

ABLV BAT STATS



Australian Bat Lyssavirus Report - December 2018

Cases of ABLV infection - January to December 2018

Eleven cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and December 2018, from Queensland, New South Wales and Victoria (Table 1). These cases are described below.

Queensland

Three black flying-foxes (*Pteropus alecto*) from South East Queensland were found to be infected with ABLV in the first half of 2018 (see *ABLV Bat Stats* June 2018). In October, a little red flying-fox (*P. scapulatus*) from southern Qld showed neurological signs including incoordination, tremors and a change in vocalisation described as a “throaty growl”. In November a black flying-fox from the Sunshine Coast region was found on the ground, moribund and emaciated, with partial paralysis.

New South Wales

ABLV infection in a little red flying-fox from north-eastern NSW was reported in *ABLV Bat Stats* June 2018. In the second half of the year, four grey-headed flying-foxes (*P. poliocephalus*) from the Hunter/mid-north coast regions were found to be infected with ABLV, all showing neurological signs.

(Continued overleaf)



Black flying-foxes Photo: Bernard Dupont / 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
Total	73^a	4	213^a	15	19	1	325^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.

One flying-fox was found on the ground and could crawl, but could not fly or climb. It was extremely aggressive on examination, developed abnormal vocalisation (guttural and 'clucking'), twitching, involuntary movements and incoordination, and died overnight. Another was found on the ground near a dead flying-fox, was depressed and died. One was found hanging low on a fence, was unresponsive and unwilling to hang, and had nerve twitching and progressive paralysis. Another had been hand-raised in care for 6 weeks when it became very aggressive, refused to eat or drink and became progressively weaker.



Chocolate wattled bat Photo: Patrick Kavanagh / Flickr (CC)

Victoria

ABLV infection in a grey-headed flying-fox from Victoria was described in *ABLV Bat Stats* June 2018. There were none in the second half of 2018.

Human contact

Potentially infectious contact with humans was reported for 5 of the 11 ABLV infected flying-foxes reported in 2018. In each case clinical advice was provided by an experienced public health official.

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

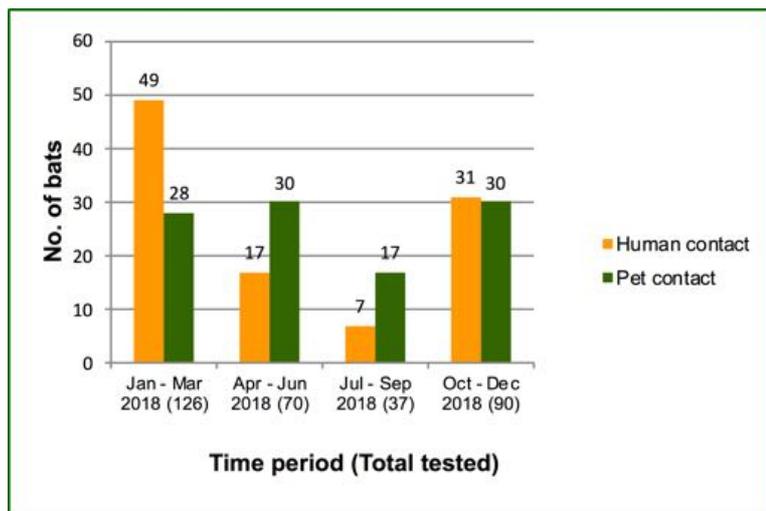


Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,¹ is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing. Some of the bats that had human contact also had contact with a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

ABLV prevalence in bats and public health significance

There are no recent surveys on the prevalence of ABLV 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: paislie/Pixabay

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 323 bats were tested for ABLV in Australia between January and December 2018 (Table 2)*. This includes 21 insectivorous bats submitted by bat carers as part of an ongoing surveillance project conducted by the Queensland Department of Agriculture and Fisheries. Eleven cases of ABLV infection were reported in bats (3.4% 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 overestimate the level of ABLV infection in the wider bat population.

Table 2: ABLV testing by bat species (Jan - Dec 2018)

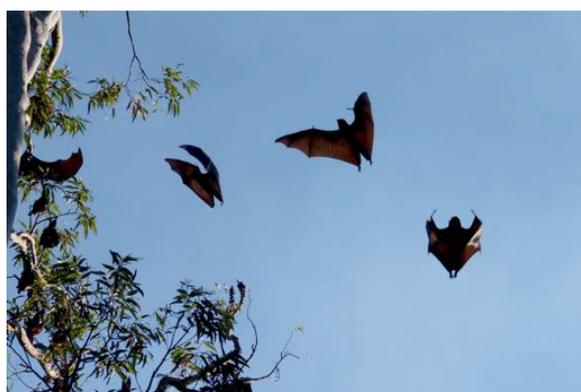
Species	No. tested	No. ABLV infected
Flying-foxes		
<i>Pteropus alecto</i> /Black flying-fox	89	4
<i>Pteropus poliocephalus</i> /Grey-headed flying-fox	79	5
<i>Pteropus scapulatus</i> /Little red flying-fox	13	2
<i>Pteropus conspicillatus</i> /Spectacled flying-fox	6	0
<i>Pteropus</i> sp.	47	0
Insectivorous bats (microbats)		
<i>Vespertilionidae</i> sp.	8	0
<i>Chalinolobus gouldii</i> /Gould's wattled bat	7	0
<i>Nyctophilus geoffroyi</i> /Lesser long-eared bat	6	0
<i>Scotorepens greyii</i> /Little broad-nosed bat	5	0
<i>Chalinolobus morio</i> /Chocolate wattled bat	4	0
<i>Scotorepens</i> sp.	4	0
<i>Scotorepens orion</i> /South-eastern broad-nosed bat	3	0
<i>Macroderma gigas</i> /Ghost bat	2	0
<i>Miniopterus australis</i> /Little bent-wing bat	2	0
<i>Ozimops ridei</i> /Ride's free-tailed bat	2	0
<i>Nyctophilus gouldi</i> /Gould's long-eared bat	2	0
<i>Rhinolophus megaphyllus</i> /Eastern horseshoe bat	2	0
<i>Rhinonicteris aurantia</i> /Orange leaf-nosed bat	2	0
<i>Austronomus australis</i> /White-striped freetail bat	2	0
<i>Chalinolobus</i> sp.	1	0
<i>Nyctophilus bifax</i> /Eastern long-eared bat	1	0
<i>Mormopterus/Ozimops</i> sp.	1	0
<i>Pipistrellus</i> sp.	1	0
<i>Rhinolophus ferrumequinum</i> /Greater horseshoe bat	1	0
<i>Vespadelus regulus</i> /Southern forest bat	1	0
<i>Saccolaimus flaviventris</i> /Yellow-bellied sheath-tail bat	1	0
Microbat; species not identified	31	0
TOTAL	323	11

In addition, 213 oral swabs from live bats were tested for ABLV for research purposes between September 2015 and March 2017, and retrospectively reported. All tested negative.⁶ Testing of live bats is not reliable for ruling out ABLV infection.



Gould's long-eared bat Photo: Jan Tilden / Flickr (CC)

* *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.



Flying-foxes
Photo: Gail Hampshire / Flickr (CC)

Table 3: ABLV infection (%) in bats submitted for testing (Jan - Dec 2018)

	No. tested	No. infected ⁺	% infected [*]
Flying-foxes	234	11	4.7%
Microbats	89	0	0%
TOTAL	323	11	3.4%

* 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 six bats there was one equivocal and one negative result (FAT/PCR). These bats are not included in these figures as they were 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 5 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



Flying-foxes Photo: Matt Jones / Flickr ([CC](https://creativecommons.org/licenses/by/4.0/))

Recent news and publications

Heat stress events in flying-foxes

In December there were reports of very severe heat stress events in flying-fox camps in Qld, NSW, SA, ACT and Victoria. As well as the significant impact on flying-foxes, these events can result in increased contact between flying-foxes and people, and more bats submitted for ABLV testing. For example, NSW Health - Hunter New England Local Health District issued an alert: "Avoid infection: Do not handle bats"

<http://www.hnehealth.nsw.gov.au/News/Pages/M19-002.aspx>

For alerts, sign up to the [Flying-fox Heat Stress Forecaster](#).

NSW Zoonoses Annual Report 2017 - ABLV (published Sep 2018)

NSW Health: "A zoonosis is any disease or infection that is naturally transmissible from vertebrate animals to humans... This report focuses on notifications of selected zoonoses in humans to NSW public health authorities, animal health events investigated in collaboration with the NSW Department of Primary Industries, and post-exposure treatments delivered for the prevention of Australian Bat Lyssavirus."

<https://www.health.nsw.gov.au/Infectious/reports/Pages/zoonoses-reports.aspx>

"Rabies and other lyssaviruses (including Australian Bat Lyssavirus)": page 8-9

ABLV in "Animal health events notified to NSW Health": page 11

ABLV - Qld report in Animal Health Surveillance Quarterly

The Queensland state report in *Animal Health Surveillance Quarterly* (Vol 22, Issue 4) includes an article on two clusters of ABLV infection in spectacled flying-fox pups in the Douglas and Tablelands regions (p28) <http://www.sciquest.org.nz/node/143099>

Conservation values and risk of handling bats: implications for One Health communication

Crockford CN et al (2018). Conservation values and risk of handling bats: implications for One Health communication. *EcoHealth*, 15(3), 682-7 <https://link.springer.com/article/10.1007/s10393-018-1356-z>

Establishing research priorities to improve the One Health efficacy of Australian general practitioners and veterinarians with regard to zoonoses: A modified Delphi survey

Steele SG et al (2018). Establishing research priorities to improve the One Health efficacy of Australian general practitioners and veterinarians with regard to zoonoses: A modified Delphi survey. *One Health*, 6, 7-15 <https://www.sciencedirect.com/science/article/pii/S2352771418300235>

Assessment of a rabies virus rapid diagnostic test for the detection of Australian bat lyssavirus

Certoma A et al (2018). Assessment of a rabies virus rapid diagnostic test for the detection of Australian bat lyssavirus. *Tropical Medicine and Infectious Diseases*, 3(4), 109 <https://www.mdpi.com/2414-6366/3/4/109>

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 ABLV and *Zoonoses (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: <http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>

AUSVETPLAN

For current policy on surveillance and management consult AUSVETPLAN: <https://www.animalhealthaustralia.com.au/>

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 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, Wildlife Health Australia subscribers, zoo & wildlife veterinarians, 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
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- 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
- ⁶ Holz PH, Lumsden LF, Druce J, Legione AR, Vaz P, Devlin JM, Hufschmid J (2005). Virus survey in populations of two subspecies of bent-winged bats (*Miniopterus orianae bassanii* and *oceanensis*) in south-eastern Australia reveals a high prevalence of diverse herpesviruses. *PLoS One*, 13(5): e0197625

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
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