Australasian Bat Society Flying-Fox Expert Group

Justin A. Welbergen

President | The Australasian Bat Society, Inc

ausbats.org.au

@AusBats

PO Box 481, Lindfield, New South Wales 2070

E-mail: president@ausbats.org.au

The ABS Flying-Fox Expert Group

- The Flying-fox Expert Group (FFEG) is a subcommittee of the Australasian Bat Society (ABS) executive.
- It aims to be a primary source of reliable, accurate information on Australasian flying-foxes.
- It comprises flying-fox specialists from research, advocacy, government, industry, education, and carer networks.

PO Box 481, Lindfield, New South Wales 2070
E-mail: flying-fox@ausbats.org.au

The ABS Flying-Fox Expert Group

- It encourages sustainable, evidence-based flying-fox management throughout Australia
- and advocates for a nationally-coordinated approach.

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The ABS Flying-Fox Expert Group

Recent examples of FFEG submissions & activities include:

- Parliamentary Inquiry into flying-fox management in the eastern states
- GHFF draft recovery plan
- Local camp management issues in Qld and NSW

Near-future activities:

- Guidelines for responding to flying-fox heat stress events (see “Workshop 2”)

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The ABS Flying-Fox Expert Group

If you would like to contribute to the FFEG, please contact the convenors Jess Bracks and Maree Treadwell Kerr via flying-fox@ausbats.org.au

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Thank you!

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BatsLab flying-fox research overview

Justin A. Welbergen

Lab of Animal Ecology, Hawkesbury Institute for the Environment, Western Sydney University

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WESTERN SYDNEY UNIVERSITY

Hawkesbury Institute for the Environment

@BatsLab

@AnimalEcoLab

THE UNIVERSITY OF MELBOURNE

JAMES COOK UNIVERSITY AUSTRALIA

Centre for Tropical Biodiversity & Climate Change

Department of Zoology

UNIVERSITY OF CAMBRIDGE

‘BatsLab’ is a recent collaborative initiative to create a much-needed primary academic destination for bat research in Australia

It combines interests in behavioural ecology, ecophysiology, and conservation biology to help understand the drivers of bat declines and provide information for management.

Current projects on flying-foxes include–

1) Movement ecology
2) Social organization
3) Vulnerability to extreme heat events
4) Christmas Island flying-fox ecology & conservation

Affiliated projects–

5) Human vs flying fox conflict
6) Factors influencing camp establishment and occupancy
7) Hendra research

1. Movement ecology of flying-foxes

Chief Investigators: **Justin A. Welbergen** & **Christopher Turbill**
Partner Investigator: **David Westcott**
Postdoc: **Jessica Meade**
Collaborators: **John Martin**, **Adam McKeown**, **Sydney Gauthreaux**
Funding Body: ARC DISCOVERY (DP170104272)
Period: 2017-2020

Aim:
To develop a mechanistic understanding of the movement ecology of flying-foxes, from local to continental scales.

Questions:
- How do flying-foxes navigate?
- What are the *internal* and *external* drivers of flying-fox movements?

1. Movement ecology of flying-foxes

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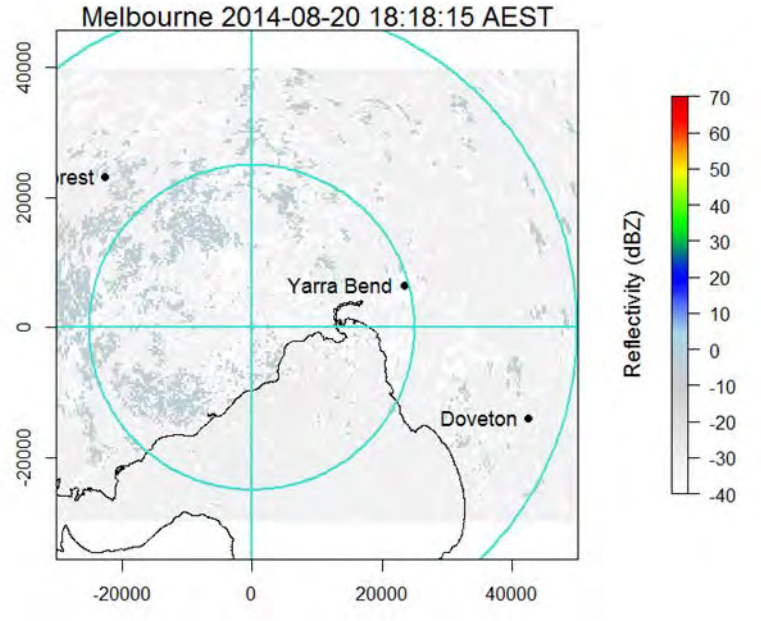
GPS telemetry & biologging

Westcott *et al*

Satellite telemetry

Martin & Welbergen

Doppler radar



Welbergen *et al*

2. Social organisation of flying-foxes

Investigators: **Justin A. Welbergen *et al***
Funding support: Hawkesbury Institute for the Environment
Period: long-term, ongoing

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Hawkesbury Institute for the Environment
Department of Zoology
UNIVERSITY OF CAMBRIDGE

Aim:

- To better understand the causes and consequences of social organization in flying-foxes

2. Social organisation of flying-foxes

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Period: long-term, ongoing

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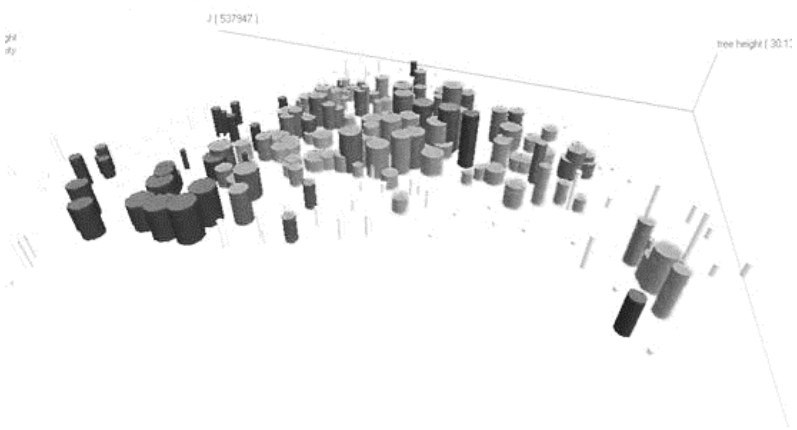
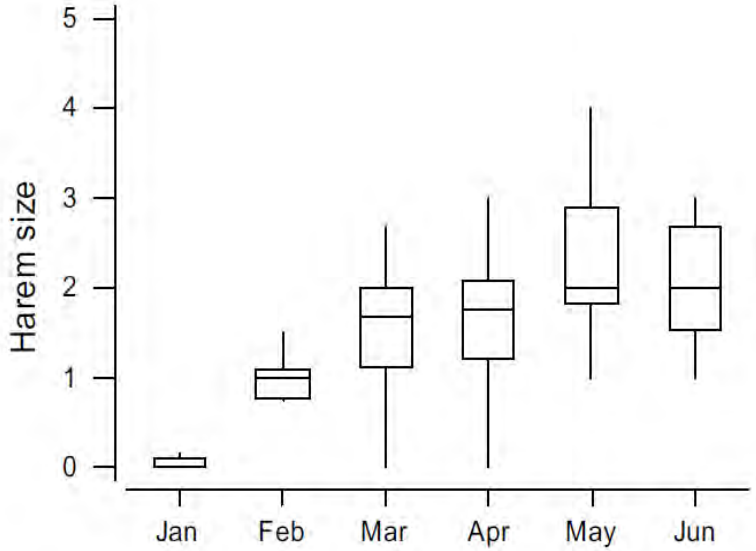
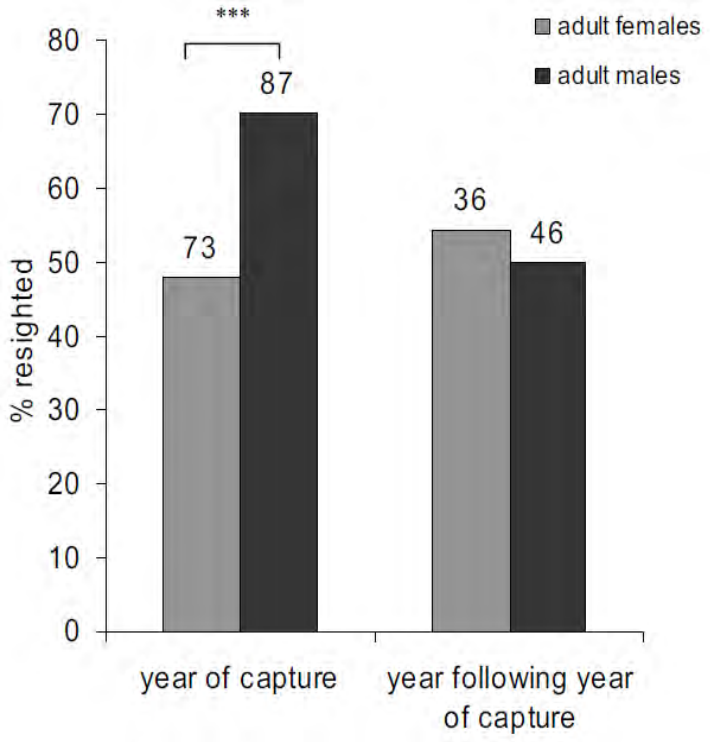
Social structure



Mating system



Site-fidelity



Welbergen, 2005 PhD Thesis (Cambridge); Welbergen, 2011 *Oecol* 165, 629-637; Welbergen, 2010 *J Mamm 91:38-47;* Welbergen, 2006 *Behav Ecol and Sociobiol*, 60: 311-322; Welbergen, Golding & Martin, *submitted*

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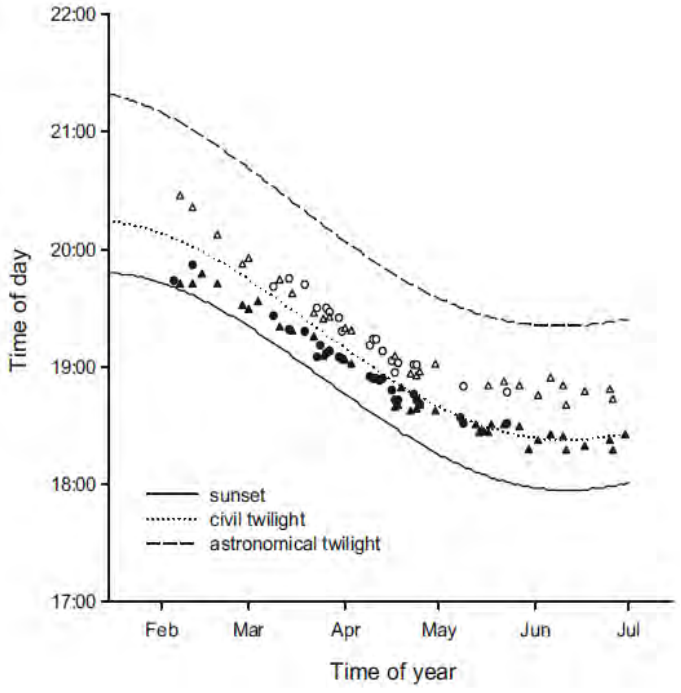
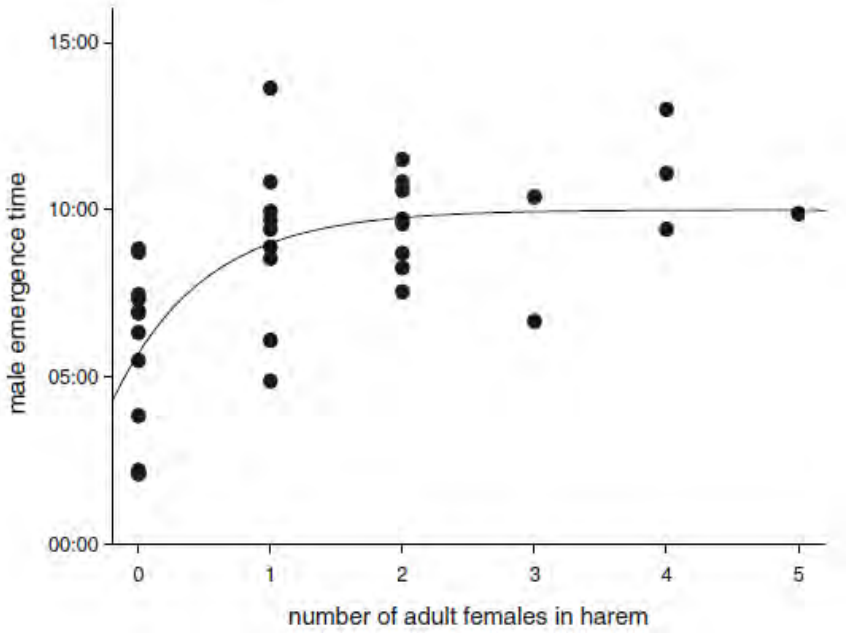
Emergence timing





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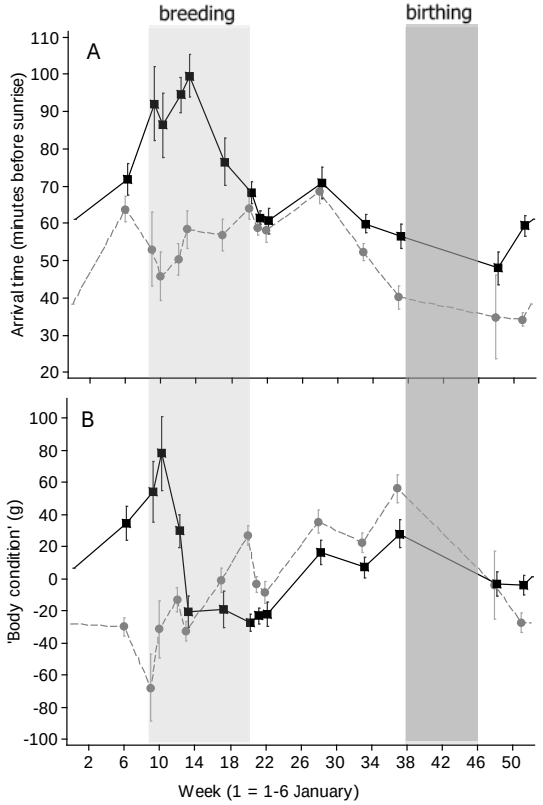

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3. Vulnerability of flying-foxes to extreme heat events

Investigators: **Justin A. Welbergen *et al***
Funding support: Hawkesbury Institute for the Environment
Period: long-term, ongoing

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Aims:

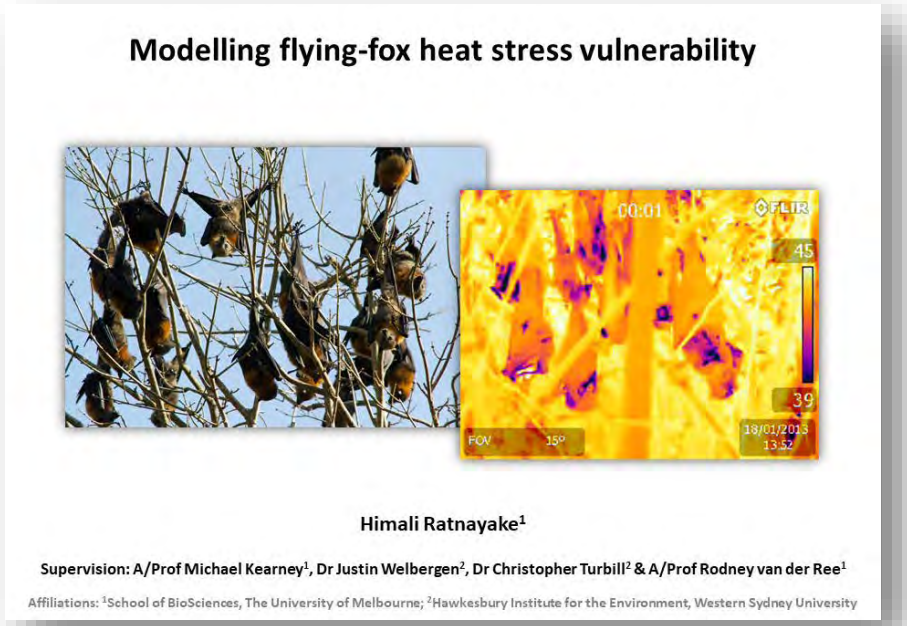
- To better understand the vulnerability of flying-foxes to extreme heat events (past, present, and future)
- To help improve management responses

Welbergen *et al,* 2008 *Proc Roy Soc B,* 275, 419-425; Welbergen, 2012 ISBN: 978-84-87790-69-0; Welbergen *et al, The Conversation 24-2-2014;* Welbergen *et al, in prep; Ratnyake et al in prep*

3. Vulnerability of flying-foxes to extreme heat events

Investigators: **Justin A. Welbergen *et al***
Funding support: Hawkesbury Institute for the Environment
Period: long-term, ongoing

See Himali's talk later in this Session 1



My talk in Session 4– Workshop 2

Welbergen *et al,* 2008 *Proc Roy Soc B,* 275, 419-425; Welbergen, 2012 ISBN: 978-84-87790-69-0; Welbergen *et al, The Conversation 24-2-2014;* Welbergen *et al, in prep; Ratnyake et al in prep*

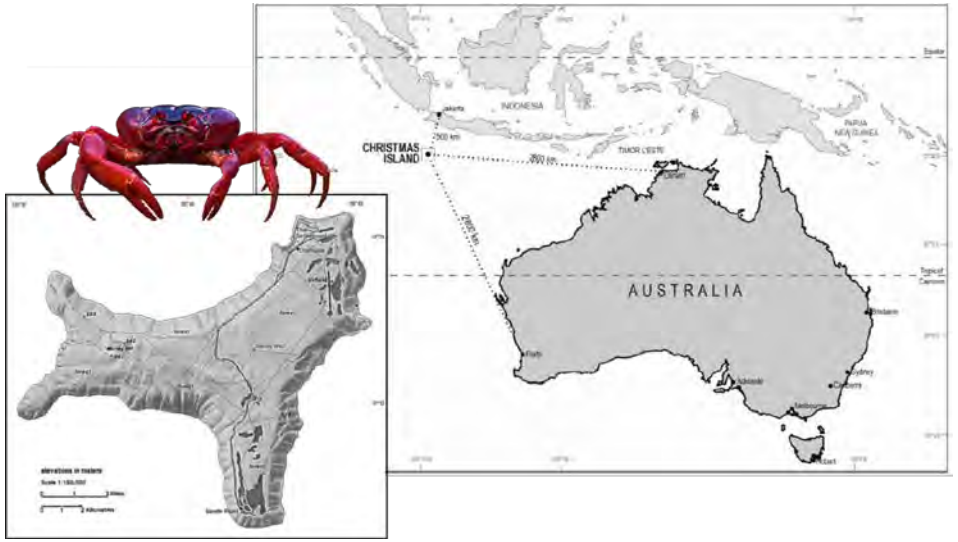
4. Christmas Island Flying-Fox (CIFF) Research Program

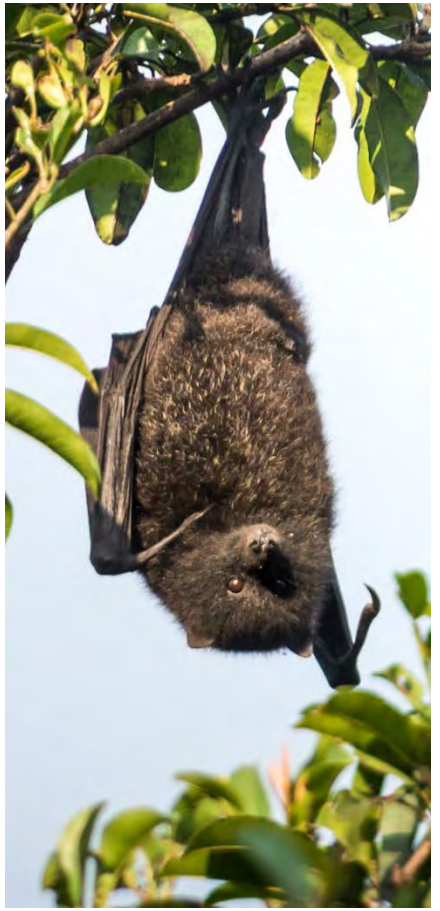
Investigators: **Justin A. Welbergen**, **Karrie Rose**, **John Martin**, **David Phalen**, **Debashish Mazumder** & **David Westcott**
Partner/Funding Body: Taronga Conservation Society; Hawkesbury Institute for the Environment
Period: 2016-2020

Aims:

- Determine why the CIFF is declining, and help design a plan for its recovery

- Develop CIFF as model system for understanding and reversing declines of flying-foxes on other islands





4. Christmas Island Flying-Fox (CIFF) Research Program

Brings together a multi-institutional consortium with expertise in animal ecology, conservation biology, wildlife disease and ecotoxicology

- Western Sydney University
- Taronga Conservation Society Australia
- CSIRO
- The Royal Botanic Gardens and Domain Trust
- University of Sydney
- EcoHealth
- ANSTO
- Parks Australia

4. Christmas Island Flying-Fox (CIFF) Research Program

PhD 1 (Christopher Todd)

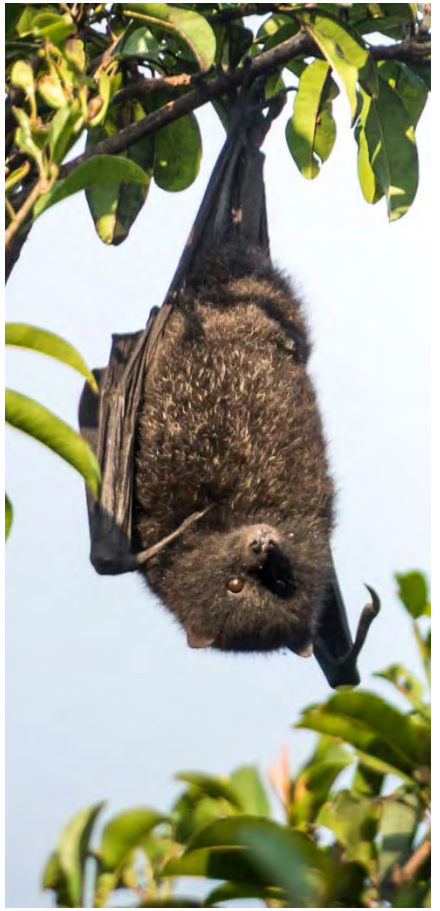
- **STATUS: Determine the population size and trend of the CIFF**
  - Develop robust methodology for determining abundance with defined confidence
- **ECOLOGY: Determine the critical elements of CIFF autecology**
  - Demography and life history
  - Foraging and roosting ecology

PhD 2 (Laura Pulscher)

- **THREATS: Identify the key processes threatening the CIFF**
  - Physical – invasive species; habitat loss
  - Health – disease, parasites; pollution

PhD 3 (TBA)

- **MANAGEMENT: Develop adaptive CIFF recovery planning and management recommendations**
  - Provide spatially-explicit and threat-specific targets for management and recovery



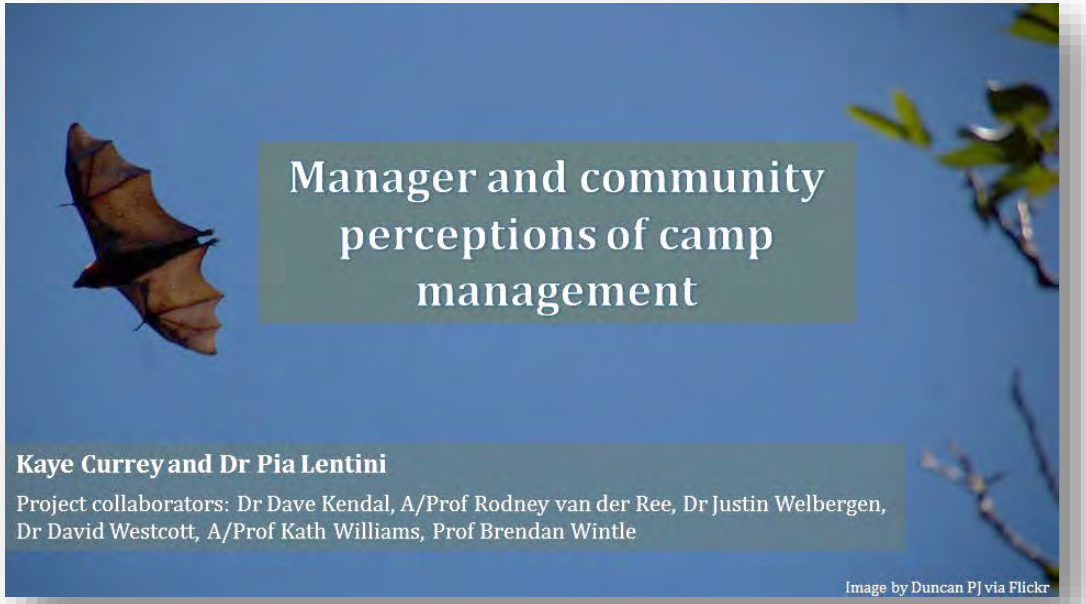
5. Resolving human-flying fox conflict in the face of environmental change

Chief Investigators: **Brendan Wintle**, **Kathryn Williams** & **Justin A. Welbergen**
Partner Investigators: **Dave Kendal**, **Rodney van der Ree** & **David Westcott**
Postdoc: **Pia Lentini**
Funding Body: ARC LINKAGE (LP160100439)
Period: 2017-2019

Aims:

- To identify socially-acceptable priority areas to be managed for the long-term viability of flying-foxes
- To develop strategies to mitigate human-flying fox conflict.

See Kaye & Pia's talk earlier in this Session



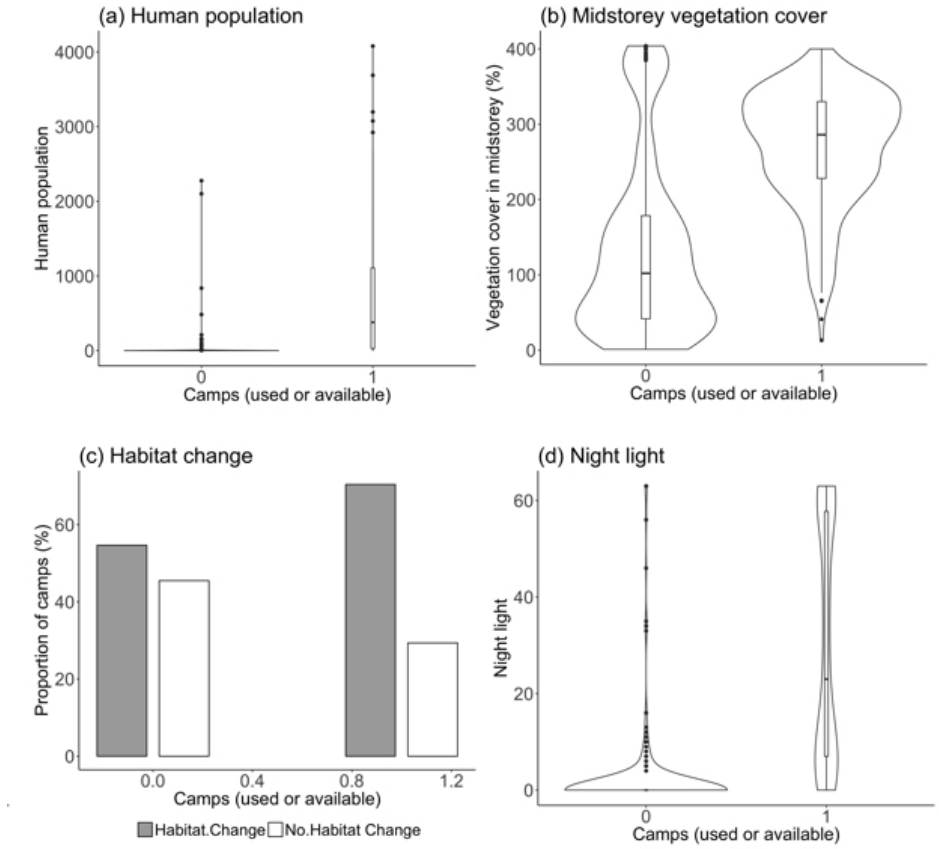
6. Spatial factors influencing the establishment and occupancy of camps

Honours student: **Elisabeth Timmiss** (UNSW)
Supervisors: **Richard Kingsford**, **Nick Murray**, **John Martin & Justin A. Welbergen**
Funding support: UNSW
Period: 2017 (due tomorrow!)

‘Why do flying-fox camps occur where they do?’

Aims:

- To identify the landscape attributes associated with camps locations (national scale)
- To identify the camp attributes that influence the temporal patterns in local flying-fox abundance (Greater Sydney Region)



7. Landuse change and HeV dynamics

Fulbright student: **Maureen Kessler** (University of Montana)
Host: **Justin A. Welbergen**, Western Sydney University
Supervisors: **Raina Plowright, Alison Peel, Peggy Eby & Hamish McCallum**
Funding body: US Fulbright Program
Period: 2018

Aim (under development):

- "To understand how degraded native forest and associated resource limitation alter foraging behaviour of flying foxes, driving urban habituation and disease risk"

Thank you!

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