

Living near flying-foxes... health and conservation issues answered

If you live near a flying-fox roost, you may be concerned about risks to your health and curious to know more about them.

Flying-foxes are not a health risk to you unless you are bitten or scratched, so please do not handle them.

Flying-foxes are nocturnal mammals that fly up to 50km in a night to feed on fruit, nectar and blossom. In the process, they pollinate flowers and disperse seeds of important native trees—vital for the health and upkeep of many forest species.

Returning at dawn from feeding areas, flying-foxes hang out together in camps or roosts, some of which have been occupied for centuries.

Clearing of native vegetation has caused a decrease in flying-fox foraging and roosting habitat. That's why some flying-foxes are moving into roost sites near urban areas where food, native and exotic, is generally available all year round.

Flying-foxes often have a strong connection to roost sites and can be extremely resistant to relocation efforts.

Why are flying-foxes important?

Flying-foxes make a significant contribution to maintaining healthy ecosystems as essential pollinators and seed dispersers for native forests. In turn, these forests provide valuable timber, act as carbon sinks, stabilise our river systems and water catchments, and promote recreation and tourism opportunities returning millions of dollars to our economy each year.

Pollen sticks to their furry bodies and as they crawl from flower to flower, and fly from tree to tree, they pollinate the flowers and aid in the production of honey.

Eucalypts rely heavily on these pollinators, producing most of their nectar and pollen at night to coincide with the time when bats are active.

Because flying-foxes are highly mobile, seeds can be moved locally and over great distances. When seeds are able to germinate away from their parent plant, they can have a greater chance of surviving and growing into a mature plant.

Seed dispersal also expands the gene pool within forests. Mature trees then share their genes with neighbouring trees of the same species and this transfer strengthens forests against environmental changes.

Flying-foxes are an important part of the diet of some native predators including the powerful owl *Ninox strenua*, the largest native owl of Australia. Research shows flying-foxes comprised almost half of the total weight of food consumed by a pair of powerful owls over two consecutive years of study.

Community concerns

Flying-foxes are protected by law.

If flying-foxes are impacting on the health and wellbeing of the public or causing damage in a community, individuals or councils may apply to DERM for a damage mitigation permit (DMP) to safely and humanely manage a roost.

A DMP may be granted to disperse flying-foxes by non-lethal means in an effort to move them to a new location. This includes use of a bright light or noise based deterrents for a sustained period of time.

When assessing a DMP application, a range of matters are considered including human health and wellbeing and the likely effects on the survival of the animals in the wild. The dispersal of a flying-fox roost will only be considered as a last option.

The current occurrence of Hendra virus is an important consideration in flying-fox management and DERM works closely with Biosecurity Queensland and Queensland Health in assessing any applications to disperse flying-foxes.

Alternative roosting sites must be available before any attempt to relocate a flying-fox roost is approved.

Illegally disturbing flying-foxes in a roost; driving them from a roost; interfering with their roost; or harming or killing flying-foxes can attract penalties of up to a \$100,000 fine or up to one year's imprisonment.

Are all bats flying-foxes?

No. Over 60 species of bat occur throughout Australia and of these only four are commonly called flying-foxes due to their fox-like faces.

Flying-foxes are amongst the world's largest bats weighing up to one kilogram with a wing span over one metre. They are highly adapted to night time activity, with large eyes particularly suited for recognising colour at night and a strong sense of smell—essential senses for locating their food.

Four species of flying-fox are native to mainland Australia and occur mostly in northern and eastern temperate and sub-tropical coastal areas: the little red flying-fox, the black flying-fox, the greyheaded flying-fox and the spectacled flying-fox.

What do flying-foxes eat?

Flying-foxes feed on blossom and fruit in tall trees—mostly the nectar and pollen from eucalypts, melaleucas and banksias. They also eat leaves. Their diet includes over 100 species of native trees and vines.

This native diet is now supplemented by fruit of introduced plants such as garden and orchard fruit trees, street tree plantings, introduced palms and some noxious weeds such as privet.

Flying-foxes search for food over extensive areas when leaving their roost at dusk. Return trips of approximately 50km are usual. The greatest distance travelled in one night is 400km.

Flying-foxes digest most of their food within 15–20 minutes, so most ingested seed is deposited away from their roosts.

Flying-fox camps or roosts

Flying-foxes are social animals usually living in large groups called roosts—as small as a dozen animals but usually numbering in the tens or hundreds of thousands. A temporary roost of little red flying-foxes can include as many as one million individuals.

The size of a roost is determined by how much fruit and blossom is available within a 20km radius of a roost.

Roosts are at their largest during the flying-fox breeding season from Spring through to Summer.

Changes in the population of a roost reflect where food is available. Production of fruit and blossom is thought to be related to conditions in previous seasons. Extended dry or wet periods, e.g. drought, may have a significant impact on local food availability.

Therefore at times roosts may contain tens, hundreds or thousands of flying-foxes, or none. Some camp sites are occupied permanently, others seasonally and others irregularly.

Roosts are often semi-permanent with flying-foxes leaving seasonally or when food is no longer available nearby, or when an area is overtaken by the impact of encroaching development. Some roosts have histories of use exceeding 100 years.

Flying-foxes are intelligent with good memories that enable them to remember the locations of roosts and associated feeding sites.

Roosts provide a rest site and meeting place for social interaction within nightly commuting distance of food. For several weeks in late spring and summer, they also provide refuge during the day for mother flying-foxes and their young.

During the night, roosts are a safe refuge for flightless young, while adults depart to feed.

Most trees within a roost are occupied by a mix of adults—a single male, who scent-marks and defends a territory shared by one or more females, and their dependent young. Animals often return to the same branch of a tree over many weeks or months.

Physical characteristics of roosts

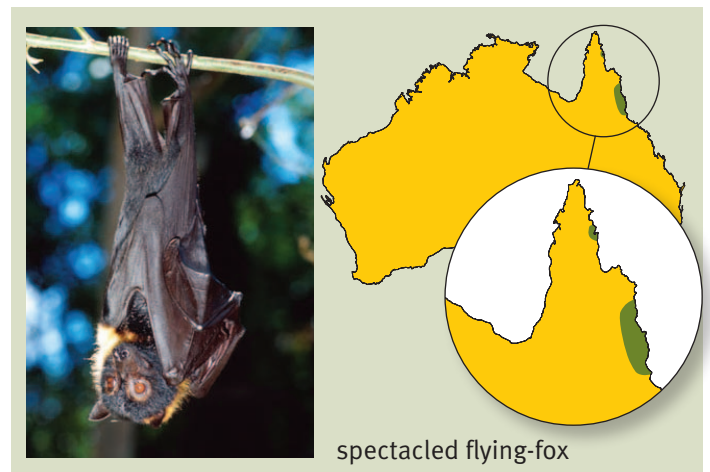
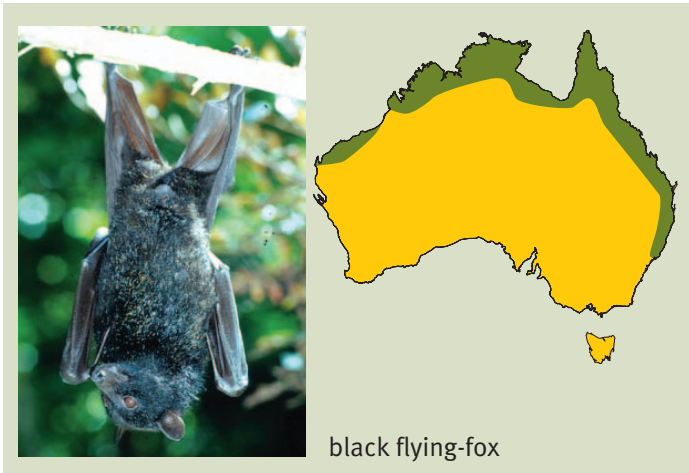
Flying-foxes in coastal lowlands of south east Queensland and New South Wales prefer to roost in vegetation with the following general characteristics:

- a closed canopy at least 5m high
- upper, mid and understorey layers
- dense vegetation within 500m of a river or creek
- within 50km of the coastline or at an elevation less than 65m above sea level
- level topography
- at least one hectare in size
- large enough to accommodate and sustain large numbers of flying-foxes
- generally within less than 20km of food.

Where flying-foxes are found

Flying-foxes are crucial to keeping native forests healthy. They play an important role in dispersing seeds and pollinating flowering plants.

Four species of flying-fox are native to Australia and occur mostly in northern and eastern temperate areas, and sub-tropical coastal lowlands: little red flying-fox, black flying-fox, greyheaded flying-fox, and spectacled flying-fox (Images: Bruce Thomson).



Why so noisy?

Like humans, flying-foxes are very social animals. When at a roost or feeding, they 'squabble' loudly. This mixture of screeches and cackles is a language used to establish personal roost sites or feeding territories, ward off rivals, communicate with offspring, and warn others of possible threats.

Flying-foxes tend to be most vocal during mating season, spring and summer.

The grey-headed flying-fox is known to have more than 30 specific calls. By listening and watching, it may be possible to link some of the flying-fox's behaviour to the calls it makes.

Some calls are special to mothers and young. Mothers carry very young babies out with them while feeding. But the load becomes too much after about six weeks and they leave their protesting youngsters behind. On return to a roost after feeding, mothers can identify their young by voice recognition and individual scent.

When flying-foxes are stressed or frightened, they make even more noise. Colonies tend to be noisiest when disturbed by people and least noisy when left alone.

Safety and health issues

From a public health perspective there is in almost all circumstances no reason for a community to be alarmed if a colony moves in nearby.

In 1996 Australian bat lyssavirus (ABL) was identified in flying-foxes. However ABL is not a reason to fear flying-foxes as it is very rare and preventable. ABL can only be transmitted to humans when infected flying-fox saliva comes into contact with human tissue through an open wound or with mucus membrane eg. eyes, nose and mouth.

Therefore it is very important that flying-foxes are not handled.

Humans are not exposed to the virus if flying-foxes fly overhead or feed or roost in gardens. Nor is the virus spread through droppings or urine, or if you live, play or walk near their colonies.

While there is understandably community concern about the current Hendra virus outbreak, it is important to remember that such outbreaks are rare and occur in exceptional circumstances only.

There is also no indication that humans can catch the virus directly from flying-foxes.

Attempting to move a flying-fox colony could increase the Hendra virus load in those flying-foxes and also spread the virus into other areas.

Don't touch!

If you come across a sick or injured flying-fox, it is essential that you do not handle the animal but report it to experts.

Like any animal in pain or frightened, it may bite or scratch—and that would put both you and the animal at risk. Please notify those who are trained to handle flying-foxes by calling the Department of Employment, Economic Development and Innovation hotline (13 25 23), RSPCA (1300 ANIMAL) or your local wildlife care group.

If you are bitten or scratched, wash the wound immediately with soap and running water for about five minutes. Do not scrub the wound. Seek immediate medical attention. If possible, keep the animal for testing. Do not attempt to handle it yourself. If bat saliva contacts your eyes, nose or mouth, flush the area thoroughly with water and seek immediate medical attention.

Is there more information about flying-fox roosts?

The DERM roost monitoring program is gathering data about the dynamics of flying-fox roosts in Queensland. The program continues to develop our knowledge of roosts, which develops and refines DERM policy and management decisions.

For more information about flying-foxes visit the DERM website <www.derm.qld.gov.au>.

Other contacts:

For more information visit:
Queensland Health <www.health.qld.gov.au> and
Biosecurity Queensland. <www.biosecurity.qld.gov.au> for
issues relating to Hendra virus.