Wild Bird News

National Avian Influenza Wild Bird Surveillance Newsletter - June 2024

Bar-tailed Godwits - Photo by Qingju Wen on Pexels

NAIWB Surveillance Program

The National Avian Influenza Wild Bird (NAIWB) surveillance program analyses and reports on data relating to surveillance for avian influenza viruses (AIVs) in wild birds around Australia. This informs risk assessment and supports the health of wildlife, people, and the poultry industry. The program is co-ordinated and administered by Wildlife Health Australia (WHA), which facilitates co-operation and collaboration through a Steering Group comprised of Federal and jurisdictional government biosecurity agencies, university researchers, veterinary laboratories, industry partners, and biodiversity experts. Funding is provided through the Australian Department of Agriculture, Fisheries and Forestry, with substantial in-kind support from surveillance partners.

Data for this program is sourced from two components:

- Targeted surveillance – samples are collected from apparently healthy birds through collection of faecal environmental swabs or swabbing of live or hunter-shot birds, with a focus on species known to be reservoirs for AIVs (such as waterfowl and shorebirds). Sample collection is undertaken by State and Territory government agencies, university researchers, and the Northern Australian Quarantine Strategy. Samples then undergo testing to detect and characterise AIVs that may be present.
- General surveillance – information is collected from investigations into significant or unusual morbidity and mortality events of wild birds, including captive and wild bird populations within zoos. These investigations may include testing to detect or exclude avian influenza viruses and are reported to WHA's national Wildlife Health Information System (eWHIS) by WHA Co-ordinators and sentinel surveillance partners in zoos, wildlife sanctuaries, private veterinary clinics and universities.

As of June 2024, more than 148,400 samples have been processed through the program. A range of LPAI viruses have been detected and there have been no detections of HPAI viruses in wild birds in Australia, including exclusion of HPAI H5Nx 2.3.4.4b.

Avian Influenza Virus

To date, 17 haemagglutinin (HA; H1-H16, H19) 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. Prior to the H7 outbreaks in 2024, Australia has experienced eight outbreaks due to HPAI H7 viruses in commercial Australian poultry operations since 1976. All were successfully eradicated, with work progressing to confirm eradication of the 2024 HPAI H7 outbreaks [3-9].

Mortality due to AIVs have not been reported in feral or native free-ranging birds [10]. 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

Data provided in this document should be considered preliminary and may be changed.

Global HPAI update and preparedness in Australia

Following the rapid spread of HPAI H5Nx 2.3.4.4b through South America and into near-by sub-Antarctic island territories in 2023, mortalities of wildlife from HPAI were reported on the Antarctic mainland from February 2024. The Antarctic Wildlife Health Network from the **Scientific Community of Antarctic Research** have established a project to monitor the spread and impact of HPAI in Antarctica, which includes a central repository to record and monitor all suspected and confirmed HPAI outbreaks in the region. Reports of affected species have included wandering albatross, kelp gull, brown skua, gentoo penguin, southern elephant seal and Antarctic fur seal, and have been localised to the Antarctic peninsula, south of South America (**https://scar.org/library-data/avian-flu**, accessed 7/8/2024). An ongoing outbreak of **HPAI H5N1 in dairy cattle** in the USA [13-15] and cases in other domestic livestock [16] also raised further concerns around this virus adapting to mammal hosts. We were also reminded of the risk to humans, with the first Australian detection of **HPAI H5N1 (clade 2.3.2.1a) in a traveller*** returning from overseas [17]. Further HPAI outbreaks in poultry and wildlife continued in other parts of the world, whilst Australia and the Oceania region remained free of this highly impactful disease.

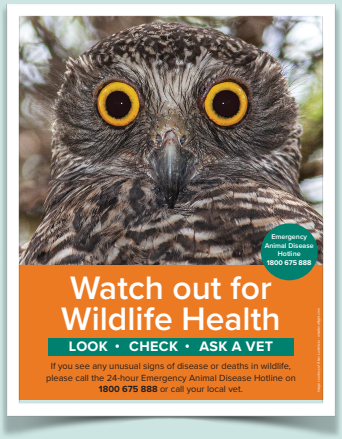
In response to the global HPAI H5Nx panzootic, the **World Organisation for Animal Health (WOAH)** released documents on vaccination of wildlife against HPAI, guidance for field response to HPAI in marine mammals, and resolutions on HPAI, with contributions from WHA.

Members of the NAIWB Steering Group and WHA provided several presentations, webinars, and media articles to inform communities and enhance awareness on HPAI H5Nx, including:

- UNESCO webinar series – Avian flu – a threat to biodiversity **https://whc.unesco.org/en/avian-flu/**.
- The Conversation: **Chickens, ducks, seals, and cows: a dangerous bird flu strain is knocking on Australia's door**.
- 7.30 (ABC): **Bird flu has breached remote Antarctica. Is Australia next?**
- COSMOS: Explainer – what is going on with bird flu? **https://cosmosmagazine.com/science/biology/explainer-what-is-going-on-with-bird-flu/**.
- Northern Australian Biosecurity Strategy: **Keep a top watch!**

Wildlife Health Australia continued to work with various government and non-government stakeholders to support and progress preparedness for HPAI in Australia, with involvement in various government committees, contribution of expertise to national and international preparedness programs and test exercises, release of a **HPAI Risk Mitigation toolbox for wildlife care providers**, and updating of other advisory and guidance documents available on the **WHA website**.

* NOTE: this clade is different to the clade 2.3.4.4b that is the virus involved in the current global avian influenza panzootic.



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**).

Targeted surveillance - Jan to Jun 2024

Targeted surveillance for AIVs was expanded in 2024 with the addition of two surveillance partners undertaking pilot programs in the ACT and central Australia, extra sampling locations in Queensland and NSW (see Figure below for AIV targeted surveillance key sampling locations), and expansion of Northern Australia Quarantine Strategy sampling in Australian External Territories. This means risk-based surveillance occurred at sites in all major Australian jurisdictions, with cloacal and faecal environmental swabs collected and tested from 2,934 apparently healthy and hunter-shot waterbirds between January to June 2024.

This map shows primary targeted surveillance locations where the majority of wild bird samples are collected from, on a regular basis. Locations sampled irregularly or where small numbers of samples are collected are not represented on the map.

Targeted surveillance by Jurisdiction

Influenza A virus detections - Jan to Jun 2024

Results of testing of targeted surveillance samples are presented in Table below. Samples were tested using qRT-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 qRT-PCR were dispatched to the CSIRO Australian Centre for Disease Preparedness (ACDP) for confirmatory and further testing.

State / Territory	# Individual Swabs Collected[a,b]	# Positives[c]	H5 LPAI	H5 HPAI	H7 LPAI	H7 HPAI	Other LPAI HA Subtypes[d]
ACT	62	0					
NSW	397	2	0	0	0	0	
NT	268	6	0	0	0	0	H9, H12
Qld	305	9	1	0	0	0	H1
SA	450	38	0	0	6	0	H2, H12
Tas	325	15	0	0	0	0	H12
Vic	532	23	0	0	3	0	H1, H2, H6, H9, H10, H12
WA	495	16	1	0	0	0	H4, H6, H9
External Territories[e]	100	0					
Total	**2,934**	**109**	**2**	**0**	**9**	**0**	

[a] Sample collection in some jurisdictions is undertaken by multiple partner organisations/agencies

[b] Swabs include faecal environmental and cloacal swabs.

[c] 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.

[d] When positive AIV samples (not identified as H5 or H7) are submitted for subtyping and successful.

[e] Includes samples collected in Ashmore Reef and Christmas Island.

Between January and June 2024, no HPAI viruses were identified through targeted surveillance activities. However, a wide range of low pathogenicity virus subtypes, including LPAI H5 and H7, continue to be detected [12, 18, 19].

There were no detections of H5 lineage 2.3.4.4.

Molecular analysis of AIVs detected through 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 January to June 2024, species targeted for sampling were from orders Anseriformes and Charadriiformes.

Other bird orders may have been present during sample collections. The great majority of samples collected during this period were faecal environmental swabs. A small proportion of cloacal from hunter-shot birds were also collected.

General surveillance - Jan to Jun 2024

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 191 reports of wild bird mortality or morbidity investigations from around Australia from January to June 2024, 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 (Jan - Jun 2024)

Bird Order	Common Names for Bird Orders [20]	Number of Events AIV Tested via PCR[a]	Number of Events AIV Positive
Accipitriformes	Osprey, hawks and eagles	4	0
Anseriformes	Magpie Goose, ducks, geese and swans	29	1[b]
Caprimulgiformes	Frogmouth and nightjars	3	0
Charadriiformes	Shorebirds	13	0
Columbiformes	Doves and pigeons	13	0
Coraciiformes	Bee-eater and kingfishers	2	0
Falconiformes	Falcons	2	0
Galliformes	Brush turkeys and quails	1	0
Gruiformes	Rails, coots and cranes	4	0
Passeriformes	Passerines or perching birds	27	0
Pelecaniformes	Ibis, herons and pelicans	15	0
Podicipediformes	Grebes	3	0
Procellariiformes	Petrels and shearwaters	26	0
Psittaciformes	Parrots and cockatoos	36	0
Sphenisciformes	Penguins	9	0
Strigiformes	Owls	5	0
Suliformes	Gannets and cormorants	6	0

[a] Disease investigations may involve a single or multiple bird orders (e.g. mass mortality event). Some events may be recorded in multiple lines in this table due to the involvement and testing of multiple species from different Orders. During the reporting period, four events involved AIV testing of birds from multiple Orders – the first event involved Columbiformes, Passeriformes and Psittaciformes, the second event involved Anseriformes, Charadriiformes, Pelecaniformes, Sphenisciformes and Suliformes, and the third and fourth events involved Anseriformes and Pelecaniformes.

[b] Incidental findings of AIV in one mortality event involving Anseriformes is described on the next page.

Avian influenza was not identified as the cause of any wild bird morbidity or mortality event reported to eWHIS between January and June 2024.

There were no detections of HPAI or H5 lineage 2.3.4.4.

Data provided in this document should be considered preliminary and may be changed.

AIV incidental detection in wild ducks in South Australia – Jan to Jun 2024

Over 1000 waterbirds, mostly grey teals, were reported dead and dying in the Coorong region. The birds were all in good body condition, suggesting an acute process. A total of 12 grey teals were submitted for examination during the mortality event. On histopathology, there was evidence of bacterial infection and likely septicaemia, resulting in death. Bacterial culture on the liver of 6 birds showed a heavy growth of *Pasteurella multocida*. There were also incidental detections of avian paramyxovirus 1, class 1 in two birds and AIV in 3 birds. Two of the AIV detections were identified as H7 by qRT-PCR, noting that this is not an unusual result and routine wild duck surveillance in late 2023 revealed a number of LPAI H7 positives. ELISA Botulinum toxin type C on gut contents was negative. The histopathology findings and bacterial culture results indicate that the cause of death was acute *P. multocida* infection, which is a common pathogen in poultry flocks (which causes avian pasteurellosis, also known as 'avian cholera') and has also been reported to cause wild waterfowl mortalities (see **WHA fact sheet**).

Investigation of this mortality event was a collaborative effort between local ecologists and fishermen, the Department of Primary Industries and Regions SA, the SA Department of Environment and Water, Zoos SA, EcoProTem and Birdlife Australia. The event was reported in the media (**ABC News**). See also case report on **Animal Health Surveillance Quarterly Volume 29, Issue 1**.*

* NOTE: In 2023 *Pasteurella multocida* was excluded from a **significant waterbird mortality event due to botulism in central Victoria** [21].

Pacific Black Duck - Photo by Denitsa Kireva on Pexels

Incidental findings of LPAI viruses in wild ducks are not unusual given waterfowl (Anseriformes) are an AIV reservoir species.

Disclaimer

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