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 protrustion. 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)

South Australia

Four grey-headed flying-foxes tested positive for ABLV in the first half of 2023 as reported in the June 2023 Bat Stats. One additional grey-headed flying fox tested positive in November. The bat was reported as being highly aggressive towards rescuers and was euthanised on suspicion of ABLV. This represents a relatively high number of ABLV infections for South Australia, which recorded a total of 3 infections in 2021 and 2022, and prior to that only one infection in 2012 (Table 1). The more frequent detections are thought to be related to an increase in the flying-fox population at the Adelaide colony, which now has an estimated 50,000 bats.

Northern Territory

One positive ABLV detection was made in NT for 2023, a black flying-fox as reported in the June 2023 Bat Stats.

Human contact

Potentially infectious contact with humans was reported for 3 of the ABLV infected flying-foxes. Clinical advice was provided by an experienced public health official for all cases.

Little forest bat
Photo: Lindy Lumsden

Why are bats submitted for ABLV testing?

Bats are submitted for ABLV testing for a variety of reasons. A common reason is contact between the bat and a person with the potential for ABLV transmission (e.g. a bite or scratch). Bats are also regularly submitted following contact with a pet dog or cat (Figure 1). Bats displaying unusual or aggressive behaviour or other neurological signs may be tested; these signs can occur with ABLV infection but can also be due to a number of other diseases. Bats that show other clinical signs e.g. respiratory signs, bats that die or are euthanased due to trauma, and bats that are found dead may also be submitted for testing.

Figure 1: ABLV tested bats – Contact with people and pets

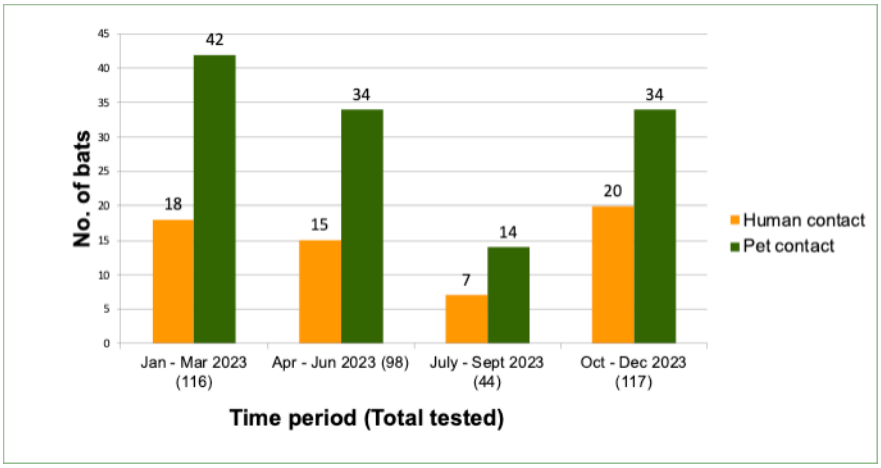


Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,[1] is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing.

If bats had both human and pet contact, they are only reported as human contact in the figure.

ABLV prevalence in bats and public health significance

There are no recent surveys on the prevalence of ABLV infection in wild bats. Surveys of wild-caught bats in the early 2000s indicated an ABLV prevalence in the wild bat population of less than 1%.[2] ABLV infection is more common in sick, injured and orphaned bats, especially those with neurological signs.[3] People are more likely to have contact with bats that are unwell or debilitated, as these bats may be found on or near the ground.[4]

Grey-headed flying foxes
Photo: Shaindlin/ Flickr (CC)

ABLV infection causes a range of clinical signs in bats, which can include abnormal behaviour such as uncharacteristic aggression, paralysis or paresis, and seizures. The behavioural changes may increase the likelihood of a person or pet being bitten or scratched when coming in contact with the bat. The likelihood of a person developing ABLV disease from contact with a bat is influenced by a number of factors including whether the bat was ABLV-infected, the type of contact e.g. bite or scratch, the vaccination status of the person, and whether the person sought medical attention.

ABLV prevalence in bats submitted for testing

Some of the bats that come into contact with people or pets are tested for ABLV. The percentage of ABLV infection in bats submitted for testing is of interest as an indicator of public exposure, however it is also heavily influenced by factors affecting which bats are submitted for testing.

A total of 375 bats were tested for ABLV in Australia between January and December 2023 (Table 2). This is an increase in the number of bats tested compared to the same period in 2022 (255 bats). This is likely related to the mass flying-fox pup mortality event across multiple states that began in October 2023 (WHA Report). There were 19 cases of ABLV infection reported in bats (5.1% of the bats submitted for testing) (Table 3). There were 17 cases in flying-foxes (6.1% of flying-foxes tested), and 2 in a microbat (2.0% of microbats tested). As described above, testing of unwell bats is not representative of the whole bat population; consequently these results over-estimate the level of ABLV infection in the wider bat population.

Table 2: ABLV testing by bat species (Jan - Dec 2023)

Species	No. tested	No. ABLV infected
Flying-foxes, blossom & tube-nosed bats		
Pteropus poliocephalus/Grey-headed Flying-fox	125	6
Pteropus alecto/Black Flying-fox	109	6
Pteropus scapulatus/Little Red Flying-fox	16	0
Pteropus spp.	14	0
Pteropus conspicillatus/Spectacled Flying-fox	13	5
Insectivorous bats (microbats)		
Nyctophilus geoffroyi/Lesser Long-eared Bat	18	0
Chalinolobus gouldii/Gould's Wattled Bat	17	0
Saccolaimus flaviventris/Yellow-bellied Sheathtail Bat	8	2
Macroderma gigas/Ghost Bat	5	0
Vespadelus vulturnus/Little Forest Bat	3	0
Vespertilionidae spp.	3	0
Miniopterus australis/Little Bent-wing Bat	3	0
Nyctophilus spp.	3	0
Nyctophilus arnhemensis/Arnhem Long-eared Bat	2	0
Myotis macropus/Large-footed Bat	2	0
Chalinolobus morio/Chocolate Wattled Bat	1	0
Nyctophilus walkeri/Pygmy Long-eared Bat	1	0
Miniopterus orianae bassani/Southern Bent-wing Bat	1	0
Pipistrellus adamsi/Cape York Pipistrelle	1	0
Rhinolophus megaphyllus/Eastern Horseshoe Bat	1	0
Vespadelus darlingtoni/Large Forest Bat	1	0
Vespadelus regulus/Southern Forest Bat	1	0
Microbat; species not identified	27	0
TOTAL	**375**	**19**

**ABLV Bat Stats* is published twice a year. The June issue presents data from the 6 month period of January to June. The December issue presents 12 months of data for the calendar year.

Little red flying-foxes
Photo: Paislie Hadley/ Flickr (CC)

Eastern Horseshoe Bat
Photo: GB Baker © Australian Museum

Table 3: ABLV infection (%) in bats submitted for testing (Jan - Dec 2023)

	No. tested	No. infected	% infected[+]
Flying-foxes	277	17	6.1%
Microbats	98	2	2.0%
TOTAL	**375**	**19**	**5.1%**

[+] This figure represents the percentage of ABLV infection in the bats tested. The level of ABLV infection in the wider bat population is estimated to be significantly lower.

Bat facts

- **ABLV is a virus** that infects Australian flying-foxes and insectivorous bats.
- **ABLV is closely related to**, but distinct from rabies virus.
- **ABLV can infect people and other mammals with a fatal outcome.** ABLV infection has led to the deaths of three people, two horses and many bats in Australia.
- **Community members should not handle bats.** If you find an injured or sick bat, contact a wildlife rehabilitation organisation or your local veterinarian.
- People trained in the care of bats **should be vaccinated and always use appropriate protection** when interacting with bats.
- **ABLV is transmitted** by the saliva of an infected animal introduced via a bite or scratch, or by contamination of mucous membranes or broken skin. In the event of a bat bite, scratch or other significant contact, **seek medical attention URGENTLY**. **Bite or scratch wounds** should immediately be washed thoroughly with soap and copious water for approximately 15 minutes and a virucidal antiseptic such as an iodine based antiseptic applied.* Bat saliva in the eyes or mouth should be rinsed out immediately and thoroughly with water.
- **For more information** contact your local Public Health agency for advice.
- **ABLV can also be transmitted to other mammals.** Prevent pets and other animals from coming into contact with bats. If an animal might have been bitten or scratched by a bat, **seek urgent veterinary advice.**
- ABLV is a nationally notifiable disease in Australia. **If you suspect a bat is infected with ABLV** contact your department of agriculture or primary industries, or call the Emergency Animal Disease Hotline on 1800 675 888.
- **Where to find more information:** See page 5 & 6.

* Department of Health. Rabies Virus and Other Lyssavirus (including Australian Bat Lyssavirus) Exposures and Infections. CDNA National Guidelines for Public Health Units. Canberra. 2022. Available from https://www.health.gov.au/resources/publications/rabies-and-other-lyssavirus-cdna-national-guidelines-for-public-health-units

Clinical signs of ABLV

An ABLV infected bat may display any of these clinical signs:

- Abnormal behaviour such as excitation / agitation / aggression
- Paralysis or paresis
- Unprovoked attacks
- Unusual vocalisation
- Inability to fly
- Convulsions / seizures / tremors

Apparently healthy bats with normal behaviours may still be infected with ABLV

DO NOT ATTEMPT TO HANDLE an injured, unwell or aggressive bat

REPORT it to your local wildlife service, vet or bat rehabilitation group

Grey-headed flying-fox
Photo: © Akos Lumnitzer

Recent news and publications

Bats and public health: a new communication guide

WHA in collaboration with the Australasian Bat Society have published 'Flying-foxes and Microbats: A Public Health Communication Guide for Government Media Teams'. This guide aims to assist Government agencies to engage with media outlets, and to prepare media releases and other public communication on public health issues relating to Australian bats. While government media teams are the primary audience, the guide may also be a useful resource more broadly.

Communicating the risks of handling bats: analysing approaches used by Australian stakeholders in the context of Australian bat lyssavirus

Liang et al (2023). *Australian Veterinary Journal,* https://doi.org/10.1111/avj.13277

Flying-fox Pup Mortality and Starvation Event

October 2023 WHA Report: Beginning in late October there have been increased reports of flying-fox pup mortalities in multiple states. Pups have been found dead in various locations across NSW and Qld. Wildlife rehabilitators in NSW, Qld, Vic and the ACT have reported sharp increases in the number of pups presenting into care. This event has been reported in the media: ABC News.

Virus detected in South Australian bats [SA]

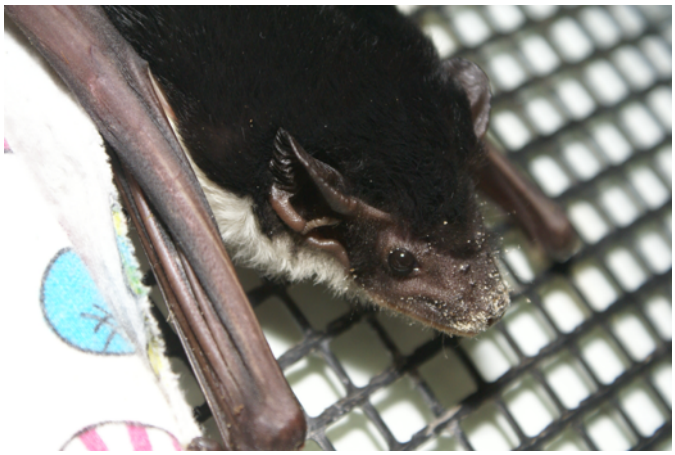
December 2023 SA Health: "South Australians are being reminded not to handle bats to avoid contracting potentially fatal diseases, after Australian Bat Lyssavirus (ABLV) was recently detected in a bat in South Australia…. The positive result identified this week is the fifth detection of ABLV in a bat in South Australia this year, with a total of nine detections since the first in 2012. As the weather warms up, the high temperatures also increase the number of heat-stressed bats and pups falling to the ground…"

Heat wave: Avoid handling distressed bats to protect yourself against lyssavirus [NSW]

December 2023 Hunter New England Local Health District: "Hunter New England Local Health District residents are reminded to avoid handling or touching injured, or dead, wildlife including flying foxes and microbats to protect themselves against infection from viruses including Australian bat lyssavirus which is very dangerous to humans. Dr David Durrheim, Public Health Physician with the Hunter New England Public Health Unit, warned that the forecasted high temperatures coming into the weekend can result in unwell bats that may fall out of trees, prompting people to pick them up or attempt to rescue them…"

Black flying-fox
Photo: Shana Ahmed

Are you interested in bat health?



Yellow bellied sheath-tail bat
Photo: © Tolga Bat Hospital

Wildlife Health Australia collates recent media articles and publications relating to bat health into a monthly **'Bat News'** email. If you would like to receive the monthly email, please contact WHA: admin@wildlifehealthaustralia.com.au

Wildlife Health Australia (WHA)
www.wildlifehealthaustralia.com.au

- Wildlife disease fact sheets, including *Australian Bat Lyssavirus* and *Zoonoses in Australian Bats*
- Links: Useful links to wildlife and animal health organisations and agencies in Australia and overseas

State/Territory departments of agriculture, health and environment

For links to agency websites see:
State/ Territory Australian Bat Lyssavirus Resources

Commonwealth Department of Health and Aged Care

- For current information for medical professionals, see the Series of National Guidelines on Rabies & ABLV: https://www.health.gov.au/resources/publications/rabies-and-other-lyssavirus-cdna-national-guidelines-for-public-health-units
- For vaccination information contact your local or regional Public Health Unit, or see the immunisation handbook: https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/rabies-and-other-lyssaviruses

AUSVETPLAN

For current policy on surveillance and management see AUSVETPLAN - Lyssaviruses:
https://animalhealthaustralia.com.au//wp-content/uploads/dlm_uploads/2021/05/AUSVETPLAN-ResponseStrategy_Lyssaviruses-1.pdf

ABLV BAT STATS

WHA Bat Health Focus Group

This document has been approved by the Wildlife Health Australia (WHA) Bat Health Focus Group. Using a collaborative One Health approach, the Bat Health Focus Group considers bat health issues in relation to the broader context of biosecurity, public health, livestock health and environmental impacts in Australia. Members come from organisations including Australian and State Government departments of agriculture, public health and environment; CSIRO Australian Centre for Disease Preparedness, universities, the Australasian Bat Society and the Australian Speleological Federation. Members include veterinarians, biologists, ecologists, virologists, epidemiologists and wildlife/bat carers.

Information sources

This report presents the latest information on ABLV testing across Australia. Information has been made available by CSIRO Australian Centre for Disease Preparedness, Janine Barrett PhD thesis 2004 (with permission), QLD Health, zoo & wildlife veterinarians, universities, Wildlife Health Australia members, and State/Territory WHA Coordinators (representatives of Chief Veterinary Officers), and is collated by Wildlife Health Australia. More detailed information is available in the electronic Wildlife Health Information System (eWHIS).

References

[1] Young MK & McCall BJ (2010). Potential exposure to Australian bat lyssavirus in South East Queensland: What has changed in 12 years? *Comm Dis Intell,* 34(3), 334-8 www1.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi3403l.htm

[2] Field HE (2005). The Ecology of Hendra virus and Australian bat lyssavirus, PhD thesis, The University of Queensland https://espace.library.uq.edu.au/view/UQ:13859

[3] Barrett J (2004). Australian Bat Lyssavirus, PhD thesis, The University of Queensland https://espace.library.uq.edu.au/view/UQ:9486

[4] McCall B, Field HE, Smith GA, Storie GJ, Harrower BJ (2005). Defining the risk of human exposure to Australian bat lyssavirus through potential non-bat animal infection. *Comm Dis Intell,* 29(2), 200-203 www1.health.gov.au/internet/main/publishing.nsf/Content/cda-cdi2902k.htm

State/Territory WHA Coordinators

Contact your state/territory department of primary industries/agriculture or WHA Coordinator for more information on ABLV testing, or to report a suspected ABLV infected bat.

STATE	CONTACT	PHONE	EMAIL
ACT	Kyeelee Driver	(02) 6207 2357	kyeelee.driver@act.gov.au
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