Written and compiled by members of the U.S. Geological Survey National Wildlife Health Center - Wildlife Epidemiology & Emerging Diseases Branch.

Tyzzer’s Disease Causes Muskrat Mortality

In November 2017, a landowner in northern Ohio discovered 18 dead muskrats (*Ondatra zibethicus*) while waterfowl hunting. The Ohio Department of Natural Resources, in collaboration with the U.S. Geological Survey’s (USGS) National Wildlife Health Center (NWHC), investigated this mortality event; post-mortem diagnostics attributed death to Tyzzer’s disease in five of five carcasses examined. Tyzzer’s disease is caused by the bacterium *Clostridium piliforme*, which infects the liver and causes necrosis and hemorrhage. All muskrats examined had similar bacterial necrosis on histology and three had grossly visible white pinpoint lesions in the liver. The presence of *C. piliforme* in the liver was confirmed through PCR and sequencing. Tyzzer’s disease has been reported rarely from wild rodents, lagomorphs, and raccoons in North America; however, it causes disease in a wide range of domestic, captive wild, and laboratory mammals. The transmission route in wild animals is not well characterized but is likely through ingestion of an environmental stage of the bacterium that is shed fecally or released after death of an infected animal.

White-nose Syndrome Surveillance in Mexico

The U.S. Geological Survey’s (USGS) National Wildlife Health Center (NWHC) is collaborating with partners from Mexico to initiate a surveillance program for white-nose syndrome (WNS) and the causative fungus *Pseudogymnoascus destructans* (Pd) on bats and at hibernacula in that country. Sampling kits have been distributed for winter surveillance activity, which will be analyzed at the NWHC and parallel analyses are planned at the National Autonomous University of Mexico in consultation with NWHC. This collaboration supports an international letter of intent signed by the United Mexican States, the United States of America, and Canada (April 2015) to increase coordination and cooperation to conserve bat species on a continental scale.

The NWHC Winter 2017/2018 Bat Submission Guidelines are now available. NWHC can answer questions about designing WNS surveillance and response plans relevant to your State, and help with testing samples collected as part of opportunistic or targeted surveillance efforts in accordance with the national Pd surveillance strategy. Tribal, State, and Federal agencies that have questions about ongoing surveillance efforts or who may wish to participate should contact Anne Ballmann (608-270-2445, aballmann@usgs.gov). Please visit www.whitenosesyndrome.org for more information about the national multi-agency WNS response effort. A recently completed fact sheet titled “White-Nose Syndrome in North American Bats – USGS updates” is available online. Also, a WNS poster and handout are available for use as needed at https://www.whitenosesyndrome.org/resource/white-nose-syndrome-poster-available-your-use.
For additional information regarding white-nose syndrome surveillance efforts in North America, please contact Anne Ballmann (608-270-2445, aballmann@usgs.gov).

**Avian Cholera Mortality Events in the Mississippi and Pacific Flyways**

Avian cholera has been confirmed as the cause of waterfowl mortality in Arkansas, Illinois, Indiana, Kentucky, Missouri, and Tennessee in the Mississippi Flyway, and Utah and California in the Pacific Flyway. This represents the first known detection of avian cholera in wild birds in Indiana. Mortality in the recent events has ranged from dozens of waterfowl to an estimated 50,000 eared grebes in Utah. Following standard procedures for all waterfowl received at the U.S. Geological Survey’s (USGS) National Wildlife Health Center (NWHC), all specimens were tested for highly pathogenic avian influenza virus and all results have been negative, thus far.

Avian cholera, caused by the bacteria *Pasteurella multocida*, is a common, contagious disease that has been documented in over 100 species of wild birds. Large outbreaks generally occur in the fall and winter and primarily involve wild waterfowl. Acute mortality is typical in avian cholera outbreaks, and common clinical signs displayed by infected birds include lethargy, convulsions, swimming in circles, and erratic flight. Birds may also exhibit mucous discharge from the mouth and nose, and soiling of the feathers around the vent, eyes, and bill. The disease often spreads to other waterfowl and shorebirds, although many additional avian species are susceptible. Avian scavengers such as eagles, hawks, and owls are known to become infected by consuming infected waterfowl, therefore mortalities in these species should also be investigated.

For additional information on avian cholera please visit:


To view, search, and download historic and ongoing wildlife morbidity and mortality event records nationwide visit the Wildlife Health Information Sharing Partnership event reporting system (WHISPers) online database: [http://www.nwhc.usgs.gov/whispers/](http://www.nwhc.usgs.gov/whispers/)

To request disease investigation services or report wildlife mortality: [http://www.nwhc.usgs.gov/services/](http://www.nwhc.usgs.gov/services/)