Report to the Western Association of Fish and Wildlife Agencies from the USGS National Wildlife Health Center

July 14, 2011

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 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.

Field Investigation Team Summaries:

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

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 species other than grebes appeared to have been affected. Mortality subsided in early January 2011 and ceased when water started freezing. Significant cholera outbreaks in this area have occurred previously: in 1994 where 15,000 grebes died; 44,000 in 1998; 30,000 in 2002; 30,000 in 2004; and 15,000 in 2007. More information on avian cholera and links to news stories are available at: http://www.nwhc.usgs.gov/disease_information/avian_cholera/ . **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Northern fulmar mortality from Monterey Bay to southern Washington (California, Washington)

In November 2010, the Monterey Bay National Marine Sanctuary's BeachCOMBERS 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 2500 - 3000 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 suggesting 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

Trauma and undetermined cause of death in various avian species (Alabama, Arkansas, California, Kentucky, Louisiana, North Carolina, Oklahoma, Texas)

New Year's Eve of 2010 Arkansas Game and Fish Commission received reports from residents in White County, Arkansas, of thousands of red-winged blackbirds, common grackles, and European starlings appearing to fall from the sky. Specimens were sent to US Geological Survey's National Wildlife Health Center (NWHC), Arkansas Livestock and Poultry Commission, and Southeastern Cooperative Wildlife Disease Study (SCWDS). The cause of death was determined by all laboratories to be impact trauma. A resident in the area reported seeing birds flying into houses and mailboxes after hearing several loud noises. This mortality event received considerable press coverage and was followed by several other blackbird mortality reports that were also determined to be caused by trauma but were considered to be unrelated. For example, several days after the mortality event in Arkansas, approximately 500 dead red-winged blackbirds, brown-headed cowbirds, common grackles, and European starlings were found near a power line in Pointe Coupee Parish, Louisiana by the Louisiana Department of Wildlife and Fisheries. Birds from this event were examined by NWHC and SCWDS and found to have hemorrhaging and fractures consistent with colliding with a stationary object such as a power line. In Alabama and California, 100 to 200 common grackles and European starlings died from impact trauma along interstates and highways in mid-January.

In early January 2011 approximately 1,000 dead birds were also found by US Fish and Wildlife Service (USFWS) biologists in a salt marsh complex in Aransas, Texas. The species involved in this event included American white pelicans, black-bellied plovers, northern pintails, roseate spoonbills, Forster's terns, and sandhill cranes. USFWS reported severe weather including hail the day before the birds were found. Specimens examined by NWHC were found to have injuries, including severe blunt trauma to the head, consistent with those that could be caused by hail.

Other mortality events involving red-winged blackbirds which occurred in January were investigated in Alabama, Oklahoma, and at Pocosin Lakes National Wildlife Refuge (North Carolina). The cause of death for these events could not be determined. No toxins or significant underlying infectious diseases were detected. In some cases, it was known that flocks consisting of several hundred thousand birds were in the area. Overall, the number of mortality events involving "blackbirds" reported to NWHC in the first quarter of 2011 was quadruple the average number of reports from the same period during the previous five years. Publicity of the Arkansas event was frequently cited as a reason for diagnostic evaluation requests. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Avian cholera at Tule Lake NWR (California)

Avian cholera mortality occurred once again at Tule Lake at the beginning of 2011. Total mortality was estimated to involve 5538 birds of numerous waterfowl species including geese, swans, and ducks. Avian cholera mortality events at this location have occurred almost annually since 1969 with the largest event estimated to have killed 10,000 birds in 2008. Avian cholera is caused by the bacterium, *Pasteurella multocida*, which is shed at high levels in the feces and nasal discharge of infected individuals. Both inapparent carriers and an environment contaminated by animals shedding the bacteria can serve as reservoirs of infectious material to naïve susceptible animals in the area. Careful handling and prompt disposal of carcasses, preferably by incineration, reduces the bacterial load in the environment but will not completely eliminate disease recurrence due to inapparent carriers. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

Fungal pneumonia in mallards (South Dakota)

Beginning in late January 2011 a large-scale mortality event involving mallards was reported by USFWS biologists in Sully County, South Dakota. The final mortality estimate for this event was about 8,000 mallards. The majority of the birds were found dead and were in fair to excellent body condition. Some sick birds appeared weak and lethargic and were in emaciated to poor body condition. Biologists were able to collect fresh dead carcasses and also euthanize several sick birds for submission to the USGS National Wildlife Health Center. The primary cause of death in the mortality event was determined to be fungal pneumonia, but interestingly the two groups of birds (fresh dead versus sick) seemed to be infected by two different types of fungi. *Aspergillosis fumigatus* (causative agent of aspergillosis in birds) was cultured from the lungs and airsacs of the sick birds that were euthanized whereas *Rhizopus* sp. was identified in the lungs and airsacs of the birds that were found dead. Both types of fungi have been associated with moist conditions on spoiled grain which was a likely source for exposure by the mallards in this event. **Contact:** LeAnn White, 608-270-2491, clwhite@usgs.gov

White-nose syndrome range expansion in bats, 2010/2011 (CT, IN, KY, MA, NC, NH, NJ, MD, ME, NY, OH, PA, TN, VA, VT, WV, Ontario, Quebec, New Brunswick, Nova Scotia

White-nose syndrome (WNS) in cave-hibernating bats was detected in four new U.S. states (North Carolina, Ohio, Indiana, Kentucky) and two new Canadian provinces (New Brunswick, Nova Scotia) during the first quarter of 2011. Laboratory-confirmed cases of WNS have now been identified in 16 U.S. states and 4 Canadian provinces since the disease was first recognized near Albany, New York, in winter 2007/2008. With the exception of the New Brunswick hibernaculum, where an estimated 4,980 bats died, all other new locations reported minimal to no bat mortality at the time of their surveys. Because winter bat surveys are 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. 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 disease also continued to spread into new counties within WNS-confirmed states and provinces (Maryland, Virginia, West Virginia, Pennsylvania, Connecticut, Tennessee, Quebec, and Ontario). Thus far, WNS has not been confirmed in any new bat species this season. Six species, including little brown, northern long-eared, tricolored, Indiana, eastern small-footed, and big brown bats, are known to be susceptible to WNS. Genetic evidence of *Geomyces destructans*, the causative agent of WNS, has been identified on three additional species (Southeastern myotis, Cave myotis, and Gray bats).

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

Contacts: David Blehert, 608-270-2466, dblehert@usgs.gov; Anne Ballmann, 608-270-2445, aballmann@usgs.gov

New and Ongoing Wildlife Mortality Events Nationwide

USGS and a network of partners across the country document wildlife mortality events in order to provide timely and accurate information on locations, species and causes of death. For current wildlife mortality events Nationwide please see the link below or visit the NWHC website at: http://www.nwhc.usgs.gov/ and go to the spotlight: View Recent Mortality Events.
http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp

The NWHC Mortality Events Map shows recent mortality events that have been reported to the NWHC. Each event is shown on the map and listed on the left with newest events on top. To view the list of events in a tabular format please visit the New and Ongoing Wildlife Mortality Events page.
http://www.nwhc.usgs.gov/map/mortality_events.jsp

Additional Disease Investigations Research and WDIN Highlights

Oral baits and biomarkers for plague vaccine delivery to 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*. Peanut butter-flavored baits were shown to be preferred by prairie dogs in laboratory studies, and preliminary field studies using baits containing a biomarker have shown rates of uptake by wild prairie dogs > 90% within 3-4 days of application. The vaccine remains viable within the baits for up to 7 days at 28°C. Efforts are underway to license the vaccine-laden bait for use in field trials to confirm the safety of the vaccine in non-target animals. 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. As part of the strong interagency foundation of the Work Group, the Western Association of Fish and Wildlife Agencies will play a vital role in overseeing the OPV project. **Contact**: Tonie Rocke, National Wildlife Health Center, 608-270-2451, trocke@usgs.gov

H5N1 highly pathogenic avian influenza surveillance (U.S.)
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 finished after five years of surveillance. Birds have been tested from all 50 states and 6 freely-associated states and territories. Surveillance has focused on waterfowl, shorebirds, gulls and terns and a total of 284

species have been sampled. During the 2010 sampling year (April 1, 2010 – March 31, 2011), cooperating agencies collected and analyzed over 15,500 wild bird samples and the highly pathogenic avian influenza H5N1 virus was **not** detected. Of these, 488 tested positive for avian influenza based on molecular screening; 34 were H5 positive, and 2 were positive for low pathogenic H5N1. Over the 5 years of surveillance, a total of 111,175 birds were sampled as part of this program. **Contact:** Scott Wright, National Wildlife Health Center, 608-270-2460, swright@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.nbii.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

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
Dr. LeAnn White, 608-270-2491, clwhite@usgs.gov
Dr. Thierry Work, 808-792-9520, twork@usgs.gov
Jennifer Bradsby, 608-270-2443, jbradsby@usgs.gov