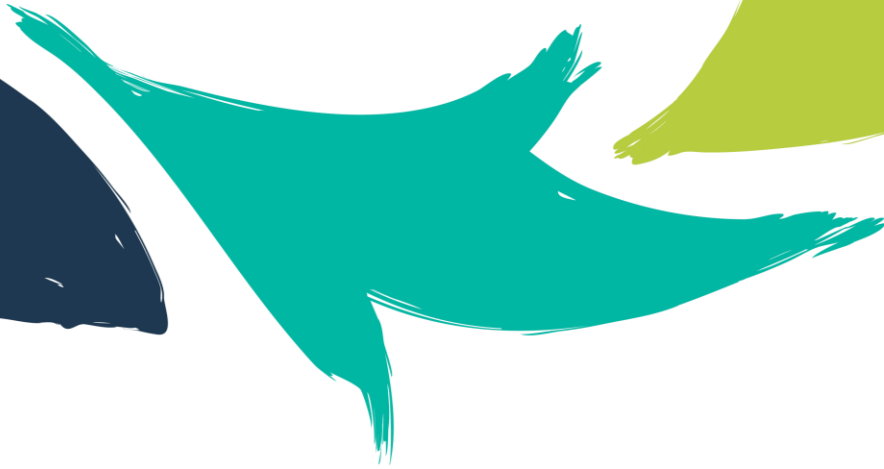


SAVING OUR SPECIES

# Grey-headed flying-foxes as threatened: 20 years on

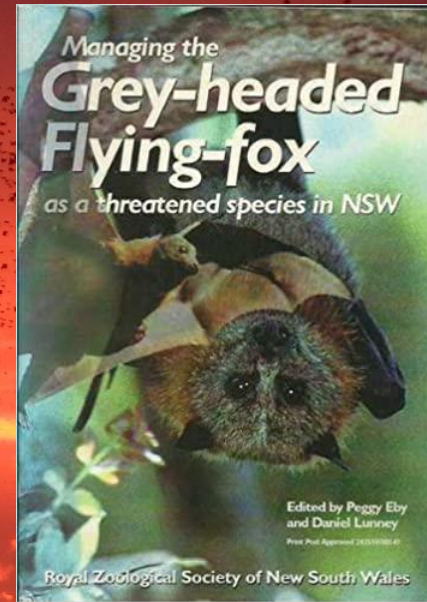
Matthew Mo



First listed as vulnerable in NSW in 2001, the management of the grey-headed flying-fox has changed enormously in the past two decades.

Book cover courtesy of the Royal Zoological Society of NSW

Background photo: Matthew Mo





## Flying-foxes and commercial orchards

2001	Formation of the NSW Flying-fox Consultative Committee
2008	Independent review of flying-fox licensing
2011 – 2017	Flying-fox Netting Subsidy Program
2015	Special circumstances for issuing licences to shoot flying-foxes
July 2020	Further restrictions to special circumstances
July 2021	Phase out of licences to shoot flying-foxes



Photo: Kevin Dodds



## Flying-foxes and commercial orchards

Photo: Kevin Dodds

### Flying-fox Netting Subsidy Program

- Funded by NSW Environmental Trust
- Total investment of \$7.1 million
- Funded 50% of cost of purchasing and installing exclusion netting in commercial orchards
- Achieved netting of 182 ha of crops in the Sydney Basin and Central Coast, and 503 ha in the remainder of NSW
- For full-canopy netting, maximum allowable mesh apertures were 30 mm diameter
- For throw-over netting, maximum allowable mesh apertures were 5 mm diameter





## Flying-foxes in urban areas

A few highlights ...

- Flying-fox Camp Management Policy 2015
- NSW Flying-fox Land Managers' Network
- Delivery of Flying-fox Grants Program
- Development of resources
  - Camp management plan template
  - Education materials
  - FlyingfoxEngage
  - Camp management case studies
  - Review of subsidy programs
  - Review of camp dispersal outcomes



Photo: Matthew Mo



## Flying-foxes in urban areas

Photo: Matthew Mo

### Flying-fox Grants Program

- Total investment of >\$1.7 million from 2016 to 2020
- Funded 74 projects implemented by 39 land managers
- Projects involved:
  - preparation of camp management plans
  - community engagement and education
  - buffer creation
  - habitat restoration
  - heat stress mitigations
- None of these funds were spent on camp dispersals





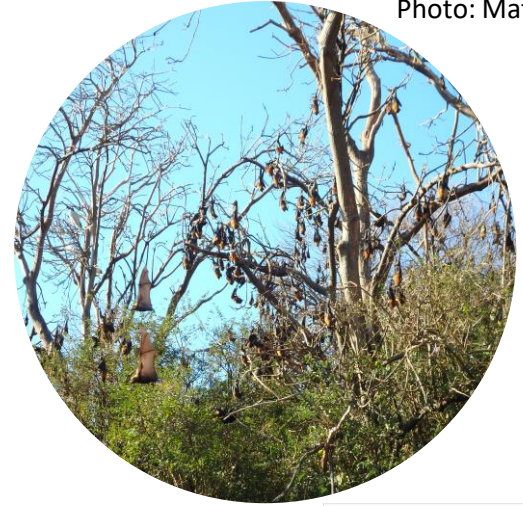
# Flying-foxes in urban areas

Photo: Matthew Mo

PROJECT CASE STUDY

## Updated study of camp dispersals

- Review of outcomes of 48 camp dispersals
- In 88% of cases, replacement camps formed within 1 km and became sites of transferred conflict
- In 58% of cases required repeat actions over months or years
- Only 23% of cases were considered 'successful' but required extensive destruction of roost habitat
- No dispersal attempts costing less than \$250k proved successful
- Study reinforces preference for *in-situ* management
- Soon to be published in *Australian Journal of Zoology*



### From cleared buffers to camp dispersal: mitigating impacts of the Kareela flying-fox camp on adjacent residents and schools

Matthew Mo<sup>1</sup>, Mike Roache<sup>2</sup>, Rebecca Williams<sup>1</sup>, Ian N. Driessens<sup>2</sup> and Beth Noel<sup>1</sup>

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The roosts of the Kareela flying-fox camp in southern Sydney, New South Wales, is a well-studied site of the largest localised bat roosts in urban areas. Flying-foxes roost in large numbers in trees and shrubs surrounded by public land managed by the State Government. Over the past 20 years, the flying-fox camp has been the subject of numerous management actions, including the removal of trees and shrubs, the installation of netting and the use of repellents. However, the camp has remained a significant source of conflict for residents and schools. This study examines the impact of a new management strategy, the removal of trees and shrubs, on the camp's structure and the dispersal of flying-foxes. The study found that the removal of trees and shrubs led to a significant increase in the number of flying-foxes roosting in the remaining trees and shrubs. This suggests that the removal of trees and shrubs may not be a sustainable long-term solution for managing the camp. The study also highlights the importance of understanding the social and political context of flying-fox camp management in addition to biological aspects.

**Keywords:** Camp dispersal, Conservation, Flying-foxes, Karoola, Sydney, Urban areas, Wildlife management

DOI: <https://doi.org/10.1002/ajz.1255>

**Introduction**

Conservation actions to manage flying-fox camps are complex and often require a multi-disciplinary approach. The removal of trees and shrubs is a common management strategy, but it can have significant impacts on the camp's structure and the dispersal of flying-foxes. This study examines the impact of a new management strategy, the removal of trees and shrubs, on the camp's structure and the dispersal of flying-foxes. The study found that the removal of trees and shrubs led to a significant increase in the number of flying-foxes roosting in the remaining trees and shrubs. This suggests that the removal of trees and shrubs may not be a sustainable long-term solution for managing the camp. The study also highlights the importance of understanding the social and political context of flying-fox camp management in addition to biological aspects.

### Congregations of a threatened species: mitigating impacts from Grey-headed Flying-fox *Pteropus poliocephalus* camps on the Batemans Bay community

Matthew Mo<sup>1</sup>, Mike Roache<sup>2</sup>, Leah Lensen<sup>1</sup>, Heidi Thomson<sup>1</sup>, Mitchell Jarvis<sup>1</sup>, Natalie Foster<sup>1</sup>, Angie Radford<sup>1</sup>, Lorraine Oliver<sup>1</sup>, Damon L. Oliver<sup>1</sup> and Jess Bentley<sup>1</sup>

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<sup>3</sup>Corresponding author. Email: matthewmo@gov.nsw.gov.au

The impacts of flying-fox camps on the Batemans Bay community have been well-documented. Flying-foxes roost in large numbers in trees and shrubs, causing significant impacts on the community. This study examines the impact of a new management strategy, the removal of trees and shrubs, on the camp's structure and the dispersal of flying-foxes. The study found that the removal of trees and shrubs led to a significant increase in the number of flying-foxes roosting in the remaining trees and shrubs. This suggests that the removal of trees and shrubs may not be a sustainable long-term solution for managing the camp. The study also highlights the importance of understanding the social and political context of flying-fox camp management in addition to biological aspects.

**Keywords:** Camp dispersal, Conservation, Flying-foxes, Karoola, Sydney, Urban areas, Wildlife management

DOI: <https://doi.org/10.1002/ajz.1256>

**Introduction**

Conservation actions to manage flying-fox camps are complex and often require a multi-disciplinary approach. The removal of trees and shrubs is a common management strategy, but it can have significant impacts on the camp's structure and the dispersal of flying-foxes. This study examines the impact of a new management strategy, the removal of trees and shrubs, on the camp's structure and the dispersal of flying-foxes. The study found that the removal of trees and shrubs led to a significant increase in the number of flying-foxes roosting in the remaining trees and shrubs. This suggests that the removal of trees and shrubs may not be a sustainable long-term solution for managing the camp. The study also highlights the importance of understanding the social and political context of flying-fox camp management in addition to biological aspects.



Photo: Matthew Mo

## Population trends

### National Flying-fox Monitoring Program

- A collaboration between the Commonwealth and state governments and CSIRO
- Involves a number of volunteers, land managers, departmental staff and community organisations
- Quarterly censuses since November 2012
- Ongoing, though some recent disruptions due to COVID-19 pandemic







## Habitat restoration

- Numbers of restoration projects being implemented through Saving our Species and other organisations
- Others funded by Flying-fox Grants Program
- Flying-fox Habitat Restoration Program
  - \$5 million from NSW Environmental Trust
  - Being administered by Local Government NSW



Photo: Matthew Mo



## Combating flying-fox mortalities

A few recent highlights ...

- Consultation to clarify roles and responsibilities in heat stress management
- Heat stress research partnership
- Collaborative documentation of 2019-20 extreme heat events
- Support of wildlife carers
  - Partnership with Woolworths during 2019-20 extreme heat events
  - Updated *Code of Practice for Injured, Sick and Orphaned Flying-foxes* and other resources



Photo: Matthew Mo



## Cross-jurisdictional collaboration

Photo: Matthew Mo

### PROJECT CASE STUDY

#### Multiregional species funding

- A Commonwealth funding package
- Saving our Species coordinating grey-headed flying-fox stream
- Project proposals were sought, resulting in 93 expressions of interest
- Triage of project proposals was assisted by a working group of 13 species experts, 5 state/territory govt representatives and 2 local govt representatives
- Commonwealth shortlisted 12 projects, totalling \$970k in proposed funding



Please get in  
contact!

# Flying.Fox

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Photos: Matthew Mo