

Observations of Little Red Flying-fox (*Pteropus scapulatus*) feeding on sap of *Eucalyptus resinifera* (Small-fruited Red Mahogany)

Patrick De Geest^A and Alan Gillanders^B

^APO Box 839, Atherton Qld 4883, Australia. Email: patrick@eyesonwildlife.com.au

^B2 Mather Road, Yungaburra Qld 4884, Australia

Abstract

In north Queensland, the Yellow-bellied Glider (*Petaurus australis*) makes incisions in the bark of *Eucalyptus resinifera* (Small-fruited Red Mahogany) to access the sap that flows from these cuts. It is known that other bird and mammal species feed at these incisions including the Spectacled Flying-fox (*Pteropus conspicillatus*), but there is no published record of Little Red Flying-fox (*Pteropus scapulatus*) doing the same. Here we report observations of Little Red Flying-foxes feeding on this sap and provide evidence of agonistic interspecific interactions between it and the Yellow-bellied Glider at a sap-tree.

Copyright all content: © 2021, De Geest & Gillanders. This is an open access article distributed under the terms of the *Creative Commons Attribution License*, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Handling editor: Eric Vanderduys

Citation: De Geest P, Gillanders A. 2021. Observations of Little Red Flying-fox (*Pteropus scapulatus*) feeding on sap of *Eucalyptus resinifera* (Small-fruited Red Mahogany). *North Queensland Naturalist* 51: 26-29.

In north Queensland, incisions in the bark of *Eucalyptus resinifera* (Small-fruited Red Mahogany) are made by the nocturnal Yellow-bellied Glider (*Petaurus australis*) to obtain sap as food (Fig. 1; Smith & Russell 1982; Quin *et al.* 1996). These incisions are visited during the day by a wide variety of birds to obtain sap and insects attracted to the sap (Chapman *et al.* 1999). A variety of nocturnal mammals have also been observed visiting the incisions including Broad-toed Feather-tail Glider (*Acrobates pygmaeus*), Common Brushtail Possum (*Trichosurus vulpecula*), Striped Possum (*Dactylopsila trivirgata*) and Krefft's Glider (*Petaurus notatus*) (observations by PDG and AG), along with the Spectacled Flying-fox (*Pteropus conspicillatus*) (Rupert Russell, personal communication). In this note we report an additional species of nocturnal mammal visiting the incisions to feed, the Little Red Flying-fox (*Pteropus scapulatus*; hereafter LRFF), along with interactions between it and the gliders.

On eight evenings after dark during November and December 2020, we and another observer who

prefers to remain anonymous observed one or two LRFF at or near glider incisions on a single *Eucalyptus resinifera* in wet sclerophyll forest between Ravenshoe and Atherton (Table 1; Figs. 2, 3). LRFF were clearly lapping sap (Fig. 2). On at least six of these evenings, Yellow-bellied Gliders (hereafter YBG) were also present and often observed feeding at incisions in the same tree. Interactions between LRFF and YBG were observed on three evenings. On all occasions, this involved YBG attempting, with some success, to displace LRFF from the incisions. At times these agonistic interactions involved physical contact that was potentially damaging to the LRFF (Table 1). However, on at least two occasions the LRFF held its position and was able to repel the YBG.

During the observation period, *E. resinifera* were flowering and other flying-foxes were often heard nearby – these are assumed to have been taking nectar from the flowers.

The LRFF feeding behaviour observed here is very likely to be opportunistic and rare, or at least



Figure 1. Yellow-bellied Glider *Petaurus australis* feeding on sap from incisions the species has created on *Eucalyptus resinifera*. All photos are by Patrick De Geest.

Table 1. Observations of Little Red Flying-fox (*Pteropus scapulatus*; LRFF) feeding on sap from *Eucalyptus resinifera* by Patrick De Geest (PDG), Alan Gillanders (AG) and Anonymous (X).

YBG = Yellow-bellied Glider.

Date	Time start / end	Observers	Behaviour
23 or 25/11/2020	8.15 pm / 8.20 pm	X	Two cuts on the sap-tree were fed at; each by 1 YBG and 1 LRFF. 1 YBG attacked 1 LRFF repeatedly, say every 30 seconds to every minute, not very seriously, but the RFF held its ground by attacking with its thumb nail. Upon observer leaving the site the action was ongoing.
24/11/2020	11.20 pm / 11.30 pm	PDG & AG	PDG & AG found one LRFF on the sap-tree. LRFF was clearly licking the sap from a cut in the bark of the tree. Images obtained. One YBG higher on the sap-tree.
31/11/2020	8.30 pm / 9.00 pm	PDG & X	There were no LRFF on the sap-tree when observers arrived. Two YBG were feeding on sap. At around 8.40 pm a LRFF that had been circling the tree landed on the tree and made its way to one of the cuts in the sap-tree. PDG left at 8.50pm. After that time, X saw one YBG attacking the LRFF (much more seriously than during the first observation). The YBG bit the LRFF repeatedly on the chest. X expected to see blood or serious injury, but the LRFF flew away.
2/12/2020	7.35 pm / 7.50 pm	AG	One LRFF landed in an <i>Allocasuarina torulosa</i> . to the north of the sap-tree. It did not come to the sap-tree. AG returned to the sap-tree later that night and found a YBG on the tree.
5/12/2020	7.40 pm / 7.45 pm	AG	AG saw one LRFF on the sap-tree, but it left before it could be observed more closely.
7/12/2020	9.00 pm / 10.00 pm	PDG	PDG found 1 LRFF feeding on sap and 2 YBG feeding in the same tree at other cuts. One of the YBG approached the LRFF twice and was rushed off by the LRFF on both occasions. At 9.25 a second LRFF landed on the sap-tree to join the first LRFF on the same cut. At 9.50 pm both LRFF flew off.
8/12/2020	8.30 pm / 8.45 pm	AG & PDG	One LRFF was feeding at a cut on the sap-tree. It flew off upon arrival of the observers. It returned to the sap-tree to feed before observers left. One YBG was also feeding on a cut higher up the sap-tree.
13/12/2020	8.00 pm / 8.05 pm	AG	One LRFF flew off as AG approached the sap-tree.



Figure 2. Little Red Flying-fox (*Pteropus scapulatus*) lapping up sap of *Eucalyptus resinifera*.

underreported. Our observations add to the known repertoire of foraging behaviour and food used by the species. The LRFF is primarily a nectar-feeder with eucalypts featuring strongly as a food source (Hall & Richards 2000; Birt 2004). It is highly nomadic in search of blossom (Welbergen *et al.* 2020). However, the rewards for sap-feeding may have been substantial as the behaviour persisted in the face of strong attempts at exclusion by YBG.

Acknowledgements

We thank Melanie Venz for her suggestion to write up these observations, Don Franklin for providing access to resources, discussions and assistance with editing the draft, and Eric Vanderduys for his assistance with editing the final draft. We thank everyone who replied to our request for observations. We thank the reviewers for their helpful suggestions and comment.

References

- Birt P. 2004. *Mutualistic interactions between the Nectar Feeding Little Red Flying-fox *Pteropus scapulatus* (Chiroptera: Pteropodidae) and Flowering Eucalypts (Myrtaceae): Habitat Utilisation and Pollination*. PhD thesis. University of Queensland: Brisbane.
- Chapman A, Bradford MG, Hoskin CJ. 1999. Sap suckers: a novel bird 'guild' in wet sclerophyll forests of tropical north Queensland. *Emu* 99: 69-72.
- Hall L, Richards G. 2000. *Flying Foxes: Fruit and Blossom Bats of Australia*. University of New South Wales Press: Sydney.
- Quin D, Goldingay R, Churchill S, Engel D. 1996. Feeding behaviour and food availability of the Yellow-bellied Glider in North Queensland. *Wildlife Research* 23: 637-646.
- Smith AP, Russell R. 1982. Diet of the Yellow-bellied Glider *Petaurus australis* (Marsupialia: Petauridae) in north Queensland. *Australian Mammalogy* 5: 41-45.
- Welbergen JA, Meade J, Field HE, *et al.* 2020. Extreme mobility of the world's largest flying mammals creates key challenges for management and conservation. *BMC Biology* 18: Art. no. 101.



Figure 3. On only one occasion were two (and never more) Little Red Flying-foxes (*P. scapulatus*) observed feeding on the sap-tree at the same time.