

## AI Risk Factors from Migrating Birds

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Thank you for the opportunity to present information on avian influenza in wild birds and our plans for monitoring the disease in the US. In today's talk, I'll share with you information about:

1. avian influenza in general,
2. why a surveillance plan was developed to look for avian influenza in wild birds, and
3. what surveillance efforts are planned for 2006.

During the talk, I'll answer the following questions:

4. What is Avian Influenza (AI)?
5. Why should we worry about AI in wild birds?
6. What is the Interagency Strategic Plan?
7. What are the Plan's surveillance goals?
8. Where and how will the surveillance occur?
9. How can you help?
10. What should people know about AI?

Avian influenza or "bird flu" is a respiratory disease of birds. Avian influenza is found naturally in bird populations and birds often show little or no sign of illness. Avian influenza viruses are transmitted among birds through respiratory secretions and fecal droppings. It is possible for birds to get the virus by eating or drinking contaminated food or water.

There are 144 different subtypes of avian influenza. The majority of these are low pathogenic forms. Sometimes high pathogenic forms of the disease, such as high path avian influenza (HPAI) H5N1, can arise and cause high mortality in birds (usually chickens and turkeys). The HPAI H5N1 strain is of high concern because of the potential impacts it can have on U.S. agriculture, wildlife, and human health.

There are several ways in which the HPAI H5N1 virus could potentially enter the United States. The U.S. Department of Agriculture is working on several fronts to prevent the illegal importation or smuggling of poultry or poultry products. Officials are also working to prevent the illegal importation of wild birds for the pet trade. Currently, trade restrictions are in place that prevent the importation of poultry and poultry products from countries known to contain HPAI H5N1 in their domestic flocks.

Wild migratory birds are another potential route that the HPAI H5N1 virus could potentially enter the country. Though scientists are still unsure as to how or if wild birds are effective carriers of the virus, the government is taking every precaution to quickly detect the virus if it does enter the country through wild birds. The remainder of this presentation will focus on those efforts and the Interagency Strategic Plan for the early detection of HPAI in wild migratory birds.

Wild birds, by their very nature, are not subject to disease containment controls as are domestic birds and people. Therefore, the ability to effectively control the spread of a highly infectious foreign animal disease, such as HPAI H5N1, is dependent upon the capacity to rapidly detect the pathogen if it enters the United States.

As part of the President's National Strategy for Pandemic Influenza, which includes both avian influenza and human pandemic preparedness, USDA and its partners developed an interagency strategic plan for the early detection of HPAI H5N1 in wild migratory birds. The plan outlines a multi-agency, national surveillance effort and includes standard procedures and strategies for data sampling, diagnostics, and management. It will serve as a guide to all Federal, State, university and non-governmental organizations involved in avian influenza surveillance.

In 2006, field specialists and wildlife disease biologists from several federal and state agencies, universities and non-governmental organizations plan to collect between 75,000 and 100,000 samples from live and dead wild birds. They will also collect 50,000 fecal samples from high risk waterfowl habitats across the United States. The samples will be collected using standard protocols and techniques listed in the Interagency Strategic Plan. Sampling will occur in all 50 states with emphasis first in Alaska and the Pacific Flyway. Because wild migratory birds from Asia and North American intermingle and breed in this region, it is possible that a HPAI H5N1 detection could occur here.

The Interagency Strategic Plan targets bird species in North America that have the highest risk of being exposed to or infected with HPAI H5N1 because of their migratory movement patterns. Currently, these include birds that migrate directly between Asia and North America, birds that may be in contact with species from areas in Asia with reported outbreaks, or birds that are known to be avian influenza reservoirs. Key species of interest are from three groups of waterbirds —ducks, geese, and shorebirds. The plan will serve as an early warning system. By sampling birds and their habitats, scientists can quickly identify HPAI contaminated sites and help to minimize poultry and human exposure to infected birds or areas.

If the HPAI H5N1 virus is introduced into wild bird populations in the United States, USDA, in conjunction with the Department of the Interior and State departments of natural resources and agriculture, will act to minimize the risk of transmission to poultry. The focus will be on keeping people and domestic animals away from infected wild bird populations by increasing biosecurity measures at farms and educating people. The Interagency Strategic Plan describes five sampling methods or strategies. They include 1) investigating large mortality events in wild birds, 2) surveying live and 3) hunter-killed birds. 4) using sentinel animals, such as backyard flocks, and 5) sampling the environment by collecting fecal material.

The plan involves the effort of hundreds of wildlife biologists, disease specialists and field specialists across the country from various federal, state and non-governmental organizations.

Every year scientists from the Department of the Interior and state Fish and Game agencies routinely investigate when groups of wild birds become sick and die. This happens quite frequently. There are many instances every year when groups of birds become sick or die from a variety of different causes. The systematic investigation of sick and dead wild birds offers the highest and earliest probability of detecting the HPAI H5N1 virus. This strategy expands upon the existing programs used to investigate disease outbreaks.

A second strategy involves capturing and swabbing live wild birds. The testing of live, apparently healthy wild birds will target those species that represent the highest risk of being exposed to or infected with HPAI H5N1. Focus is on the species that migrate to Alaska from Asia. Birds are captured using mist nets, cannon-nets, net guns or other methods. No birds are intentionally killed in this process. The strategy capitalizes on current research activities by USDA, the Interior and other partners.

Live waterfowl and shorebirds will be captured and released following the collection of tracheal and/or cloacal swab samples. To supplement the samples collected from live wild birds, we will also target sampling of hunter-killed birds at check stations throughout the country. Hunter-killed birds provide a unique opportunity to sample large numbers of targeted bird species without having to capture birds.

Monitoring and testing of sentinel animals includes poultry flocks reared in backyards. These domesticated fowl, including chickens, turkeys, geese, ducks and game birds, are maintained for hobby or noncommercial egg and meat production. Backyard poultry are typically allowed to forage freely or may be confined in partially enclosed fenced areas. Traditionally, backyard flocks adjacent to commercial poultry facilities have been used to monitor for diseases.

Also waterfowl can be placed in wetland environments where they can commingle with wild birds. The ducks are then monitored and tested for avian influenza viruses. The final sampling strategy outlined in the Interagency Strategic Plan involves the collection of environmental samples from waterfowl habitats. USDA and its cooperators will collect approximately 50,000 fecal samples this year. Fecal samples can provide evidence of avian influenza circulating in wild bird habitats, specific subtypes, and the levels of pathogenicity.

Environmental sampling is cost-effective and relatively simple. It requires less time and equipment than live bird sampling. Currently fecal samples are being collected in areas of large waterfowl concentrations. Water samples will also be collected if on-going research proves these samples to be meaningful.

Because wild migratory birds know no boundaries and are found throughout the United States, sampling will occur in all 50 states, as well as other U.S. Territories and former Trust Territories of the Pacific. Of the estimated 75,000-100,000 bird samples to be collected this year, USDA and its state partners will collect approximately 50,000-75,000. USDA also will be collecting 50,000 fecal samples.

USDA has also been instrumental in helping with the development of flyway- and state-specific surveillance plans. Our specialists are on-call to assist with the investigation of any large mortality events in wild birds.

USDA received \$17M for wild bird surveillance and the implementation of the Interagency Strategic Plan. A portion of that money (\$3.8M) is being given to state fish and game agencies in the form of cooperative agreements. Each state is responsible for collecting a specific number of bird samples. With the help of the Association of Fish and Wildlife Agencies and each Flyway Council, states were rated as either a level 1, 2 or 3. These ratings determined the amount of money allocated to each state for wild bird sampling and the number of bird samples to be collected. For instance, most level 1 states received \$100,000 and were asked to collect 1,000 samples. USDA field specialists are collecting similar amounts in each state.

Testing of all collected samples will be carried out by a number of federal, state and university veterinary laboratories that are licensed to test for avian influenza. Testing will follow a strict protocol to ensure that timely, accurate, and consistent information is disseminated to appropriate officials and the public.

Under federal laboratory testing programs, initial tests may indicate the presence of a strain of avian influenza of concern. These initial tests are considered presumptive, not definitive. Identical samples from the presumptive tests are sent to the USDA National Veterinary Services Laboratories in Ames, Iowa, for additional testing and official confirmation.

In addition to providing an early warning system for disease occurrence in U.S. wild birds and domestic poultry, the surveillance data will be used to create a national database that incorporates and tracks all avian influenza data collected from wild birds in the United States. The database will be available to all agencies, organizations, and policymakers involved in avian influenza surveillance and response. The data collected in this system will give scientists a better understanding of the movement of avian influenzas among wild and domestic animals and improve risk analyses and surveillance regarding future avian influenza outbreaks.

The public can access the database at the Department of the Interior U.S. Geological Survey's web site at: <http://wildlifedisease.nbi.gov/ai>. We must avoid handling information in a way that would cause undue concern, while striving for timely, transparent results getting into the hands of responsible people, officials and the public. It is important to emphasize what we do know and to help people understand that knowledge about this disease continues to evolve. To stay informed of the latest information, visit the official government web site for avian influenza at [www.avianflu.gov](http://www.avianflu.gov).