

ABLV BAT STATS



Australian Bat Lyssavirus Report - December 2015

Cases of ABLV infection - January to December 2015

Twenty-two cases of Australian bat lyssavirus (ABLV) infection were reported in bats in Australia between January and December 2015, from Queensland, New South Wales and the Northern Territory (Table 1).

Queensland

Eight 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 2015. Neurological signs such as difficulty or inability to hang, weak grip, hindlimb paresis, tremors, twitching, hypersensitivity to touch, abnormal vocalisation, aggression, clenched jaw and seizures were reported in six of these bats. Other signs included gasping respiration and caudal muscle atrophy, and a large number of "bat flies" (*Cyclopodia albertisii*) were found on one flying-fox. One other flying-fox presented with respiratory signs and was weak and uncoordinated. Histopathological findings included non-suppurative encephalitis or meningoencephalitis and in some cases occasional Negri-like bodies. In one case no histological abnormality was detected in the brain.

New South Wales

Nine grey-headed flying-foxes (*P. poliocephalus*) and one unidentified flying-fox (*Pteropus* sp.) from NSW were found to be infected with ABLV. Eight presented with neurological signs, one was injured and died unexpectedly overnight, and another was found solitary and unwell. One flying-fox was a young female that had been in care with a stifle infection and head shaking. The neurological signs later worsened to include agitation, weakness, hyperaesthesia, photophobia and abnormal movement. Neurological signs in other bats included twitching, drooling and aggression. Histopathology in one case

showed non-suppurative meningo-encephalitis, sialoadenitis (inflammation of the salivary gland) and pneumonia.

(Continued overleaf)



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

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

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	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 ^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
Total	60^a	3	181^a	10	17	1	272^a

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

^A 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.

Among these ABLV infected flying-foxes were three juvenile (3-4 week old) grey-headed flying-foxes from a NSW Central Coast flying-fox roost. See 'Recent News and Publications' for more information on this event.

Northern Territory

One little red flying-fox (*P. scapulatus*) from Darwin was found to be infected with ABLV after being in care. The flying-fox died overnight after appearing quieter than usual and with a reduced appetite for a few days. Histopathology showed severe haemorrhagic non-suppurative encephalitis, which was consistent with ABLV infection, as well as fibrinoid vasculopathy which is not a typical finding. The flying-fox also had unusual bilaterally symmetrical alopecia (hair loss). Culture and skin scrapes were negative, and it was considered likely that the alopecia was of endocrine (hormonal) origin.

Human contact

Potentially infectious contact with humans was reported for eleven ABLV infected flying-foxes in 2015. In each case appropriate counselling and information were provided by an experienced public health official.



Lesser long-eared bat
Photo: Matt Clancy / Wikimedia Commons (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

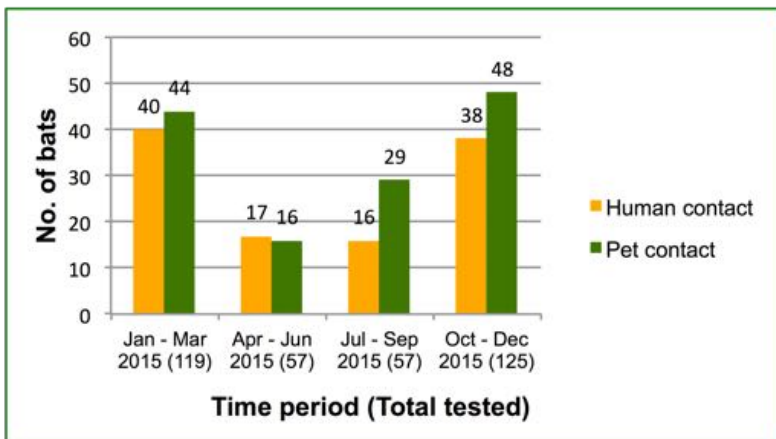


Figure 1 presents reported human-bat contacts which, based on Young & McCall 2010,¹ is an underestimate of the true contact frequency. Not all bat contact is reported, and for the majority of reports the bat is not available for testing. Some of the bats that had human contact also had contact with a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

ABLV prevalence in bats and public health significance

There are no recent surveys on the prevalence of ABLV 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



Grey-headed flying-fox Photo: bishib70 / Flickr (CC)

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, 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.

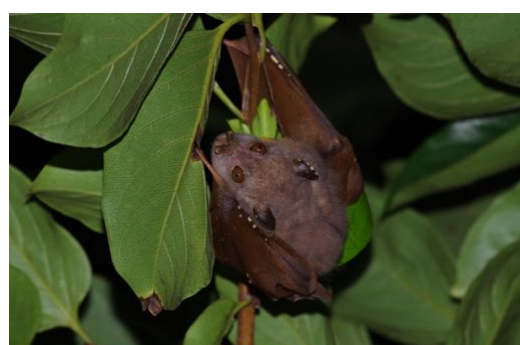
A total of 358 bats were tested for ABLV in Australia between January and December 2015 (Table 2). Twenty-two cases of ABLV infection were reported in bats (6.1% of the bats submitted for testing) (Table 3). As described above, testing of unwell bats is not representative of the whole bat population; consequently these results over-estimate the level of ABLV infection in the wider bat population.

Table 2: ABLV testing by bat species (Jan - Dec 2015)

Species	No. tested	No. ABLV infected
Flying-foxes & blossom bats		
Black flying-fox (<i>Pteropus alecto</i>)	118	8
Grey-headed flying-fox (<i>Pteropus poliocephalus</i>)	92	9
Little red flying-fox (<i>Pteropus scapulatus</i>)	38	3
Spectacled flying-fox (<i>Pteropus conspicillatus</i>)	2	1
Flying-fox (<i>Pteropus</i> sp.); species not identified	17	1
Eastern tube-nosed bat (<i>Nyctimene robinsoni</i>)	2	0
Northern blossom bat	1	0
Insectivorous bats (microbats)		
Lesser long-eared bat (<i>Nyctophilus geoffroyi</i>)	8	0
Gould's wattled bat (<i>Chalinolobus gouldii</i>)	5	0
<i>Miniopterus</i> sp.	5	0
Large-footed bat (<i>Myotis macropus</i>)	5	0
<i>Nyctophilus</i> sp.	4	0
Little bent-wing bat (<i>Miniopterus australis</i>)	4	0
<i>Vespertilionidae</i>	3	0
<i>Mormopterus</i> sp.	3	0
Little forest bat (<i>Vespadelus vulturnus</i>)	3	0
Gould's long-eared bat (<i>Nyctophilus gouldi</i>)	2	0
Large forest bat (<i>Vespadelus darlingtoni</i>)	2	0
South-eastern broad-nosed bat (<i>Scotorepens orion</i>)	2	0
Greater northern free-tailed bat (<i>Chaerephon jobensis</i>)	1	0
Eastern long-eared bat (<i>Nyctophilus bifax</i>)	1	0
Northern free-tailed bat (<i>Mormopterus lumsdenae</i>)	1	0
Orange leaf-nosed bat (<i>Rhinonicteris aurantia</i>)	1	0
Chocolate wattled bat (<i>Chalinolobus morio</i>)	1	0
Common sheath-tailed bat (<i>Taphozous georgianus</i>)	1	0
Southern forest bat (<i>Vespadelus regulus</i>)	1	0
Southern bent-winged bat (<i>Miniopterus orianae bassani</i>)	1	0
<i>Scotorepens</i> sp.	1	0
<i>Hipposideridae</i> (leaf-nosed bats)	1	0
Microbat; species not identified	26	0
Bat - unidentified	6	0
TOTAL	358	22



Little red flying-foxes Photo: David King / Flickr (CC)



Eastern tube-nosed bat Photo: Alan Wynn / Flickr (CC)

Table 3: ABLV infection (%) in bats submitted for testing (Jan - Dec 2015)

	No. tested	No. infected*	% infected*
Flying-foxes & blossom bats	270	22	8.1%
Microbats	82	0	0%
Bats - unidentified	6	0	0%
TOTAL	358	22	6.1%

* 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 four 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/

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



Eastern long-eared bats Photo: Greg Shechter / Flickr (CC)

Recent news and publications

Australian bat lyssavirus in juvenile bats - NSW

Three juvenile (3-4 week old) grey-headed flying-foxes were rescued from amongst numerous dead juvenile flying-foxes at a NSW Central Coast flying-fox roost in November. A large number of people, including many who were not vaccinated, had contact with the infected bats; all were provided with appropriate follow-up by an experienced public health official. This event was a useful reminder that all bats, including very young juveniles, can be infected with ABLV. NSW Central Coast Local Health District circulated a [media release](#) about the event, warning the community not to handle bats and to call on the expertise of a vaccinated wildlife carer if an injured or trapped bat is found. NSW Department of Primary Industries also circulated a [CVO Bulletin to Wildlife Carers](#).

Two confirmed Australian Bat Lyssavirus (ABL) diseased bats in the Taree-Wingham area

24/12/2016 Manning River Times

<http://www.manningrivertimes.com.au/story/3610025/avoid-deadly-infection-do-not-handle-bats/>

"Hunter New England Health is warning the lower Mid North Coast community to not handle bats to avoid catching a potentially deadly virus. Coming into summer, bat activity is increasing and two bats from the Wingham-Taree area have tested positive for Australian Bat Lyssavirus (ABL).

Public health physician Dr David Durrheim said bat bites and scratches can result in humans being infected with ABL, which is related to the rabies virus and can be lethal. Dr Durrheim's message is to turn "compassion into a phone call." "Research has shown people are driven by compassion and want to help the bats by touching them or picking them up," said Dr David Durrheim. "However in the process not only do they risk getting injured, without the correct procedures, they could further harm the bats. "It's best to call WIRES who have prevaccinated workers who know what to do."...."

Flying-foxes in the Australian urban environment - community attitudes and opinions

Kung N *et al* (2015) *One Health*, 1, 24-30

<http://www.sciencedirect.com/science/article/pii/S235277141500004X> [Open access]

Abstract: "The urban presence of flying-foxes (pteropid bats) in eastern Australia has increased in the last 20 years, putatively reflecting broader landscape change. The influx of large numbers often precipitates community angst, typically stemming from concerns about loss of social amenity, economic loss or negative health impacts from recently emerged bat-mediated zoonotic diseases such as Hendra virus and Australian bat lyssavirus. Local authorities and state wildlife authorities are increasingly asked to approve the dispersal or modification of flying-fox roosts to address expressed concerns, yet the scale of this concern within the community, and the veracity of the basis for concern are often unclear. We conducted an on-line survey to capture community attitudes and opinions on flying-foxes in the urban environment to inform management policy and decision-making...."

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 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
- 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.

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
- 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

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	Dermot Mc Nerney Sally Spence	(03) 5019 8411 (02) 6391 3717	dermot.mcnerney@dpi.nsw.gov.au sally.spence@dpi.nsw.gov.au
NT	Cathy Shilton	(08) 8999 2122	cathy.shilton@nt.gov.au
QLD	Anita Gordon	(07) 3276 6056	anita.gordon@daf.qld.gov.au
SA	Celia Dickason	(08) 8389 8840	celia.dickason@sa.gov.au
TAS	Annie Philips	(03) 6165 4301	annie.philips@dpipwe.tas.gov.au
VIC	Mark Hawes	(03) 9032 7275	mark.hawes@ecodev.vic.gov.au
WA	Emily Glass	(08) 9368 3360	emily.glass@agric.wa.gov.au