



**Report to the Western Association of Fish and Wildlife Agencies
from the USGS National Wildlife Health Center
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Dr. Jonathan Sleeman
Center Director

Tel: 608.270.2401
Fax: 608.270.2415

jsleeman@usgs.gov

U.S. Department of the Interior
U.S. Geological Survey
National Wildlife Health Center
6006 Schroeder Road
Madison, WI 53711-6223

www.nwhc.usgs.gov

The USGS National Wildlife Health Center provides national leadership to safeguard wildlife and ecosystem health through dynamic partnerships and exceptional science.

The following information is of a topical nature for wildlife management agencies and entities; many partners and collaborators are involved in gathering and researching the information herein.

Creating a National Fish and Wildlife Health Network

An integrated, national network for coordinating fish and wildlife disease surveillance, laboratory analysis, information dissemination, communication, and response across federal, state and tribal agencies and other stakeholders is imperative. To achieve this, a multi-disciplinary group of wildlife professionals from federal, state, and non-governmental organizations is proposing to create a National Fish and Wildlife Health Network. This Network will establish a collaborative framework by which government agencies, tribes, universities and professional conservation organizations can cooperate and assist tribal, state, and federal agencies to manage diseases of free-ranging fish and wildlife. The mission of the Network will be achieved through partnerships and the collective adoption of protocols, procedures, and actions to address fish and wildlife health issues. A Coordinating Committee will be established to create, oversee, and coordinate implementation of the Network; the committee will be a partnership of public and private sectors assembled to promote and guide actions of the Network. The primary stakeholders and users of this Network are those tribal, state, and federal government agencies responsible for managing the health of free-ranging fish, terrestrial wildlife, and marine animal populations and their diseases. The Network will initially focus on: 1) wildlife diagnostic laboratory protocols; 2) disease information management and dissemination; 3) coordinated disease surveillance; 4) interagency communication and response plans; and 5) species specific health issues. The Network will address deficiencies in fish and wildlife disease monitoring and prevention programs where they exist, and facilitate the work of existing systems. Creating this Network will be an important step in addressing the critical need to protect the Nation's fish and wildlife health. **Contact:** Jonathan Sleeman, 608-270-2401, jsleeman@usgs.gov.

Field Investigation Team Summaries: January 2013 to March 2013

White-nose syndrome Winter 2012/2013 summary

White-nose syndrome (WNS) was confirmed in cave-hibernating bats in three new states (South Carolina, Georgia, and Illinois) and one new province (Prince Edward Island) during the 2012/2013 winter season. This represents a continued expansion of *Geomyces destructans* distribution on the landscape; thus far no evidence exists of geographic barriers preventing its spread. White-nose syndrome is now confirmed in 22 states and 5 Canadian provinces since it was first recognized near Albany, New York in 2007. Numerous additional counties throughout Tennessee, Kentucky, and Ohio had confirmed cases of WNS this winter indicating that within two years of its initial detection in these areas, the disease is now

endemic in these states. Sites in several northeastern states —where WNS has been present the longest— continue to be occupied by bats although in much lower numbers than before the disease struck. Several states within the endemic area report an increase in bat populations at some sites during winter bat counts. It is unclear if this population increase represents immigrants from other sites and/or a shift in roosting location of the local bat population from un-surveyed portions of the hibernaculum. Winter hibernacula survey data are being reviewed by state and federal management agencies to better understand the on-going impacts of WNS on bat populations in affected regions. Also of note, *G. destructans* DNA has been detected on endangered Virginia big-eared bats (*Corynorhinus townsendii virginianus*) hibernating in at least one known contaminated site; no mortality or visible signs of disease are reported in this species at this time. For the latest WNS updates, consult NWHC Wildlife Health Bulletins at: http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/index.jsp. Current NWHC bat submission guidelines are available at: http://www.nwhc.usgs.gov/disease_information/white-nose_syndrome/USGS_NWHC_Bat_WNS_submission_protocol.pdf. Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, aballmann@usgs.gov

Investigation of snake fungal disease east of the Mississippi River (United States)

Since 2006, there has been an increase in the number of reports of skin infections in wild snakes in certain parts of the eastern United States. Laboratory testing has implicated a fungal pathogen, *Ophidiomyces ophiodiicola* (formerly *Chrysosporium ophiodiicola*), but the causative agent has not yet been definitively identified. NWHC scientists are collaborating with the U.S. Fish and Wildlife Service, numerous state agencies, organizations, researchers, and other key stakeholders to investigate this potentially emerging disease and to learn more about its impacts on snake populations. For more information, visit http://www.nwhc.usgs.gov/disease_information/other_diseases/snake_fungal_disease.jsp.

Contact: Anne Ballmann, National Wildlife Health Center, 608-270-2445, aballmann@usgs.gov

Suspected famphur poisoning in Raptors (Washington)

One red-tailed hawk (*Buteo jamaicensis*), one great horned owl (*Bubo virginianus*), and eight European starlings (*Sturnus vulgaris*) were submitted to NWHC for necropsy after the Washington Department of Fish and Wildlife received reports of over 100 moribund and dead starlings and magpies in a backyard residence in eastern Washington. The red-tailed hawks and great horned owl were observed feeding on the carcasses of starlings and magpie between late-January and mid-March, 2013. Other species including house sparrows (*Passer domesticus*), rock doves (*Columba livia*), and waterfowl were abundant in the area and were not affected. One red-tailed hawk was taken to a wildlife rehabilitator and recovered after receiving atropine. Black feathers and one starling leg were recovered from the stomach of the red-tailed hawk and no signs of infectious disease were present at necropsy. Brain cholinesterase activity in the red-tailed hawk, great horned owl and starlings were markedly depressed, indicating they were recently exposed to organophosphate/carbamate pesticide compounds. No toxic organic compounds could be identified in liver tissue of the starlings or red-tailed hawk by mass spectrometry and there were no stomach contents available from the starlings for analysis. Famphur, a regulated pesticide that is highly toxic to birds was identified in the skin tissue of the feet of one starling by mass spectrometry. **Contact:** Barbara Bodenstein, National Wildlife Health Center, 608-270-2447, bbodenstein@usgs.gov

Renewing ties between Honolulu Field Station and wildlife personnel from Guam and the Commonwealth of the Northern Marianas Islands

The NWHC Honolulu Field Station (HFS) has intermittently received specimens from the Marianas Islands (Guam, Saipan, and Rota) for diagnostic examination over the past 20 years. Recent efforts include collaborations between HFS and Commonwealth of the Northern Marianas Islands, Division of Fish and Wildlife (CNMI – DFW), Marine Turtle Research Program when they submit tissues from stranded marine turtles to HFS for diagnostic evaluation. With the recent decline of native crows (Rota crows) on the island of Rota, concern for wildlife health has taken on renewed urgency for CNMI and the U.S. Fish and Wildlife Service. Because of the need to re-establish ties and train new staff on carcass

collection and shipment, Dr. Thierry Work traveled to Guam, Saipan, and Rota in June 2013. He met with various individuals from Guam Division of Wildlife, USDA, and USFWS. He also presented wildlife disease workshops in Saipan and Rota.

Continued investigation of Newcastle Disease Virus in Cormorants in the Midwest

Newcastle Disease (ND) is a reportable disease in poultry and was last detected in U.S. poultry flocks in California in 2003. However, ND continues to cause mortality events in wild birds, particularly double-crested cormorants (*Phalacro coraxauritus*) (DCCO). The frequency of DCCO mortality events caused by Newcastle Disease virus (NDV) appears to be increasing in the Midwest with almost annual occurrence of NDV-associated mortality in DCCO in the Midwest since 2006 compared to the 11 year period between the first documented events in 1992 and second detection in 2003. Due to the apparent increase in frequency of NDV mortality events, scientists at the National Wildlife Health Center (NWHC) began a collaborative study to investigate the transmission dynamics of NDV in DCCO in 2012. Partners included in this project include the U.S. Department of Agriculture-Wildlife Services, Minnesota Department of Natural Resources, U.S. Fish and Wildlife Service, and the Leech Lake Band of Ojibwa.

The study is focused primarily on determining the role of maternal antibodies in transmission of NDV. During 2012, over 1,000 adult and juvenile DCCO at several breeding colonies in Minnesota and Wisconsin were sampled for NDV. A NDV epizootic occurred on one of the study sites in 2012 giving scientists the opportunity to compare serology and virus isolation results at NDV outbreak and non-outbreak sites within the same year. Scientists on the project also assisted in the MN DNR's 2012 effort to control spread of this disease by performing carcass collection and incineration at several of the NDV outbreak sites in MN. During 2013 scientists will be focusing on DCCO breeding colonies in Minnesota where they again plan to collect over 1,000 samples from DCCO of various age classes. Understanding the role of maternal antibodies in the transmission dynamics of ND may help scientists predict future epizootic events in DCCO and develop disease management strategies. **Contact:** LeAnn White, National Wildlife Health Center, 608-270-2491, clwhite@usgs.gov

Request for Wildlife Mortality and Morbidity Event Reporting (All States)

The USGS-National Wildlife Health Center Quarterly Wildlife Mortality Report, published in the Wildlife Disease Association's newsletter and on the NWHC Web site, is intended to inform wildlife professionals of wildlife events of interest. We kindly request the help of wildlife professionals in submitting investigations of recent die-offs of mammals, birds, amphibians, and reptiles for inclusion in this report. Credit will be given to appropriate diagnostic laboratories. The report can be found online at http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp.

Additional Disease Research

Sylvatic plague vaccine for prairie dogs

Laboratory studies have demonstrated that oral vaccination of prairie dogs against plague using raccoon pox-vectored vaccine is feasible, resulting in significant protection against challenge with *Yersinia pestis*, the bacterium that causes sylvatic plague. The Sylvatic Plague Vaccine (SPV) Subcommittee, under the direction of the Executive Committee of the Black-footed Ferret Recovery Implementation Team, is continuing its work to complete development and delivery of the sylvatic plague vaccine as a management tool to combat plague in prairie dogs and promote the recovery of the black-footed ferret. Field trials completed in 2012 confirmed the safety of the vaccine in wild prairie dogs and non-target animals. Field studies to assess vaccine efficacy in free-ranging prairie dogs are currently underway. Vaccine and placebo baits have already been distributed in select prairie dog colonies in Montana, Wyoming, Utah, Colorado, and South Dakota. **Contact:** Tonie Rocke, National Wildlife Health Center, 608-270-2451, trocke@usgs.gov.

Examining the effects of density on bighorn sheep lamb recruitment

Bighorn sheep lamb recruitment is a significant problem affecting many bighorn sheep herds throughout the West, and limiting overall health of this species across its range. One hypothesis about the drivers of lamb recruitment is that it may be a manifestation of density-dependent effects, which are well-documented in other ungulate species. The National Wildlife Health Center and Colorado Parks and Wildlife are working collaboratively to investigate this hypothesis by conducting field experiments to determine if changing density can improve lamb recruitment. **Contact:** Daniel Walsh, 608-270-2481, dwalsh@usgs.gov.

Identifying areas to focus CWD surveillance in Montana

Chronic wasting disease is a prion disease fatal to mule deer, white-tailed deer, elk, and moose. CWD has been detected in all states and provinces bordering Montana with the exception of Idaho, and is present in wild ungulate populations within 100 miles of the Montana border in Wyoming and the Black Hills of South Dakota and within 50 miles of the border in Canada. CWD has the potential to have significant economic and ecological impacts in Montana which has traditionally been an ungulate hunting destination for hunters worldwide. The National Wildlife Health Center and Montana Fish, Wildlife, and Parks are working together to model deer movements in Montana and identify areas with high densities of deer in proximity to known infected populations. These models will assist MFWP in targeting surveillance to at-risk herds. **Contact:** Robin Russell, 608-270-2474, rerussell@usgs.gov

THANK YOU

The NWHC thanks all the state, federal and tribal agencies who worked with us the past year. We are at your service to provide technical support, field investigation assistance and diagnostic capabilities.

Field Investigations Team

Dr. Anne Ballmann, 608-270-2445, aballmann@usgs.gov

Barb Bodenstein, 608-270-2447, bbodenstein@usgs.gov

Dr. LeAnn White, 608-270-2491, clwhite@usgs.gov

Dr. Thierry Work, 808-792-9520, thierry_work@usgs.gov

Jennifer Buckner, 608-270-2443, jbuckner@usgs.gov