



National Wildlife Health Center
Wildlife Health Bulletin

Update on Highly Pathogenic Avian Influenza Viruses in Wild Birds

To: Natural Resource and Conservation Managers
From: Dr. Jonathan Sleeman, Center Director, USGS National Wildlife Health Center
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This Bulletin provides an overview of recent detections of highly pathogenic avian influenza (HPAI) and resulting mortality events in migratory birds and poultry in Europe and Asia. We are sharing this information to increase situational awareness among natural resource managers responsible for investigating and reporting wild bird die-offs in the U.S.

National surveillance for HPAI in wild birds. Both the H5N8 and H5N6 HPAI viruses currently circulating in Eurasia continue to be associated with mortality events in wild birds. Consequently, we recommend heightened vigilance for morbidity or mortality events in wild birds of North America. The USGS National Wildlife Health Center (NWHC) works closely with U.S. Department of Agriculture, U.S. Fish and Wildlife Service, and state wildlife agencies to quickly investigate wild-bird morbidity and mortality events and to implement swab-based surveillance for HPAI from live and hunter-harvested birds. See this link to review the [Interagency Strategic Plan for Early Detection and Monitoring for Avian Influenzas of Significance in Wild Birds](#).

Mortality-based investigations serve to enhance capability for early detection of HPAI in wild birds, to increase understanding of spatial extent of potential outbreaks, and to better define species involvement. Wildlife managers should remain vigilant for wild-bird morbidity and mortality events and contact NWHC to discuss submission and testing of carcasses. Wildlife management agencies that investigate morbidity and mortality events independently or in collaboration with other diagnostic laboratories are strongly encouraged to report these events to the NWHC using our [reporting form](#). To increase situational awareness of wildlife disease events occurring on the national landscape, NWHC will display this information on [WHISPerS, a Wildlife Health Information Sharing Partnership website](#). **Expanded criteria for submitting carcasses to NWHC for HPAI diagnostics** are provided in the next page of this bulletin (see also standard [NWHC Submission Guidelines](#)).

Background. In early 2014, People's Republic of China, Japan, and Republic of Korea reported outbreaks of HPAI in poultry and migratory wild birds caused by novel H5N8-reassortant clade 2.3.4.4 HPAI viruses of Eurasian origin. Over approximately the next 12 months, viruses from this clade had spread to other Asian countries, Europe, the U.S. and Canada. In North America, an introduced H5N8 HPAI virus recombined into other novel HPAI subtypes, such as H5N2, by incorporating genetic elements from other influenza viruses of North American wild bird origin. This recombinant H5N2 HPAI virus was the leading cause of outbreaks in U.S. commercial poultry operations in 2015.

Since HPAI outbreaks in the U.S. resolved, HPAI viruses have continued to circulate and evolve in Asia, Europe, and Africa. In 2016, a new variant of H5N8 HPAI was found in 26 European countries, with over 1,500 detections in wild birds and causing approximately 1,200 outbreaks in poultry. This virus has also been detected in wild birds and poultry in Cameroon, Democratic Republic of Congo, Egypt, South Africa, Tunisia, Uganda and Zimbabwe. Additionally in 2016, another HPAI virus, clade 2.3.4.4 H5N6, caused over 340 poultry outbreaks in the Republic of Korea and is currently present in China, Hong Kong SAR, Japan, Myanmar, Taiwan and Vietnam, with over 160 detections in wild and captive wild birds of at least 23 species. In 2017, H5N8 has continued to spread in wild birds and poultry of Europe, even during summer months when outbreaks normally

resolve, and another variant of H5N6 HPAI, thought to have originated in Europe, was detected in Japan, the Netherlands, Philippines, and Republic of Korea. *Collectively, this represents the largest geographic occurrence of HPAI viruses ever documented and emphasizes the importance of investigating wild-bird morbidity and mortality events in the U.S.*

Expanded NWHC submission criteria for HPAI diagnostics.

- Mortality involving wild bird species where estimated number of dead exceeds 500 birds.
- Mortality involving five or more waterfowl (ducks, geese, or swans) or other water birds (loons, grebes, coots, shorebirds, or wading birds such as egrets, herons, or cranes).
- Mortality involving any number of raptors or avian scavengers (ravens, crows or gulls) near locations with on-going waterfowl mortality.
- Mortality involving raptors, waterfowl, or avian scavengers (ravens, crows, or gulls) observed with clinical signs consistent with neurological impairment, which may include swimming or walking in circles, moving the head in a “jerky” motion, and holding the neck and head in an unusual position (more drastic than simply drooping). Neurological signs associated with HPAI infection are not well characterized; thus, please collect detailed descriptions of the observed signs and call the NWHC with questions. Video and photos are strongly encouraged.
- Mortality involving wild birds of any species in close proximity to facilities housing domestic birds.
- Mortality involving any number of raptors, waterfowl, or avian scavengers (ravens, crows, or gulls) observed in the same or adjacent counties to confirmed HPAI in poultry or wild birds (should an outbreak occur in the U.S).
- Wild raptors with neurologic/respiratory signs that die or are euthanized within 72 hours of admission to a rehabilitation facility. Please also provide treatment records.
- Raptors held in captivity (*i.e.*, falconry birds, rehabilitation facility) with sudden, unexplained morbidity/mortality after exposure to wild waterfowl or a known/suspect case of HPAI H5 (should an outbreak occur in the U.S.)
- Mortality involving gallinaceous birds such as wild turkeys, quail, and sage grouse.

NOTE: If your agency receives a report that falls outside of these criteria but you suspect there is elevated potential for HPAI infection, please do not hesitate to contact the NWHC. Unless otherwise instructed, the NWHC may only screen carcasses for HPAI if this is the primary reason for submission.

General safety guidelines for hunters and biologists handling wildlife and their tissues.

- Do not handle or eat sick game.
- Field dress and prepare game outdoors or in a well-ventilated area.
- Wear rubber or disposable latex gloves while handling and cleaning game.
- When done handling game, wash hands thoroughly with soap or disinfectant and clean knives, equipment, and surfaces that came in contact with game.
- Do not eat, drink, or smoke while handling animals.
- All game should be thoroughly cooked to an internal temperature of 165 degrees F.
- Additional guidance for hunters: [Guidance for Hunters – Protect Yourself and Your Birds from Avian Influenza](#)

Field biologists should follow these minimum precautions when handling sick or dead birds associated with a mortality event.

- Wear protective clothing including aprons, coveralls, rubber boots, rubber or latex gloves, eye protection, and face shields that can be disinfected or discarded to prevent skin and mucous membrane contact with biological materials and movement of biological materials among sites.
- Work in well-ventilated areas or upwind of animals to decrease the risk of inhaling airborne particulate matter such as dust, feathers, or dander.
- A particulate respirator (NIOSH N95 respirator/mask or better) is recommended when working in confined spaces or conditions that promote production of aerosols. Review your agency’s policies for

specific guidance for respirator use while handling sick and dead wildlife.

- Wash hands often and thoroughly for at least 30 seconds with soap or alcohol-based hand sanitizer.
- Do not eat, drink, or smoke while handling animals.
- Decontaminate work areas and properly dispose of potentially infectious material including carcasses.

*[The CDC states that while the health risk posed to the general public by domestic HPAI outbreaks is low, it is possible that human infections with these viruses could occur.](#) Consult the CDC and your local agency policies for updated personal biosafety recommendations related to human health, and seek medical assistance if needed.

Additional information.

- [OIE: Update on HPAI in Animals \(Type H5 and H7\), 2017](#)
- [NWHC Avian Influenza Information](#)
- [USDA Avian Influenza Information](#)
- [USDA Biosecurity for Birds](#)
- [2016 Surveillance Plan for Highly Pathogenic Avian Influenza in Wild Migratory Birds in the United States](#)
- [EPA Fact Sheet: Antimicrobial Products Registered for Disinfection Use against Avian Influenza on Poultry Farms and Other Facilities](#)
- [Department of the Interior Employee Health and Safety Guidance for Avian Influenza Surveillance and Control Activities in Wild Bird Populations](#)
- [Highly Pathogenic Avian Influenza and North American Wild Birds: Frequently Asked Questions](#)

Disease Investigation Services

To request diagnostic services or report wildlife mortality, please contact the NWHC at **608-270-2480** or by email at NWHC-epi@usgs.gov, and a field epidemiologist will be available to discuss the case. To report wildlife mortality events in Hawaii or Pacific Island territories, please contact the Honolulu Field Station at 808-792-9520 or email Thierry Work at thierry_work@usgs.gov. Further information can be found at <http://www.nwhc.usgs.gov/services/>. See also the [Wildlife Mortality Reporting and Diagnostic Services Request Worksheet](#).

If you have any questions or concerns regarding the scientific and technical services we provide, please do not hesitate to contact NWHC Director Jonathan Sleeman at 608-270-2401, jsleeman@usgs.gov.

To see past Wildlife Health Bulletins, click [here](#). WILDLIFE HEALTH BULLETINS are distributed to natural resource and conservation agencies to promote information exchange about significant wildlife health or disease threats. If you would like to be added to or removed from the mailing list for these bulletins, please email: nwhcoutreachdb@usgs.gov.