

OKLAHOMA RESPONSE PLAN FOR WHITE-NOSE SYNDROME (WNS)

January, 2012

White-nose Syndrome, Bats, State Parks, and WMAs

What is White-nose Syndrome (WNS)?

White-nose syndrome (WNS) is a devastating, emergent disease afflicting hibernating bats that has spread from the northeast to the central United States at an alarming rate. Since 2006, U.S. Fish and Wildlife Service biologists and partners estimate that at least 5.7 to 6.7 million bats across multiple states have now died from WNS. The disease is named for the white fungus (*Geomyces destructans*) seen on the muzzles, ears, and wings of affected bats. This disease poses a serious threat to bats that hibernate in caves.

Is WNS dangerous to humans?

Because it is a newly emerging disease, the human health risk from WNS is unknown but no human health concerns have been reported

Does WNS occur in Oklahoma?

The presence of the fungus on one bat was “suspect positive” in northwest Oklahoma in May 2010. Disease surveillance conducted in the same area of northwest Oklahoma during the winter of 2010-2011 yielded negative results from specimens collected (*NWHC, 23571 Diagnostic Final Report, 06/29/2011*). A tri-colored bat collected in Adair County June, 2011 tested negative for WNS (*NWHC, 23570 Diagnostic Final Report, 07/28/2011*).

So, what does this mean for bats in Oklahoma?

Twenty-three (23) species and subspecies of native bats occur in Oklahoma, 16 of which are considered hibernating bats. Three of these hibernating bat species are federally listed as endangered: the Indiana bat, the Gray bat and the Ozark big-eared bat. The confirmation of the fungus in Oklahoma represents the most western report at the time and is unique in that it was found on a bat species, the cave myotis, which does not occur in the eastern United States. Because bats are long-lived, (~5 – 15 years) but slow-reproducing (usually only 1 pup per year), bat numbers do not fluctuate widely over time and therefore bat populations affected by WNS will not recover quickly.

Why should we care about bats in Oklahoma?

All of these bats play highly beneficial ecological and economic roles. Bats consume mosquitoes, moths and other night-flying insects including insects that cause extensive agricultural and forest damage. In Oklahoma, the avoided-cost value of bats (reduced cost of pesticide application) is estimated to range from \$6 million to \$24 million per year. (Boyles, J.G., P.M. Cryan, G.F. McCracken, and T.H. Kunz. 2011. *Economic Importance of Bats in Agriculture*. *Science* 332 (6025): 41-42). They also play a vital role in cave ecosystems, providing nutrients for other cave life through their droppings and are food for other animals such as snakes and owls.

Does Oklahoma have caves that are used by hibernating bats?

Oklahoma's geological diversity includes limestone caves (northeastern Oklahoma) and gypsum caves (western Oklahoma) with a separation of about 250 miles between these 2 types of cave systems. Oklahoma's cave systems do have caves that are used by bats for hibernation. Though the number of caves and cave systems is unknown, most occur on private property.

What are the Oklahoma Department of Wildlife Conservation (ODWC) and other state authorities doing about WNS?

ODWC biologists are aware of the serious threat posed by WNS to bat populations in Oklahoma. The Oklahoma Bat Coordinating Team (OBCT) was established through ODWC to create a communications plan to facilitate information flow to partners, scientific cooperators, interested parties, stakeholders and user groups on bat and cave management, bat research and bat diseases in Oklahoma. Regarding WNS, the team will provide through the communications plan: public and private outreach to discourage or limit access to caves and to encourage decontamination protocol; disease surveillance protocols; research protocols to be provided through Scientific Collectors permit, etc. For additional coordination on a regional level, the OBCT has become a member of the Western Bat Working Group and the Southeastern Bat Diversity Network. ODWC biologists represent the state of Oklahoma within the National White-nose Syndrome Committee. To date, the coordinating team includes those entities that have direct bat and cave management responsibilities:

- Central Oklahoma Grotto
- Cherokee Nation
- Department of Defense (Ft. Sill)
- Land Legacy
- Oklahoma Department of Wildlife Conservation
- Oklahoma Tourism and Recreation Department (Alabaster Caverns State Park)
- Rogers State University
- The Nature Conservancy
- Tulsa Regional Oklahoma Grotto
- United States Fish and Wildlife Service (Ecological Services)
- United States Fish and Wildlife Service (Refuges)
- University of Central Oklahoma (Selman Cave System)

Monitoring and Disease Surveillance of WNS

Those caves that are owned by conservation organizations and federal and state agencies that contain hibernating bats are actively being monitored for WNS. Monitoring efforts include looking for physical evidence, setting up data loggers to collect humidity and temperature readings, collecting tissue and blood samples from hibernating bats, and collecting soil samples. Bat specimens are collected for sample submission to certified laboratories when surveying bat hibernacula or for evaluating unusual bat morbidity or mortality during the winter.

Is ODWC closing caves and/or locations where bats may be viewed?

In Oklahoma less than 24 caves fall under state, federal or tribal authority; most caves occur on private lands. Those caves occurring on federal lands (national wildlife refuges, national forest service lands) have already been closed to public access. Caves located on Wildlife Management Areas with significant bat resources already have restricted access.

Alabaster Caverns State Park offers two public caving options; a year-round, guided tour through the main show cavern and a daily, self-guided “wild caving” experience from April 1 thru September 30. The main cavern has a year-round, resident population of four bat species while the undeveloped caves have a transient bat population. Any closings of either of these two caving options will come from the State Park Director; Oklahoma Tourism and Recreation Department after consulting with the Oklahoma Department of Wildlife Conservation, Oklahoma State Park staff members, neighboring state parks’ departments and additional agencies and entities as needed.

The University of Central Oklahoma owns a cave system but public access is prohibited without permission and/or departmental staff in attendance.

The Nature Conservancy in Oklahoma owns caves within the Nickel, Twin Cave, Charley Owl and Eucha Nature Preserves in the Ozark region of northeast Oklahoma and within the Four Canyon Preserve in western Oklahoma. All caves have restricted access.

ODWC plans to continue public viewings of evening bat emergence of the migratory Mexican free-tailed bat maternity colony at the Selman Bat Cave WMA. The public is situated at least ¼ mile from the cave entrance and, due to the gypsum topography, does not even see the cave during the viewings.

Researchers that apply for a Scientific Collectors Permit to trap, salvage or collect bats in Oklahoma will receive an advisory related to these activities. (See Appendix 1.)

What should a landowner do if they have a bat roost (i.e. maternity cave, congregation of bats) on their property?

It is recommended that landowners prohibit access to their caves for the time being. If landowners decide to allow access they should require all cave visitors to disinfect their clothing, boots, and gear before entering their cave if the visitors have been in any other cave. Cleaning all caving gear with bleach or certain ammonium disinfectants as outlined in the US Fish and Wildlife Services disinfection protocols should be required.

http://www.fws.gov/whitenosesyndrome/pdf/WNSDecontaminationProtocol_v012511.pdf.

If you would like to visit with a biologist about bat roosts on your property please contact Wildlife Biologist Melynda Hickman: mhickman@zoo.odwc.state.ok.us; 405-990-4977.

What can I do to help monitor and prevent the potential to spread WNS in Oklahoma?

Report any large-scale bat mortalities to ODWC, especially those that occur during the winter months or if you find 5 or more dead bats at a location between the months of November through May or notice bats exhibiting unusual behavior such as flying outside during freezing (below 32 °F) weather, please leave a message with biologist Melynda Hickman (405.424.0099 or mhickman@zoo.odwc.state.ok.us).

Future Considerations:

The Oklahoma Response Plan for WNS will be reviewed on an annual basis.

Appendix 1: ODWC Scientific Collector Advisory

Considerations of White-nose Syndrome in Bats during Scientific Collecting Activities

Since you have applied for a Wildlife Collector's Permit to trap, salvage, or collect bats in Oklahoma, you are likely aware of White-nose Syndrome (WNS) and the danger it poses to populations of cave bats in North America. If you are not familiar with this disease, please take the time to familiarize yourself. A few websites that provide good information and additional links are:

NSS (National Speleological Society) <http://caves.org/WNS>

US Fish & Wildlife Service <http://www.fws.gov/whitenosesyndrome/index.html>

USGS National Wildlife Health Center http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/index.jsp

Even if you are already aware of WNS, it is a good idea to check one or more of these websites regularly because new information is posted quite often.

Because the fungus associated with WNS apparently only grows at relatively low temperatures (<20° C) the noticeable signs during summer are more likely to be scars and damage to wings and other membranous tissues as opposed to the namesake white fuzz on the nose and wings. See the following website for descriptions and pictures of affected tissues –

http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf

Examine all bats handled or collected in Oklahoma for wing damage and score them according to this index. Pictures of suspicious damage should be taken and submitted (contact below).

Report any signs of WNS to the OK Dept. of Wildlife Conservation as soon as possible: mhickman@zoo.odwc.state.ok.us or 405-990-4977.

It is currently unknown whether humans are contributing to the spread of WNS by moving a causal agent from place to place on equipment. Because human spread of WNS is considered a possibility, the following special notes apply to your Wildlife Collector's Permit – **Any equipment (nets, traps, gloves, etc.) that has been in contact with bats outside of Oklahoma must be disinfected with a 10% bleach solution, or other USFWS recommended disinfectant, before being used in Oklahoma. Any equipment that has contacted bats or has been inside caves or mines in confirmed WNS-affected states may not be used in Oklahoma.**

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