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Newsletter of the USGS National Wildlife Health Center

News Summary

Article Highlights

USGS National Wildlife Health Center
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Madison, WI 53711-6223

White-nose syndrome Update for Winter 2010/2011

White-nose syndrome (WNS) in cave-hibernating bats was detected in five new U.S. states (Maine, North Carolina, Ohio, Indiana, Kentucky) and two new Canadian Provinces (New Brunswick, Nova Scotia) during the winter 2010/2011 season. This brings the total number of confirmed WNS-positive states and Provinces to 16 and 4, respectively, since the disease was first detected in New York in February 2006. The genetic signature of *Geomyces destructans*, the causative agent of WNS, was also detected on bats in 3 additional states including Delaware, Missouri, and Oklahoma in the previous winter season although the disease has yet to be detected in these states. No significant westward expansion of WNS was detected this winter beyond Trigg County, Kentucky. The disease continued to spread into new counties within WNS-confirmed states and provinces (Maryland, Virginia, West Virginia, Pennsylvania, Connecticut, Tennessee, Quebec, and Ontario). With the exception of two hibernacula in New Brunswick and southern Ontario, where an estimated 4980 and 100 bats died, respectively, all other new locations reported minimal to no bat mortality at the time of their surveys.

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AMBLE (Avian Monitoring for Botulism Lakeshore Events) Program

Avian botulism type E outbreaks have occurred on the Great Lakes annually since the late 1990s. With support from the Great Lakes Restoration Initiative, scientists from the U.S. Geological Survey, the National Park Service, and the private sector are working together to explore the ecological pathways through which the toxin produced by a natural bacteria (*Clostridium botulinum*) is transported to birds.

The help of volunteer beach monitors to record timing, numbers, and species of bird carcasses deposited on beaches will provide valuable information needed to better understand this important wildlife disease. This spring, 52 volunteers in Door County, Wisconsin were trained by NWHC staff to become beach monitors in the Lake Michigan Volunteer AMBLE (Avian Monitoring for Botulism Lakeshore Events) program. These volunteers will walk segments of Lake Michigan shoreline to monitor for dead birds and record beach conditions every 7-10 days from June through November. AMBLE volunteers are currently covering 34 segments of beach totaling over 15 miles. Local partners in the creation of the AMBLE program include The Ridges Sanctuary, Wisconsin Department of Natural Resources, Northeastern Wisconsin Audubon Society, Crossroads at Big Creek, and The Nature Conservancy.

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Message from Jonathan Sleeman, NWHC Center Director

Earth from Space

As I write this article the space shuttle, *Atlantis*, will be returning home for the last time, bringing to an end a long, and illustrious era of space exploration. One can debate the relative merits of continuing with manned space flight, but there is no denying the monumental achievements in science and engineering that were made during the past few decades. Space exploration is literally on the frontier of science.
For me, one of the enduring legacies of space exploration is that for the first time humans could see an image of the planet Earth from space (see picture). It is, therefore, somewhat surprising to me that this image has not lead to more political and philosophical debate as we consider what it means for us all to live in the same place and that we are all neighbors. And the ending of manned space flight tells us that there is nowhere else for us to go, at least in the short term!
It is perhaps that we are still coming to terms with the image of our home from space and the implications?
What does this have to do with wildlife diseases?
For me, space exploration and wildlife disease research are related in that they are both on the frontiers of science, albeit on different ends of the spectrum.

There is still so much we have to discover about wildlife diseases and their health and ecological impacts, and this is what makes this field of endeavor so exciting. Furthermore, the image of Earth from space has been instrumental in helping us understand and communicate the fact we live in an interconnected world, and there are global factors, such as a changing climate and trade and travel, that are driving the emergence of new infectious diseases, many of which have a wildlife origin or adversely impact wildlife populations.

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Disease spotlight: avian botulism

Avian botulism is a paralytic, often fatal, disease of birds that results when they ingest toxin produced by the bacterium, *Clostridium botulinum.*

There are seven distinct types of toxin which are designated by the letters A through G. The two types that cause mortality in waterfowl and fish-eating birds are type C toxin and type E toxin respectively.

Type C avian botulism mortality most often occurs in the United States and Canada during the late summer months; July through September. However, outbreaks occur as late as December and January and occasionally during early spring in southern regions of the United States and in California. Type E outbreaks have occurred from spring through late fall. Type E outbreaks in birds are much less frequent and, within the United States, have been confined to the Great Lakes region

General field signs of botulism mortality include lines of carcasses coinciding with receding water levels. Mortality can also be observed in locations with several feet of water (i.e. pools or impoundments) and large rivers. Healthy birds, sick, and recently dead birds will commonly be found together during a botulism outbreak, along with carcasses in various stages of postmortem decay.

Prompt removal and proper disposal of vertebrate carcasses, especially during outbreaks, is highly effective for removing substrates for toxin production. The importance of prompt and thorough carcass removal and proper disposal cannot be overemphasized.

Additional information is available at: http://www.nwhc.usgs.gov/publications/field_manual/chapter_38.pdf

White-nose syndrome Update for Winter 2010/2011

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Several surveys were conducted outside the entrances of the hibernacula only and may not reflect the true mortality counts. Also, because winter bat surveys are typically conducted once during the season to minimize disturbance to hibernating bats, total mortality estimates are not available until the following season when returning population counts are assessed.

Thus far, WNS has not been confirmed in any new bat species this season. Six species, including Little Brown, Northern Long-eared, Tri-colored, Indiana, Eastern Small-footed, and Big Brown bats, are known to be susceptible to WNS. Genetic evidence of *Geomyces destructans* has been identified on three additional species (Southeastern myotis, Cave myotis, and Gray bats).

For the latest WNS updates, consult the USGS-NWHC Wildlife Health Bulletins. http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/index.jsp

Current bat submission guidelines to NWHC are available on our website. http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/USGS_NWHC_Bat_WNS_submission_protocol.pdf

AMBLE (Avian Monitoring for Botulism Lakeshore Events) Program

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During the month of June, over 3,300 healthy and 16 sick or dead birds were reported by AMBLE beach monitors. Eleven of the 16 sick or dead birds were gulls. An alewife die-off in Lake Michigan was obvious along the shores of Door County this summer. Fresh avian specimens found by volunteers are temporarily stored in state park freezers and sent to NWHC for botulism type E testing.

To date, one ring-billed gull has been tested and was found to be botulism type E positive.

Additional information is available at: http://www.nwhc.usgs.gov/mortality_events/amble/

Oral Plague Vaccine (OPV) as a Management Tool to Combat Plague in Prairie Dogs

USGS NWHC scientists Tonie Rocke and Christine Bunck presented information about development of an oral plague vaccine for prairie dogs at USGS Headquarters in Reston on July 8.

Plague has been hampering the recovery of the endangered black-footed ferret and wiping out prairie dog colonies. Under the direction of the Executive Committee of the Black-footed Ferret Recovery Implementation Team, a work group was established in December 2010 to complete development and delivery of the oral plague vaccine (OPV) as a management tool to combat plague in prairie dogs and promote the recovery of the black-footed ferret.

Contact: Tonie Rocke, National Wildlife Health Center, 608-270-2451, trocke@usgs.gov

Plague has been hampering the recovery of the endangered black-footed ferret and wiping out prairie dog colonies.

New Member of the NWHC Field Investigations Team

Barb Bodenstein, NWHC Wildlife Disease Specialist

Barb Bodenstein recently joined the USGS National Wildlife Health Center as Wildlife Disease Specialist in the Field Investigations Team. Her area of responsibility includes partnering with wildlife health professionals in conducting wildlife disease field investigations and research for the Western United States including Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Barb transferred to the Center from the USDA APHIS Wildlife Services National Wildlife Disease Program where she served as the Wildlife Disease Biologist for Wisconsin and Minnesota. Throughout her career Barb has developed cooperative partnerships with a wide variety of Federal, State, Tribal agencies, non governmental entities and the general public regarding wildlife disease monitoring, surveillance, management and emergency response.

As the disease biologist, she coordinated and implemented disease surveillance and monitoring programs and extensive technical and field assistance in the management of avian influenza, West Nile virus, bovine tuberculosis, chronic wasting disease, pseudorabies virus, swine brucellosis, swine influenza, tularemia, plague and other diseases of concern to the wildlife, agriculture and public health communities in Wisconsin and Minnesota.

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Message from Jonathan Sleeman, NWHC Center Director

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It is these realizations that lead us to seek designation as a World Organization for Animal Health (OIE) Collaborating Centre in the sphere of competence of Research and Diagnosis of Emerging and Existing Pathogens of Wildlife. The OIE is an international organization based in Paris on par with the World Health Organization for human health, is the intergovernmental organization responsible for improving animal health worldwide. Its objectives include ensuring transparency in the global disease situation, collecting, analyzing and disseminating veterinary scientific information, and the promotion of veterinary services, among other activities. A critical component of OIE's scientific expertise is the network of Collaborating Centres. These are centers of expertise in a specific designated sphere of competence relating to management of animal health issues, and Collaborating Centres assist the OIE by providing their expertise internationally. The National Wildlife Health Center was honored with receiving this designation at the recent OIE meeting in Paris. Dr. McNutt, USGS Director, expressed the needs well when she stated "The spread of disease through wildlife respects no borders, and has been known to cross species boundaries to infect humans. As with all great honors, this one bears great responsibilities: to be ever watchful for the next outbreak, and work internationally to stop it in its tracks." In collaboration with our partners, this is a responsibility we willingly accept. In fact, just like sending people into space, there is no room for us to make mistakes. Too much is at stake.

New Member of the NWHC Field Investigations Team

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An area of special interest to Barb, as the disease biologist, was working closely with partners in the Wisconsin Department of Agriculture, USDA Veterinary Services, Wisconsin Department of Natural Resources US Fish and Wildlife and the US Coast Guard to incorporate wildlife response plans into existing statewide animal health emergency and oil spill response planning.

Barb began her career with the WI Department of Natural Resources Wildlife Health program as the Wildlife Health Technician. Her duties there included providing extensive wildlife disease technical assistance to the wildlife veterinarian, toxicologist, field biologists and researchers with field and laboratory investigations. Special projects included disease and contaminant monitoring for a wide variety of Wisconsin native species including gray wolf, black bear, white-tailed deer, elk, trumpeter swan, common loon, bald eagle, woodcock, and snapping turtles.

National Wildlife Health Center diagnostic services and submission guidelines

The National Wildlife Health Center (NWHC) provides complete diagnostic services, which includes direct access to Field Investigation Team (FIT) Wildlife Disease Specialists to assist field personnel with carcass submission, wildlife disease questions, or outbreak management support through phone, email, and on-site assistance.

The FIT are regionally based and are sources of information for choosing appropriate diagnostic specimens, communication and interpretation of results, and field response activities.

Timely submission of suitable samples and a comprehensive event history are key components toward determining the correct diagnosis.

Prior to submission, contact a member of the FIT to obtain shipping approval and discuss shipping arrangements.

Freezing/thawing impedes isolation of some pathogens and damages tissues. The NWHC prefers chilled specimens if they can be sent within 24-36 hours of collection or death. The FIT will provide guidance on freezing samples on a case-by-case basis. As a general guideline, if you cannot call or ship within 24-36 hours, freeze the animal(s).

Specimens should be shipped by overnight service, Monday through Wednesday, to guarantee arrival at NWHC before the weekend.
If specimens are fresh and need to be shipped on Thursday or Friday, special arrangements can be made with a FIT member.

A specimen history form and tracking number are required before specimens arrive at the Center. These may be sent to a FIT member either electronically or by FAX. Packages will not be opened if a specimen history form does not arrive first.

Instructions for collection and shipment of avian and mammalian carcasses, as well the required specimen history form, can be found at our website. http://www.nwhc.usgs.gov/mortality_events/reporting.jsp

Due to new restrictions, specimens should be sent to the National Wildlife Health Center, Necropsy Loading Dock. The new address can be found on the shipping instructions.

A specimen history form and tracking number is required before specimens arrive at the Center.

USGS National Wildlife Health Center

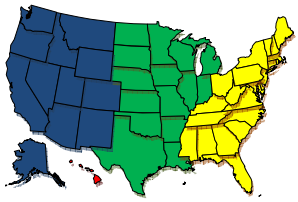
6006 Schroeder Road
Madison, WI 53711-6223

PHONE:
(608) 270-2400

FAX:
(608) 270-2415

We're on the Web!
Visit us at:
http://www.nwhc.usgs.gov/

To report a wildlife mortality event, contact a member of the NWHC Field Investigation Team



If your agency would like to report an event or needs assistance, please contact:

Western U.S.:
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Central U.S.:
Dr. LeAnn White
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Nationwide, single animal cases only:
Jennifer (Bradsby) Buckner,
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Disclaimer

Information presented in this newsletter represents the most current data available to the USGS National Wildlife Health Center at the time of publication. For mortality event details, we encourage researchers to contact us to acquire data directly.

External request forms for mortality information can be obtained from Jennifer Bradsby at 608-270-2443 or by email: jbradsby@usgs.gov.

Information presented in this newsletter is not intended for citation as scientific literature.

For citable information or general information regarding the Center, please contact Gail Moede Rogall, Information Specialist/Outreach Coordinator, at 608-270-2438 or by email: gmrogall@usgs.gov

Words for thought…

The frog does not drink up the pond in which it lives. - Chinese Proverb