# CAVE OWNERS' NEWSLETTER


***A publication of the Virginia Cave Board, Department of Conservation and Recreation*** No. 22, June 2009

## Letter From the Chairman

by Thomas Lera

Since the last issue of the *Cave Owner's Newsletter,* bats with White-nose Syndrome (WNS) have been discovered in Virginia caves. This issue is devoted exclusively to WNS. This newsletter contains information to help cave owners and cavers respond to this disease now that it is known to occur in our state. Contained in this issue are numerous links to other sources of information which should be helpful in providing answers to your questions.

First reported during the winter of 2006-2007 near Albany, New York, WNS, a still mysterious but deadly threat to American bats, has spread across New Jersey and Pennsylvania and into Virginia.

Bat Conservation International (BCI) founder Merlin Tuttle worries, "America's most important remaining hibernation caves for Indiana bats and gray bats, both endangered species found in Virginia, could be seriously threatened within two years or less. Failure to find a solution could prove devastating."

WNS has killed hundreds of thousands of hibernating bats in the eastern United States. Characteristics include a white fungus that is found on the faces of many affected bats and almost all are emaciated. The fungus has been identified, but it remains unclear whether it is a cause of the ailment or one of its symptoms. Scientists and researchers are trying desperately to solve this elusive puzzle. Worldwide, bats play critical ecological roles in insect control, plant pollination, and seed dissemination; the decline of North American bat populations would likely have far-reaching ecological consequences.

Parallels can be drawn between the threat posed by WNS and that from a lethal fungal skin infection that has recently caused precipitous global amphibian population declines.

A comprehensive understanding of WNS is essential to develop a strategy to manage this current devastating threat to bats of the eastern United States.

One of the top WNS researchers, Tom Kunz of Boston University, said he was not surprised the syndrome has expanded, but added: "We really don't know what is causing the spread at this point." He said researchers are sampling caves and mines across a broad area to determine whether the fungus can be present without the dire symptoms of WNS. "If it's everywhere (across the landscape), that would suggest that the fungus is not what's spreading, but something else is" responsible for the spread of WNS and its bat fatalities into new regions. The answer must be found.

### INSIDE THIS ISSUE

# Landowner Responses to the White-Nose Syndrome Crisis

by Wil Orndorff, Virginia Division of Natural Heritage

The arrival of White-nose Syndrome (WNS) in Virginia has put cave owners, biologists, natural resource agency staff, and cavers in a tough spot. We all want to do whatever is necessary to help combat this disease and keep our bat populations healthy. A significant element of our natural ecosystems, Virginia's bats play a major role in controlling insect populations that otherwise damage crops and spread human disease. Unfortunately, the lack of knowledge about what exactly WNS is, much less how it is spread, has made it difficult to make decisions. One of the more difficult decisions to make falls on the shoulders of cave owners and managers: should I change the access to my caves? If so, how? And how will I know if and when to change access again? There are no easy answers to these questions. This article shares how various cave owners are reacting to the WNS crisis.

In Virginia, most caves fall under one of three types of owners: government agencies, private conservancies, or individual landowners. The vast majority of Virginia caves are owned by private citizens.

At the time of this writing, the three caves in Virginia where bats with WNS have been verified lie beneath private land. Their owners have strong, long-term relationships with local members of the caving community, and have managed their caves to allow scientific exploration and recreational use while promoting cave conservation through responsible caving practices. Local cavers have helped in any way they have been asked over the years. In one case, for example, a local caver has helped the owner manage access by maintaining a visitation register and distributing dashboard placards to be displayed while parked at the cave. In another, the local cave club provided hundreds of volunteer hours helping evaluate the potential impact of a proposed power line corridor on the local groundwater and ecosystem.

In the case of these three caves, the landowners all decided to temporarily limit access, only allowing scientific trips to help better understand WNS, reducing the chance that cavers might inadvertently help spread WNS to bat populations using other caves. Local cavers have stepped up to the plate to provide invaluable technical assistance to biologists working in these caves.

The caving community itself is taking steps to reduce the chance of cavers inadvertently spreading WNS. Some cavers have stopped caving temporarily and are spending their time working on cave-related projects that don't involve going in caves. Most cavers who continue to cave are thoroughly washing and disinfecting their clothing and equipment between caving trips. In addition, cavers are limiting their caving to small geographic areas, typically a couple of counties in size, to help avoid the outside chance of helping WNS make long-distance jumps to currently unaffected bat populations. Cavers fill a valuable role in tracking the spread of WNS through bat populations. In Virginia, two of the three WNS-positive sites were first reported by cavers, not discovered as a result of agency monitoring efforts. With existing resources, it would be impossible to monitor the spread of WNS or study affected sites without the contributions of the caving community.

Although the number of caves where WNS-positive bat populations are documented will almost certainly increase, for now only a small handful of Virginia's 4000+ caves host bat populations in which WNS is either verified or suspected. Landowners of most caves in Virginia are each making their own decisions on how to manage their caves. Some are posting signs at cave entrances alerting cavers about WNS and encouraging them to use only clean gear and to disinfect it after the trip. Many private owners have not changed access to their caves, and are leaving it up to cavers to make responsible decisions. Owners of a couple of dozen caves with large, documented bat populations are being asked by the Department of Game and Inland Fisheries and the Virginia Natural Heritage Program to temporarily allow only biological monitoring trips until we get a better handle on WNS.

Private conservancies that own caves have responded

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to WNS in a variety of ways. Some are temporarily closing their caves while scientists get a better handle on WNS. Others are enforcing seasonal closures during the hibernation season, or limiting access to scientific or exploration trips. Some conservancies in the northeastern U.S. where WNS is pervasive have reopened their caves.

Caves on state and federal public lands have, for the most part, been temporarily closed to recreational caving, mostly in response to requests by the U.S. Fish and Wildlife Service. However, land managers are considering reopening some caves to facilitate recreational enjoyment and maintain appreciation of caves.

As always, the choice on how to manage cave access lies with the landowner. Bats are a critical component of our ecosystem, and the threat posed to them by WNS is unprecedented. However, one size does not fit all, and an access policy that is appropriate for one cave may not be appropriate for another. Without continued, responsible caving, it will be difficult to track the spread of WNS. Responsible cavers have always played a valuable roll in developing our understanding of the biology and hydrology of caves and karst systems. So in deciding whether to change access to your cave, please keep these issues in mind and make the decision that is appropriate for you and for your cave.

*The caving protocols agreed upon by members of the Virginia caving community can be found at the Virginia Cave Board Web site:* http://www.dcr.virginia.gov/natural_heritage/documents/final_wns_recommendations_for_va.pdf.

*Contact the Virginia Karst Program at 540-394-2553 for information on signs that can be posted at your cave, or if you wish to discuss cave management options.*

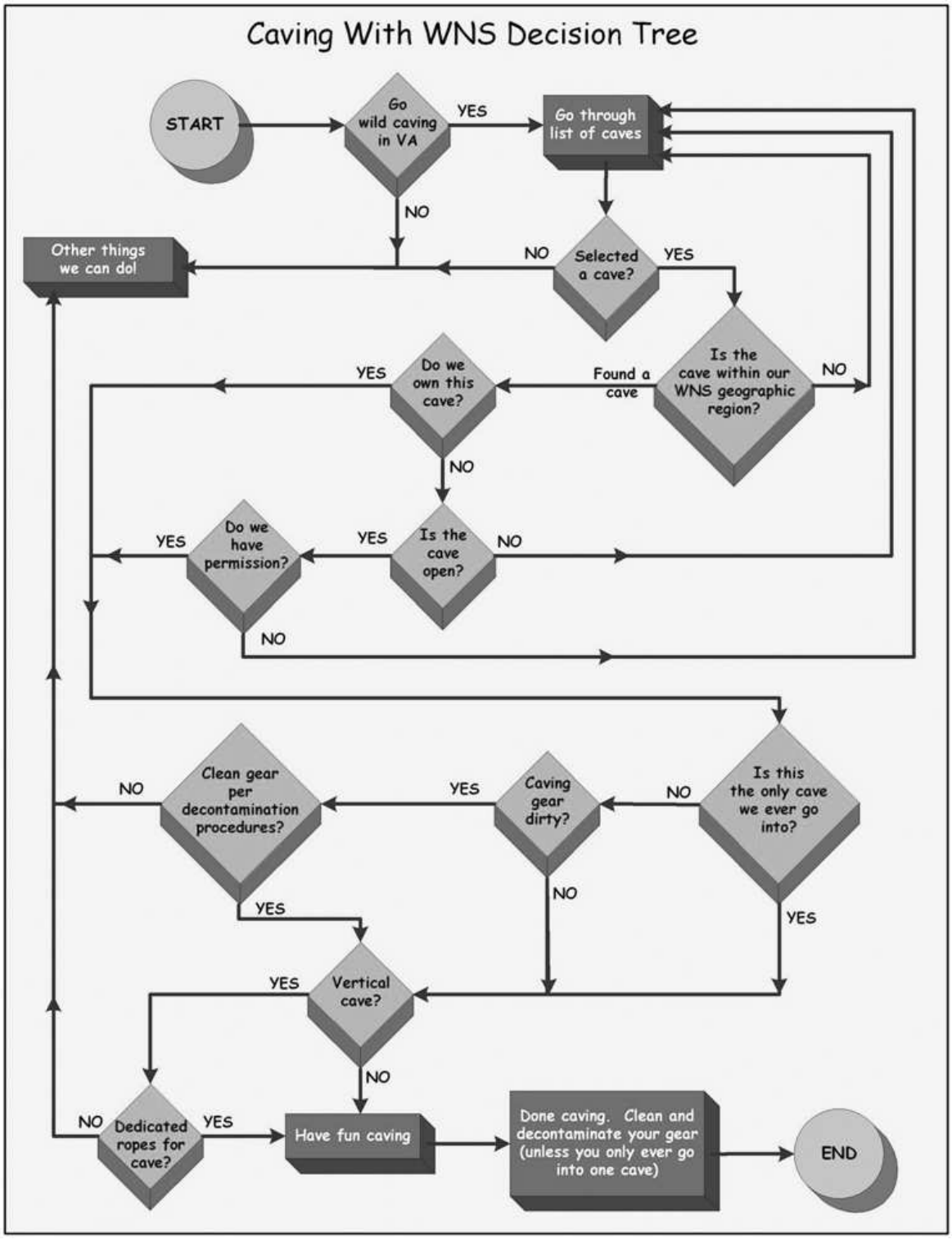
## White-nose Syndrome in a Nutshell

You've probably heard of White-nose Syndrome (WNS) by now.

The main points you need to know:

- WNS has been confirmed in Virginia.
- It has a history in the Northeast of spreading rapidly.
- We want to protect the bats and the caves as much as possible.
- We want you, as a cave owner, to be able to protect your property.
- You can still go into your own cave.
- You can still visit commercial [tourist] caves.
- There's no evidence that people can catch WNS.
- The U.S. Fish and Wildlife Service is asking cave owners to VOLUNTARILY reduce the traffic in their caves to minimize the spread of WNS to give scientists time to find some answers.
- The U.S. Fish and Wildlife Service is asking cavers to VOLUNTARILY stop caving in wild caves for the same reason and to not go searching for bats with symptoms. This may just spread the disease further.

Web sites to refer to for updates:
www.fws.gov/northeast/white_nose.html www.caves.org/WNS/WNS%20Info.htm
www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/ www.dcr.virginia.gov/natural_heritage/wns_toolbox.shtml

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## SIDEBAR: *Other things that we can do:

 We can use the protocols listed at www.fws.gov/northeast/whitenosemessage.html to decontaminate our caving gear before we go caving in a wild cave outside the WNS advisory area.
 If we own a Virginia cave where bats hibernate or roost, we can set aside a set of gear for that cave alone and reduce the amount of caving traffic in it. We will promptly report any changes in bat behavior, numbers, or appearance that we see to Rick Reynolds, 540-248-9360, or http://www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/wns-observation.asp and keep our gear apart from any other cave gear.
 We can volunteer for local grotto conservation projects that don't require cave entry, like sign postings, Karst Trail maintenance, commercial cave education. For local grottos we can check: http://www.nssio.org/Find_Grotto.cfm and click on "Virginia."
 We can patronize commercial caves, visiting only one per day within a WNS advisory area.
 We can donate to the NSS WNS Rapid Response Fund at http://www.caves.org/WNS/index.htm or Bat Conservation International at http://batcon.org/index.php/support-bci/make-a-donation.html.
 We will continue to visit the official WNS Web site at http://www.fws.gov/northeast/white_nose.html and http://www.dgif.virginia.gov/wildlife/bats/white-nose-syndrome/ for updates on the advisory and the spread of the disease before planning any caving activity.
 We can build and place bat houses to increase bat summer habitats.
 We can be role models to youth and others by encouraging other cavers to follow these same conservation actions.

# White-Nose Syndrome Challenges Fish and Wildlife Agencies

by Sumalee Hoskin, U.S. Fish and Wildlife Service

White-nose Syndrome (WNS) was first documented in early 2007 in New York and has since spread to nine states, causing the deaths of hundreds of thousands of bats of several species, including some endangered species.
WNS has presented wildlife agencies with a significant number of challenges. Prior to winter 2009 monitoring efforts conducted by biologists from the Virginia Department of Game and Inland Fisheries and Natural Heritage Program, we were unsure when or if WNS would occur in Virginia. Now that WNS has been confirmed in bats in the Commonwealth, the Virginia caving community and bat researchers have been asked to modify their activities. As the U.S. Fish and Wildlife Service (Service) has requested these groups to make sacrifices, we have frequently heard questions such as, "You're asking us to make big changes to what we do, but what have you been doing?"

The Service has provided more than $1 million toward research about WNS and bats. Some of the research projects we have helped support with this funding include: studying physiology and behavior of bats affected by WNS in hibernation, studying immunological responses in bats, bat-to-bat WNS transmission investigations, developing methods to determine the effects of WNS on bat populations, sediment sampling in caves where WNS is found, and investigating the fungus associated with WNS.

We have been working to find additional funding, responding to public outreach and news media requests, developing plans for monitoring endangered bats in the affected areas, working with wildlife rehabilitators to develop techniques to treat and care for affected bats, continuing research on decontamination methods to prevent or slow the spread of WNS, and coordinating field and laboratory research. We are in the beginning stages of many of the research projects.

While bat-to-bat transmission appears the most likely means of spreading WNS, there is some evidence that humans have unwittingly transferred it to previously unaffected areas on their gear or clothing. This year WNS was found in a West Virginia cave with high visitation from recreational cavers. Shortly thereafter WNS was documented in a popular recreational cave in a neighboring Virginia county. Some of the cavers who visited the affected site in West Virginia had also been caving in New York, where WNS was first observed. Based on this anecdotal evidence and that WNS seems to have made leaps from one location to another beyond expected bat migration distances, we believe that humans may be aiding the spread of WNS.

We want to make every effort to slow the spread of WNS and reduce bat deaths. To that end, the Service issued a cave advisory in March, asking for a voluntary moratorium on caving activities to help buy more time for scientists to learn about WNS. The cave advisory asked that people not go caving in states known to have bat hibernacula affected by WNS and all adjoining states, unless conducted as part of an agency-sanctioned research or monitoring project. In addition, the advisory asked that people not use clothing and equipment in unaffected states that has been used in affected and adjoining states.

In Virginia, the Endangered Species Act protects more than 60 plant, animal, and fish species, including three endangered bats: Indiana bat, Virginia big-eared bat, and gray bat. Since the discovery of WNS, some 25,000 endangered Indiana bats have died from WNS. Prior to WNS there were modest increases in the Indiana bat population, but now we are faced with population declines.

WNS has also been documented in caves used by the endangered Virginia big-eared bat, and WNS is beginning to encroach into areas inhabited by gray bats. We don't know how WNS will affect these two species. With such high stakes, we encourage people to be diligent about helping prevent the potential spread of WNS. We are exploring other options to slow the spread of WNS to other bat hibernacula, especially those used by endangered species, but we have not found any easy solutions.

The Service has been working with researchers at the U.S. Geological Survey's National Wildlife Health Center in Madison, Wisconsin, to learn more about WNS and to

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develop decontamination protocols that will help to prevent the spread of WNS. We recognize that researchers and surveyors still need to access caves and need to be contaminant-free prior to entering. We continue to refine the protocols as we learn more about WNS and receive advice and information from researchers, cavers, and others involved in this issue. New decontamination protocols were posted on our WNS Web site (http://www.fws.gov/northeast/ wnscavers.html) in early June and were distributed to the caving community.

In the short time since WNS was discovered, there have been many advances in our knowledge about the condition; however, there are many more questions to be answered. The Service thanks and applauds the caving community for its support and help. We ask for your continued patience and assistance as we learn more about WNS and how we can both protect bats and provide opportunities for caving.

Please visit our WNS Web site (http://www.fws.gov /northeast/white_nose.html), where we continue to

The following is excerpted from the USFWS *Frequently Asked Questions* brochure found at http://www.fws .gov/northeast/pdf/white-nosefaqs.pdf, where you can read the rest of the questions.

***White-nose Syndrome in bats:***

**1. What is White-nose Syndrome?** Hibernating bats in the northeastern United States are dying in record numbers, and we do not know the cause of the deaths. This wildlife health crisis, White-nose Syndrome, is named for the white fungus evident on the muzzles and wings of affected bats. This affliction was first documented at four sites in eastern New York in the winter of 2006-07. Subsequently, we saw photographs taken in February 2006 of apparently affected bats at an additional site. WNS has rapidly spread to multiple sites throughout the northeast. Researchers associate WNS with a newly identified fungus (Geomyces sp.) that thrives in the cold and humid conditions characteristic of the caves and mines used by bats. The fungus could be responsible for the bat deaths, or it could be secondary to the cause. Bats affected with WNS do not always have obvious fungal growth, but they may display abnormal behavior within and outside of their hibernacula (caves and mines where bats hibernate during the winter).

**2. How is WNS transmitted?** We believe that WNS is transmitted primarily from bat to bat. There is a strong possibility that it may also be transmitted by humans inadvertently carrying the causative agent from cave to cave on their clothing and gear.

**3. Where has WNS been observed?** Biologists and/or cavers have documented WNS in bat hibernacula in New Hampshire, Vermont, New York, Massachusetts, Connecticut, New Jersey, Pennsylvania, West Virginia and Virginia. We expect this list of states to increase over time.

**4. What are signs of WNS?** Bats may lose their fat reserves, which they need to survive hibernation, long before the winter is over. They often leave their hibernacula during the winter and die. As winter progresses, we find increasing numbers of dead bats in the affected locations. WNS may be associated with some or all of the following unusual bat behavior: White fungus, especially on the bat's nose, but also on the wings, ears or tail; Bats flying outside during the day in temperatures at or below freezing; Bats clustered near the entrance of hibernacula; and Dead or dying bats on the ground or on buildings, trees or other structures. Hibernating bats may have other white fungus not associated with WNS. If a bat with fungus is not in an affected area and has no other signs of WNS, it may not have WNS.

**5. What should you do if you find dead or dying bats in winter or early spring, or if you observe bats with signs of WNS?** Contact your state wildlife agency, file an electronic report in those states that offer this service, e-mail U.S. Fish and Wildlife Service biologists at WhiteNoseBats@fws.gov, or contact your nearest Service field office (find locations at http:// www.fws.gov/northeast/offices. html) to report your potential WNS observations. It is important to determine the species of bat in case it is a federally protected species. Photograph the potentially affected bats (including close-up shots if possible) and send the photograph and a report to your contact (above). If you need to dispose of a dead bat found on your property, pick it up with a plastic bag over your hand or use disposable gloves. Place both the bat and the bag into another plastic bag, spray with disinfectant, close the bag securely, and dispose of it with your garbage. Thoroughly wash your hands and any clothing that comes into contact with the bat. See a short instructional video on our WNS Web site. If you see a band on the wing or a small device with an antenna on the back of a bat (living or dead), contact your state wildlife agency or your nearest Service field office as these are tools for biologists to identify individual bats.

For additional information please contact the **Virginia Department of Conservation and Recreation, Division of Natural Heritage**, 217 Governor Street,3rd Floor, Richmond, VA 23219 or one of the following members of the Virginia Cave Board:

**Dr. David Culver**
427 Foxridge Drive
Leesburg, VA 20175

**Dr. Daniel H. Doctor**
USGS
12201 Sunrise Valley Drive
Reston, VA 20192

**Ms. Barbara Funkhouser**
Crystal Caverns at Hupp's Hill
33229 Old Valley Pike
Strasburg, VA 22657

**Mr. Andrew Harrison,**
PG
3513 Grandview Drive
Richmond, VA 23225

**Dr. John R. Holsinger**
Dept. of Biological Sciences
Old Dominion University
Norfolk, VA 23529

**Mr. Thomas Lera**
7733 Inversham Drive, No. 167
Falls Church, VA 22042

**Ms. Judy Molnar**
Virginia Living Museum
524 J. Clyde Morris Boulevard
Newport News, VA 23601

**Ms. Barbara L. Moss**
7713 Shreve Road
Falls Church, VA 22043

**Mr. Jesse J. Richardson**
VT Urban Affairs and Planning
207 Architecture Annex
Blacksburg, VA 24061

**Mr. David R. Socky**
6572 Woodbrook Drive SW
Roanoke, VA 24018-5402

**Ms. Meredith Weberg**
8061 Kittiwake Court
Springfield, VA 22153

*We're on the Web! Visit us at:*

http://www.dcr.virginia.gov/dnh/cavehome1

**Department of Conservation and Recreation, Division of Natural Heritage**
**217 Governor Street, 3rd Floor**
**Richmond VA 23219-2010**
**RETURN SERVICE REQUESTED**