

Wild Bird News

National Avian Influenza Wild Bird Surveillance Newsletter - December 2021

Avian Influenza Virus

To date, 16 haemagglutinin (HA; H1-H16) and 9 neuraminidase (NA; N1-N9) subtypes are recognised in birds. **Waterfowl and shorebirds are the main natural reservoirs and rarely show signs of disease.** Avian Influenza Virus (AIV) can cause significant infectious disease in domestic poultry and can also infect and/or cause disease in a range of other species including other captive birds, wild birds, and humans^{1,2}.

Of global concern is the capacity of AIV subtypes H5 and H7 to mutate from Low Pathogenicity (LPAI) into **High Pathogenicity (HPAI) forms which can cause significant losses in both poultry and wildlife, and potentially human health issues.**

AIV in Australia

HPAI H5 viruses have not been detected in Australia. As of December 2021, there have been eight outbreaks due to HPAI H7 viruses in commercial Australian poultry operations between 1976 and 2020 in the states of Victoria, Queensland and New South Wales^{3,4,5,6,7,8,9}.

Mortality due to AIVs have not been reported in feral or native free-ranging birds¹⁰. However, **LPAI viruses have been detected in wild birds in Australia.**

Given Australia's geographic and ecological isolation, **it is important that assumptions about AIV epidemiology in Australia are not based entirely on studies from Asia, Europe or North America^{11,12}.**

More info: [WHA FACT SHEET](#)



Radjah shelduck - Image Courtesy of Guy Weerasinghe

National Avian Influenza Wild Bird Surveillance Program

In 2006, the National Avian Influenza Wild Bird (NAIWB) Steering Group was established to ensure national coordination and collaboration of wild bird avian influenza surveillance activities. Wildlife Health Australia provides support to the NAIWB Steering Group, coordinates the wild bird surveillance program, and collates and reports surveillance data for avian influenza in wild birds in Australia. The NAIWB surveillance projects are conducted Australia-wide, with funding provided by the Australian Department of Agriculture, Fisheries and Forestry (DAFF). Significant in-kind support is provided by the jurisdictional agencies, researchers, and representative's institutions.

Surveillance activities comprise two sampling components. As part of the targeted surveillance component of the program, faecal environmental swabs and cloacal and/ or oropharyngeal samples are collected from apparently 'healthy' wild birds and hunter-shot wild birds of known AIV reservoir species (including waterfowl and shorebirds) and tested for avian influenza viruses (AIVs). Samples are collected through various state and territory government agency programs, research projects and the Northern Australia Quarantine Strategy. The second component - general surveillance - involves investigation of significant morbidity and mortality events in wild birds, including zoo bird populations. Reports and samples from sick and dead birds are received from members of the public, private practitioners, universities, zoo wildlife clinics and wildlife sanctuaries.

Data generated by the NAIWB program is used to monitor and understand distribution of AIV infection in wild birds. Subsequent sequence analysis of the AIVs detected in wild birds further contributes to tracking Australian virus evolution and dynamics, maintaining currency of diagnostic tests, and maintaining a virus sequence library allowing comparison of Australian and overseas strains.

Targeted surveillance - Jul to Dec 2021

Between July and December 2021, AIV-specific, risk-based surveillance occurred at sites in New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia with faecal environmental swabs collected from 3024 apparently healthy and hunter-shot waterbirds. Samples were tested using RT-PCR for AIV M (matrix) gene detection. Influenza A reactors (positives) to the influenza A matrix gene PCR were tested using specific qRT-PCRs for influenza A H5 and H7. Samples for which H5/H7 subtypes were detected by RT-PCR were dispatched to the CSIRO Australian Centre for Disease Preparedness (ACDP) for confirmatory and further testing.

Targeted surveillance - Influenza A virus detections (Jul - Dec 2021)

State / Territory	# Individual Swabs Collected ^a	# Positives ^b	H5 LPAI	H5 HPAI	H7 LPAI	H7 HPAI	Other LPAI HA Subtypes ^c
NSW	569	12	0	0	0	0	H6
NT	188	3	0	0	0	0	H6
Qld	537	3	0	0	0	0	H6
SA	813	10	4	0	0	0	H3, H6
Tas	240	0					
Vic	170	5	0	0	1	0	H10
WA	507	0					
Total	3024	33	4	0	1	0	

^a Swabs include faecal environmental swabs.

^b A number of swabs were tested as a pooled sample (up to 3 swabs in one pool). A positive pool represents one AIV positive. A sample is considered AIV positive if either: a) Positive at original lab; b) Indeterminate at original lab and subsequently tested positive; c) Indeterminate at original lab and subtyped at any lab.

^c When positive AIV samples (not identified as H5 or H7) are submitted for subtyping and successful.

Between July and December 2021, no HPAI viruses were identified, but targeted surveillance continues^{12,13} to find evidence of a wide range of low pathogenicity virus subtypes, including LPAI H5 and H7.

There were no detections of H5 lineage 2.3.4.4.

Molecular analysis of AIVs detected through the targeted surveillance activities contribute to: tracking Australian virus evolution and dynamics, maintaining currency of diagnostic tests, maintaining a virus sequence library allowing comparison of Australian and overseas strains. This information informs risk to industry and response to detections in poultry.

From July to December 2021, species targeted for sampling were from the order Anseriformes and Charadriiformes.

Other bird orders may have been present during sample collections. All samples collected during this period were faecal environmental swabs.

General surveillance - Jul to Dec 2021

Wild bird morbidity and mortality investigation are reported into the Australia's wildlife health information system (eWHIS) via a network of state / territory WHA coordinators (appointed by their respective Chief Veterinary Officer), and WHA environment representatives, the Northern Australia Quarantine Strategy (NAQS), veterinarians at zoo-based wildlife hospitals and sentinel wildlife clinics, university clinics and pathology departments, researchers, other wildlife health professionals and WHA members. General surveillance summary tables (below) are drawn from data entered into eWHIS.

WHA received 41 reports of wild bird mortality or morbidity investigations from around Australia from July to December 2021, which were tested for AIV by PCR for influenza A. Investigations may involve a single animal or multiple animals (e.g. mass mortality event). Reports and samples from sick and dead birds are received from members of the public, private practitioners, universities, zoo wildlife clinics and wildlife sanctuaries.

General surveillance - mortality and morbidity events in which birds were tested for Influenza A viruses (Jul - Dec 2021)

Bird Order	Common Names for Bird Order ¹⁴	Number of Events AIV Tested via PCR ^a	Number of Events AIV Positive
Accipitriformes	Osprey, hawks and eagles	1	0
Anseriformes	Magpie Goose, ducks, geese and swans	3	0
Caprimulgiformes	Frogmouth and nightjars	1	0
Charadriiformes	Shorebirds	1	0
Columbiformes	Doves and pigeons	7	0
Falconiformes	Falcons	2	0
Passeriformes	Passerines or perching birds	6	0
Pelecaniformes	Ibis, herons and pelicans	3	0
Psittaciformes	Parrots and cockatoos	11	0
Sphenisciformes	Penguins	5	0
Strigiformes	Owls	2	0

^a Disease investigations may involve a single or multiple bird orders (e.g. mass mortality event). The number of events where AIV was tested via PCR against each bird order do not equal the total number of investigations due to multi-species events. During the semester, one wild bird event involved multiple bird orders tested for AIV, which included the orders Anseriformes and Pelecaniformes.

Avian influenza was not confirmed as the cause of any wild bird morbidity or mortality event between July and December 2021 reported to eWHIS.

AVIAN INFLUENZA IS A NATIONAL NOTIFIABLE DISEASE AND REQUIRES REPORTING TO THE CHIEF VETERINARY OFFICER (CVO) AT THE APPROPRIATE AUSTRALIAN STATE OR TERRITORY

If you would like information about Avian Influenza testing and sample collection, please seek advice from your local [WHA Coordinator](#) or call the [Emergency Animal Disease Hotline](#) (1800 675 888).



Disclaimer

This document was developed and approved by the National Wild Bird Avian Influenza (NAIWB) Steering Group for information purposes only. NAIWB Steering Group was established to ensure national coordination and collaboration of wild bird avian influenza surveillance activities. Wildlife Health Australia provides support to the NAIWB Steering Group and collates avian influenza surveillance data from wild birds sampled across Australia. Information contained in it is drawn from a variety of sources external to Wildlife Health Australia. Data is provided on an “as is” basis and may be changed periodically; these changes may or may not be incorporated in any new version of the publication. Although reasonable care was taken in its preparation, Wildlife Health Australia does not guarantee or warrant the accuracy, reliability, completeness, or currency of the information or its usefulness in achieving any purpose. To the fullest extent permitted by law, Wildlife Health Australia will not be liable for any loss, damage, cost or expense incurred in or arising by reason of any person relying on information in this document. You may download, display, print and reproduce this material in unaltered form only for personal, non-commercial use or use within your organisation, provided due acknowledgement is made of its source. For any other use of the material contained in this document (including, but not limited to any text, illustration, table, or any other material), written permission must be obtained with Wildlife Health Australia and the NAIWB Steering Group.

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