Flying-fox paralysis syndrome

Fact Sheet

September 2026

Key points

- Flying-fox paralysis syndrome (FFPS) is a typically seasonal paralytic disease that affects black (*Pteropus alecto*), grey-headed (*P. poliocephalus*) and little red flying-foxes (*P. scapulatus*) in northeast NSW and southeast Qld, with suspect cases in northern Australia.
- The cause of the disease is unknown; an environmental toxin or metabolic disease is considered most likely.
- Large numbers of affected flying-foxes are presented to veterinarians and wildlife rehabilitators each year.
- With supportive care, many flying-foxes can be successfully treated and released.
- The summers of 2020-21 and 2024-2025 saw particularly high numbers of cases with hundreds of flying-foxes affected.

Aetiology

The cause of flying-fox paralysis syndrome (FFPS) is unknown. Numerous causes have been considered and investigated. There is no evidence of an infectious cause, and a number of specific causes have been ruled out including Australian bat lyssavirus (ABLV), toxoplasmosis, tick paralysis, other parasitic infections and trauma [1]. Based on investigations to date, an environmental toxin or metabolic disease is thought to be the most likely cause of the syndrome.

One Health implications

Wildlife and the environment: there is no evidence that wildlife species other than flying-foxes are affected by FFPS, although a similar paralysis syndrome in lorikeets has been identified, which overlaps geographically and temporally with FFPS. While it is unknown whether there is a common cause of both syndromes, the similarities are of interest because flying-foxes and lorikeets share ecological niches and food sources [2]. It is not known if FFPS has a sustained population level impact on flying-foxes.

Domestic animals and humans: there is no evidence that domestic animals and humans are affected by FFPS.

Natural hosts

Black (*Pteropus alecto*), grey-headed (*P. poliocephalus*) and little red flying-foxes (*P. scapulatus*) are known to be affected with FFPS [1]. There have been no reports of FFPS in spectacled flying-foxes (*P. conspicillatus*), noting that the range of this species is further north than the key FFPS areas.

World distribution and occurrences in Australia

The syndrome has only been recognised in Australia.

The condition has been most commonly described in southeast Qld and northeast NSW [1] with clusters of cases intermittently seen in some locations. Cases with a similar clinical presentation to FFPS have also been recognised outside this range, in more northern coastal areas of Qld [1] and the NT, but further investigation is needed to confirm [3].

The summers of 2020-21 and 2024-2025 saw unprecedented number of affected flying-foxes in southeast Qld [4, 5]. See WHA incident reports https://wildlifehealthaustralia.com.au/Incidents/Incident-Information/incident-flying-fox-paralysis-syndrome-south-east-qld-northern-nsw-ongoing for more information about ongoing incidents.

Epidemiology

FFPS is typically a seasonal disease. Most cases and large outbreaks occur during the summer months (December–February), though sporadic cases can occur at any time of year [1]. The syndrome mostly affects adult and sub-adult flying-foxes, rather than dependent pups that are not yet foraging independently. Cases are reported more often in males than in females, regardless of time of year. Any apparent association with individuals experiencing high energy demand (e.g. reproduction) appears to reflect the time of year when the syndrome most commonly occurs [6] .

There is no evidence of an infectious cause, and a number of specific causes have been ruled out including Australian bat lyssavirus (ABLV), toxoplasmosis, tick paralysis, other parasitic infections and trauma [1]. Based on investigations to date, an environmental toxin or metabolic disease is thought to be the most likely cause of the syndrome

Clinical signs

Flying-foxes are unable to fly, with no evidence of physical trauma preventing flight. Body condition is variable, ranging from poor to very good. The four key clinical manifestations of FFPS are impairment of mobility, swallowing and tongue control, blinking and respiration. FFPS-affected flying-foxes can be categorised across four stages of severity (categories 1-4) based on clinical presentation. Category 4 individuals commonly have severe impairments in all four of the clinical manifestations. Individuals may progress in clinical severity acutely (over a period of hours) or chronically (days to weeks) [1]. See Flying-fox Paralysis Syndrome: Case definition, triage & treatment protocol for veterinarians and wildlife care providers for more detailed information on clinical categorisation and management of individuals affected by FFPS.

Diagnosis

Without a known aetiological agent and specific diagnostic criteria, the case definitions for suspected and probable FFPS cases are based on clinical signs, epidemiological information and exclusion of other differential diagnoses via diagnostic testing. Diagnostic testing in suspect FFPS cases that die or are euthanased should include, as a minimum, ABLV testing and a full histopathological workup, including the central nervous system (brain and spine), and preferably

peripheral nerve and skeletal muscle. See the Flying-fox Paralysis Syndrome: Case definition, triage & treatment protocol for veterinarians and wildlife care providers for more detailed information.

Pathology

There are no consistent gross lesions found in affected flying-foxes. Clinical pathology associated with sequalae such as dehydration and shock may be observed. There are no consistent lesions on histopathology and no evidence of infectious disease.

Differential diagnoses

Differential diagnoses include ABLV, traumatic injury, toxoplasmosis, toxicities, tick paralysis and other parasitic infections.

Treatment, prevention and control

It is not possible to differentiate FFPS from ABLV based on clinical signs. All bats should be managed as if potentially infected with ABLV.

Both the welfare of individual affected bats and the resourcing of an intensive and prolonged period of treatment and rehabilitation should be considered when making decisions about individual FFPS cases. Euthanasia is generally considered appropriate for severe cases of FFPS due to a poor prognosis for recovery. Less severely affected cases can usually be successfully treated and released. Supportive care is recommended, and treatments specific to the clinical signs. [1]See Flying-fox Paralysis Syndrome: Case definition, triage & treatment protocol for veterinarians and wildlife care providers for detailed information on case management.

Prevention and control of the disease is not possible as the aetiology is unknown.

Research

Further investigation into the cause of FFPS is required. Wildlife disease experts (including veterinarians, pathologists, epidemiologists and rehabilitators) have been working in collaboration with government environment and biosecurity agencies since 2020 to investigate and respond to this syndrome. Wildlife Health Australia formed a Paralysis Syndromes Working Group to facilitate communication and coordination across both FFPS and lorikeet paralysis syndrome (LPS). The working group has established a Diagnosis and Investigation sub-group and an Incident Preparedness and Response subgroup. Research is currently focused on toxins (plant, fungal or other origin) and metabolic disease as the most likely causes of FFPS.

See https://wildlifehealthaustralia.com.au/Incidents/Incident-Information/incident-flying-fox-paralysis-syndrome-south-east-qld-northern-nsw-ongoing for more information.

Surveillance and management

There is no formal targeted surveillance program for FFPS. Wildlife hospitals and rehabilitation organisations are collating data on FFPS cases. To facilitate communication, coordination and investigation of FFPS and LPS, Wildlife Health Australia coordinates a Paralysis Syndromes Working

Group with participation from wildlife rehabilitators, veterinarians, scientists and government agencies. To better understand FFPS events, the Working Group is collecting information on the geographic range, species and age of animals affected, and range of clinical signs seen. If you have information on FFPS events, please fill out the **Flying-fox Event Report Form**. We are interested in hearing from anyone with information on this condition in Australia, including laboratory reports, historical datasets or survey results that could be added to the National Wildlife Health Information System. If you can help, please contact us at admin@wildlifehealthaustralia.com.au.

Wildlife Health Australia administers Australia's general wildlife health surveillance system, in partnership with government and non-government agencies. Wildlife health data is collected into a national database, the electronic Wildlife Health Information System (eWHIS). Information is reported by a variety of sources including government agencies, zoo based wildlife hospitals, sentinel veterinary clinics, universities, wildlife rehabilitators, and a range of other organisations and individuals. Targeted surveillance data is also collected by WHA. See the WHA website for more information https://wildlifehealthaustralia.com.au/Our-Work/Surveillance and https://wildlifehealthaustralia.com.au/Our-Work/Surveillance/eWHIS-Wildlife-Health-Information-System.

Acknowledgements

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Wildlife Health Australia recognises the Traditional Custodians of Country throughout Australia. We respectfully acknowledge Aboriginal and Torres Strait Islander peoples' continuing connection to land, sea, wildlife and community. We pay our respects to them and their cultures, and to their Elders past and present.

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References and other information

1. Paralysis Syndromes Working Group (2026) Flying-fox Paralysis Syndrome: Case definition, triage & treatment protocol for veterinarians and wildlife care providers. Available from: https://wildlifehealthaustralia.com.au/Portals/0/Incidents/FF_Paralysis_Syndrome-case_definition_sampling_treatment.pdf
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3. Shilton C 2026. Suspect FFPS cases in the NT. Personal communication
4. Cox-Witton K and Gordon A (2021) State and territory reports, Animal Health Surveillance Quarterly Report. Available from: https://www.sciquest.org.nz/browse/publications/article/165929

5. Liz Gwynn (2025) Record number of lorikeets and flying foxes suffering paralysis syndrome. ABC News [cited 2026 12 May]; Available from: https://www.abc.net.au/news/2025-01-13/lorikeet-paralysis-syndrome-killing-bats/104793018

6. Paralysis Syndromes Working Group 2026. Age and sex most affected by flying-fox paralysis syndrome. Personal communication

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