

Communication and education to mitigate human/flying-fox conflict



Maree Kerr

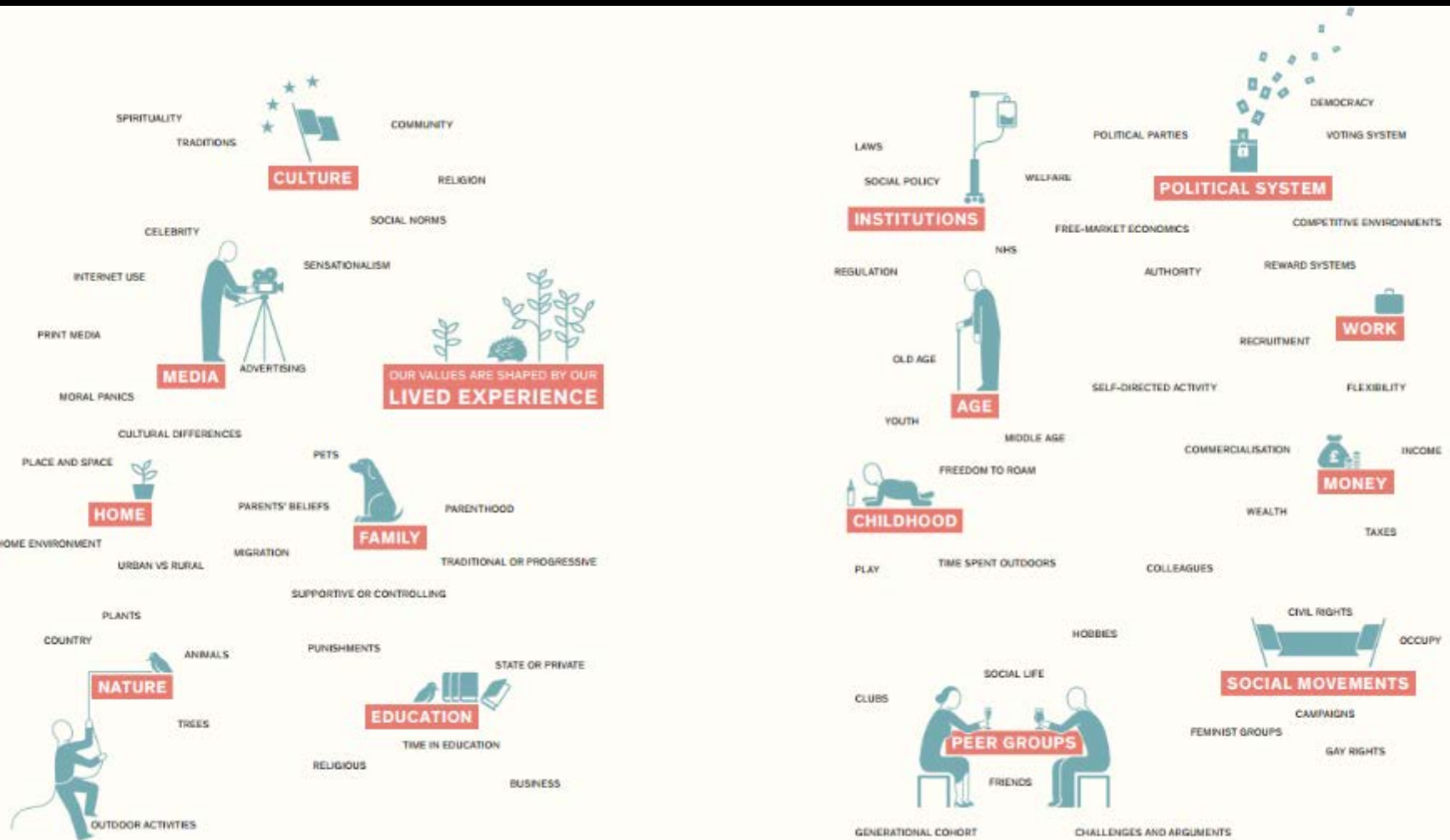
Griffith University

“Urban Bat Wars”

Can flying-fox – human conflict be resolved through education and application of Values Theory?

- Urban flying-foxes - a human problem
- Education can facilitate attitudinal change - Greater the wildlife knowledge – more positive the attitude
- Provision of information on its own will not change attitudes
- We need to understand underlying values
- Effectiveness of education decreases as conflicts escalate

Societal Values



<http://www.commoncause.org.au/>

Our lived experience, culture, and education shape our world views

Wildlife Value Orientations

Anthropocentric / **eco-centric**

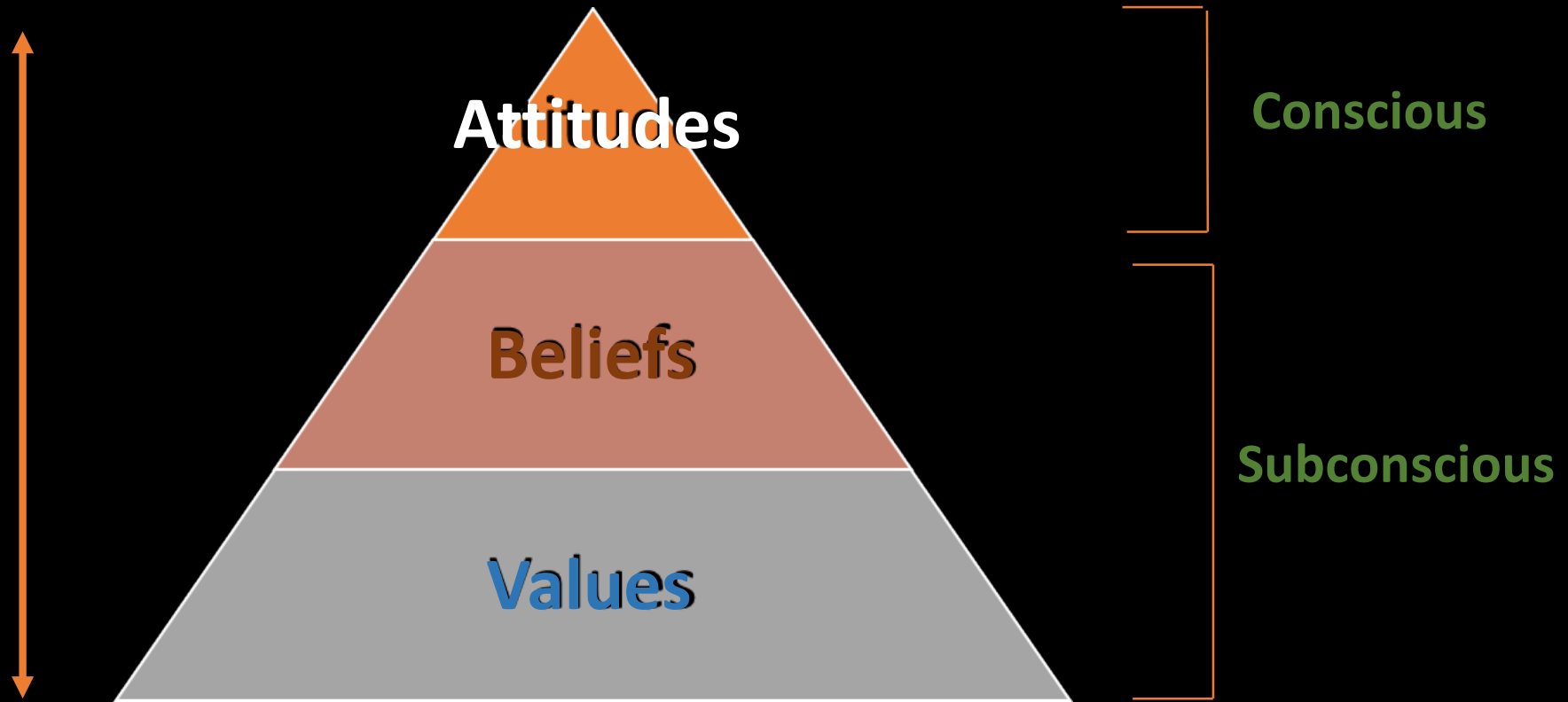
- **Utilitarian** - wildlife as useful to humans
- **Naturalistic** – valuing wildlife as part of nature
- **Ecologistic / Scientific** – wildlife valued for own sake
- **Aesthetic/Symbolic** – valued for beauty and/or symbolism
- **Humanistic** – affection for animals
- **Moralistic** – duty to care for wildlife
- **Dominionistic**– right to control wildlife
- **Negativistic** – fear or indifference to wildlife
- **Neutralistic** – disinterest and apathy. Not connected to nature.

from Kellert 1996

Our world view determines how we think about wildlife

Changing attitudes

Closest to surface – easiest to change



Deepest – hardest to change

Adapted from Fulton 1997

Education potential

Characteristic	Group	Likely effectiveness of education	Priority for education
Attitude towards bats	Positive	improve knowledge only	Low
	Ambivalent	Potential to change attitudes	High
	Negative	Limited	Medium
Potential for bat conservation influence	Decision makers- eg Government	Very important	High
	Influential – eg industry bodies, media	Important	High
	Directly impacted – eg orchardists and residents near camps	Important	High
	Not impacted – general public	Important to build support for bat conservation	Medium

Research Questions

- How do education/ interpretation programs affect attitudes?
- What components are most effective in influencing attitudinal change?
- Are there better ways to educate and engage people and deliver messages?



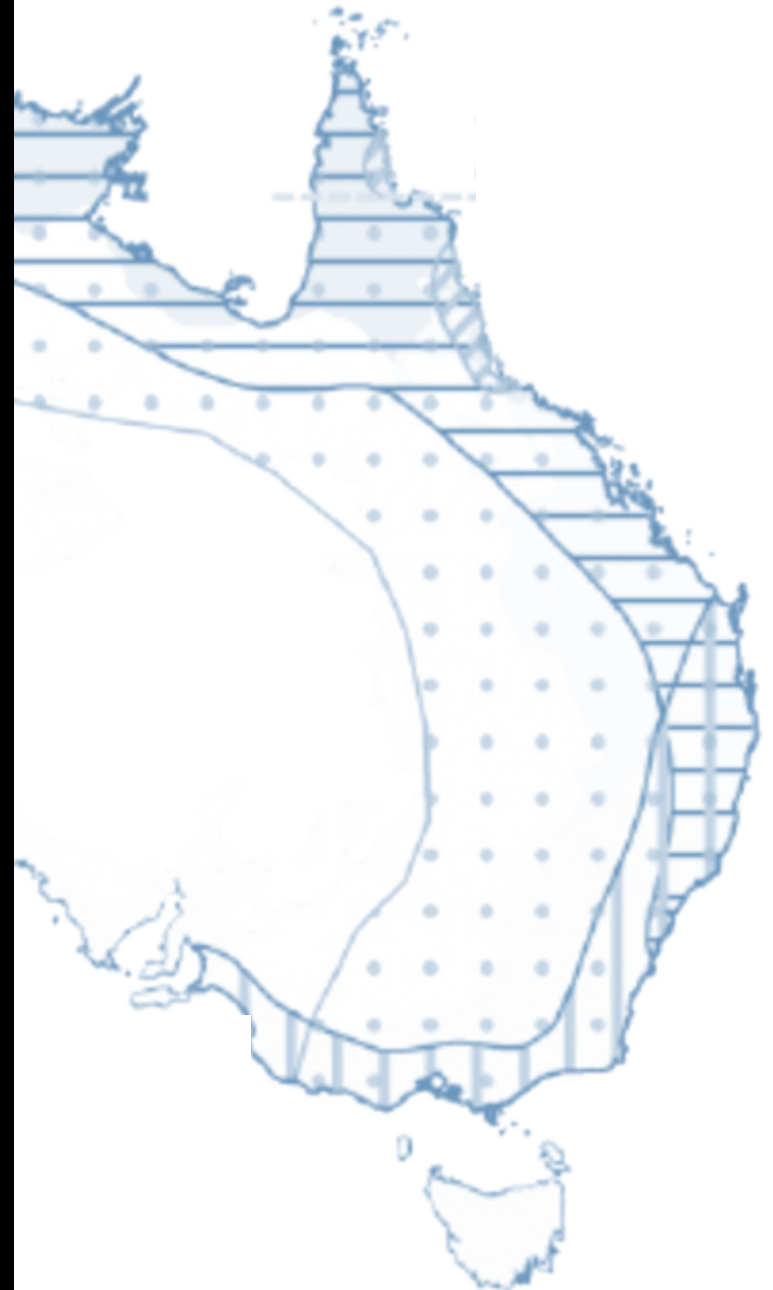


Research overview

- Media Content Analysis
- Assess communication programs (before and after questionnaires)
 - Formal education (Schools)
 - Public interpretive programs
 - Community Engagement Programs
- Host communities and bat tourism
- Interpretive signage experiments
textual content analysis
- Participatory learning
(student projects and citizen science)

Study Area

- East coast Australia:
 - Far North Queensland
 - Central Qld & SE Qld
 - Northern Rivers NSW, Hunter, Central Coast & Sydney
 - Melbourne & Regional Vic
 - Adelaide
 - Canberra
- Differing levels and histories of conflict
- Capital and regional cities / towns



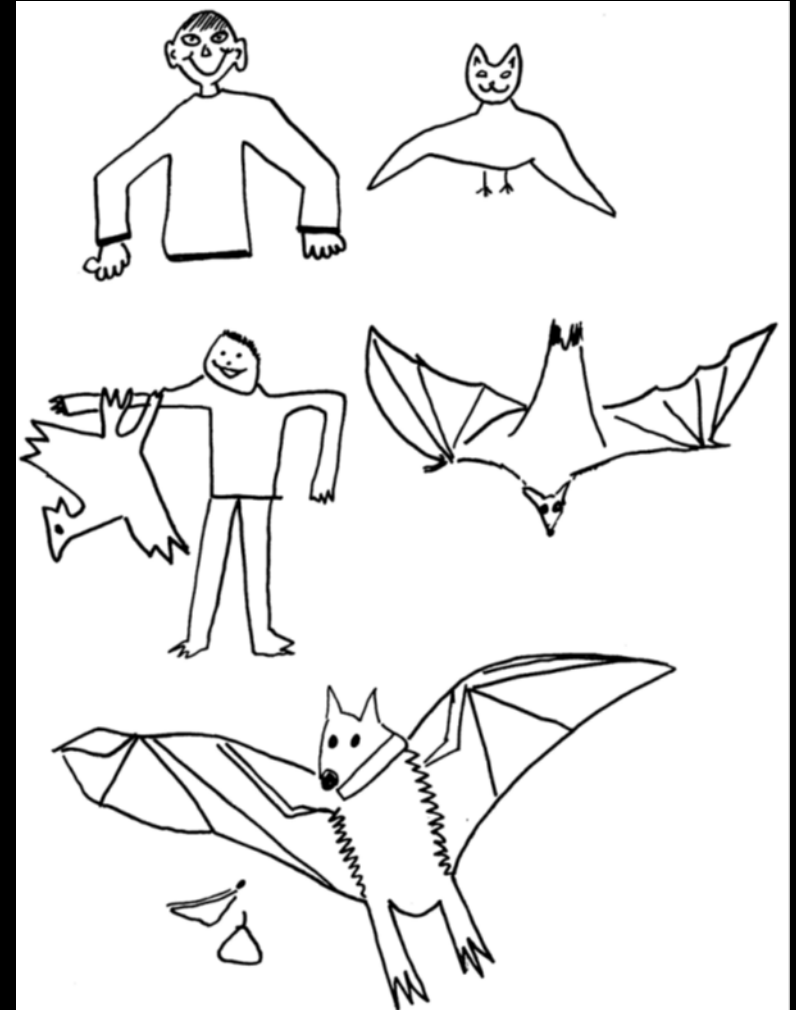
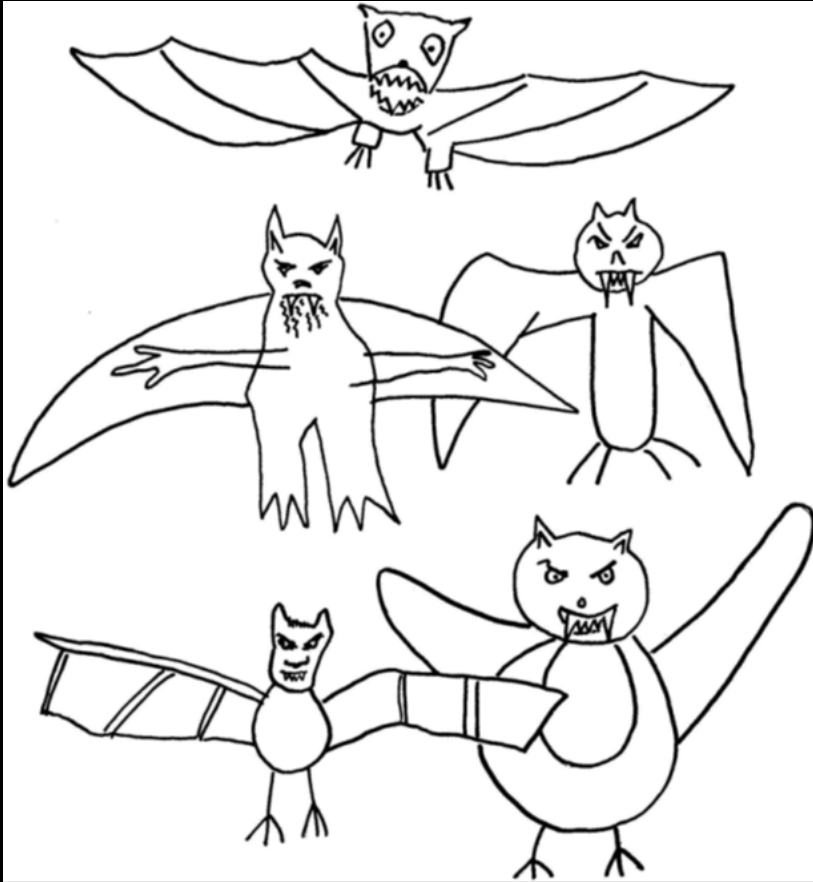
Media

- Media a major source of information for public
- Importance of language and framing
- Methodology: Content analysis
- Gives a background and context to education and interpretive assessments



Formal Education - Schools

Before and after quasi-experiments



Informal Education – public programs



- Target audience- ambivalent public
- Survey and interviews of participants and local organisers

Community Engagement

- Are messages getting to the right audiences?
- What interpretive techniques are used to convey messages?
- Target audience: council staff & community residents
- Methodology: Surveys and semi-structured interviews
 - before and after educational/engagement program
 - assessment long term attitudinal and behavioural change



Interpretive Signage

- Content analysis
- Signage Experiments
 - Survey for effectiveness of delivery of key messages
 - Tourism industry
 - Interpretation specialists
 - Flying-fox experts
 - General public
 - Observational experiments

Flying foxes in the Redlands

Gardeners of the night

Flying foxes play an important role in the reproduction, regeneration and dispersal of plants within our bushland. They assist in the production of seed, by pollinating our flowering native plants as they seek out the nectar hidden deep within the flower. They are also capable of flying almost 90 kilometres a night. During this journey they spread pollen and seed over a wide area, with up to 60,000 seeds being 'distributed' each night! This natural process aids the bush in regenerating itself and also helps establish new bushland.

Relationship of co-dependence

Scientists have identified a relationship between native flowering plants and flying foxes that has led to a theory of co-dependence between these species. The theory has established that the continued survival of flowering eucalypts is closely tied to the survival of our flying foxes. Flying foxes pollinate the eucalypts and the eucalypts provide nectar in return, creating a mutually beneficial relationship. This relationship is supported by the distribution patterns of flying foxes and eucalypt forests; the nocturnal production of nectar by eucalypt trees to coincide with flying fox activity; and the biological adaptations flying foxes have to assist them with locating flowering eucalypts. The conservation of flying foxes is crucial to the health of our bushland and the wildlife that depend on it.

What's the noise all about?

Flying foxes use sound as their primary form of communication. With a hearing range very similar to humans, the sounds they produce are easily heard by us. Over 30 different vocalisations have been recorded for the Grey-headed Flying Fox. Their calls are used to identify each other and to defend their territory. Flying foxes are at their noisiest at dawn and dusk when individuals are preparing to move in and out of the camp. Although calls during the day do occur during the autumn mating season; daytime calls are often in response to disturbance. These disturbances can include roaming dogs, birds of prey, loud noises or people walking through the roosting camp. Both noise and smell can be minimised by avoiding these disturbances to the camp.

Safety first

Occasionally juvenile or injured flying foxes may be found on the ground or caught in fencing or netting. For your own safety, do not attempt to handle these animals. Only trained individuals who are protected by vaccination should handle and care for flying foxes.

**For all flying fox emergencies:
Redlands Wildlife Rescue**
☎ 3833 4031
(24 hours)

Redlands IndigiScapes Centre

Redland CITY COUNCIL

Participatory Learning

Attitudinal change through participation

Understanding → exploration → connection

- Student Projects & Citizen Science
- Examples of projects
 - Observational studies (behaviour)
 - Monitoring (local population counts)
 - Feeding observations
 - Habitat management (restoration and regeneration)





Host Communities and Bat Tourism

- Can economic benefits to local communities and businesses overcome perceived negative impacts of a flying-fox colony?
- Case Study: Survey of local businesses and residents in Cairns to look at attitudinal change.

References and acknowledgements

Values toward wildlife: Sifuna 2011,
Kansky 2014; Knight 2008; Howard 2006

Education effectiveness and conflict:
Howard 2006; Madden 2004; Madden &
McQuinn 2014; West 2002; Peterson et al
2010, 2013; Marshall et al 2007; Madden
2014; Booth 2007

Education and audience receptivity:
Howard 2006; Peterson 2010, 2013;
<http://www.commoncause.org.au/>
Madden 2014; Ogra 2009; Conover 2002;
Rabinowitz et al 2005; Kidd & Kidd 2006

Participatory Education: Brossard et al
2005, Douglas 2010, Squires et al 2016

Children and education: Ford 2002

Values theory: Kellert 1996;Fulton 1997;
<http://www.commoncause.org.au/>

*Thankyou to the wonderful
photographers*

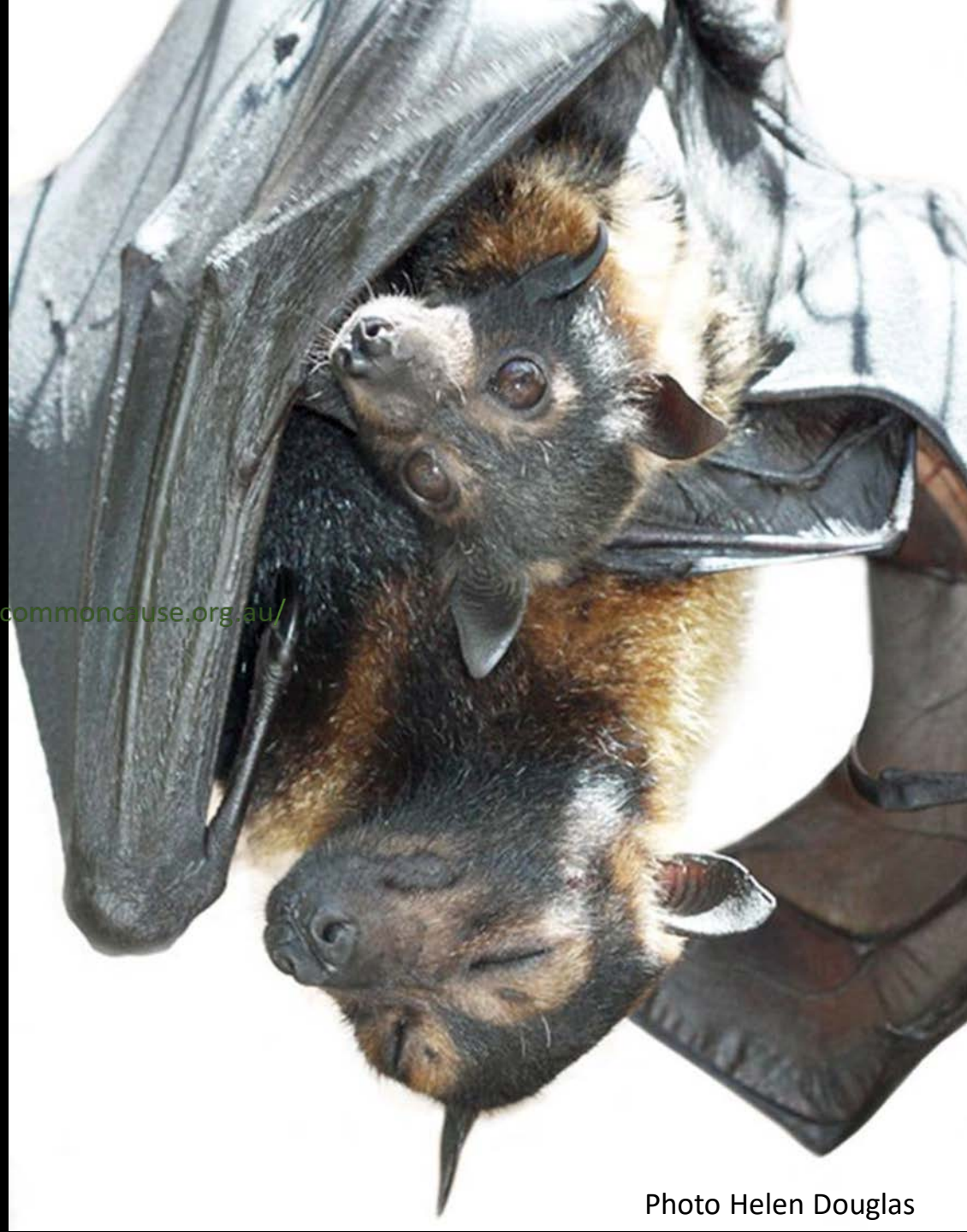


Photo Helen Douglas