



Living with wildlife - Flying-foxes

What are flying-foxes?

Flying-foxes, also known as fruit bats, are winged mammals belonging to the sub-order group of megabats. Unlike the smaller insectivorous microbats, flying-foxes navigate using their eye sight and smell and feed on nectar, pollen and fruit. Flying-foxes forage on native plants and may supplement this diet with introduced plants found in gardens, orchards and urban areas. All flying-foxes in Australia are native and have been an integral part of our ecosystems for millions of years.

Flying-foxes are social animals that roost in vegetated areas called roosts or camps, during the day. These camps provide resting places and are important for social interaction, mating and rearing of young. Why flying-foxes select certain locations to roost is not exactly understood, however, proximity to freshwater and food sources, linear landscape features, vegetation structure and historical roost locations are possible factors.

Flying-foxes are highly mobile and migrate frequently between different roost sites across their range. Roosts are likened to a 'hostel' rather than permanent home, as individual flying-foxes visit each roost for a short period before travelling elsewhere. As such, camps can be occupied permanently, seasonally or temporarily and the number of occupants often varies throughout the year. Influxes of large numbers of little red flying-foxes can contribute to sudden variations in camp size and aligns with the availability of their primary food source, flowering native trees.

Flying-foxes in the Gladstone Region

Of the four species of flying-foxes native to Australia, three are commonly observed in the Gladstone

Region; the grey-headed flying-fox (*Pteropus poliocephalus*), black flying-fox (*Pteropus alecto*) and little red flying-fox (*Pteropus scapulatus*). All of these species are protected under the Nature Conservation Act 1992 and the grey-headed flying-fox is also listed as 'vulnerable' under the *Environment Protection and Biodiversity Conservation Act 1999*.

Why are flying-foxes important?

Flying-foxes have been an integral part of Australian ecosystems for millions of years. When feeding on the blossoms and fruits of native trees, flying-foxes pollinate flowers and disperse seed over great distances. It is estimated that a single flying-fox can disperse up to 60,000 seeds in one night. Many species of Australian plants co-evolved with flying-foxes and have features that specifically attract their vital pollination services.



Native flowers with features specially adapted for pollination by flying-foxes

The high mobility and long distances regularly travelled by flying-foxes makes them unique in their ability to maintain the diversity of ecosystems. This helps provide a link between isolated patches of forest and strengthens the resilience of these ecosystems.

against impacts such as climate change, bushfire, disease and pests.

Flying-foxes and humans

Habitat loss as well as the lack of food and shelter have pushed flying-foxes to roost and forage in urban areas. As a result, flying-fox interaction with humans has increased along with the misconception that flying foxes are growing in number.

Flying-fox populations have actually declined in the last century and half of the mainland species of flying-foxes in Australia are facing extinction. Factors such as habitat destruction, deliberate shooting, electrocution, heatwaves and climate change are compounded by the fact that flying-foxes are very slow to reproduce.

Flying-foxes are becoming increasingly urbanised, as is being seen in other roosting animals such as lorikeets and the Australian Ibis. This is due to natural foraging and freshwater sources being destroyed or degraded and urban areas providing refuge from predators and access to reliable food and water sources.

Noise, odour and droppings

When flying-fox roosts establish in residential areas, conflict can arise due to amenity impacts caused by noise, odour and droppings. Flying-foxes are highly social animals and use a variety of sounds to communicate with each other about food, threats, social status and to attract a mate. Noise from a roost tends to be loudest at dawn when flying-foxes are returning from their nightly foraging, or at dusk when they are preparing to depart. Unless disturbed, flying-foxes are usually quiet during the day as most are asleep.

The main odour associated with flying-foxes is the scent male flying-foxes use to mark their territory and to attract females during the mating season. This is usually strongest on hot, humid or still days or after rain when males will reapply their scent to branches.

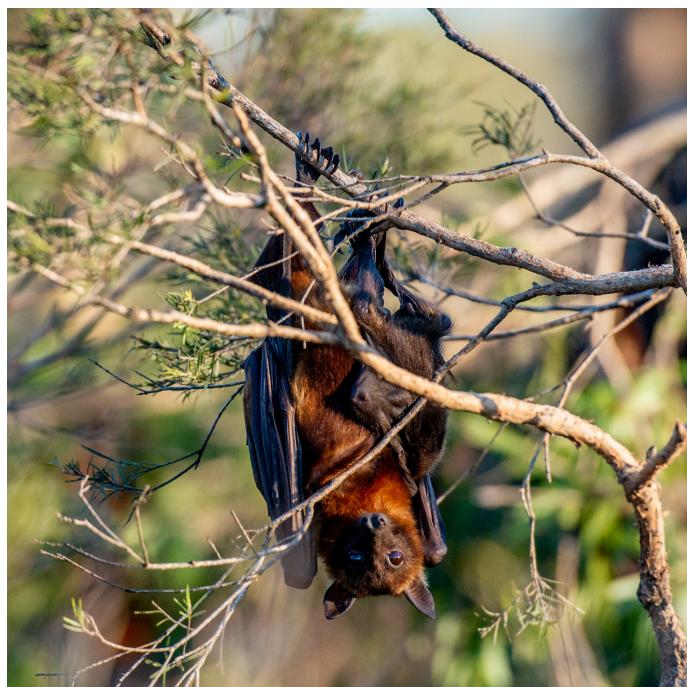
Flying-foxes can digest food as fast as 20 minutes to keep them light-weight for flight, however this means they produce many droppings during their nightly foraging. Flying-fox faeces are best removed with soap and water while practicing appropriate hygiene; flying-fox droppings pose a similar health risk to that of birds and other animals.

Living with flying-foxes

Living nearby to many hundreds of animals is not easy, the following tips may help alleviate some of these impacts:

- Minimise disturbance to the roost
- Trim fruits and flowers of foraging trees near your house, especially near sleeping areas

- Use wildlife-safe netting to protect fruit (holes must be smaller than fingers with no gaps)
- Consider double-glazing windows, external shutters or other treatments to reduce noise in sleeping areas
- Keep windows and doors closed and consider using air conditioning or ceiling fans for cooling
- Bring washing in off the clothesline before sunset or install a cover over your clothesline
- Use covers to protect vehicles and outdoor furniture from flying-fox droppings.



Little red flying-fox with pup under wing

Do flying foxes carry diseases?

Like all animals, flying-foxes are capable of carrying disease. By taking the precaution to never touch a live bat, the risk flying-foxes pose to human health is very low. Australian Bat Lyssavirus (ABLV) is a zoonotic virus that can be transmitted directly from flying-foxes to humans. The virus is estimated to occur in less than one per cent of flying-foxes and human exposure is only possible through direct contact of saliva from an infected animal with a skin penetrating bite or scratch. Only vaccinated and trained persons should ever handle flying-foxes and if a person is bitten or scratched, they should seek immediate medical attention.

Flying-foxes are natural hosts of the Hendra virus, however, there is no evidence that the virus can be transmitted directly to humans. It is believed that the virus is transmitted from flying-foxes to horses through exposure to urine or birthing fluids. Vaccination is the most effective way of reducing the risk of the virus infecting horses.

Do flying foxes contaminate my rainwater?

Droppings from many animals, including flying-foxes, may end up on your roof and be washed into your rainwater tank with rain. Town water provides the safest and most reliable source of drinking water. Where rainwater is collected for drinking purposes, it is recommended that first flush diverters are installed to discard contaminants prior to clean water being collected. For more information on the use of rainwater please call Queensland Health on 1343 2584 (13 HEALTH).

Dead, injured or orphaned flying-foxes

Occasionally, distressed flying-foxes may be encountered on the ground or alone from the main roost site during the day. It is important that members of the public do not handle bats and call RSPCA on 1300 ANIMAL (1300 264 625) for collection by a vaccinated and trained wildlife carer.

Dead flying-foxes on footpaths or public areas can be reported to Council for removal. Council will not collect deceased animals on private property. Deceased flying-foxes can be safely removed by using gloves or a shovel and placing them into a strong plastic bag and disposing in general waste.

Flying-fox roost management

Under the *Nature Conservation Act 1992*, local governments have the authority to undertake flying fox roost management in designated Urban Flying Fox Management Areas. While the Act authorises local governments to undertake certain actions to manage flying-fox roosts, Council is not obligated to do so.

Gladstone Regional Council has adopted a *Statement of Management Intent* to define our approach to the management of flying fox roosts. Council will coordinate the management of flying-fox roosts on Council controlled land and will consider various factors when determining appropriate management actions. The Regional Flying-Fox Management Plan defines the management of current roost sites in the Gladstone Region and supports decision making when new roost sites emerge.

Can flying-fox roosts be moved on?

Sometimes natural departures of flying-foxes are mistaken to be the result of human intervention and this drives the misconception that flying-foxes are easy to move on, however this is not the case. Dispersal of established roost sites often fails as flying-foxes will generally return to the roost site without significant vegetation removal or move to other locations nearby. A study found that in 83 per cent of cases, flying-foxes returned after dispersal (Currey et al, 2018).

Another study found that 88 per cent of attempts failed to move flying-foxes further than 1km and

only transferred the impact to other members of the community. In the minority of dispersal attempts that were considered successful, all cost over \$250,000 and required repeated actions over months or years, and often required extensive removal of vegetation (Roberts et al, 2021). Especially with little red flying-foxes, dispersal attempts risk creating splinter roosts where flying-foxes scatter and spread across a larger area than their original site.

Additional information and resources

For more information on flying-foxes in the Gladstone Region, please visit our website via the following link: www.gladstone.qld.gov.au/wildlife#flyingfoxes

For more information on flying-foxes and human health, please visit the Queensland Government website via the following links:

- www.qld.gov.au/environment/plants-animals/animals/living-with/bats/flying-foxes/about-flying-foxes/living-near-flying-foxes
- www.qld.gov.au/health/condition/infections-and-parasites/viral-infections/bats-human-health

The following journal articles provide further information on the risks and costs of flying-fox roost dispersals:

- Currey, Kaye & Kendal, Dave & van der Ree, Rodney & Lentini, Pia. (2018). Land Manager Perspectives on Conflict Mitigation Strategies for Urban Flying-Fox Camps. *Diversity*. 10. 39. 10.3390/d10020039.
- Roberts, Billie & Mo, Matthew & Roache, Mike & Eby, Peggy. (2021). Review of dispersal attempts at flying-fox camps in Australia. *Australian Journal of Zoology*. 68. 10.1071/ZO20043.



Black flying-foxes