National Park Service
U. S. Department of the Interior

Highly Pathogenic Avian Influenza in Wildlife Preparedness and Communication Plan

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Executive Summary

What is the danger of highly pathogenic avian influenza?

The Asian H5N1 strain of highly pathogenic avian influenza (HPAI), or bird flu, is primarily a disease of domestic poultry that is not native to, or currently present in, North America. However, outbreaks of HPAI in other parts of the world and the likelihood of continued spread, has heightened concern in the United States.

Should HPAI be introduced to the U.S., potential exists to impact NPS in three primary ways. The first and most likely impact will be to wildlife, primarily migratory birds. Management of domestic fowl maintained for cultural scenes would also be impacted. Further, humans can be exposed to and contract this illness by contact with birds, placing some NPS employees and possibly visitors at risk. In addition, if the virus adapts so that sustained human to human transmission occurs, it is possible that NPS would be faced with participation, along with local, state and federal health officials, in controlling the spread of this agent among people.

What is in this Preparedness and Communication Plan?

Preparedness provides the best opportunity to prevent the potential rapid spread of the disease. This Preparedness and Communication Plan recommends actions to be taken at the regional and park level. The Plan addresses two different circumstances. First, if the disease remains outside North America, the primary goal is to improve awareness and prepare each park without great cost. Second, when HPAI is confirmed in North America (but not near your national park) or when migratory birds arrive from HPAI-affected areas, the goals are to provide information, increase coordination between agencies, and provide for appropriate action without overreaction.

What to do while North America remains HPAI-free.

An HPAI coordinator should be designated for each park and region. This person must understand the background information and current situation of this disease and how it could affect resources particular to their area.

Communication with other agencies and entities is key. The HPAI coordinators should develop a park-specific list of appropriate state and local contacts. Background information including, the nature of the disease, what we know, what we don't know, actions we are taking, and actions employees can take, should be provided to all employees, especially those who may be responding to morbidity and mortality events in wild birds. This plan will help each HPAI coordinator assess the potential of the disease to affect resources and human activities in their park unit and assist park managers in decision making related to this issue.

What to do when HPAI occurs in North America or flyways from affected areas.

The HPAI coordinator and park management should re-evaluate the factors that determine the park's susceptibility considering the circumstances specific to the location and situation. If HPAI is diagnosed in North America, information should be provided to employees and the public on HPAI and how it is being monitored at the regional and park level.

An action flowchart is provided to determine when it is appropriate to institute the NPS Response Plan that outlines actions to be taken if an HPAI outbreak occurs in or near an NPS unit.

Introduction

BACKGROUND

Historical and Scientific Information

The Asian H5N1 strain of highly pathogenic avian influenza (HPAI), or bird flu, is primarily a disease of domestic poultry that is not native to, or currently present in, North America. However, outbreaks of HPAI in Asia, the Middle East, Europe, and Africa, and the likelihood of continued spread to other parts of the world, have heightened concern in the United States. The Federal government response to HPAI is tiered from the Homeland Security Council's National Strategy for Pandemic Influenza (http://www.pandemicflu.gov/plan/). NPS response is further tiered from the Department of the Interior Pandemic Influenza Preparedness and Response Plan.

Outbreaks of highly pathogenic avian influenza subtype H5N1 have been occurring in poultry in Southeast Asia since 2003. Wild birds, particularly waterfowl and shorebirds, commonly carry low pathogenicity avian influenza viruses without harm. However, the Asian H5N1 HPAI virus has mutated and adapted to cause illness and death in domestic and wild birds, and has also affected a limited number of mammals, including humans. Worldwide, mortality from the virus has been detected in more than forty species of free-ranging birds including swans, ducks, geese, gulls, birds of prey, and some peridomestic species such as sparrows and corvids (view full list at http://www.nwhc.usgs.gov/disease_information/avian_influenza/affected_species_chart.jsp). Over 200 million domestic birds in the affected countries have died or been culled in attempts to control the disease. In humans, the death rate from reported HPAI cases to date has been about 50%; however, case mortality in a pandemic has been projected in the U.S. National Strategy for Pandemic Influenza (2005) to be <2%.

The virus is spread among birds in fecal droppings, saliva, and nasal discharges. The virus is quite easily inactivated by disinfectants but can survive for long periods (a month or more) in cold water. HPAI has been detected in some apparently healthy wild birds. The role of migratory birds in spread of the disease is likely, although human assisted movement of poultry or poultry products are also important transmission pathways. The impact of HPAI on wild bird populations is unknown. More clear is that HPAI poses a significant economic threat to domestic poultry and fowl operations and to human health.

If HPAI were identified in poultry or other domestic fowl in the United States, regulatory agencies (e.g., USDA APHIS) would respond with immediate culling of domestic birds within a predetermined radius of the case (the "infected zone"). Stepped-up surveillance, movement restrictions, and perhaps a zonal ring of vaccination of domestic birds, in facilities surrounding the outbreak would supplement disease control efforts. Although culling domestic birds to contain the spread of HPAI is considered an acceptable agriculture practice, culling of migratory birds is likely ineffective in disease control and would have unknown and potentially significant ecological consequences. Further, culling migratory birds is not recommended as an HPAI management action by the Food and Agriculture

Organization of the United Nations (FAO) or World Health Organization (WHO), the two leading international health authorities.

Most human cases have occurred from contact with infected poultry or contaminated surfaces. To date, spread of H5N1 virus from person to person has been rare and spread has not continued beyond one person. However, because all influenza viruses are not genetically stable and have a tendency to change, scientists are concerned that the Asian H5N1 virus could one day be spread easily from one person to another. If the virus were able to infect people and spread easily from person to person, an influenza pandemic could begin.

Therefore, should HPAI be introduced to the U.S., potential exists to impact NPS in three primary ways. The first and most likely impact will be to wildlife, particularly migratory birds. Management of domestic fowl maintained for cultural scenes would also be impacted. Further, humans can be exposed to and contract this illness by contact with birds, placing some NPS employees and possibly visitors at risk. Additionally, if the virus adapts to achieve sustained human to human transmission, it is possible that NPS would be faced with participation, along with local, state and federal health officials, in controlling the spread of this agent among people.

National Park Service Management Considerations

Park managers have an opportunity to consider potential disease response actions before HPAI occurs in North American wildlife. This plan considers the following:

- Potential impairment of park resources, including actions recommended for disease control.
- Viable populations of wildlife and plants in parks, in accordance with each park's purpose and significance.
- Visitor experiences in parks, in accordance with each park's purpose and significance.
- Maintenance of visitor and employee health and safety.
- Economic loss to communities and the private sector from either animal destruction or travel restrictions.

PURPOSE OF THIS PLAN

The primary purpose of this plan is to identify HPAI preparedness and communication measures and to provide guidance and recommendations for their implementation. Most of the prevention responsibilities of the Federal government rest with United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS) and Department of Health and Human Services (HHS). However, the National Park Service (NPS) can take some preventative measures and can prepare to respond and communicate with other agencies, our partners, employees, visitors, stakeholders, and gateway communities.

Relationship with Policy and Compliance

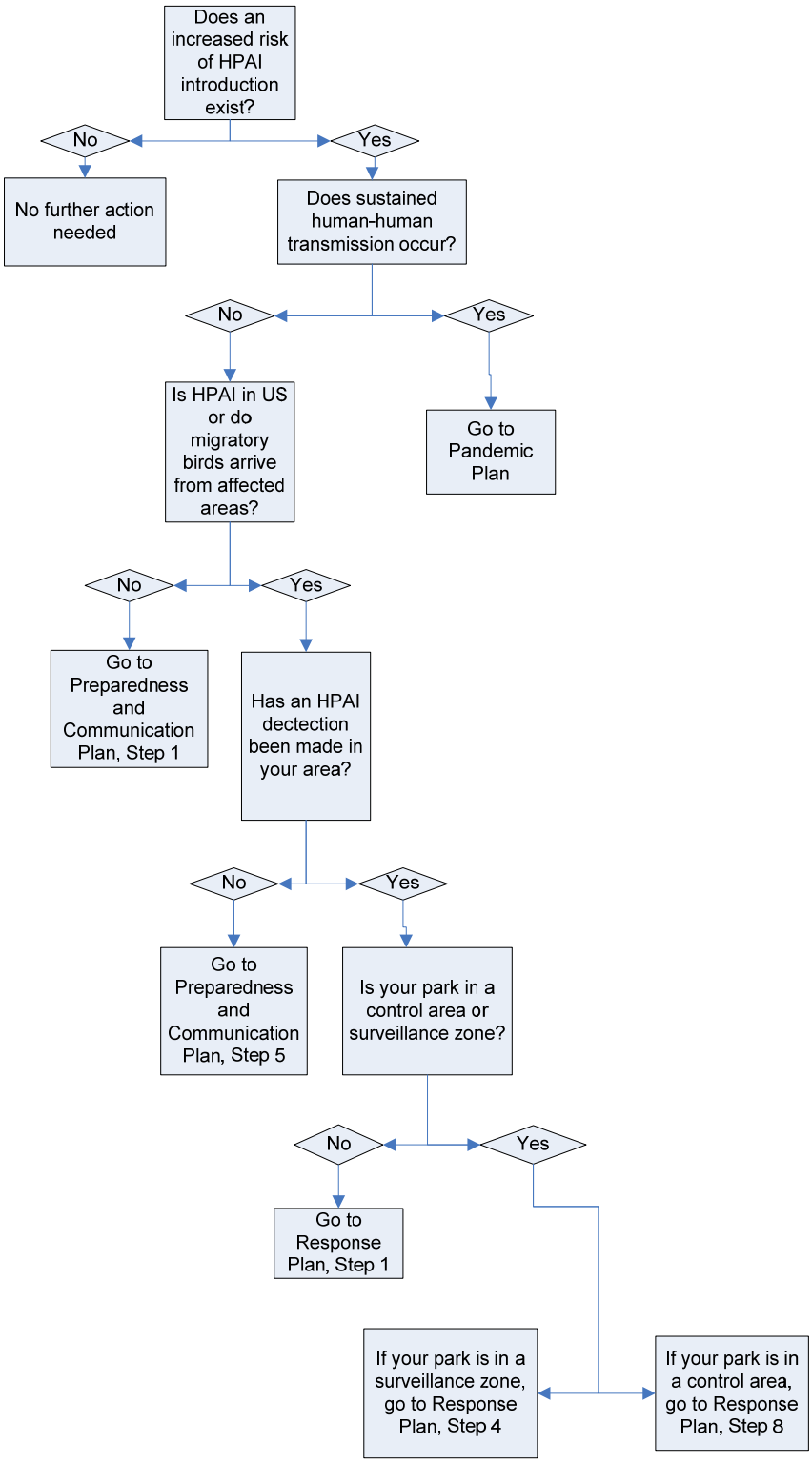
This plan is not intended to establish or modify NPS or individual park policy. This plan should be considered "highly recommended advice" to parks and regions. *The applicability of legal constraints and obligations, policy requirements, applicable definitions (such as impairment) and strategic management goals must be considered when planning actions.*

HOW TO USE THIS PLAN

To assist NPS parks and regions address highly pathogenic avian influenza, two sets of plans have been developed. The NPS Wildlife Plan includes a Preparedness and Communication section and Response section. The NPS Pandemic Influenza Plan, which addresses the situation when sustained human to human transmission occurs, follows the Wildlife Plan. The decision tree below can be used to determine the appropriate level of action based on the current situation. Note that as long as an increased risk from HPAI occurs in the United States, action should be taken starting with Step 1 of the Wildlife Plan Preparedness and Communication section and continuing through the appropriate portion of the “plan” and “step” identified in the decision tree.

Information on the geographic distribution, species affected, impacts, and appropriate response to HPAI is dynamic and continues to change and expand. Updated information to support these plans will be posted on the NPS website at http://www.nps.gov/public_health/zed/ai/ai.htm.

Highly Pathogenic Avian Influenza Decision Tree. This decision tree indicates the Plan and Step at which each situation is addressed. Note that steps are progressive in the Wildlife Plan Preparedness and Communication section and, regardless of current situation, if risk exists action should begin at Step 1 of the Preparedness and Communication section of the Wildlife Plan.



Recommended Actions

Actions to take now when North America is free of HPAI

STEP 1: Designate regional and park avian influenza coordinators.

Because of the potential rapid spread of HPAI, each park should have a coordinator who knows about the disease and how it could affect resources and visitors in the park. The HPAI coordinator should ensure that park management and the public information officer are aware of significant changes to the HPAI situation. A single HPAI coordinator could serve several NPS units.

The regions should designate a regional HPAI coordinator. The regional HPAI coordinator should have a list of all park HPAI coordinators as well as public health and APHIS contacts for the region. The regional HPAI coordinator should ensure that information provided by the Washington, D.C. office is distributed to parks.

STEP 2: Establish contact with cooperating agencies.

Initial contacts should be made immediately in order to establish lines of communication and coordination. Follow-up communication should be made periodically, particularly if there is a change in the current HPAI-free status of North America. Examples of topics for discussion are included in Table 1. Contacts for state wildlife agencies (Appendix 1), State Veterinarians (Appendix 2), Area Veterinarians In Charge (AVIC) (Appendix 3), and public health departments (Appendix 4) are included. An HPAI Contact List Summary Form is included in Appendix 5.

Table 1. Coordination and communication with other agencies and entities

Agency	Discussion topics
Other NPS units	• Share information and concerns. • Share expertise (e.g., the park HPAI coordinator). • Coordinate communication with states and other agencies.
State division of wildlife And U.S. Fish & Wildlife Service	• Discuss available baseline information (e.g., migration patterns, congregation areas of high priority species, or known interactions between wild and domestic birds). • Share avian surveillance plans and results. • Identify major issues and concerns. • Obtain necessary permits. • Ask how their agency's national plan proposes to address wildlife issues.

State veterinarian's office and USDA APHIS - Area Veterinarian-in-Charge (AVIC)	• Reiterate that the NPS is concerned about the potential impact of HPAI on park resources and has concerns about management requirements if the disease occurs in the U.S. • Share NPS mission and willingness to cooperate. • Share NPS HPAI Preparedness and Communication Plan. • Share contact information for NPS Wildlife Health. • Discuss management of domestic birds to minimize contact with wild birds. • Ask them to keep the NPS informed as appropriate and to contact the park if a suspect case (or confirmed positive case) is reported in or near an NPS unit.
State Public Health Department	• Share information about NPS preparations and communication materials. • Offer to cooperate in any state or community efforts should they become necessary. • Share contact information for NPS Risk Management and Public Health.
Entities with shared boundaries: other federal agencies, state parks, tribes, and counties.	• Discuss available baseline information (e.g., migration patterns, congregation areas of high priority species, or known interactions between wild and domestic birds). • Identify major issues and concerns. • Share NPS mission and willingness to cooperate. • Share NPS HPAI Preparedness and Communication Plan. • Share avian surveillance plans and results. • Ask how they would deal with wildlife concerns related to HPAI. • Ask them to keep the NPS informed as appropriate. Ask them if they will contact the park if they have a suspect case (or confirmed positive case).
Poultry/domestic fowl operations in or near the park.	• Reiterate that the NPS is concerned about the potential impact of HPAI on park resources and has concerns about management requirements if the disease occurs in the U.S. • Ask if they are aware of how to monitor for HPAI, how to protect their flocks, and who to contact if they have concerns (their private veterinary practitioner would be a good place to start). • Share general aspects of the NPS HPAI plans. • Inform them that poultry and other domestic fowl in the park will be managed or removed if HPAI is detected in the area.

STEP 3: Provide basic information to employees and have information available for the public.

General background information should be provided to all employees so that they are aware of the disease and its potential threat to park resources and human health. They should also be made aware that the NPS has a Wildlife Preparedness and Communication Plan as well as a Response Plan for wildlife. The Department of the Interior and NPS also have

developed plans for human pandemic planning and response. Specific categories of employees may require additional training or information (Table 2).

A template of sample information that could be provided to employees and visitors who inquire about the disease is in Appendix 6. Methods of distribution can include email, hard copies posted on bulletin boards and sent to individual mailboxes, all-employee meetings, and servicewide electronic training events. A handout could be prepared so that it would be made available if members of the public inquire about the disease. NPS-related information on HPAI and links to sites with more detailed information on HPAI is currently posted at http://www.nps.gov/public_health/zed/ai/ai.htm and will be updated as additional information becomes available.

Table 2. Information to provide to employees.

Employee category	Information provided
All personnel	• General information on disease and its potential threats to resources and human health. • Contact information for HPAI coordinator and how to report unusual mortality events. • General sanitation, hygiene, and health precautions (Appendix 7). • International travel alert if traveling to HPAI affected area (Appendix 8).
Natural resources staff	• Training on wildlife disease investigation and associated personal safety and PPE (Appendix 7). • Contact information for servicewide Wildlife Health, Public Health, and Risk Management Programs.
Park residents	• Be sure that they are aware of the disease and the potential threat to park resources. Ensure that they deal with their private veterinary practitioner for domestic animal health issues. • Inform them of management restriction plans for domestic and captive birds should the threat of HPAI increase (See Step 7).
Concessioners	• General information on the background of this disease and potential connections/affects on park operations. • NPS planning. • Contact information for various NPS subject areas. • Travel guidance to affected areas. • Model information for visitors if front desks, etc. have visitor inquiries. • Inform of management restriction plans for domestic and captive birds should the threat of HPAI increase (See Step 7).

STEP 4: Evaluate the potential for the disease to affect park resources and visitors.

Each park HPAI coordinator should evaluate resources that may be affected. An assessment would consider factors that determine the susceptibility of the NPS unit to an HPAI outbreak. These factors include, but are not limited to, proximity to a case in wild or

domestic birds, movement of migratory birds into the park from affected areas (e.g., via flyways), congregation of birds, presence of domestic fowl, and human factors. Some factors to consider in the assessment are included in Table 3.

For additional details regarding factors to consider, see the HPAI Situation Analysis Form (Appendix 9).

Table 3. Examples of factors to consider in an HPAI assessment.

Resource or activity	Comments
Migratory birds	Species present; concentrations of waterfowl or shorebirds; migration of birds in from affected areas.
Presence of domestic poultry or fowl	Species present and status (feral, under special use permit, pet).
Threatened and endangered species (T&E)	Potentially affected avian or mammalian (e.g., carnivore) species
Employee information and training	See Step 3 and Step 6. Screening of employees arriving from affected areas.
Researchers and research projects	See Step 3 and Step 6, Information, public contact with animals
Park residents	Maintenance of domestic poultry or fowl.
Volunteers	See Step 3 and Step 6
Agency sponsored foreign visitor or employee travel to or from foreign countries	See Step 3 and Step 6
Visitors	See Step 3 and Step 6, Information, public contact with animals, foreign travel
Park Operational Activities	Enforcement, education, maintenance, resource operations, public information office; poultry/domestic fowl in pastoral scenes; feral or exotic avian species.
Concession Operations	Maintenance of domestic poultry or fowl. Screening of employees arriving from affected areas.
Recreational Activities	Hiking, trails, roads; feeding birds; falconry.
Points of contact with responsible agencies or individuals	List of names and numbers

Additional actions to take when HPAI occurs in North America or when migratory birds arrive via flyways from affected areas

STEP 5: Assess the local circumstances in coordination with cooperating agencies.

Park managers or the HPAI coordinator should contact the appropriate cooperating agencies and re-evaluate their particular situation. Discussion topics may include planning efforts, surveillance activities, and jurisdictional issues should disease detection occur. Additional agencies and entities that have interaction or common borders with a park could also be contacted to confirm that they are aware of the disease threat and what they can do. These contacts will vary based on park location and operations.

Subsequent steps in the Preparedness and Communications Plan include wildlife disease surveillance and detection actions and other actions that potentially require increased employee involvement, increased interagency and public communication, and increased visitor management.

STEP 6: Working with cooperating agencies, provide information to employees and the public.

Provide updated information to employees and the public on what is being done at the park, regional, and national level to respond to the threat of HPAI if it should occur in the area, and what they can do to help protect the parks. Information on relative risk should be provided to help park staff, visitors, and the general public in understanding disease risk to humans. Additional topics may be discussed with user groups previously identified. The list of contacts also may be broadened to include, for example, specialized use groups (Table 4).

Many methods can be used to communicate information about HPAI and preventing its spread. Target audiences include park staff, concessioners, park partners, permit holders, inholders, neighboring agencies, news media, and local communities. Methods of communication may include electronic mail, all-employee and employee group (e.g., law enforcement refresher) meetings, community meetings, postings and signage, hard copy mailings, personal contact, interpretive programs, faxes and websites.

Appendix 6 provides suggested information to use as a basis for a handout, press release and public service announcements. Additional current information will be posted at http://www.nps.gov/public_health/zed/ai/ai.htm.

Table 4. Additional user group contacts and discussion topics.

User group	Discussion topics
Employees	• Up-to-date information on park risk status. • Good hygiene reminders. • Importance of surveillance efforts and reporting.
Poultry/domestic fowl/ captive birds: • Operators of pastoral scenes • Park residents with birds • Falconers	• Importance of separation between domestic and wild birds. • Management actions (See Step 7).
Bird hunters	• Provide information on safe handling and preparation of harvested birds. • Handouts from state wildlife management/ public health agencies or USFWS
Groups providing feed to migratory birds: • Recreational waterfowl feeders • Farmers • Hunters	• Importance of reducing artificial congregations to reduce potential for disease transmission. • Management actions (See Step 7).
Research permit holders	• Assure that avian researchers are aware of the threat of HPAI and implement appropriate personal safety practices and measures to prevent diseases transmission. • Cooperate with researchers performing HPAI live bird surveillance
Volunteers	• If interaction with animals, ensure formal agreement as volunteer and provide training as appropriate
Human-use interests: • Operators of tour groups • Gateway communities • Chamber of commerce	• Assure operators that NPS is aware of HPAI and its potential threat to park resources and human health. Inform them that if the area were classified as a Control Area or Surveillance Zone by USDA APHIS there would likely be some impacts on park use.
All visitors and user groups	• Encourage reporting of wildlife mortality events, particularly in birds. • Observe wildlife from a distance. • Communicate relative risk (e.g., why PPE is required for staff despite low risk to others).

STEP 7: Implement preventative management actions to reduce the risk of HPAI.

Most of the HPAI prevention responsibilities of the Federal government rest with United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA APHIS) and Department of Health and Human Services (HHS). However, the NPS can take some preventative management actions to minimize the risk of introduction of HPAI into wild birds and to decrease the likelihood of spread from individual migratory birds to bird populations or humans (Table 5).

Table 5. Management actions to reduce the risk of HPAI in the park.

Management objective	Action
Minimize interaction between domestic and wild birds.	• Remove non-critical poultry/domestic fowl, including those in residence areas, pastoral scenes, and that are feral/trespass. • Move critical poultry/domestic fowl indoors. • Require pet birds (e.g., psitticines) in residence areas be kept indoors. • Enforce existing regulations or consider restrictions on falconry. • Assist regulatory authorities (e.g., USDA) in enforcing movement restrictions on domestic birds or bird parts through parks. • Enact measures to avoid human movement of the virus between wild and domestic birds (e.g., by biologists handling birds)
Reduce artificial congregations of birds.	• Enforce existing, or enact new, regulations to prevent the feeding of birds (personal bird feeders may be exempted). • Enact measures to reduce the artificial congregation of birds (e.g., over grain in fields or as pest species).

STEP 8: Surveillance and detection action implementation.

Highly pathogenic avian influenza H5N1 virus has caused mortality in over 40 species of free-ranging wild birds. While not all species infected will necessarily exhibit clinical disease, the current virus strain(s) have caused morbidity and mortality in a variety of avian species, particularly waterfowl and shorebirds. A list of affected species is available at http://www.nwhc.usgs.gov/disease_information/avian_influenza/affected_species_chart.jsp. Five surveillance strategies have been identified for collecting monitoring and surveillance data on H5N1 virus in wild birds (Appendix 10). The systematic investigation of morbidity and mortality events in wild birds to determine if 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, or to, migratory birds in the U.S. At this step, investigation of morbidity and mortality events will be used as the primary means for surveillance and detection of H5N1 in the National Park System (Table 6).

It is important to emphasize that morbidity and mortality events in wild birds can be due to a variety of causes. Diagnostic testing is required to determine cause of death and to refute or confirm infection with HPAI. Instructions for implementing HPAI surveillance are included in the NPS Highly Pathogenic Avian Influenza in Wildlife Response Plan. While awaiting diagnostic results from an HPAI-suspicious avian mortality event, interim actions may need to be taken (Table 7). Notification of the regional HPAI coordinator and national subject matter experts should occur to ensure appropriate level of response and communication based on, for example, the DOI Pandemic Influenza Preparedness and Response Plan.

Table 6. Components of HPAI surveillance and detection activities.

Action	
Regulatory compliance	• Complete necessary NEPA requirements. • Assure appropriate permits.
Procure sampling/shipping materials	• Carcass bags, shipping boxes, ice, disinfectant • PPE • Carcass transportation
Obtain necessary training for investigating avian mortality events	• Provided by NPS, other DOI bureaus or other cooperators
Obtain necessary employee health review	• Respirator use • Vaccination advisement • Availability of antiviral drugs
Identify laboratory for sample submission	• USGS National Wildlife Health Center • Other veterinary laboratories certified to conduct Asian H5N1 virus diagnostics (confirm with lab)
Identify priority species	• Lists will be developed by Flyway Councils • Bird species migrating from affected areas • Waterfowl and shorebirds • Bird species with high infection rates (currently unknown)
Reporting system	• Identify key contact individuals • Develop system for reporting sick or dead birds by employees, visitors, and residents
Respond to mortality events	• Communication of events • Evaluation of importance • Available trained staff • Transportation and logistics
Implement active surveillance and additional surveillance strategies	• As risk increases, seek out mortality events rather than passively awaiting reporting. • Implement other surveillance strategies as needed on a site-specific basis.

Table 7. Steps to take while awaiting HPAI diagnostic results.

Action	
Event investigation	• Document mortality event (e.g., location, species, age class, numbers). • Maintain surveillance of site. • Collect carcasses and implement biosafety measures as instructed by experts contacted. • Assess need for involvement/onsite consultation by subject matter experts.
Consultation with NPS regional and national programs	• Wildlife health • Public health • Risk management • Public affairs • Directorate (based on assessment of risk) • Review National and Departmental Plans

Communication	• Provide site specific information for press releases (press releases will be made at a higher level—DOI or USDA)
	• Contact:
	  • State wildlife management agency
	  • State veterinarian's office
	  • State department of health
	  • USDA APHIS
	  • USGS
	  • USFWS

Human safety	• Provide educational information to visitors. • Limit visitation to affected area if directed by experts contacted. If this step is necessary, prepare decision document for superintendent and interpretive information to visitors. • Assess employee health risk and implement necessary actions.

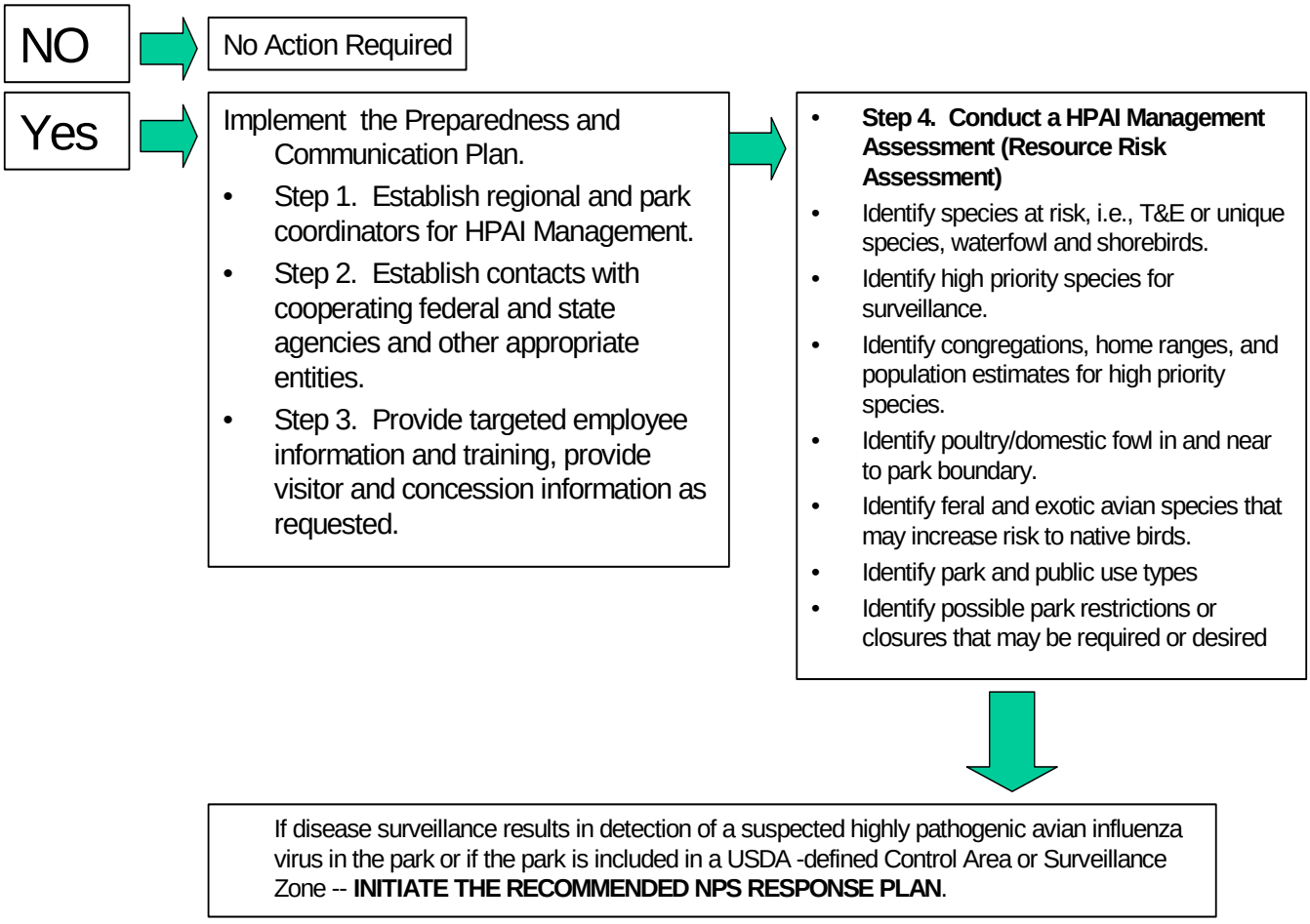
When To Move To The Response Plan

ACTION FLOWCHART for Moving Through the Preparedness and Communication Plan and Response Plan

- This Action Flowchart has been developed to assist or provide guidance to managers in determining when or whether to move from the HPAI preparedness and communication planning stage to the HPAI response stage. This decision is based on the current situation in the area of the park. The process starts with the preparedness and communication plan which is a limited measured response designed to provide park managers with the necessary information to identify and implement appropriate management actions and concerns

- Park Managers should be advised that should a suspect or confirmed case of HPAI H5N1 be identified in or adjacent to the United States that the USDA, Animal and Plant Health Inspection Service may establish a Control Area and Surveillance Zone which may include units of the National Park Service. Should such Control Areas and Surveillance Zones be established by APHIS, NPS units may be required to go directly to implementing all or portions of the NPS Response Plan. In order to establish and maintain a measured response, communications between NPS and cooperators is essential.

Situation: A highly pathogenic avian influenza virus is identified that has the potential to enter the North American continent, Hawaii, and U.S. Territories through domestic animals, wildlife, humans, contaminated material, or other means.



Situation: Highly pathogenic avian influenza is confirmed to be present in the North American continent, Hawaii, or U.S. Territories or migratory birds arrive via affected flyway.

- **Review the HPAI Management Assessment in light of the facts specific to the outbreak.**
- Proximity to park boundary or affected flyway
- Cooperation with other agencies and their actions
- Consider additional proactive park, public, and other agency information and education

- Step 5. Contact cooperating agencies and other appropriate entities.
- Step 6. Increase information flow to employees, visitors, and partners.
- Step 7. Implement preventative management activities.
- Step 8. Implement disease surveillance.
- Assess the situation and, in coordination with cooperating agencies identify the need for additional actions.

- If disease surveillance results in detection of an avian influenza virus in the park -- **INITIATE THE RECOMMENDED NPS RESPONSE PLAN**.
- If this is an initial detection in the geographic area, request an Incident Management Team.

- If the park is within a Control Area or Surveillance Zone -- **INITIATE THE RECOMMENDED NPS RESPONSE PLAN.**
- If this is an initial detection in the geographic area, request either an Incident Management Team or appropriate subject matter experts.

APPENDIX 1. State, Territorial, and Provincial Fish and Wildlife Agencies

http://www.iafwa.org/members/member_information.htm

❖ **ALABAMA**
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APPENDIX 4. Contact List for State and Territorial Public Health Epidemiologists

http://www.cste.org/members/state_and_territorial_epi.asp
State Public Health Department websites: http://www.cdc.gov/doc.do/id/0900f3ec80226c7a/

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Appendix 5.

Sample HPAI Contact Summary Form

Contact	Name	Phone	E-mail	Contact Dates
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Region Contact				
Other NPS Units				
State Wildlife Agency				
USFWS				
USGS				
Diagnostic Laboratory				
State Veterinarian				
USDA - AVIC				
State Pubic Health				
SHPO				
Tribes				
Other Federal Agencies				
State Partners				
Local Partners				
News Media				

APPENDIX 6. HPAI Information for Park Employees and Visitors

Note: *Material in **bold** should be substituted for material in parentheses if HPAI is present in North America.*

The Asian strain of highly pathogenic avian influenza (HPAI) subtype H5N1, or bird flu, is primarily a disease of domestic poultry that may also affect wild birds and humans. (HPAI has not yet been found in North America or its territories, and strict measures are being taken to keep it out of the country and to monitor migratory birds arriving from affected areas of the world.) **HPAI has recently been discovered in (specific places in North America or its territories), and measures are being taken by appropriate authorities to contain it in order to prevent the outbreak from spreading.**

Wild birds, particularly waterfowl and shorebirds, commonly carry low pathogenicity avian influenza viruses without harm. It is no surprise when these low pathogenicity avian influenza viruses are detected in healthy wild birds. However, the Asian H5N1 HPAI virus has mutated and adapted to cause illness and death in domestic and wild birds, as well as a limited number of mammals, including humans. Mortality from the virus has been detected in more than eighty wild bird species worldwide. Over 200 million domestic birds in the affected countries have died or been culled in attempts to control the disease.

The virus is spread among birds in fecal droppings, saliva, and nasal discharges. The virus is quite easily inactivated by disinfectants but can survive for long periods (a month or more) in cold water. HPAI has been detected in some apparently healthy wild birds. The role of migratory birds in spread of the disease over long distances has been speculated; however, other means of (introduction to the U.S.) **spread**, such as through illegal importation of infected birds or bird products or by contaminated items, is also a concern. The impact of HPAI on wild bird populations is unknown. However, what is clear is that HPAI poses a significant economic threat to domestic poultry and fowl operations as well as to human health.

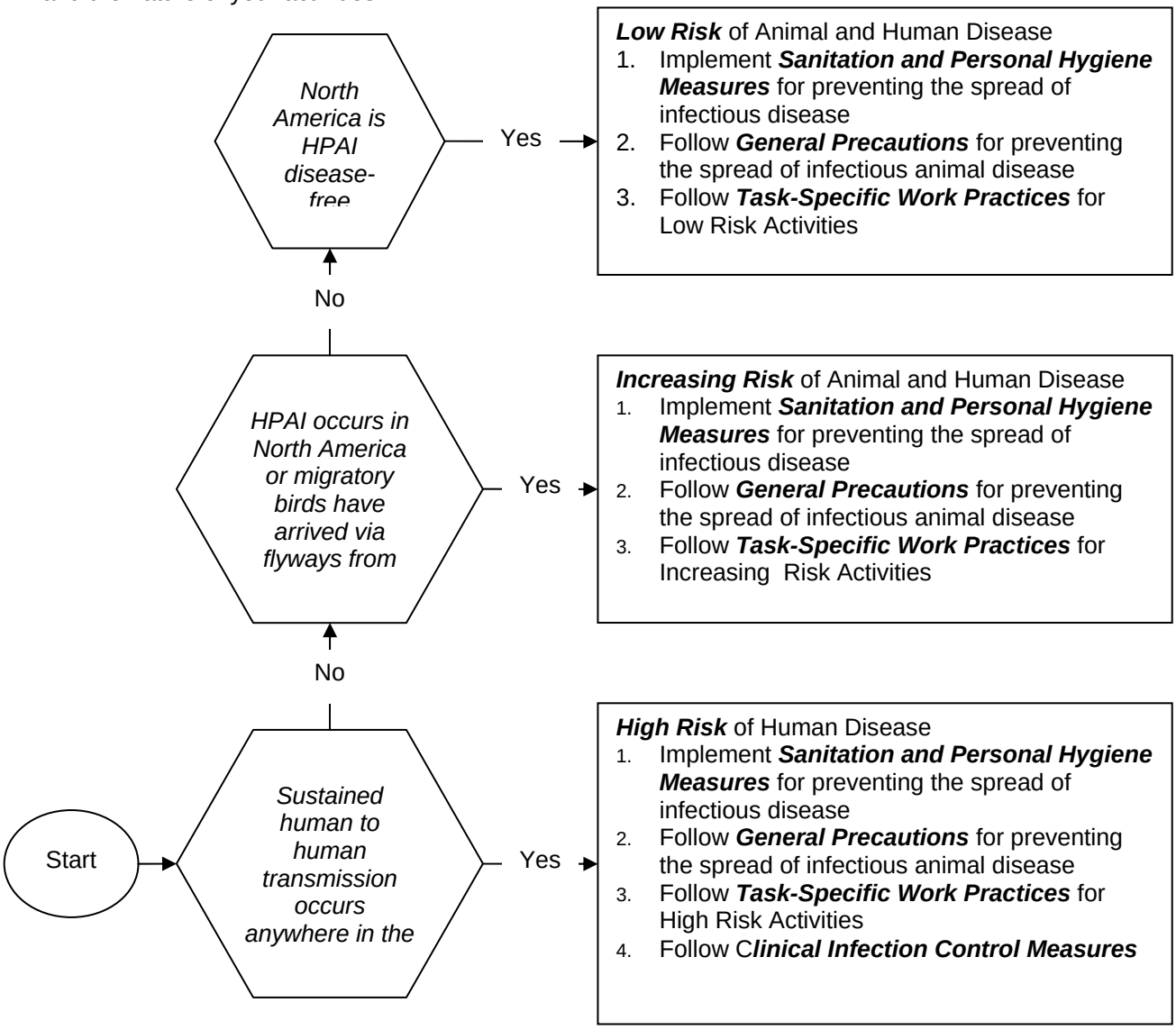
The National Park Service, in cooperation with other agencies, has developed a preparedness and communication plan, and a response plan to assist park managers if HPAI occurs in or near a park unit. Although culling domestic birds to contain the spread of HPAI is considered an acceptable agriculture practice, culling of migratory birds is likely ineffective in disease control and would have unknown and potentially significant ecological consequences. Culling migratory birds is not a recommended HPAI management action according to the Food and Agriculture Organization of the United Nations (FAO) or World Health Organization (WHO), the two leading international health authorities.

Visitors can help ensure the safety and health of the National Park System's wildlife resources by enjoying wildlife from a distance. Sick or dead birds should not be approached but should be reported to park staff.

More detailed information is available to employees at http://www.nps.gov/public_health/zed/ai/ai.htm. **More detailed information is available at park visitor centers and changes in park operations due to HPAI will be posted on the Internet at www.nps.gov/.**

APPENDIX 7. Protecting Employees and Visitors Against Exposure to HPAI H5N1.

Our protective strategy is to minimize exposure to virus through strict adherence to sanitation and personal hygiene practices and to create barriers that will isolate us from the source of virus. What specific personal protective ensemble should be worn and what work practices should be followed will depend on circumstances and the nature of your activities.



1. *Sanitation and personal hygiene* measure for preventing the spread of infectious disease:

1. All employees should practice sanitation and personal hygiene measures to lessen the spread of infectious disease. These measures include proper hand washing, cleaning and sanitizing our tools and work areas, and cough etiquette.

Personal Hygiene and Hand Washing.

All employees should be educated about the importance of hand washing in controlling disease transmission. Hands should be washed for 10-15 seconds after contact with contaminated surfaces, 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 balms, or lotions. The idea here is to disrupt the direct

connection between a source of contamination and your vulnerable mucous membranes (eyes, nose, or mouth).

Proper hand washing means:
- First wet your hands and apply liquid or clean bar soap. Place the bar soap on a rack and allow it to drain.
- Next rub your hands vigorously together and scrub all surfaces.
- Continue for 10 - 15 seconds. It is the soap combined with the scrubbing action that helps dislodge and remove germs.
- Rinse well and dry your hands.

Alcohol 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.

Always wash your hands after removing protective gloves.

Cleaning and Sanitizing.

Keep tools and work areas free of virus contamination. Surfaces should be cleaned with detergent and water and then sanitized.

Useful sanitizing solutions include:

a. 1% solution of household bleach (5.25% sodium hypochlorite stock solution) for hard, non-porous surfaces. Use 1.25 oz or about 8 teaspoons regular household bleach in one gallon of water. Note: Bleach is corrosive to metal surfaces and if used should be rinsed.
b. 5% solution of household bleach (5.25% sodium hypochlorite stock solution) for porous surfaces. Use 6.5 oz regular household bleach in one gallon of water. Note: Bleach is corrosive to metal surfaces and if used should be rinsed.
c. 5% hospital-grade Lysol®
d. other EPA-approved disinfectants

Cough and Sneeze Etiquette.

This measure will become critically important if HPAI develops sustained human to human transmission through droplet transmission. Cough etiquette procedures should be practiced to limit the spread of colds and seasonal influenza and to create good hygiene habits.

- Cover your mouth and nose with a tissue when you cough or sneeze, or cough or sneeze into your upper sleeve, not you hands. This limits the dispersal of infectious droplets in the air.
- Put the used tissue in the waste basket
- Clean your hands with soap and water or with an alcohol-based hand cleaner. This will decrease the spread of germs from hands and surfaces.

2. ***General precautions*** for preventing the spread of infectious animal diseases:

Whenever employees handle animals or work around them or become intimate with their habitat they should follow these General Precautions for preventing the spread of infectious animal diseases:

- Do not eat, drink or smoke, or any other activity which puts your hands in or near your eyes, nose or mouth while handling animals and until you can wash your hands.
- Avoid unnecessary contact with animals, animal tissue, and contaminated materials.
- Provide barriers to exposure such as gloves, goggles, or aprons. Specific recommendations for barriers are provided in section 3, below.
- Wash hands after contact with animals or contaminated surfaces.
- Obtain standard vaccinations, including vaccination for seasonal influenza.

The strategy of avoidance, spatial isolation, barriers, and hygiene also applies to park visitors, the public, and employees that do not (or should not) have direct contact with wildlife. For this group precautions should be emphasized in this way:

- Observe wildlife, including wild birds, from a distance. This protects you from the possible exposure to pathogens and minimizes disturbance to the animal.
- Avoid touching wildlife. If there is contact with wildlife, do not rub your eyes, eat, drink, or smoke before washing your hands with soap and water.
- **Do not pick up diseased of dead wildlife.** If a sick or dead animal is found, contact the park wildlife resources manager or a park ranger.

3. *Task-Specific Work Practices*

Some of activities will put workers in direct contact with wildlife. When this occurs you must follow protective measure geared specifically to your task and the exposure risk it creates.

Low Risk Activities. HPAI is not known to occur in North America.
While absence of HPAI in North America suggests a low risk, the following recommendations (based on USGS bulletin at http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/WHB_05_03.jsp) should be followed for use of personal protective clothing which provides barriers and isolates the worker from possible sources of disease causing organisms in general and safe work practices which emphasize hygiene and sanitation.

If I am a…	…and my activities require me to…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Hunter or ***Subsistence User***	handle and prepare game	• Rubber, pvc, nitrile, or latex gloves*. Reusable gloves must be disinfected after use. • Goggles or a face shield is recommended while processing game.	• Do not handle or eat sick game. • Wash hands after handling animals • Thoroughly clean and disinfect knives, equipment, work surfaces and PPE that come in contact with game. • Cook game well done or to an internal temperature of at least 160° F).
Biologist or ***Ranger***	handle apparently healthy wild birds	• Rubber, pvc, nitrile, or latex gloves.	• Work in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Wash hands after handling animals
Biologist or ***Ranger***	handle sick or dead birds or tissue associated with an unusual mortality event	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better. • Coveralls, • Rubber boots or boot covers	• Work in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious material including carcasses. • Wash hands after handling animals

*Caution: For some workers, contact with latex can result in allergic reactions.

Increasing Risk Activities. HPAI occurs in North America or migratory birds have arrived via flyways from affected areas or work with wild birds in areas where HPAI has been detected.
Once HPAI occurs in North America or migratory birds have arrived via flyways from affected areas or you work with wild birds in areas where HPAI has been detected, your risk of exposure will increase and consequently, you must increase your protections

If I am a…	…and my activities require me to…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Hunter or ***Subsistence User***	handle and prepare game	• Rubber, pvc, nitrile, or latex* gloves. Reusable gloves must be disinfected after use. • Goggles or a face shield is recommended while processing game.	• Do not handle or eat sick game. • Wash hands after handling animals • Thoroughly clean and disinfect knives, equipment, work surfaces and PPE that come in contact with game. • Cook game well done or to an internal temperature of at least 160° F).
Biologist or ***Ranger***	handle apparently healthy wild birds	• Rubber, pvc, nitrile, or latex gloves.	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • wash hands after handling animals
Biologist or ***Ranger***	handle sick or dead birds or tissue associated with an unusual mortality event	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better. • Coveralls, • Rubber boots or boot covers	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious tissues and carcasses. • Wash hands after handling animals • obtain vaccination for seasonal influenza • Monitor your health for clinical signs of influenza infection during and for one week after your last exposure to potentially HPAI virus-infected or exposed birds. • Contact your healthcare provider if you develop fever, flu-like symptoms or conjunctivitis and inform them prior to arrival that you have potentially been exposed to HPAI.
Biologist, Public Health Officer, or ***other employee*** working with agricultural, public health or similar authority	participate in animal disease control operations	• Rubber, pvc, nitrile, or latex gloves. • Goggles • NIOSH approved particulate respirator, N95 or better • Coveralls • Rubber boots or boot covers	• Work outdoors or in well-ventilated areas if working indoors. • Disinfect work surfaces and equipment between sites and when tasks are complete. • Properly dispose of potentially infectious tissues and carcasses. • Wash hands after handling animals • Obtain vaccination for seasonal influenza. • Receive an influenza antiviral drug daily for the duration of time during which direct contact with infected poultry or contaminated surfaces occurs. • Monitor your health for clinical signs of influenza infection during and for one week after your last exposure to potentially HPAI virus-infected or exposed birds. • Contact your healthcare provider if you develop fever, flu-like symptoms or conjunctivitis and inform them prior to arrival that you have potentially been exposed to HPAI.

*Caution: For some workers, contact with latex can result in allergic reactions.

Guidelines based on USGS Wildlife Health Bulletin at http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/WHB_05_03.jsp.

You should note that once your activities place you at risk of exposure to HPAI, stringent barrier protections and strict adherence to hygiene and sanitation practices is required. For workers that are involved in handling dead or ill birds while investigating a mortality event where HPAI occurs, as well as for employees that may be directly involved in animal disease control operations such as culling domestic flocks, there are additional requirements for health care and health care monitoring. For these employees, daily antiviral medications are indicated. In addition, these employees should self monitor for symptoms of influenza infection for one week after their last exposure to potentially HPAI-infected birds. If symptoms are detected, employees should immediately contact their healthcare provider.

Special precautions are required for the laboratory personnel that will process wildlife samples. Their work will generally be conducted under Biosafety Level 3+ laboratory conditions.

High Risk Activities. Sustained human to human transmission of HPAI occurs anywhere in the world.
If sustained human to human transition occurs, our strategy of maintaining barriers and isolating ourselves from sources of infection and decreasing exposure potential through sanitation and hygiene will continue, but with emphasis on human to human rather than animal to human contact. Specific PPE and work practices for employees at high risk, such as emergency service providers, must be followed.

If I am a…	…and…	…I should wear this Personal Protective Ensemble (PPE)…	…and follow these Safe Work Practices…
Emergency Services Provider or ***Law Enforcement Ranger***	Have close contact with symptomatic and asymptomatic public suspected of HPAI infection	• NIOSH approved particulate respirator, N95 or better • Use gloves and gown for all patient contact. • Goggles of face shields	• During periods of increased respiratory infection activity in the community offer masks to persons who are coughing. • When space permits, encourage coughing persons to sit at least three feet away from others.
Emergency Medical Services Provider, ***medical clinician***, or Emergency Services Provider	Attend to or transport patients who present with fever and respiratory symptoms	• NIOSH approved particulate respirator, N95 or better • Use gloves and gown for all patient contact. • Goggles of face shields • Use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.	• Manage patients according to recommendations for Respiratory Hygiene and Cough Etiquette (http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm) and question regarding their recent travel history. • Patients with a history of travel within 10 days to a country with avian influenza activity and are hospitalized with a severe febrile respiratory illness, or are otherwise under evaluation for avian influenza, should be managed using isolation precautions. • Practice **Standard Precautions.** Pay careful attention to hand hygiene before and after all patient contact or contact with items potentially contaminated with respiratory secretions. • Practice **Droplet, Contac**t and **Airborne Precautions**.

4. *Clinical Infection Control Measures*

Standard Precautions. Use Standard Precautions, or the equivalent, for the care of all patients. A detailed discussion of these precautions can be found at http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html. These precautions include:

- Hand washing
- Use of personal protective equipment including gloves, respirators, eye and face protection, and splash protection
- Patient care equipment
- Environmental control
- Laundry
- Specific infection control measures
- Patient placement

Droplet Precautions *and* ***Airborne Precautions***

Droplet transmission involves contact of the conjunctivae or the mucous membranes of the nose or mouth of a susceptible person with large-particle droplets (larger than 5 µm in size). Droplets are generated from the source person primarily during coughing, sneezing, or talking and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission via large-particle droplets requires close contact between source and recipient persons, because droplets do not remain suspended in the air and generally travel only short distances, usually 3 ft or less, through the air. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. Droplet Precautions apply to any patient known or suspected to be infected with epidemiologically important pathogens that can be transmitted by infectious droplets. A detailed discussion of these precautions can be found at http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html.

Airborne transmission occurs by dissemination of either airborne droplet nuclei (small-particle residue [5 µm or smaller in size] of evaporated droplets that may remain suspended in the air for long periods of time) or dust particles containing the infectious agent. Microorganisms carried in this manner can be dispersed widely by air currents and may become inhaled by or deposited on a susceptible host within the same room or over a longer distance from the source patient, depending on environmental factors; therefore, special air handling and ventilation are required to prevent airborne transmission. A detailed discussion of these precautions can be found at http://www.cdc.gov/ncidod/dhqp/gl_isolation_airborne.html. Droplet and airborne precautions include:

- Patient placement and masking
- Use of respirators
- Patient transport

Contact Precautions

Direct-contact transmission involves skin-to-skin contact and physical transfer of virus to a susceptible host from an infected person. Indirect-contact transmission involves contact of a susceptible host with a contaminated intermediate object, usually inanimate, in the patient's environment. A detailed discussion of these precautions can be found at http://www.cdc.gov/ncidod/dhqp/gl_isolation_contact.html. These precautions include:

- Patient placement

- Use of gloves and hand washing
- Gowns
- Patient transport
- Patient-care equipment

Surveillance and Monitoring of Workers

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 health and safety representative.

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. 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 at http://www.cdc.gov/flu/protect/covercough.htm.

APPENDIX 8. Advice for International Travelers

If international travel is planned, or if hosting volunteers, researchers or other park staff from HPAI-affected areas, the following precautions should be taken to help protect park resources and human health. Check with the NPS Office of International Affairs or the NPS Public Health Program if more information is needed.

Outbreak Notice

Human Infection with Avian Influenza A (H5N1) Virus

This notice initially released: September 23, 2005

Avian influenza A (H5N1) viruses usually affect wild birds but have infected and caused serious disease among poultry, such as chickens. Human infections with H5N1 viruses are rare, but have also occurred in several countries since 2003. For a current list of countries reporting outbreaks of H5N1 infection among poultry and other birds and a list of countries reporting laboratory-confirmed human infections with H5N1 viruses, see the Centers for Disease Control and Prevention (CDC) website, http://www.cdc.gov/flu/avian/outbreaks/current.htm.

Situation updates and cumulative reports can also be found on the World Health Organization (WHO) website at http://www.who.int/csr/disease/avian_influenza/en/.

Most cases of H5N1 influenza in humans are thought to have occurred from direct contact with infected poultry in affected countries. Contact with sick or dead poultry as well as with poultry that have no apparent symptoms should be avoided. Contact with surfaces that may have been contaminated by poultry feces or secretions should also be avoided. Transmission of H5N1 viruses to two persons through consumption of uncooked duck blood may also have occurred in Vietnam in 2005. Uncooked poultry or poultry products, including blood, should not be consumed.

CDC remains in communication with WHO and continues to closely monitor the H5N1 situation in countries reporting human cases and outbreaks among birds.

The public health threat of a pandemic arising from novel influenza subtypes such as influenza A (H5N1) will be greatly increased if the virus gains the ability to spread from one human to another. Such transmission has not yet been observed. However, a few cases of limited person-to-person spread of H5N1 viruses have been reported, with no instances of transmission continuing beyond one person. For example, one instance of probable person-to-person transmission associated with close contact between an ill child and her mother is thought to have occurred in Thailand in September 2004.

H5N1 infections in humans can cause serious disease and death. A vaccine to protect humans against influenza A (H5N1) is not yet available, but a candidate vaccine is undergoing human clinical trials in the United States. The H5N1 viruses currently infecting birds and some humans are resistant to amantadine and rimantadine, two antiviral medications commonly used to treat influenza. Most of the H5N1 viruses tested have been susceptible to the antiviral medications oseltamivir (Tamiflu®) and zanamivir (Relenza®), but resistance has been reported. The effectiveness of these drugs when used for treatment of H5N1 virus infection is unknown. For more information about influenza antiviral drugs, see http://www.cdc.gov/flu/avian/gen-info/avian-flu-humans.htm#antiviral.

CDC has not recommended that the general public avoid travel to any of the countries affected by H5N1. Persons visiting areas with reports of outbreaks of H5N1 among poultry or of human H5N1 cases can reduce their risk of infection by observing the following measures:

Before any international travel to an area affected by H5N1 avian influenza

Visit CDC's Travelers' Health website at http://www.cdc.gov/travel to educate yourself and others who may be traveling with you about any disease risks and CDC health recommendations for international travel in areas you plan to visit. For other information about avian influenza, see CDC's Avian Influenza website: http://www.cdc.gov/flu/avian/index.htm.

- Be sure you are up to date with all your routine vaccinations, and see your doctor or health-care provider, ideally 4–6 weeks before travel, to get any additional vaccination medications or information you may need.

- Assemble a travel health kit containing basic first aid and medical supplies. Be sure to include a thermometer and alcohol-based hand gel for hand hygiene. See the Travelers Health Kit page in *Health Information for International Travel* for other suggested items.
- Identify in-country health-care resources in advance of your trip.
- Check your health insurance plan or get additional insurance that covers medical evacuation in case you become sick. Information about medical evacuation services is provided on the U.S. Department of State web page Medical Information for Americans Traveling Abroad, at http://travel.state.gov/travel/tips/health/health_1185.html.

During travel to an affected area

- Avoid all direct contact with poultry, including touching well-appearing, sick, or dead chickens and ducks. Avoid places such as poultry farms and bird markets where live poultry are raised or kept, and avoid handling surfaces contaminated with poultry feces or secretions.
- As with other infectious illnesses, one of the most important preventive practices is careful and frequent handwashing. Cleaning your hands often with soap and water removes potentially infectious material from your skin and helps prevent disease transmission. Waterless alcohol-based hand gels may be used when soap is not available and hands are not visibly soiled.
- All foods from poultry, including eggs and poultry blood should be cooked thoroughly. Egg yolks should not be runny or liquid. Because influenza viruses are destroyed by heat, the cooking temperature for poultry meat should be 74°C (165°F)
- If you become sick with symptoms such as a fever accompanied by a cough, sore throat, or difficulty breathing or if you develop any illness that requires prompt medical attention, a U.S. consular officer can assist you in locating medical services and informing your family or friends. Inform your health-care provider of any possible exposures to avian influenza. See Seeking Health Care Abroad in *Health Information for International Travel* for more information about what to do if you become ill while abroad. You should defer further travel until you are free of symptoms, unless traveling locally for medical care.

Note: Some countries have instituted health monitoring techniques, such as temperature screenings, at ports of entry of travelers arriving from areas affected by avian influenza. Please consult the Embassy of your travel destination country if you have any questions.

After your return

- Monitor your health for 10 days.
- If you become ill with a fever plus a cough, sore throat, or trouble breathing during this 10-day period, consult a health-care provider. ***Before you visit a health-care setting, tell the provider the following: 1) your symptoms, 2) where you traveled, and 3) if you have had direct contact with poultry or close contact with a severely ill person. This way, he or she can be aware that you have traveled to an area reporting avian influenza.***
- Do not travel while ill, unless you are seeking medical care. Limiting contact with others as much as possible can help prevent the spread of an infectious illness.

For more information about H5N1 infections in humans, visit the World Health Organization avian influenza website at http://www.who.int/csr/disease/avian_influenza/en/ and the CDC Avian Influenza site, http://www.cdc.gov/flu/avian/index.htm.

For information about CDC recommendations for enhanced surveillance, diagnostic evaluation, and infection control precautions for H5N1, see http://www.cdc.gov/flu/avian/professional/updates.htm.

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APPENDIX 9.

HIGHLY PATHOGENIC AVIAN INFLUENZA SITUATION ANALYSIS	Park Name/Region/State:	Prepared by (Name and Title):	Date and Time Prepared

Geographic Factors	
Describe the location of the source (attach map)	Give GPS or other coordinates
Describe the USDA-defined Surveillance Zone (attach map)	Describe the USDA-defined Control Area (attach map)
List the facilities or transportation routes in the Surveillance Zone:	List the facilities or transportation routes in the Control Area:
Describe the topography of the zones:	List accessibility problems:
Landownership/Land Use Issues:	History of HPAI in the geographic area:

Human Factors	
Describe known hazards or other safety considerations:	
Describe visitor and/or public uses that may be affected in or near a park:	
What restrictions are in place: ☐ Area closures ☐ Travel restrictions ☐ Decontamination requirements	Details of restrictions:
Describe the actual or potential socio-economic effects:	
Describe the level of media attention and political interest:	Describe the likelihood of protest actions:

Resource Factors	
What is at risk (see Vulnerability Assessment): ☐ Unique bird species ☐ Other birds ☐ T+E species ☐ Poultry/domestic fowl ☐ Unique plant communities ☐ Cultural resources ☐ Feral populations ☐ Other _____	Describe the risks (see Vulnerability Assessment in the HPAI Preparedness and Response Plan):
Describe other natural resource issues or considerations:	
Describe other cultural resource issues or considerations:	

Incident Management Factors			
How many people are likely to be involved?	What size is the incident area?	Are air operations likely to be involved?	Are other incidents occurring in the area?
Describe potential safety considerations:			
Describe policy issues and considerations:			
Describe likely logistical problems:			
Describe the current and forecast weather and its projected effect on the situation:			

What is the availability of resources?	Summarize the overall situation in the country:
☐ Good ☐ Fair – other incidents are occurring ☐ Poor – competition for resources is strong	

APPENDIX 10. Surveillance for Highly Pathogenic Avian Influenza Subtype H5N1

Five strategies for collecting monitoring and surveillance data on Asian H5N1 virus in wild birds have been suggested (See An Early Detection System for Asian H5N1 Highly Pathogenic Avian Influenza in Wild Migratory Birds—U.S. Interagency Strategic Plan). The NPS is implementing investigation of morbidity and mortality events, at minimum. Determination of necessity for implementation of other surveillance strategies may be made on a site-specific basis.

Investigation of Morbidity/Mortality Events

Over 40 species of wild birds have been shown to be susceptible to infection with Asian H5N1 virus. While not all species infected necessarily exhibit disease, the current strain(s) of H5N1 circulating in Asia have been shown to cause morbidity and mortality in a wide variety of these species. The systematic investigation of morbidity and mortality events in wild birds to determine if Asian 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. State natural resource agencies and Federal refuges and parks, primarily within the DOI's U.S. Fish and Wildlife Service National Wildlife Refuge System and the National Park Service, are the principal authorities in a position to detect and respond to mortality events involving wild birds. Morbidity and mortality events involving wildlife are often detected by, or reported to, these agencies and entities. This strategy capitalizes on an existing morbidity/mortality program being conducted by DOI and its partners.

Surveillance in Live Wild Birds

This strategy incorporates sampling of live-captured, apparently healthy wild birds to detect the presence of Asian H5N1 virus. This effort will select bird species in North America that represent the highest risk of being exposed to, or infected with, Asian H5N1 virus because of their migratory movement patterns, which include birds that migrate directly between Asia and North America, or birds that may be in contact with species from areas in Asia with reported outbreaks. Should Asian H5N1 virus be detected in domestic birds in the U.S., sampling of wild birds in the flyway in the affected area may become a high priority as well. Data collected by organizations currently conducting research and monitoring for avian influenza in Alaska will be incorporated with additional bird captures as necessary to provide a broad species and geographic surveillance effort. This strategy capitalizes on research activities currently being conducted by DOI, USDA and their partners.

Surveillance in Hunter-killed Birds

Check stations for waterfowl hunting are operated by the US Fish and Wildlife Service and state natural resource agencies. Hunter check stations provide an opportunity to collect additional samples to determine the presence of HPAI and other subtypes of avian influenza viruses and supplement data collected during surveillance of live wild birds. As with surveillance of live wild birds, sampling of hunter-killed birds will focus on hunted species that are most likely to be exposed to HPAI in Asia; have relatively direct migratory pathways from those areas to the U.S. via Alaska or directly to the Pacific Coast; mix in Alaska staging

areas with species that could bring the virus from Asia; or should HPAI be detected in domestic birds in the U.S., may mix with wild birds in the flyway of the affected area. Collection of samples from these species will occur at hunter check stations in the lower 48 states during hunting seasons in areas where these birds stage during migration or over-wintering.

Sentinel Species

Waterfowl, exhibition gamefowl, and poultry flocks reared on backyard premises have been used as sentinels for active surveillance for avian diseases of interest to the commercial poultry industry and regulatory agencies. Currently in Alaska, the State veterinarian uses targeted surveillance of domestic flocks at concentration points due to remote location of villages and lack of resources; enthusiasts travel to poultry exhibitions with birds from distant locations; and surveillance effectively covers a large geographic area. Enhancement of this approach would be valuable. However, placement of sentinel ducks in strategic locations may also prove useful. Placement of sentinel ducks has been used successfully for surveillance of diseases of importance to the poultry industry, including influenza A. Also, sentinel ducks in wild pelagic bird colonies improved virus detection rates fivefold, suggesting that this approach is advantageous in ecological studies.

Environmental Sampling

Avian influenza viruses are generally 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. This is the principal means of virus spread to new avian hosts and potentially to poultry, other livestock, and humans. Analysis of both water and fecal material from waterfowl habitat can provide evidence of AI circulating in wild bird populations, the specific AI subtypes, levels of pathogenicity, and possible risks to humans and livestock. Monitoring of water and/or fecal samples gathered from waterfowl habitat is a reasonably cost effective, technologically achievable means to assess risks to humans and poultry.

GLOSSARY

This glossary contains simple explanations of terms, as they can be understood in the context of the Highly Pathogenic Avian Influenza Preparedness and Communication Plan and Response Plan.

APHIS - Animal and Plant Health Inspection Service, part of USDA.

AVIC – Area Veterinarian-in-Charge. The lead veterinarian for USDA APHIS in a particular geographical area; there are 42 areas nationwide.

BRD – Biological Resources Division. A division of the U.S. Geological Survey based in Reston, VA but including the Wildlife Health Center in Madison, WI.

BRMD – Biological Resource Management Division. A division of the National Park Service, part of the Natural Resource Program Center, based in Fort Collins, CO.

Buffer-Surveillance Zone – Area designed by USDA APHIS. The zone immediately surrounding the Infected Zone is the Buffer-Surveillance Zone, which with the Infected Zone comprises the Control Area.

Case mortality rate – number of those infected who will die.

Control Area – Area designated by USDA APHIS that includes the Infected Zone and a Buffer-Surveillance Zone.

Culling – lethal removal of animals to control a disease outbreak.

Disinfectant – A chemical or mechanical means of rendering the virus unviable.
For HPAI, bleach and appropriate quaternary ammonia compounds, peroxygens, and phenols used at proper concentrations.

FAO – Food and Agriculture Organization of the United Nations.

HHS – United States Department of Health and Human Services.

HPAI – Asian strain of highly pathogenic avian influenza subtype H5N1

HPAI Coordinator – A person designated in each NPS Unit to evaluate the vulnerability of the unit to HPAI, and to be aware of the NPS Preparedness and Communication Plan and Response Plan for the disease.

HPAI Regional Coordinator – a person appointed by the NPS Regional Director to help ensure that HPAI Preparedness and Communication Plan and Response Plan are coordinated between park units, the NPS Washington Office, and other appropriate agencies.

Incident Management Team (IMT) – The team has authority delegated by the Agency Administrator to take necessary actions to respond to a specific emergency.

Incident – An occurrence or event, either human-caused or natural phenomena that requires action by emergency service personnel to prevent or minimize loss of life or damage to property and/or natural resources. An HPAI outbreak (at least initial outbreaks) that affected NPS units would be handled as an incident.

Incident Action Plan (IAP) – The incident action plan, which is usually prepared at the first meeting, contains general control objectives reflecting the overall incident strategy, and specific action plans for the next operation period (incidents are divided into operational periods). The HPAI Response Plan includes an IAP.

Incident Commander – The individual responsible for all incident operations.

Incident Command System (ICS) – The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objective pertaining to an incident.

Infected Zone – Area designated by USDA APHIS. In an outbreak, the Infected Zone initially will encompass the perimeter of all presumptive positive and confirmed positive premises and will include as many of the Contact Premises as the situation requires. The boundary of the Infected Zone initially should be established at least 10 km.

Morbidity - Illness apparent by clinical signs of disease

Mortality - Death

Pandemic – worldwide outbreak of disease

Pathogenicity – ability to cause disease. For avian influenza, the reference is for ability to cause disease in poultry.

State Veterinarian – State official that is responsible for livestock disease control to ensure compliance with federal and state laws

Surveillance Zone – Area designated by USDA APHIS. A Surveillance Zone should be established within and along the border of a Free Zone, separating the Free Zone from the Buffer-Surveillance Zone within a Control Area.

T&E Species – Threatened and endangered species as designated by listing under the provisions of the Endangered Species Act.

Unusual mortality event – Identification of sick or dead wildlife that is outside of the limits of that routinely encountered.

USDA – United States Department of Agriculture. APHIS is a part of the Department of Agriculture.

USFWS – United States Fish and Wildlife Service.

WASO – NPS Washington D.C. Support Office

WHO – World Health Organization.

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