

# Flying-fox Camps

## What are Flying-foxes?

The name 'Flying-fox' (or Fruit-bat) refers to a number of bat species within the group (suborder) known as megabats.

There are three species of Flying-foxes found in northern NSW. These species differ from the much larger group of microbats, (small mostly insectivorous bats that use echolocation for locating food in the dark), by being much bigger in size (wingspan up to about 1 metre), having larger well developed eyes for night vision and a strong sense of smell for location of food.

Flying-foxes travel over hundreds of kilometres in response to food availability (mainly nectar from Eucalypts, Melaleucas and Banksias and fruits of rainforest plants and vines). This results in large fluctuations of bat numbers in roost camps during different times of the year to as low as 20% of peak numbers.

Flying-foxes breed annually giving birth to only one young which is heavily dependent on the mother for at least 6 months.

Because Flying-foxes forage on plant blossoms and rainforest fruits, and are nomadic, they play a vital role in plant pollination, genetic gene flow and seed dispersal to sustain forest ecosystems.

## What are Flying-fox camps?

Flying-foxes roost in communal camps often in large numbers totalling many thousands of animals. Within these camps, Flying-foxes hang exposed from tree branches with little protection from the elements and predators such as eagles.

Individual Flying-foxes often have a strong affinity to one camp and return to the same camp and trees annually. Camp sizes (numbers of individual animals) vary from

season to season in response to local food availability.

Camps play an extremely important role in the ecology of Flying-foxes. Camps provide a secure daytime roosting area where social interaction of individuals occurs and many also act as maternity camps where annual breeding and rearing of young takes place.

Over the last two centuries many of the areas historically used as camps by Flying-foxes have been cleared or heavily disturbed. In particular, this clearing has greatly reduced the areas once used as maternity camps where breeding and rearing of young takes place.

Additionally, widespread clearing of eucalypt forest, swamp forests and rainforest for agriculture and urban settlement has greatly diminished the natural food available for Flying-foxes. These factors, coupled with historic culling of animals, has significantly reduced Flying-fox numbers to a point where both the Grey-headed Flying-fox and the Black Flying-fox have been listed as Vulnerable on Schedule 2 of the NSW *Threatened Species Conservation Act 1995* (TSC Act). The Grey-headed Flying-fox is also listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.



Flying-fox Camp

NSW





# Flying-foxes Occurring in Northern New South Wales

Flying-fox	Description	Roosting habitat	Food resource
<b>Grey-headed Flying-fox</b> Conservation Status: <b>Threatened</b>	Large, grizzled-grey with a wide orange-yellow collar. Fully furred upper legs.	Roost in conspicuous often large camps in lowland rainforest, swamp forest and gullies often in remnants or on islands in rivers. May share camps with Little Red and Black Flying-foxes.	Feed on the fruit, nectar and blossom of more than 80 species of eucalypts and rainforest plants. May eat cultivated fruit in times of natural food shortage.
<b>Black Flying-fox</b> Conservation Status: <b>Threatened</b>	Black with an incomplete rusty-red collar and silvery-grey on belly.	Roost in communal camps in remnants of coastal subtropical rainforest or swamp forest, often in camps with Grey-headed and/or Little-red Flying-foxes.	Preferred food is blossom from flowering eucalypts, paperbarks and banksias but also eat rainforest fruits. May eat cultivated fruit in times of natural food shortage.
<b>Little-red Flying-fox</b> Conservation status: <b>Protected</b>	Smaller Flying-fox with reddish-brown to light-brown fur and sometimes with grey patch on head. Legs sparsely furred or naked.	Nomadic species moving in relation to food supply. Roost in social camps of up to hundreds of thousands, often in association with Grey-headed Flying-foxes.	Feed primarily on blossom, but may forage on fruit, sap and insects when blossom is unavailable. May eat cultivated fruit in times of natural food shortage.

## Management of Flying foxes in rural areas

Crop damage by Flying-foxes can be an important and ongoing problem for some fruit growers in NSW. Although flying-foxes feed mainly on the fruit, blossoms and nectar of native vegetation, they may seek alternative food sources such as commercial and domestic fruit during lean times. When Flying-foxes feed on fruit and blossoms in fruit orchards damage to tree limbs, foliage and fruiting branches as well as to fruit and buds can occur. Crops typically affected in NSW include stone fruit, mangoes, lychees, pome fruit, pawpaw, coffee and bananas.

Flying-foxes and their camps are protected under NSW legislation. The Department of Environment and Conservation (DEC) advocates that full exclusion netting is the only reliable non-lethal crop protection mechanism to protect fruit crops from damage by Flying-foxes. It is acknowledged however that in some circumstances (e.g., orchard topography) this technique may not always be practical. Where such restrictions on exclusion netting occur, the DEC supports investigations into alternate non-lethal damage prevention methods including use of strobe lights,

noise, scare guns and patrolling crops. It is recommended that using a variety of methods in crop management may be useful where exclusion nets are not feasible. (See also "Netting of Commercial and Garden Fruit Trees - guidelines to protect wildlife" on the DEC website)

As a final alternative, the DEC may issue a general licence under s120 of the *National Parks and Wildlife Act 1974* to harm Black, Grey-headed and/or Little Red Flying-foxes where damage to crops can be established, where it is likely that further damage will occur and where alternative protective measures have been investigated without success. Licences to property owners are issued with the understanding that the landowner will shoot to scare and that some incidental harm may occur as a result of this activity.

Should you be considering undertaking an activity that may injure or kill individual animals or clear or damage vegetation in Flying-fox camps, it is recommended that you contact the DEC at the address below to discuss your proposal and determine whether appropriate licensing is advisable.

*Range of the Grey-headed Flying-fox, the Black Flying-fox and the Little Red Flying-fox within Australia*



John Turbill

Grey-headed Flying Fox



NPWS

Little Red Flying-fox



Source: Eby, P (1995), *The Biology and Management of Flying Foxes in NSW*, Species Management Report Number 18, NSW NPWS, Sydney.



### *What can you do?*

Managing the key threats to Flying-foxes can reduce their decline and help recover populations. Management actions may include the following:

- Protecting habitat resources including, in particular, protection and enhancement of critical winter foraging habitats such as coastal eucalypt forests, swamp forests, coastal banksia woodlands and rainforests.
- Protecting and rehabilitating (revegetation and weed removal) Flying-fox camps, particularly known maternity camps.
- Minimising disturbance in and adjacent to Flying-fox camps, in particular during breeding times when animals are in late pregnancy, may be giving birth or are feeding young. These times vary for the three different species. Grey-headed Flying-foxes give birth to young in September to October and rear young for 3 – 6 months. Black Flying-foxes breed slightly later giving birth generally in October to November and Little-red Flying-foxes some 5 – 6 months earlier with birth of young in April to May.
- Encouraging and supporting non-lethal crop protection mechanisms that minimise crop damage while not unduly impacting on Flying-foxes (e.g. netting of crops).
- Encouraging awareness and education of the vital roles that Flying-foxes play in pollination and seed dispersal within forests and rainforests.
- The DEC maintains a database of Flying-fox camp locations in NSW. For information on the database contact the DEC office at the address below.



Little Red Flying-fox

NPWS

### *References and Further Reading*

- Churchill, S (1998), *Australian Bats*, New Holland Publishers (Australia).
- Eby, P and Lunney, L (Ed.) (2002), *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, Royal Zoological Society of NSW.
- Lunney, D and Moon, C (1997), *Flying-foxes and their camps in the remnant rainforests of north-eastern NSW*. In *Australia's Ever-changing Forests III*. Ed. by Dargavel, Centre for Resources and Environmental Studies.
- Hall, L and Richards, G (2000), *Flying-foxes, Fruit and Blossom Bats of Australia*, UNSW Press.
- DEC website:  
[www.environment.nsw.gov.au/flyingfoxes](http://www.environment.nsw.gov.au/flyingfoxes)

### *Further Information*

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