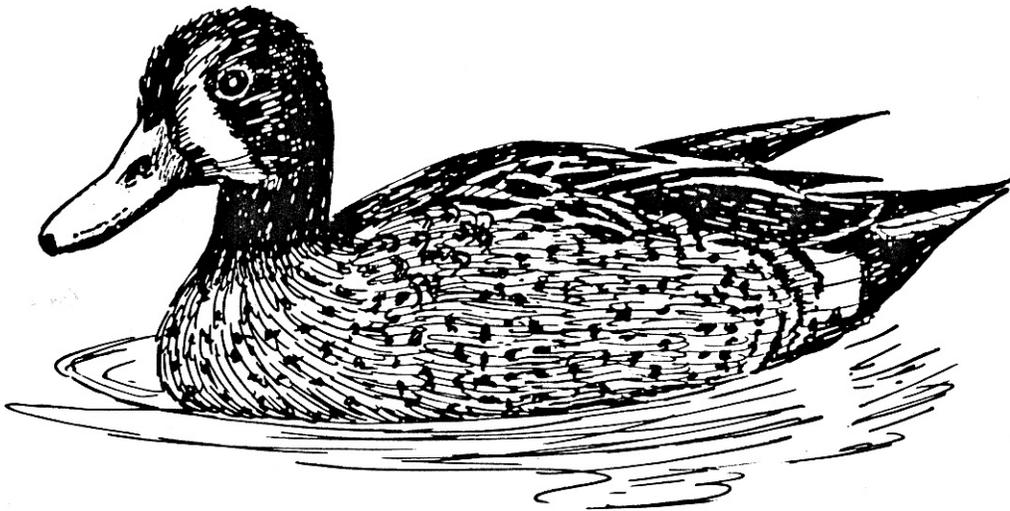


Early Detection and Response Plan for Occurrence of  
Highly Pathogenic Avian  
Influenza in Wild Birds

U.S. Department of the Interior  
Fish and Wildlife Service



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## **Chapter 1. Introduction**

### **Executive Summary**

A highly pathogenic form of H5N1 avian influenza (also known as HPAI H5N1 or “bird flu”) has persisted and spread in Asia, Europe, and Africa since its first appearance in 1996. Migratory birds, particularly waterbirds, are one potential route of dispersal of the virus to North America and the United States. This response plan was developed to assist U.S. Fish and Wildlife Service (Service) Regions in working with their field stations and partners to develop regional or site-specific plans for avian influenza surveillance, to ensure consistency in our collaborative work with state and federal partners, and to assist all Service Programs and Regions with response planning for a potential outbreak of highly pathogenic avian influenza in wild birds. These guidelines focus on two planning areas: (1) surveillance and monitoring, and (2) disease contingency planning (i.e., preparation for what should be done if disease is found on-site) and also provide guidance on procedures needed for these planning efforts. A critical element of this planning is that response to avian influenza at a Service field station must be an integral part of landscape-wide avian influenza response involving multiple agencies and levels of government. Regional and site-specific variation in capabilities, risks and adjacent land management require that Regions be afforded considerable flexibility in how to use and implement these guidelines.

### **Background**

“Avian influenza” (AI) refers to a variety of influenza type A viruses found in bird species. AI viruses are known to circulate in wild free-ranging bird species worldwide and more than 100 species have been identified with AI viruses. Most of these cause little or no disease, especially in wild bird hosts. These so-called “low pathogenic” avian influenza (LPAI) viruses circulate among migratory bird populations and cross between migratory birds and unconfined domestic poultry. On occasion LPAI viruses, once introduced into poultry (including domestic ducks), mutate or exchange genetic material with other avian influenza viruses to create novel viruses with different antigenic structures and biological characteristics. Influenza A viruses have a high propensity to undergo both mutation and genetic exchange. Some of these new viruses cause extensive disease and mortality in poultry and are referred to as “highly pathogenic” avian influenza (HPAI) viruses. Until recently, HPAI viruses were not known to cause disease in wild birds, with the exception of a single episode in 1961 involving common terns in South Africa.

In addition to classification by pathogenicity, influenza A viruses in general are classified by the types of two proteins, hemagglutinin and neuraminidase (H and N), that are located on the surface of the virus and are essential for infectivity. Sixteen H and nine N subtypes are currently recognized and many of the potential 144 (16 x 9) combinations have been found in wild birds. HPAI viruses are typically associated with H5 and H7 virus subtypes, though not all H5 or H7

viruses are highly pathogenic. The specific type of HPAI currently circulating in Asia, Europe and Africa is an H5N1. (Again, not all H5N1 AI viruses are highly pathogenic. A low pathogenic H5N1 AI virus is known to occur in North American waterbirds.)

In North America, surveillance over many years has not found an HPAI virus present in wild bird populations.

The HPAI H5N1 virus has been found in wild birds across Asia. In most cases, these birds were found dead from the virus, including large scale mortalities such as occurred at Qinghai Lake Nature Reserve in China where over 6000 wild birds died in April-May 2005. At least 40 non-domestic bird species have been found susceptible to HPAI H5N1 from both free-living and captive populations, and from experimental testing. (See [http://www.nwhc.usgs.gov/disease\\_information/avian\\_influenza/affected\\_species\\_chart.jsp](http://www.nwhc.usgs.gov/disease_information/avian_influenza/affected_species_chart.jsp) for a list of bird species known to have been infected with HPAI H5N1.) For AI viruses in general, most isolates in free-ranging birds have been obtained from Anseriformes (ducks, geese and swans) and Charadriiformes (shorebirds, gulls, terns and a few other groups).

The role of migratory birds in moving and transmitting the HPAI H5N1 virus is not known; however, the mixing of Asian and North American bird populations on northern latitude breeding grounds has generated concern about that possible mechanism of introduction of the virus into North America. The prevalence of AI viruses in general varies considerably by host, location and season. Peak prevalence in waterfowl (primarily ducks) generally occurs in summer and early fall, although whether this is true of the currently circulating HPAI H5N1 virus is unknown. Low pathogenic avian influenza virus prevalence estimates from published waterfowl surveys indicate that virus can first be detected in juvenile birds in summer breeding areas in July or August (prevalence ranged from 11% to 61% in published surveys). Also, cooler environmental temperatures in autumn enables virus secreted in feces to survive for a month or more in water. Avian influenza virus prevalence generally decreases in ducks during late fall and winter and may reach a level of 1% or less in over-wintering areas. However, low pathogenic avian influenza virus was isolated from 11% of teals and from 15% of northern pintails in one recent survey of wintering ducks in Texas, suggesting that the avian influenza season may not necessarily be a fall season event.

The role of shorebirds in avian influenza ecology is less well known than for waterfowl. Influenza virus prevalence seems to be considerably lower than in dabbling ducks, although studies are more limited than those on ducks, and the seasonal prevalence of influenza viruses in shorebirds and other waders seems to be reversed from the general pattern in waterfowl.

Migratory birds are only one possible pathway for introducing HPAI H5N1 into North America. Other potential routes include international travel and both legal and illegal commerce in poultry, poultry products, wildlife, and wildlife products.

Infection with HPAI H5N1 poses a very serious threat to domestic poultry. Hundreds of millions of birds have died or been euthanized as a result of HPAI H5N1 outbreaks in poultry in Europe, Asia, and Africa, with very significant economic and societal costs. Effective early detection surveillance of wild birds is an important contribution to poultry industry biosecurity in

the U.S..

The HPAI H5N1 virus does not infect humans easily, and if a person is infected, it is very difficult for the virus to spread to another person. However, when serious infections with this virus do occur, more than half the humans known to be infected with this HPAI H5N1 virus have died. The majority of people infected with the virus have had direct contact with infected poultry. There is concern that the HPAI H5N1 virus could undergo genetic changes that would result in its ability to be easily transmitted between humans. Since the general population has not been exposed to this HPAI H5N1 influenza virus strain before, a mutation leading to sustained human-to-human transmission could cause an influenza pandemic. To date, however, sustained human-to-human transmission has not been observed, and illness caused by this HPAI H5N1 virus is very rare among people. (PandemicFlu.gov website, <http://www.birdflu.gov/faq/avianinfluenza/1235.html>, 4/10/07)

## **Scope of this Guidance**

This document provides national guidance to Fish and Wildlife Service personnel on three general areas with regard to HPAI – surveillance to detect the presence of highly pathogenic avian influenza virus in wild birds, preparation for an occurrence of HPAI in wild birds in North America, and response actions in the event of an HPAI outbreak in wild birds.

This guidance is specific to activities associated with an occurrence of HPAI in wild birds. It does not address the circumstance of a novel virus being formed that is capable of sustained transmission in humans, resulting in a human influenza pandemic. The Service is separately developing a Pandemic Influenza Plan, which will address the potential situation where human-to-human transmission of a highly pathogenic human influenza virus occurs.

## **How to Use this Document**

This plan is organized into five chapters, including this Introduction, for ease of use in locating information applicable to an individual circumstance.

Chapter 2 provides information and guidance concerning early detection surveillance of wild birds. Those engaged in early detection surveillance will find information here on strategies, protocols, and procedures for this interagency effort.

Chapter 3 provides guidance on preparing all Service offices and employees for the potential occurrence of HPAI H5N1 in wild migratory birds, or in non-migratory wild birds on Service lands or when called upon by the State. An occurrence of this HPAI virus in wild birds will require rapid and coordinated action. This chapter describes steps to take now to prepare for the coordination and internal and external communication that will be needed in the event of a future occurrence of HPAI in wild birds.

Chapter 4 provides information and guidance on how the Service will need to respond in the event of an occurrence in wild birds. It is subdivided into two scenarios, one in which an

occurrence does not directly involve FWS lands, and a second in which HPAI is detected on lands owned or managed by FWS.

Chapter 5 describes environmental compliance considerations in HPAI response. Appendices provide supplemental information and describe program-specific roles and responsibilities.

Updated information to support this Plan and additional planning efforts will be posted on the Fish and Wildlife Service intranet site at: <https://intranet.fws.gov/region9/mbsp/avianflu/>.

## Chapter 2. Early Detection Surveillance

### Description

The three general types of surveillance are: *detection*, *assessment* and *monitoring* of a disease entity. *Detection* surveillance is designed to find a disease agent, *assessment* surveillance seeks to define the prevalence and distribution of the disease agent and its hosts, and *monitoring* surveillance watches the course and progression of the disease and its response to management.

Each type of surveillance has unique goals and requires a sampling design to meet those specific goals. Sampling design refers to the manner in which the target populations are sampled, how sampling units are selected, and how collected animals are selected from the sampling units for testing. As surveillance efforts move from detection to assessment and eventually to monitoring, the complexity of surveillance strategy, methodology, and analyses generally increases. Sampling designs need to consider how animals and species will be selected for sampling and how sample collection should be distributed across the landscape. Because HPAI H5N1 is not known in North America, Service surveillance will first be focused on early detection.

For *detection*, the primary goal is to find any occurrence of disease agent without concern for making inferences about its prevalence or distribution. Detection surveillance relies heavily on collecting samples from higher risk situations or populations to enhance the odds of detection. Such biased sampling increases the ability to detect an agent but lessens the inferences that can be made regarding distribution, prevalence and hosts affected. Surveillance strategies for detection often utilize “targeted” situations such as birds exhibiting clinical signs consistent with AI, or species known to have a higher frequency of or susceptibility to AI. The utility of targeted surveillance methods depends on the ability to accurately identify risk factors.

An objective of any disease surveillance plan is to ensure disease is detected early, rapidly, and accurately. Heightened awareness of potential disease outbreaks can be instrumental in early detection. Simple routine activities such as periodic observation of wildlife resources or carcass surveys on a National Wildlife Refuge can alert managers early in a disease event. Protocols for sample collection, storage, transport and processing need to be comprehensive, unambiguous, and part of a field station’s disease contingency plan.

An interagency group of federal and state resource and science agencies worked together to develop *An Early Detection System for Asian H5N1 Highly Pathogenic Avian Influenza in Wild Migratory Birds: U.S. Interagency Strategic Plan* ([http://www.doi.gov/issues/birdflu\\_strategicplan.pdf](http://www.doi.gov/issues/birdflu_strategicplan.pdf)). This national strategic plan has been stepped down by each of the 4 Flyway Councils (Atlantic, Mississippi, Central, and Pacific) to establish priority species, populations, geographic areas, and methods to conduct effective surveillance. In many cases, these flyway plans have been, or will be, further stepped down at the state level so that regional or localized surveillance needs and opportunities can be better addressed.

The Service should participate in any step-down planning by Flyway Councils and states to incorporate Service priorities, lands, and field capabilities into these regional and state-level surveillance plans. In the Pacific Islands, an area without a Flyway Council, the Service should work with partners to develop a surveillance plan that identifies the high priority species, habitats, and cooperative efforts necessary to implement an effective surveillance effort. These plans should then guide the surveillance efforts of the Service and ensure that those efforts are coordinated with those of other federal, state, and non-governmental cooperators. There will likely be multiple parties involved in wild bird surveillance in most states (e.g. FWS, state fish and wildlife agency, APHIS Wildlife Services, academic researchers). It is important that the Service view wild bird surveillance for HPAI as an interagency effort and ensure that surveillance by Service personnel or on Service lands is guided by well coordinated flyway and state level plans so that our efforts contribute to an integrated national surveillance network.

The National Wildlife Refuge System Improvement Act of 1997 requires activities on refuges be compatible with the purpose(s) of the individual refuge and the mission of the Refuge System. NWRS field stations are encouraged to support coordinated surveillance efforts with other state and federal agencies, provided that surveillance activities are compatible with the purpose of the refuge and otherwise appropriate at an individual refuge. NWRS Field Project Leaders should base decisions on whether to allow early detection surveillance on the following considerations:

- Compatibility of the proposed early detection surveillance activities.
- Whether or not the proposed surveillance is coordinated with the appropriate Flyway Council plan or state-level step-down plan. Preference should be given to surveillance activities that are part of a coordinated effort. In addition, all proposed sampling strategies must be consistent with the appropriate Flyway Council's guidance for species, numbers, and sampling protocols. (Proposed HPAI research activities that are outside the Flyway Councils' coordinated surveillance efforts may also be approved at the discretion of the Project Leader if such activities are found to be compatible and can otherwise be accommodated.)
- Any other considerations that may affect potential surveillance activities on the refuge such as access issues, impacts to federally-listed threatened or endangered species or candidate species, etc.

NWRS Field Project Leaders may deny or restrict surveillance activities or request changes in proposed site-specific surveillance plans if compatibility or other management issues are identified and cannot be resolved.

## **Sampling Strategies**

The *U.S. Interagency Strategic Plan* identifies five possible strategies for conducting early detection surveillance in wild migratory birds. Specific protocols for sampling are outlined below under "Sampling Protocols". Surveillance should be tailored to the specific situation at the field station dependent upon site specific characteristics, concurrent surveillance by other agencies, opportunities presented by management or other research, and how surveillance at a specific site might contribute to overall goals for national and regional migratory bird surveillance.

Strategies for surveillance include:

- investigation of wild bird mortality,
- live bird surveillance,
- hunter-killed bird surveillance,
- environmental sampling, and
- sentinel flocks.

While all five strategies have utility for surveillance for HPAI H5N1, Service surveillance efforts will focus primarily upon the first three – investigation of mortality events, live bird surveillance, and hunter-killed bird surveillance.

#### 1) Investigation of wild bird mortality events:

This is a routine activity conducted on most Service refuges, although on many refuges and hatcheries mortality monitoring is not structured as a systematic surveillance effort. The current strain of HPAI H5N1 circulating in Asia has been shown to cause morbidity and mortality in a wide variety of wild bird species. The systematic investigation of morbidity and mortality events in wild birds, to determine if HPAI H5N1 is playing a role in causing illness and death, offers the highest and earliest probability of detecting the virus if it is introduced by migratory birds into the United States. In addition, studies designed to prospectively survey specific priority species (those known to be involved in wild bird HPAI mortality in Europe, Asia, or Africa) for mortality can enhance detection. In these studies, the goal is to actively survey the priority species, not to react to passively detected mortality of any avian species. The Service's National Wildlife Refuge System contains critical migratory bird habitats and locations for detecting wild bird mortality associated with HPAI. Key elements in surveillance for migratory bird mortality include early detection, rapid communication and submission of samples to a qualified diagnostic lab, assessment/description of the field event, rapid/accurate diagnosis, relay of diagnostic findings to the field, and taking actions outlined in a prepared response plan should the result be positive for HPAI.

#### 2) Live bird surveillance:

This method of surveillance targets bird species that represent the highest risk of being exposed to, or infected with, the HPAI H5N1 virus because of their migratory movement patterns, or bird species that are most likely to be potential carriers of the HPAI H5N1 virus due to detections in live wild birds in countries where the virus is endemic, experimental studies, or historically high LPAI prevalence. Each of the four U.S. Flyway Councils has developed a list of bird species that provide the best opportunity for meeting the sampling criteria and being carriers of HPAI H5N1 viruses (**see individual Flyway Plans on <https://intranet.fws.gov/region9/mbsp/avianflu/>**). For detection level surveillance, it may not be advisable for surveillance to be conducted on every refuge or hatchery or in every geographic area in the country. The *U.S. Interagency Strategic Plan* has been stepped down and regionalized by each of the four U.S. Flyway Councils and, in many cases, will be further stepped down into state-specific surveillance plans that will identify specific sampling objectives, locations and opportunities, and responsible parties. Whenever possible, the Service

should participate in these step-down planning efforts, even in areas where funds are not yet available to implement surveillance efforts. If this virus arrives in North America, our geographic priorities for surveillance may change, and it will be valuable to have Service lands, collection opportunities, and capabilities acknowledged in the initial plans. In addition, those agencies that are carrying out surveillance may be able to take advantage of ongoing Service bird collection efforts conducted for other purposes (e.g., bird banding).

### 3) Hunter-killed bird surveillance:

Hunter-killed birds, representing normal, apparently healthy live birds prior to being shot, are targeted the same as live birds for surveillance purposes. Collection of samples from these species can occur at hunter check stations or through field contacts with hunters during sport hunting seasons or during the subsistence harvest in Alaska.

### 4) Environmental sampling:

Avian influenza viruses are released by waterfowl through the intestinal tract, and viable virus can be detected in both feces and the water in which the birds swim, defecate and feed. Advantages include no need for individual bird collection, low cost, ability to quickly collect large numbers of samples, and little training required. Bulk sampling minimizes collection effort and potentially increases the probability of detection.

Surveillance systems based on water samples are not currently available but may come on line in the near future. Fecal sampling is an established technique. Either approach could provide a spatial and habitat risk assessment for site contamination with HPAI. The main considerations are where and when to get the samples, ensuring proper storage and transport, and the capacities and capabilities of the laboratories doing the analyses. FWS refuge and hatchery lands and waters may provide productive locations for environmental sampling.

### 5) Sentinel flock surveillance:

Sentinel surveillance methods involve the placement of virus-free, but HPAI susceptible, birds into the environment where surveillance is desired. This method may utilize domestic poultry confined on or near Refuges, or placement of birds in wetland environments where they are subsequently exposed to disease agents as they commingle with wild waterbirds and/or share common water sources. The placement of sentinel flocks of domestic ducks has been used to recover AI and detect influenza epizootics in pelagic bird colonies, and yielded much higher isolation rates compared to isolations from wild birds. Major disadvantages of this method are pen, husbandry and rearing costs, and loss of sentinel birds to predation.

## **Sampling Protocols**

### *Coordinate with partners and the diagnostic lab*

Before any surveillance project is initiated or samples collected or submitted, coordination should occur with state and regional partners. Most states have instituted AI surveillance plans as mentioned above.

Next, arrangements should be made with the diagnostic lab to confirm protocols for sample collection and submittal. For samples collected by the Fish and Wildlife Service, all samples should be sent to the USGS National Wildlife Health Center (NWHC) in Madison, Wisconsin for analysis. Where Service funds are being used by state agencies or others to collect samples, the lab analysis should be conducted by the NWHC so as to minimize analytical costs to the Service and facilitate reporting of results.

For the rare exception in which the Service or a Service cooperator has no alternative but to use a diagnostic lab other than the NWHC, the Service must confirm that it is a National Animal Health Laboratory Network (NAHLN) lab certified to conduct HPAI H5N1 virus diagnostics, arrange for payment of analytical costs and provision of sample materials, establish procedures for logging and tracking as FWS samples, and ensure coordination between the NAHLN lab and the NWHC regarding communication of test results and appropriate disposition of sample media following screening. A list of NAHLN labs certified as of February 2007 to conduct HPAI H5N1 diagnostics can be found in **Appendix 1**.

### *Sampling apparently healthy live or hunter-killed birds*

Because most avian influenza viruses replicate in the intestinal tract of birds, cloacal swabs have been most commonly used for low pathogenic AI sample collection. However, some recent work in Europe and the U.S. indicates that HPAI H5N1 virus infects many tissues and organs of wild birds, with higher concentrations of virus obtained from oropharyngeal swabs. Accordingly, while cloacal swabbing was the preferred method of sample collection from live or hunter killed birds in 2006, in 2007 the standard field method will be to swab both the cloaca and the oropharyngeal cavity of each bird, with the two swabs placed in a single vial of transport media (obtained from the diagnostic laboratory). Vials are kept cold and sent as soon as possible to the diagnostic lab.

The established protocol for collection and shipping of oropharyngeal and cloacal samples from apparently healthy live or hunter-killed birds is described in **Appendix 2**. Sample collection protocols may be revised in future years based on new information.

### *Environmental sampling*

Because most avian influenza viruses are transmitted through the oral/fecal route, environmental sampling of feces can be a simple and effective surveillance method if individual birds cannot otherwise be collected for sampling. While surveillance techniques that allow samples to be conclusively matched with individuals of known species and age class are preferred, there may

be circumstances where fecal sampling is the only viable means of collecting samples from birds using a site. In those circumstances, contact the USGS National Wildlife Health Center for guidance on procedures for the collection and shipping of fresh fecal samples.

*Investigation and sampling of sick or dead birds*

To date, most HPAI H5N1 detections in wild birds have come from sampling of sick or dead birds found in the wild. This surveillance technique remains among the most important in our arsenal. It does, however, require the specialized expertise and capability of a wildlife disease diagnostic laboratory to conduct cause-of-death determinations in addition to testing for HPAI H5N1. The USGS National Wildlife Health Center in Madison, Wisconsin, is the preferred wildlife disease diagnostic laboratory for FWS. The Service also has a wildlife veterinarian on staff with Region 6, Dr. Thomas Roffe ([Thomas\\_Roffe@fws.gov](mailto:Thomas_Roffe@fws.gov); ph. 406/994-5789), who can be consulted for advice regarding wildlife diseases and mortality events. Wildlife veterinarians with state wildlife agencies may also be able to lead or assist with disease investigations, diagnostic efforts and disease control efforts on state and private lands. In many states, toll-free numbers are being operated for reporting bird mortality events discovered by the public.

Wild birds become sick or die from a variety of causes, so this surveillance method requires distinguishing normal background events from suspect or unusual cases warranting investigation. To date, no consistent national criteria have been agreed upon to make that distinction, although individual state surveillance plans may have such criteria. When determining whether a reported or observed wild bird mortality event warrants investigation and sampling, Service personnel should consult with the wildlife disease specialists in the Wildlife Disease Investigations Branch of the National Wildlife Health Center or wildlife veterinarians employed by their state. Contact information for the NWHC is listed below:

<b>Area of Responsibility</b>	<b>Specialist</b>	<b>Phone</b>	<b>Email</b>
MN, IA,MO,AR, LA and points east	Mark Jankowski	608/270-2443	<a href="mailto:mjankowski@usgs.gov">mjankowski@usgs.gov</a>
ND, SD, NE, KS, OK, TX and points west	Krysten Schuler	608/270-2447	<a href="mailto:kschuler@usgs.gov">kschuler@usgs.gov</a>
Branch Chief	Scott Wright	608/270-2460	<a href="mailto:swright@usgs.gov">swright@usgs.gov</a>

Mortality investigation may be initiated in response to reported mortality, or alternatively be a consequence of a priori surveys of priority species known to be clinically affected by HPAI. In addition to priority species for HPAI mortality, key epidemiological characteristics of HPAI in wild birds include low level mortality and clinical signs consistent with central nervous system involvement.

Intact whole carcasses from wild bird mortality events are the preferred diagnostic specimen so that a variety of examinations and diagnostic tests can be conducted to determine the cause of death. Different diseases and agents require different sample types. Obtaining a complete and accurate specimen history in the field at the time of carcass collection is extremely important to

diagnosis. Consult Chapter 1, "Recording and Submitting Specimen History Data", Field Manual of Wildlife Diseases, National Wildlife Health Center ([http://www.nwhc.usgs.gov/publications/field\\_manual/chapter\\_1.pdf](http://www.nwhc.usgs.gov/publications/field_manual/chapter_1.pdf)) for guidance on collecting specimen history. The standardized field investigations form recommended by the National Wildlife Health Center is provided in **Appendix 3**.

General guidelines for collecting and shipping carcasses to wildlife disease diagnostic labs are provided in **Appendix 3**. Always contact one of the wildlife disease specialists at the NWHC before submitting carcasses for disease diagnosis.

## **Sample Analysis**

### *Samples collected from live or hunter-killed birds*

Once surveillance samples are submitted to the NWHC or another approved NAHLN lab, they will be screened for the presence of Type A influenza virus and, if present, for H5 or H7 subtypes. This screening will be done by real-time reverse transcription-polymerase chain reaction (rRT-PCR) testing, a rapid test to detect specific viral RNA in swab or tissue specimens.

Samples that screen positive for the presence of an H5 or H7 subtype of avian influenza virus are sent on to the national reference laboratory -- the USDA National Veterinary Services Laboratories (NVSL) in Ames, Iowa -- for validation of the screening results and, if validated, definitive characterization of the viral subtype and pathogenicity.

Upon receipt of samples from the screening labs, NVSL will re-run the rRT-PCR tests for H5 or H7 subtypes. NVSL will also run an additional rRT-PCR test for the presence of virus of N1 subtype. If screening tests are positive for H5 and N1 subtypes, and if adequate material is available, NVSL may also be able to conduct genetic sequencing to determine if the sample virus is consistent with known H5N1 viruses and to provide an initial indication of pathogenicity.

For samples that screen positive, NVSL will proceed with definitive diagnosis using defined international diagnostic protocols. The virus will be inoculated into embryonating chicken eggs and, 2-12 days post-inoculation, the egg fluids will be used in type-specific tests to characterize any avian influenza virus present. Pathogenicity will also be determined by the presence of multiple basic amino acids at the cleavage site of the hemagglutinin protein or by an established pathogenicity test that involves inoculation of 4 to 6 week old chickens and monitoring to determine health outcomes.

### *Mortality investigation*

Most mortality investigations will involve whole carcasses being shipped to a wildlife disease diagnostic lab, such as the National Wildlife Health Center, for cause-of-death determination.

Following established interagency protocol, if a mortality event involves fewer than 500 birds and is otherwise not viewed by wildlife disease specialists at the diagnostic lab as particularly suspicious, cloacal and tracheal swabs will be collected during necropsy and be screened by the

NWHC similar to an incoming live bird sample. If found positive for an H5 subtype of avian influenza virus, the samples will be forwarded to the NVSL for validation and definitive diagnosis.

If a mortality event involves more than 500 birds or has aspects that make it particularly suspect, the NWHC will collect sample material from the whole carcasses submitted for necropsy and, following established interagency protocol, immediately send sample materials for the NVSL for screening simultaneous with that conducted by the NWHC. Service personnel should not send carcasses or sample materials directly to the NVSL.

While established interagency protocol adopts 500 sick or dead birds as one trigger for simultaneous screening by both the NWHC and NVSL, other information associated with a mortality event may also raise suspicions of wildlife disease professionals and trigger simultaneous screening. Most HPAI H5N1 detections in sick or dead birds overseas have involved far fewer than 500 individual birds. To most effectively support the mortality investigation, it is important to contact the NWHC or other wildlife disease diagnostic lab before submitting carcasses and to thoroughly document the field circumstances and clinical signs on a Sample Specimen History Form (**Appendix 3**).

## **Reporting**

Negative analytical results from AI surveillance samples tested by the NWHC will be conveyed by the NWHC to the submitter, as soon as they are available. The submitter is the person who physically sends the samples and sample data to the NWHC. Initially, these negative results will be conveyed to the submitter via an email report from the NWHC. In the event that a state wildlife agency funded by FWS to collect samples submits those samples directly to the NWHC, the FWS Regional HPAI Coordinator should contact the NWHC to ensure that reports go to both FWS and the state.

Over time, the separate reports from the NWHC will be phased out, and the Highly Pathogenic Avian Influenza Early Detection Data System (HEDDS, see Data Management section below) will be used as the sole vehicle for reporting negative test results.

FWS participation in cooperative state AI surveillance efforts funded by USDA should ensure protocols exist such that field data and test results from birds collected on national wildlife refuges or national fish hatcheries are sent to the respective refuge or hatchery and the FWS Regional HPAI Coordinator.

Samples screened as presumptive positive for an H5 avian influenza virus will be submitted by the NWHC to the NVSL for confirmation. If these samples are determined by NVSL to not be an H5N1 virus, those findings will be reported back to the NWHC and then subsequently to the submitter. The submitter (or, in the event that the submitter is not a FWS employee, the Regional HPAI Coordinator) is responsible for communicating negative HPAI H5N1 results as appropriate within their region and to field stations.

If the presence of an H5 and N1 subtype is confirmed by NVSL, but initial genetic sequencing indicates a low pathogenic form, the results are posted on a public website (<http://wildlifedisease.nbi.gov/ai/LPAITable.pdf>) following notification of the submitting agency, policy officials within DOI and USDA, and responsible state management officials. In the event that NVSL makes such a preliminary finding from a sample collected by FWS or an FWS cooperator, the Assistant Director – Migratory Birds will notify the Director and the Regional Director, Regional HPAI Coordinator, and Public Affairs chief of the affected Service Region. The Regional Director will be responsible for notifying the affected state wildlife agency director(s). The Assistant Director – Migratory Birds will be responsible for ensuring that summary information on the finding is posted on the public web site after notifications are made.

If the preliminary finding of low pathogenic avian influenza with H5 and N1 subtypes is from a sample collected or funded by USDA, USDA will notify the state wildlife agency and DOI and post the information to the public web site. Regardless of what agency collects or funds the sample, USDA will notify the state agriculture agency and State Veterinarian prior to the information being posted.

In the event of a preliminary H5N1 test result involving a significant number of sick or dead birds, clinical signs compatible with avian influenza, and gene sequencing indicative of HPAI, USDA and DOI will notify the submitting agency and responsible state management officials and then issue an interagency news release or conduct a technical briefing to notify the media and the public. While these findings will be preliminary until confirmed through definitive testing, the presence of significant wild bird mortality or other circumstances suggesting the possibility of a highly pathogenic virus will, in most cases, trigger immediate precautionary action.

## **Data Management**

The Highly Pathogenic Avian Influenza Early Detection Data System (HEDDS) is an interagency web-based database for entering AI surveillance sample data and for tracking results. HEDDS will ultimately contain information contributed by federal, state, and local government agencies; non-government organizations; and private sector organizations doing AI surveillance. The information is linked through the National Biological Information Infrastructure (NBII) gateway, and will be accessible to a variety of audiences, including researchers, migratory bird managers and other resource managers, wildlife disease professionals, decision-makers, educators, students, and other members of the general public. It is found on the Wildlife Disease Information Node (WDIN) of NBII at: <http://wildlifedisease.nbi.gov/ai/>.

The FWS National HEDDS Coordinator (Jenny Hoskins, Region 1, ph. 503/231-6164) will serve as the principal liaison between FWS users and the HEDDS system developers and will facilitate FWS regions gaining training and access rights to the system.

HEDDS is accessed via usernames and passwords. Regions using HEDDS should designate a Regional HEDDS Administrator to authorize and oversee access to the system by FWS

employees within the Region or by state agencies or other cooperators funded by FWS to collect and submit samples. The Regional HEDDS Administrator is also responsible for ensuring that HEDDS users are properly trained, for providing or ensuring adequate quality control of data entered into HEDDS, and for working through the National HEDDS Coordinator to ensure consistent data entry, resolve problems, or recommend system improvements.

Sample data can be initially entered on line or via a standardized Excel spreadsheet that is subsequently uploaded into the HEDDS system. Field sample data must be quality controlled and validated by the Regional HEDDS Administrator or other designated official (other than the field collector) before being uploaded in final form to HEDDS.

A separate WDIN module for reporting and tracking wild bird mortality events is under development and scheduled to come on line in 2007.

## **Permitting**

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Bald and Golden Eagles receive additional protection under the Bald and Golden Eagle Act (BGEPA). Both laws require authorization before anyone may take, possess, import, or export covered species.

Species protected under the MBTA are listed in 50 CFR 10.13 (General Provisions). The list can be accessed from the Laws/Treaties/Regulations page of the Service's Permits Website (see <http://www.fws.gov/permits/ltr/ltr.shtml>). Essentially, all birds native to the United States are federally regulated under MBTA except for upland game birds (e.g. grouse, turkey, quail, ptarmigan, prairie chickens), which are only state-regulated. Non-native species such as the mute swan are not federally regulated.

As a rule, collection of live and dead migratory birds requires a permit from the Regional Migratory Bird Office (RMBO) with jurisdiction over the state where the employee is stationed (see <http://www.fws.gov/permits/mbpermits/addresses.html>), unless the collection qualifies for a permit exception under various sections of the migratory bird permit regulations (see link under MBTA at <http://www.fws.gov/permits/ltr/ltr.shtml>). Most Service H5N1 surveillance activities involving collection of samples from live or dead wild birds can be conducted under existing federal migratory bird permits or a regulatory permit exception for diagnosing infectious disease in sick and dead birds. No federal migratory bird permit is required for collecting fecal samples, environmental samples (e.g., soil and water), or sampling lawfully hunted migratory birds.

States may require a separate state wildlife permit for the capture, handling, taking, or possession of wild birds or their parts. Service employees planning wild bird surveillance should contact their Regional Migratory Bird Office or the relevant state wildlife agency to ascertain state permit requirements.

Regardless of whether an activity requires a permit, it is imperative that Service personnel involved in H5N1 early detection surveillance activities follow the protocols set forth in the migratory bird flyway HPAI surveillance plan governing the area in which they plan to work, and coordinate with their Regional Migratory Bird Office and the relevant state wildlife agency.

*Collection of sick, dying, or dead migratory birds.* The permit exception in 50 CFR 21.12(c) authorizes Service employees to, in the course of official business, collect, possess, transport and dispose of *sick (including dying) or dead* migratory birds for analysis to confirm the presence of infectious disease (e.g., West Nile virus, avian botulism, or HPAI) without a migratory bird permit. This permit exception also extends to employees of other federal, state, and local wildlife and land management agencies, employees of federal, state, and local public health agencies; and laboratories under contract to such agencies. As such, specimens may be transferred among these entities as necessary without a migratory bird permit.

The permit exception does not allow collection or possession of uninjured or healthy migratory birds, nor does it allow collection or possession of migratory birds when circumstances indicate a reasonable probability that death, injury, or disability was caused by factors other than infectious disease and/or natural toxins. These circumstances may include, but are not limited to, oil or chemical contamination, electrocution, shooting, and pesticides. Any carcasses found in a situation indicating poisoning or criminal activity should not be salvaged and must be reported immediately to state and federal wildlife law enforcement authorities. If a bird is salvaged and the cause of death is subsequently determined to be other than natural causes or disease, Service law enforcement officials must be contacted without delay.

Salvaged eagle carcasses and parts that are not infected and not evidence must be sent to the National Eagle Repository (Rocky Mountain Arsenal, Building 128, Commerce City, Colorado 80022, telephone 303-287-2110) for distribution to Native Americans for religious use. Other migratory bird carcasses and parts unsuitable for official use must be completely destroyed by burial or incineration.

*Collection of apparently healthy live migratory birds.* Service personnel who need to collect live, apparently healthy wild birds for H5N1 surveillance or monitoring must do so under a federal migratory bird permit. Cloacal and/or oropharyngeal swabs may be taken under existing permits that authorize capture and handling of migratory birds, such as under USGS banding permits. As long as the capture and handling of a bird is authorized under a valid federal migratory bird permit, no additional permit authorization is required to conduct cloacal and/or oropharyngeal swabbing. Surveillance sampling combined with ongoing banding and capture activities is encouraged.

To ensure that Service personnel have the permit authority necessary to meet the agency's H5N1 surveillance responsibilities, the Director has issued special scientific collecting permits for HPAI surveillance to Service Regional Directors upon request. Similar permits have been issued to the Directors of USGS, USDA-APHIS, and most state wildlife agencies. These permits are intended to cover live captures for H5N1 sampling that cannot be covered in the course of other permitted field activities, such as sampling of target species in an area with no ongoing field projects. The permit authorization is tied to the protocols set forth in the final migratory bird flyway HPAI surveillance plan or final state HPAI surveillance implementation plan governing the state where the collecting activity will occur. These plans emphasize live capture, sampling, and release, unless lethal take is the only feasible way to meet agency sample objectives. All collection activities under the RD permit must be coordinated with the Regional Migratory Bird

Office and the relevant state wildlife agency. As with any permit activity, personnel must have a copy of the permit on their person while conducting the activities and comply with all of the permit conditions, including recordkeeping, reporting, and sample disposition requirements.

Questions regarding migratory bird permits should be directed to your Regional Migratory Birds Office. Permit information, including application forms and regulations, is also available through the Service's Permits website (<http://www.fws.gov/permits/>).

Take, harm, or harassment of species protected under the federal Endangered Species Act is prohibited unless authorized by permit (50 CFR 17). Contact your local Ecological Services Office to determine whether a permit is needed. A general permit covering all activities prescribed in a state or flyway surveillance and response plan would be an appropriate vehicle to convey authority for activities affecting listed species. Permits may also be required by the state.

### **Personal Protective Equipment (PPE)**

The FWS Division of Safety and Health worked with the Department and other Interior bureaus to develop PPE guidelines for activities associated with HPAI surveillance and response. These interim guidelines were issued on August 11, 2006.

The Service subsequently stepped down the basic framework of the August 11 interim guidelines to the work activities, work conditions, and risk factors most likely to be faced by Service employees. These Service-specific guidelines, which supersede the interim guidelines of August 11, 2006, are provided in **Appendix 4**.

These Service-specific guidelines are explicitly risk based, providing for graduated levels of PPE based upon the relative risk of exposure to HPAI H5N1 virus and the relative risk of infection when the virus is potentially in the work environment. They are tailored to work activities most likely to be conducted by Service employees.

Activities associated with early detection surveillance will all involve conditions in which HPAI H5N1 is not known or suspected within the work area.

Consult **Appendix 4** for the full text of the Service's guidelines for Employee Safety and Health for Highly Pathogenic Avian Influenza Surveillance and Response Activities.

### **Training**

Service employees conducting early detection surveillance must be trained in surveillance protocols and safety practices.

The NWHC is providing training, through the National Conservation Training Center, for FWS staff and partner agencies on an as-needed basis. The training sessions include special training for biologists involved in the sampling of live birds and hunter-killed birds for surveillance of HPAI H5N1, including hands-on training in collection techniques. Training sessions will also provide general information on avian diseases, particularly avian influenza, procedures for

submitting samples or carcasses to the NWHC, and safety practices and decontamination procedures.

FWS employees can register through DOI LEARN (<https://doilearn.doi.gov/>) for NCTC training sessions that are already scheduled. If additional training sessions are needed, contact the Branch of Conservation Science and Policy at NCTC (ph. 304/876-7445) for help in scheduling a session.

FWS Region 6 has developed and delivered training workshops on avian influenza. These workshops will be ongoing during 2007 and cover the disease, contingency planning, surveillance, response, sampling, shipping, and PPE. For further information, contact the Region 6 Wildlife Health office (ph. 406/994-5789).

Regional HPAI coordinators should work with state wildlife agency cooperators and NWHC staff to organize and conduct disease and surveillance training as it is needed. FWS employees should contact their Regional HPAI coordinator if they are interested in receiving training.

Training on the use of the HEDDS data system can be arranged through the FWS National HEDDS Coordinator (Jenny Hoskins, Region 1, ph. 503/231-6164). Instructional user manuals for HEDDS are available on the HEDDS Document page (<http://wildlifedisease.nhii.gov/ai/documents.jsp>), including a “HEDDS Excel Worksheet Reference Manual”, “Kick-Start for Data Administrators”, and “Shipment Tracking Function”. Over time, more extensive information about how to use different HEDDS functions will be provided in pop-up windows located throughout the system.

## **Responsibilities**

### *Surveillance Planning*

- At the national level, the Assistant Director – Migratory Birds is responsible for coordination of HPAI surveillance planning efforts with all Service programs and with the USGS, USDA/APHIS, and other federal agencies involved in surveillance planning for HPAI occurrence in wild birds;
- Regional Directors are responsible for ensuring that all appropriate Service programs within their respective Regions are engaged in working with their Flyway Councils and states in step-down planning of the national strategy for wild bird surveillance and for designating a regional official to represent the Service with the Flyway Council and states on step-down planning and surveillance implementation.
- Assistant Regional Directors are responsible for designating Program contacts to assist in stepping down state surveillance plans to Service field station surveillance plans, as appropriate.
- Field Project Leaders are responsible for developing station surveillance plans, in cases where the Service commits to conduct surveillance on a field station in support of a

regional or state level surveillance plan. The surveillance goals and activities specific to a field station should be done with input from other agencies engaged in state or regional level surveillance planning and should reflect a step-down of state or regional surveillance plans.

### Sampling Activities

- The Assistant Director – Migratory Birds is responsible for overseeing FWS surveillance activities nationwide, determining where the Service should be actively engaged in early detection surveillance for HPAI H5N1, coordinating with the affected Regions to develop surveillance plans, and allocating funds from available appropriations to support those surveillance efforts.
- Regional Directors, for those Regions conducting early detection surveillance, are responsible for designating a Regional HPAI Coordinator to work across Service programs and with state wildlife agencies and other cooperators to plan and oversee Regional surveillance efforts.
- Assistant Regional Directors are responsible for supporting Regional surveillance efforts, if called upon, by ensuring that surveillance efforts are incorporated into field station work plans and helping affected field stations obtain necessary staff, training and equipment.
- Field Project Leaders, if called upon, are responsible for incorporating early detection surveillance efforts into field station work plans and ensuring that employees are properly trained and equipped. NWRS Project Leaders should also determine that early detection surveillance activities conducted on the refuge are appropriate and compatible.

### Data Management

- Regional HPAI Coordinators are responsible for ensuring that a Regional HEDDS Administrator is designated to provide and oversee access to HEDDS by Regional employees and cooperators and to ensure that data submitted by FWS is subject to quality control and validation.

### Reporting

- The Assistant Director – Migratory Birds is responsible for notifying the Director and affected Regional Director and Regional HPAI Coordinator of NVSL findings that are presumptive positive for H5 and N1 and, if those findings are from samples collected or funded by FWS, for posting on the designated public web site a summary of such findings associated with a low pathogenic variety of avian influenza.
- Regional Directors are responsible for notifying affected state wildlife agency directors of presumptive findings of low pathogenic H5 and N1 avian influenza virus.

## **Chapter 3. Preparation for Occurrence of HPAI H5N1 in Wild Birds**

### **Step 1. Designate Regional HPAI Coordinators and Field Station Points-of-Contact**

For clarity of communications and response actions, it is important to have one person designated at each Regional Office as the HPAI Coordinator. (At the discretion of the Regional Director, separate coordinators may be established for surveillance and response activities.) Field stations should identify a point-of-contact for AI activities at the site. Field station points-of-contact should be familiar with migratory bird behavior and their response to disease, the habitat resources on the field site(s), public use of those areas, procedures for preparing for and managing an incident response, and coordination requirements with supervisors, staff colleagues, neighbors and cooperating agencies.

The HPAI Coordinator should ensure that the Regional Directorate, field project leaders, field station points-of-contact, and the Regional and local public information officers are aware of significant changes to the HPAI situation. The USGS National Wildlife Health Center maintains an up-to-date web page on avian influenza ([http://www.nwhc.usgs.gov/disease\\_information/avian\\_influenza/index.jsp](http://www.nwhc.usgs.gov/disease_information/avian_influenza/index.jsp)), with links to many other information resources. Region 6's Wildlife Veterinarian produces a "Disease Update" which covers the current situation on several hot wildlife disease issues including avian influenza. FWS employees can add their names to the distribution list by contacting Dr. Thomas Roffe ([Thomas\\_Roffe@fws.gov](mailto:Thomas_Roffe@fws.gov); ph. 406/994-5789). Regional HPAI Coordinators should also keep staff and contacts informed of the latest information posted on the Service HPAI intranet site: <https://intranet.fws.gov/region9/mbsp/avianflu/>.

Logical choices for Regional HPAI Coordinators are the Regional Migratory Bird Division Chief or a designated migratory bird biologist in the Regional Offices or regional wildlife veterinarian. Field station points-of-contact might be the refuge biologist, other migratory bird specialist, or biological technician at field offices. A single field station point-of-contact could serve an entire complex and/or assist smaller refuge/field units. Backup Coordinators/Contacts should also be identified in the event the designated individual is unavailable.

The Regional HPAI Coordinator should have a list of all Refuge/Field Station HPAI Contacts, as well as state, tribal, USGS, and USDA/APHIS contacts for the Region. The Regional HPAI Coordinator should ensure that information provided by Service headquarters is distributed to field stations, and that information originating from field stations is communicated to Service headquarters. The Regional HPAI Coordinator should develop a telephone tree with contact information for use in the event of an HPAI detection or suspicious mortality event.

Regions should consider establishing, in advance, a Risk Management Team that would function to provide timely and effective cross program coordination in managing a Service response to an outbreak of HPAI H5N1 in the Region. The Regional HPAI Coordinator should keep the Risk

Management Team members informed of relevant policy and procedures relating to HPAI response and current on developments relating to HPAI in wild birds.

**Step 2. Establish Contacts with Cooperating Agencies**

Initial contacts with cooperating agencies should be made in advance of any HPAI detection in order to establish lines of communication and cooperation. Cooperating agencies should include other federal and state agencies, Tribal Governments, County or local entities, or private organizations that have authority, responsibility, and/or expertise that could be brought to bear in the event of an occurrence of HPAI in wild birds. A protocol for communication needs to be established with each cooperator for use in sharing information regarding HPAI planning, surveillance, and response. Follow-up communication should be made periodically, particularly if there is a change in the current HPAI-free status in North America.

In many cases, these contacts, partnerships, and communication protocols can be most effectively established through Service involvement in HPAI related networks of agencies at the state level, often coordinated by state governments. Regions are encouraged to facilitate and participate in interagency HPAI steering committees, response committees, and public information groups established to step-down or develop operational plans at the state level. Participation in such networks can facilitate coordination of Service roles and responsibilities with other response agencies and help establish an ongoing and collaborative working relationship with those agencies in advance of an outbreak.

Examples of topics for discussion are included in the table below. Websites to find cooperator contact information are as follows:

- USDA-APHIS Area Veterinarians-In-Charge:  
[http://www.aphis.usda.gov/animal\\_health/area\\_offices/](http://www.aphis.usda.gov/animal_health/area_offices/)
- USDA-APHIS State Offices of Wildlife Services:  
<http://www.aphis.usda.gov/ws/statereportindex.html>
- State Departments of Agriculture, Fish and Wildlife, and Public Health:  
<http://www.pandemicflu.gov/state/statecontacts.html>

Cooperator	Discussion topics
Other FWS units	<ul style="list-style-type: none"> <li>• Share information and concerns</li> <li>• Share expertise (e.g., Refuge HPAI Coordinators)</li> <li>• Coordinate communication with states and other agencies</li> </ul>
State Wildlife Agency	<ul style="list-style-type: none"> <li>• Share available baseline information (e.g., migration patterns, congregation areas of high priority species, known interactions between wild and domestic birds).</li> </ul>

	<ul style="list-style-type: none"> <li>• Share avian surveillance plans and results.</li> <li>• Identify major issues and concerns.</li> <li>• Ask about state wildlife agency's authority, plans, and capability to respond to an occurrence of HPAI in wild birds on non-federal land within the state.</li> <li>• Determine if there is a state wildlife veterinarian and, if so, obtain contact information.</li> </ul>
State Veterinarian's office, USDA-APHIS Area-Veterinarian-in-Charge (AVIC), and USDA-APHIS Wildlife Services State Director	<ul style="list-style-type: none"> <li>• Reiterate that FWS is concerned about potential impacts of HPAI on FWS lands and resources, and management requirements if disease occurs in U.S.</li> <li>• Share FWS mission and willingness to cooperate.</li> <li>• Share FWS HPAI Response Plan.</li> <li>• Ensure communication protocols are established concerning morbidity/mortality events in wild birds.</li> <li>• Discuss locations of domestic bird operations and potential interactions with wild birds.</li> <li>• Share contact information for FWS.</li> <li>• Ask them to keep FWS informed as appropriate, and to contact FWS if a suspected or confirmed positive HPAI result is reported in or near a FWS unit.</li> </ul>
State Public Health Department	<ul style="list-style-type: none"> <li>• Share information about FWS preparations and communications materials</li> <li>• Offer to cooperate in any state or community efforts should they become necessary.</li> <li>• Share contact information for FWS.</li> </ul>
Entities with shared boundaries (e.g., other federal agencies, state wildlife areas, tribal lands, counties, etc.)	<ul style="list-style-type: none"> <li>• Share available baseline information (e.g., migration patterns, congregation areas of high priority species, known interactions between wild and domestic birds).</li> <li>• Identify major issues and concerns.</li> <li>• Share FWS mission and willingness to cooperate.</li> <li>• Share FWS HPAI Response Plan.</li> <li>• Share avian surveillance plans and results.</li> <li>• Discuss how to handle HPAI wildlife concerns.</li> <li>• Ask them to keep FWS informed as appropriate, and to contact FWS if a suspected or confirmed positive HPAI result is reported in or near a FWS unit.</li> </ul>

### **Step 3. Conduct inreach/outreach to provide information to our employees and the public**

General background information should be provided to all employees so that they are aware of the disease and its potential threat to migratory birds and other Service resources, and user groups, and human health. They should be made aware of this Service HPAI Response Plan, and

any Regional or Station contingency plans. The Department of the Interior and the Service are separately developing plans for human pandemic planning and response. Specific categories of employees may require additional training or information (see table below).

<b>Audience category</b>	<b>Information provided</b>
All personnel	<ul style="list-style-type: none"> <li>• General information on avian influenza and potential threats to resources and human health.</li> <li>• Contact information for HPAI Coordinator and how to report unusual mortality events.</li> <li>• General sanitation, hygiene, and health precautions.</li> <li>• International travel alerts if traveling to HPAI affected areas.</li> <li>• Prepared information for visitors.</li> </ul>
Field staff	<ul style="list-style-type: none"> <li>• Training on wildlife disease investigation and associated personal safety measures and PPE (<b>Appendix 4</b>).</li> <li>• Contact information for USGS National Wildlife Health Center (NWHC), Regional HPAI coordinator, and Regional Safety Officer</li> </ul>
Refuge and hatchery residents	<ul style="list-style-type: none"> <li>• Be sure they are aware of the disease and the potential threat to Refuge resources. Ensure they deal with their private veterinary practitioner for domestic animal health issues. Ensure that they understand the human health risk and how to limit the risk of exposure and infection in the event of an HPAI occurrence on their refuge or hatchery.</li> </ul>
Concessionaires, volunteers, economic users, researchers	<ul style="list-style-type: none"> <li>• General information on avian influenza, the potential connections/effects on Refuge operations, and potential threats to resources and human health.</li> <li>• FWS site planning.</li> <li>• Travel guidance to restricted areas.</li> <li>• Prepared information for visitors.</li> </ul>
Permittees	<ul style="list-style-type: none"> <li>• General information on avian influenza and potential threats to resources and human health.</li> </ul>
Bird hunters	<ul style="list-style-type: none"> <li>• General information on avian influenza and potential threats to resources and human health.</li> <li>• Wildlife handling guidelines</li> </ul>

Communication materials for inreach and outreach can be found on the FWS external web site at: <http://www.fws.gov/home/avianflu>.

#### **Step 4. Provide necessary training to employees that may be involved in response**

In addition to the training offered on early detection surveillance methods, the USGS National Wildlife Health Center (NWHC) is able to provide training on avian disease ecology, management, and response. HPAI Coordinators and other field staff who may be engaged in disease event investigations and management should be trained in avian influenza ecology, management, and response. The wildlife disease specialists at the NWHC are available to provide such training, if needed. To obtain NWHC training, check online through DOI LEARN (<https://doilearn.doi.gov/>) for already scheduled training sessions or contact the Branch of Conservation Science and Policy at NCTC (ph. 304/876-7445) for help in locating a scheduled course or scheduling a session in your geographic area.

FWS Region 6 has developed and delivered training workshops on avian influenza. These workshops will be ongoing during 2007 and cover the disease, contingency planning, surveillance, response, sampling, shipping, and PPE. For further information, contact the Region 6 Wildlife Health office (ph. 406/994-5789).

The Avian Influenza chapter of the NWHC [Field Manual of Wildlife Diseases](#) provides valuable background information and can be found on line at:

[http://www.nwhc.usgs.gov/publications/field\\_manual/chapter\\_22.pdf](http://www.nwhc.usgs.gov/publications/field_manual/chapter_22.pdf). The chapter on disease control operations provides good information on basic principles and practices and can be found on line at: [http://www.nwhc.usgs.gov/publications/field\\_manual/chapter\\_4.pdf](http://www.nwhc.usgs.gov/publications/field_manual/chapter_4.pdf).

If an outbreak of HPAI H5N1 occurs that exceeds the capacity of FWS or other response agencies to manage effectively within their routine management structure, a decision may be made to implement the Incident Command System (ICS), a structured approach to emergency response. The Department of Homeland Security, Federal Emergency Management Agency (FEMA), offers online, independent study training on the Incident Command System (ICS).

**An Introduction to the Incident Command System** (IS 100) can be found at:

<http://www.training.fema.gov/EMIWEB/is/is100.asp>. IS 100 describes the history, features and principles, and organizational structure of the Incident Command System and provides the foundation for higher level training.

**ICS for Single Resources and Initial Action Incidents** (IS 200) is available on line at:

<http://www.training.fema.gov/EMIWeb/IS/is200.asp>. IS 200 is designed to enable personnel to operate efficiently during an incident or event within the Incident Command System and provides training and resources for personnel who are likely to assume a supervisory position within the ICS.

The National Incident Management System, established under Homeland Security Presidential Directive-5, provides a consistent nationwide template to enable all government, private sector, and non-governmental organizations to work together during domestic incidents. **National Incident Management System (NIMS), an Introduction** (IS-700) explains the purpose,

principles, key components and benefits of NIMS. IS-700 is available on line at:  
<http://www.training.fema.gov/EMIWeb/IS/is700.asp>.

The National Response Plan (NRP) describes how the federal government will work in concert with state, local, and tribal governments and the private sector to respond to disasters. **National Response Plan, An Introduction** (IS-800) introduces the NRP and is intended for federal staff responsible for implementing the NRP, as well as Tribal, state, local and private sector emergency management professionals. IS-800 is available on line at:  
<http://www.training.fema.gov/EMIWeb/IS/is800.asp>.

All four of these courses are available on line for independent study. All employees that may be involved in or supporting an ICS team during an incident should take IS-100 and 200 training. HPAI coordinators, project leaders, members of Risk Management Teams, and managers that may participate in or support an ICS response should take IS-700 and 800.

### **Step 5. Acquire and Pre-position Personal Protective Equipment (PPE)**

Human health protection is the number one concern during an HPAI disease investigation or during handling of potentially infected wild birds once HPAI has been detected in the work area. Appropriate protection of employees and visitors against exposure to HPAI should be followed and will vary with the level of risk. Personal protective equipment (PPE) guidelines have been developed for Service work activities related to HPAI surveillance and response (see **Appendix 4**).

All field stations with significant migratory bird habitat and use should have the minimum PPE and sampling equipment on hand, necessary for wildlife mortality event response:

<b>PPE</b>	<ul style="list-style-type: none"> <li>• Impermeable gloves</li> <li>• Goggles</li> <li>• Disposable gowns or coveralls</li> <li>• Rubber boots or boot covers</li> <li>• NIOSH approved particulate respirator, N-95 or better</li> </ul>
<b>Sampling equipment</b>	<ul style="list-style-type: none"> <li>• Shipping boxes/coolers</li> <li>• Carcass bags (trash bags)</li> <li>• Packing material</li> <li>• Blue ice packs</li> <li>• Carcass label</li> <li>• Sharpie permanent pen</li> <li>• Shipping tape</li> <li>• FedEx labels</li> <li>• History and submission forms</li> <li>• Disinfectant, buckets, brushes</li> </ul>

**Important:** Note that use of the NIOSH-approved respirator requires a medical clearance for the wearer (to assure there are no health issues that would inhibit normal breathing while wearing), and fit testing to ensure a proper seal on the face of the wearer. Check the manufacturer's requirements for the respirators purchased. A list of companies who sell NIOSH-approved respirators can be found at:

[http://www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part/](http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/).

Medical clearances can be accomplished by having a health care practitioner review a medical evaluation form completed by the wearer. Respirator fit testing can be accomplished by a contractor, or with the use of a fit testing kit (whereby one staff member on station could practice this until comfortable, then fit-test the rest of the staff). A full description of OSHA requirements for respirators can be found at: <http://www.osha.gov/SLTC/etools/respiratory/index.html>. Assistance can be provided by the Regional Safety Manager, or by Region 9 Safety Manager Chip Murphy: (703) 358-2254.

## **Step 6. Develop Disease Contingency Plans for Refuges and, as appropriate, other Service lands**

The Refuge Manual (7 RM 17) states that it is "Service policy to prevent or to control wildlife diseases on Refuges wherever practical or possible" and the "Service will take a leadership role . . . (for) fostering cooperative (wildlife disease) control activities."

Refuges that have station Disease Contingency Plans should review those plans for applicability to HPAI response and update them as necessary. Refuges and other Service lands hosting significant migratory bird resources, and those areas located in close proximity to domestic bird flocks or poultry operations, should consider developing specific HPAI Disease Contingency Plans for their units.

The following should be outlined in a Station or FWS Region's HPAI Disease Contingency Plan:

- Key personnel - Disease control activities require extensive commitment of personnel, so the Service's and cooperators' sources of personnel, special skills and expertise (e.g., wildlife veterinary expertise, pilots, heavy equipment operators, etc.), and where they can be obtained should be identified;
- Heavy equipment - type, number, location and availability need to be identified;
- Supplies and equipment - Field stations should have access to basic supplies needed for disease work including plastic bags, latex gloves, coveralls, boots, protective eyewear, disinfectant, boot wash tubs, and scrub brushes. Equipment and supplies needed to collect birds, collect diagnostic samples, and dispose of animals/samples must be assessed and planned for. Costs for necessary supplies and equipment should be estimated;

- Support facilities - Location(s) for staging management operations should be identified and should include information on specific work areas, public relations center, and sources of meals and lodging.

A suggested outline for a Refuge HPAI Disease Contingency Plan is provided in **Appendix 5**.

In consultation with wildlife disease experts within FWS and at the USGS National Wildlife Health Center and other USGS Science Centers, refuge and hatchery managers should evaluate current management before HPAI H5N1 arrives in North America and, to the extent practical, take appropriate steps to proactively eliminate or minimize management activities that encourage disease agent persistence and transmission.

State wildlife agencies should be involved in development of station Disease Contingency Plans to facilitate coordinated response to events that extend beyond Service lands.

### **Responsibilities**

Responsibilities for ensuring effective HPAI preparation for Service employees and facilities are as follows:

- At the national level, the Assistant Director – Migratory Birds is responsible for coordination of HPAI response planning efforts among all Service Regions and programs and with the USGS, USDA/APHIS, and other state and federal agencies involved in preparedness planning for HPAI occurrence in wild birds;
- Regional Directors are responsible for designating a Regional HPAI Coordinator; designating a regional Risk Management Team, as appropriate; and ensuring that all affected Service programs are engaged in HPAI preparation at the appropriate level;
- Assistant Regional Directors are responsible for supporting regional preparedness efforts within the scope of their program authority, planning for training and equipment needs of field stations, determining which field stations should prepare or update HPAI Disease Contingency Plans and ensuring their completion, and providing a program representative to any Regional Risk Management Team that may be established;
- The Regional HPAI Coordinator is responsible for making regional management, project leaders, and field stations contacts aware of significant developments relating to HPAI H5N1 in wild birds, including policy and procedures relating to surveillance and response; serving as the focal point for coordination within the Region, with Service headquarters, and with other agencies and organizations; facilitating training on HPAI surveillance and response for Regional employees and cooperators; and overseeing the acquisition and pre-positioning of PPE;
- Field Project Leaders are responsible for designating a Field Station HPAI Contact, as needed; ensuring that station employees are made aware of the potential threats posed by

HPAI H5N1 to Service lands, resources, and human health, as well as the plans in place to address those potential threats; developing station HPAI Disease Contingency Plans, as appropriate; and ensuring that station employees that may be engaged in surveillance or response efforts are adequately trained and equipped.

## **Chapter 4. Service Response to Occurrence of HPAI H5N1 in Wild Birds**

### **A. Detection in North America, not directly involving FWS Lands**

The first detection of HPAI H5N1 in North America may not involve Service lands. It may be in a commercial or backyard poultry operation, in smuggled wildlife, or in wild or feral birds on private lands. DOI is the primary federal department responsible for addressing HPAI in wild, free ranging migratory birds. Because of their special expertise in wildlife disease investigation and response, the USGS National Wildlife Health Center will be the federal lead in working with the state wildlife agency or state wildlife veterinarian, USDA/APHIS, and the landowner to assess the situation in the event of an occurrence in wild migratory birds.

The response to an outbreak of HPAI H5N1 in wild birds off Service lands, and the Service role in that response effort, will be determined by their situational assessment, the response structure they establish, and the response actions that are determined to be needed. In the event that a field response is needed, it is likely that Service field personnel, trucks, boats, incinerators, and incident command trained managers will be called upon. The Service should be fully prepared to provide assistance in responding to an outbreak of HPAI H5N1 in wild birds when called upon by USGS or the state.

If the first detection of HPAI H5N1 occurs in domestic poultry or birds other than free ranging wild birds, the Service should also be prepared to provide assistance when called upon by USDA/APHIS or the State Veterinarian. At a minimum, the Service will be responsible for coordinating the design and implementation of intensified detection surveillance of wild birds in the vicinity of the outbreak and participating in interagency information and outreach efforts on issues relating to wild birds.

While the specific role of the Service in a response to an HPAI H5N1 outbreak not involving Service lands will vary based upon the circumstances, the following steps should be carried out in any such outbreak:

#### **Step 1. Contact cooperating agencies to support coordinated response**

The USGS National Wildlife Health Center and state wildlife agency or state wildlife veterinarian should be the first points of contact to establish the Service role in the overall response to detection of HPAI in free-ranging wild birds off Service lands. The Regional HPAI Coordinator is responsible for initiating those contacts, establishing the lines of communication with the Service, and determining how the operational expertise and field capability of the Service will be needed in the response effort. If the outbreak involves domestic poultry or birds other than free ranging wild birds, the USDA/APHIS Area Veterinarian-In-Charge and State Veterinarian should also be contacted.

If HPAI H5N1 is detected in the United States, USDA will implement a foreign animal disease emergency response tailored to the specific circumstances of the detection, i.e., the response will be different for a detection in domestic poultry versus a detection in wild birds only. USDA's emergency response system framework includes the National Response Plan (<http://www.dhs.gov/nrp>), the National Incident Management System (NIMS) (<http://www.fema.gov/emergency/nims/>), and the USDA/APHIS National Animal Health Emergency Management System (NAHEMS). This framework integrates the capabilities and resources of the federal government, states, Tribal Nations, local communities, and private organizations.

NAHEMS guidelines are designed for use at any of three levels of response, commensurate with the severity of the outbreak:

- *A local/limited response:* Managed by local, state, federal, and industry officials, with primary response coordination at the state and regional levels, with national level consultation, consequence management (e.g., trade issues), and communication and public relations.
- *A regional response:* Managed by local, state, federal, and industry officials and possibly the State emergency management agency as specified in State animal health emergency response plans. National level crisis management, response coordination, communication and public relations, consultation, and consequence management are required.
- *A national response:* Requires the combined efforts of local, state, industry, and federal agriculture officials, as well as non-agricultural government personnel (e.g., USFWS, FEMA) and the private sector for national level crisis management, response coordination, consultation, communication and public relations, and consequence management.

In the event of an HPAI H5N1 outbreak involving wild birds and not directly involving Service lands, the Service should be fully prepared to provide assistance in responding to the disease outbreak when called upon by USGS or the state.

In the event of a foreign animal disease emergency where USDA calls upon the Service for technical or logistical support and assistance, USDA is authorized to enter into interagency agreements to reimburse agencies for the resulting expenses.

## **Step 2. Provide operational support to response effort, as needed**

The Regional HPAI Coordinator is initially responsible for coordinating the FWS response effort, as called upon by USGS or the state.

An Incident Command Team may be established by the agency leading response to provide for unified command in responding to an HPAI outbreak in wild birds. In that case, the Service should work within the Incident Command System to delegate authority to the Incident

Commander and assign an Agency Representative to work with the Incident Commander to implement necessary surveillance and response measures. (If the Regional HPAI Coordinator is not assigned as Agency Representative to the Incident Command Team, it is essential that the Regional Director establish the relative roles and responsibilities of the Agency Representative and the Regional HPAI Coordinator in the subsequent response effort.)

### **Step 3. Coordinate intensified surveillance**

If HPAI H5N1 is discovered in wild birds, one element of the response will be additional surveillance to assess the temporal, spatial and host distribution of the virus, along with host prevalence. Sample designs for assessment are different from detection because the goal is different, and prevalence and distribution estimates are pre-eminent. (As noted above, if HPAI H5N1 is discovered in domestic poultry or birds other than free ranging wild birds, the Service will be responsible for coordinating the design and implementation of intensified surveillance of wild birds in the vicinity of the outbreak, although this surveillance will continue to have the goal of *detection*.)

FWS is responsible for coordinating the design and implementation of an intensified wild bird surveillance program in the event of an occurrence of HPAI H5N1 in wild birds, as a contribution to an overall interagency response. The affected Regional HPAI Coordinator should coordinate this design and implementation of intensified surveillance within the Service (with knowledgeable field staff, Flyway technical representatives, and others), and with the USGS (both the NWHC and appropriate Science Centers), affected state fish and wildlife agencies, APHIS Wildlife Services, and others involved in state-level or regional surveillance efforts. The new goal will be assessment surveillance, to identify the geographic scope of the infection, and what species are involved.

Service personnel should work together with other state, federal, or tribal wildlife and land management personnel to intensify monitoring for bird morbidity and mortality and responding to reports of sick or dead birds by members of the public.

Design and implementation of the intensified surveillance effort should be accomplished rapidly to provide timely information to assist in the overall response effort.

Service personnel and agents must follow the PPE Guidelines in **Appendix 4** when conducting this intensified surveillance, including the use of enhanced PPE when handling wild birds within 10 km (6.2 mi) of a known or presumptive occurrence of HPAI H5N1. Service PPE guidelines are not controlling on contract employees; contractors are separately responsible for providing the safety procedures and equipment needed to protect their personnel.

### **Step 4. Conduct inreach/outreach to provide information to our employees and the public**

All affected employees (at a minimum, those whose work area falls within the 10 km radius around a known or presumptive occurrence of HPAI H5N1) should be notified of the definitive or presumptive diagnosis of HPAI H5N1 in birds, and the extra precautions they should take during the course of their normal duties.

USDA or the state lead agency may establish a Joint Information Center (JIC) to coordinate communications and outreach. If a JIC is established as an element of an interagency response, FWS public information officers should work through the JIC to coordinate responses and outreach to members of the public, local officials, and the media, after first developing the message in consultation with technical experts and FWS response personnel. Outreach to members of the public who watch, feed, or hunt wild birds, or otherwise may come into contact with wild birds and their habitats, should include factual information and access to guidance from animal health and public health agencies, including information on how to report a suspected case of HPAI H5N1 in wild birds and who to contact if they suspect they have been infected with HPAI H5N1 by a wild bird.

Communication objectives will be to:

- Communicate actions the government is taking;
- Reassure the public that a detection in birds does not signal a human pandemic;
- Reassure the public that properly prepared poultry and wild game is safe to eat;
- Prepare the public for the possibility of more bird/animal cases; and
- Prepare the public for the possibility of human illness from direct contact with infected birds.

With regard to wildlife rehabilitators and banders operating under Service permit, the Regional Migratory Bird Office should inform permittees of the Service's recommended PPE and work practice guidelines and encourage their use, while also enlisting the permittees' assistance as needed in intensified surveillance of wild birds for HPAI H5N1.

## **Responsibilities**

Responsibilities in a response situation not directly involving Service lands are as follows:

- At the national level, the Assistant Director – Migratory Birds is responsible for maintaining effective communication regarding the outbreak within the Headquarters Office of FWS, with other federal agencies, and with the Department; for working with the affected Service Region(s) to justify and pursue any additional funding needed to support FWS response efforts; for representing FWS in interagency coordination meetings and informational briefings conducted at the policy level; and for ensuring that the Regional Director and Regional HPAI Coordinator of the affected Region(s) are kept abreast of information or decisions made at the national level that affect Regional or field response activities.
- Regional Directors are responsible for designating a Service official as the Agency Representative for coordination with whatever incident command structure is established; establishing the relative roles and responsibilities of the Agency Representative and the Regional HPAI Coordinator, in the event that the same individual does not serve both roles in the incident response; maintaining effective oversight of Service response efforts;

establishing and supporting a Regional Risk Management Team, as needed; and ensuring that the Service response effort is adequately staffed and resourced.

- The Regional HPAI Coordinator is responsible for maintaining effective communication regarding the outbreak within the Regional Office (particularly any Risk Management Team that may be established) and between the Region, the affected field station(s), and FWS Headquarters; for initiating contact with USGS and the state wildlife agency (and with APHIS Area Veterinarian-In-Charge and the State Veterinarian if the outbreak involves domestic poultry or birds other than free ranging wild birds) to determine how assistance from the Service will be needed in the response; serving as Agency Representative to any Incident Command Team that may be established, if designated as such by the Regional Director; and for coordinating the design and implementation of intensified surveillance of wild birds.
- Public information officers at the FWS Headquarters and Regional levels are responsible for coordinating with Service management, technical experts, and response personnel to provide information and answers to questions to the public, local officials, and media; and for coordinating those materials through the Joint Information Center if one is established as part of a multi-agency incident command system.
- Assistant Regional Directors are responsible for supporting response efforts within the scope of their authority and for overseeing response efforts of field stations to ensure that they are adequately staffed and resourced and that response actions are conducted safely and in accordance with established policy and regulation.
- Field project leaders are responsible for providing assistance to the overall incident response, to the extent that assistance is needed and they are able to do so, and for ensuring that Service personnel involved in response efforts are properly trained and equipped to carry out that work safely.

## **B. Detection in North America, involving FWS Lands**

If an outbreak of HPAI H5N1 occurs on Service lands, FWS will be responsible for taking appropriate management actions to contain the outbreak, protect the health of our employees and the public, and coordinate our actions with the USGS National Wildlife Health Center, the state wildlife agency, USDA/APHIS, the State Veterinarian, and other responsible agencies.

Coordination of Service response actions with other agencies and adjacent landowners will help ensure better response to events that extend beyond Service lands and cooperation in decisions that affect adjacent lands. However, in compliance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, the Service will maintain decision-making authority for all HPAI H5N1 management actions taken on lands within the National Wildlife Refuge System.

The following provides the basic framework for effective management of the outbreak by the Service:

**Step 1. Contact cooperating agencies and coordinate initial situational assessment and response actions**

If the detection is made through laboratory analysis of a sample submitted from early detection surveillance or a mortality investigation, notification of affected federal and state wildlife, agriculture, and public health agencies will occur at a leadership level in the agencies, following the established HPAI Communications Protocol. The affected Service Regional office and field station(s) should contact cooperating agencies at the operational level to share information and coordinate an initial situational assessment and response. The contacts made during planning for an outbreak (see Chapter 3, step 2) should be revisited for this purpose.

The initial situational assessment should involve, at a minimum, wildlife disease specialists from FWS, the USGS National Wildlife Health Center, the state wildlife agency, the USDA/APHIS Wildlife Services State Director and Area-Veterinarian-In-Charge, and the State Veterinarian. The purpose of this situational assessment is to assemble available information, assess the scope and complexity of the incident for the purpose of determining whether to manage within existing management structures or to stand up an Incident Command System, and to establish a plan of action for the first 24 hours.

**Step 2. Coordinate intensified surveillance**

As with an occurrence off Service lands, the FWS Regional HPAI Coordinator will be responsible in the event of an occurrence on Service lands for coordinating (with USGS, the state wildlife agency, APHIS Wildlife Services, and other appropriate experts) the design and implementation of intensified surveillance to assess the temporal, spatial and host distribution of the virus, along with host prevalence (see Chapter 4.A, step 2 above). In many cases, planning and implementation will likely be easier because of the advance planning done through Refuge Disease Contingency Plans and our better knowledge of bird use, activity patterns, and habitat conditions on and near Refuge lands.

Surveillance to establish the scope and status of the disease outbreak will be critical. A “surveillance zone” of at least 10 km (6.2 miles) radius should be established around the location(s) of known occurrences. As the name implies, assessment surveillance should be conducted within the “surveillance zone” to help establish the geographic scope and host distribution of the virus.

The boundary of the surveillance zone may be adjusted outward based on known wildlife movement and activity patterns or as other ecological, epidemiological, or administrative circumstances warrant. Boundary adjustments should be made in consultation with the wildlife disease specialists at the USGS National Wildlife Health Center and other wildlife professionals with knowledge of local wildlife ecology and disease management.

**Step 3. Consult disease contingency plan, and implement management actions for containment, health and safety, in accordance with law, policy and management goals**

If HPAI appears on Service lands, response actions will focus on limiting, to the extent possible, spread of the infectious agent, preventing the commingling of wildlife with domestic birds, protecting the health of Service employees and the public, in addition to surveillance to assess and monitor the scope and status of the disease outbreak.

*Containment*

A “containment zone” should be established around the known occurrence, with a radius of at least 3 km (2 mi) from the location(s) of the known occurrence

Live, apparently healthy wild birds may remain within the containment zone after the detection of HPAI H5N1. Management will need to consider actions to reduce risk factors for avian influenza transmission (e.g., crowded conditions on limited water, artificial feeding), daily activity and movement patterns of birds using Service lands, and the need and opportunity to hold on-site potentially infected wild birds. Refuge managers or biologists should consult with the wildlife disease specialists within FWS, at the USGS National Wildlife Health Center, and at other USGS Science Centers, as well as with the state wildlife agency and adjacent landowners, to evaluate management options.

Service managers should prevent the movement of vehicles, equipment, and other potential carriers of infectious material out of any part of the containment zone located on Service lands unless appropriate biosecurity measures (e.g., disinfection) are followed. The command post, briefing area, equipment and supply area, eating facilities, and parking should be located outside of the containment zone

With regard to management of Service lands within the containment zone or surveillance zone, Refuge Managers or managers of other Service lands shall exercise their existing authority to temporarily close access or suspend public use as needed to avoid public contact with the HPAI H5N1 virus or prevent its spread outside the containment zone. In making these decisions, Service managers should consult with wildlife disease specialists within the Service or at the USGS National Wildlife Health Center and with Regional management to evaluate management options.

Decisions on whether to limit or suspend hunting or other public use activities within the containment zone or surveillance zone will be the responsibility of the lowest level of management with the authority to exercise control in a specific situation. For National Wildlife Refuges, the authority to temporarily suspend hunting is exercised by the Refuge Manager. For state and private lands, the Service will defer to the state or local agency with the authority to control the activity, e.g., the state fish and wildlife agency with regard to hunting on state-owned or private lands.

There may be circumstances where containment is either not practical or of only limited use. In those cases, management will necessarily focus on assessment surveillance and communication

and outreach to the surrounding community and along the potential migratory corridor to enhance biosecurity and detection efforts.

### *Clean-up*

A list of EPA-registered disinfectant products that are labeled with a claim to inactivate “avian influenza A” viruses on hard, non-porous surfaces can be found at [http://www.epa.gov/pesticides/factsheets/avian\\_flu\\_products.htm](http://www.epa.gov/pesticides/factsheets/avian_flu_products.htm).

In the event of a large scale mortality event, carcass collection and disposal may be necessary to prevent spread of the disease agent to other animals through environmental contamination. However, removal of potentially infectious carcasses may not be the best option if conduct of those operations would lead to dispersal of infected populations to new areas. Contact wildlife disease specialists within the Service or at the USGS National Wildlife Health Center to determine the need, wisdom, and appropriate procedures for carcass collection. Consult Chapter 4, “Disease Control Operations”, Field Manual of Wildlife Diseases, National Wildlife Health Center ([http://www.nwhc.usgs.gov/publications/field\\_manual/chapter\\_4.pdf](http://www.nwhc.usgs.gov/publications/field_manual/chapter_4.pdf)) for guidance on carcass disposal options and procedures.

On-site methods for carcass disposal are generally preferred because they facilitate containment of the infectious agent. The USDA/APHIS/Veterinary Services National HPAI Response Plan ([http://www.aphis.usda.gov/newsroom/hot\\_issues/avian\\_influenza/avian\\_influenza\\_summary.shtml](http://www.aphis.usda.gov/newsroom/hot_issues/avian_influenza/avian_influenza_summary.shtml)) lists the overall order of preference for various disposal alternatives when dealing with HPAI H5N1 affected carcasses as:

- 1) On-site composting
- 2) On-site treatment (mobile incinerators, mobile digesters)
- 3) On-site burial
- 4) Off-site composting
- 5) Off-site landfill or off-site treatment (rendering, incineration, digestion)

A more thorough discussion of options for disposal of HPAI infected bird carcasses is provided in **Appendix 6**.

Regulatory compliance will need to be addressed in site-specific disease contingency plans for carcass disposal. Ground water issues must be considered when burying carcasses and air quality and other regulations will need to be considered if burning or incineration is proposed. Local and state requirements must also be researched and addressed. Coordination and communication with the state wildlife agency and the local and/or state agency governing water and air quality will be most useful when considering the issue of carcass disposal.

### *Employee and Public Health*

Public and employee safety will have the highest priorities in Service response to HPAI detection. The containment zone should be treated as containing a virus that may have significant animal and human health implications, and therefore response efforts should be closely coordinated with veterinary and public health agencies in the affected county and/or state.

In accordance with the Service PPE guidelines, activities involving the handling of wild birds within the containment zone or surveillance zone are assumed to involve an elevated risk of contact with the HPAI H5N1 virus and thus require the use of gloves, goggles, respiratory protection, and other PPE and work practices (see **Appendix 4**).

It is imperative that the Regional Director maintain effective oversight throughout the response effort and be prepared to install an incident command team if the response effort becomes too large and complex to be managed within the normal agency management structure.

#### **Step 4. Conduct inreach/outreach, including situational reports submitted to chain of command**

Inreach and outreach to our employees and the public should be conducted as in a detection off Service lands (see Chapter 4.A, step 4 above).

Timely, high quality information on the outbreak will be needed to inform all levels of the response effort. Situation Reports must be prepared daily by the affected field station project leader or HPAI Coordinator and submitted by email to the DOI Watch Office ([doi\\_watch\\_office@ios.doi.gov](mailto:doi_watch_office@ios.doi.gov)), the Director, the Regional Director, the Assistant Director – Migratory Birds, and the Regional HPAI Coordinator. The DOI Watch Office will forward these Situational Reports to other affected DOI bureaus and policy officials and to the emergency management offices of USDA and other federal agencies. A template for these daily Situation Reports is provided in **Appendix 7**.

Daily Situation Reports may also be useful for providing current information to other agencies (e.g., State Veterinarian, state wildlife agency), local communities, and the general public.

#### **Step 5. Monitor to determine when outbreak is contained/over, and response activities may cease**

If reliable assessments are made of the geographic scope and host distribution once a disease is established, further *disease monitoring* will be needed over time to monitor the course and progression of the disease, and its response to management. Disease monitoring, for example, may focus on key species or indicators in lieu of the wider based approaches used in the assessment of host range, distribution and prevalence. The goal with disease monitoring is frequently to determine the success and/or failure of implemented management or to monitor the natural behavior of the disease over time. This information allows managers to infer trends, evaluate the effectiveness of management actions to control or eliminate HPAI, and evaluate links between risk factors and occurrence of the disease.

In the event of an occurrence of HPAI H5N1 directly affecting Service lands, FWS management should reflect an elevated risk posture for at least two HPAI incubation periods, or 42 days, following the last detection. (The incubation period is the longest period during which an affected bird or other animal can be a source of infection. The USDA/APHIS HPAI Response Plan describes the incubation period for avian influenza, during which there is a potential for viral shedding, to be up to 21 days.)

## Responsibilities

Responsibilities in a response situation involving Service lands are as follows:

- At the national level, the Assistant Director – Migratory Birds is responsible for maintaining effective communication regarding the outbreak within the Headquarters Office of FWS, with other federal agencies, and with the Department; for representing FWS in interagency coordination meetings and informational briefings conducted at the policy level; and for ensuring that the Regional Director and Regional HPAI Coordinator of the affected Region(s) are kept abreast of information or decisions made at the national level that affect Regional or field response activities.
- Regional Directors are responsible for determining what kind of incident command structure is needed to effectively manage the response effort; maintaining effective oversight of Service response efforts; establishing and supporting a Regional Risk Management Team, as needed; and ensuring that the Service response effort is adequately staffed and resourced.
- The FWS Regional HPAI Coordinator is responsible for contacting cooperating agencies and coordinating the initial situational assessment; maintaining effective communication regarding the outbreak within the Regional Office (particularly any Risk Management Team that may be established) and between the Region, the affected field station(s), and the Washington Office; for serving as Agency Representative to any Incident Command Team that may be established, if designated as such by the Regional Director; and for coordinating the design and implementation of intensified surveillance of wild birds to first assess the scope of the outbreak and then monitor the course and progression of the disease.
- Public information officers at the Washington and Regional levels are responsible for coordinating with Service management, technical experts, and response personnel to provide information and answers to questions to the public, local officials, and media; and for coordinating those materials through the Joint Information Center if one is established as part of a multi-agency incident command system.
- Assistant Regional Directors are responsible for supporting response efforts within the scope of their authority and for overseeing response efforts of field stations to ensure that they are adequately staffed and resourced and that response actions are conducted safely and in accordance with established policy and regulation.
- Field project leaders are responsible for assisting in the initial situational assessment; recommending to the Regional Director whether to manage the response within the existing routine management structure or to stand up an Incident Command System; implementing the facility Disease Contingency Plan; setting up a zone system on Service lands for the purpose of disease containment and protection of employee and public health; directing management actions, in consultation with wildlife disease specialists, to contain the infectious agent; directing clean-up operations, as needed; ensuring that Service personnel

involved in response efforts are properly trained and equipped to carry out that work safely, and submitting daily Situation Reports on the outbreak.

## **Chapter 5. Environmental Compliance**

The Service must consider applicability of laws, regulations, and policies when planning and carrying out specific surveillance and management activities. HPAI regional and station plans, and plans for specific actions must include provisions on compliance with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and other laws, Executive Orders, and policies. Certain regulatory requirements may need to be addressed before any actions can be taken (e.g., compatibility determinations, NEPA compliance, and ESA consultation).

### **Endangered Species Act Compliance**

Some actions taken in response to an HPAI H5N1 outbreak in wild birds may directly or indirectly affect endangered or threatened species and require measures to ensure compliance with the Endangered Species Act. Involved federal agencies have specific responsibilities under Section 7 of the Act, and all participants must take steps to ensure that any taking of listed wildlife species is carried out under an appropriate permit. Field stations engaged in HPAI response activities must address the following applicable requirements and compliance measures:

#### 1) Interagency Cooperation

Section 7 of the Endangered Species Act outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats.

##### *Proactive Conservation Efforts by Federal Agencies*

Section 7(a)(1) directs the Secretaries of the Interior and Commerce to review programs they administer and use these programs to further the purposes of the Act. It directs all other federal agencies to use their authorities in furtherance of the purposes of the Act by carrying out programs for the conservation of listed species.

##### *Avoiding Adverse Effects of Federal Actions*

Section 7(a)(2) requires that each federal agency, in consultation with the appropriate Secretary (within the Department of the Interior, consultation is delegated to the Fish and Wildlife Service), ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. This section of the Act prescribes the consultation process, which is further developed in regulations promulgated at 50 CFR 402.

ESA Section 7 consultation may be required if surveillance or management activities may affect a listed species or designated critical habitat. Field station managers should closely coordinate with their Ecological Services Field Offices (or follow delineated procedures in their Region) during plan development to identify as early as possible those actions that may require consultation so they may be completed before the action needs to be implemented. Emergency consultation procedures are available to deal with response activities or other emergencies that

may affect listed species. Under these procedures, response efforts need not be delayed to ensure Section 7 compliance.

## 2) Permitted Actions

Section 9(a)(1)(B) of the Act prohibits take (includes harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect) of any listed wildlife species within the United States. An activity that would otherwise be prohibited can be allowed under special circumstances provided those conducting the activity have acquired and adhere to the provisions of a permit. Section 10 of the Act governs the issuance of permits for activities otherwise prohibited by Section 9. Section 10(a)(1)(A) authorizes the issuance of permits for scientific purposes or to enhance the propagation or survival of listed wildlife species. A general permit covering all activities prescribed in a response plan would be an appropriate vehicle to convey authority for activities affecting listed species. A permitted activity must not operate to the disadvantage of the species and must be consistent with the purposes and policy of the Act.

## **National Environmental Policy Act Compliance**

The Service NEPA procedures are found in 516 DM 6, Appendix 1. Additionally, the Service has NEPA guidance in the Fish and Wildlife Service Manual in 30 AM 2-3 and 550 FW 1, and in other guidance prepared by FWS programs.

### 1) What Proposed HPAI Actions Can Be Categorically Excluded?

A wide range of activities can be categorically excluded. These activities include surveillance activities such as (1) testing of sick birds that are discovered in the wild and reported to wildlife agencies, (2) acquisition and testing of samples from live birds or birds harvested by hunters, and (3) testing of birds taken by the public or agency personnel in management actions. The NEPA categorical exclusions can provide coverage as long as animal mortality resulting from the activity itself is “negligible”. Research on captive or wild animals that addresses information needs relative to HPAI is also eligible. Examples include studies of pathogenesis, transmission, and susceptibility, as well as development of techniques for diagnosis. Activities that involve informing the public about the disease are eligible (e.g., presentations, videos, fact sheets). These information activities provide results of Federal Assistance-funded surveillance, research, and other management activities to the public and contribute to the management of the HPAI problem. This list of eligible activities is not exhaustive; other types of work would be considered on a “case by case” basis. In summary, the following HPAI activities can be categorically excluded from further NEPA documentation, unless exceptions to the categorical exclusions apply:

- communication activities,
- dissemination of scientific and technical information,
- development/implementation of diagnostic procedures,
- surveillance activities,
- most research activities, and
- some disease management activities (determined on a case-by-case basis).

If a Department of the Interior bureau and another agency are proposing to conduct a HPAI activity, the other bureau or agency has categorically excluded the action under their NEPA procedures, and the DOI bureau has concurrence or co-approval with the other bureau or agency on the proposed action, the DOI bureau can categorically exclude the HPAI activity. For this procedure to apply, the DOI bureau must make an independent evaluation to determine if categorically excluding the proposal is consistent with the bureau NEPA guidelines and the Departmental NEPA procedures. Specific categorical exclusions are included in the Departmental Manual that authorize the Service to utilize this streamlined process, when applicable. These bureau categorical exclusions are as follows:

Fish and Wildlife Service. 516 DM 6, Appendix 1.4C(8). “Actions where the Service has concurrence or co-approval with another federal agency and the action is a categorical exclusion for that agency. This would normally involve one federal action or connected actions where the Service is a cooperating agency.” This categorical exclusion applies to any other federal agency.

## 2) When Should an EA or EIS Be Prepared for Proposed HPAI Actions?

CEQ NEPA regulations define significance in 40 CFR 1508.27. Department of the Interior requirements regarding whether to prepare an EIS are found in DOI 516 DM 2.3. Likewise, DOI procedures on preparing EAs and EISs are found in 516 DM 3 and 4, respectively. Specific bureau requirements regarding the above are found in separate appendices in the Departmental Manual for FWS, BLM, and NPS (e.g., 516 DM 6, Appendix 1, 5, and 7, respectively).

An EA is prepared for proposed actions that are not covered by an existing DOI categorical exclusion or when an EIS is not required. Procedurally, an EA is prepared to (1) determine whether the proposed action may result in significant impacts, thus requiring the preparation of an EIS; and (2) address unresolved conflicts concerning alternative uses of available resources. Following the preparation of the EA, if an EIS is not determined to be required, a Finding of No Significant Impact (FONSI) is prepared. Disposal of large quantities of possible HPAI H5N1 infected carcasses is not categorically excluded and would require preparation of an EA.

## **Clean Air Act/Clean Water Act**

Regulatory compliance will need to be addressed in site-specific plans for carcass disposal. Ground water issues must be considered when burying carcasses and air quality and other regulations will need to be considered if burning or incineration is proposed. Local and state requirements must also be researched and addressed.

## **APPENDICES**

## Appendix 1

### Veterinary Laboratories Certified to Conduct Asian H5N1 Virus Diagnostics

(Current as of February 2007)

National Animal Health Laboratory Network

(<http://www.aphis.usda.gov/vs/nahln/PDFs/AI.pdf>)

State	Laboratory
ALABAMA	Thompson Bishop Sparks State Diagnostic Laboratory 890 Simms Road PO Box 2209 Auburn, AL 36832 Phone 334-844-4987 Fax 334-844-7206
ALASKA	Environmental Health Lab Alaska Dept of Environmental Conservation 5251 Hinkle Rd. Anchorage, AK 99507 Phone 907-375-8206 Fax 907-929-7335
ARIZONA	Arizona Veterinary Diagnostic Laboratory 2831 N. Freeway Tucson, AZ 85705 Phone 520-621-2356 Fax 520-626-8696
ARKANSAS	Arkansas Livestock & Poultry Commission Laboratory One Natural Resources Dr. Little Rock, AR 72205 Phone 501-907-2400 Fax 501-907-2410
CALIFORNIA	California Animal Health & Food Safety Lab University of California, School of Veterinary Medicine West Health Science Drive Davis, CA 95616 Phone 530-752-8709
COLORADO	Colorado State University Veterinary Diagnostic Laboratory 300 West Drake Fort Collins, CO 80523 Phone 970-297-1281 Fax 970-297-0320
CONNECTICUT	Connecticut Veterinary Med Diagnostic Laboratory Univ of Connecticut 61 N. Eagleville Rd. Storrs, CT 06269 Phone 860-486-0837 Fax 860-486-3738
DELAWARE	Charles C. Allen Biotechnology Lab Dept of Animal & Food Sciences, University of Delaware Newark, DE 19716 Phone 301-831-2524 Fax 301-831-2822
DELAWARE	University of Delaware Poultry Laboratory 16684 County Seat Hi-Way Georgetown, DE 19947 Phone 302-856-1997
FLORIDA	Kissimmee Diagnostic Laboratory Florida Department of Agriculture 2700 N. John Young Parkway Kissimmee, FL 34741 Phone 321-697-1405 Fax 321-697-1467

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GEORGIA	University of Georgia Veterinary Diagnostic Laboratory 43 Brighton Road Tifton, GA 31793 Phone 229-386-3340 Fax 229-386-3399
GEORGIA	Athens Veterinary Diagnostic Lab Univ of Georgia College of Vet Med Building 1079 Athens, GA 30602 Phone 706-542-5568 Fax 706-542-5977
GEORGIA	Georgia Poultry Laboratory 4457 Oakwood Road Oakwood, GA 30566 Phone 770-535-5996
HAWAII	State Laboratories Division 2725 Waimano Home Road Pearl City, HI 96782 Phone 808-453-6652 Fax 808-453-5995
ILLINOIS	Illinois Dept of Ag Animal Disease Galesburg Animal Disease Lab 2100 S. Lake Storey Rd Galesburg, IL 61401 Phone 309-344-2451 Fax 309-344-7358
INDIANA	Purdue University Animal Disease Diagnostic Laboratory 406 South University St. West Lafayette, IN 47907 Phone 765-494-7460 Fax 765-494-9181
IOWA	Veterinary Diagnostic Laboratory Iowa State University 1600 S. 16th St. Ames, IA 50011 Phone 515-294-1950 Fax 515-294-3564
IOWA	USDA, APHIS, Veterinary Services, Diagnostic Veterinary Laboratory 1800 Dayton Ave Ames, IA 50010 Phone 515-663-7532 Fax 515-663-7348
KANSAS	Veterinary Diagnostic Laboratory Kansas State University, CVM L232 Mosier Hall, 1800 Dennison Ave Manhattan, KS 66506 Phone 785-532-4454 Fax 785-532-4039
KENTUCKY	Breathitt Veterinary Center Murray State University 715 North Drive Hopkinsville, KY 42240 Phone 270-886-3959 Fax 270-886-4295
LOUISIANA	Louisiana Veterinary Medical Diagnostic Laboratory P.O. Box 25070 Baton Rouge, LA 70894 Phone 225-578-9777 Fax 225-578-9784
MARYLAND	Maryland Dept. of Agriculture & Animal Health Laboratory 27722 Nanticoke Road Salisbury, MD 21801 Phone 410-543-6610
MICHIGAN	Diagnostic Center of Population & Animal Health, Michigan State Univ 4125 Beaumont Rd, Ste 201H Lansing, MI 48910 Phone 517-353-0635 Fax 517-432-5836
MINNESOTA	University of Minnesota Veterinary Diagnostic Laboratory 1333 Gortner Ave., 244 Veterinary Diagnostic Laboratory St. Paul, MN 55108 Phone 612-625-9289 Fax 612-624-8707

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MISSISSIPPI	Mississippi Veterinary Research & Diagnostic Laboratory 3137 Hwy 468 West Pearl, MS 39208 Phone 601-4204700 Fax 601-354-6209
MISSOURI	Veterinary Medical Diagnostic Laboratory University of Missouri 1600 East Rollins Columbia, MO 65211 Phone 573-882-6811
MONTANA	Montana Veterinary Diagnostic Laboratory P.O. Box 997, Marsh Laboratory, 19 <sup>th</sup> and Lincoln Bozeman, MT 59771 Phone 406-994-4885 Fax 406-994-6344
NEBRASKA	Veterinary Diagnostic Center University of Nebraska 137 VDC UNL Lincoln, NE 68583 Phone 402-472-1434 Fax 402-472-3094
NEVADA	Nevada Animal Disease and Food Safety Laboratory Nevada Department of Agriculture 350 Capitol Hill Ave. Reno, NV 89502 Phone: 775-668-1182
NEW JERSEY	New Jersey Dept of Ag, Division of Animal Health State Diagnostic Lab Rm 201 John Fitch Plaza, P.O. Box 330 Trenton, NJ 08625 Phone 609-984-2293 Fax 609-777-8395
NEW MEXICO	New Mexico Department of Agriculture Veterinary Diagnostic Services 700 Camino de Salud, NE Albuquerque, NM 87106 Phone 505-841-2576 Fax 505-841-2518
NEW YORK	Animal Health Diagnostic Center Cornell Univ, College of Vet. Med. S3 110 Schurman Hall, Upper Tower Rd. Ithaca, NY 14853 Phone 607-253-4271
NORTH CAROLINA	Rollins Diagnostic Laboratory North Carolina Department of Agriculture 2101 Blue Ridge Rd. Raleigh, NC 27607 Phone 919-733-3986 Fax 919-733-0454
NORTH DAKOTA	Veterinary Diagnostic Laboratory North Dakota State University Van Es Hall Fargo, ND 58105 Phone 701-231-7521 Fax 701-231-7514
OHIO	Ohio Department of Agriculture Animal Disease Diagnostic Laboratory 8995 E. Main Street, Building 6 Reynoldsburg, OH 43068 Phone 614-728-6220 Fax 614-728-6310
OKLAHOMA	Oklahoma Animal Disease Diagnostic Laboratory Oklahoma State Univ Farm & Ridge Road Stillwater, OK 74078 Phone 405-744-6623 Fax 405-744-8612
OREGON	Oregon State Veterinary Diagnostic Lab Oregon State University, College of Veterinary Medicine 30th & Washington Way Corvallis, OR 97331 Phone: 541-737-3261

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PENNSYLVANIA	Pennsylvania Veterinary Laboratory Pennsylvania Dept of Agriculture 2305 N. Cameron Street Harrisburg, PA 17110 Phone 717-787-8808 Fax 717-772-3895
PENNSYLVANIA	University of Pennsylvania, School of Veterinary Medicine New Bolton Center, 382 West Street Rd Kennett Square, PA 19348 Phone 610-444-6282 Fax 610-925-8110
PENNSYLVANIA	Pennsylvania State University, PA Animal Diagnostic Laboratory Orchard Road University Park, PA 16802 Phone 814-863-3882 Fax 814-865-3907
SOUTH CAROLINA	Clemson Veterinary Diagnostic Center 500 Clemson Road Columbia, SC 29229 Phone 803-788-2260
SOUTH DAKOTA	Animal Disease Research & Diagnostic Lab South Dakota State Univ Box 2175, N. Campus Dr. Brookings, SD 57007 Phone 605-688-5172 Fax 605-688-6003
TENNESSEE	CE Kord Animal Disease Diagnostic Lab Ellington Agricultural Center 440 Hogan Rd. Nashville, TN 37220 Phone 615-837-5125 Fax 615-837-5250
TEXAS	Texas Veterinary Medical Diagnostic Laboratory 1 Sippel Road Drawer 3040 College Station, TX 77843 Phone 979-845-9000 Fax 979-845-1794
UTAH	Utah Veterinary Diagnostic Laboratory 950 E. 1400 North Logan, UT 84322 Phone 435-797-1895 Fax 435-797-2805

VIRGINIA	Harrisonburg Regional Animal Health Laboratory Virginia Dept of Ag 116 Reservoir Street Harrisonburg, VA 22801 Phone 540-434-3897 Fax 540-434-3880
WASHINGTON	Washington Animal Disease Diagnostic Laboratory P.O. Box 647034, Bustad Hall Room 155-N Pullman, WA 99164 Phone: 509-335-6342
WASHINGTON	Avian Health and Food Safety Laboratory (Satellite to Washington Animal Disease Diagnostic Laboratory) 7613 Pioneer Way E Puyallup, WA 98371-4919 Phone 253-445-4537, Fax 253- 445-4544
WEST VIRGINIA	West Virginia Dept of Ag. Poultry Health Division 60B Moorefield Industrial Park Moorefield, WV 26836 Phone 304-538-2397 Fax 304-558-2231
WISCONSIN	Wisconsin Veterinary Diagnostic Laboratory Wisconsin Dept of Ag 6101 Mineral Point Road Madison, WI 53705 Phone 608-262-5432 Fax 608-262-5005

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WISCONSIN	USGS National Wildlife Health Center 6006 Schroeder Road Madison, WI 53711 Phone 608-270-2400 Fax 608-270-2415
WYOMING	Wyoming State Veterinary Laboratory 1174 Snowy Range Road Laramie, WY 82070 Phone 307-742-6638 Fax 307-721-2051

## Appendix 2

### 2007 NWHC Protocol for collection, storage, and shipment of combined oral-pharyngeal (OP) and cloacal (CL) swab samples (v.5/17/07).

Please coordinate shipments with Richard Zane (608-270-2481) or Diana Goldberg (608-270-2455) at the National Wildlife Health Center, Madison, Wisconsin.

#### Background information

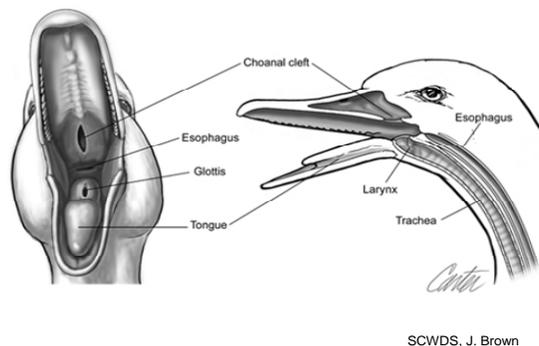
Both oral-pharyngeal (OP) and cloacal (CL) samples will be collected from each bird and combined in one vial. The 4 cc vials are pre-labeled with NWHC case and accession number and “OP/CL swab”. Cryovials are shipped on dry ice and can be stored at standard freezer temp (-20C) for the duration of the field season. Once thawed, virus transport media is good for 7 days refrigerated at 4C. Unused media vials may be refrozen twice. As samples are collected, keep vials out of sunlight in a cooler on ice or blue ice packs during the day’s work. After returning from the field, transfer vials to ultra-low freezers (-80°C), store on dry ice, or in liquid nitrogen vapor shippers, but do not freeze at standard freezer temperature (-20°C). Alternatively, samples can be kept refrigerated or on frozen ice packs and shipped to NWHC if they will arrive at NWHC within a **maximum** of 72 hours of collection.

#### Oral-pharyngeal and cloacal swabs

1. Thaw appropriate number of vials of media at refrigerator temperature (4°C) or on ice and keep chilled with wet/blue ice packs in a cooler during the day of collection.
2. Unwrap a swab from the stem-end of the packaging (store swabs so they do not get wet). Open oral cavity (technique will depend on species and whether alive or dead; for live birds, seek advice if necessary to avoid injury to the bird), insert swab, and with gentle front to back motion swab along both sides of the base of the tongue.



Oral swabbing a dead ring-billed gull.



SCWDS, J. Brown

Continue toward the back of the oral cavity and swab the area behind the tongue, avoiding the glottis (opening to the trachea). Remove the swab from the oral cavity by bringing it forward in contact with the roof of the mouth; swab over the choanal slit along the top (dorsal side) of the oral cavity. Immerse swab in media in the 4 cc vial and swirl.

3. Lift the swab about half way from the bottom of the vial and bend the stem over the edge of the vial to break off the stem (plastic stems) or cut the stem with scissors (metal stems) so that the swab remains in the vial and the cap can be screwed tight. The entire swab end and a portion of the stem will be left in the tube. Scissors should be wiped with alcohol each time they are used to cut a stem.

4. Unwrap another swab from the stem-end of the packaging, remove swab and insert the entire head of the swab into the cloaca. Use gentle pressure and in a circular motion, swab the inside circumference of the cloaca two or three times. Shake off large pieces of feces and insert the swab into the **same** labeled vial as above, following step #3 above.



5. Write 4-letter species code on the vial with fine-tip Sharpie. Record data on Excel worksheet (see below). Keep vials on ice out of sunlight and store as described in Background, above.

Cloacal swabbing technique.

### Shipping to NWHC

Ship samples on dry ice (preferred, 8-10 lbs.) or blue ice packs (equal volume of ice packs and sample vials) via overnight courier (FedEx preferred). Vials should be placed in sequential order in chipboard cryovial boxes enclosed in leak proof plastic bags with absorbent material. Label each cryovial box with some description of contents. Prevent dry ice or blue ice packs from damaging vials and leak proof plastic bags by separating the dry ice from the vials with newspapers or paper towels. Use freezer shipping containers (styrofoam cooler within cardboard box) as outer packaging. Put packing list (see below) on top of styrofoam cooler, so it is visible when cardboard box is opened. Label outside of container “Exempt Animal Specimens”. If dry ice is used, apply dry ice IATA label and declare dry ice on air bill. Do not use hard plastic coolers or other “air-tight” containers with dry ice, to avoid build-up of pressure from carbon dioxide. Vapor shippers can be also used for sample transport (“Not restricted – dry shipper” and “IATA A152” on air bill). Useful websites:

Shipment of Diagnostic Specimens:

<http://www.ibt.umn.edu/shippingSpecimen.html>

Information on transport of dry shippers:

[http://www.zoo.ufl.edu/julian/dry\\_shipper/TipsDryShipper.pdf](http://www.zoo.ufl.edu/julian/dry_shipper/TipsDryShipper.pdf)

Ship package by overnight express (FEDEX preferred; Mon-Wed, unless other prearrangement) to:

Richard Zane

National Wildlife Health Center

6006 Schroeder Road

Madison, WI 53711

Phone 608-270-2481

Note: Please notify NWHC of shipments through the web-based system found at <http://wildlifedisease.nh.gov/ai>. Only authorized personnel have access: see your data administrator.

**National Wildlife Health Center AI Sample Packing List**

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**Sender's information**

Name, affiliation: \_\_\_\_\_ Date sent: \_\_\_\_\_  
Phone: \_\_\_\_\_ email: \_\_\_\_\_  
NWHC case #: \_\_\_\_\_ Species: \_\_\_\_\_  
Number of vials: \_\_\_\_\_ Location: \_\_\_\_\_  
Shipped on: dry ice \_\_\_\_\_ vapor shipper \_\_\_\_\_ blue ice \_\_\_\_\_

---

**NWHC use**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_  
Logged in by: \_\_\_\_\_ Date: \_\_\_\_\_

---

**Field data to send to NWHC:**

Use the National HPAI Early Detection System through the Wildlife Disease Information Node  
Visit <http://wildlifedisease.nbi.gov/ai> and download appropriate Excel worksheet  
Cross reference band or field number with NWHC case and accession number

### **Appendix 3**

#### Instructions for Collection and Shipment of Avian Carcasses for Diagnostic Evaluation

The following are general guidelines for collecting and shipping wildlife carcasses to veterinary diagnostic labs to insure adequate and well preserved specimens. Field biologists should contact the specific laboratory that they will be working with well in advance of any specimen collection and shipping to receive specific instruction for specimen submissions to that lab. Labs should always be notified ahead of time when a shipment is being made to their facility. Once you have determined what equipment and supplies will be needed for specimen shipping, keep adequate numbers of shipping containers, frozen ice packs, shipping labels and packing materials available at all times. If you plan to collect animals while in the field, take along a cooler with ice packs to chill the carcasses.

1) Don appropriate PPE. (See **Appendix 4** of FWS Response Plan).

2) Carcass collection:

- a) Collect the freshest carcasses you can find. Look for those with clear eyes, no scavenging, and that are representative of the age/gender/species affected by the mortality event. For high priority species with few specimens, collect all that you can.
- b) Some of the best specimens for diagnostic testing during mortality events are live animals exhibiting clinical signs of disease (e.g., drooping head, swimming in circles). Once you have caught the bird, one acceptable method of euthanasia that maintains intact organs (including head) and does not contaminate the carcass with euthanasia drugs is cervical dislocation.

-- Cervical dislocation: Grip behind the back of the skull. With the other hand, grip at the base of the neck (right in front of the body). Pull the body and head in opposite directions in a quick snapping motion and a slight twisting. This should dislocate the skull from the spinal column.

- c) Questions about carcass preservation should be directed to the receiving lab to determine their capabilities and preferences. In general, for cause of death determinations and for the best AI samples, fresh chilled specimens, shipped within 24 hours of collection, are best. If the specimen must be kept more than 48 hours before shipping, freeze the carcass.

3) Carcass shipment:

- a) Once you have collected the carcass, attach a tyvek tag (waterproof tag), labeled with an indelible waterproof pen such as a Sharpie. Information on the tag should include date, location, GPS coordinates if available, and the collector's information (name, address, and phone number).

- b) Attach the tag to the leg of the bird using a zip tie or twisted wire ends of a tag so supplied.
- c) Bag the bird in a sealable plastic bag.
- d) Place the single bagged bird into a second bag. Several individually tagged birds can be placed into this second bag. Seal and label the second bag with the collector's contact information and the number and species of birds included in the bag.
- e) Place a third bag inside an insulated shipping box (Styrofoam cooler within a cardboard box) with some absorbent material such as newspaper in the bottom of the bag to collect any fluids that might leak from the other bags. Place the double bagged birds into the third bag and seal.
- f) Place enough blue ice packs on top of the birds to keep them cool during shipment. If shipping with dry ice, insulate the birds from direct contact with the dry ice to prevent burning. (Caution: use dry ice only on the recommendation of the receiving lab.) Place crumpled newspaper or similar absorbent material in the cooler with the bagged carcasses to fill unused space, hold the blue ice in contact with the carcasses, provide insulation, and absorb any liquids.
- g) Replace the Styrofoam lid on the shipping container and tape closed.
- h) Place a copy of the specimen history form (attached below), sealed in a plastic bag for protection, on top of the Styrofoam lid but under the cardboard flaps. A copy of this specimen history form should be faxed or emailed to the diagnostic lab at the time of shipment.
- i) Seal the cardboard shipping box or cooler with sturdy shipping tape. If shipping with dry ice, do not seal airtight. Leave a small area untapped to allow the evaporating gas from the dry ice to seep out of the container, preventing pressure from building up inside during shipment.
- j) Attach the air bill to the top of the box. FedEx is the preferred carrier for shipment to the USGS National Wildlife Health Center.
  - i) Record the tracking number from the top of the airbill to allow you to track the shipment during transit using the FedEx website. When notifying the lab of the shipment, provide them with the tracking number as well.
  - ii) Under dangerous goods, check "yes but designation not required", as the International Air Transportation Association (IATA) does not designate these types of samples as hazardous.
  - iii) The receiving lab's phone number is required for shipment so that the shipping company can contact the lab to resolve any issues relating to delivery address or arrival time.

- k) On the side of the box attach a “UN 3373 Biological Substance Category B” designation sticker (if it is not already on the box). These can be obtained at Fed Ex or U.S. Postal Service offices.
- l) Include both the shipper’s and the receiving lab’s name and address on the side of the box in case something happens to the airbill.
- m) If shipping with dry ice, include a “UN 1845” designation sticker specifying the amount of dry ice included in the box. Five kilograms should be more than sufficient to keep the contents at 0<sup>0</sup>C for 36-48 hours. Also check the Dry Ice designation box on the airbill, along with the estimated amount of dry ice.
- n) Ship specimens for next day delivery (overnight service) from Monday through Wednesday to guarantee arrival at the diagnostic lab before the weekend. If specimens are fresh and need to be shipped on Thursday or Friday, contact the diagnostic lab to make special arrangements for receipt of specimens.
- o) Notify the lab with the expected delivery date and the number of boxes and samples to expect. Provide them with the airbill tracking number(s) so they can track the shipment from their end if needed.

## Sample Specimen History Form

Submitter's name:

Affiliation:

Address:

Telephone:

E-mail:

Date collected:

Method of collection: [found dead, euthanized (describe method), etc.]

Collector's name:

Specific die-of location:

State:

County:

Latitude/Longitude:

Environmental factors: (Record conditions such as storms, precipitation, temperature changes, or other changes that may contribute to stress.)

Disease onset: (The best estimate of when the outbreak started.)

Species affected: (The diversity of species affected may provide clues to the disease involved.)

Age/sex: (Any selective mortality related to age and sex.)

Morbidity/mortality: (Ratio of sick animals to dead animals.)

Known dead: (Actual pickup figures.)

Estimated dead: (Consider removal by scavengers or other means.)

Clinical signs: (Any unusual behavior and physical appearance.)

Population at risk: (Number of animals in the area that could be exposed to the disease.)

Population movement: (Recent changes in the number of animals on the area and their source or destination, if known.)

Problem area description: (Land use, habitat types, and other distinctive features.)

Comments: (Additional information/observations that may be of value such as past occurrences of disease in area.)

## Appendix 4

### USFWS PPE Guidelines for Highly Pathogenic Avian Influenza Surveillance and Response Activities

This document provides guidelines on personal protective equipment (PPE) to be used by U.S. Fish and Wildlife employees involved in surveillance activities and/or in response to an outbreak of H5N1 highly pathogenic avian influenza (HPAI H5N1) in wild birds. The Department of the Interior previously developed PPE guidelines applicable to all bureaus, and the Service adopted and issued those as interim guidelines on August 11, 2006. These Service guidelines now step down that basic framework to the work activities, work conditions, and risk factors most likely to be faced by Service employees. These Service-specific guidelines supersede the interim guidelines of August 11, 2006.

These guidelines are explicitly risk based, providing for graduated levels of PPE based upon the relative risk of exposure to HPAI H5N1 virus and the relative risk of infection when the virus is potentially in the work environment. They are tailored to work activities most likely to be conducted by Service employees.

For instance, when dealing with a bird mortality event, Service employees would most likely be collecting carcasses for submittal to a lab for diagnosis, collecting information on site conditions to aid in diagnosis, and potentially collecting and disposing of sick or dead birds to halt the chain of disease transmission. Accordingly, the guidelines for PPE, work practices, and personal hygiene are tailored to those activities. These guidelines do not envision that Service employees would likely be conducting field necropsies or undertaking other activities that would carry a higher risk of exposure to, or infection by, the HPAI H5N1 virus.

However, the Service is a diverse organization and these guidelines cannot be expected to anticipate and cover every work situation. To the extent that some Service employees may be involved in work activities that carry a higher risk of exposure or infection than envisioned in these guidelines, the appropriate PPE, work practices and personal hygiene practices should be evaluated using risk assessment methodology in consultation with safety and health professionals.

The risk of exposure and infection, and the consequent PPE recommendations, is dependent on the likelihood that the HPAI H5N1 virus is present in the wild birds being handled. The Service is applying the following framework for managing risk within the context of HPAI H5N1 surveillance and response activities:

- If the HPAI H5N1 virus is not known or suspected to be present in wild birds in the vicinity of the work area, then no special measures are needed to guard against exposure or infection. However, anyone handling wild birds faces some risk of exposure to other disease agents, so basic PPE, protective work practices, and standard personal hygiene measures should be used.

- When handling wild birds within 6.2 miles (10km) of a site where the HPAI H5N1 virus has either been definitively diagnosed by the USDA National Veterinary Services Laboratories or is suspected in association with a bird mortality event, additional protective measures are called for to minimize the risk of employee exposure or infection. (This 6.2 mile (10km) radius area where additional PPE should be worn mirrors the “surveillance zone” of the Service’s HPAI Early Detection and Response Plan, the USDA/APHIS HPAI Response Plan, and the European Union’s protocol for managing HPAI H5N1 outbreaks in wild birds. It will be centered on a point of known or suspected occurrence of HPAI H5N1, and may be adjusted outward as ecological, epidemiological, or administrative circumstances warrant. If adjusted outward, the additional PPE should be worn within the expanded area.)
- Employees handling apparently healthy live birds outside of any designated “surveillance zone” following a definitive or suspected diagnosis of HPAI H5N1 in wild birds do not face an elevated risk of exposure to the virus. Standard PPE, work practices, and hygiene associated with handling any wild bird should be used.
- If the HPAI H5N1 virus has been definitively diagnosed in wild birds within a migratory flyway, personnel handling sick or dead birds when responding to other mortality events within the flyway should assume increased risk of exposure to the HPAI H5N1 virus and employ additional PPE and protective work practices.

When additional protective measures are called for, they are to be applied for at least 42 days (two HPAI incubation cycles) after the date of the last detection of HPAI H5N1 in wild birds within the affected area.

Unvaccinated workers should receive the current season’s influenza vaccine to reduce the possibility of dual infection with avian and human influenza viruses. There is a small possibility that dual infection could occur and result in viral re-assortment.

In the absence of H5N1-infected wildlife, prophylactic use of influenza antiviral medications is not recommended for work that involves handling wild birds. Field staff who develop influenza symptoms within 10 days after working with wild birds should have prompt telephone access to a health care provider and access to medical care within 48 hours of symptom onset.

The following table provides minimum personal protective equipment levels; however, other PPE may be appropriate depending on specific conditions of the worksite or the tasks. Consult your Regional Safety Officer to determine the merits of additional PPE or other deviations from these Service guidelines that maintain effective employee protection, or to address any other questions you may have.

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ACTIVITY	CONDITIONS	ACTIVITY RISK	PPE	WORK PRACTICE
1) Handling apparently healthy birds	a) HPAI H5N1 not known or suspected within 6.2 miles <sup>1</sup> of the work site	No apparent risk of HPAI H5N1 infection, because virus not known or suspected within work area. Possible exposure to other disease agents.	<ul style="list-style-type: none"> <li>◆Impermeable gloves (polyvinyl chloride (PVC), nitrile, latex, or rubber)</li> <li>◆Goggles or safety glasses.</li> </ul>	<p>Use PPE. If impermeable gloves are not practical for the work situation, wash hands frequently with soap and water, or an alcohol based hand gel when soap and water are not available.</p> <p>If working indoors, work in well-ventilated areas.</p> <p>When working outdoors, work upwind of animals, to the extent practical, to decrease the risk of inhaling airborne particulate matter such as dust, feathers, or dander.</p> <p>Do not touch any part of exposed body (especially the face) with gloved or unwashed hands.</p> <p>If gloves are torn or damaged:</p> <ol style="list-style-type: none"> <li>1) Immediately but carefully remove them.</li> <li>2) Thoroughly wash hands with soap and water (or an alcohol based hand gel when soap and water are not available.)</li> <li>3) Don a fresh pair of gloves after hands are dry.</li> </ol>
	b) Definitive diagnosis of HPAI H5N1, or presumptive H5N1 diagnosis in association with bird mortality <sup>2</sup> , within 6.2 miles <sup>1</sup> of the work site	Increased risk of HPAI H5N1 infection due to aerosolization of infectious material via dust generation; ; direct contact with bird secretions, feathers, or dander; or soiling of clothing with infectious material.	<ul style="list-style-type: none"> <li>◆Impermeable gloves (PVC, nitrile, latex , or rubber)</li> <li>◆Goggles</li> <li>◆NIOSH approved particulate respirator, N-95 or better.<sup>3</sup></li> <li>◆disposable gowns or coveralls, or washable outerwear (e.g., raingear)</li> <li>◆Rubber boots or boot covers</li> </ul>	<p>Use PPE.</p> <p>If working indoors, work in well-ventilated areas.</p> <p>When working outdoors, work upwind of animals, to the extent practical, to decrease the risk of inhaling airborne particulate matter such as dust, feathers, or dander.</p> <p>Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves.</p> <p>Remove PPE in the following order:</p> <ol style="list-style-type: none"> <li>1) Carefully remove coveralls and boot covers and discard as contaminated material if disposable. Remove washable outerwear and place in designated receptacle for subsequent cleaning and disinfection.</li> <li>2) Disinfect rubber boots.</li> <li>3) Remove gloves and immediately wash hands thoroughly with soap and water (or an alcohol-based hand gel when soap and water are not available).</li> <li>4) Remove eye protection and place in designated receptacle for subsequent cleaning and disinfection.</li> <li>5) Remove N-95 disposable respirator and discard.</li> <li>6) Immediately after all PPE has been removed, wash hands thoroughly a second time.</li> </ol>
2) Handling sick	a) HPAI H5N1	No apparent risk of	◆Impermeable	Use PPE.

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<p>or dead birds</p>	<p>not known or suspected in the flyway within the previous 42 days</p>	<p>HPAI H5N1 infection, because virus not known or suspected within work area. Possible infection with other disease agents.</p>	<p>gloves (PVC, nitrile, latex, or rubber)                      ♦Goggles or safety glasses</p> <p>If dealing with a significant number of sick or dead animals, also wear:                      ♦Disposable gowns or coveralls, or washable outerwear (e.g., raingear)                      ♦Rubber boots or boot covers</p>	<p>Collect birds in a manner that minimizes contact and generation of airborne contaminated particulate material.                      Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves.                      Remove PPE in the following order:                      1) Carefully remove coveralls and boot covers and discard as contaminated material if disposable. Remove washable outerwear and place in designated receptacle for subsequent cleaning and disinfection.                      2) Disinfect rubber boots.                      3) Remove gloves and immediately wash hands thoroughly with soap and water (or an alcohol-based hand gel when soap and water are not available).                      4) Remove eye protection and place in designated receptacle for subsequent cleaning and disinfection.                      5) Immediately after all PPE has been removed, wash hands thoroughly a second time.</p>
	<p>b) Definitive diagnosis of HPAI H5N1, or presumptive H5N1 diagnosis in association with bird mortality<sup>2</sup>, within the flyway within previous 42 days</p>	<p>Increased risk of HPAI H5N1 infection due to aerosolization of contaminated material via dust generation; direct contact with bird secretions, feathers, or dander; or soiling of clothing with contaminated material.</p>	<p>♦Impermeable gloves (PVC, nitrile, latex, or rubber)                      ♦Goggles                      ♦NIOSH approved particulate respirator, N-95 or better.<sup>3</sup>                      ♦Disposable gowns or coveralls, or washable outerwear (e.g., raingear)                      ♦Rubber boots or boot covers</p>	<p>Same hygiene practices as above.                      Use dust suppression techniques. Use work practices to minimize direct contact with birds and secretions, feathers and danger.                      Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves.                      See work practices under activity 1.b. for proper procedure for removal of PPE.                      Note: If oils are used for dust suppression, use NIOSH-approved respirators that are rated for use with oils, R-95 (somewhat oil resistant) or P-95 (strongly oil resistant) respirators.</p>
<p>3) Cleaning and disinfecting of</p>	<p>a) Small scale cleaning and</p>	<p>Low risk of HPAI H5N1 infection,</p>	<p>♦Impermeable gloves (PVC,</p>	<p>Surfaces should be cleaned with detergent and water and then sanitized. Useful sanitizing solutions include:</p>

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equipment known or suspected to be contaminated with HPAI H5N1 virus	disinfecting through washing or wipedown	because aerosolization of contaminated particles or soiling of clothing from contact with contaminated material is unlikely.	nitrile, latex, or rubber) ◆Goggles	<p>1) 1% solution of household bleach [1.25 oz or about 8 teaspoons of bleach (5.25 % sodium hypochlorite) per gallon of water] for hard, non-porous surfaces.</p> <p>2) 5% solution of household bleach for porous surfaces;</p> <p>3) 5% hospital-grade Lysol® or other EPA-approved disinfectants.</p> <p>4) Use of disposable disinfectant wipes may be appropriate for some applications.</p> <p>Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves. Remove eye protection after hands have been washed and place in designated receptacle for subsequent cleaning and disinfection. Clean hands with soap and water a second time (or an alcohol-based hand gel when soap and water are not available) immediately after PPE is removed.</p>
	b) Large scale decon or cleaning operations, and any decon or cleaning operations involving dusty conditions or risk of aerosolizing contaminants.	Increased risk of HPAI H5N1 infection due to aerosolization of infectious material; direct contact with infectious materials; or soiling of clothing with infectious material.	◆Impermeable gloves (PVC, nitrile, latex, or rubber) ◆Goggles ◆NIOSH approved particulate respirator, N-95 or better. <sup>3</sup> ◆disposable gowns or coveralls, or washable outerwear (e.g., raingear) ◆Rubber boots or disposable boot covers	<p>Avoid generating mists with water sprayers during equipment decon procedures (i.e. hosing out the bed of a contaminated truck, hosing off contaminated equipment, etc.) Use general cleaning and sanitizing procedures listed above.</p> <p>Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves.</p> <p>See work practices under activity 1.b. for proper procedure for removal of PPE.</p>
4) Service Officers handling wild birds or bird parts at Ports of Entry	a) handling sport hunted birds (whole, breasted with one fully feathered wing, or other) killed	No apparent risk of HPAI H5N1 infection, because virus not known or suspected within country of origin. Possible exposure to other	◆Impermeable gloves (PVC, nitrile, latex, or rubber) ◆Goggles or safety glasses.	<p>Use PPE.</p> <p>If working indoors, work in well-ventilated areas.</p> <p>When working outdoors, work upwind of animals, to the extent practical, to decrease the risk of inhaling airborne particulate matter such as dust, feathers, or dander.</p> <p>Do not touch any part of exposed body (especially the face) with gloved or unwashed hands.</p>

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	in Canada or Mexico only. HPAI H5N1 not known or suspected within country of origin.	disease agents.		If gloves are torn or damaged: 1) Immediately but carefully remove them. 2) Thoroughly wash hands with soap and water (or an alcohol based hand gel when soap and water are not available.) 3) Don a fresh pair of gloves after hands are dry.
	b) handling shipments of live birds or bird parts and products (other than sport hunted birds from Canada or Mexico) arriving from any country. Presence of HPAI H5N1 in shipment is unknown.	Potential risk of HPAI H5N1 infection due to aerosolization of contaminated material via dust generation; direct contact with bird secretions, feathers, or dander; or soiling of clothing with contaminated material.	<ul style="list-style-type: none"> <li>◆Impermeable gloves (PVC, nitrile, latex, or rubber)</li> <li>◆Goggles</li> <li>◆NIOSH approved particulate respirator, N-95 or better.<sup>3</sup></li> <li>◆Disposable gowns or coveralls</li> <li>◆Shoe covers</li> </ul>	Use PPE. If working indoors, work in well-ventilated areas. When working outdoors, work upwind of animals, to the extent practical, to decrease the risk of inhaling airborne particulate matter such as dust, feathers, or dander. Do not touch any part of exposed body (especially the face) with gloved hands. See instructions under activity 1.a. for torn or damaged gloves. See work practices under activity 1.b. for proper procedure for removal of PPE.

<sup>1</sup> A 6.2 mile (10km) radius area surrounding any site where the HPAI H5N1 virus has either been definitively diagnosed, or is suspected in association with a wild bird mortality event, will be considered a “surveillance zone”, within which the risk of HPAI H5N1 infection is considered to be elevated. The boundary of this surveillance zone may be expanded outward as ecological, epidemiological, or administrative circumstances warrant. This surveillance zone will remain in effect for at least 42 days (two HPAI H5N1 incubation cycles) after the date of the last detection of HPAI H5N1 in wild birds within the zone.

<sup>2</sup> Refers to situations where the USDA National Veterinary Services Laboratories have made a definitive diagnosis of HPAI H5N1 in a wild bird or a presumptive diagnosis of an H5N1 avian influenza virus from a wild bird found dead or moribund

<sup>3</sup> Use of respirators including N-95 filtering facepiece respirators requires implementing a Respiratory Protection Program as required by OSHA. This includes training, fit-testing, and fit-checking to ensure appropriate respirator selection and use. To be effective, respirators must provide a proper sealing surface on the wearer's face. Detailed information on respiratory protection programs is provided at: [www.osha.gov/SLTC/etools/respiratory/index.html](http://www.osha.gov/SLTC/etools/respiratory/index.html) and [www.cdc.gov/niosh/topics/respirators/](http://www.cdc.gov/niosh/topics/respirators/).

**Strict adherence to hygiene and sanitation practices is required for all operations.**

- Do not eat, drink, or smoke, or any other activity (such as handling equipment, using cellphones, etc) which puts your hands in or near your eyes, nose, or mouth while handling animals until you can wash your hands.
- Avoid unnecessary contact with animals or animal tissue.
- Educate employees about importance of hand washing in controlling disease transmission. Hands should be washed after contact with contaminated surfaces, after removing gloves, after sneezing, using the bathroom, handling garbage, contact with wildlife, soils and similar activities, and before preparing or eating food, smoking, drinking, applying cosmetics, lip balm, or lotions.

Proper hand washing:

1. First wet your hands and apply liquid or clean bar soap. Place the bar soap on a rack and allow it to drain.
2. Next rub you hands vigorously together and scrub all surfaces
3. Continue for 10-15 seconds. It is the soap combined with the scrubbing action that helps dislodge and remove germs.
4. Rinse well and dry your hands.
5. Alcohol-based sanitizing hand rubs or sanitizing cloths may be used as a temporary solution when hand washing facilities are not available. Portable field hand washing facilities are easily rigged and transported.

**Medical Evaluation**

For those in direct contact with live or dead wildlife or with materials contaminated with their secretions:

- Medical consultations should be available via telephone/sat phone for remote operations.
- Instruct workers to be vigilant for the development of fever, respiratory symptoms, and/or conjunctivitis (i.e., eye infections) for 1 week after last exposure to avian influenza-infected or exposed birds or to potentially avian influenza-contaminated environmental surfaces.
- Individuals who become ill should seek medical care and prior to arrival notify their health care provider that they may have been exposed to avian influenza. In addition, employees should notify their FWS health and safety representative. They should limit contact with others if at all possible. People who have been in close contact with the symptomatic employee should be informed. The symptomatic individual should wear a disposable facemask and practice good respiratory and hand hygiene to reduce the transmission of aerosolized droplets while in transit.

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- With the exception of visiting a health care provider, individuals who become ill should be advised to stay home until 24 hours after resolution of fever, unless an alternative diagnosis is established or diagnostic test results indicate the patient is not infected with influenza A virus.
- The suspect case's work station and quarters should be cleaned and disinfected, as indicated in the section on workplace cleaning.
- While at home, ill persons should practice good respiratory and hand hygiene to lower the risk of transmission of virus to others. For more information, visit CDC's "[Cover Your Cough](#)" website .

## Appendix 5

### Elements of a Refuge Disease Contingency Plan (DCP)

#### **Specific HPAI topics identified in *italics***

#### 1. Background and Introduction

- a. Refuge description, habitat, wildlife resources (population size, species, habitat use, etc)
  - i. Endangered species
- b. Temporal and spatial distribution of wildlife resources; wildlife use of the Refuge (feeding, loafing, transient, resident year round, etc)
- c. General seasonal weather conditions
- d. Overview of Refuge management
  - i. Recurrent routine management
  - ii. Optional, infrequent management
  - iii. Infrastructure available for habitat management

*With regard to HPAI, this overview should outline known risk factors for HPAI, including distribution of nearby poultry, presence of domestic birds on the Refuge, and management practices that enhance transmission of density-dependent infectious disease.*
- e. History of wildlife diseases at the station

*Be specific enough with disease history to be able to identify mortality events that would qualify as “unusual”. This is critical in making assessments of wildlife mortality on a Refuge.*
- f. Relationship of FWS managed populations to the larger landscape
  - i. Source of immigrants
  - ii. Destination of emigrants
  - iii. Map of adjacent land ownership
- g. Human use of Refuge (public, research, etc)

#### 2. Disease Surveillance

- a. Current Surveillance – what is being done now for any diseases?
  - i. Methods used
  - ii. Frequency – e.g., daily, weekly, monthly
  - iii. Duration – how many years has the station been conducting disease surveillance?

*1. Current surveillance at a specific field station may change based on needs for HPAI surveillance and the opportunities available at the station. HPAI surveillance will be based on identified priorities in Flyway Plans, needs identified with cooperators (state and federal agencies), and opportunities that are present on the Refuge (e.g., banding, management activities, research, hunter check stations, etc).*

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*2. Through coordination with cooperators, surveillance on Refuges may be FWS-led or FWS may provide assistance to others. Specific surveillance goals may be identified.*

*3. Surveillance needs will be dynamic and may change as the distribution of virus changes. Surveillance designs will consider sample size estimations to develop a specific confidence of detection at a specified prevalence.*

*4. External factors may affect whether a Refuge gets involved with HPAI surveillance.*

- b. Background info on Surveillance: Detection, assessment and monitoring – types of surveillance depending on disease status
- i. Detection – specific diseases are not known to be present, surveillance is designed to find early cases of wildlife diseases.
  - ii. Assessment – a disease of interest has been found on site, surveillance is designed to assess the temporal-spatial distributions, species distributions, and/or impacts to wildlife resources.
  - iii. Monitoring – a disease of interest is well described, surveillance is designed to monitor the natural course of the disease or monitor the effect of management actions on disease distribution and prevalence.
- 1. Options for HPAI surveillance are spelled out in the Service National Response Plan and were developed from the Interagency HPAI Surveillance Plan. These include specific samples taken from:*
- 1. Wildlife mortality*
  - 2. Healthy live birds*
  - 3. Hunter-killed birds*
  - 4. Sentinel birds*
  - 5. Environmental Samples*
- 2. Protocol for collecting cloacal and oropharyngeal swabs, the specific samples for HPAI surveillance from live or hunter killed birds, needs to be appended to the station DCP if surveillance is being conducted. The protocol is provided in **Appendix 2** of the USFWS HPAI Response Plan.*
- 3. The DCP should also include station-specific guidance on transmittal of surveillance samples to the diagnostic lab (mode of shipping and preservation, destination laboratory). See the USFWS HPAI Response Plan for directions on packaging and shipping oropharyngeal and cloacal samples (**Appendix 2**).*
- c. Communications and coordination with collaborators on surveillance (state, other federal agencies, etc)
- i. Include a flow chart of communications as an appendix to the DCP *Site-specific communication protocols for HPAI will need to be developed in coordination with cooperating agencies and both national and regional Service communication plans.*

3. Conducting a field investigation of wildlife mortality

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- a. Personal protection
    - i. Boots, coveralls, latex gloves, disinfectant, bucket, water and brush basic minimum
      - 1. Disinfection and removal of potentially contaminated materials from affected area needs consideration

*The specific type of personal protection equipment (PPE) used in investigating wild bird disease outbreaks will follow the Service's guidelines for Employee Safety and Health for Highly Pathogenic Avian Influenza Surveillance and Response Activities (**Appendix 4** of the USFWS HPAI Response Plan), which apply an activity-based HPAI risk assessment. Higher levels of risk will require different PPE.*
  - b. Species/populations at apparent risk and species/populations affected by disease
    - i. Relative numbers or abundances
    - ii. Age or gender bias
    - iii. Recent wildlife movements coming onto the Refuge
  - c. Clinical signs and mortality
    - i. Description of clinical signs
    - ii. Relative proportion of sick and dead
  - d. Distribution of affected population
    - i. Size of affected area
    - ii. Habitat type
    - iii. Recent changes in habitat use
  - e. Disease onset – based on surveillance frequency, carcass degradation, and/or scavenging
  - f. Weather or unusual weather events (e.g., hail storm)
    - i. Water conditions, temperature, precipitation
  - g. Changes in management that could affect wildlife health
  - h. Off refuge activities that could affect wildlife health (e.g., pesticide application)
  - i. Biocontainment and personnel movement
    - i. First rule: prevent spread of any infectious disease to new locations
    - ii. Use minimum personnel necessary to accomplish the investigation
  - j. Specimen collection, preservation, packaging, and shipment
- Protocol for HPAI sampling, preservation and shipping is included in **Appendices 2, 3, and 4** of the USFWS HPAI Response Plan. Generally whole carcasses are examined for investigation of wildlife mortality, but the laboratory could potentially ask for HPAI swabs. Specimens collected by USFWS should be sent to the USGS National Wildlife Health Center (NWHC) in Madison, Wisconsin for analysis. If the need arises to use another lab for HPAI screening of specimens, the Service should confirm that it is a National Animal Health Laboratory Network (NAHLN) lab certified to conduct highly pathogenic H5N1 avian influenza virus diagnostics. A list of NAHLN labs certified as of February 2007 to conduct HPAI H5N1 diagnostics can be found in **Appendix 1** of the USFWS HPAI Response Plan.*

4. Disease Outbreak Response

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a. PPE requirements

*The specific type of personal protection equipment (PPE) used in disease outbreak response will follow the Service's guidelines for Employee Safety and Health for Highly Pathogenic Avian Influenza Surveillance and Response Activities (Appendix 4 of the USFWS HPAI Response Plan), which apply an activity-based HPAI risk assessment. Higher levels of risk will require different PPE.*

b. Management options

*Managers should seriously consider modifying any current management actions that enhance transmission of infectious disease before HPAI is found in North America.*

- i. Compatibility with Refuge mission, goals and CCP is first step
- ii. Ensure Regulatory Compliance
- iii. Infectious vs non-infectious cause – different management options, thus an accurate diagnosis important
- iv. What options are available at the Refuge for population manipulation?
- v. Hazing and dispersal options for non-infectious causes
- vi. Water management options to create or eliminate habitat
- vii. Baiting or attractants options
- viii. Carcass pickup and disposal options
  1. Containment of pathogens
  2. Burial, incineration options – where?
    - a. Groundwater and air quality considerations
    - b. Potential permits required
- ix. Public use options
  1. Risk to human health – consult public health authorities; what human activities need to be adjusted, curtailed, excluded?
  2. Minimize disturbance of infected populations
  3. Use of hunting or other activities as a tool for movement
  4. Regulatory needs?

*Your DCP should consider all public activities on the Refuge and classify those activities as “Contact” (i.e., the public can come into contact with dead/moribund birds, fecal material, or contaminated habitats through the activity, or cause dispersal of birds) or “Non-contact” activities. “Contact” activities are those that would stop or be modified if HPAI was detected on the Refuge.*
- x. Research and other permitted use
- xi. Endangered species – unique specific options that could be taken

c. Logistics

- i. Personnel – both FWS and cooperating agencies (place in appendix)
  1. Point of Contact – who is in charge? Who deals with media?
  2. Special skills – e.g., veterinarians, pilots, heavy equipment operators.

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3. Appropriately trained for their specific job

*Before HPAI surveillance or response activities are conducted by Service personnel, training is required on basic personal safety and handling procedures, biohazard containment, use of personal protective equipment, and sampling techniques. The USGS NWHC is able to conduct workshops as one means to obtain this training for Service personnel (see Chapter 3, step 4 of USFWS HPAI Response Plan). Alternatively, training requirements can be met by those opportunities offered by states and other federal agencies cooperating in HPAI surveillance, provided they meet the minimum standards of the Service. Minimum training must include:*

1. *How to put on and use, remove, disinfect and dispose of personal protective equipment (PPE) and clothing before moving to new areas.*
  2. *Proper disinfection techniques for tools, samples and equipment.*
  3. *The importance of strict adherence to and proper use of hand hygiene after contact with infected or exposed birds, contact with contaminated surfaces, or after removing gloves.*
  4. *Sample collection and submission techniques including swabbing birds, use of transport media, proper labeling, storage and shipment to laboratories.*
- ii. Communication and coordination with cooperators  
*HPAI communication will have interagency and Service national and regional communication plans*
- iii. Equipment and sources (type, number, location, availability)
1. Heavy equipment for excavation (burial)
  2. Incinerators
  3. Boats
  4. Storage locations
- iv. Supplies
1. Basic disease work: boots, coveralls, gloves, buckets, disinfectants, cleaning brushes, bags
  2. Sampling supplies: tubes, bags, swabs, needles, syringes, labeling supplies
  3. Supplies for personnel related to possible inclement weather conditions – raingear, hipboots, etc.
  4. Sample shipping containers and chemical ice packs
  5. Develop an on-hand supply list
  6. Identify sources for supplies
- Specific supplies needed for HPAI sampling include sterile dacron swabs, virus transport media, cooler and ice packs.*
- v. Food and lodging (place in appendix)
- vi. Work areas and Biocontainment

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1. Containing potential pathogens is a high priority
    - a. Control personnel movement
    - b. Retain contaminated equipment within the affected area until no longer needed
    - c. Disinfect equipment, supplies and personnel leaving infected area.
  2. Clean areas: command post, media, briefings
  3. Decontaminated zones – ingress and egress points
  4. Contaminated zone – mortality area, burial or incineration sites
5. Data recording
- a. Needed for both surveillance and response activities  
*Data collected from USFWS HPAI surveillance activities is stored and accessed through the HEDDS data system (see Chapter 2, section E of the USFWS HPAI Response Plan). Morbidity and mortality data will be recorded and accessed through a separate Wildlife Disease Information Node module that will become operational in 2007.*
  - b. Develop standardized forms – part of the Refuge record  
*Standardized data forms for HPAI surveillance have been developed for HEDDS, and any data forms created for the Refuge record must, at a minimum, include the HEDDS data fields.*
  - c. Distribution of information
    - i. Refuge, Regional Office, FWS Wildlife Veterinarian
    - ii. USGS-NWHC
    - iii. Cooperating wildlife management agencies
    - iv. State Veterinarian
    - v. Other federal agencies
    - vi. Non-governmental organizations

## Appendix 6

### Options for Disposal of HPAI H5N1 Affected Avian Carcasses

Effective eradication of HPAI H5N1 virus requires the timely and safe disposal of avian carcasses, which in turn reduces the risk of disease spread within bird populations and eliminates the presence of HPAI H5N1 virus in the environment. A strategy for large-scale carcass disposal must be in place well in advance of a domestic or foreign animal disease emergency to maximize the efficiency of response.

The most effective disposal strategy is one that uses the most suitable disposal options available. The decision on which disposal strategy to use must be based on many local and case-specific factors. Disposal methods can be evaluated using several factors:

- Effective – Minimizes potential for spread of pathogen (to animals or humans)
- Environmentally sound – Minimizes environmental impacts
- Rapid – Facilitates completion of disposal within 24 hours of euthanasia
- Acceptable to stakeholders – Minimizes impact to poultry operations
- Low cost - Minimizes need for labor, equipment, chemicals, utilities, and fuel

All disposal options should remain open prior to evaluation of a specific situation. Differences in site-specific characteristics and conditions, and the capacity of a given disposal method relative to the volume of carcasses to be disposed, will greatly influence the final choice of a disposal option.

#### **Disposal Methods**

Available disposal methods for HPAI H5N1 affected avian carcasses can be divided into two categories: on-site or off-site.

- On-Site
  - composting<sup>1</sup>
  - treatment (mobile incinerators, mobile digesters)
  - burial
- Off-Site
  - composting
  - landfilling
  - treatment (rendering, incineration, digestion)

The efficacy of each carcass disposal method depends on the field conditions at a specific site, including but not limited to: climate; time of year; soil type; depth to groundwater; development density of property; distance from other poultry operations; distance to offsite disposal/treatment facilities; local environmental regulations; and public perception. Site managers must ultimately make decisions

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<sup>1</sup> A study by the University of Delaware and the University of Maryland has shown that composting temperatures reach approximately 140°F after 2 to 3 days. Senne et al. (1994) found that HPAI virus was inactivated at the end of the first 10 days of composting.

regarding the appropriate disposal method based on the unique factors of that site.

**Disposal Preferences**

Although off-site disposal may be the best option available in some circumstances, preference will generally be given to on-site methods as they facilitate the containment of virus spread. On-site carcass disposal, assuming sufficient land area and availability of labor, may be the most efficacious method to reduce the risk of spread of HPAI H5N1 virus because off-site transport of carcasses is eliminated. The overall order of preference for the various disposal alternatives when dealing with HPAI H5N1 affected carcasses is:

- 1) On-site composting
- 2) On-site treatment (mobile incinerators, mobile digesters)
- 3) On-site burial
- 4) Off-site composting
- 5) Off-site landfill or off-site treatment (rendering, incineration, digestion)

More information on the characteristics of the various disposal methods is given in the following table.

<b>Characteristics of Disposal Method Options for HPAI H5N1 Affected Avian Carcasses</b>				
<b>Method / Technology</b>	<b>On-Site vs. Off-Site</b>	<b>Capacity Tons/day (TPD)</b>	<b>Pros</b>	<b>Cons</b>
Composting	On-Site or Off-Site	Potentially large (location dependent)	- Destroys virus, if done properly. - Potentially inexpensive.	- Possible spread of the virus (aerosol, vectors) if pile not covered adequately prior to virus inactivation. - Possible groundwater or surface water contamination if pile not adequately insulated. - Not rapid.
Incineration: Air Curtain Incinerators	On-Site or Off-Site	Variable	- Destroys virus. - Relatively inexpensive and rapid, if equipment readily available.	- Potentially expensive, especially if equipment not readily available. - Residue issues; potential for air, surface water, or groundwater contamination (may require air monitoring). - Ability to use is site specific. - Requires skilled operators. - May be difficult to efficiently incinerate avian carcasses.
Incineration: Mobile Incinerators	On-Site or Off-Site	Variable	- Destroys virus. - May be relatively rapid.	- Availability and capacity of units. - May require air monitoring. - Public perception. - Potentially expensive. - Requires skilled operators. - May be difficult to efficiently incinerate avian carcasses.

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<b>Characteristics of Disposal Method Options for HPAI H5N1 Affected Avian Carcasses</b>				
<b>Method / Technology</b>	<b>On-Site vs. Off-Site</b>	<b>Capacity Tons/day (TPD)</b>	<b>Pros</b>	<b>Cons</b>
Digestion: Alkaline Hydrolysis	On-Site or Off-Site	Small (5 TPD or less)	<ul style="list-style-type: none"> <li>- Destroys virus.</li> <li>- Can be mobile for on-site use.</li> </ul>	<ul style="list-style-type: none"> <li>- Liquid discharge may present disposal concerns.</li> <li>- Requires skilled operators.</li> <li>- Disinfection of unit exterior.</li> </ul>
Burial	On-Site	Potentially large (location dependent)	<ul style="list-style-type: none"> <li>- Relatively rapid.</li> </ul>	<ul style="list-style-type: none"> <li>- Virus will remain viable in ground for some period.</li> <li>- Requires proper site and lining/capping to minimize environmental impacts.</li> <li>- Specific situation (e.g., frozen ground) may prevent/impede.</li> <li>- Equipment may not be available locally.</li> <li>- Owner/operator concerns regarding liability and other economic impacts.</li> <li>- Public perception.</li> </ul>
Landfilling (Municipal Solid Waste)	Off-Site	Up to 1,000 TPD	<ul style="list-style-type: none"> <li>- Sites constructed to minimize environmental impacts.</li> <li>- Relatively wide availability.</li> <li>- Pre-negotiated contracts possible.</li> </ul>	<ul style="list-style-type: none"> <li>- Virus will remain viable in landfill for some period.</li> <li>- Owner/operator concerns regarding liability and other economic impacts.</li> <li>- Public perception.</li> <li>- Potentially expensive.</li> <li>- Risk of viral spread during off-site transport.</li> </ul>
Rendering	Off-Site	Up to 1,000 TPD	<ul style="list-style-type: none"> <li>- Destroys virus.</li> <li>- Facilities likely to be near animal sites.</li> </ul>	<ul style="list-style-type: none"> <li>- Industry concern regarding liability and other economic impacts.</li> <li>- Displacement of normal business (non-AI material may need to be re-directed).</li> <li>- Risk of viral spread during off-site transport.</li> </ul>
Incineration: Waste Incinerators	Off-Site	<ul style="list-style-type: none"> <li>- 200 TPD: Municipal waste incinerators</li> <li>- 50 TPD: Hazardous waste incinerators</li> <li>- 20 TPD: Medical waste incinerators</li> </ul>	<ul style="list-style-type: none"> <li>- Destroys virus.</li> </ul>	<ul style="list-style-type: none"> <li>- Facility concerns regarding liability.</li> <li>- Public perception.</li> <li>- Permit considerations.</li> <li>- Potentially expensive.</li> <li>- Disinfection of unit exterior.</li> <li>- Risk of viral spread during off-site transport.</li> </ul>

## Appendix 7

### Template for Situation Report for HPAI H5N1 Outbreak on FWS Lands

To be submitted daily, during the course of an outbreak and response effort, to the DOI Watch Office ([doi\\_watch\\_office@ios.doi.gov](mailto:doi_watch_office@ios.doi.gov)), the Director, the Regional Director, the Assistant Director – Migratory Birds, and the Regional HPAI Coordinator.

#### **INTERAGENCY Daily Situation Report for HPAI Outbreak in Wild Birds**

#### **FOR INTERNAL USE ONLY**

*Incident name*

*Date/time/time zone*

Officials from the U.S. Fish and Wildlife Service and *(name(s) of other state or federal cooperating agencies)* are responding to an outbreak of HPAI H5N1 in wild birds on the *(name and location of FWS facility)*. The disease was confirmed on *(month/day/year)* and is restricted to *(describe area)*. Investigations and containment actions are ongoing, and all figures provided reflect best estimates pending final validation.

#### **Situation Update as of *(date and time)***

Number of HPAI H5N1 positive occurrences:

*(Number)(Describe trend – e.g., “three more than report of [date]”)*

Species affected:

Geographic area within control area:

*(Acres)(Describe trend – e.g., “up X from report of [date]”)*

Other relevant information:

#### **Operational Update**

Current containment and response activities are as follows: *(briefly describe, in bullet format)*

Challenges/accomplishments: *(briefly describe, in bullet format)*

**Submitted by:** *(name, title, phone number)*

## **Appendix 8**

### Program-Specific Roles and Policy Considerations

#### **Law Enforcement**

##### Policy and Authorities

The laws enforced by the Service (with the exception of the injurious species provisions of the Lacey Act) regulate human activities in the interest of protecting and conserving wildlife. Other federal entities (specifically, the Department of Homeland Security, the Department of Health and Human Services, and the Department of Agriculture) exercise the statutory and regulatory authorities that would be invoked to control the human introduction and interstate transport of birds that represent an animal or human disease threat.

However, Service authorities to regulate wildlife trade and trafficking and its related enforcement expertise position the agency's wildlife inspectors and special agents to assist in detecting and detaining wildlife imports/exports that may be in violation of bans imposed by other federal agencies as well as in intercepting smuggled birds or birds being moved illegally from state to state. Service wildlife inspectors, for example, are an integral part of the federal inspection team responsible for policing the people, goods, and vehicles entering the United States.

The Lacey Act and the Endangered Species Act give the Service broad authority to detain and inspect any international shipment, mail parcel, vehicle, or passenger baggage and all accompanying documents, whether or not wildlife has been declared. These two statutes broadly define import to include landing on, or introduction to, any place subject to U.S. jurisdiction whether or not such activity is considered an import under customs laws. This definition allows the Service to address illegal wildlife moving through duty-free areas, free trade zones, or in-transit through the United States.

The Endangered Species Act and Service regulations require wildlife to be imported and exported through specific ports to facilitate both enforcement of wildlife laws and clearance of legitimate shipments. Commercial importers and exporters of wildlife must be licensed by the Service and must pay applicable user fees. They must file declarations with the Service detailing the contents of their shipments and receive Service clearance before Customs and Border Protection (CBP) can release a shipment for import or they can load it for export. Declaration and clearance requirements also apply to non-commercial and personal wildlife imports and exports.

The CITES treaty uses a system of permits to regulate trade of animal and plant species listed on its three appendices. The Endangered Species Act, which implements the treaty in the United

States, prohibits any trade contrary to CITES or the possession of any specimens traded contrary to CITES.

The Office of Law Enforcement coordinates its policing of the live bird trade with Customs and Border Protection and the U.S. Department of Agriculture. Service enforcement officers ensure that live birds seized at ports of entry for wildlife violations are held in accordance with USDA bird quarantine regulations that help combat the introduction of bird-borne disease. By policy, Service wildlife inspectors are required to wear appropriate safety gear when handling live wildlife or other potentially hazardous wildlife shipments (such as trophies). Service officers and Office of Law Enforcement staff must document wildlife seizures (including identifying information about the importer/exporter), follow Service regulations for civil and criminal forfeiture, and track the whereabouts and final disposition of live animals and wildlife parts and products that have been forfeited or abandoned to the government.

#### Enforcement Capabilities

- ~ 210 special agents (criminal investigators)
- ~ 115 wildlife inspectors at 39 ports of entry (including 6 U.S.-Mexico and 9 U.S.-Canada border crossings)
- Intelligence Unit with expertise in identifying global smuggling routes; risk analysis; and interagency information exchange as these factors apply to wildlife trade
- National Fish and Wildlife Forensics Laboratory
- Wildlife import/export database for use in identifying entities engaged in bird trade and tracking specific shipments
- Established communications channels with wildlife import/export community (public bulletins; electronic declaration system; email distribution lists of eDecs users)

#### Enforcement Response

The Law Enforcement capabilities cited above could be marshaled as part of a coordinated federal response to the detection of HPAI in wild or domestic birds in North America.

Potential FWS Law Enforcement response would include:

- Transmission of information concerning trade bans to FWS field stations and postings for the import/export community.
- Use of FWS agents and inspectors and their expertise in identifying trade routes and typical smuggling techniques to bolster “bird savvy” policing of imports/exports at critical ports of entry (e.g., if diseased birds were found in wild populations in Mexico, increased Service presence at land border crossings in California, Arizona, New Mexico and Texas would provide a core enforcement group knowledgeable with respect to common bird smuggling techniques to support CBP efforts to prevent bird importations).

- Dedication of FWS Intelligence Unit staff to bird trafficking issues and dissemination of relevant intelligence to guide import/export and anti-smuggling efforts of both FWS enforcement operations and any wider U.S. effort (CPB) to close borders to infected birds.
- If needed, redirection of National Fish and Wildlife Forensics Laboratory analytical work to focus on AI detection in bird specimens in support of the USGS National Wildlife Health Center.
- Utilization of FWS import/export databases on request to identify potential import/export sources of diseased birds and track shipment disposition.

## **Migratory Bird Management**

The Division of Migratory Bird Management has the following messages and response options for management of HPAI in migratory birds:

*Reduce Direct Contact Between Humans and Wild Birds* In the event the HPAI H5N1 becomes established in North American bird populations, permittees who engage in activities regulated by the Service under the MBTA might be at increased risk of exposure to the H5N1 virus because of the close physical contact they have with wild birds. Scientific collectors (50 CFR 21.23), taxidermists (50 CFR 21.24), waterfowl propagators (50 CFR 21.25), game bird propagators (50 CFR 21.27), wildlife educators (50 CFR 21.27), salvage permittees (50 CFR 21.27), falconers (50 CFR 21.28), raptor propagators (50 CFR 21.30), and wildlife rehabilitators (50 CFR 21.31) conduct activities which can involve contact with wild birds, the acquisition of birds from the wild, their transportation from one locality to another, and/or their confinement in captivity (often in close contact with individuals of other species) for varying periods of time. If it was determined that any of these activities could reasonably contribute to the spread of H5N1 or posed risks to human health, additional regulatory restrictions could be imposed.

*Restrict Release of Captive-Reared Mallards* -- The release of large numbers of free-flying or free-ranging captive-reared mallards on state-licensed, privately-owned shooting preserves affords the potential for transmission of diseases (including HPAI) if those birds intermingle with wild waterfowl. In the event that HPAI H5N1 becomes established in North America, this practice could be curtailed or banned by federal regulation.

*Restrict Feeding of Wild Birds* -- The Service has long discouraged the feeding of wild and semi-domestic waterfowl because of the danger of disease transmittal. This is a message that should be reinforced in the event that HPAI H5N1 is detected in North American wild bird populations. With regard to backyard bird feeding, the importance of sanitizing bird feeders on a regular basis should be emphasized, along with human hygiene precautions.

*Curtailed of Hunting (A localized option only)* -- The Service sets regulatory

frameworks for migratory bird hunting, within which individual states then establish their annual hunting regulations. While there may be cases where it will be necessary to close or suspend hunting seasons or programs in order to contain a disease outbreak or minimize contact between the public and potentially infected birds, those decisions will likely only be necessary in the context of a localized outbreak and should be made by management authorities on the ground. Decisions to close or suspend hunting should generally be made at the lowest level of management with the authority to exercise control in a specific situation. For National Wildlife Refuges, the authority to temporarily suspend hunting is exercised by the Refuge Manager. For state and private lands, the Service will defer to the state or local agency with the authority to control the activity, e.g., state fish and wildlife agency with regard to hunting on state-owned or private lands.

## **International Affairs Office**

The permitting program of FWS International Affairs (AIA) is responsible for the issuance of export and re-export permits for CITES-listed species and ESA species and issues import permits for CITES Appendix I species and ESA-listed species. There is an additional permitting requirement for imports of exotic bird species listed under the Wild Bird Conservation Act (WBCA). Additional requirements regarding import and quarantine of wildlife into the United States are covered under the regulations of USDA-APHIS and individual states.

The Service has implemented measures to inform applicants when other countries have imposed import bans, and of USDA/APHIS restrictions or bans on imports of bird and bird products into the United States from countries where HPAI has been detected. U.S. applicants are discouraged from applying for export permits for export and re-export of protected wildlife to countries or regions where imports are currently banned (e.g., the European Union). In the event of an outbreak of HPAI in the United States, FWS AIA will inform the applicant community of any additional restrictions on the issuance of permits. The Service would also rescind unused permits and notify the holders that such permits cannot be used and must be returned to the Service. The AIA permitting program will notify the FWS Division of Law Enforcement of such actions as well as the wildlife authorities of the country of foreign import.

**Potential Additional Measures:** In the event of an outbreak of HPAI in domestic or wild exotic birds in the United States, the FWS permitting program will support APHIS and the FWS Division of Law Enforcement. In the event that the AIA permitting program receives an application to export a potentially infected bird or specimen based on its originating proximity to known HPAI infected areas, the permitting program will notify APHIS immediately to discuss the proper response and action on the application. The AIA permitting program has the authority (under 50 CFR Part 13) to suspend the issuance of export and re-export permits under CITES and the ESA under emergency circumstances, and will do so in the unlikely event that USDA/APHIS controls are deemed inadequate to prevent the movement of infected birds.

The Division of International Conservation could act as a liaison between the United States and other countries in communications on a limited basis. DIC will also promote education and

outreach, and provide grant support as appropriate to address international conservation threats due to wildlife diseases. The Russian China Program of DIC hosted a bilateral wildlife diseases conference in Russia in Spring 2007, with 13 participants from the National Wildlife Health Center in Madison, Wisconsin, and 2 participants from DIC. At this conference, an entire day was dedicated to discussion of avian influenza.

## **National Wildlife Refuge System**

Minimizing human exposure to the virus and minimizing the potential spread of the virus through human activities will be the primary objectives in managing HPAI on NWRs. Affected areas and/or Refuges that have been confirmed with HPAI would be closed to the public and restricted access granted to those properly trained individuals involved in HPAI investigations under appropriate biosecurity controls. Consultation with public health and USDA to assess the risk to humans and domestic animals will be used in making any decision to close refuges.

The NWRS is administered under the National Wildlife Refuge System Improvement Act of 1997, that requires activities on refuges be compatible with the individual refuge and system purposes. A compatibility determination of proposed HPAI management activities on a refuge may be required prior to initiating an action. Compatibility can temporarily be suspended during an emergency (refer to the Compatibility policy, 603 FW 2 for guidance). If other agencies are performing HPAI management actions on refuges, these activities can be covered under a Special Use Permit or other appropriate inter-agency agreement (e.g., Memorandum of Understanding or Memorandum of Agreement).

## **Endangered Species**

Endangered and threatened bird species and listed mammal species that may prey upon or share habitat with them may be susceptible to HPAI H5N1. If HPAI H5N1 appears or becomes established within the U.S., potential effects to native listed species will need to be anticipated. Service Regions and field offices with lead responsibility for listed species with suspected susceptibility should anticipate and develop plans for—

- limiting exposure, handling infected animals, and disposing of carcasses;
- identifying in advance any appropriate quarantine facilities and procedures;
- addressing non-lethal infection in listed species (e.g., if a listed species is capable of being a carrier of HPAI).