New York
Photo courtesy Nancy Heaslip, New York Dept. of Environmental Conservation

What does WNS look like?

Bats with WNS exhibit some or all of the following symptoms (descriptions adapted from USGS, National Wildlife Center):

- White, powdery fungus seen around the muzzle, ears, wing/limbs, and/or tail;
- Excessive/unexplained bat mortality at the winter hibernacula;
- Thin and/or dehydrated bats (wrinkled and flaky appearance of furless areas);

- Delayed arousal from torpor following disturbance;
- Aberrant bat behaviours (found on ground inside or outside the hibernaculum, roosting near hibernaculum entrance, increased bat activity outside the hibernaculum during cold weather especially during daylight hours).



Fungal growth on ear.
Photo courtesy of Greg Turner, Pennsylvania Game Commission

Does White-Nose Syndrome pose a threat to humans?

No. There is no indication of human health risk from this fungus.

How is WNS transmitted?

Very little is known about this disease. WNS may be spread from bat to bat during winter months at hibernation sites, but its route of transmission in the summer months is unknown. It is speculated that WNS is also spread by human transport of fungal spores. For example, cavers, other recreationists such as

geocachers, people frequenting mines, and bat biologists, may spread the disease through spores on muddy boots or on clothing and equipment. Human transmission is suspected in some sites, such as a recently affected cave in West Virginia which was visited by cavers after they had been in a WNS affected

cave in New York. The Southeastern Cave Conservancy and National Speleological Society have closed some of their caves as a precaution to avoid spreading the fungus. Some States and the USFS in the east have also closed abandoned mines and caves.

Where is WNS found?

WNS was first discovered in a cave in New York State in the winter of 2006. It has currently been reported from 65+ sites in 30+ counties in nine eastern states in the United States from Vermont to

Virginia. No cases of WNS have been detected in Canada yet but WNS has been confirmed in sites very close to the border, just south of Ontario and Quebec.



Little brown bats: single bat in center has white-nose syndrome
Photos courtesy of Ryan von Linden, New York Dept. of Environmental



Little brown bat: fungus on wing and tail membrane
Photos courtesy of Ryan von Linden

What is the risk of WNS in B.C.?

At this time there is no reported bat mortality or confirmed cases of WNS in North America, west of the Mississippi River. All cases have been east of the Mississippi River. However there is an extreme lack of baseline information on bat health and difficulties in monitoring these species. Since WNS-related mortality and cases are spreading at an alarming rate, and considering that WNS may

be spread by humans visiting caves, the risk of WNS to B.C. bats cannot be underestimated. Species



Little brown bat: close-up of nose with fungus
Photos courtesy of Ryan von Linden

native to B.C. such as little brown *Myotis*, big brown bats, and northern *Myotis*, have been affected by WNS in the eastern United States. Potentially, all cave and mine hibernating species could be vulnerable to this disease. It is unclear whether smaller colonies of bats are affected by WNS because detection of mortalities in these smaller aggregations is much more difficult.

What can you do to help?

The first step is Prevention - to try and prevent the transmission of WNS to B.C. Although bat movements cannot be controlled, it is important to reduce the risk of humans spreading the spores from affected areas in the eastern U.S. to B.C. There are a number of suggestions for decontamination protocols for people recreating or doing work in or around potential bat roosts and cave/mine

hibernacula in particular. It is very important that all clothing, boots and equipment be thoroughly decontaminated if they have been in caves east of the Mississippi. Detailed decontamination protocols for cavers are available at the U.S. FWS NE website (<http://www.fws.gov/northeast/whitenosemessage.html>). It is recommended that a high level of caution be exercised and always decontaminate when

moving between caves or mines that may be used by bats. At a minimum boots should be thoroughly washed to remove mud and debris. All clothing and equipment that can be washed should be washed using the hottest water temperatures available. Large equipment and gear that cannot be submerged in water should be wiped down with alcohol or dilute bleach.

If you find dead bats, use gloves to collect samples and send them to your nearest contact (see page 4 of newsletter)

If you find sick or dead bats, please do the following:

1. If possible, photograph the scene and the bats.
2. Record time, date, and exact location.
3. If the bat is covered in obvious white powdery fungus, or there are multiple dead bats (≥ 5) in one location, please do the following:
 - Using GLOVES (do not use bare hands, as there is always a risk of rabies transmission from bats when the cause of death is unknown), place each dead bat into its own ziplock bag. Disposable vinyl or nitrile gloves are ideal. If not available, place double plastic bags over your hands and turn inside out into the ziplock bag.
 - Label each bag with date, location (including nearest town/city), collector name and phone number. Place in cool storage.
 - Throw away gloves, or if not disposable, decontaminate gloves using hot water wash, or a 10% bleach solution.

- Contact any of the people on the back of this newsletter for instructions on how to what to do with the specimens. If you are unable to reach anyone within 24 hours, freeze the specimens if you can or discard them in the same location where you found them. Please ensure that the animals and site are photographically documented and the directions to the site are clearly recorded. You can also contact your regional Ministry of Environment Biologist or the Conservation Officer Service and inform them of the situation.

If you come across a live bat that is showing signs of WNS (covered in white powdery fungus), contact one of the B.C. Ministry of Environment staff listed on page 4 of this newsletter. Do not touch the bat or let your pets near the bat, as there is potential for transmission of rabies. If you are a bat biologist with current rabies vaccination and come across live bats you

suspect of having WNS, you can collect the following samples from the bat(s):

1. At a minimum, collect a tape-lift sample (See USGS National Wildlife Center Submission for Protocol).
2. A wing damage index has been compiled by Boston University and should be used by biologists doing work in the West to monitoring for signs of WNS. This wing index key is available from the USFWS site (<http://www.fws.gov/northeast/wnsresearchmonitoring.html>).
3. If the bat is clearly displaying signs of WNS, please contact MOE staff listed on page 4 as soon as possible. If the bat has to be euthanized, please follow the appropriate protocols as recommended by the Canadian Council on Animal Care. Indicate on each bag whether the bat was found dead, or was euthanized.

If you find sick or dead bats, please contact any of the following:

Dr. Helen Schwantje
Phone: (250) 387-4285
Helen.Schwantje@gov.bc.ca

Ms. Cait Nelson
Phone: (250) 953-5140
Cait.Nelson@gov.bc.ca

Dr. Purnima Govindarjulu
Phone: (250) 387-9755
Purnima.Govindarjulu@gov.bc.ca

The B.C. Bat Action Team (BC BAT) formed in May 2009, by a group of concerned biologists, government representatives, naturalists, educators and others who are concerned about the conservation of bats in B.C.

For more information about B.C. BAT, contact bcbats@gmail.com



How to learn more about WNS

If you have questions about WNS please contact Dr. Helen Schwantje, Ms. Cait Nelson or Dr. Purnima Govindarajulu. Contact information is listed above.

If you want to learn more about WNS and the research and monitoring initiatives underway, please visit the following websites:

U.S. Fish and Wildlife Service Northeast Main WNS website:

http://www.fws.gov/northeast/white_nose.html

U.S. Fish and Wildlife Service Northeast

Information including protocols and wing damage index:

<http://www.fws.gov/northeast/wnsresearchmonitoring.html>

U.S. Fish and Wildlife Service Northeast

Procedures and decontamination for recreationists, cavers, people entering mines/caves:

<http://www.fws.gov/northeast/whitenosemessage.html>

Bat Conservation and Management:

<http://www.batmanagement.com/wns/wns.html>

National Speleological Society: <http://www.caves.org/WNS/>

U.S. Geological Survey (USGS) - Main WNS site:

<http://www.fort.usgs.gov/WNS/>

U.S. Geological Survey (USGS) - Submitting of samples:

http://www.nwhc.usgs.gov/mortality_events/reporting.jsp

U.S. Geological Survey (USGS) - National Wildlife Health Center site:

http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/index.jsp

Battle for Bats video: <http://www.cavebiota.com>