

# ABLV BAT STATS



## Australian Bat Lyssavirus Report - June 2014

### Cases of ABLV Infection - January to June 2014

Sixteen cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and June 2014, from Queensland, New South Wales, Victoria and Western Australia (Table 1).

#### Queensland

Six little red flying foxes (*Pteropus scapulatus*), three black flying foxes (*P. alecto*) and one grey-headed flying fox (*P. poliocephalus*) from Queensland were found to be infected with ABLV. All ten flying foxes presented with neurological signs such as aggression, incoordination, paralysis, hindlimb weakness, seizures and salivation; one was also found tangled in a barbed wire fence. One of the little red flying foxes was a lactating female; the attached pup initially appeared normal but later became lethargic and then comatose, and was euthanased. The pup was not infected with ABLV. Histological findings included non-suppurative meningoencephalitis/meningomyelitis, Negri bodies in Purkinje cells of the cerebellum and, in one bat, pulmonary emphysema.

#### New South Wales

Three grey-headed flying foxes and one unidentified flying fox from NSW were found to be ABLV infected. The grey-headed flying foxes presented with neurological signs including limb paralysis or weakness, nystagmus, inability to swallow, hypersensitivity, biting, vocalisation, a hoarse cry; one was also found caught in a fence. No clinical history was reported for the unidentified flying fox.

#### Victoria and Western Australia

A little red flying fox from Victoria and a black flying fox from Western Australia were found to be infected with ABLV after presenting with neurological signs (aggression, limb paralysis).

#### Human contact

Potentially infectious contact with humans was reported for four ABLV infected flying foxes in Queensland, three in NSW, and the flying foxes in Victoria and Western Australia. In each case appropriate counselling and

information were provided by an experienced public health official.



Little red flying fox  
Photo: Sarah (antean)  
[www.flickr.com/photos/8656572@N04/](http://www.flickr.com/photos/8656572@N04/)

**Table 1: ABLV infection in Australian bats as confirmed by FAT, PCR, IHC and/or Virus Isolation<sup>^</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         | 4                     | 0        | 10 <sup>a</sup>        | 1         | 1        | 0        | 16 <sup>a</sup>        |
| <b>Total</b> | <b>49<sup>a</sup></b> | <b>1</b> | <b>166<sup>a</sup></b> | <b>10</b> | <b>7</b> | <b>1</b> | <b>234<sup>a</sup></b> |

Source: see page 5, 'Australian Bat Lyssavirus Report'.

<sup>^</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> An equivocal FAT and negative PCR result was recorded for some bats, which are not included in these figures as they were not confirmed to be ABLV infected.



**Large-footed bat** Photo: A Young © Australian Museum



**Grey-headed flying fox** Photo: Sarah Curran

## 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>1</sup> ABLV infection is more common in sick, injured and orphaned bats, especially those with neurological signs.<sup>2</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>3</sup> 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>4</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.

**Table 2: ABLV testing by bat species (Jan-Jun 2014)**

| Species  | No. tested | No. ABLV infected |
|--|------------|-------------------|
| <b>Flying foxes &amp; blossom bats</b>                               |            |                   |
| Black flying fox ( <i>Pteropus alecto</i> )                          | 71         | 4                 |
| Grey-headed flying fox ( <i>Pteropus poliocephalus</i> )             | 49         | 4                 |
| Little red flying fox ( <i>Pteropus scapulatus</i> )                 | 25         | 7                 |
| Spectacled flying fox ( <i>Pteropus conspicillatus</i> )             | 1          | 0                 |
| Flying fox ( <i>Pteropus</i> sp.); species not identified            | 18         | 1                 |
| Eastern tube-nosed bat ( <i>Nyctimene robinsoni</i> )                | 1          | 0                 |
| <b>Insectivorous bats (microbats)</b>                                |            |                   |
| Gould's long-eared bat ( <i>Nyctophilus gouldi</i> )                 | 6          | 0                 |
| South-eastern broad-nosed bat ( <i>Scotorepens orion</i> )           | 5          | 0                 |
| <i>Nyctophilus</i> sp.   | 4          | 0                 |
| Gould's wattled bat ( <i>Chalinolobus gouldii</i> )                  | 4          | 0                 |
| Lesser long-eared bat ( <i>Nyctophilus geoffroyi</i> )               | 4          | 0                 |
| <i>Mormopterus</i> sp.   | 4          | 0                 |
| Little bent-wing bat ( <i>Miniopterus australis</i> )                | 3          | 0                 |
| Northern free-tailed bat ( <i>Mormopterus lumsdenae</i> )            | 3          | 0                 |
| Eastern long-eared bat ( <i>Nyctophilus bifax</i> )                  | 3          | 0                 |
| <i>Scotorepens</i> sp.   | 3          | 0                 |
| Little forest bat ( <i>Vespadelus vulturnus</i> )                    | 3          | 0                 |
| Chocolate wattled bat ( <i>Chalinolobus morio</i> )                  | 2          | 0                 |
| Little broad-nosed bat ( <i>Scotorepens greyii</i> )                 | 2          | 0                 |
| <i>Vespertilionidae</i>  | 2          | 0                 |
| Yellow-bellied sheath-tailed bat ( <i>Saccolaimus flaviventris</i> ) | 1          | 0                 |
| Eastern freetail bat ( <i>Mormopterus ridei</i> )                    | 1          | 0                 |
| Large-footed bat ( <i>Myotis macropus</i> )                          | 1          | 0                 |
| Lesser long-eared bat ( <i>Nyctophilus geoffroyi</i> )               | 1          | 0                 |
| Greater broad-nosed bat ( <i>Scoteanax rueppellii</i> )              | 1          | 0                 |
| Eastern bent-wing bat ( <i>Miniopterus schreibersii</i> )            | 1          | 0                 |
| <i>Vespadelus</i> sp.  | 1          | 0                 |
| Microbat; species not identified                                     | 16         | 0                 |
| Bat - unidentified   | 2          | 0                 |
| <b>TOTAL</b>   | <b>238</b> | <b>16</b>         |

A total of 238 bats were tested for ABLV in Australia between January and June 2014 (Table 2). This includes twenty-nine insectivorous bats submitted by bat carers as part of an ongoing surveillance project conducted by the Queensland Centre for Emerging Infectious Diseases.

Sixteen cases of ABLV infection were reported in bats (6.7% 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 proportion of tested bats infected with ABLV is higher than for previous periods. The reason for this is not fully known. Although a real increase in ABLV prevalence in the wild bat population is a possible explanation, it is just as likely to be due to a change in the factors affecting which bats were submitted for testing e.g. location or presence of neurological signs.



**Black flying fox**

Photo: H & J Beste © Australian Museum

**Table 3: ABLV infection (%) in bats submitted for testing (Jan-Jun 2014)**

|                             | No. tested | No. infected* | % infected* |
|-----------------------------|------------|---------------|-------------|
| Flying foxes & blossom bats | 165        | 16            | 9.7%        |
| Microbats                   | 71         | 0             | 0%          |
| Bats - unidentified         | 2          | 0             | 0%          |
| <b>TOTAL</b>                | <b>238</b> | <b>16</b>     | <b>6.7%</b> |

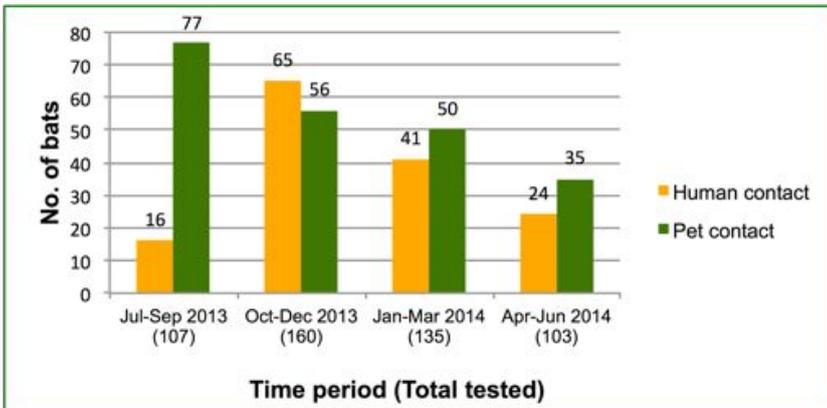
\* Percentage of ABLV infection in the bats tested. The level of ABLV infection in the wider bat population is estimated to be significantly lower.

\* In five bats there was an equivocal FAT and negative PCR result. These bats are not included in these figures as they were not confirmed to be ABLV infected.

# Why are bats submitted for 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**



Grey-headed flying foxes Photo: Tiggy Grillo

Figure 1 represents a minority of human-bat contact incidents as 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).

## 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.
- ✿ **People should not handle bats** unless they are appropriately vaccinated.
- ✿ **ABLV is transmitted to humans** via biting and scratching, and potentially also through contact with saliva. 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 Unit 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 4.

\* 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

### 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

**DO NOT ATTEMPT TO HANDLE AN INJURED, UNWELL OR AGGRESSIVE BAT —  
REPORT IT TO YOUR LOCAL WILDLIFE SERVICE, VET OR BAT CARER GROUP**



Great northern free-tailed bat Photo: Terry Reardon

## Recent news and publications

### Heat stress events in early 2014

Severe heat-stress events early in the year caused significant mortalities in flying fox colonies across south-east Queensland, southern Victoria, south-western NSW and in the Adelaide colony in SA. As well as the impact on flying foxes, events such as this can result in increased contact between flying foxes and people, and an increase in ABLV testing.

**Killer climate: tens of thousands of flying foxes dead in a day** - Justin Welbergen (UWS), Carol Booth (Wildlife Australia), John Martin (Royal Botanic Gardens Sydney)

25/04/2014 The Conversation: "This summer we have seen one of the most dramatic animal die-offs ever recorded in Australia: at least 45,500 flying foxes dead on just one extremely hot day in southeast Queensland, according to our new research. While flying foxes are often portrayed as noisy pests, they are protected native species, and declines in their populations have significant environmental ramifications as they spread seeds and pollinate native trees. The mounting toll from repeated mass die-offs across eastern Australia is also significant because of what it tells us about the growing dangers we face from extreme heat...."

Read the full article on The Conversation: <http://theconversation.com/killer-climate-tens-of-thousands-of-flying-foxes-dead-in-a-day-23227>

### Cross sectional survey of human-bat interaction in Australia: public health implications

**Paterson BJ, et al. (2014) BMC Public Health, 14, 58**  
[www.biomedcentral.com/1471-2458/14/58/abstract](http://www.biomedcentral.com/1471-2458/14/58/abstract) [Open access]

Abstract: "...In Australia there is public health concern relating to bats' role as reservoirs of Australian Bat Lyssavirus (ABLV)... A survey was conducted... in Australia's most populous state, New South Wales.... Conclusions: Previous human-bat interactions were relatively common. Bat exposures most frequently occurred with sick or injured bats, which have the highest risk of ABLV. On encountering an injured or sick bat, potentially high risk practices were commonly reported, particularly among rural males. It is important to understand why people still handle bats despite public health warnings to inform future communication strategies."

### Preventing Australian bat lyssavirus: Community knowledge and risk perception of bats in South East Queensland

**Young MK, et al. (2014) Vector-Borne and Zoonotic Diseases, 14(4), 284-290** <http://online.liebertpub.com/doi/abs/10.1089/vbz.2013.1414> [Open access]

Abstract: "Objectives: Ongoing potential exposure of members of the public to Australian bat lyssavirus (ABLV) in South East Queensland, Australia, prompted investigation of community knowledge, risk perception, and intention to handle bats to inform future prevention efforts.... Basic knowledge of bats and ABLV was generally high, with 65% of participants answering nine or more of 12 knowledge questions correctly. The perceived risk that bats pose to human health was also high, with 93% indicating some degree of risk...."

### Australian Bat Lyssavirus in a child: The first reported case

**Francis JR, et al. (2014) Pediatrics, 133(4), E1063-7** <http://pediatrics.aappublications.org/content/early/2014/02/25/peds.2013-1782>

## 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)



Spectacled flying fox

Photo: Shek Graham [www.flickr.com/photos/shekgraham/](http://www.flickr.com/photos/shekgraham/)

## 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:

[www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ABL-07EDIT20Jan10.pdf](http://www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ABL-07EDIT20Jan10.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 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](mailto: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 veterinarians, and State/Territory wildlife 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> Field HE (2005). "The Ecology of Hendra virus and Australian bat lyssavirus", PhD thesis, The University of Queensland

<sup>2</sup> Barrett J (2004). "Australian Bat Lyssavirus", PhD thesis, The University of Queensland

<sup>3</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>4</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

\* Wildlife Health Australia was formerly known as the Australian Wildlife Health Network. For more information: [www.wildlifehealthaustralia.com.au](http://www.wildlifehealthaustralia.com.au)

## 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   | Sarah Britton     | (08) 6391 3717 | <a href="mailto:sarah.britton@dpi.nsw.gov.au">sarah.britton@dpi.nsw.gov.au</a>           |
| NT    | Cathy Shilton     | (08) 8999 2122 | <a href="mailto:cathy.shilton@nt.gov.au">cathy.shilton@nt.gov.au</a>                     |
| QLD   | Anita Gordon      | (07) 3276 6056 | <a href="mailto:anita.gordon@daff.qld.gov.au">anita.gordon@daff.qld.gov.au</a>           |
| SA    | Celia Dickason    | (08) 8389 8840 | <a href="mailto:celia.dickason@sa.gov.au">celia.dickason@sa.gov.au</a>                   |
| TAS   | Annie Philips     | (03) 6165 4301 | <a href="mailto:annie.philips@dpiwve.tas.gov.au">annie.philips@dpiwve.tas.gov.au</a>     |
| VIC   | Mark Hawes        | (03) 9032 7275 | <a href="mailto:mark.hawes@depi.vic.gov.au">mark.hawes@depi.vic.gov.au</a>               |
| WA    | Tom Hollingsworth | (08) 9780 6280 | <a href="mailto:tom.hollingsworth@agric.wa.gov.au">tom.hollingsworth@agric.wa.gov.au</a> |



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