

# ABLV BAT STATS



## Australian Bat Lyssavirus Report - December 2013

### Positive ABLV Cases - January to December 2013

There have been fourteen positive cases of Australian bat lyssavirus (ABLV) reported in bats in Australia between January and December 2013, from Queensland and New South Wales (Table 1).

#### Queensland

Five little red flying foxes (*Pteropus scapulatus*), five black flying foxes (*P. alecto*) and a yellow-bellied sheath-tailed bat (*Saccolaimus flaviventris*) from Queensland tested positive for ABLV in 2013. Of these, three little red and three black flying foxes presented with neurological signs including paralysis and seizures, one of which was found tangled in a barbed wire fence. One black flying fox presented with dullness and respiratory distress, one little red was found dead, and two flying foxes were submitted due to potentially infectious contact with humans. Histological findings in the flying foxes included mild non-suppurative meningitis, encephalitis and aspiration pneumonia.

The yellow-bellied sheath-tailed bat presented after colliding with a building, possibly due to neurological disease; possible contact with a pet dog was also reported. The bat presented moribund and dehydrated, and was euthanased. ABLV has previously been isolated from this species of microbat, and is a different variant from that found in flying foxes.<sup>1</sup>

See the June 2013 issue of ABLV Bat Stats for reports of the human case and of two horses with ABLV infection.

#### New South Wales

Two grey-headed flying foxes (*P. poliocephalus*) from NSW that were submitted due to potentially infectious contact with humans tested positive for ABLV; one of these presented with neurological signs (aggression, sensitivity to noise, paralysis). An unidentified flying fox with neurological signs also tested positive for ABLV.



Black flying fox  
Photo: James Niland [www.flickr.com/photos/bareego](http://www.flickr.com/photos/bareego)

#### Human contact

In all cases where human contact had occurred, appropriate counselling and information were provided by an experienced public health official.

**Table 1: ABLV cases 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
<b>Total</b>	<b>45<sup>a</sup></b>	<b>1</b>	<b>156<sup>a</sup></b>	<b>9</b>	<b>6</b>	<b>1</b>	<b>218<sup>a</sup></b>

Source: see page 4, 'Australian Bat Lyssavirus Report'.

<sup>^</sup> ACT and TAS have not recorded any cases of ABLV 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 positive results were associated with peak years of testing in 1997-1998.

<sup>a</sup> Two cases in 2009, one case in 2011 and four cases in 2013 had an equivocal FAT and negative PCR result. These cases are not included in the number positive or the totals as they were not confirmed to be ABLV positive.



Grey-headed flying fox  
© Akos Lumnitzer  
amatteroflight.com



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

## 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>2</sup> ABLV infection is more common in sick, injured and orphaned bats, especially those with neurological signs.<sup>3</sup> People and pets 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>4</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>5</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 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.

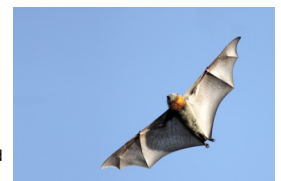
**Table 2: ABLV testing by bat species (Jan-Dec 2013)**

Species	No. tested	No. ABLV positive
<b>Flying foxes &amp; blossom bats</b>		
Black flying fox ( <i>Pteropus alecto</i> )	209	5
Grey-headed flying fox ( <i>Pteropus poliocephalus</i> )	79	2
Little red flying fox ( <i>Pteropus scapulatus</i> )	54	5
Flying fox ( <i>Pteropus</i> sp.); species not identified	37	1
Blossom bat ( <i>Syconycteris australis</i> )	1	0
<b>Insectivorous bats (microbats)</b>		
Lesser long-eared bat ( <i>Nyctophilus geoffroyi</i> )	10	0
Gould's wattled bat ( <i>Chalinolobus gouldii</i> )	8	0
Chocolate wattled bat ( <i>Chalinolobus morio</i> )	6	0
Gould's long-eared bat ( <i>Nyctophilus gouldii</i> )	5	0
Little Broad-nosed Bat ( <i>Scotorepens greyii</i> )	5	0
South-eastern broad-nosed bat ( <i>Scotorepens orion</i> )	4	0
Little bent-wing bat ( <i>Miniopterus australis</i> )	3	0
Hoary wattled bat ( <i>Chalinolobus nigrogriseus</i> )	3	0
<i>Mormopterus</i> sp.	3	0
Common bent-wing bat ( <i>Miniopterus schreibersii</i> )	3	0
Yellow-bellied sheath-tailed bat ( <i>Saccolaimus flaviventris</i> )	3	1
Eastern long-eared bat ( <i>Nyctophilus bifax</i> )	3	0
<i>Vespertilionidae</i>	2	0
Southern myotis ( <i>Myotis macropus</i> )	2	0
Northern free-tailed bat ( <i>Chaerephon jobensis</i> )	1	0
Beccari's free-tailed bat ( <i>Mormopterus beccarii</i> )	1	0
<i>Nyctophilus</i> sp.	1	0
Eastern forest bat ( <i>Vespadelus pumilus</i> )	1	0
Northern broad-nosed bat ( <i>Scotorepens sanborni</i> )	1	0
Eastern horseshoe bat ( <i>Rhinolophus megaphyllus</i> )	1	0
Eastern free-tailed bat ( <i>Mormopterus ridei</i> )	1	0
White-striped free-tailed bat ( <i>Tadarida australis</i> )	1	0
<i>Molossidae</i> sp.	1	0
Northern pipistrelle ( <i>Pipistrellus westralis</i> )	1	0
Microbat; species not identified	20	0
Bat - unidentified	7	0
<b>TOTAL</b>	<b>477</b>	<b>14</b>

A total of 477 bats were tested for ABLV in Australia between January and December 2013 (Table 2), which was a higher number than usual. This may have been due to an increased awareness of ABLV and potential human health risks following the case of a Queensland boy with ABLV infection early in the year,<sup>6</sup> and the detection of ABLV in two horses in May.<sup>7</sup> There were also submissions associated with heat-stress events in flying foxes early in the year, although the higher number of submissions occurred throughout the year.

Twenty insectivorous bats were submitted by bat carers as part of an ongoing surveillance project conducted by the Queensland Centre for Emerging Infectious Diseases. These bats were tested retrospectively in 2014, but are included in the 2013 figures based on when the bats were found or died.

Fourteen bats tested positive for ABLV (2.9% 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.



Grey-headed flying fox  
Photo: Leo www.flickr.com/photos/Oystercatcher

**Table 3: ABLV positive (%) in bats submitted for testing (Jan-Dec 2013)**

	No. tested	No. positive <sup>+</sup>	% positive*
Flying foxes & blossom bats	380	13	3.4%
Microbats	90	1	1.1%
Bats - unidentified	7	0	0%
<b>TOTAL</b>	<b>477</b>	<b>14</b>	<b>2.9%</b>

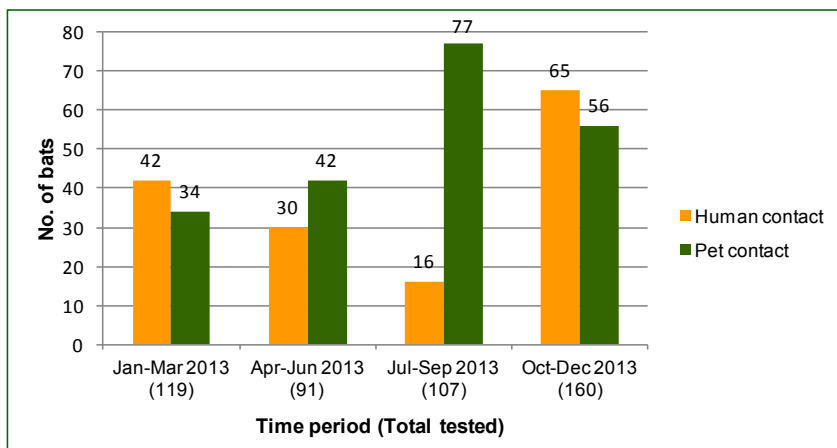
\* Percentage of bats tested that were ABLV positive. The level of ABLV infection in the wider bat population is estimated to be significantly lower.

<sup>+</sup> Four cases had an equivocal FAT and negative PCR result. These cases are not included in the number or percentage positive as they were not confirmed to be ABLV positive.

## 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**



Blossom bat  
Photo: H&J Beste, © Australian Museum

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 causes a fatal disease in people** and to date has been responsible for the deaths of three people in Australia.
- \* **People should not handle bats** unless they are appropriately vaccinated.
- \* **ABLV is transmitted to humans** via bites, scratches, and contact of bat saliva with 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 Unit for advice.
- \* **If you suspect a bat is infected** with ABLV contact your biosecurity authority (department of agriculture or primary industries) for advice about testing.

\* As per current World Health Organization (WHO) guidelines

## 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**

## Useful links

For current policy on surveillance and management consult AUSVETPLAN:

<http://www.animalhealthaustralia.com.au/wp-content/uploads/2011/04/ABL-07EDIT20Jan10.pdf>

For current Department of Health information regarding ABLV:

<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>

Troughton's sheath-tailed bat



Photo: robstephaustralia

# ABLV BAT STATS



## AWHN Bat Health Focus Group

This document has been approved by the 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 the AWHN 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, Australian Wildlife Health Network subscribers, zoo veterinarians, and State/Territory wildlife coordinators (representatives of Chief Veterinary Officers), and is collated by the Australian Wildlife Health Network. 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> Guyatt K, Twin J, Davis P, *et al.* (2003). A molecular epidemiological study of Australian bat lyssavirus. *Journal of General Virology*, 84, 485-496
- <sup>2</sup> Field HE (2005). "The Ecology of Hendra virus and Australian bat lyssavirus", PhD thesis, The University of Queensland
- <sup>3</sup> Barrett J (2004). "Australian Bat Lyssavirus", PhD thesis, The University of Queensland
- <sup>4</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>5</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
- <sup>6</sup> Francis JR, Nourse C, Vaska VL, *et al.* (2014). Australian bat lyssavirus in a child: The first reported case. *Pediatrics*, 133(4), e1-5
- <sup>7</sup> Williamson G (2013). State and Territory Reports – Queensland. *Animal Health Surveillance Quarterly Report*, 18(2), 15

## Wildlife Coordinators

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

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ACT	Will Andrew	(02) 6207 2357	<a href="mailto:will.andrew@act.gov.au">will.andrew@act.gov.au</a>
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