Biosecurity Guidance for Scientific Permit Holders in Response to Highly Pathogenic Avian Influenza (HPAI)

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Intent

This document outlines some of the risks associated with Highly Pathogenic Avian Influenza (HPAI) that are relevant to holders of a Canadian Wildlife Service issued Scientific Permit and provides biosecurity guidance for minimizing human-facilitated transmission pathways of HPAI virus (HPAIV). This document is organized by activity, based on the level of interaction with wild birds. Please refer to the applicable section based on your activities.

- Mitigating Risks to Domestic Poultry and Other Captive Birds
- Accessing areas with Migratory birds
- Handling Migratory Bird eggs and/or nests
- Remote or Long-term Field Camps
- Appendix A: Scope Statement
- Appendix B: Cleaning and Disinfection Principles (modified from guidance provided by CFIA).
- Appendix C: Summary surveillance results by functional groups

This guidance document provides recommendations for permit holders and others working with apparently healthy, live wild birds. If you observe sick or dead birds and suspect that disease may be involved, contact regional reporting lines (here), or in other areas contact the Canadian Wildlife Health Cooperative at 1- 800-567-2033, or your regional CWS office (here) for additional guidance. Permit holders can reference the HPAI in Wildlife Dashboard for the latest cases in their area.

Human infections with AIV are rare and mostly occur after close contact with infected birds or highly contaminated environments, like poultry farms. However, those who work with wild birds may be at increased risk of exposure and infection. Individuals should be cautious when handling wild birds and consult the Public Health Agency of Canada (PHAC) for recommended public health guidance (here) or your public health authority for the most up to date information. Additionally, consult and follow the Occupational Health and Safety guidelines established by your employer.

Rationale

Avian influenza viruses (AIV) can infect all avian species, and some mammals, although infections are particularly common among water birds (including ducks, geese, swans, gulls, and shorebirds). AI viruses are shed by infected birds through feces and respiratory secretions. The virus can remain viable in the environment and on infected carcasses for up to several months depending on temperature and other factors. The severity of disease varies depending on a variety of factors (i.e., species of bird, strain of the virus, etc.).

Strains of AIV that are highly transmissible and cause high rates of disease and mortality in domestic poultry are known as HPAIV. Some wild bird species can be infected with HPAIV and remain asymptomatic while others may develop severe symptoms or die. In late 2021, a strain of HPAIV was

documented in eastern North America that is now detected throughout the continent and causing mortality in a wide range of wild bird species. There is ample evidence suggesting wild birds play a key role in spread of HPAIV, and people who handle wild birds should recognize and mitigate the potential risk of spreading HPAIV among sites and species, and from wild birds to domestic poultry and other domestic animals.

Mitigating Risks to Domestic Poultry and Other Domestic and Captive Animals

- **Avoid visiting poultry operations and properties with backyard flocks of domestic poultry. If unavoidable, personnel should decontaminate prior to visiting such a property.**
- Change, shower, and clean/sanitize footwear before coming into direct contact with poultry, captive and pet birds, or other domestic animals.
- See also **Canadian Food Inspection Agency (CFIA): How to prevent and detect disease in backyard flocks and pet birds:** https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/backyard-flocks-and-pet-birds/eng/1323643634523/1323644740109

Visitation to Areas with Concentrations of Migratory Birds

For scientific permit holders undertaking activities that involve walking in areas containing bird feces or areas where birds congregate, with no handling or close contact of wild birds, eggs, feces, or organic material potentially in contact with birds (e.g., research or tourist visitation to seabird colonies):

- **Boots:**
  - Rubber boots are recommended to facilitate decontamination before and after entering a concentration area to reduce risk of spreading among sites.
    - Note: any other footwear with soft material is difficult, if not impossible to properly disinfect. If rubber boots are unavailable, disposable boot covers may be considered and discarded between sites if the area being accessed is not too wet/muddy.
  - Cleaning and Disinfection between sites:
    - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against avian influenza virus.
    - Brushes may be used to facilitate removal of organic debris from surface or boot treads.
- **Hands:**
  - Wash hands with warm, soapy water for at least 30 seconds, or use hand sanitizer as a secondary option.

Activities involving Moderate Interaction with Migratory Birds

Migratory bird research and monitoring activities not related to direct contact/handling live and/or dead birds. This includes egg collection, handling samples (e.g., blood, eggs, feces) and other activities in close contact with bird feces.

- Carefully consider if the benefits of your research outweigh the risk of potential HPAIV transmission, particularly if increased spread of the virus may impact your study population in a way that affects your study results. This is particularly important if working with species of conservation concern such as species at risk.

- **Boots:**
  - Rubber boots are recommended to facilitate decontamination before and after visiting a sample location to reduce risk of spreading among sites. If tasks are not suitable for rubber boots (e.g., climbing in bird colonies) waterproof hiking boots may be worn instead.
    - Note: any other footwear with soft material is difficult, if not impossible to sufficiently disinfect.
  - Clean and disinfect between sites:
    - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against AIV.
    - Brushes may be used to help facilitate removal of organic debris from surface or boot treads.
  - If using waterproof hikers, ensure soft materials are sufficiently disinfected, if unable to clean thoroughly, boots should be changed between sites/colonies.
- **Hands:**
  - Disposable gloves (e.g., vinyl, latex, nitrile) are recommended. If available gloves impede required work, consider other means of protection (i.e., hand sanitation). If completing egg collections and using hand sanitizer, it is imperative that hands are dry before touching more eggs.
  - Change gloves/perform hand sanitation between sites or between areas in a large site or colony.
  - Change heavily soiled or damaged gloves. If not wearing gloves, clean and sanitize hands after any contact with bird feces.
  - Discard gloves in a designated waste bag to be sealed and disposed of.
  - Wash hands thoroughly in soapy water with a brush for at least 30 seconds.
    - Hand sanitizer may be used to clean hands as a secondary alternative.
- **Clothing:**
  - Disposable or re-usable coveralls (impervious to water) are recommended.
  - Cleaning and disinfection between sites:
    - After use, remove disposable outerwear, place in a garbage bag and seal for disposal.
    - If other clothing items become soiled, change clothing between sites.
    - Clean and disinfect re-usable coveralls between sites:
      - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against AIV.
  - Begin each new site with clean/decontaminated outerwear.
  - Launder clothing in hot soapy water. The addition of small volumes of chlorine bleach to each load of soiled garments can help improve cleaning and disinfection. Follow the instructions on the product label or refer to the Material Safety Data Sheets.
- **Eyes:**
  - Eye protection, such as safety glasses, safety goggles, or a face shield is recommended**.**
  - Glasses or sunglasses may be worn instead if the activity does not include handing wild birds. Avoid touching eyes or face with contaminated gloves.
- **Masks:**
  - Disposable N95 or FFP2 mask or equivalent (e.g., triple-layer, ASTM 1 or greater) is recommended when working in an environment where contaminated fluids (e.g.,

blood, feces, and respiratory secretions) could splash or be dispersed in aerosol (e.g., dust).

Activities involving High Interaction with Migratory Birds

Migratory bird research and monitoring activities involving direct contact/handling of live and/or dead birds potentially infected with HPAIV, sampling birds for AIV, carcass/stranded bird collection and other activities in close contact with wild birds.

Carefully consider if the benefits of your research handling birds outweigh the risk of potential HPAIV transmission, particularly if increased spread of the virus may impact your study population in a way that affects your study results. This is particularly important if working with species of conservation concern such as species at risk, see **Appendix C** for summary information HPAI testing results for a subset of functional groups and species.

- **Boots:**
  - Rubber boots are recommended to facilitate decontamination before and after visiting a sample location to reduce risk of spreading among sites, especially if working in colonies or multiple sites.
  - Clean and disinfect between sites or between areas in a large site or colony:
    - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against AIV.
    - Brushes may be used to help facilitate removal of organic debris from surface or boot treads.
    - An extra pair of clean boots can be used to facilitate quick changes.
- **Hands:**
  - Protective gloves such as disposable plastic, nitrile, cut-resistant, or rubber gloves are recommended when handling birds. If available gloves impede required work, consider other means of protection (i.e., hand sanitation). If using hand sanitizer, it is imperative that hands are dry before direct handling of birds is resumed.
  - Consider bird species being handled:
    - Change gloves/perform hand sanitation between sites or between areas in a large site or colony.
    - Change heavily soiled or damaged gloves. If not wearing gloves, clean and sanitize hands after any contact with bird feces.
  - If handling/disposing of carcasses, change gloves between sites or before touching any live birds.
  - Discard gloves in a designated waste bag to be sealed and properly disposed of.
  - Wash hands thoroughly in soapy water with a brush for at least 30 seconds.
    - Hand sanitizer may be used to clean hands as a second-choice alternative.
- **Clothing:**
  - Disposable or re-usable coveralls (impervious to water) should be worn to facilitate cleaning and decontamination between sites.
    - Cleaning and disinfection procedures between sites:
    - Clothing should be changed between sites.
    - After use, disposable outerwear should be removed and placed in a garbage bag and sealed for disposal.
    - Re-usable coveralls may be cleaned and disinfected between sites:

        - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against AIV.
    - Each new site should begin with clean/decontaminated outerwear.
    - Launder clothing in hot soapy water. The addition of small volumes of chlorine bleach to each load of soiled garments can help improve cleaning and disinfection. Follow the instructions on the product label or refer to the Material Safety Data Sheet.
- **Eyes:**
    - Eye protection such as clear safety glasses, safety goggles or a face-shield is recommended, especially in situations where there is a risk that contaminated fluids (e.g., blood, feces, or respiratory secretions) could splash into eyes, or when working with large birds that may attempt to scratch or peck at your face.

- **Masks:**
    - CSA approved respirators or disposable respirators (e.g., N95, FFP2 masks) are recommended when working under potentially high-risk conditions (e.g., when handling birds or carcasses infected with HPAI H5N1) where contaminated fluids (e.g., blood, feces, or respiratory secretions) could splash or aerosol (e.g., dust) could be generated**.**
- **Equipment:**
    - Refer to **Appendix B** for cleaning and disinfection protocols and suggested disinfectants known to be effective against AIV.
    - Clean and disinfect all equipment used for handing/capturing of live birds when moving between sites or between areas in a large site or colony.
    - If dealing with carcasses, disinfect all equipment between field sites.
    - Contain and dispose of other potentially contaminated material immediately in designated sealed garbage bags and dispose of appropriately.

Remote or Long-term Field Camps

Some scientific research and monitoring of migratory birds is conducted at remote locations with long-term (days to weeks) stays at these sites (e.g., bird colonies on islands). During an HPAI outbreak this creates added challenges to implement biosecurity measures, described above, to mitigate the spread of the virus. Challenges are site-specific but may include lack of running water, limited accommodations facilities (cabins or tents), and fewer options for washing and waste disposal. Regional/sites specific managers will make alternate decisions on a case-by-cases basis if challenges for OHS of field camps, or risks to migratory bird species are too great. Day trips to remote sites/islands may adequately mitigate HPAIV transmission by following guidance above. Notwithstanding the above guidance, this section identifies some options for consideration to implement biosecurity measures at field camps with long-term stays. Field camps/stations should develop site-specific solutions to maximize biosecurity.

- **Vigilance**
    - Obtain recent information on species and locations of HPAI detection in your region.
    - Be mindful of abnormal bird behavior or unexpected and large numbers of dead birds.
- **Hands:**
    - Have designated stations/bins/sinks for cleaning hands after handling birds or soiled clothing. These should be separate from those used for cooking/cleaning.
- **Boots:**
    - Prior to arriving at a colony for long-term stay, ensure disinfection at appropriate stage (e.g., prior to boarding vessel).

  - Use salt water, when available, for initial cleaning of boots.
  - Have designated wash stations (tote tubs) for coarse washing (cleaning) and disinfection. Daily change of wash stations is recommended.
  - Dispose of contaminated water in intertidal zones.
  - Don't wear field boots in cook or sleeping areas. Have designated areas to store work boots and have separate footwear for indoor areas.
- **Clothing:**
  - Designate clothing for specific tasks and/or species handling, where relevant.
  - Have a designated area for soiled clothing outside of sleeping and cooking areas, ideally in a separate room, possibly in a tote tub or locker.
  - Wash outerwear in salt-water or mild disinfectant after heavily soiled work activities, or weekly.
- **Waste:**
  - Have designated bins/totes for disposable PPE and other materials that may have come in contact with wild birds.
  - Designated bins/totes should be securely stored outside, away from winds/damage, until such time as the bulk PPE and waste can be removed from the site.
  - Dispose of contaminated water away from sources of drinking water or areas heavily used by migratory birds.

HPAI Updates

HPAI Update for Wild Birds in your Region.
National Avian Influenza - Wild Positives (arcgis.com)
CWHC-RCSF: Canadian Wildlife Health Cooperative - Réseau canadien pour la santé de la faune.

You can also receive automatic updates via email by sending a request to info@cwhc-rcsf.ca

HPAI Updates for Domestic Poultry in your Region - https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/avian-influenza/eng/1323990856863/1323991018946

Contact Information

Canadian Wildlife Health Cooperative (CWHC) – Reporting Website and Regional Contacts: http://www.cwhc-rcsf.ca/report_and_submit.php

Environment and Climate Change Canada, Canadian Wildlife Service (ECCC-CWS) - CWS Permit Contacts: Migratory bird permits - Canada.ca

Canadian Food Inspection Agency (CFIA) – Contacts Information: https://inspection.canada.ca/about-cfia/contact-us/eng/1546627816321/1546627838025

Relevant Resources

Environment and Climate Change Canada (ECCC) - Avian Influenza in wild birds: Highly pathogenic avian influenza - Canada.ca.

Public Health Agency of Canada (PHAC) – Wild birds and avian influenza – Handling guidelines: https://www.canada.ca/en/public-health/services/flu-influenza/fact-sheet-guidance-on-precautions-handling-wild-birds.html

Public Health Agency of Canada (PHAC) - Avian influenza Information: Avian influenza A(H5N1): Symptoms and treatment - Canada.ca

Food and Agriculture Organization of the United Nations (FAO) – Wild bird highly pathogenic avian influenza surveillance https://www.fao.org/3/a0960e/a0960e.pdf

Canadian Food Inspection Agency (CFIA)- How to prevent and detect disease in backyard flocks and pet birds: https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/backyard-flocks-and-pet-birds/eng/1323643634523/1323644740109

Canadian Food Inspection Agency (CFIA) – National Biosecurity Standards and Biosecurity Principles: https://inspection.canada.ca/animal-health/terrestrial-animals/biosecurity/standards-and-principles/eng/1344707905203/1344707981478

Canadian Wildlife Health Cooperative (CWHC) - Shipping and Handling Instructions: http://www.cwhc-rcsf.ca/docs/CWHC%20Shipping%20and%20Handling%20Instructions.pdf

Additional Contacts and Resources:

Government of Canada: Pathogen Safety Data Sheets: Infectious Substances – Influenza A virus subtypes H5, H7 and H9 - Canada.ca.

Appendix A: Scope Statement

The Canadian Wildlife Service (ECCC-CWS hereafter) has the lead responsibility for implementing the Migratory Birds Convention Act, 1994 (MBCA) and associated regulations. The purpose of the MBCA is to conserve and protect Migratory Birds as populations and individuals. Under the Migratory Birds Regulations (MBRs, 2022) (Section 75) scientific permit holders may be authorized by ECCC-CWS to kill, take, or capture and band migratory birds. Additionally, CWS is responsible for delivering the Canadian Bird Banding Program, which includes other wild bird species not protected by federal legislation (e.g., raptors, corvids, jays etc.). This guidance pertains to all bird research and monitoring activities (collecting a migratory bird, egg or nest, handling live and/or dead birds), including tourist operations accessing seabird colonies (accessing migratory bird habitat) authorized by ECCC-CWS under a Scientific Permit. Baiting activities associated with bird capture and banding under a Scientific Permit during a HPAI outbreak is addressed under a separate policy.

Occurrence of avian influenza in poultry and other domestic animals falls under the mandate of the Canadian Food Inspection Agency (CFIA). Public Health Agency of Canada (PHAC) addresses human health considerations. Contingencies for such events are discussed in this document only as far as they relate to reduction of risk factors associated with virus transmission to or by wild birds.

Appendix B: Cleaning and Disinfection Principles (modified from guidance provided by CFIA)

***Use appropriate PPE during any cleaning and disinfectant process.

The most important cleaning step is the thorough removal of all organic debris. Disinfectants will not work in the presence of organic material.

Use cleaners and disinfectants according to label directions for concentration and contact time. Consider organic load (the amount of contamination), and ambient temperatures. It is also important to carefully read the label directions in regard to the compatibility of certain disinfectants with certain detergents.

- After washing and cleaning, allow time to dry.
- Spray disinfectant on all equipment and materials that had been in contact with birds or their feces using sufficient quantity to meet the contact time specified by the manufacturer.
- Most disinfectants will destroy bacteria and viruses and the AIV is quite easy to destroy. PrevailTM, VirkonTM or bleach are suggested as disinfectants for destroying the AIV.

Disinfectants are tested at a specific concentration. Higher concentrations of disinfectants may be more hazardous to personnel, and the environment and damage materials and equipment.

Follow the manufacturer's recommended contact time.

General considerations:

1. Read the Material Safety Data Sheets (MSDS) for the products before using to understand the chemical handling and use hazards.
2. Consider area and location where disinfection will be used and appropriate disposal options when deciding which product should be used for disinfection.
3. Always make and use fresh solutions.
4. Label spray bottles and buckets with the date of making and the expiry date or time.

Prevail™ prevention concentrate mixing directions:

1. Wear goggles and gloves while mixing.
2. Hydrogen peroxide will work in the presence of some organic material, but ideally items are clean before disinfection. Increase concentration for activity against spores.
3. A 2.5% solution is prepared by adding 25 ml (1oz) of PrevailTM Prevention Concentrate to 1 L of water. Contact time is 5 minutes.
4. PrevailTM, kept clean, in a sealed container is good for 30 days, but should probably be used up within 7 days.
5. Freeze protection agents can be added.

Virkon™ mixing for disinfecting solution:

1. Maintain a current disinfectant log
2. Wear appropriate personal protective equipment when mixing.
3. Add warm or cold water and then VirkonTM to containers when mixing.
4. One pouch of commercial VirkonTM contains 50 g of VirkonTM:
    a. For a 1% VirkonTM solution: mix 50 g (1 pouch) of VirkonTM into 5 L of water.
    b. For a 2% VirkonTM solution: mix 100 g (2 pouches) of VirkonTM into 5 L of water
5. Stir, then let sit for a few minutes.
6. Contact time is 10 minutes.
7. VirkonTM is corrosive should it be rinsed after the contact time is complete.
8. Use up mixture within 7 days.

9. Freeze protection agents can be added.

Bleach – handy guidelines for using bleach with 5-6% sodium hypochlorite:

1. Use mask, rubber gloves, and waterproof apron. Goggles are also recommended to protect the eyes from splashes. Mix and use bleach solutions in well-ventilated areas.
2. **Chlorine is inactivated in the presence of organic material.**
3. Viruses and Bacteria: 1 part bleach + 9 parts water (10 min contact time).
4. Mix bleach with cold water because hot water decomposes the sodium hypochlorite and renders it ineffective. Protect mixture from heat and light.
5. Use mixture up in 24 hours.
6. Small volumes of bleach solution may be diluted further with water and safely disposed of on a gravel road or parking lot, away from sources of drinking water or areas used heavily by migratory birds.

Appendix C: Summary surveillance results by functional groups – Dec. 2021 – Mar. 2023

Species group	**Proportion of sick/dead bird surveillance HPAI-positive results (n = 1977) ***	**Number tested in sick/dead bird surveillance ***	**Live-bird surveillance HPAI prevalence (*prevalence varies by region*) ***	**Mass mortality events attributed to HPAI****
Non-scavenging passerines	~0.2%	665	N/A	None documented
Scavenging passerines and raptors	~39%	Corvids: 1308 Raptors: 1653	N/A	American Crows, winter 2022/23 (small events – BC, PEI)
Dabbling Ducks	~3.5%	303	Jul. – Sept.: ~8% (n = 3609) Oct. – Jun.: ~9% (n = 1556)	Mallards, winter 2022/23 (small events - AB)
Diving and Sea Ducks	~4%	276	~1% (n = 763)	Common Eider, spring 2022 (~1600 dead breeding females in Gulf of St. Lawrence estuary)
Geese	~27.5%	928	Jun. – Aug.: 0% (n = 2669) Sep. - May: ~8% (n = 1524)	Canada Geese, winter and spring 2022/23 (multiple localized events – AB, ON, PEI) Snow Geese, spring 2022 and winter 2022/23 (multiple localized events – AB, SK, ON, QC)
Gulls	~7%	565	~1% (n = 304)	Great Black-backed Gull, Herring Gull, spring and summer 2022 (multiple regional events, >1500 dead)
Gannets & Murres	~9%	Gannets: 190 Murres: 156	Jun. – Aug.: ~6% (n = 533) Dec. & Jan.: 0% (n = 217) *Note: samples from Murres only*	Northern Gannets, spring and summer 2022 (multiple events, tens of thousands dead – QC and Atlantic provinces) & Common Murres (regional event, several thousand dead - NL)
Shorebirds (limited data available, species group known to be susceptible to HPAI)	~0.1%	190	0% (n = 132)	None documented

* Surveillance data summaries are generated using the Avian Influenza Surveillance Interactive Report, an internal ECCC tool, and are current to April 2023.

**Mortality estimates are derived through reports from multiple sources (e.g., field staff, P/Ts, public), and some species estimates are still being refined.