United States Department of Agriculture

Concept of Operations Plan

Management of an Avian Influenza Outbreak at a Zoological Institution

USDA Animal and Plant Health Inspection Service

DRAFT VERSION 7

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The following draft is being made available for APHIS stakeholders, particularly State Animal Health Officials, other State officials, and zoological organizations. The intent is to receive input on the draft to address stakeholder concerns, identify any clarity issues, and to generally improve the plan.

The plan is not meant to be a detailed tactical plan, but to provide a framework for regulatory authorities, zoological institutions, and supporting organizations to work together to successfully resolve highly pathogenic avian influenza (HPAI) issues impacting a zoological facility, balancing disease control, conservation resources, cultural values, and animal welfare in an efficient manner.

This is a draft document and not a final plan.

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Introduction

Zoological facilities may include zoos/zoological parks, drive-through zoological parks, aquariums, wildlife sanctuaries, wildlife research facilities, wildlife trainers for the entertainment sector, and wildlife hospitalization/rehabilitation facilities. Such facilities vary widely in mission, size, animals housed, design of facilities, competencies within staff, accreditation, and income production. Many of the largest zoos are owned by or operated for government entities, ranging from the National Zoo in Washington, DC, to the zoos in many large urban communities.

Some zoological facilities are key resources in species conservation efforts, housing endangered and threatened species and taking part in national or international collaborative programs for species conservation. Some zoological facilities are also engaged in research onsite and offsite relating to animal health and species conservation. Foreign governments may also loan animals to zoological facilities as part of breeding programs and international conservation efforts, while maintaining ownership and managerial rights over the animals. Lastly, zoological facilities have an important educational role, teaching children and families about wildlife and the environment, and through this role become important cultural resources.

Historically, APHIS has partnered with the zoological community to better prepare that sector to address all-hazards emergencies, including animal health emergencies. In the wake of the 2005 H5N1 Avian Influenza threat, APHIS partnered with the Association of Zoos and Aquariums (AZA) to develop the *USDA APHIS/AZA Outbreak Management Plan – Management Guidelines for Avian Influenza for Zoological Parks & Exhibitors*.

In summary, zoological facilities blend cultural values, science and education, entertainment, and environmental conservation. The public and media will show intense interest in challenges at zoological facilities. For all these reasons, APHIS needs a functional plan to work with states and other stakeholders to address animal health emergency situations that involve one or more zoological facilities.

Purpose, Scope, Planning Assumptions, Situation

- Purpose:
  This document provides guidance for USDA APHIS operational management pertaining to zoological facilities during a Highly Pathogenic Avian Influenza (HPAI) outbreak. The document will build upon the framework of the document *USDA APHIS/AZA Outbreak Management Plan – Management Guidelines for Avian Influenza for Zoological Parks & Exhibitors.*
- Authorities
  - APHIS authority for response is based primarily upon the following Statutes:
    - Animal Health Protection Act: Provides APHIS with authority to respond to animal health emergencies.

        - Animal Welfare Act (provides for the inspection of certain facilities exhibiting animals, but not infectious disease response)
    - In addition, the following regulations may apply:

        - 9 CFR 71.2 and 71.3 (Quarantine and Interstate Movement of Diseased Animals, including Poultry, including African swine fever, hog cholera [classical swine fever], contagious bovine pleuropneumonia, contagious equine metritis, dourine, foot-and-mouth disease, glanders, highly pathogenic avian influenza, Rinderpest, scabies, Teschen, screwworms, vesicular exanthema)
        - 9 CFR 53 (Foot-and-Mouth Disease, pleuropneumonia, Rinderpest, and Certain Other Communicable Diseases of Livestock or Poultry)
        - 9 CFR 161 (Requirements and Standards for Accredited Veterinarians)
        - 9 CFR 56 (Control of H5/H7 Low Pathogenic Avian Influenza)
        - 9 CFR 94 (Rinderpest, foot-and-mouth disease, Newcastle disease, highly pathogenic avian influenza, African swine fever, classical swine fever, swine vesicular disease, and bovine spongiform encephalopathy: Prohibited and restricted importations)

    - Other Federal, State, Tribal, or Territorial authorities: Additional authorities that may intersect, including:
        - US Fish and Wildlife Services authorities pertaining to migratory birds and threatened or endangered species
        - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): International policies on endangered species
        - Other Department of Interior (DOI) and Department of Commerce (National Oceanic and Atmospheric Administration) authorities on wildlife. (Currently in discussions with the DOI on this issue)
        - State, Tribal, or Territorial authorities pertaining to animal health and wildlife management.

- Scope

  This plan will focus on HPAI in zoological facilities with avian collections. Additional planning will be needed to address avian influenza viruses with substantial potential for infection of mammalian species. Currently the collaborative USDA/AZA "Secure Zoo" project is expected to broaden the scope of planning to mammalian health issues as well.

- Planning assumptions
    - Zoological facilities are important to the public due to their contribution to science, species conservation, education, and entertainment. Zoological facilities, particularly zoos and aquariums, are important cultural resources.
    - Animals at zoos have more than monetary value, may be difficult to replace, and some may be from species listed as threatened or endangered, or be owned by foreign governments/institutions.
    - Zoological facilities vary tremendously in size, mission, ownership, competencies within staff, types of animals housed, and resources.
    - A one-size-fits-all plan cannot be written for zoological facilities involved in a HPAI outbreak.
    - Public visitation is a hallmark of most, but not all, zoological facilities.

- Direct interchange between the commercial poultry industry and zoological facilities is typically very limited.
- The public, media, and political leaders will become intensely interested in outcomes should a zoological facility experience HPAI infections onsite.
- Broad depopulation strategies that are appropriate for commercial and backyard domestic poultry flocks will not be employed to address HPAI outbreaks at zoological facilities.

- Situation
  - In December of 2014, HPAI was diagnosed in wildlife in northern Washington State. Since that time, cases of HPAI have been detected in wildlife, backyard poultry flocks, and commercial poultry flocks throughout a large number of states. Currently, the most severe outbreaks in commercial poultry are in the upper Mid-West and include millions of chickens and turkeys. Additional infections of commercial premises are anticipated. It is quite possible that a zoological facility could become infected.

- Summary of key agencies and organizations that may have authorities, resources, or expertise in support of a HPAI outbreak involving a zoological facility. Roles detailed in Section 7: Agency Roles and Responsibilities
  - Federal Agencies:
    - US Department of Agriculture
      - Animal and Plant Health Inspection Service
    - US Department of the Interior
      - US Fish and Wildlife Service
      - US Geological Survey
    - US Department of Health and Human Services
      - Centers for Disease Control and Prevention
      - Occupational Safety and Health Administration
        - National Institute for Occupational Health and Safety
  - State/Tribal/Territorial Agencies
    - Department of Agriculture and/or Animal Health Officials
    - Public Health
    - Environmental Health
    - Natural Resources/ Wildlife Agency
    - Emergency Management Agency
  - Local agencies
    - Public/Environmental Health
    - Parks & Recreation (may include zoological parks)
    - Law enforcement
    - Fire/HAZMAT
    - Emergency management
  - Non-governmental entities
    - Not-for-profit entities operating zoological facilities
    - Corporate entities operating zoological facilities
    - Association of Zoos and Aquariums
    - American Association of Zoo Veterinarians

- Global Federation of Animal Sanctuaries
- Zoological Association of America
- Additional stakeholders will be identified in the planned job aids.

Concept of Operations

1. Detection

HPAI detection at a zoological facility may follow cases in backyard or commercial domestic poultry. In such cases, an Incident Command System (ICS) organization may already be in place within a State, Tribal Nation, Territory, or region of the same. A case in a zoological facility could also be the index case for detection of HPAI within a jurisdiction.

HPAI may be detected at or near a zoological institution through a number of processes, including:

- Mortality surveillance of dead wild (non-collection) birds found at or near zoological facility
- Proactive surveillance of apparently normal birds within a zoo
- Mortality or morbidity surveillance of collection birds at a zoo
- Detection of a nearby backyard flock infected with HPAI
- Detection of a nearby commercial poultry flock infected with HPAI

Prior to detection of HPAI at or very near a facility, zoological institutions should maintain biosecurity in accordance with the guidelines within the document *USDA APHIS/AZA Outbreak Management Plan – Management Guidelines for Avian Influenza for Zoological Parks & Exhibitors.*

2. Situational assessment

If possible, zoological facilities should have proactive discussions with State Animal Health Officials about HPAI risks and the potential organizational aspects of a response at their facility. Once HPAI is detected either within a zoological facility or when a zoological facility is identified within a control zone of confirmed infected premises, an assessment of the situation at the zoo should be undertaken immediately by State and Federal animal health authorities in collaboration with zoological facility management. The assessment should evaluate multiple factors that will guide the development of an appropriate response organizational structure as well as the integration of the zoological facility response into the overall ICS-based response within that State, Tribal, or Territorial jurisdiction.

A crucial step in the assessment process is opening discussions with the zoological facility management to ensure that all parties have a mutual understanding of the role of Federal and State response personnel and the role of zoo staff. Particularly when there will be a large-scale response at the zoo, it is essential that all parties are in agreement, or at least understand the roles of response personnel. Initial discussions will include leadership of State and Federal

Animal Health Agencies, Federal and State Wildlife Agencies, as well as the assigned Incident Management Team. Issues that might be discussed include:

- What will be the role of zoo leadership in strategic decision making? Since some projected situations will have little precedent, the decision process should be well understood.
- If an Incident Management Team (IMT) will be deployed specifically to manage the zoo response (even if it is managing an Operational Branch or Task Force rather than acting as a stand-alone IMT) will the zoo staff and leadership be integrated into the onsite Federal/State IMT or will the Federal/State IMT be separate from the zoo staff response organization?
- If a stand-alone Incident Command organization is mobilized, will the zoo leadership/ownership provide a Co-Incident Commander or at least an advisor to the Incident Commander?
- Will an Incident Command Post (ICP) be located on the zoo grounds?
- What will be the coordination methodology among various animal health and wildlife management authorities in supporting the response? APHIS maintains a national Incident Coordination Group to support nationwide HPAI response. Will the wildlife community participate in that group or does another mechanism need to be in place, particularly if multiple zoos in multiple states are infected?
- What will be the role of local emergency management in supporting the response? This may be a critical question, particularly if the zoo is part of a municipal government.
- Finally, one of the first critical decisions is whether a zoological facility with positive birds can/should remain open for public visitation. If the zoo is to be closed, at least for a time, what restrictions need to be in place for employees who may own birds and poultry?

The assessment should evaluate the follow characteristics related to incident complexity and challenges. No single factor will dictate the scale and operational characteristics of the needed response organizational structure, but through weighing the various factors, the situation assessment should result in a clear recommendation pertaining to the type of response needed. Individual facilities may have elements of both low complexity and high complexity, so the following should be considered a tool for evaluation rather than a rigid system of categorization.

Population of animals at zoological facility		
Least complex[1]		Most complex
Zoo population 50 or less Small numbers of birds	Large zoo (200-2,000 animals) Substantial bird population with multiple avian exhibits and, potentially, with offsite avian holding areas for research/breeding programs.	
Avian species with no or limited conservation value	Houses birds of high conservation value, including threatened or endangered species, breeding programs for the same, or animals owned by foreign nations	

Wild bird interface at zoological facility		
Least complex		Most complex
No exposure of wild waterfowl to exhibit birds. Minimal contact with other wild birds	Substantial number of wild waterfowl and other birds intermingle with exhibit birds. Onsite rehabilitation program receiving injured or ill wild birds.	

Professional credentials of employees		
Least complex		Most complex
Robust veterinary and zoological staff. Onsite veterinary facility. Capable of many elements of surveillance, treatment, euthanasia, etc.	Attending veterinarian is an offsite contractor. Small business or family-run type operation with no veterinary or zoological professionals on full-time staff. No onsite veterinary facility.	

Isolation and Biosecurity		
Least complex		Most complex
Facility has excellent biosecurity protocols in place, employees are trained and fit tested for PPE, bird exhibits can be isolated from each other, exhibits can be readily cleaned and disinfected, veterinary/isolation area available for treatment of sick birds of high conservation value.	Poor biosecurity, difficult to isolate bird exhibits from one another, exhibits difficult to clean and disinfect, lacking areas for isolation and treatment of any sick birds of high conservation value.	

[1] Incident complexity is a term used in ICS doctrine for determining how difficult or how large an incident will be, based on multiple factors.

Epidemiological factors

Regional outbreak characteristics		
Least complex		Most complex
Wild bird detection within the county or area of concern. Backyard or commercial outbreak in county, but zoo is outside the control zone.	Outbreak in commercial or backyard poultry near zoo (zoo is within the control zone)	

HPAI infection within zoological facility		
Least complex		Most complex
Wild bird detection within the zoo	HPAI confirmed in exhibit birds and potentially multiple exhibits at the zoo	

Anticipated operational factors

Operations anticipated at the zoological facility		
Least complex		Most complex
Surveillance, laboratory diagnostics, and increased biosecurity only	Full operational response, including surveillance, diagnostics, facility quarantine, treatment, euthanasia, disposal of carcasses and other organic waste, cleaning and disinfection, repopulation/recovery, etc.	

3. Response organization characteristics

The response organization may be scaled in a variety of ways, dependent on the incident characteristics, input from State Animal Health Officials, existing incident command organization characteristics (location, capability, and operational burden), and other strategic factors. In general, five levels of response organization can be envisioned. Level 5 is the least complex incident. While examples of assessment findings and response scaling are provided below, this should be considered a flexible guideline. No plan can possibly categorize all the possible situational variables and this plan recognizes that command personnel must make additional judgments based on situational factors and resource availability. All levels, except for level 1, assume an existing HPAI ICP in the State/Tribal Nation/Territory in which the zoo is located.

Level	Description	Examples of assessment criteria
5	Deployment of 1 Federal or State subject matter expert[2] to zoo to maintain coordination between zoo and existing ICP. Additional onsite assistance may be needed if zoo personnel cannot complete response tasks. Onsite APHIS/State response personnel must not have recently visited HPAI infected premises.[3]	HPAI detected in wild birds very near the zoo, or zoo is within a control zone of an infected premises. Anticipated operations primarily involve surveillance/testing, increasing biosecurity, and confining free-range exhibit birds, and removal of domestic poultry from petting zoo exhibits. Coordination between the incident Public Information Officer (PIO) and zoo public information staff.
4	Small strike team[4] deployment to zoo (2-3 subject matter experts) with additional personnel provided if zoo personnel cannot complete response tasks. Wildlife management team to assist in mitigating contact between wild and exhibit birds.	Zoo has had epidemiologically significant close contact with an infected premises and/or HPAI positive free-ranging wild birds onsite. Anticipated operations include those in level 5 plus consideration of increased surveillance involving wild birds on or near zoo, possible euthanasia of domestic poultry exhibit birds (petting zoo), and full integration of zoo public information personnel into the Joint Information Center.
3	Strike team deployment: 3-5 individuals from APHIS and State to oversee operations at zoo in cooperation with zoological facility staff. Response personnel must not visit non-infected premises.	Zoo has confirmed HPAI morbidity or mortality within collection birds. Avian collection is of limited numbers and/or birds are not of high conservation value. All level 4 operations will occur and consideration should be made for immediate closing of the facility to the public. Additional actions should include an analysis of continuity of business

[2] A State or Federal employee with expertise both in the management of wildlife/zoological collections as well as substantial training in the Incident Command System

[3] Typically, in animal health emergencies, care is taken that some responders stay "clean" by visiting only non-infected premises. Once an individual or team has been on an infected premises, they are consider "dirty" and will only visit infected premises for a designated period of time.

[4] A strike team in ICS terms is a team of similarly qualified individuals. In this case, it would refer to a number of State and Federal employees who are capable of working with zoo staff to ensure all response efforts are performed in an effective and timely manner.

		issues, treatment or euthanasia of extremely ill birds, and isolation of infected exhibits. Reopening may occur after the initial assessment and the development of APHIS/State approved biosecurity plan that protects employees, the public, and other avian facilities.
2	Small task force deployment or ICS Branch with Branch Planning in place. Additional APHIS/State response personnel assigned to task force to complete operations. Assignment of a LPA Public Information Officer to work directly with zoo and task force. Task Force Leader or Branch Director would report to the Operations Section Chief at the ICP. Response personnel must not visit non-infected premises.	Zoo has mortality or morbidity from HPAI in collection birds. Includes one or more of the following: 1. Birds of high conservation value present (or those belonging to a foreign nation) 2. Moderate number of birds or bird exhibits/habitats 3. Substantial numbers of birds in petting zoo 4. Significant free ranging waterfowl inhabit exhibit areas All level 3 operations with the addition of integration of zoo personnel into Task Force/Branch, management of free-ranging non-collection birds, treatment and quarantine of high conservation value birds, detailed evaluation of continuity of business and biosecurity compliance plan with State/APHIS.
1	Task force, Zoo Response Branch or stand-alone ICP. Stand-alone ICP if zoo outbreak is the only HPAI positive premises in State, Tribal Nation, or Territory. Probable short IMT of 8-12 members plus necessary response operational and support personnel as dictated by the situation. Response personnel must not visit non-infected premises.	Zoo has mortality or morbidity from HPAI in collection birds and one or more of the following: 1. Zoo has multiple avian exhibits and large number of birds (possibly into the hundreds). 2. Zoo provides a breeding program for threatened or endangered species 3. Zoo provides treatment and rehabilitation for wild raptors and other high conservation value birds. 4. Zoo issues are compounded by community perceptions as a “hot issue.” Response operations are similar to those in Level 4, but compounded by size of both facility and bird collection.

Response Operations Example Diagrams (will vary considerably with exact situation)

Figure 1: Example of limited response- level 3-5 on previous page

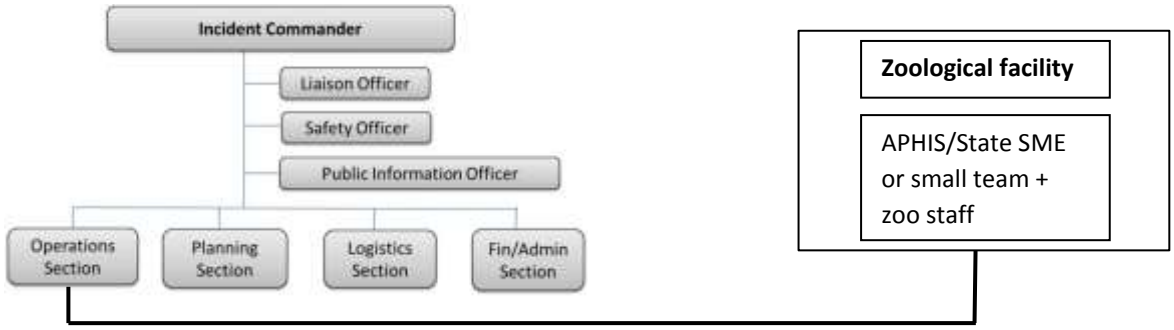


Figure 2: Example of response- level 1-2 on previous page

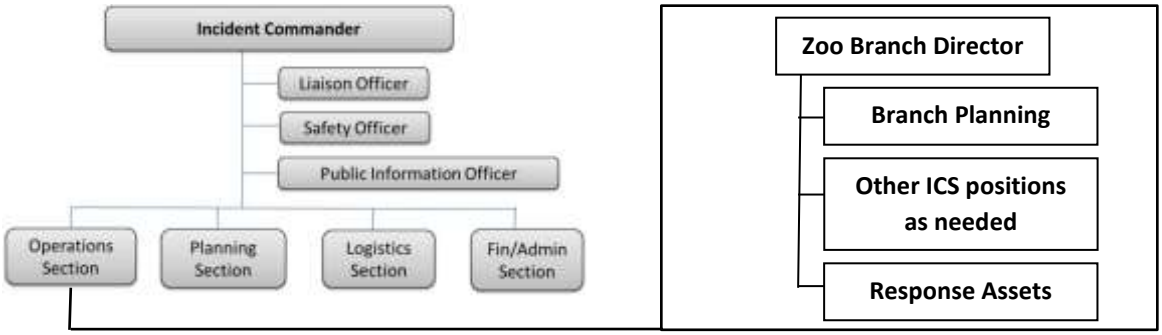
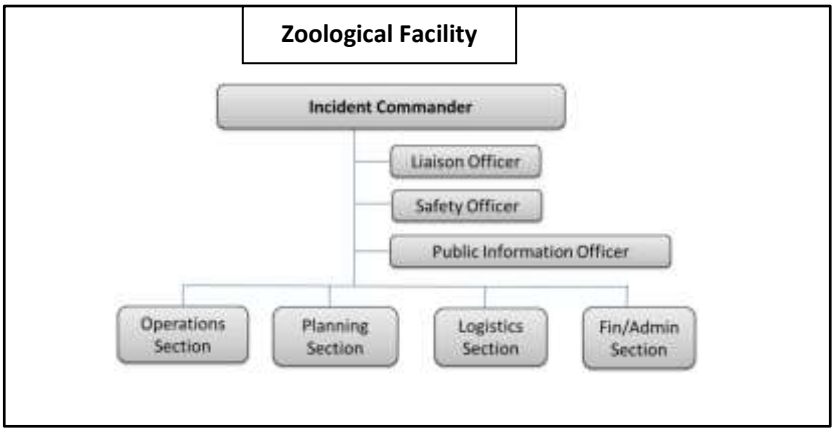


Figure 3: Zoo as index outbreak in State, Territory, or Tribal Nation
Unified Command: State/Tribal/Territorial, USDA, Zoo



Overview of response tasks

- The following references should be used in further support development of appropriate response strategies and tactics within a HPAI incident at a zoological facility.
    - APHIS Foreign Animal Disease Preparedness and Response Plan (FAD PReP): Plans, guidelines, and SOPs related to foreign animal disease response.
    - APHIS Foreign Animal Disease Framework – Response Strategies: http://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/fadprep_manual_2.pdf
    - FAD PReP Resources from the Iowa State University Center for Food Security and Public Health: http://www.cfsph.iastate.edu/Emergency-Response/fad-prep.php
    - APHIS HPAI Response Plan/Redbook: http://www.aphis.usda.gov/animal_health/emergency_management/downloads/hpai_response_plan.pdf
    - FADPReP Standard Operating Procedures
    - *USDA APHIS/AZA Outbreak Management Plan – Management Guidelines for Avian Influenza for Zoological Parks & Exhibitors:* available upon request from the Association of Zoos and Aquariums or USDA APHIS.
- The following operational issues will be critical elements of response to HPAI at a zoological facility. Only brief descriptions of these elements are provided here, particularly as it relates to zoological facilities, but extensive information on each is available through the FAD PReP references.
    - **Surveillance:** Testing and active observation of wild and collection birds within and surrounding the zoological facility. Surveillance of morbidity and mortality in other species may also be necessary.
    - **Laboratory diagnostics:** Testing of swab and post-mortem samples to confirm HPAI or other diseases.
    - **Epidemiological investigation and tracing:** Determining potential sources of infection and potential contacts from infected facilities to other facilities, vendors, employee owned birds, etc.
    - **Information management:** Creating permanent records of outbreak information, anchored by the APHIS *Emergency Management Response Services* software platform
    - **Communications:** Ensuring communication among responders, to agency/organization leadership, to industry, and the public. See section below on this issue.
    - **Health, safety, and personal protective equipment:** While not all avian influenzas are zoonotic, responders must address safety and the use of personal protective equipment as they would with a known zoonotic avian influenza virus. Some H5 avian influenzas have infected humans, with a high mortality rate. In addition, zoos provide additional unique hazards, including animal escape, animal attack, and

other potential zoonoses from various species. A site-specific health and safety plan is critical for response operations at a zoo.

- **Biosecurity:** Implementing critical biosecurity practices that prevent the spread of disease into, out of, or within a facility or individual exhibit. If closed to the public due to HPAI infection, zoological facilities will likely need to work with the State and USDA on a biosecurity plan and agreement that will allow reopening. The potential for ongoing endemic presence of HPAI viruses in wild bird populations creates an ongoing need to effective, long-term, biosecurity practices.
- **Quarantine and movement control:** If a zoological facility is infected or within a HPAI control zone (due to a nearby infected poultry premises) movements of birds, animals, contaminated equipment/materials, and bio-waste will need to be managed closely, generally involving delayed movement (until disease is under control) or obtaining a permit for movement, depending on circumstances. Additionally, many carnivorous and omnivorous avian species may rely on poultry products as a major portion of their diet, so evaluation and control of food sources will be an important component of limiting disease spread and exposure. If such products become unavailable, zoos must be prepared with an alternative feed source for the birds.
- **Continuity of business, recovery, and repopulation:** Most zoological facilities rely on public visitation to maintain income. An HPAI incident might necessitate the temporary closure of the facility to the public, pending assessment and disease control measures. The zoological facility will need to work with USDA and the State to analyze the situation, determine options, and create the appropriate operating and biosecurity parameters by which the zoo may safely reopen to the public. The potential for zoonotic risks from HPAI viruses must be considered in this planning process. Repopulation of the collection with new birds will be possible after demonstrating that no infected birds remain, all areas of the zoo are free of HPAI virus, and mitigation of ongoing risk of new HPAI infection.
- **Regionalization for international trade:** While zoological facilities are not directly involved in agricultural trade, the presence of HPAI within a zoo may directly affect international acceptance of poultry products within a region of the USA. For that reason, a rapid and balanced response to HPAI at the zoo is necessary, providing both expedient disease control measures as well as preserving, as possible, birds with significant conservation value.
- **Depopulation and euthanasia:** Depopulation typically refers to methods to kill large numbers of birds, such as using firefighting foam or carbon dioxide gas. In zoos, the use of humane euthanasia methods (as defined by the American Association of Zoo Veterinarians) are the preferred methodologies for destroying birds, when necessary.
- **Disposal:** Bird carcasses, animal waste, and contaminated supplies must be disposed of in a manner to prevent spreading of HPAI within or outside the facility. Permits will be needed to move such waste off site from an infected facility.

- **Cleaning and disinfection:** All areas, including exhibits, that have potential contact with HPAI viruses must be thoroughly cleaned and then disinfected. In addition, environmental swabbing for virus post disinfection may be needed to demonstrate the virus has been destroyed. Zoological exhibits that reflect natural habitats and contain a large organic component (soils, trees, plants, etc.) will be exceedingly hard to clean and disinfect.
- **Vaccination:** Vaccine use may be possible during HPAI outbreaks. The availability and protocols for using such vaccine will be set at a national level, not at the local incident level.
- **Vector control:** As with any disease outbreak, control within a facility may need to address vectors that could potentially spread HPAI through blood feeding or mechanical processes. Infected zoos will need to re-evaluate their vector control. In addition, free ranging resident wild birds, ranging from waterfowl to pigeons, sparrows, etc., could be a factor in HPAI spread. Zoos absolutely have to assess and implement methodologies of separating collection birds from free-ranging birds.
- **Animal welfare:** Throughout an HPAI incident, zoological facilities and incident responders will need to continue to ensure adequate animal welfare, according to Animal Welfare Act regulations (if applicable) or other private organizational credentialing standards. The use of an Animal Welfare Technical Specialist assigned to the incident should be considered.

Communication and Public Information Coordination

Communication is always one of the most challenging aspects to any incident. Given the potential number of entities engaged in the response to zoological facility, it will be critical to have dynamic communication both throughout the response organization and with external stakeholders and the public.

- Intra-response communication:
  - Cellular networks: Should work well in most zoological facilities located in urban communities. Some rural sanctuaries might present challenges to cellular communications.
  - Radios: Many larger zoos utilize radio communication. While full interoperability is unlikely, APHIS and State personnel using radios may be able to deploy a base station where a zoo radio base is likewise available. In some cases, APHIS might be able to provide a portable repeater to enhance radio communications over a wider area. Radios provide an excellent platform for immediate communication of a dangerous situation, such as an animal escape or criminal threat.
- Stakeholder communication: Stakeholders for a zoological response include a somewhat different sector than a commercial or backyard poultry outbreak. Messages to stakeholder

should be closely coordinated between incident and zoo PIOs. Agencies and organizations that may need updated periodically include, but are not limited to:

- APHIS Headquarters/APHIS Emergency Operations Center (AEOC)
- Other HPAI Incident Command Posts in various states
- US Fish and Wildlife Service
- USGS National Wildlife Health Center
- US Department of Health and Human Services
  - (Centers for Disease Control and Prevention (CDC)
  - Assistant Secretary for Preparedness and Response (ASPR)
- State Wildlife agency
- State Public Health agency
- Association of Zoos and Aquariums
- American Veterinary Medical Association
- American Association of Zoo Veterinarians
- Zoological Association of American
- Others detailed in the planned job aid for outreach and communication

- Media updates: A HPAI outbreak affecting a zoo will be of great interest to the media and public. Regular updates should be coordinated between response agencies and the zoo and released to the media. Press conferences may also be necessary. APHIS LPA, State PIOs, and the zoo public information staff must ensure that messages are clear and consistent. Additionally, social media should be continuously monitored during a zoological outbreak. Misinformation, distortions, and hyperbole are very possible and should be addressed in a coordinated manner.

Agency and organizational roles and responsibilities:

- Lead agencies
  - US Department of Agriculture, Animal and Plant Health Inspection Service
    - Veterinary Services
      - Provides statutory authority, funding, expertise in the management of animal disease emergencies, and resources for response
      - Provides delegation of authority to Incident Management Teams when necessary
      - Provides national coordination for response to all HPAI outbreaks
      - Maintains guidance for animal health emergency response through the FADPReP resources
      - Provides laboratory diagnostics for disease confirmation
      - Maintains National Veterinary Stockpile for management of HPAI outbreak

        - Animal Care
            - Provides expertise on animal welfare issues at zoological facilities, aviaries, and other facilities which house or exhibit captive, non-domestic avian species
            - Provides personnel to APHIS Veterinary Services for response
        - Wildlife Services
            - Provides expertise on wildlife disease and management issues
            - Provides information on HPAI within wild bird populations
            - Coordinates and implements surveillance for wild bird populations
            - Provides personnel to APHIS Veterinary Services for response
        - All other APHIS programs
            - Provides personnel to APHIS Veterinary Services for response
    - US Fish and Wildlife Service – provides authority and resources for management of captive migratory birds and threatened/endangered species.
    - State, Tribal, or Territorial Animal Health Regulatory Agency
        - Provides statutory authority, funding, expertise in the management of animal disease emergencies, and resources for response
        - Provides delegation of authority to Incident Management Teams when necessary
        - Provides laboratory diagnostics for disease confirmation
        - Provides jurisdictional coordination for response to HPAI outbreaks
        - Coordinates with State, Tribal, or Territorial emergency management agency and stakeholders
    - State Wildlife Authority: In conjunction with USFWS, provides authority and resources in the management of wildlife.
    - Zoological institution
        - Reports unusual mortality or morbidity of collection birds or wild birds to Wild and Domestic Animal Health Officials
        - Implements biosecurity measures to protect collection animals from primary HPAI infection or spread of HPAI within the facility
        - Coordinates with State and Federal Animal Health Officials on the management of HPAI infections at or near their facility
        - Provides response resources and expertise in the management of HPAI within their facility
        - Coordinates with State and Federal Animal Health Officials pertaining to public messaging related to HPAI and the zoological facility
        - Provides funding for response activities not funded through Federal, State, Tribal, or Territorial agencies
- Supporting agencies
    - US Department of Interior
        - USGS National Wildlife Health Center: Provides expertise and resources pertaining to HPAI in wild birds
    - US Department of Commerce

        - NOAA Fisheries: Provides authorities, expertise and resources pertaining to coastal wildlife
    - US Department of Health and Human Services
        - CDC
            - Provides guidance on the management of potential zoonotic aspects of HPAI incidents
        - OSHA/NIOSH
            - Provides information on appropriate personal protective equipment and other issues related to worker protection in HPAI incidents
    - State, Tribal or Territorial Emergency Management Agency
        - Provides coordination of jurisdictional agencies in support of the jurisdictional Animal Health Agency
        - Manages Emergency Management Assistance Compact (State to State mutual aid agreement) requests pertaining to response at zoological facilities
    - State Public Health Agency
        - Provides guidance on the management of potential zoonotic aspects of HPAI incidents
        - Provides guidance on assessing the risk to the public from HPAI infections at a zoological facility
    - State Environmental Health Agency
        - Provides guidance and regulatory oversight on the disposal of potentially contaminated HPAI waste from zoological facilities
    - Local Jurisdictional Agencies
        - Parks and Recreation: May manage zoological facility or own the land/buildings with a nonprofit organization operating the zoo
        - Emergency Management: Coordination of local resources in support of the response within the zoo
        - Public Health/Environment: Coordination pertaining protection of personnel at the zoo and the general public; coordination pertaining to the disposal of potentially contaminated waste.
        - Fire/HAZMAT: May be able to support the zoo related to issues of contamination, training/PPE use, waste disposal, etc.
        - Law Enforcement: Potentially needed to help secure zoo grounds during a zoo closure and response

- Supporting organizations
    - Association of Zoos and Aquariums (AZA)
        - Zoo and Aquarium All Hazards Preparedness, Response, and Recovery Fusion Center (ZAAHP)
            - Coordination of information among zoological facilities nationwide pertaining to HPAI, including identification and sharing of best practices in biosecurity, other mitigation, response, and recovery

- Coordination of mutual aid via non-governmental pathways among zoological facilities impacted by HPAI
- Coordination with incident Joint Information Center and various stakeholders pertaining to release of public information by AZA

- American Veterinary Medical Association
  - Upon request, deployment of AVMA Veterinary Medical Assistance Teams to states with MOUs with AVMA
  - Coordination with incident Joint Information Center pertaining to information released to the veterinary community by AVMA
- American Association of Zoo Veterinarians
  - Sharing of information with memberships pertaining to mitigation and response practices pertaining to HPAI in zoological facilities
  - Provide expertise on infectious disease manifestation and treatment in non-domestic species
- Zoological Association of America
  - Sharing of information with memberships pertaining to mitigation and response practices pertaining to HPAI in zoological facilities
- National Alliance of State Animal and Agricultural Emergency Programs
  - Sharing of information with stakeholders pertaining to mitigation and response practices pertaining to HPAI in zoological facilities
- Global Federation of Animal Sanctuaries
  - Sharing of information with stakeholders pertaining to mitigation and response practices pertaining to HPAI in animal sanctuaries

Plan Development and Maintenance

- Review within APHIS
- Review and input from external stakeholders mentioned in the plan (national organizations may be used to represent state and local agencies used in a generic manner)
- Plan finalization
- Development of job aids for each ICS Command and General Staff Position including checklists or other tools. Checklists will be specific to zoological incidents and not redundant with existing NIMS or APHIS ICS job aids.

Attachments: (To be completed in the future)

- **Job aids**
  - Incident and Tactical Objectives Library
  - Incident Commander
  - Liaison Officer
  - Safety Officer
  - Public Information Officer
  - Operations Section Chief

        - Biosecurity
    - Planning Section Chief
    - Logistics Section Chief
    - Finance & Administration Section Chief
    - Additional job aids as needed (In collaboration with zoological community, there is an opportunity to work on a variety of mitigation and operational issues.)