Wildlife Health AUSTRALIA

Sentinel Surveillance Program

Annual Report 2023

Wildlife Disease Surveillance in Australia

- Australia has a **national system for wildlife disease surveillance** that is coordinated by Wildlife Health Australia (WHA).
- This integrated system for reporting and data capture relies on **coordinated programs, focus groups and the central collation of data** into the eWHIS national database, as outlined below.
- In 2023, the Sentinel Surveillance Program participants saw more than **67,000 wildlife cases** at their clinics.

General Surveillance Programs

- Wildlife Health Australia State and Territory Coordinators & Environment Representatives
- Zoo Based Wildlife Disease Surveillance
- Sentinel Clinic Wildlife Disease Surveillance
- University Based Wildlife Disease Surveillance

Sentinel Surveillance Program

Targeted surveillance & monitoring

- Avian influenza in wild birds
- Australian bat lyssavirus (ABLV) monitoring

Focus Groups

- Universities Focus Group
- Bat Health Focus Group

Electronic wildlife health information system (eWHIS)

- WHA administers the national database capturing information relating to wildlife health surveillance and disease investigations in Australia.
- More than 20,000 wildlife health events have been reported since the database was established.

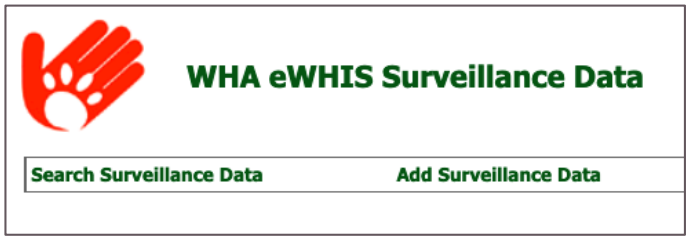
White bellied sea eagle
Photo: Shana Ahmed

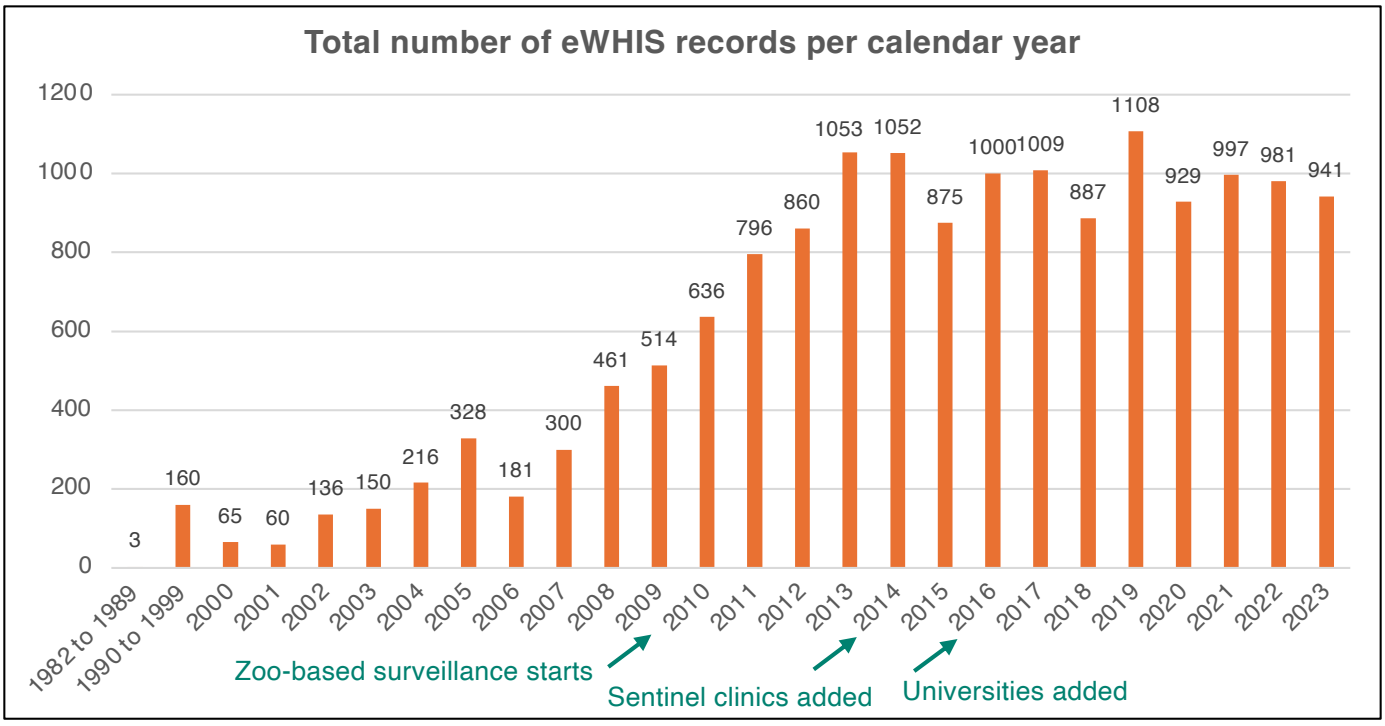
Contributing to the national database - eWHIS

What is eWHIS?

- The electronic Wildlife Health Information System (eWHIS) is the national database capturing information relating to wildlife health surveillance and disease investigations in Australia.
- Program participants select wildlife cases to enter directly into the eWHIS database.
- These entries make a valuable contribution to Australia's wildlife health system and help us build an understanding of current wildlife disease trends and emerging issues.

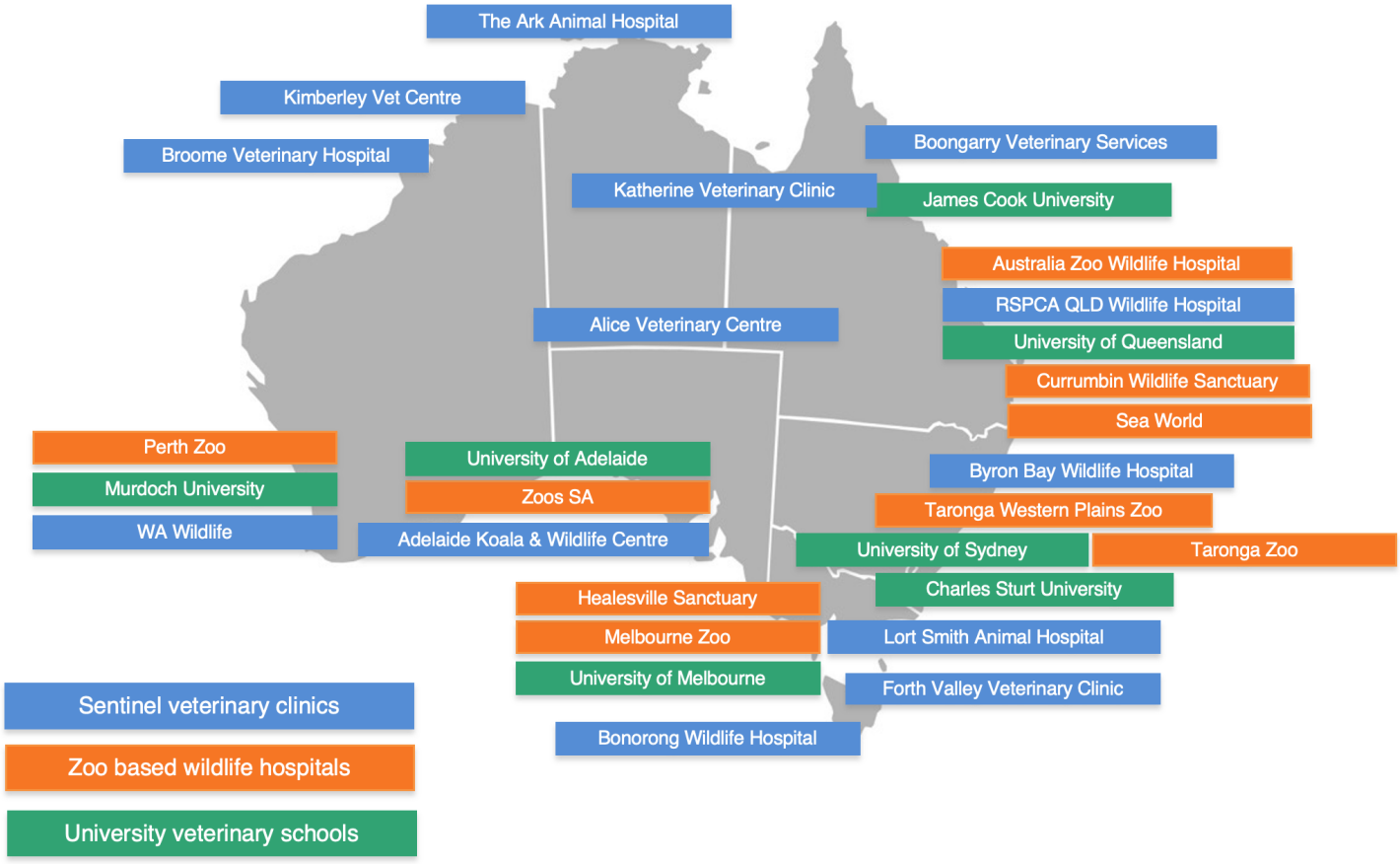
Since the Sentinel Surveillance Program began, more than **5000 events** have been submitted to eWHIS from program participants.





Sentinel Surveillance Program: An Overview

- The wildlife disease Sentinel Surveillance Program grew from the successful **zoo-based** program established in 2010 (Cox-Witton et al. 2014) to include **veterinary clinics** from 2014 and **universities** from 2016.
- The program expanded to include 9 zoos, 10 sentinel clinics and 7 universities by the end of 2023.
- WHA provides **funding** to each clinic or organisation for their participation.
- Sentinel veterinary clinics, zoos & universities enter data and participate in program activities including **quarterly teleconferences** chaired by WHA that provide opportunity for networking, connection and support across Australia.
- The program **improves linkages** between veterinary clinics, zoos, universities and **government agencies**.



*2024 program partners map

2023 - Key achievements and developments

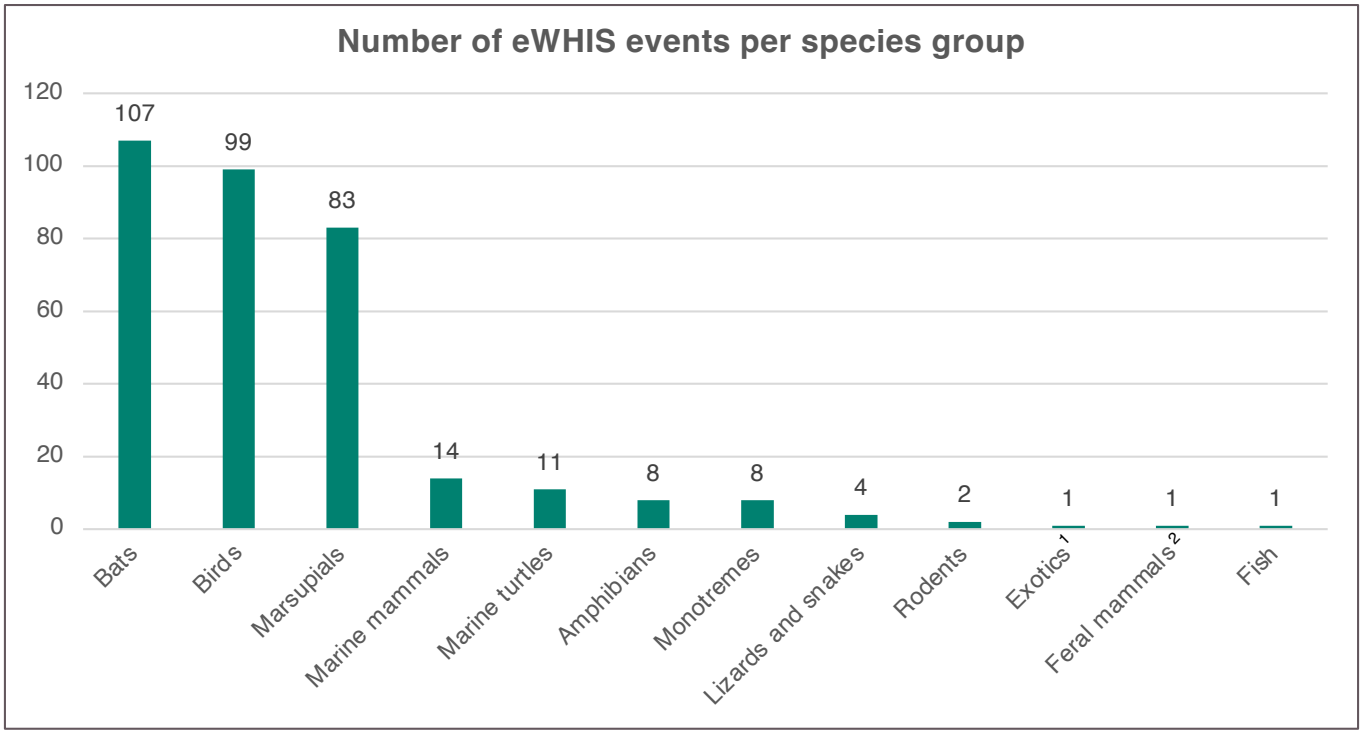
338 events submitted to eWHIS through the program, contributing **36%** of the total eWHIS submissions for the year.
Participants saw more than **67,000** wildlife cases at their clinics.
9 disease investigations from Sentinel Surveillance Program were funded through the NSDI program.
WHA team members visited **8** program partners around the country establishing relationships and building networks.
The geographic range of the program was expanded in northern Australia with the addition of **The Ark Animal Hospital** in Darwin as a new sentinel veterinary clinic.

eWHIS reporting - 2023 Summary

- 338 events were submitted to the eWHIS national database by program participants in 2023.
- Most of the events came from free-ranging wildlife (90%).
- 85% of the eWHIS records submitted by the Sentinel Surveillance Program involved a single animal. There were five events that reported more than 100 animals affected in a single event.

Species:

- Records involving more than 100 different species were submitted to eWHIS.
- Bats were the most frequently reported (see chart below). This is due to the Australian bat lyssavirus (ABLV) monitoring program meaning the majority of bat events are single bats submitted for ABLV testing (see WHA's Bat Stats for more information).



[1] One non-native zoo collection animal.
[2] Feral mammal was a black rat *Rattus rattus.*

eWHIS Reporting 2023: Disease investigations

- Sentinel surveillance program participants undertake disease investigations in-house or through university, private or government laboratories.
- Participants can utilise the **National Significant Disease Investigation Fund**, which supported 9 disease investigations through the program in 2023.

Testing was undertaken to exclude significant diseases including Influenza A, Australian bat lyssavirus, Avian paramyxovirus, Bornavirus and *Salmonella*.

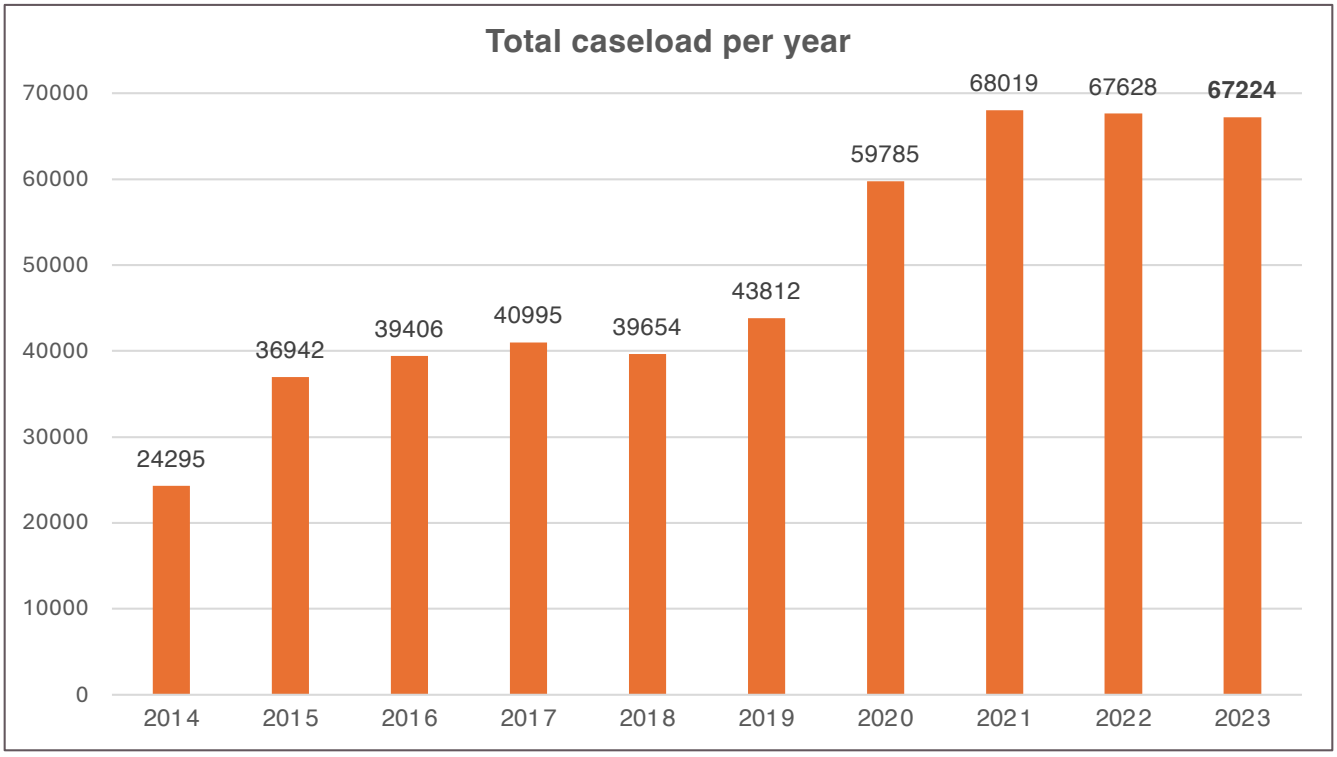
Black flying-fox Photo: Shana Ahmed

Common diagnoses
Botulism
Dermatitis
Sarcoptic mange
Internal parasites
PBFD (Psittacine beak and feather disease)
Chlamydia
Bacterial infection
Trauma

For more information on diseases that can affect Australian wildlife see WHA's Fact Sheets.

Caseload data 2023: Overview

- In addition to submitting wildlife health event information into eWHIS, Sentinel Surveillance Program participants also submit **monthly wildlife caseloads** totaling how many wildlife cases are seen per month by their organisation.
- In 2023 a reported **67,224 wildlife cases** were seen by Sentinel Surveillance Program participant organisations, consistent with the previous two years and showcasing a significant surveillance effort.



Of the wildlife cases seen, a majority were bird species, making up 61% of all cases.

Species group	Total caseload	Percentage of total caseload
Amphibian	177	0.3%
Avian	31044	61.1%
Mammal	15463	30.4%
Reptile	4300	8.5%
Fish	1	0.0%

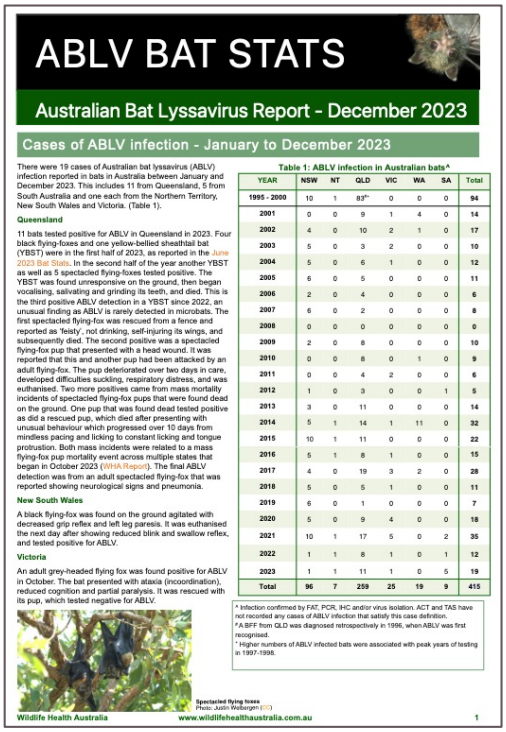
Utilisation of information from the Program

Data ownership:

- Ownership of data in eWHIS remains with the data submitter and WHA Confidentiality Principles & the Data Management Policy apply.
- Data submitters can select the level of confidentiality and access for each individual record.
- WHA seeks approval before release or publication of specific information.

Information is used for:

- **Publications** including Animal Health Surveillance Quarterly, ABLV Bat Stats, Wild Bird News and WHA Fact sheets.
- International **World Organisation for Animal Health** (WOAH) reporting.
- **Annual report** on chemical toxicity events to the APVMA.
- Data to inform **disease outbreak** responses.
- Keeping **government** informed e.g. new disease findings, trading partner queries, risk assessments.
- **Data access requests** for disease risk assessments, research projects, and publications.


ABLV BAT STATS

Australian Bat Lyssavirus Report - December 2023

Cases of ABLV infection - January to December 2023

There were 19 cases of Australian bat lyssavirus (ABLV) infection reported in bats in Australia between January and December 2023. This includes 11 from Queensland, 5 from South Australia and one each from the Northern Territory, New South Wales and Victoria. (Table 1).

Queensland

11 bats tested positive for ABLV in Queensland in 2023. Four black flying-foxes and one yellow-bellied sheathtail bat (YBST) were in the first half of 2023, as reported in the June 2023 Bat Stats. In the second half of the year another YBST as well as 5 spectacled flying-foxes tested positive. The YBST was found unresponsive on the ground, then began vocalising, salivating and grinding its teeth, and died. This is the third positive ABLV detection in a YBST since 2022, an unusual finding as ABLV is rarely detected in microbats. The first spectacled flying-fox was rescued from a fence and reported as 'feisty', not drinking, self-injuring its wings, and subsequently died. The second positive was a spectacled flying-fox pup that presented with a head wound. It was reported that this and another pup had been attacked by an adult flying-fox. The pup deteriorated over two days in care, developed difficulties suckling, respiratory distress, and was euthanised. Two more positives came from mass mortality incidents of spectacled flying-fox pups that were found dead on the ground. One pup that was found dead tested positive as did a rescued pup, which died after presenting with unusual behaviour which progressed over 10 days from mindless pacing and licking to constant licking and tongue protrusion. Both mass incidents were related to a mass flying-fox pup mortality event across multiple states that began in October 2023 (WHA Report). The final ABLV detection was from an adult spectacled flying-fox that was reported showing neurological signs and pneumonia.

New South Wales

A black flying-fox was found on the ground agitated with decreased grip reflex and left leg paresis. It was euthanised the next day after showing reduced blink and swallow reflex, and tested positive for ABLV.

Victoria

An adult grey-headed flying fox was found positive for ABLV in October. The bat presented with ataxia (incoordination), reduced cognition and partial paralysis. It was rescued with its pup, which tested negative for ABLV.

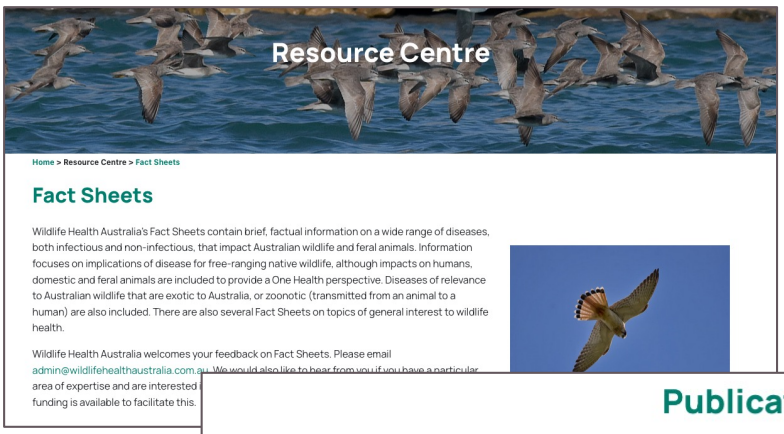
Table 1: ABLV infection in Australian bats^

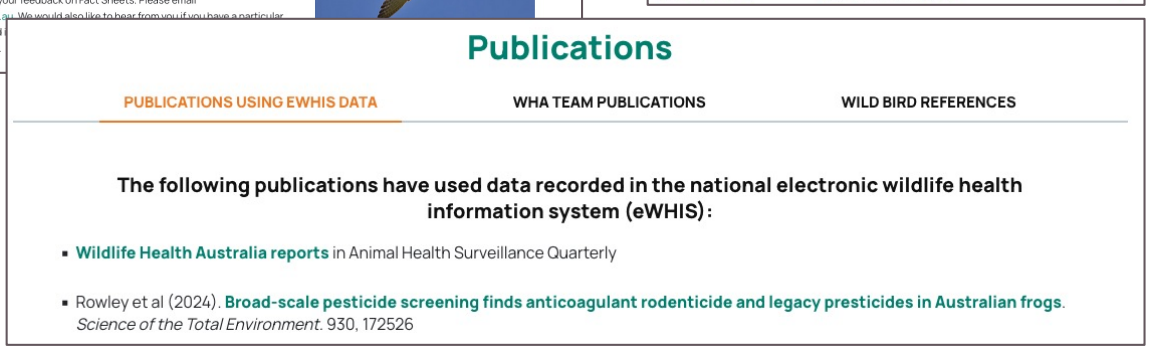
YEAR	NSW	NT	QLD	VIC	WA	SA	Total
1995 - 2000	10	1	83#*	0	0	0	94
2001	0	0	9	1	4	0	14
2002	4	0	10	2	1	0	17
2003	5	0	3	2	0	0	10
2004	5	0	6	1	0	0	12
2005	6	0	5	0	0	0	11
2006	2	0	4	0	0	0	6
2007	6	0	2	0	0	0	8
2008	0	0	0	0	0	0	0
2009	2	0	8	0	0	0	10
2010	0	0	8	0	1	0	9
2011	0	0	4	2	0	0	6
2012	1	0	3	0	0	1	5
2013	3	0	11	0	0	0	14
2014	5	1	14	1	11	0	32
2015	10	1	11	0	0	0	22
2016	5	1	8	1	0	0	15
2017	4	0	19	3	2	0	28
2018	5	0	5	1	0	0	11
2019	6	0	1	0	0	0	7
2020	5	0	9	4	0	0	18
2021	10	1	17	5	0	2	35
2022	1	1	8	1	0	1	12
2023	1	1	11	1	0	5	19
Total	96	7	259	25	19	9	415

^ Infection confirmed by FAT, PCR, IHC and/or virus isolation. ACT and TAS have not recorded any cases of ABLV infection that satisfy this case definition.
# A BFF from QLD was diagnosed retrospectively in 1996, when ABLV was first recognised.
* Higher numbers of ABLV infected bats were associated with peak years of testing in 1997-1998.

Spectacled flying foxes
Photo: Justin Welbergen (CC)

Wildlife Health Australia www.wildlifehealthaustralia.com.au 1




Publications

PUBLICATIONS USING EWHIS DATA | WHA TEAM PUBLICATIONS | WILD BIRD REFERENCES

The following publications have used data recorded in the national electronic wildlife health information system (eWHIS):

- **Wildlife Health Australia reports** in Animal Health Surveillance Quarterly
- Rowley et al (2024). **Broad-scale pesticide screening finds anticoagulant rodenticide and legacy presticides in Australian frogs.** *Science of the Total Environment*. 930, 172526

Further information and links

Reference:

- Cox-Witton K, Reiss A, Woods R, Grillo V, Baker RT, Blyde DJ, et al. (2014) Emerging Infectious Diseases in Free-Ranging Wildlife–Australian Zoo Based Wildlife Hospitals Contribute to National Surveillance. *PLoS ONE* 9(5): e95127. https://doi.org/10.1371/journal.pone.0095127

Other Resources:

- National Significant Disease Investigation Fund: www.wildlifehealthaustralia.com.au/Incidents/Disease-Investigation-Funding
- Sentinel Surveillance Program webpage: https://wildlifehealthaustralia.com.au/Our-Work/Surveillance/Sentinel-Surveillance
- WHA Coordinator contacts: https://wildlifehealthaustralia.com.au/Incidents/WHA-Coordinator-Contacts

WHA thanks all the veterinary clinics, zoos and universities in this program for their tireless work caring for and treating our native wildlife, and their valuable contributions to wildlife health surveillance.

We also thank **Animal Health Australia** for their support of the NSDI funding program and the **Zoo and Aquarium Association** for co-administering the zoo program.

Scan here to visit our website!

Wildlife Health AUSTRALIA