

Wildlife Health Bulletin 2021-03

National Wildlife Health Center
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Winter 2021 Update on Highly Pathogenic Avian Influenza Viruses Circulating Globally in Wild Birds

Summary

- Multiple strains of highly pathogenic avian influenza viruses have been detected globally in wild birds and poultry in 2021.
- The apparent increase in virus activity noted during the fall migration period warrants increased vigilance by North American wildlife health professionals.
- Wildlife managers can contact the USGS National Wildlife Health Center (NWHC) to report wildlife mortality events and to discuss submitting carcasses for diagnostic evaluation.

Since July 2021, multiple strains of highly pathogenic avian influenza viruses (H5 [untyped], H5N1, H5N2, H5N5, H5N6, H5N8, and H7N7) have been detected globally in wild birds and poultry (Table 1). The World Organisation for Animal Health (OIE) has called for increased surveillance of avian influenza as outbreaks in poultry and wild birds intensify ([OIE Nov. 2021](#)). Countries where HPAI has been detected since July 1, 2021 include Belgium, Benin, Bosnia and Herzegovina, Botswana, China, Cote D'Ivoire, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Kazakhstan, Republic of Korea, Laos, Luxembourg, Netherlands, Norway, Pakistan, Poland, Romania, Russia, Serbia, Slovakia, South Africa, Sweden, Taiwan, Togo, Ukraine, United Kingdom, and Vietnam (Figure 1).

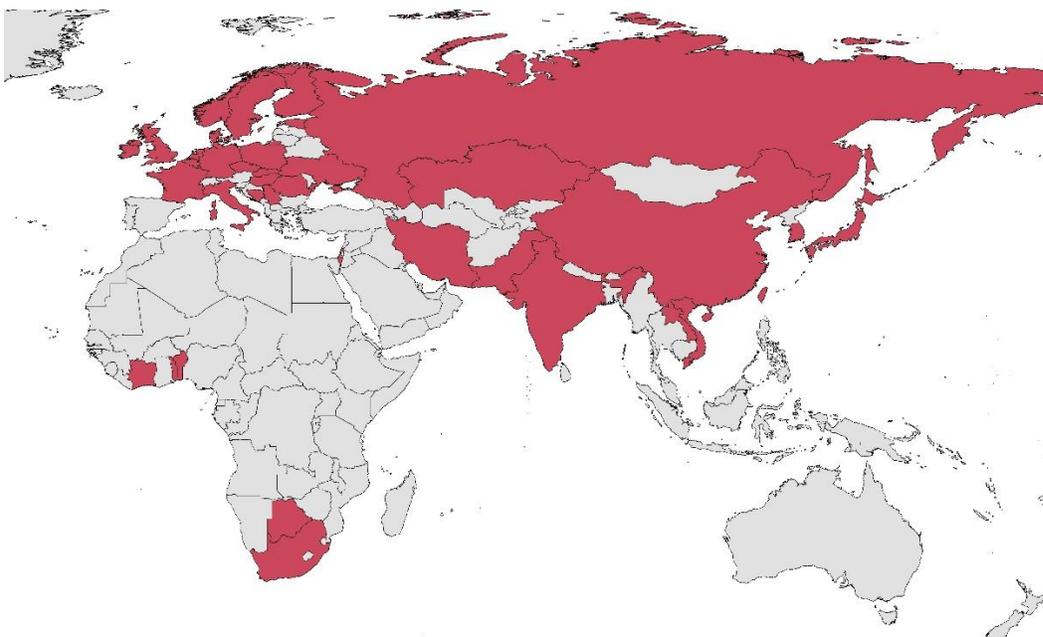


Figure 1. Countries reporting highly pathogenic avian influenza from July through November 2021. Data from the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization (FAO).

The apparent increase in virus activity noted during the fall migration period warrants increased vigilance by North American wildlife health professionals. Wildlife managers and agencies may consider raising their situational awareness, developing response and management plans, and participating in active or passive surveillance activities, among other preparedness activities (Ramey et al. in press). Investigating wild bird mortality events enhances the opportunity for early detection of HPAI, improves situational awareness, and enables a more effective management response, should an introduction occur. In addition to investigating mortality events involving waterfowl ([Lee et al. 2015](#)), we also strongly encourage reporting of raptors ([Shearn-Bochsler et al. 2019](#)) and other avian scavengers ([Tanimura et al. 2006](#)) exhibiting neurological impairment or found dead, especially near facilities housing domestic birds. The USGS National Wildlife Health Center (NWHC) has released [updated HPAI surveillance guidelines for 2021](#). Wildlife managers can contact NWHC to report wildlife mortality events and to discuss submitting carcasses for diagnostic evaluation. For agencies that investigate morbidity and mortality events independently or in collaboration with other diagnostic laboratories, we strongly encourage you to promote situational awareness of wildlife disease events occurring on the national landscape by reporting these events to [WHISPers](#), the Wildlife Health Information Sharing Partnership - event reporting system.

The United States Department of Agriculture – Animal and Plant Health Inspection Service is also continuing their plan for avian influenza surveillance in wild birds. More details are available [here](#).

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](#)

The NWHC provides the following guidance to field biologists for selecting appropriate personal protective equipment (PPE) when investigating wildlife mortality events or when handling wildlife:

- 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 and take appropriate measures to prevent inadvertent movement of infectious material to other locations.

Final decisions by your agency on PPE use may be based on an assessment of potential risks presented by both known and unknown pathogens relevant to your proposed work. 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.”* Therefore, consult the CDC and your employer's policies for updated biosafety recommendations related to human health, and seek medical assistance if needed. Additional information on safe work practices for working with wildlife is [available from USGS](#).

Disease Investigation Services

To request diagnostic services or report wildlife mortality, please contact the USGS National Wildlife Health Center at 608-270-2480, by email at NWHC-epi@usgs.gov, or through the Wildlife Health Information Sharing Partnership – event reporting system ([WHISPers](#)) interface 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 about our services can be found at <https://www.usgs.gov/centers/nwhc/science/disease-investigation-services>. To learn more about submitting samples and reporting events, go to <https://www.usgs.gov/centers/nwhc/science/report-mortality-events-and-submit-specimens>. The [WHISPers](#) system can also be used to enter event information, request diagnostic services, and to view and search summary information on wildlife morbidity/mortality events. If you have questions or concerns regarding the scientific and technical services we provide, please do not hesitate to contact NWHC Director Jonathan Sleeman at jsleeman@usgs.gov.

Table 1. List of countries reporting highly pathogenic avian influenza in domestic or wild birds (domestic poultry = P, wild birds = W) based on data from the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization (FAO) from July 1, 2021 to November 30, 2021.

Country	H5	H5N1	H5N2	H5N5	H5N6	H5N8	H7N7
Belgium	P, W	W				P, W	
Benin	P						
Bosnia and Herzegovina		W					
Botswana		P					
China		W					
Cote D'Ivoire		P					
Czech Republic	P	P, W					
Denmark	P	W				P	
Estonia		W				P, W	
Finland		W				W	
France		P, W				P, W	W
Germany		P, W				W	
Hungary		P, W					
India		W					
Iran				P			
Ireland		P, W					
Israel		P					
Italy		P, W					
Japan		P				P, W	
Kazakhstan	P						
Korea (Rep. of)		P, W				P	
Laos	P						
Luxembourg						W	
Netherlands	P	P, W				W	
Norway		P, W				W	
Pakistan						P	
Poland		P, W				P	
Romania		W					

Country	H5	H5N1	H5N2	H5N5	H5N6	H5N8	H7N7
Russia	P, W	P, W					
Serbia		W	W			W	
Slovakia		P, W					
South Africa		P, W					
Sweden		W				W	
Taiwan			P, W	P			
Togo		P					
Ukraine	P, W						
United Kingdom		P, W					
Vietnam		P			P	P	

References

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- Ramey AM, Hill NJ, DeLiberto TJ, Gibbs SEJ, Hopkins MC, Lang AS, Poulson RL, Prosser DJ, Sleeman JM, Stallknecht DE, W X-F. In press. Highly pathogenic avian influenza is an emerging disease threat to wild birds in North America. *Journal of Wildlife Management and Wildlife Monographs*.
- Shearn-Bochsler VI, Knowles S, Ip H. 2019. Lethal infection of wild raptors with highly pathogenic avian influenza H5N8 and H5N2 viruses in the USA, 2014-15. *Journal of Wildlife Disease* 55:164-168. [doi:10.7589/2017-11-289](https://doi.org/10.7589/2017-11-289).
- Tanimura N, Tsukamoto K, Okamatsu M, Mase M, Imada T, Nakamura K, Kubo M, Yamaguchi S, Irishio W, Hayashi M, Nakai T, Yamauchi A, Nishimura M, Imai K. 2006. Pathology of fatal highly pathogenic H5N1 avian influenza virus infection in large-billed crows (*Corvus macrorhynchos*) during the 2004 outbreak in Japan. *Veterinary Pathology*. 43:500-509. [doi:10.1354/vp.43-4-500](https://doi.org/10.1354/vp.43-4-500).

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