

Spectacled Flying-foxes (*Pteropus conspicillatus*) feeding in broad daylight

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Abstract

Diurnal feeding was observed in a small colony of Spectacled Flying-foxes (*Pteropus conspicillatus*) in a fig tree (*Ficus* sp.) in Cairns, northern Queensland. Diurnal feeding has generally only been observed in flying-foxes during periods of food shortages, but these individuals did not exhibit any observable signs of emaciation.

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Flying-foxes are the world's largest and most conspicuous bats, with some species reaching wingspans of 180 cm (Almeida *et al.* 2025) and individuals easily detectable foraging in vegetation (Mo *et al.* 2024). In the endangered Spectacled Flying-fox (*Pteropus conspicillatus*), the documented diet consists of the nectar and fruits of more than 30 species of native plants (Richards 1990a; Parsons *et al.* 2007). The spatial and temporal availability of these diet resources are continually shifting, requiring Spectacled Flying-foxes to be mobile (Fox *et al.* 2012), as with other Australian flying-foxes (Tidemann & Nelson 2004; Welbergen *et al.* 2020).

During the day, Spectacled Flying-foxes roost communally in canopy and mid storey vegetation in numbers up to several hundred, which can make them readily noticeable (Fox 2011; Westcott *et al.* 2018). As a paradox to dispersive movements amongst individuals, the Spectacled Flying-fox at a species level exhibits a high level of fidelity to established roosts (Parsons *et al.* 2011). At roosts, they display a range of behaviours including resting,

socialising, territoriality, copulation and pup-rearing (Lunn *et al.* 2021; Mo 2023), but typically not feeding. In fact, roost trees used by flying-foxes are not necessarily diet species.

On 7 August 2025, we observed an aggregation of eight Spectacled Flying-foxes in a fig tree (*Ficus* sp.) at Marina Point, Cairns (16.9186°S, 145.7802°E) (Fig. 1). The group was conspicuous due to the location being heavily developed and tree cover being quite open. At 0810 hr, six flying-foxes were actively feeding on figs in the roost. For most of the ~20 min observation period, individuals were generally spaced between 5 m and 15 m apart and the feeding individuals climbed between branches. On four occasions, individuals came within 1 m of each other. In these instances, interactions were brief, consistently involving a bout of shrieking from one or both individuals before one individual continued in a different direction. Only in one of these interactions did individuals make physical contact. Feeding behaviour was also observed when the roost was revisited later the same day at 14:30 and 17:30 and on 12 August 2025 at 09:20.



Figure 1.
Diurnal feeding
in Spectacled
Flying-foxes.
Photographs:
Matthew Mo.

Anecdotally, wildlife rehabilitators and scientists have observed Australian flying-foxes feeding during the day. In the scientific literature, diurnal feeding in flying-foxes has been reported at least twice, in the Pacific Flying-fox (*Pteropus tonganus*) in Samoa (Pierson *et al.* 1996) and Greater Mascarene Flying-fox (*P. niger*) in Mauritius (Cheke & Dahl 1981). In both these cases, the observations occurred immediately after cyclones had severely reduced

food resource availability. In our observations at Marina Point, the flying-foxes did not exhibit any observable signs of emaciation, so food shortages were unlikely to be the case. Conversely, there have also been previous anecdotal reports received by the Bats and Trees Society of Cairns of Spectacled Flying-foxes departing roosts earlier than dusk and foraging during afternoons in times of abundant melaleuca flowering.

The Spectacled Flying-fox, along with Australia's other flying-foxes, have increasingly formed roosts within urbanised environments over the past few decades, which has been well documented (Tait *et al.* 2014; Timmiss *et al.* 2021). At the time of our observations at Marina Point, we observed other diurnal groups of less than 10 Spectacled Flying-foxes in the Cairns City area. Such small aggregations, especially during winter, have been anecdotally known to local observers (MTK and SS, personal observations) but have to date not been reported in the scientific literature. Instead, published reports of small diurnal groups have been limited to the context of food shortage events, when it is believed flying-foxes alter their roosting ecology to roost closer to immediate food resources (Richards 1990b; Shilton *et al.* 2008). Our observations were also concurrent with an ongoing operation using disturbance stimuli to disperse flying-foxes from coming into roost at a site 500 m west of Marina Point (Roberts *et al.* 2021). This could also account for the small aggregations of flying-foxes in this vicinity if flying-foxes arriving at one site were being dispersed at dawn and resorting to settle hastily at nearby locations.

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