

This handout is courtesy of Fern Duvall of the State of Hawaii Department of Land and Natural Resources, Division of Forestry & Wildlife (DOFAW). Fern is a wildlife biologist who regularly trains the DOFAW staff who work with birds and animals in the field. Mahalo to Fern for sharing this valuable information!

Zoonoses are infectious diseases of animals that can be transmitted to humans. The natural reservoirs of zoonotic diseases are non-human species.

Note: This document contains references to the reporting and testing of dead birds for both West Nile Virus and Avian Influenza. **The statewide number to call to report a dead bird is 211** (Aloha United Way) where operators are trained to help callers determine whether a bird should be submitted for testing. More information is available at [www.gotdeadbird.org](http://www.gotdeadbird.org), a website put together by several agencies to assist the public with identifying bird species and understanding the purpose and criteria for dead bird testing. Click on “Gallery” to see pictures of common bird species.

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### **Safety when working with or around animals**

- Rodents (rats and mice) and cats are known to carry a variety of diseases, most of which have not been reported from Hawaii. There is a known risk of leptospirosis, toxoplasmosis, plague and murine typhus.
- For larger mammals, there is some additional risk of brucellosis, trichinosis, and tuberculosis.
- You may have contact with alien species (novel to Hawaii) which may have novel diseases or parasites and/or even be *venomous*, so EXTREME CARE with unknown organisms is MANDATORY.
- We don't want to discover any new diseases by having one of us come down with them!
- SNAKES must be presumed to be venomous if you cannot readily identify it to species level. Any snake is an emergency in Hawaii. CALL 643-PEST (7378) FOR ASSISTANCE & follow snake sighting procedures!
- If you are working with animals (or areas that may have been contaminated by animal droppings), you are required to take the following precautions. NOTE: Do not transport feral cats in your vehicle. Call the Maui Humane Society for retrieval of captured feral cats.

### **Exposure to animal body fluids**

**If you may be exposed to body fluids from animals during trapping, tagging, or removal, you must take a variety of precautions.** First, all direct contact with animals should be through barriers. Use protective bite-proof gloves with disposable gloves underneath if you must handle live animals which may bite (and this should be avoided except when absolutely required). Use non-allergenic disposable gloves for handling carcasses. Dispose of gloves afterwards by enclosing in a baggie. Check with your supervisor or program's safety manual or the document Standard Operations Procedure for Field Work Around Animals produced by the Pacific Cooperative Studies Unit/ Research Corporation of University of Hawaii (PCSU/RCUH) for further handling instructions.

If you are not leaving the carcass in the field, place it in a sealed baggie or plastic bag. If you are examining stomach samples or other body parts, use disposable gloves, use eye or lab glasses with side covering and a mask to prevent fluids from hitting your eyes, nose, and mouth.

If Avian Flu is a possibility other procedures must be followed – see attached guidance. Any contact with fluids on skin should be washed off immediately with an antibacterial soap. Contact with eyes, nose or mouth should be washed out with saline solution (eyes) or regular water (mouth). Examinations of animals should take place in a well-vented room or outdoors. People who have suppressed immune systems or women who are pregnant should avoid close contact with cats, alive or dead, and cat feces, because of the risk of toxoplasmosis.

### **Exposure to airborne disease or air-vectored agents**

If you are cleaning an enclosed area (cave, historical structure) with accumulated rodent, bat, bird or cat droppings, DO NOT sweep it. Use disposable gloves if touching contaminated areas. The area should be mopped down with commercial chlorine bleach solution. The person doing the cleaning should wear gloves and respiratory protection. Similarly, any bedding from mouse or cat traps should be handled only in the open, not inside an enclosed area. The droppings may carry diseases, so they should be treated as potentially infectious and buried away from streams and water courses or double-bagged and disposed of according to local regulations at sanitary landfills.

### **Exposure during field work**

Again, as in anywhere in Hawaii, the only known significant risks are of leptospirosis, amoebic dysentery and murine typhus. Avoid entering freshwater if you have breaks in the skin. Please see the existing safety rules for working in water. Please refer to the above chart as to zoonotic conditions that are associated specifically with birds and bird-handling

**If you become ill.** . . Make sure the doctors know you work in the field with (wild) animals, birds, caves, etc. If you come down with flu-like symptoms, after working with wildlife or in water and wet soils, visit a doctor and explain that you may have been exposed to leptospirosis or other zoonotic agents. If you have been bitten by a bat, please make sure the doctor knows this. If you come down with any severe fever or disease, ask your doctor to consider whether there are any unusual diagnoses that should be considered because of what you do.

The table lists some of the diseases or conditions that birds—even seemingly healthy birds—could transmit to you and that you need to be aware of. This does not include the tick- and mite-vectored infectious agents that can be bird-carried.

Please use gloves and disinfecting hand washes and also masks if you think it is appropriate. See attached guidance information.

NOTE: Old boxes, bags, containers, transporters, and coolers that have had birds in them also need to be handled with caution and appropriately cleaned and disinfected or discarded.

Name	Nomenclature	Transmission	Prevalence	Relative Occurrence in North America (wild birds)
Arizona infection	Arizona hinshawii	Fecal-oral	Not well understood	
Campylobacteriosis	Campylobacter fetus subsp.	Fecal-oral	Occasional	
Cryptosporidiosis	Cryptosporidium parvum	Fecal-oral	Common	
Listeriosis	Listeria monocytogenes	Oral-airborne	Rare	
Salmonellosis	Salmonella spp.	Fecal-oral	Common	
Ornithosis, Psittacosis, Chlamydiosis	Chlamydia psittaci	Airborne, fecal Infectious aerosols, sera, tissues	Common	Least-to-most prevalence: passerines, shorebirds, waterfowl, feral pigeons, doves
Tuberculosis	Mycobacterium avium	Aerosol, sera, tissues	Occasional	
Yersiniosis	Yersinia spp.	Fecal-oral	Common	
Dermatophytosis	Microsporum, Trichophyton	Contact	Common	
New Castle's Disease	Paramyxovirus	Aerosol, Contact	Occasional	
West Nile Virus	WNV	Arthropod bite	Not in HI	
Avian Influenza	H5N1 (high pathogenic)	Contact, Oral, Fomites	Not in HI	

**Interim Guidance for States Conducting Avian Mortality Surveillance for West Nile Virus (WNV) and/or Highly Pathogenic H5N1 Avian Influenza Virus (HPAI H5N1)**

This guidance, which is directed to state health departments, supplements current *Guidelines for WNV Surveillance, Prevention, and Control* ([www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf](http://www.cdc.gov/ncidod/dvbid/westnile/resources/wnv-guidelines-aug-2003.pdf)) and *An Early Detection System for Highly Pathogenic H5N1 Avian Influenza in Wild Migratory Birds: U.S. Interagency Strategic Plan* ([www.doi.gov/issues/birdflu\\_strategicplan.pdf](http://www.doi.gov/issues/birdflu_strategicplan.pdf)).

Surveillance of dead birds for West Nile Virus (WNV) has proven useful for the early detection of WNV in the United States. In recent months, dead bird surveillance has also proven useful for the early detection of **highly pathogenic H5N1 avian influenza A** (HPAI H5N1, hereafter referred to as H5N1 virus) in Europe.

Given the potential for H5N1 to infect wild birds in North America in the future, the following interim guidance is offered to support the efforts of states conducting avian mortality surveillance.

**General Considerations for States Conducting Avian Mortality Surveillance**

- If different agencies within a state are separately responsible for conducting surveillance for WNV or H5N1 among wild birds, the sharing of resources, including dead birds submitted for testing, may increase the efficiency of both systems.
- Any dead bird might be infected with any one of a number of zoonotic diseases currently present in the United States (US), such as WNV. However, in countries where H5N1 has been found in captive and wild birds, it frequently has resulted in multiple deaths within and across species, and if H5N1 enters the US, it is likely to result in the death of wild birds. If wild birds in the US are exposed to the virus, both single and groups of dead birds should be considered potentially infected.
- Avian mortality due to the introduction of H5N1 could occur at any time of the year, whereas WNV is more often detected when mosquitoes are active.
- To date, no human infections of WNV have been confirmed due to contact with live or dead wild birds in outdoor settings.
- Most human H5N1 cases overseas have been associated with close contact with infected poultry or their environment; however, a very small number of cases appear to be related to the handling of infected wild birds or their feathers or feces without the use of proper personal protective equipment (PPE). There is no evidence of H5N1 transmission to humans from exposure to H5N1 virus-contaminated water during swimming; however this may be theoretically possible. ([http://www.who.int/water\\_sanitation\\_health/emerging/h5n1background.pdf](http://www.who.int/water_sanitation_health/emerging/h5n1background.pdf))
- Although handling infected birds is unlikely to lead to infection, persons who develop an influenza-like illness after handling sick or dead birds should seek medical attention. Their health care provider should report the incident to public health agencies if clinical symptoms or laboratory test results indicate possible H5N1 or WNV infection.

**Infection Control and Health and Safety Precautions**

These guidelines are intended for any person handling dead birds. The risk of infection with WNV from such contact is small. The risk of infection with H5N1 from handling dead birds is difficult to quantify and is likely to vary with each situation. Risk is related to the nature of the work environment, the number of birds to be collected, and the potential for aerosolization of bird feces, body fluids, or other tissues. **The most important factor that will influence the degree of infection risk from handling wild birds is whether H5N1 has been reported in the area.** Local public health officials can be consulted to help in selecting the most appropriate PPE for the situation.

**General Precautions for Collection of Single Dead Birds (These precautions are applicable to DOFAW employees as well as the general public)**

When collecting dead birds, the risk of infection from WNV, H5N1, or any other pathogen may be eliminated by avoiding contamination of mucous membranes, eyes, and skin by material from the birds. This can be accomplished by eliminating any direct contact with dead birds via use of the following safety precautions:

- When picking up any dead bird, wear disposable impermeable gloves and place it directly into a plastic bag. Gloves should be changed if torn or otherwise damaged. If gloves are not available, use an inverted double-plastic bag technique for picking up carcasses or use a shovel to scoop the carcass into a plastic bag.
- In situations in which the bird carcass is in a wet environment or in other situations in which splashing or aerosolization of viral particles is likely to occur during disposal, safety goggles or glasses and a surgical mask may be worn to protect mucous membranes against splashed droplets or particles.
- Bird carcasses should be double bagged and placed in a trash receptacle that is secured from access by children and animals. If the carcass will be submitted for testing, hold it a cool location until it pickup or delivery to authorities. Carcasses should not be held in close contact with food (e.g., not in a household refrigerator or picnic cooler).
- After handling any dead bird, avoid touching the face with gloved or unwashed hands.
- Any PPE that was used (e.g. gloves, safety glasses, mask) should be discarded or disinfected\* when done, and hands should then be washed with soap and water (or sanitized with an alcohol-based hand gel when soap and water are not available). See <http://www.cdc.gov/cleanhands/> for handwashing guidelines.
- If possible, before disposing of the bird, members of the public may wish to consult with their local animal control, health, wildlife or agricultural agency or other such entity to inquire whether dead bird reports are being tallied and if the dead bird in question might be a candidate for WNV or H5N1 testing.

**Additional Precautions for Personnel Tasked with Collecting Dead Birds in Higher-Risk Settings (e.g., when collecting large numbers or in confined indoor spaces, particularly once H5N1 has been confirmed in an area)**

- Minimize any work activities that generate airborne particles. For example, during the cleanup phase of the bird removal, avoid washing surfaces with pressurized water or cleaner (i.e., pressure washing), which could theoretically aerosolize H5N1 viral particles that could then be inhaled. If aerosolization is unavoidable, the use of a filtering face-piece respirator (e.g., N95) would be prudent, particularly while handling large quantities of dead birds repeatedly as part of regular work requirements.
- If using safety glasses, a mask, or a respirator, do not remove until after gloves have been removed and hands have been washed with soap and water (or use an alcohol-based hand gel when soap and water are not available). After PPE has been removed, hands should immediately be cleaned again (see <http://www.cdc.gov/cleanhands/> for handwashing guidelines). Personal protective equipment worn (e.g., gloves, mask, or clothing) should be disinfected\* or discarded.
- Discuss appropriate biosafety practices and PPE use with your employer.

**\* Recommendations for Disinfection of PPE (personal protective equipment):**

For reusable PPE that is machine-washable: Disinfect PPE in a washing machine with detergent in a normal wash cycle. Adding bleach will increase the speed of viral inactivation as will hot water but detergent alone in cold water will be effective. Follow manufacturer recommendations for drying the PPE.

For reusable PPE that is not machine-washable, follow the manufacturer's recommendations for cleaning.

**Laboratory Biosafety Recommendations**

Laboratory handling of routine diagnostic specimens of avian carcasses requires a minimum of BSL-2 laboratory safety precautions. However, if either WNV or H5N1 infection of the specimens is suspected on the basis of previous surveillance findings, at a minimum BSL-3 precautions are advisable. Consult your institutional biosafety officer for specific recommendations. Biosafety levels are described at [www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4s3.htm](http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4s3.htm).

**Additional Information Sources**

Interim Guidance for Protection of Persons Involved in U.S. Avian Influenza Outbreak Disease Control and Eradication Activities <http://www.cdc.gov/flu/avian/professional/protect-guid.htm>

Interim Guidelines for the Protection of Persons Handling Wild Birds with Reference to Highly Pathogenic Avian Influenza H5N1 can be found at:  
[http://www.nwhc.usgs.gov/publications/wildlife\\_health\\_bulletins/WHB\\_05\\_03.jsp](http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/WHB_05_03.jsp)

Avian Influenza: Protecting Workers at Risk <http://www.osha.gov/dts/shib/shib121304.html>