



**Report to the Fish and Wildlife Health Committee
of the Association of Fish and Wildlife Agencies
from
USGS National Wildlife Health Center
March 8, 2011**

Wildlife Highlights

White-nose syndrome range expansion in bats, 2010/2011 (CT, IN, MA, NC, NH, NJ, MD, NY, PA, TN, VA, VT, WV, Ontario, Quebec): White-nose syndrome (WNS) results from fungal infection of the skin of hibernating bats by *Geomyces destructans*. This disease has caused unprecedented winter mortality in North American bat populations and was recently confirmed by histology in bats from two new states (Indiana and North Carolina). States with laboratory-confirmed cases of WNS now total 13 since the disease was first recognized near Albany, New York, in winter 2007/2008. Clinical signs of disease continue to occur among bats at confirmed hibernacula in subsequent seasons, and current estimates of hibernating bat population declines since the emergence of WNS exceed 99% at some locations. The USGS National Wildlife Health Center, along with many partners, continues to play a primary role in WNS research, including WNS transmission/pathogenesis/recovery studies, development of improved tools for molecular detection of *G. destructans*, and investigation into the microbial ecology of *G. destructans* in bat hibernacula. The Center distributes Wildlife Health Bulletins on new developments related to WNS and other wildlife health issues. These can be found at <http://www.nwhc.usgs.gov>. **Contacts:** David Blehert, 608-270-2466, dblehert@usgs.gov; Anne Ballmann, 608-270-2445, aballmann@usgs.gov

Recent WNS publications include: Wing pathology of white-nose syndrome in bats suggests life-threatening disruption of physiology. *BMC Biology* 2010, 8:135. <http://www.biomedcentral.com/1741-7007/8/135> USGS [Media Release](#) about this publication.

DNA-based detection of the fungal pathogen *Geomyces destructans* in soil from bat hibernacula. *Mycologia* 2010, 0: 10-262v2-10-262, <http://www.mycologia.org/cgi/content/abstract/10-262v2> (ahead of print)

H5N1 highly pathogenic avian influenza: The Federal, State and Tribal partnership formed to develop and implement the National Interagency Early Detection System for Highly Pathogenic H5N1 Avian Influenza in Wild Migratory Birds has continued into its fifth year of surveillance. Birds have been tested from all 50 states and 6 freely-associated states and territories. While the surveillance focused on waterfowl, shorebirds, gulls and terns, a total of 284 species were sampled. So far, during the 2010 sampling year (April 1, 2010 – March 31, 2011), DOI cooperating agencies collected and analyzed over 14,235 wild bird samples and the highly pathogenic avian influenza H5N1 virus was **not** detected. Of these, 481 have tested positive for low pathogenic avian influenza based on molecular screening; 34 were H5 positive and 2 were positive for low pathogenic H5N1. **Contact:** Scott Wright, 608-270-2460, swright@usgs.gov

New environmental contaminants book: USGS NWHC Scientist Christian Franson has co-authored a book chapter that is included in the second edition of *Environmental Contaminants in Biota, Interpreting Tissue Concentrations*. This updated edition, which was written by 46 scholars, is the authoritative work on interpreting concentrations of environmental contaminants in fish, wildlife and aquatic species. Dr. Franson's chapter, "Lead in Birds," was written in collaboration with Deborah J. Pain of the UK's Wildfowl and Wetlands Trust, and focuses on the interpretation of tissue lead concentrations resulting from exposure to metallic lead, including shotgun pellets, bullets, bullet fragments, and fishing weights. The chapter reviews past literature relevant to lead poisoning in birds; evaluates current research about the factors that influence

lead concentration and distribution in the body; and suggests thresholds for tissue lead concentrations indicative of different levels of exposure and poisoning and discusses factors associated with their different interpretation at both individual and population levels. *Environmental Contaminants in Biota, Interpreting Tissue Concentrations*, published by Taylor & Francis, is now available. More information about the publication can found at the [NWHC web site](#). **Contact:** Christian Franson, 608-270-2444, jfranson@usgs.gov

West Nile virus in sage habitat (Oregon, Nevada, California): Beginning in 2004, six study sites in the western range of the greater sage-grouse were established through collaborative partnerships with state game agencies in Nevada, California, and Oregon; with university partners at University of Nevada-Reno and Oregon State University; and with other USGS scientists at the Western Ecological Research Center. The study areas included Hart Mountain National Antelope Refuge, Oregon; Burns Junction and Jordan Valley, Oregon; Sheldon NWR, Nevada; Montana Mountains, Nevada; Eureka, Nevada; and Mono County, California. A total of 928 live greater sage-grouse, 3,688 passerines, and 1,640 feral horses (Sheldon NWR only) were sampled and tested for WNV. In addition, through 2009 (still awaiting 2010 samples), 1,784 samples were collected from hunter-killed greater sage-grouse in collaboration with state game agencies and hunters. Greater sage-grouse were also tested for additional viral pathogens, fecal corticosterone levels, and intestinal and blood parasites. Experimental studies were conducted in the field to evaluate the fecal corticosterone assay. Laboratory experiments were performed to study the effects of WNV infection on chukar partridge, vesper sparrows, and Brewer's sparrows, and the effects of WNV vaccination on chukar partridge. **Contact:** Christian Franson, 608-270-2444, jfranson@usgs.gov

Monitoring for avian botulism (Wisconsin): Bird mortality caused by ingestion of a toxin produced by the bacterium *Clostridium botulinum* has been reported on the Great Lakes since the 1960s. Resurgence of avian botulism outbreaks in the last decade has brought renewed attention to this wildlife health issue. The National Wildlife Health Center, with help from many partners and support from the [Great Lakes Restoration Initiative](#), is establishing "Lake Michigan Volunteer AMBLE - Avian Monitoring for Botulism Lakeshore Events." The goal of AMBLE is to empower a network of concerned citizens to monitor bird health and beach conditions along miles of Lake Michigan shoreline, thus increasing knowledge of avian botulism trends. The focus area for the first year of this program will be Door County, Wisconsin. For more information, visit <http://www.nwhc.usgs.gov/amble/> **Contact:** Jenny Chipault, 608-270-2473, AMBLE@usgs.gov

Wildlife Health Event Reporter: Released in October 2010, the experimental web application WHER, *Wildlife Health Event Reporter*, and HealthMap's mobile phone application, *Outbreaks Near Me* allow users on the web or on their smartphones to report observations of sick or dead wildlife. The Wildlife Disease Information Node (WDIN) hypothesizes that these applications can provide resource agencies and researchers with an increase in observational power that could potentially lead to a better understanding of both baseline and exceptional wildlife disease events. WDIN continues to seek from agencies their contact information that would be shared with WHER users when they submit a wildlife health report in a particular state/administrative unit. Suggested information to share with the public includes: preferred informational web link(s); e-mail address(es); telephone number(s); and other contact information. WDIN hopes sharing this information, which can be added or changed at anytime, will mutually benefit WHER users and agencies. WHER can be accessed online at <http://www.wher.org>. Check out news, features, and learn about how to sign up for feeds and email alerts when reports are made at <http://news.wher.org>. Additional information materials (e.g. video, brochure, and fact sheet) are available at, <http://about.wher.org>. Share feedback, ideas, or agency contact information with WHER staff at wher@wdin.org. **Contact:** Joshua Dein, 608-270-2450, fjdein@usgs.gov

Global Wildlife Disease News Map update: Near the end of 2010, the Wildlife Disease Information Node released a beta version of the Global Wildlife Disease News Map, <http://wildlifedisease.nbi.gov/newsmap>. This new version offers a number of expanded features, including access to all news reports dating back to 2006, a free text search option, and the ability to combine multiple search parameters, as well as map the

information by a number of symbolization options (e.g. geographic detail, species, or disease type). WDIN is looking for feedback from all user groups on this tool. Get in touch at map@wdin.org. **Contact:** Cris Marsh, 608-270-2459, cmarsh@usgs.gov

Disease Investigations

Virulent Newcastle disease virus in double-crested cormorants (Maryland, Minnesota, North Dakota, Wisconsin): Beginning in July 2010, double-crested cormorants displaying neurological signs including lethargy, paralysis of the wings and legs, twisting of the neck, and/or erratic swimming were observed at nesting colonies located in Maryland, Minnesota, North Dakota, and Wisconsin. Double-crested cormorants submitted to the USGS National Wildlife Health Center from these sites tested positive for virulent Newcastle Disease virus (NDV). Newcastle Disease virus belongs to the group of viruses known as avian paramyxovirus-1 (APMV-1). This APMV-1 virus is often lethal to double-crested cormorants; it's designation as virulent NDV indicates potential virulence to poultry. Additional mortalities at these sites included American white pelicans, ring-billed gulls, California gulls, and mallards; however, the cause of death in these species was attributed to other diseases including West Nile virus, salmonellosis, and aspergillosis. For a summary of recent NDV mortality events involving wild birds and the geographic expansion in the eastern US, see the Wildlife Health Bulletins (Sep 2010, Dec 2010) at http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/index.jsp. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Rabies in Brazilian free-tailed bats (Texas): In August 2010, several thousand dead and sick Brazilian free-tailed bats were found in the vicinity of a roost-site in Williamson County, Texas. Bats were reportedly seen flying during the day and landing on the ground too weak to fly. The cause of death in these bats was determined to be rabies virus, a member of the lyssavirus group. A large-scale rabies-associated mortality event, such as the one observed at this site, generally decreases the frequency of contact among bats in the population, resulting in decreased transmission of the virus and subsequent recovery of the bat population as long as environmental conditions (e.g., food supply) remain favorable. Due to the large population size at this roost (estimated to be over one million bats), officials with the Texas Department of Transportation confirmed that signs were already in place at the site to remind the public never to handle bats. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Wood stork mortality at Blackburn Bay (Florida): In July 2010, a small group of wood storks (mostly juveniles) in Sarasota County were involved in an unusual mortality event. Clinical signs observed in affected birds included disorientation, incoordination, and "drunken"-type behaviors. Many had evidence of trauma presumably from wandering into traffic and died shortly after arriving at a rehabilitation facility. Mortalities totaled 16 birds although a rookery population of approximately 40 storks was considered at risk. Water samples collected during this event did not identify any harmful algal blooms in the area. Toxicology results from one of two birds that died from traumatic injuries identified several compounds including common euthanasia drugs pentobarbital (and its metabolite metobarbital) and phenytoin, benzenemethanol (a local anesthetic), methamidophos (an organophosphate), and D-limonene (a citrus oil-based pesticide). In addition, this bird also tested positive for botulism type C, although it is possible that these results were confounded by the other toxins present. Three affected storks did survive this event with supportive care. Wood storks are listed as endangered by the US Fish & Wildlife Service although reclassification of the southeastern US breeding population to threatened status is currently under review. They are the only stork species regularly found in the US. Their diet consists mainly of fish, although they occasionally consume crustaceans, amphibians, reptiles, mammals, birds and arthropods. There are anecdotal reports of wood storks feeding at landfills or its run-off water which may explain the source of exposure to the various compounds identified in this case, although this could not be confirmed. **Contact:** Anne Ballmann, 608-270-2445, aballmann@usgs.gov

Great Salt Lake mortality in eared grebes (Utah): An avian cholera outbreak was observed at the Great Salt Lake in November 2010. Surveys conducted by Utah Division of Wildlife Resources estimated 10,000 eared grebes died out of a population of 200,000. No other species other than grebes appeared to have been affected. Significant cholera outbreaks in this area have occurred in 1994 where 15,000 grebes died; 44,000 in 1998; 30,000 in 2002; and 30,000 in 2004; 15,000 in 2007. Mortality subsided in early January 2011 and ceased when water started freezing. More information on avian cholera and links to news stories are available at: http://www.nwhc.usgs.gov/disease_information/avian_cholera/ **Contact:** Anne Ballmann, 608-270-2445, aballmann@usgs.gov

Northern fulmar mortality from Monterey Bay to southern Washington (California, Washington): In November 2010, the Monterey Bay National Marine Sanctuary's [Beach COMBERS](#) beach survey program documented increased numbers of Northern Fulmars washing up dead on beaches in multiple counties (Monterey, Santa Cruz, and San Luis Obispo) with mortality conservatively estimated at approximately 2,500 – 3,000 birds. Reports of concurrent fulmar mortality came from Clatsop County, Oregon, and Long Beach, Washington. It is estimated that 98% were young of the year and in poor body condition with hemorrhaging of foot webbing suggesting prey-based starvation may have been the main cause of mortality. Many birds were sent to rehabilitation centers and responded positively to feeding and sodium supplementation. Northern Fulmars are birds that regularly migrate through central California. Sometimes, large numbers of these migrant birds will strand on beaches in what is known as a "wreck". Wintertime wreck events in this area have occurred previously in 2003-2004, 1995, 1984, 1976, and 1907-1908. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Biscayne Bay turkey vulture mortality (Florida): A large mortality event involving turkey vultures was reported in early November 2010 which extended from Biscayne Bay to Marathon, Florida. An estimated 875 turkey vultures died as a result of drowning after crashing into open water. Several broad-winged hawks were also involved. Florida Fish and Wildlife Conservation Commission personnel, National Park Service, and other agencies were involved in the recovery of live birds, several of which responded well to supportive care in rehabilitation facilities and were later released. The majority of the vultures found dead were in good body condition and no underlying diseases were identified. The area in question was too far from radar to reliably detect "micro bursts" or other localized downdrafts; however, weather or possibly aircraft disturbance is suspected to be a contributing factor in the deaths. A smaller drowning event involving turkey vultures occurred off Sandy Key in February 2001. **Contact:** Anne Ballmann, 608-270-2445, aballmann@usgs.gov

Red-winged blackbird die-off (Arkansas): A die-off of about 4,000 red-winged blackbirds occurred on New Year's Eve in Beebe, Arkansas. This event garnered significant media attention. The Arkansas Game and Fish Commission submitted some red-winged blackbird carcasses to the NWHC for investigation. NWHC determined that these birds died from blunt (impact) trauma after being disturbed from their roost in the middle of the night and flying into objects. State officials hypothesized that loud noises may have caused the birds to leave their roost. No significant underlying or predisposing conditions or diseases were found in these birds in numerous toxicological analyses, cultures, and tests. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov