

**Testimony before the House Subcommittee on Fisheries, Wildlife,
Oceans and Insular Affairs**
**Why We Should Care About Bats: Devastating Impact White-Nose Syndrome is
having on One of Nature's Best Pest Controllers**

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Thank you, Chairman Fleming and Subcommittee Members for the opportunity to share the perspectives of the Association of Fish and Wildlife Agencies on this important environmental issue. I am Dr. Jon Gassett, Commissioner of the Kentucky Department of Fish and Wildlife Resources and the Vice President of the Association of Fish and Wildlife Agencies as well as the chair of the Association's White-Nose Syndrome Working Group.

The Association of Fish and Wildlife Agencies (AFWA) promotes and facilitates sound fish and wildlife management and conservation, and is the collective voice of North America's fish and wildlife agencies. The Association provides its member agencies and their senior staff with coordination services that range from migratory birds, fish, habitat, and invasive species, to conservation education, leadership development, and international relations. The Association represents its state fish and wildlife agency members on Capitol Hill and before the Administration on key conservation and management policies, and works to ensure that all fish and wildlife entities work collaboratively on the most important issues. All 50 states are members of the Association.

During the last several years, my personal involvement with WNS has grown from watching its advance, moving southward and westward, to bearing responsibility in my own state upon confirming WNS in Kentucky this spring. I am encouraged at the amount of dedication and commitment by a community of individuals who care deeply about our bat resources. At the same time, I am concerned at the rate of spread, the high suspect ability of certain species and the lack of available treatment options. Again, I am encouraged by the genuine concern and interest as shown here by this Subcommittee.

White-Nose Syndrome: What Is It and Where Is It?

In the winter of 2006 the first signs of a destructive fungus (*Geomyces destructans*) appeared on hibernating bats in Howe's Cave in upstate New York. By 2009 thousands of hibernating bats from a variety of species across the northeast (New York, Vermont, New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, West Virginia, and Virginia) were dying or had died from this new disease now known as White-Nose Syndrome (WNS) for the tell-tale white fungus found on the muzzle of infected bats. As of 2011 WNS has spread north to Maine and the provinces of New Brunswick, Nova Scotia, Ontario, and Quebec. The disease has also spread south to Maryland, North Carolina, Kentucky, and Tennessee as well as to the Midwest to Indiana and Ohio. WNS has also been confirmed in Delaware, Missouri, and Oklahoma. Thus far, of the twenty-five hibernating bat species in North America, six species have been affected by WNS including the endangered Indiana bat (*Myotis sodalis*) and the endangered Gray bat (*Myotis grisescens*). The endangered Virginia big-eared bat (*Corynorhinus townsendii*) and Ozarks big-eared bat (*Corynorhinus townsendii ingenus*) are both found within the

geographical range of WNS, but no infected bats from either species have been found at this time.

G. destructans infects not only the muzzle but also the ears, and (most importantly) the wings of bats. Once *G. destructans* infects an individual the fungus colonizes the area of infection, erodes the epidermal layer, and eventually reaches the connective tissue where damage can be intensive. Infection of the wings is of the great concern as they play a key role in homeostasis. The exact cause of death is uncertain but frequent arousals due to irritation from the infection and the subsequent depletion of fat reserves may be a factor. Bats have also been reported to leave their hibernacula prematurely and succumb to the cold. Mortality can be as high as 90-100% of an infected population and estimates suggest that over 1 million bats have died from WNS to date.

Exposure to *G. destructans* occurs within caves and/or abandoned mines where certain species hibernate in huddled masses through the winter as a mechanism to survive cold temperatures and limited food supply. Temperatures within any given hibernacula range from 2-14° C which is also within the optimal range for *G. destructans* growth. North American bats have been exposed to a variety of fungal species with no detrimental effects until now. Surveys of European bat populations indicate exposure to *G. destructans*, but with none of the mortalities associated with the fungus in North America. This suggests that the fungus may have European origins, and bats there co-evolved with the fungus. This also suggests that *G. destructans* crossed over to North America through unintentional human importation (i.e. on caver's boots or other caving gear) and is now spreading throughout immunologically naïve bat populations throughout North America.

Importance of Bats and the Future Impacts of WNS

Bats play an important role in the environment as well as natural resource-based economies such as agriculture and forestry. They may act as pest control, pollinators, or seed dispersers depending on the species. Bats are a keystone species in most ecosystems and help maintain balance. So far WNS has only impacted insectivorous bats, which consume large amounts of nocturnal insects that may act as agriculture or forestry pests. Recent estimates suggest that agriculture losses from WNS could exceed \$3.7 billion per year. For certain crops (ex. cotton), bats play a prominent role in pest suppression which could lead to even larger losses. Without these ecosystem services, increased pesticide application will be used. Not only will this be expensive to farmers but could adversely affect fish and wildlife in surrounding areas through direct exposure or indirect exposure through runoff. The loss of large populations of insectivorous bats could also lead to future public health and wildlife health crises with increased cases of West Nile Virus and other similar diseases.

The National Plan

We applaud the U.S. Fish and Wildlife Service and their conservation partners for the creation of the National Plan for Assisting States, Federal Agencies, and Tribes in Managing White-Nose Syndrome in Bats. State fish and wildlife agencies sit on the National Plan Executive Committee and on the technical teams and were thus significantly involved in drafting the Plan. Recently released in May of this year the National Plan will serve as a framework for federal, state and private entities. This National Plan is only the first step as the National WNS Implementation Plan is now underway. Details for each goal and objective outlined in the National Plan will be found here. This will serve to delineate options, responsibilities and a means of checks and

balances to insure that previously defined goals and objectives can and will be met. While state fish and wildlife agencies are the ultimate decision makers for strategies to reduce the impact and spread of WNS, the National Plan acts as an overarching framework where all may move towards a common goal. With the far-reaching affects of WNS, it is imperative to have a clear roadmap for success. The National Plan and the forthcoming National Implementation Plan serve as that roadmap

State Action

For more than 100 years, state fish and wildlife agencies have been managing natural resources for the public trust by addressing threats to fish and wildlife including habitat fragmentation, degradation, disease and pathogens, and loss from changing land uses, pollution and sedimentation, deleterious or invasive species, and unsustainable use of natural resources. State, provincial and territorial fish and wildlife agencies have upheld the primary responsibility for conserving and preventing the exploitation of those resources on public and private lands and waters within their borders. State fish and wildlife agencies are proactively combating the effects of WNS through collaborative efforts with their fellow state fish and wildlife agencies, federal agencies, and NGO partners. State biologists, on average, have numerous species and duties under their purview and are limited in their ability to respond to crises at the scale of WNS. In these current economic times when state budgets are slowly shrinking, it is these partnerships that allow states to expand their efforts.

States have been resourceful in utilizing federal, state and NGO partner capacity for addressing WNS, along with various funding mechanisms. States have also been utilizing the limited funding available to further baseline knowledge and track the spread of WNS.

Examples of state efforts are as follows:

Virginia

Through federal WNS Grant funds, the Virginia Department of Game and Inland Fisheries and partners initiated three projects to assist with the understanding of WNS and its impacts. These efforts included banding bats with the objectives of monitoring demographic and biometric changes associated with WNS, determine changes in population levels, and monitor individuals over time to determine potential resistance.

Western Coordinated Multi-State Response: Arizona, California, Idaho, Montana, Nevada, Washington, and Bat Conservation International

The major focal areas of this State Wildlife Grant (SWG) are oversight, surveillance, outreach, and research. The 6 states intend to develop response plans, purchase equipment, conduct surveillance and monitoring, outreach, and research. The lead state (Arizona), Bat Conservation International, and partner states will actively engage with existing and emerging WNS networks—connecting representatives from each state partner with the broader national network of partner state and federal agencies and nonprofits (working on WNS), as well as private landowners, recreational caving interests, and corporate and foundation interests that can provide critical private dollars.

Vermont

Vermont has applied appropriated federal funding with state match dollars through the SWG program and the direct federal WNS Grants to the States. In recent years, such

funds have been applied to WNS surveillance, addressing public concerns, and participating in regional or national research projects on the disease itself.

Tennessee

Current funding from the White Nose Syndrome Grant, Endangered Species Act Habitat Conservation Plan and Section 6 (Indiana and Gray Bats) funds to survey bat populations and incidence of WNS have helped identify caves with bats. The WNS Grant allowed the Tennessee Wildlife Resource Agency to purchase an array of equipment used in bat surveys.

Iowa

With USFWS WNS Grant funds Iowa Department of Natural Resources prepared Web-based and written materials regarding white-nose syndrome, identification, cause, means of transmission, actions that landowners should take to minimize spread of disease, reporting protocols, links to USFWS' and other pertinent white-nose syndrome sites and information sources, and contact information for Iowa DNR personnel to answer queries regarding white-nose syndrome and coordinate monitoring for disease. Signs were prepared for posting on public lands which harbor hibernating cave bats and printed written materials for distribution to target audiences were also done under the USFWS WNS grant.

Kentucky

The agency has aggressively increased surveillance and monitoring, educated landowners and grottos on the cave closure advisory, provided signage and has worked with numerous researchers throughout the nation. Funding for these efforts was provided for through a USFWS WNS grant and State Wildlife Grant (SWG). Kentucky detected a WNS positive site this spring and is aggressively researching management measures that may help slow the spread.

WNS-Cave Closings

States have acknowledged and supported the USFWS's voluntary cave closure advisory issued in 2009. While this ban affects non-commercial caves on public and private property, it does not address the commercial cave industry. Many state agencies have worked diligently with private landowners, educating them on the importance of limiting disturbance to hibernating bats during the winter, as well as, the threat of WNS. Conscientious landowners have allowed signage to be erected, talked with local cavers and indicated an overall support of the voluntary closure.

While commercial cave operations are important to local economies, they too can potentially be a source of contamination. There is an effort underway by state, federal and non-governmental organizations to develop a Commercial Cave Advisory document that will assist commercial cave owners/operators. This will allow them to maintain a "clean" cave environment without crippling their business, during these difficult economic times. While recognizing the importance of caving to interest groups and commercial venues, we also recognize the associated responsibility to those organisms that inhabit these systems. Bats, invertebrates and other cave dependent species are critical to maintaining a healthy cave ecosystem.

Kentucky Department of Fish and Wildlife worked with landowners through an educational campaign and letter to inform them of the USFWS cave closure advisory. Over 80 letters were mailed to landowners asking if they would like to close their cave

and receive signs for their property. The response was overwhelming, with only 3 property owners indicating that they would prefer to leave their cave open.

An excellent example of partners working together for the benefit of bats, while acknowledging economic impacts, exists at Mammoth Cave National Park (MCNP). Mammoth Cave is located in south-central Kentucky and received over 400,000 visitors per year and has an enormous economic impact in the local region. Gross ticket sales average \$3 million dollars. Mammoth Cave is also home to at least 3 caves harboring the federally endangered Indiana bat and Gray bat. MCNP developed a screening process, educational materials, hired staff and developed decontamination stations to assure visitors were not a potential source of spreading WNS. Overall, visitors have been very receptive and eager to ensure protection of this valuable resource.

What is still needed?

There is a litany of needs to address WNS properly, particularly in the realm of research. We ask that research activities and funding focus on treatment and “on the ground” management needs. As WNS moves across the landscape a coordinated, informed effort is more important than ever before. Wildlife managers are in need of support to broaden their surveillance efforts, in attempts to spot and perhaps slow or limit the spread of this disease. States need continued support of all entities, federal and private, to effectively manage on a broad scale. Congressional support via funding is critical if we are to conserve this national biological treasure.

Specific needs include:

- Strategies for collaboration with public health departments to increase surveillance
- Identification of priority cave systems (in the west) and methods of protection for uninfected populations
- Training workshops for state agency staff on protocols for samples collection, preparation, and euthanasia (where appropriate)
- Education and outreach plans for the public and private land owners
- More diagnostic facilities throughout the country
- Increased surveillance and monitoring in both regions where WNS has not been detected and regions where WNS has occurred
- State and/or Regional WNS Plans
- Cost effective treatment for infected individuals in the wild
- Improved survival of infected individuals from the known causes of mortality by WNS (starvation and dehydration)

Closing Remarks

While the professionals within this room realize this may be the most challenging wildlife disease issue of our time, we are optimistic and hopeful that treatment and controls will be found. We will continue to press forward working in concert to ensure bat populations will be afforded every opportunity to thrive.

Mr. Chairman and honored subcommittee members thank you for the opportunity to share our perspectives and I would be pleased to address any questions.