

# ABLV BAT STATS



## Australian Bat Lyssavirus Report - December 2016

### Cases of ABLV infection - January to December 2016

Fifteen cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and December 2016, from Queensland, New South Wales, the Northern Territory and Victoria (Table 1).

#### Queensland

Five black flying-foxes (*Pteropus alecto*), two little red flying-foxes (*P. scapulatus*) and one spectacled flying-fox (*P. conspicillatus*) from Queensland were found to be infected with ABLV in 2016. In four bats, neurological signs were reported such as tremors, nystagmus and paresis, as well as changes in behaviour (marked aggression in one case, and subdued and easy to handle in another). Increased respiratory rate and effort were additionally reported in one bat. The other four bats were submitted due to potentially infectious contact with a person or pet.

Where further investigation was conducted, histopathological findings included mild to severe non-suppurative meningoencephalitis, ganglioneuritis, subacute aspiration pneumonia and mild sialoadenitis. In one bat the urinary bladder was markedly distended with urine and the bladder wall was haemorrhagic, and there was mild subcutaneous bruising over the lumbar spine.

#### New South Wales

Five flying-foxes from NSW were found to be infected with ABLV. Two grey-headed flying-foxes (*P. poliocephalus*), a little red flying-fox and an unidentified flying-fox (*Pteropus* sp.) presented with neurological signs including seizures and weakness, and/or change in behaviour (aggression, agitation, manic behaviour, constant vocalisation). One of these was a juvenile rescued from a region where other ABLV infected bats had been found, and had been in care for a period before signs were observed. The other flying-fox was injured and had contact with a person.



Spectacled flying-fox Photo: Jurgen Otto / Flickr (CC)

**Table 1: ABLV infection in Australian bats as confirmed by FAT, PCR, IHC and/or virus isolation<sup>A</sup>**

YEAR	NSW	NT	QLD	VIC	WA	SA	Total
1995	0	0	1 <sup>#</sup>	0	0	0	1
1996	1	0	9	1	0	0	11
1997	7	1	27 <sup>+</sup>	0	0	0	35
1998	1	0	26 <sup>+</sup>	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	6	0	3	2	0	0	11
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 <sup>a</sup>	0	0	0	10
2010	0	0	8	0	1	0	9
2011	0	0	4 <sup>a</sup>	2	0	0	6
2012	1	0	3	0	0	1	5
2013	3 <sup>a</sup>	0	11 <sup>a</sup>	0	0	0	14
2014	5	1	14 <sup>a</sup>	1	11 <sup>a</sup>	0	32 <sup>a</sup>
2015	10	1	11 <sup>a</sup>	0	0	0	22
2016	5	1	8 <sup>a</sup>	1	0	0	15 <sup>a</sup>
<b>Total</b>	<b>65<sup>a</sup></b>	<b>4</b>	<b>189<sup>a</sup></b>	<b>11</b>	<b>17</b>	<b>1</b>	<b>287<sup>a</sup></b>

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

<sup>A</sup> ACT and TAS have not recorded any cases of ABLV infection that satisfy this case definition.

<sup>#</sup> ABLV was first recognised in 1996. A black flying-fox from Townsville, QLD that died in 1995 was subsequently diagnosed with ABLV.

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

<sup>a</sup> 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.

## Victoria

One adult male grey-headed flying-fox from Victoria, which was found under a car, was treated at a veterinary hospital but did not recover as expected. Head trauma was suspected and the bat was euthanased due to poor prognosis. The bat was tested and found to be infected with ABLV.

## Northern Territory

One black flying-fox from the Northern Territory was found to be infected with ABLV in December 2016. This is only the fourth time that an ABLV-infected bat has been detected in the Northern Territory. The flying-fox had been seen in a backyard for a few days and then fell to the ground, where a pet dog may have been exposed.

## Human contact

Potentially infectious contact with humans was reported for six ABLV infected flying-foxes. In each case appropriate counselling and information were provided by an experienced public health official.

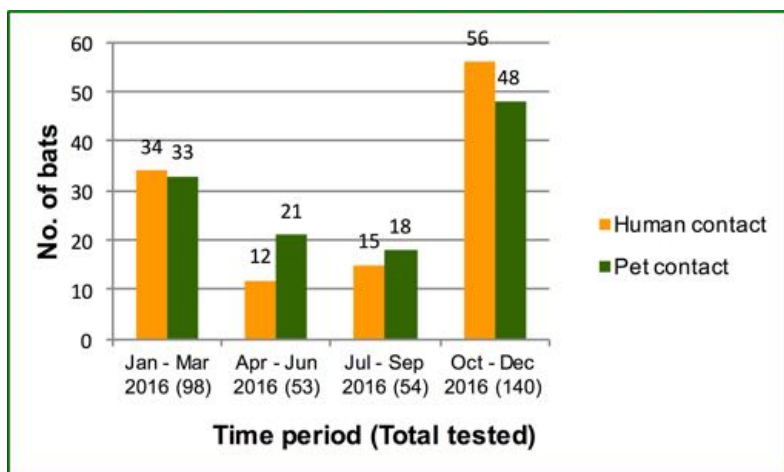


Grey-headed flying-fox Photo: Nicholas Tapson / flickr (CC)

## 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



The increase in the number of bats submitted due to human or animal contact towards the end of the year may have been associated with a mortality event in flying-foxes in the eastern states, which involved abandonment of flying-fox pups and unusual flying and foraging patterns in adults, leading to increased cases of misadventure.<sup>1,2</sup>

Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,<sup>3</sup> 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%.<sup>4</sup> ABLV infection is more common in sick, injured and orphaned bats, especially those with neurological signs.<sup>5</sup> 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.<sup>6</sup>



Eastern horseshoe bat Photo: G Baker © Australian Museum

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.<sup>7</sup> 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, and the vaccination status of the person.

## 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 345 bats were tested for ABLV in Australia between January and December 2016 (Table 2). Fifteen cases of ABLV infection were reported in bats (4.3% 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.

**Table 2: ABLV testing by bat species (Jan - Dec 2016)**

Species	No. tested	No. ABLV infected
<b>Flying-foxes &amp; blossom bats</b>		
Grey-headed flying-fox ( <i>Pteropus poliocephalus</i> )	110	3
Black flying-fox ( <i>Pteropus alecto</i> )	89	6
Little red flying-fox ( <i>Pteropus scapulatus</i> )	36	3
Flying-fox ( <i>Pteropus</i> sp.); species not identified	28	2
Spectacled flying-fox ( <i>Pteropus conspicillatus</i> )	5	1
Eastern tube-nosed bat ( <i>Nyctimene robinsoni</i> )	1	0
Blossom bat ( <i>Syconycteris australis</i> )	1	0
<b>Insectivorous bats (microbats)</b>		
Lesser long-eared bat ( <i>Nyctophilus geoffroyi</i> )	9	0
Little forest bat ( <i>Vespadelus vulturnus</i> )	7	0
Gould's wattled bat ( <i>Chalinolobus gouldii</i> )	5	0
Large forest bat ( <i>Vespadelus darlingtoni</i> )	2	0
Chocolate wattled bat ( <i>Chalinolobus morio</i> )	2	0
Eastern long-eared bat ( <i>Nyctophilus bifax</i> )	2	0
Arnhem long-eared bat ( <i>Nyctophilus arnhemensis</i> )	2	0
Gould's long-eared bat ( <i>Nyctophilus gouldi</i> )	2	0
Ghost bat ( <i>Macroderma gigas</i> )	2	0
<i>Scotorepens</i> sp.	2	0
Northern free-tailed bat ( <i>Mormopterus lumsdenae</i> )	1	0
<i>Mormopterus</i> sp.	1	0
Microbat; species not identified	34	0
Bat - unidentified	4	0
<b>TOTAL</b>	<b>345</b>	<b>15</b>



**Grey-headed flying-fox**  
Photo: Paisley Hadley / Flickr ([CC](#))

**Table 3: ABLV infection (%) in bats submitted for testing (Jan - Dec 2016)**



**Eastern bent-winged bat**  
Photo: R & A Williams © Australian Museum

	No. tested	No. infected	% infected*
Flying-foxes & blossom bats	270	15	5.6%
Microbats	71	0	0%
Bats - unidentified	4	0	0%
<b>TOTAL</b>	<b>345</b>	<b>15</b>	<b>4.3%</b>

\* 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 three 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](http://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**



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

## Recent news and publications

### Wildlife Health Australia ABLV fact sheet updated

Wildlife Health Australia's fact sheet on Australian bat lyssavirus has had a major update. The fact sheet can be downloaded from the [WHA Fact Sheet page](#) (click on the 'Mammals' tab), along with 120 others on a range of wildlife diseases.

### Potential exposures to Australian bat lyssavirus notified in Queensland, Australia

Si D et al (2016). Potential exposures to Australian bat lyssavirus notified in Queensland, Australia, 2009–2014. *PLoS Neglected Tropical Diseases*, 10(12): e0005227 <http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0005227> [Open access]

Author summary: "Australian bat lyssavirus (ABLV), closely related to classic rabies virus, is widely distributed in bats in Australia.... Based on notification data for potential exposures to ABLV in Queensland, we found that intentional handling of bats by the general public was the major cause of bat-related injuries; for example, people reported attempting to rescue bats caught in barbed wire fences or fruit tree netting, or attempting to remove bats from a home. This highlights a need to address the strong motivation of some members of the public to help injured bats or bats in distress and the lack of awareness of the risks of contact with or handling of bats, underscoring the importance of avoidance of bat handling by contacting vaccinated, experienced, and well-equipped professional animal rescue groups to deal with bats..."

### NSW Zoonoses Report 2015 - ABLV (published July 2016)

11/03/2016 The Advertiser

<http://www.health.nsw.gov.au/Infectious/reports/Pages/zoonoses-reports.aspx> ('Rabies and other lyssaviruses (including ABLV)' - page 8)

NSW Health "A zoonosis is any disease or infection that is naturally transmissible from vertebrate animals to humans. Worldwide, over 60% of all human pathogens are zoonotic organisms. 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."

### NSW Health warns of deadly viruses during bat breeding season

20/10/2016 NSW Health

[http://www.health.nsw.gov.au/news/Pages/20161020\\_00.aspx](http://www.health.nsw.gov.au/news/Pages/20161020_00.aspx)

"As the bat breeding season begins NSW Health is warning people not to approach or handle injured bats and flying foxes to avoid exposure to the potentially fatal Australian Bat Lyssavirus, which is closely related to the rabies virus.... Dr Vicky Sheppard, Director of NSW Health's Communicable Diseases Branch, said five bats had been confirmed as having lyssavirus in NSW this year. "We are concerned that with the start of the bat birthing season people may pick up or attempt to rescue young and miscarried pups that may be on the ground," Dr Sheppard said...."

## 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](mailto: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](http://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 regarding ABLV, see the Series of National Guidelines on Rabies & ABLV: [www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-abvl-rabies.htm](http://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/our-publications/ausvetplan-manuals-and-documents/>

# 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.

### 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](http://www.wildlifehealthaustralia.com.au)

### References

- <sup>1</sup> Wildlife Health Australia: Mortality event in grey-headed flying-foxes <http://www.wildlifehealthaustralia.com.au/DiseaseIncidents/OngoingIncidents.aspx>
- <sup>2</sup> Harrison C (2016) Dramatic increase in Australian bat lyssavirus exclusions. *NSW Animal Health Surveillance*, 2016/4, 4
- <sup>3</sup> 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
- <sup>4</sup> Field HE (2005). "The Ecology of Hendra virus and Australian bat lyssavirus", PhD thesis, The University of Queensland
- <sup>5</sup> Barrett J (2004). "Australian Bat Lyssavirus", PhD thesis, The University of Queensland
- <sup>6</sup> 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
- <sup>7</sup> 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	<a href="mailto:wendy.townsend@act.gov.au">wendy.townsend@act.gov.au</a>
NSW	Claire Harrison	(02) 6391 3490	<a href="mailto:claire.harrison@dpi.nsw.gov.au">claire.harrison@dpi.nsw.gov.au</a>
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