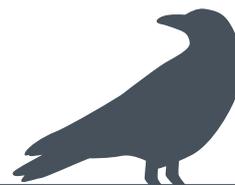


# Wildlife Health Australia



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Wildlife Health Australia

Wildlife Health Australia (WHA)<sup>2</sup> is the coordinating body for wildlife health in Australia. WHA was established as the Australian Wildlife Health Network in 2002 as an Australian Government initiative to coordinate wildlife health surveillance information across Australia, to support Australia's animal health industries, human health, biodiversity, trade and tourism. WHA collates information from multiple sources into a national database – the electronic Wildlife Health Information System (eWHIS).<sup>3</sup> This includes submissions by WHA surveillance partner organisations; state and territory WHA coordinators and WHA environment representatives; veterinarians at zoo-based wildlife hospitals and sentinel wildlife clinics; university clinics and pathology departments; and researchers, other wildlife health professionals and WHA members.

During the quarter, 147 wildlife disease investigation events were reported in eWHIS (Table 1 and Figure 2), and samples were



collected from 2001 wild birds for avian influenza (AI) surveillance.

This report details some of the disease and mortality events in free-living wildlife recorded in eWHIS this quarter. WHA thanks all those who submitted information for this report.

## Wild bird mortality event summary – Newcastle disease and avian influenza exclusion

WHA received 32 reports of wild bird mortality or morbidity investigations from around Australia during the quarter;

**Table 1 Number of disease investigations reported in eWHIS, 1 April to 30 June 2021<sup>a</sup>**

Mammals					Birds <sup>e,f</sup>	Reptiles
Bats <sup>b</sup>	Marsupials	Marine mammals	Feral mammals <sup>c</sup>	Other mammals <sup>d</sup>		
74	27	1	7	1	32	5

a Disease investigations may involve a single animal or multiple animals (e.g. mass mortality events).

b The majority of bat disease investigations are single bats submitted for Australian bat lyssavirus testing.

c Feral pigs (*Sus scrofa*), European hare (*Lepus europaeus*) and feral buffaloes (*Bubalus bubalis*).

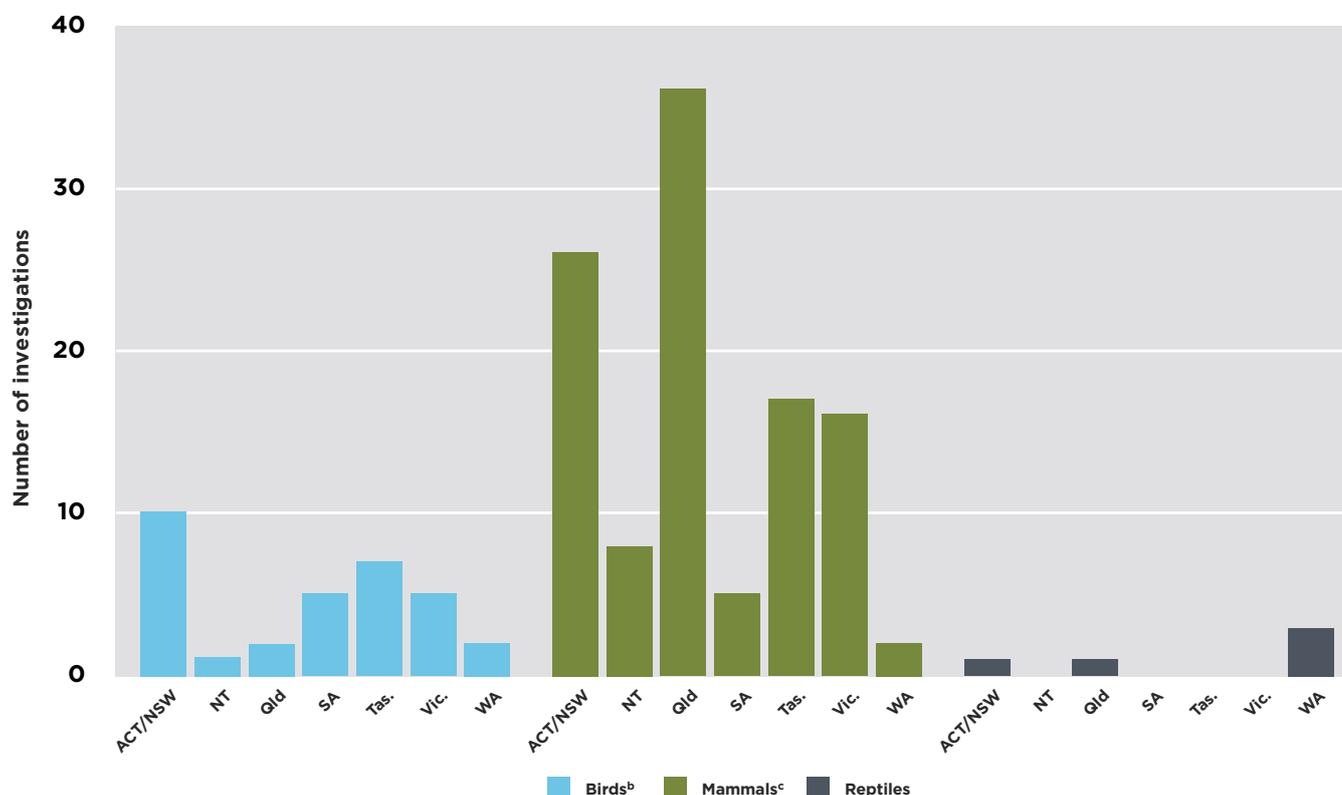
d Dingo (*Canis familiaris dingo*).

e Additional sampling for targeted avian influenza surveillance is presented elsewhere in this report.

f Includes free-ranging birds (native or feral species) and a small number of events involving birds from zoological collections and captive breeding programs.

<sup>2</sup> [www.wildlifehealthaustralia.com.au/Home.aspx](http://www.wildlifehealthaustralia.com.au/Home.aspx)

<sup>3</sup> [www.wildlifehealthaustralia.com.au/ProgramsProjects/eWHIS-WildlifeHealthInformationSystem.aspx](http://www.wildlifehealthaustralia.com.au/ProgramsProjects/eWHIS-WildlifeHealthInformationSystem.aspx)



**Figure 2 Number of disease investigations reported, by jurisdiction, in eWHIS, 1 April to 30 June 2021<sup>a</sup>**

- a The chart shows the number of disease investigation events reported in eWHIS. Each investigation may involve one or multiple animals.
- b 'Birds' includes free-ranging birds (native or feral species) and a small number of events involving birds from zoological collections and captive breeding programs.
- c Investigations involving mammals include individual bats submitted for Australian bat lyssavirus testing.

investigations may involve a single animal or multiple animals (e.g. a mass mortality event). A breakdown of wild bird events by taxonomic order is given in Table 2. Reports and samples from sick and dead birds are received from members of the public, private practitioners, universities, zoo wildlife clinics and wildlife sanctuaries. Avian influenza virus (AIV) was excluded by polymerase chain reaction (PCR) testing for influenza A in 15 events as part of Australia's general (sick and dead bird) AI surveillance program. Disease caused by AIV was also excluded in the remaining 17 events, based on clinical signs, history, histopathology, prevailing environmental conditions or other diagnoses. Avian orthoavulavirus 1 (AOAV-1; also known as Newcastle disease virus or APMV-1) was excluded in 12 events by PCR testing specific for AOAV-1 and/or the pigeon paramyxovirus type 1 variant (PPMV-1).

Wild bird disease investigations this quarter also found aspergillosis, botulism, parasitism, pesticide toxicity, salmonella infection, toxoplasmosis and trauma.

### Avian influenza surveillance

Australia's National Avian Influenza Wild Bird (NAIWB) Surveillance Program<sup>4</sup> comprises two sampling components. The first is pathogen-specific, risk-based surveillance, by sampling apparently healthy wild birds, both live and hunter-shot (i.e. targeted wild bird surveillance). The second is general surveillance, by investigating significant unexplained morbidity and mortality events in wild birds, including captive and wild birds within zoo grounds (with a focus on exclusion-testing for AIV subtypes H5 and H7).

Samples from sick or dead birds were discussed earlier. Sources for targeted wild bird surveillance data include state and territory government laboratories, universities, and samples collected through NAQS.<sup>5</sup>

During the quarter, pathogen-specific, risk-based surveillance occurred at sites in New South Wales, the Northern Territory, Queensland, South Australia, Tasmania, Victoria and Western Australia. All of the 2001 faecal environmental and cloacal swabs collected from waterbirds were tested for AIVs. Based on results received to date, no high pathogenicity AIVs were identified. However, targeted surveillance activities this quarter continued to find evidence of LPAI viruses, including LPAI H5 and LPAI H7.

<sup>4</sup> [www.wildlifehealthaustralia.com.au/ProgramsProjects/WildBirdSurveillance.aspx](http://www.wildlifehealthaustralia.com.au/ProgramsProjects/WildBirdSurveillance.aspx)

<sup>5</sup> [www.agriculture.gov.au/biosecurity/australia/naqs](http://www.agriculture.gov.au/biosecurity/australia/naqs)

**Table 2 Wild bird disease investigations, by taxonomic order, reported into eWHIS, 1 April to 30 June 2021**

Bird order	Common name/s for bird order <sup>a</sup>	Events reported <sup>b</sup>
Anseriformes	Magpie geese, ducks, geese and swans	2
Caprimulgiformes	Frogmouth, nightjars, owlet-nightjars, swifts	1
Charadriiformes	Shorebirds	1
Columbiformes	Doves and pigeons	2
Falconiformes	Falcons	1
Gruiformes	Rails, gallinules, coots and cranes	1
Passeriformes	Passerines or perching birds	6
Pelecaniformes	Ibis, herons and pelicans	2
Procellariiformes	Fulmars, petrels, prions and shearwaters	1
Psittaciformes	Parrots and cockatoos	12
Sphenisciformes	Penguins	2
Suliformes	Gannets, boobies and cormorants	3

a del Hoyo J, Collar NJ 2014. *Handbook of the birds of the world and BirdLife International illustrated checklist of the birds of the world*. Volume 1 – Non-passerines, Barcelona: Lynx Editions.

b Disease investigations may involve a single bird order or multiple orders (e.g. a mass mortality event). The sum of the number of events reported against each bird order does not equal the total number of investigations, due to multi-species events. This quarter, two wild bird events involved multiple bird orders. One event involved orders Charadriiformes and Passeriformes, and the other event involved Anseriformes and Gruiformes.

Molecular analyses of AIVs detected through the targeted surveillance activities:<sup>5,7</sup>

- contribute to the understanding of AIV dynamics in Australia
- help maintain the currency of diagnostic tests
- serve as a point of comparison when novel AIV strains of importance emerge overseas.

### Australian bat lyssavirus

WHA maintains a national dataset of Australian bat lyssavirus (ABLV) testing in bats. Reports to WHA for the six months from 1 January to 30 June 2021 included 273 bats tested for ABLV from all states and territories except Tasmania. Some data from this period have not yet been reported due to delays with data submission caused by COVID-19.

Bat submissions were made for a variety of reasons:

- 57 submissions involved contact with the potential for ABLV transmission to humans; of these
  - 16 were also associated with trauma (e.g. entanglement in

barbed-wire fence or fruit netting, electrocution, human-induced injury)

- 10 displayed neurological signs (e.g. aggression, spasmodic head movements, tongue flicking, tremors, unusual vocalisation, seizures, paresis)
- three displayed non-neurological signs or presentations
- three also involved contact with a pet dog or cat
- one was found dead
- the remainder had no further signs reported
- 90 submissions involved contact with a pet dog (75), cat (11), both dog and cat (1), or other animal (3)
- 55 bats displayed neurological signs (e.g. aggression, unusual vocalisation, self-mutilation, paralysis, head and wing tremors, nystagmus, seizures)
- 33 bats displayed other (non-neurological) signs (e.g. respiratory signs, emaciation, associated with a mass mortality)

- 25 submissions were associated with trauma (e.g. entanglement in barbed-wire fence or fruit netting, electrocution, tree collapse, fractures)
- 10 bats were found dead
- Three bats had no further signs reported.

In the first half of the year, 27 bats were confirmed positive for ABLV by fluorescent antibody test and/or PCR testing for pteropid ABLV ribonucleic acid (RNA). Twelve were little red flying foxes (*Pteropus scapulatus*), 10 were grey-headed flying foxes (*P. poliocephalus*) and five were black flying foxes (*P. alecto*). Fourteen of these were from Queensland, nine from NSW, two from Victoria and two from South Australia. The South Australian cases were the first since 2012.

Twenty-one of the bats showed neurological signs such as aggression, quiet demeanour, unusual vocalisation, self-mutilation, head tremor, paresis, paralysis, respiratory distress and difficulty swallowing. Potentially infectious human contact was reported for four of the cases,

and clinical advice was provided by an experienced public health official.

The number of bats submitted for testing is higher than normal, partly due to a paralysis event in flying foxes in the earlier part of the year (see *AHSQ* Vol. 26 Issue 1, 'Paralysis event in flying foxes in Queensland and New South Wales'). The number of ABLV cases in bats is also high, in part due to a cluster of ABLV in little red flying foxes in South East Queensland (see *AHSQ* Vol. 26 Issue 1, 'Atypical cluster of lyssavirus (ABLV) infections in little red flying foxes in South East Queensland').

More information on ABLV testing of bats in Australia is available in [ABLV Bat Stats](#).<sup>6</sup> ABLV is a nationally notifiable disease in Australia. Cases of suspect ABLV infection or exposure should be reported to the Emergency Animal Disease Watch Hotline on 1800 675 888.

## Rodenticide impacts on non-target wildlife

High mouse numbers have been experienced over the past 10 months in Australia's eastern grain belt, affecting most of inland NSW and also some areas in southern Queensland, northern Victoria and South Australia. Control of mice using pesticides can result in wildlife deaths due to primary or secondary toxicity.

Traditional rodenticide use in broadacre agriculture involves the pesticides zinc phosphide (coated onto grains) and coumatetralyl (in covered bait stations). **Primary toxicity** can occur in non-target wildlife that consume zinc phosphide baited material (e.g. galahs, cockatoos), but this risk is greatly reduced when the product is used strictly in accordance with the label



Photo: James White

directions or permit conditions.<sup>7</sup> Primary toxicity due to direct consumption of anti-coagulant rodenticide bait is also a risk for some wildlife (e.g. possums and native mice). Anti-coagulant rodenticides include warfarin, coumatetralyl, diphacinone and bromadiolone. These are the main ingredients in many domestic, commercial, industrial and agricultural rodent baits but they are generally only approved for use around agricultural buildings, not in crops. Due to the severity of the current mouse numbers, an emergency permit application was submitted to the Australian Pesticides Veterinary Medicine Authority (APVMA) for the use of bromadiolone in crops to control mice, but this was refused due to environmental and safety concerns.<sup>8</sup> **Secondary toxicity** to non-target wildlife can occur with bromadiolone and other anti-coagulant chemicals due to accumulation through the food chain, leading to lethal doses ingested by birds of prey (e.g. eagles, kites and owls) and other animals that feed on sick or dead mice (e.g. magpies, kookaburras, quolls and goannas). The risk of secondary toxicity to wildlife due to these commonly available

anti-coagulant chemicals can be reduced by following the label instructions. Information on rodenticides approved for use in crop situations is available from APVMA.<sup>8</sup>

WHA is working with surveillance partners to collect information on the impacts of primary and secondary toxicity from anticoagulants and other pesticides in wildlife. Reports to WHA of confirmed or suspected rodenticide and pesticide toxicity in wildlife for the six months from 1 January to 30 June 2021 have already exceeded the number of reports for the year of 2020, and these reports are focused in the jurisdictions reportedly affected by high mouse numbers. The NSW Environment Protection Authority (EPA) has produced the fact sheet '[Guidance on handling native wildlife in areas where zinc phosphide has been deployed](#)'<sup>9</sup> and is seeking reports of situations where more than five native animals in NSW are suspected to have been poisoned (Environment Line: 131 555). For further information, see the WHA fact sheet '[Pesticide toxicity in Australian native birds](#)'.<sup>10</sup>

6 [www.wildlifehealthaustralia.com.au/ProgramsProjects/BatHealthFocusGroup.aspx](http://www.wildlifehealthaustralia.com.au/ProgramsProjects/BatHealthFocusGroup.aspx)

7 NRA 2000. Public Release Summary on Evaluation of the new active zinc phosphide in the product Mouseoff zinc phosphide bait, National Registration Authority for Agricultural and Veterinary Chemicals (now APVMA), Canberra, Australia.

8 Australian Pesticide and Veterinary Medicines Authority 2021. Bromadiolone and the current mouse plague, 22 July, [apvma.gov.au/node/87226](http://apvma.gov.au/node/87226)

9 NSW Environment Protection Authority 2021. Guidance on handling native wildlife in areas where zinc phosphide has been deployed, June, [www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/news/21p3074-handling-wildlife-where-zinc-phosphide-used.pdf](http://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/news/21p3074-handling-wildlife-where-zinc-phosphide-used.pdf)

10 Wildlife Health Australia 2021. Pesticide toxicity in Australian native birds, June, [wildlifehealthaustralia.com.au/FactSheets.aspx](http://wildlifehealthaustralia.com.au/FactSheets.aspx)