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Wildlife Health Bulletin 2010-07

To: Natural Resource/Conservation Managers
From: Dr. Jonathan Sleeman, Center Director, USGS National Wildlife Health Center
Title: Summary of 2010 Newcastle Disease virus outbreaks in wild birds in upper Midwest and the Northeast
Date: December 20, 2010

This bulletin summarizes 2010 Newcastle Disease die-offs, compares this year's outbreak with past outbreaks, and reports the first recorded finding of virulent Newcastle Disease virus (vNDV) in double-crested cormorants in Maryland, which expands the known geographic range of vNDV in wildlife. This is the first time vNDV has been identified in double-crested cormorants in Maryland, which is a particular concern because of the high density of domestic poultry in this area. In early September 2010, the USGS National Wildlife Health Center (NWHC) issued a bulletin about virulent Newcastle Disease virus (vNDV) that was found in double-crested cormorants in the North Dakota, Minnesota, Wisconsin, and Saskatchewan.

The first report of vNDV killing wild birds in North America was in 1990 when about 10,000 birds (mostly cormorants) died in Alberta, Saskatchewan, and Manitoba. During 1992, multiple mortality events occurred in double-crested cormorant colonies across the Great Lakes, upper Midwest, and Canada resulting in over 35,000 estimated deaths. The most recent vNDV large-scale outbreak in the U.S. occurred in 2008 when over 1,200 double-crested cormorants in Minnesota died. However, smaller outbreaks involving fewer birds have occurred in other states.

In late summer of 2010, nestling and juvenile double-crested cormorants dying from vNDV were reported in North Dakota, Minnesota, Wisconsin, Maryland, and Saskatchewan. Approximately 1,070 birds are estimated to have died in these outbreaks. Other avian species such as ring-billed gulls, mallards, egrets, terns, and American white pelicans, were also found dead in many of the same sites, but as in previous large-scale cormorant mortality events, the causes of death in these other species were attributed to diseases other than vNDV. In addition, co-occurring diseases, including salmonellosis, avian botulism, and aspergillosis were identified in the cormorant population at several locations.

Additional reports of increased submissions of young, emaciated double-crested cormorants with neurologic signs came from wildlife rehabilitation facilities in several Atlantic states this summer. Sick cormorants from Maine, Delaware, and Pennsylvania were reported positive for avian paramyxovirus-1 (APMV-1), a broader group of viruses that includes vNDV. Further testing is pending on some cases to determine if these actually are vNDV.

Newcastle Disease is caused by infection with an RNA virus within the APMV-1 group. This virus can be highly contagious, but there is great variation in the severity of disease caused by different strains of NDV. A classification system for severity of disease has been established to guide disease control efforts in poultry because of the economic damage of NDV. The virus that causes mortality in double-crested cormorants seems to be a unique strain, but has the potential to be pathogenic in poultry. The virus can be transmitted by direct contact, fecal-oral routes, and excretions from infected birds and remains infectious in contaminated water and soils for up to four weeks under suitable conditions. Although some cormorants may survive and clear the infection, neurologic signs may persist. Typical signs include twisting of the head and neck, paralysis of the legs and wings, lack of muscular coordination, and tremors.

Detection of the virus in double-crested cormorants in the Atlantic Flyway represents a significant eastward expansion for the disease in wildlife since emergence in 1990. Eastern population distribution of North American double-crested cormorants extends along the coast of northern Quebec to Florida. Biosecurity, surveillance, carcass removal (preferably by incineration) and also vaccination in the case of poultry are all important in limiting the spread of

NDV. NDV is not a major concern for human health, although it may cause a mild conjunctivitis (itching, tearing, and reddening of the eye) and influenza-like symptoms. If you see cormorants or other species displaying field signs described above, or if you would like more information, please contact a member of NWHC's Field Investigation Team listed below.

For more details on the history of Newcastle Disease mortality in wild birds of North America, please refer to [Wildlife Health Bulletin 2010-06](#).

http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/WHB_2010-06_Newcastle.pdf

To report or request assistance for wildlife mortality events or health issues, visit

http://www.nwhc.usgs.gov/mortality_events/reporting.jsp or contact Dr. Anne Ballmann, 608-270-2445, aballmann@usgs.gov (Eastern Region), Dr. LeAnn White, 608-270-2491, clwhite@usgs.gov (Central Region), Dr. Krysten Schuler, 608-270-2447, kschuler@usgs.gov (Western Region), Dr. Thierry Work, 808-792-9520, thierry_work@usgs.gov (Hawaii and Pacific Islands) or Jennifer Bradsby, 608-270-2443, jbradsby@usgs.gov (single mortality events nationwide).

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