



**National Wildlife Health Center
Wildlife Health Bulletin 2013-03**

Avian Influenza A(H7N9) in China

To: Natural Resource/Conservation Managers
From: Dr. Jonathan Sleeman, Center Director, USGS National Wildlife Health Center
Date: May 3, 2013

This bulletin provides information on the current situation regarding the avian influenza A(H7N9) outbreak in China and preparations at the USGS National Wildlife Health Center. At this time, the People's Republic of China has reported over 120 cases of avian influenza A(H7N9) infection in people, with an approximate case fatality rate of 20 percent. Presently, there is no evidence of sustained human-to-human transmission. The source of human infection is still under investigation, but the avian influenza A(H7N9) virus has been isolated from healthy ducks, pigeons, chickens, and quail in live bird markets in Shanghai and neighboring provinces. Concern exists within China and among other countries about the potential spread of virus.

Scientists from various USGS science centers are involved with avian influenza research that has included collaboration with China and other countries over the past 5 years. This research has focused on another influenza virus in wild birds, specifically the highly pathogenic avian influenza (HPAI) H5N1 virus. To view a list of selected [USGS avian influenza publications](#), please click [here](#).

The avian influenza A(H7N9) virus is a reassortant virus; that is, a combination of at least three different wild bird and domestic poultry avian influenza viruses. The hemagglutinin (HA) gene is most similar to recent H7 viruses of ducks and waterfowl, the neuraminidase (NA) gene is most similar to a H7N9 virus isolated from wild bird feces collected in South Korea in 2011, and the six remaining gene segments are most similar to a H9N2 virus isolated from a brambling (a finch) sampled in Beijing in 2012. The brambling virus, in turn, is highly similar to other H9N2 viruses that are present in Chinese poultry.

Unlike the better known HPAI H5N1 avian influenza virus that causes high mortality in poultry and many wild bird species, the avian influenza A(H7N9) virus has not caused illness in the birds from which it has been isolated; this may present a challenge for detecting the potential movement of this virus by wild birds. The behavior of this virus in bird species that migrate across the Pacific and along the western U.S., particularly Alaska, is largely unknown. However, there are significant geographic barriers to the introduction of the avian influenza A(H7N9) virus from Asia to North America by way of migratory birds; therefore, the risk of this occurring is presumed to be low.

NWHC scientists are working with collaborators to adapt tests to detect the new avian influenza A(H7N9) virus. NWHC researchers will also assess the effect of H7N9 infection in select North American wildlife species to determine species susceptibility, and acquire information on pathology and virus transmission, as well as their potential role in maintenance and spread of this virus, should it be introduced to North America. This information would be useful in developing an effective wild bird avian influenza surveillance plan, should that become necessary.

As stated in a 2012 bulletin [NWHC Plan for Avian Influenza Surveillance of Wild Birds](#), NWHC is continuing surveillance for HPAI H5N1 by testing sick and dead migratory birds, particularly ducks, geese and swans. The systematic investigation of morbidity and mortality events in wild birds offers a cost-effective method for detection of important and emerging wild bird diseases. However, this surveillance strategy is unlikely to detect this new H7N9 virus as it does not appear to cause mortality in birds. While enhanced surveillance for avian influenza A(H7N9) in wild birds does not appear to be warranted at this time, the NWHC is working with the Interagency Avian Influenza Steering Committee to assess the situation and define triggers for when wild bird surveillance may be warranted.

Prior Wildlife Health Bulletins may be helpful in understanding some basics about avian influenza, such as the concepts of virus genetic drift and shift, and plans for wild bird surveillance. See WHB 04-01 [Avian Influenza in Wild Birds](#) and WHB 05-02 [Update on Avian Influenza in Wildlife](#).

To report or request assistance for wildlife mortality events or health issues, please visit the NWHC Web site at http://www.nwhc.usgs.gov/mortality_events/reporting.jsp or contact Dr. Anne Ballmann, 608-270-2445, aballmann@usgs.gov; Dr. LeAnn White, 608-270-2491, clwhite@usgs.gov; Barb Bodenstein, 608-270-2447, bbodenstein@usgs.gov; Dr. Thierry Work, 808-792-9520, thierry_work@usgs.gov (Hawaii and Pacific Islands); or Jennifer Buckner, 608-270-2443, jbuckner@usgs.gov (single animal mortalities, nationwide).

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