

Australian Museum

Australian *Pteropus* Species – Fact Sheet

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Table of Contents

Introduction	3
<i>Pteropus alecto</i> - Black Flying-fox	4
<i>Pteropus conspicillatus</i> - Spectacled Flying-fox	6
<i>Pteropus poliocephalus</i> - Grey-headed Flying-fox	7
<i>Pteropus scapulatus</i> - Little Red Flying-fox	9
References	10

Introduction

Species belonging to the *Pteropus* genus are part of the order Chiroptera (meaning ‘hand-wing’), commonly known as bats. They were previously considered members of the Megachiroptera sub-order, a classification still popular in literature. *Pteropus* species are also known as flying-foxes or fruit bats. This group comprises the largest bats in the world with some species weighing over 1000 g and having a wingspan of 1.7 m ^[1]. They are generally characterised by large, well-developed eyes, simple external ears and an inability to use true echolocation, relying rather on their eyesight and strong sense of smell to find food ^[2].

There are five Australian *Pteropus* species of which four are found on the mainland in primarily coastal regions, and one is found on Christmas Island. According to the IUCN (International Union for Conservation of Nature) the current conservation status for most of these species is stable, however, dietary, and therefore distributional, limitations means they are threatened by habitat loss through agricultural forest clearing and animal culling (as part of crop management)^[1]. In urban areas, all *Pteropus* species are likely to face additional mortality from electrocutions on power lines, entanglements in barbed wires and netting, shooting in orchards and collisions with vehicles and aircraft. They also suffer due to heat stress events, likely to be exacerbated by climate change effects.

The following species accounts provide information on the ecology and conservation status of the Australian *Pteropus* species most commonly involved in interactions with aircraft (wildlife airstrikes), namely *Pteropus alecto*, *P. conspicillatus*, *P. poliocephalus*, and *P. scapulatus*. Other species occurring in Australia that are probably rarely involved in airstrike include *P. melanotus natalis*, which is found on Christmas Island in low numbers, *P. macrotis*, which has only been spotted once on the Torres Strait Islands of Australia, and *P. neohibernicus*, which has only been recorded on a single occasion in Australia.

Bats are often considered carriers of many infectious diseases, and Australian flying-foxes are associated with Lyssa, Hendra, Nipah and Menangle viruses. It is very uncommon for any person to come in direct contact with a flying-fox. However, as a precautionary measure, it is advisable for an inexperienced person coming across a bat on the ground to contact WIRES (ph: 13 000 WIRES or 13 00 094 737) and under no circumstance, touch or pick up the bat.

Pteropus alecto

- Black Flying-fox



Photography: G B Baker
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Description

As its name suggests, the Black Flying-fox is covered in short black fur but can sometimes also have a reddish-brown or yellow-brown collar. Its belly fur can have a frosted appearance if the fur is flecked with grey tips. The lower legs of this bat are unfurred [3] and faint red-brown eye rings may be present [2]. It is quite a large flying-fox with weights ranging from 500 – 1000 g and forearm lengths ranging from 153 – 191 mm in adults [5].

Distribution & Habitat

P. alecto are commonly found in tropical and subtropical forests, and in woodlands. They form camps in mangrove islands in river estuaries, paperbark forests, eucalypt forests and rainforests [3][5], and are mainly found along coastal and near coastal northern Australia from Shark Bay in Western Australia to central New South Wales [7]. They have a foraging range of approximately 15 – 50 km and will travel this distance from their camps at night. Like other flying-foxes, *P. alecto* is a migratory species, and individuals move large distances in search for food. In favourable conditions, they can return to same camp locations over the years [4][7]. Currently, this species has been moving further south and has been known to share camps with other flying-foxes. Black Flying-

foxes are also found in Indonesia and Papua New Guinea [7].

Diet, Behaviour & Lifespan

Large groups of *P. alecto* can reach hundreds of thousands of individuals and form permanent camps for daytime roosting [2][3]. It is a high-roosting species and seeks fairly dense leaf cover [2]. At dusk, individuals fly out to feed on blossom of eucalypts, paperbarks and turpentines, as well as other blossoms and fruits – native or otherwise [4]. The Black Flying-fox uses its clawed thumbs to hold and manipulate food [4].

Mating occurs in March to April when large males establish a territory on a branch. Females become pregnant before the bats disperse into generally smaller camps for the winter, and re-congregate into large camps during spring and summer, when birthing occurs. Females give birth to one offspring annually around late September – December. Young are completely dependent up to 4 weeks, at which point they will be left at the camp nightly while the mother forages [2][4]. During this 4-week period, the young cannot fly and must grip its mother's fur and nipples [7]. At 2-3 months, the young can fly and they will start to leave the camp nightly to feed. They are weaned at about 5 months, and become sexually mature at about 2 years old (but most females will not reproduce before 3) [2][7].



Photography: H & J Best
© Australian Museum

The Black Flying-fox has a long life-span and can live for over 20 years in captivity, but probably closer to 15 years in the wild ^[4]. Like all *Pteropus* species, this bat has a slow lifecycle and low fecundity (ability of the female to produce numerous young) ^[1].

Conservation Status

Black Flying-fox is generally widespread and common within its range and is classified as a species of 'least concern' by the International Union for Conservation of Nature and Natural Resources (IUCN). While there are no major threats to this species, it is vulnerable to hunting for food within its range and in urban areas is likely to face electrocution on power lines, entanglements in barbed wire, shooting in orchards and individuals also suffer from heat stress events, exacerbated by climate change ^[6].



Distribution of *P. alecto*
Source: P. Eby © P. Eby 2013

Pteropus conspicillatus

- Spectacled Flying-fox



Description

The Spectacled Flying-fox is very similar in appearance to a Black Flying-fox as it is almost completely black. However, it is distinguishable by a patch of straw-coloured fur on its collar and prominent straw-coloured to dirty brown fur surrounding both eyes. This fur can sometimes extend towards the nose. In some cases, the body fur is tipped with grey, giving it a grizzled appearance [2][3]. Adults can vary from 500 – 1000 g in weight and 150 – 183 mm in forearm length [5].

Distribution & Habitat

P. conspicillatus is distinguished from other Australian Flying-foxes by being the only rainforest specialist [2]. They are integral to the rainforest regeneration through seed dispersal and pollination. Of all the mainland Australian *Pteropus* species, the Spectacled Flying-fox has the smallest distribution and population size [8]. Its distribution is limited to within rainforests or areas closer than 6 km to rainforest. As a consequence of this, this species is restricted to the coastal region of north-eastern Queensland [2]. It has a patchy range extending from Cape York to coastal central Queensland [9]. Its foraging range is 20–30 km and it is dictated by food availability [8].

Diet, Behaviour & Lifespan

P. conspicillatus usually roost in camps that only include their own species. They are frugivorous, meaning that fruit makes up a large portion of their diet [2]. Spectacled Flying-foxes eat rainforest fruits, some eucalypt nectar, pollen and wild tobacco plants [3]. When feeding on the latter the animals can get ticks and many Spectacled Flying-foxes suffer and die from tick paralysis each year. Camps have well-defined territories of feeding trees and this species becomes aggressive and territorial after dusk when feeding occurs [2][3].

Mating occurs in March to May but sexual activity occurs for the entire first half of the year. As with most other Flying-foxes, females give birth to one offspring annually around late September – December [2][3]. The young are nursed for over 5 months and, once they are weaned, will continue living in the camp in 'nursery trees' [2].

The spectacled Flying-fox has a life-span of at least 17 years in captivity, however little is known about their lifespan in the wild [5]. Like all *Pteropus* species, this bat has a slow life cycle and low fecundity (ability of the female to produce numerous young) [1].

Conservation Status

While the spectacled Flying-fox is listed as a species of 'least concern' by the IUCN [9], it is considered vulnerable largely due to habitat destruction (large-scale clearing of coastal and upland habitats) and persecution by fruit-growers (electrocution and shooting) [3][9]. In addition, this species has been federally listed as 'Vulnerable' under the Environment Protection and Biodiversity Conservation Act 1999 [8].



Distribution of *P. conspicillatus*
Source: P. Eby © P. Eby 2013

Pteropus poliocephalus

- Grey-headed Flying-fox



Photography: Pavel German
© Pavel German

Description

The Grey-headed Flying-fox is often considered the largest of all the Australian flying-foxes - with a wingspan of up to 1 metre ^[10]. It is the only Flying-fox to have a distinctly broad and complete collar of brownish-orange fur ^[3]. It is also the only flying-fox to have thick leg fur which extends all the way to the ankles. Its body fur is long and dark brown to grey while its head fur is somewhat paler. It can sometimes be mistaken for the Black Flying-fox ^[2] as they are quite similar in size. The average weights vary from 600 – 1000 g and the forearm lengths vary from 152 – 177 mm ^[5].

Distribution & Habitat

P. poliocephalus live in camps that can contain multiple *Pteropus* species. In general, they maintain traditional camps and visit these with varying frequencies in response to patchy food availability ^[2]. Grey-headed Flying-foxes live in a large variety of habitats including rainforests, mangroves, paperbark swamps, wet and dry sclerophyll forests and cultivated areas ^[10]. These bats commonly form their camps in gullies that are not far from water and usually in dense canopy vegetation. They will generally only travel 15 km to forage but can infrequently travel up to 50 km per night ^[2]. *P. poliocephalus*

distribution spreads from Rockhampton in central Queensland to western Victoria along the eastern coastal belt and more recently Adelaide ^[11].

Diet, Behaviour & Lifespan

Grey-headed Flying-foxes eat a large variety of flowering and fruiting plants, orchard fruit, blossoms of eucalypts, angophoras, tea-trees and banksias ^[2]. Orchard fruits are readily eaten, but native blossoms and fruit are preferred. This encompasses over 80 species of plants ^[9].

The social organisation of *P. poliocephalus* revolves around traditional camps. These roost sites are extremely important as they are the locations for mating, birth and rearing of young, as well as refuges from predators ^[2]. These camps can contain up to several hundred thousand individuals during summer and migrations to form smaller camps occur during winter ^[10]. Changing camp sites usually depends on food availability and the sizes of different camps vary ^[5].

Mating occurs throughout the year but most conceptions happen in March or April ^[3]. A single young is born after 6 months and is carried by its mother for 4 – 5 weeks. At 5 weeks, it is left at the camp while the mother forages and is dependent on the mother for 4 – 5 months ^[11]. These bats have sophisticated vocal communications being able to produce over 30 distinct calls. Mothers are able to identify their young through unique calls and their sense of smell when returning from foraging ^[10].



Photography: G B Baker
© Australian Museum

P. poliocephalus are capable of living over 20 years in captivity, but generally do not live past 6 years in the wild ^[12]. The majority of females reach sexual maturity at 3 years of age and if conditions are favourable, they will continue reproducing every year. Hence, like all *Pteropus* species, this bat has a slow life cycle and low fecundity (ability of the female to produce numerous young) ^[1].

Conservation Status

The Grey-headed Flying-fox is listed as a 'vulnerable' species by the IUCN due to continuing declines in population of about 30% over the last 20 years ^{[12][13]}. These bat numbers are predicted to continue declining through threats such as habitat destruction, direct killing as a pest species of orchards and competition for resources with *P. alecto* ^[13]. Heat events which affect all *Pteropus* species are particularly troublesome for juveniles. It is also federally listed as 'vulnerable' under the 'Environment Protection and Biodiversity Conservation Act 1999' ^[11] and also the 'NSW Threatened Species Conservation Act 1995, schedule 2' ^[12]. In Victoria it is listed as 'threatened' under the 'Flora and Fauna Guarantee Act 1988'. Additionally, it is ranked as a critical priority under the Department of Environment and Heritage Protection 'Back on Track species prioritisation framework' and there exists a Recovery Plan for this species ^{[11][13]}.



Distribution of *P. poliocephalus*

Note: Adelaide was added to this distribution first in 2010 and the bats have returned in 2011.

Source: P. Eby © P. Eby 2013

Pteropus scapulatus

- Little Red Flying-fox



Photography: G B Baker
© Australian Museum

Description

The Little Red Flying-fox has short, reddish-brown body fur sometimes with light creamy brown fur where the wing membranes meet the shoulders [3][5]. The head is often dark to pale grey and its lower legs are not furred. As its name suggests, it is distinguished by its small size and distinctively pale brown wings that appear translucent in flight [2][15]. The weight of these Flying-foxes can be between 300 – 600 g and their forearm lengths vary from 117 – 155 mm [5].

Distribution & Habitat

P. scapulatus is a highly nomadic species and is tolerant of a number of different environments, enduring different temperature and humidity ranges and having the largest distribution of the *Pteropus* genus in Australia [2][16]. As a result, this species extends further inland than any other Flying-fox. It is distributed in coastal and sub-coastal regions from Shark Bay in Western Australia through to northern Victoria and, in certain circumstances, South Australia [5]. It roosts in streamside trees during the day and is usually found in sclerophyll woodland, paperbark, bamboo, mangroves and occasionally in orchards [3][17]. Little Red Flying-foxes have an approximate foraging range of 20 – 30 km [14]. Their camps can house over a million individuals and unlike other *Pteropus* species, they prefer to roost

lower to the ground and close to one another, often breaking branches due to their combined weight.

Diet, Behaviour & Lifespan

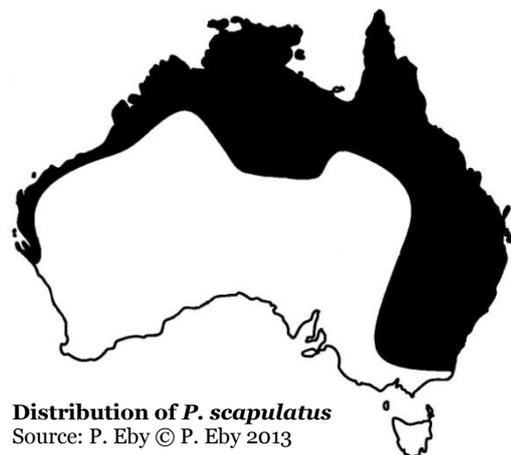
P. scapulatus feeds mostly on eucalypt or melaleuca nectar, as well as native and cultivated fruits, leaves, growing shoots, bark, sap and insects. When food is scarce, however, these bats will raid orchards and damage these crops [2][3]. While the Little Red Flying-fox usually feeds at dusk (and night), they have been known to feed during overcast days [14]. During the day, groups congregate at roosting sites that are near water. They are usually fairly congested and can become extremely noisy during the active periods; namely early morning and late afternoon [2]. They are largely nomadic due to the unpredictability of food supplies.

Unlike other Flying-foxes, the Little Red Flying-fox has a breeding cycle that begins in November – January when mating occurs. Birthing occurs from March – May in camps. Once the young are born, they suckle for one month and are then left at the roost and suckle periodically until they are able to fly (around 2 months of age) [2][5]. For several months thereafter, they are semi-independent until they can perform necessary adult behaviours [14].

P. scapulatus have an average lifespan of over 15 years in captivity; however there is currently no information on their lifespan in the wild [16].

Conservation Status

This species is listed as a species of 'least concern' by the IUCN [17] and is listed as 'Least Concern' under the 'Nature Conservation Act 1992' in Queensland and is ranked as a low priority under the Department of Environment and Heritage Protection 'Back on Track species prioritisation framework' [15]. It is, however, locally threatened by clearing in parts of its range. [17]



Distribution of *P. scapulatus*
Source: P. Eby © P. Eby 2013

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