

ABLV BAT STATS



Australian Bat Lyssavirus Report - June 2020

Cases of ABLV infection - January to June 2020

Ten cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and June 2020, four from New South Wales, four from Victoria and two from Queensland (Table 1). These cases are described below.

New South Wales

Three grey-headed flying-foxes (*Pteropus poliocephalus*) and an unspecified flying-fox (*Pteropus* sp.) from the south coast, Sydney and northern rivers regions of NSW were found to be infected with ABLV in the first half of 2020. All four presented with neurological signs. One bat was found hanging low in a tree, then fell and showed jerking movements and head tremors. The others presented with various signs such as twitching, shaking, biting, change in voice and weakness in the legs.

Victoria

Four grey-headed flying-foxes from the Melbourne region were found to be infected with ABLV from January to June. One presented with neurological signs and died in transit. Two were found on the ground, and one was found with a broken foot.

(continued overleaf)



Little red flying-foxes
Photo: Rex Walters / Flickr ([CC](#))

Table 1: ABLV infection in Australian bats as confirmed by FAT, PCR, IHC and/or virus isolation[^]

YEAR	NSW	NT	QLD	VIC	WA	SA	Total
1995	0	0	1 [#]	0	0	0	1
1996	1	0	9	1	0	0	11
1997	7	1	27 ⁺	0	0	0	35
1998	1	0	26 ⁺	0	0	0	27
1999	0	0	6	0	0	0	6
2000	1	0	14	0	0	0	15
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 ^a	0	0	0	10
2010	0	0	8	0	1	0	9
2011	0	0	4 ^a	2	0	0	6
2012	1	0	3	0	0	1	5
2013	3 ^a	0	11 ^a	0	0	0	14
2014	5	1	14 ^a	1	11 ^a	0	32 ^a
2015	10	1	11 ^a	0	0	0	22
2016	5	1	8 ^a	1	0	0	15 ^a
2017	4 ^a	0	19 ^a	3	2	0	28 ^a
2018	5	0	5 ^a	1	0	0	11 ^a
2019	6 ^a	0	1 ^a	0	0	0	7 ^a
2020 (to June)	4	0	2 ^a	4	0	0	10 ^a
Total	83^a	4	216^a	19	19^a	1	342^a

Source: see page 6, 'Australian Bat Lyssavirus Report'.

[^] ACT and TAS have not recorded any cases of ABLV infection that satisfy this case definition.

[#] ABLV was first recognised in 1996. A black flying-fox from Townsville, QLD that died in 1995 was subsequently diagnosed with ABLV.

⁺ Higher numbers of ABLV infected bats were associated with peak years of testing in 1997-1998.

^a For some bats, one equivocal and one negative result (FAT/PCR) was recorded. These bats are not included in these figures as they were not confirmed to be ABLV infected.

Queensland

In the first half of the year, an unspecified flying-fox (*Pteropus* sp.) and a grey-headed flying-fox from central and south-east Queensland, respectively, were found to be infected with ABLV. One was submitted for testing after contact with pet dogs; the other was a pup in care that became aggressive, uncoordinated and unwell.

Human contact

Potentially infectious contact with humans was reported for one of the ABLV infected flying-foxes reported. In this case clinical advice was provided by an experienced public health official.



Gould's long-eared bat Photo: Museums Victoria / Flickr (CC)

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

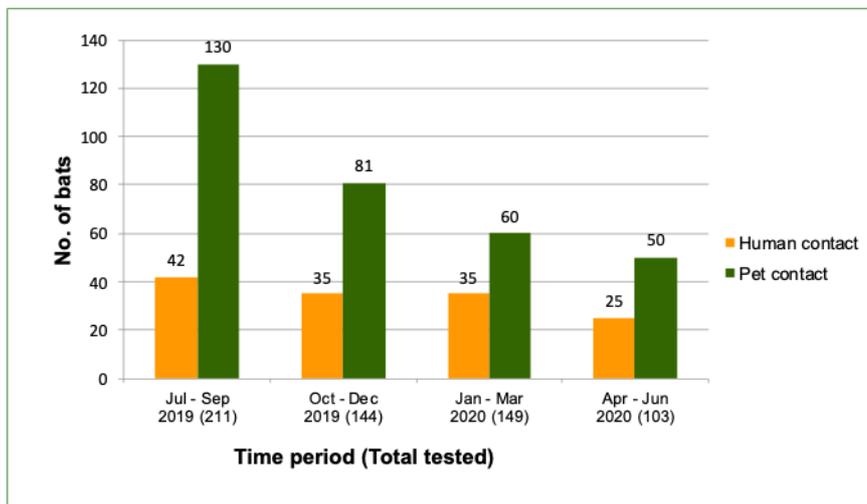
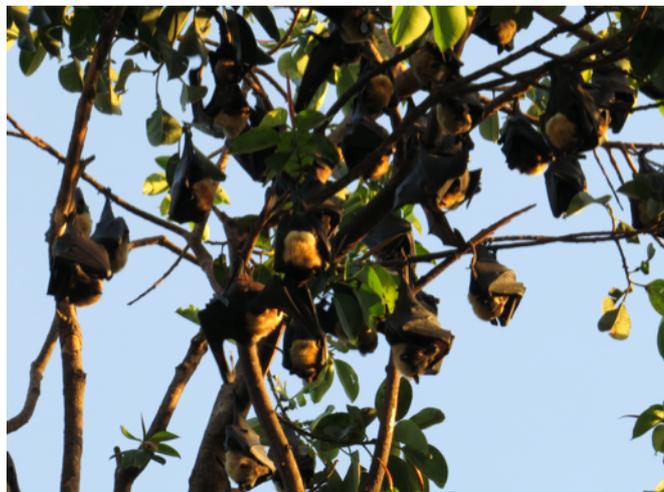


Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,¹ is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing. Some of the bats that had human contact also had contact with a pet (not shown in the graph).

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



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.⁵ 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.

Spectacled flying-foxes Photo: Donald Hobern / Flickr (CC)

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 252 bats were tested for ABLV in Australia between January and June 2020 (Table 2). Ten cases of ABLV infection were reported in bats (4.0% of the bats submitted for testing) (Table 3). 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.

The number of bats submitted for ABLV testing appears to be returning to normal after an unusually high number of submissions in 2019, which was believed to be due to starvation, heat stress and bushfires resulting in large numbers of sick and weak bats. Similarly, the proportion of tested bats infected with ABLV has returned to the usual range for the first half of 2020, compared to a lower than normal level in 2019.

Table 2: ABLV testing by bat species (Jan - Jun 2020)

Species	No. tested	No. ABLV infected
Flying-foxes, blossom & tube-nosed bats		
<i>Pteropus poliocephalus</i> /Grey-headed flying-fox	115	8
<i>Pteropus alecto</i> /Black flying-fox	62	0
<i>Pteropus scapulatus</i> /Little red flying-fox	13	0
<i>Pteropus</i> sp.	16	2
Insectivorous bats (microbats)		
<i>Chalinolobus gouldii</i> /Gould's wattled bat	8	0
<i>Nyctophilus geoffroyi</i> /Lesser long-eared bat	4	0
<i>Chalinolobus morio</i> /Chocolate wattled bat	3	0
<i>Molossidae</i> sp.	2	0
<i>Nyctophilus walkeri</i> /Pygmy long-eared bat	2	0
<i>Vespertilionidae</i> sp.	2	0
<i>Rhinolophus megaphyllus</i> /Eastern horseshoe bat	1	0
<i>Vespadelus regulus</i> /Southern forest bat	1	0
<i>Vespadelus darlingtoni</i> /Large forest bat	1	0
<i>Miniopterus</i> sp.	1	0
<i>Vespadelus vulturnus</i> /Little forest bat	1	0
<i>Chalinolobus</i> /Chalinolobus	1	0
<i>Nyctophilus</i> /Nyctophilus	1	0
<i>Ozimops planiceps</i> /South-eastern free-tailed bat	1	0
Microbat; species not identified	17	0
TOTAL	252	10



Little red flying-fox Photo: Geoff Whalan/ Flickr ([CC](#))



Common bent-wing bat
G.B. Baker/Nature Focus © Australian Museum

Table 3: ABLV infection (%) in bats submitted for testing (Jan-Jun 2020)

	No. tested	No. infected*	% infected*
Flying-foxes, blossom & tube-nosed bats	206	10	4.9%
Microbats	46	0	0%
TOTAL	252	10	4.0%

* 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.

† In one bat there was an equivocal FAT or PCR result. This bat is not included in these figures as it was not confirmed to be ABLV infected.

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 care 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 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.**
- ✿ **If you suspect a bat is infected** with ABLV contact your biosecurity authority (department of agriculture or primary industries) for advice about testing.
- ✿ **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. 2014. Available from www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm

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 CARER GROUP



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

Recent news and publications

An unprecedented cluster of Australian bat lyssavirus in *Pteropus conspicillatus* indicates pre-flight flying fox pups are at risk of mass infection

Barrett J et al (2020). *Zoonoses and Public Health*, 67(4), 435-442
<https://onlinelibrary.wiley.com/doi/abs/10.1111/zph.12703>

Seroprevalence of three paramyxoviruses; Hendra virus, Tioman virus, Cedar virus and a rhabdovirus, Australian bat lyssavirus, in a range expanding fruit bat, the Grey-headed flying fox (*Pteropus poliocephalus*)

Boardman WSJ et al (2020). *PLoS ONE*, 15(5): e0232339
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0232339>

Abstract: "Habitat-mediated global change is driving shifts in species' distributions which can alter the spatial risks associated with emerging zoonotic pathogens.... Over three years, we investigated the seroepidemiology of paramyxoviruses and Australian bat lyssavirus in a range-expanding fruit bat, the Grey-headed flying fox (*Pteropus poliocephalus*), in a new camp in Adelaide, South Australia... Unexpectedly, all sera were negative for Australian bat lyssavirus..."

Media release: 11/05/2020 [The University of Adelaide](#):
Flying foxes in SA exposed to zoonotic viruses

Canberra hailstorm leaves more than 300 bats dead in Commonwealth Park

21/01/2020 [The Canberra Times](#): "ACT Wildlife president Marg Peachey said volunteers from the group had found 322 bats that had died or needed to be euthanised after the destructive storm. Volunteers worked for seven hours on Monday to treat injured bats that had fallen from trees or had been pelted by hailstones..."

Bushfires & extreme heat during summer - selection of media

7/01/2020 [National Geographic](#): Flying foxes are dying en masse in Australia's extreme heat

7/01/2020 [The Northern Daily Leader](#): Tamworth flying fox numbers dwindle as the heat soars

8/01/2020 [The Grenfell Record](#): Local flying fox colonies threatened with rising temperatures and fires [NSW]

20/01/2020 [The Western Weekender](#): "Hot conditions spark spike in flying fox deaths [Western Sydney]"

Are you interested in bat health?



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

Grey-headed flying-fox Photo: TheB@t / Flickr (CC)

Where to find information

Wildlife Health Australia (WHA)

www.wildlifehealthaustralia.com.au

- **Wildlife disease fact sheets**, including *Australian Bat Lyssavirus* and *Zoonoses in Australian Bats*
- **Resources**: News and information on specific diseases and hosts
- **Links**: Useful links to wildlife and animal health organisations and agencies in Australia and overseas

State/Territory departments of agriculture, health and environment

Visit the agency websites, or see WHA Resources for a summary of available information & links:

[Queensland >>](#)

[New South Wales & ACT >>](#)

[Victoria >>](#)

[South Australia, Western Australia & Northern Territory >>](#)

Commonwealth Department of Health

- For current Department of Health information for medical professionals, see the Series of National Guidelines on Rabies & ABLV: www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm
- For **vaccination** information contact your local or regional Public Health Unit, or see the immunisation handbook: <https://immunisationhandbook.health.gov.au>

AUSVETPLAN

For current policy on surveillance and management consult AUSVETPLAN: <https://www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents/>

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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 Animal Health Laboratory, universities, the Australasian Bat Society and the Australian Speleological Federation. Members include veterinarians, biologists, ecologists, virologists, epidemiologists and wildlife/bat carers.

For further information please contact WHA on admin@wildlifehealthaustralia.com.au

Australian Bat Lyssavirus Report

This report presents the latest information on Australian bat lyssavirus (ABLV) testing across Australia. Information has been made available by CSIRO Australian Animal Health Laboratory, 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):

www.wildlifehealthaustralia.com.au

References

- ¹ Young MK & McCall BJ (2010). Potential exposure to Australian bat lyssavirus in South East Queensland: What has changed in 12 years? *Communicable Diseases Intelligence*, 34(3), 334-8
- ² Field HE (2005). "The Ecology of Hendra virus and Australian bat lyssavirus", PhD thesis, The University of Queensland
- ³ Barrett J (2004). "Australian Bat Lyssavirus", PhD thesis, The University of Queensland
- 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. *Communicable Diseases Intelligence*, 29(2), 200-203
- ⁵ Animal Health Australia (2009). Disease strategy: Australian bat lyssavirus (Version 3.0). Australian Veterinary Emergency Plan (AUSVETPLAN), Edition 3, Primary Industries Ministerial Council, Canberra, ACT

State/Territory WHA Coordinators

If you would like information on ABLV testing or wish to report a suspected ABLV infected bat please contact your State/Territory Department of Primary Industries/Agriculture or local WHA Coordinator (below).

STATE	CONTACT	PHONE	EMAIL
ACT	Wendy Townsend	(02) 6205 3737	wendy.townsend@act.gov.au
NSW	Claire Harrison	(02) 6391 3490	claire.harrison@dpi.nsw.gov.au
NT	Cathy Shilton	(08) 8999 2122	cathy.shilton@nt.gov.au
QLD	Anita Gordon	(07) 3708 8756	anita.gordon@daf.qld.gov.au
SA	Allison Crawley	(08) 8429 0866	Allison.Crawley@sa.gov.au
TAS	Annie Philips	(03) 6165 4549	annie.philips@dpipwe.tas.gov.au
VIC	Mark Hawes	(03) 9032 7275	Mark.Hawes@agriculture.vic.gov.au
WA	Hennie Swanepoel	(08) 9368 3076	Hennie.Swanepoel@dpird.wa.gov.au



Wildlife Health Australia

Suite E, 34 Suakin Drive, Mosman NSW 2088
Phone: (02) 9960 6333 Fax: (02) 9960 3386
email: admin@wildlifehealthaustralia.com.au
www.wildlifehealthaustralia.com.au