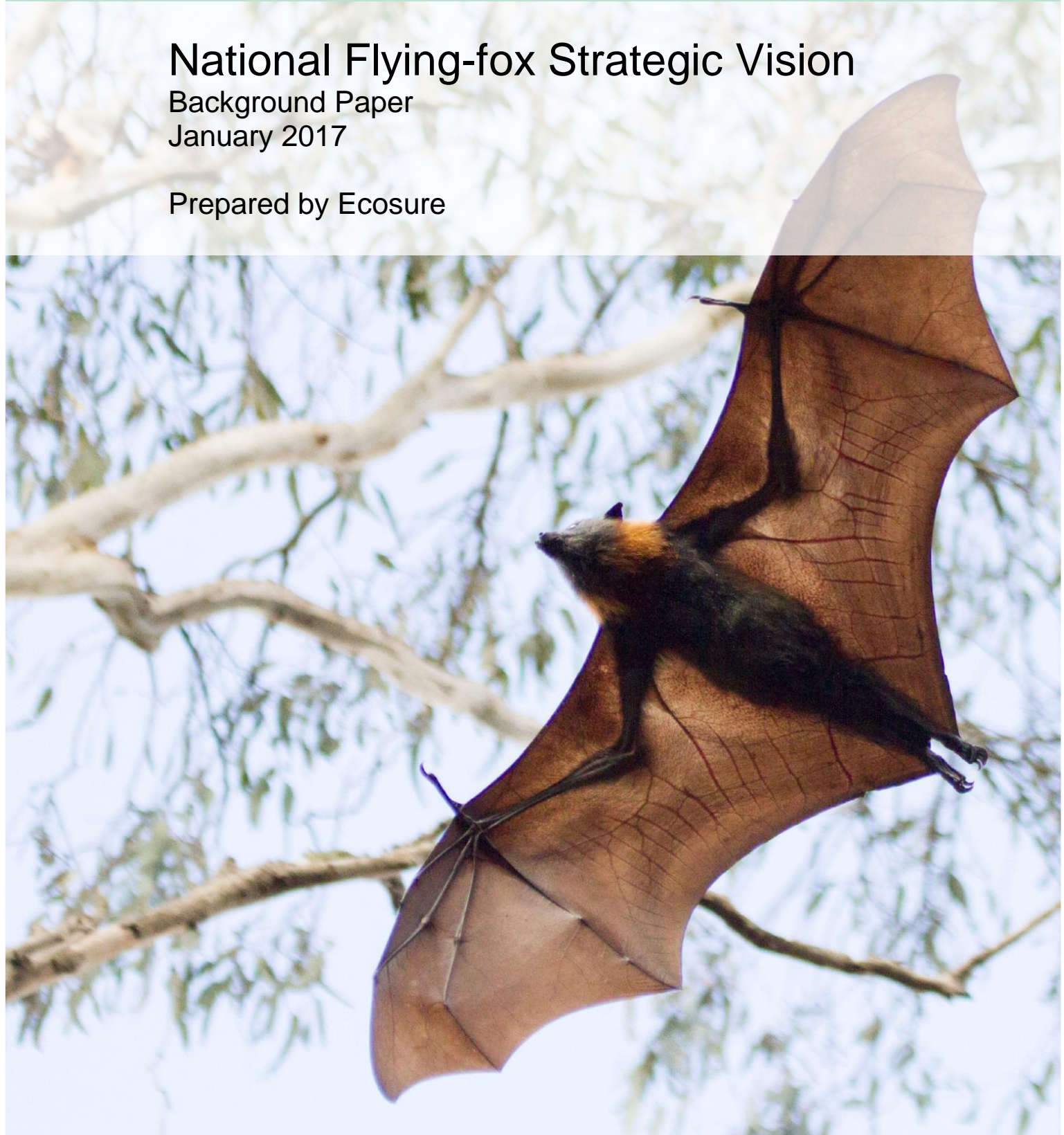


# National Flying-fox Strategic Vision

Background Paper  
January 2017

Prepared by Ecosure



# Executive summary

This background paper has been developed to provide stakeholders with contextual information regarding the National Flying-fox Strategic Vision.

The Commonwealth Department of the Environment and Energy is responsible for the protection and conservation of Australia's biodiversity, including two of Australia's threatened flying-fox species. Flying-foxes sustain the health of our ecosystems through long range pollination and seed dispersal.

Conflict between humans and flying-foxes dates back to the late 1800s when early settlers reported damage to their crops from foraging flying-foxes. Today, flying-foxes are becoming more urbanised, largely in response to human actions such as land clearing, which often leads to conflict with communities.

The Parliamentary *Inquiry into Flying-fox Management in the Eastern States* (November 2016) highlighted:

- a discernable need for more information and evidence regarding existing management practices and the level of protection afforded to flying-foxes
- misinformation and misconceptions within the broader community is jeopardising the survival of our country's most important pollinators and seed dispersers, which has repercussions for the general health and resilience of our ecosystems and forests
- valuable research and effective actions are indeed occurring throughout the nation, however these works need to be coordinated and supported.

Despite each flying-fox species being acknowledged as a single, mobile population with individuals distributed across parts of Australia, current approaches to their management across borders are fragmented, costly and reactionary. Valuable resources are being wasted on management actions which have proven to be largely ineffective. Legislation and policy inconsistencies, devolution of responsibility and a lack of strategic coordination are likely to threaten the long-term survival of flying-fox populations and increase conflict with the community.

In September 2016, the second 'National Flying-fox Forum' was held by the Environment Institute of Australia and New Zealand at Griffith University. The forum was attended by 75 delegates representing all levels of government, conservation groups, research bodies and industry from across Queensland, New South Wales, the Australian Capital Territory and Victoria. The need for a strategic and consistent national management approach to flying-fox management was advocated by the delegates, with strong support for a unifying strategic vision. The National Flying-fox Strategic Vision was developed with input from the Forum delegates, and aims to establish clarity and consistency in the approaches to flying-fox management across all Australian states and territories.

## Where to from here?

It is envisaged that the Strategic Vision can be realised through the formation of a National Flying-fox Management Coordination Group which would:

- promote the adoption of the Strategic Vision principles by all levels of government, industry and groups involved in flying-fox management
- create a platform for sharing effective flying-fox management actions and up-to-date research across the states and regions.
- have one annual general meeting and up to three state/regional meetings in Queensland, New South Wales and Victoria to exchange data, research and information on current practice and management of flying-foxes between stakeholders.

There is an urgent need for a detailed national strategy to effectively manage the current conflict between people and flying-foxes and address inconsistencies between current plans and policies. The development of a national strategy would be a key action of the Coordination Group, with wide-ranging consultation to ensure it meets the needs of all stakeholders.

The first stage of consultation on the Strategic Vision received support from 75 delegates representing 38 different stakeholder groups, including local council, government and industry across Queensland, New South Wales, the ACT and Victoria.

The release of this background paper provides an opportunity for forum delegates and other stakeholders to seek official endorsement from their organisations through the addition of their logos to the Strategic Vision.

We also encourage everyone to include their support of this much-needed approach in relevant submissions and forums.

# Acknowledgements

We gratefully acknowledge contributions made by attendees at the National Flying-fox Forum 2016 held at the Griffith University EcoCentre, Brisbane, including representatives from:

Adair Ecological Solutions	Green Tape Solutions
Australasian Bat Society	Healthy Waterways and Catchments
Australian Bat Clinic	Hinchinbrook Shire Council
Balance Environmental	Hunter Councils
Bat Conservation & Rescue Qld Inc	Ipswich City Council
Bat Rescue	Logan City Council
Brisbane Airport Corporation	Mackay Regional Council
Brisbane City Council	Moreton Bay Regional Council
Cairns Regional Council	Mount Isa City Council
City of Gold Coast	Noosa Council
CSIRO	Northern Beaches Council
Department of Environment & Heritage Protection	Office of Environment and Heritage
Department of the Environment and Energy	Redland City Council
Eco Logical Australia	Royal Botanic Garden Sydney
Ecology and Heritage Partners	Somerset Regional Council
Ecosure	Sunshine Coast Regional Council
EIANZ SEQ	Sutherland Shire Council
Energex	University of Melbourne
Eurobodalla Shire Council	Whitsunday Regional Council

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# 1 Introduction

In September 2016, the second ‘National Flying-fox Forum’ was held by the Environment Institute of Australia and New Zealand at Griffith University. The forum was attended by 75 delegates representing all levels of government, conservation groups, research bodies and industry from across Queensland, New South Wales (NSW), the Australian Capital Territory (ACT) and Victoria. The need for a strategic and consistent national management approach to flying-fox management was advocated by the delegates, with strong support for a unifying strategic vision. The National Flying-fox Strategic Vision (NFFSV) was developed with input from the Forum delegates, and aims to establish clarity and consistency in the approaches to flying-fox management across all Australian states and territories.

Following a referral on 4 November 2016 from the Minister for the Environment and Energy, the Hon. Josh Frydenberg MP, an inquiry was launched into the protection and management of protected flying-foxes in the eastern states. The House of Representatives Standing Committee on the Environment and Energy called for submissions regarding:

- *‘the circumstances and process by which flying-foxes are listed and delisted as threatened species at both the state and Commonwealth levels*
- *the interaction between the state and Commonwealth regulatory frameworks*
- *strategic approaches to managing species at a regional scale*
- *opportunities to streamline the regulation of flying-fox management, and*
- *the success or otherwise of management actions, such as dispersal of problematic flying-fox camps’.*

The NFFSV was submitted as part of the Inquiry (Table 1).

This background paper supports the NFFSV by summarising the rationale behind a national strategic approach to flying-fox management, leading to the need for the NFFSV and National Flying-fox Forum. It also outlines the recommended approach moving forward.

Table 1 Timeline around development and advocating for the National Flying-fox Strategic Vision to date

Date	Action
September 2016	National Flying-fox Forum - 75 delegates consulted on content Feedback included in 2nd Draft National Flying-fox Strategy*.
October 2016	2 <sup>nd</sup> Draft National Flying-fox Strategy* sent to National Flying-fox Forum delegates for endorsement.
November 2016	Moreton Bay Regional Council raised a motion at the Local Government Association of Queensland (LGAQ) annual meeting that the LGAQ lobby State and Federal Governments to take over the management of flying-fox colonies.
November 2016	Parliamentary inquiry into flying-fox management in the eastern states, including roundtable. EIANZ submission including the Draft <i>National Flying-fox Strategy</i> *.

Date	Action
January 2017	Release of the draft Recovery Plan for the Grey-headed Flying-fox ( <i>Pteropus poliocephalus</i> ) (Department of the Environment and Energy; DoEE 2017).
January 2017	Release of the <i>National Flying-fox Strategic Vision</i> background paper (this document).
February 2017	Expected release of House Committee report from the Parliamentary inquiry.

\*National Flying-fox Strategic Vision renamed from drafts, previously the National Flying-fox Strategy.

## 2 Rationale

Flying-foxes are indifferent to anthropological state borders and jurisdictions. Flying-foxes are highly transient with movements ranging up to 100 km per night (Eby 1991) and thousands of kilometres in a single year. As such, each species is considered as a single national population (DoE 2015). Although we know flying-foxes move in response to food availability, their patterns of movement and camp occupation are poorly understood. Intense flowering periods attract large numbers of flying-foxes, and these temporary influxes are often mistaken for population explosions with subsequent public calls for government action such as culling and dispersal.

The DoEE contributes to the National Flying-fox Monitoring Program and drives implementation of national recovery plans. However, a consistent and coordinated approach to the management of all flying-fox species across the country is yet to be realised. Current flying-fox management practices are generally fragmented, costly and reactionary.

We are urging immediate action towards a national approach to flying-fox management to address the following issues:

- uncoordinated management (governance)
- community concerns (community)
- increased risk of disease (health)
- impacts to natural biodiversity (environment)
- impact to industry (economic)
- reactive land use planning (planning)
- economic costs to community (fiscal).

### Recurrent uncoordinated management between regulatory frameworks

In 1984 the Queensland Government delisted flying-foxes shortly before NSW placed them on the protected fauna list (Hall 1986). Conflicting objectives and inconsistencies between policies continue today.

In 2013, the Queensland Government implemented a new flying-fox management framework. This included transfer of authority to local government enabling them to manage flying-fox camps in urban flying-fox management areas (including dispersal/camp destruction) with an 'as-of-right' authority under the *Nature Conservation Act 1992*. We acknowledge councils as key stakeholders; however, they are not and should not be considered a lead agency in relation to flying-fox management and conservation.

Since this framework was introduced, active dispersals and camp modification works have increased significantly and have often been undertaken concurrently in adjacent and nearby local government areas. In many cases, dispersal actions have not reduced the number of



flying-foxes within a local government area, with flying-foxes almost always moving less than six km away in unpredictable locations (Appendix 1). Uncoordinated management simply moves flying-foxes between local government areas, shifting the problem to neighbouring communities. There are various groups attempting to coordinate and communicate at a regional scale, as well as at a state level (e.g. NSW Office of Environment and Heritage). However, given the highly transient behaviour and large-scale movements of flying-foxes, management decisions and coordination must also be at a national scale.

Inconsistencies also exist between state and federal policy and legislation. For example, an object of the Commonwealth *Environment and Protection Biodiversity Act 1999* (EPBC Act) is to provide for the protection of the environment, especially matters of national environment significance (e.g. vulnerable species such as the grey-headed and spectacled flying-foxes). However, the EPBC Act Referral Guideline refers to a state framework which provides very little protection for individual flying-foxes, and next to no protection against population or species level impacts. Furthermore, the Qld *Ecologically sustainable lethal take of flying-foxes for crop protection Code of Practice* allows annual culling quotas of 4000 little red flying-foxes, 3500 black flying-foxes and 1280 for the vulnerable grey-headed flying-fox. While the NSW Government is phasing out licences to shoot flying-foxes, allowances are made for 'special circumstances'.

## Community concerns

Conflict between humans and flying-foxes dates back to the late 1800s when early settlers reported damage to their crops from foraging flying-foxes. Today, flying-foxes are becoming more urbanised, largely in response to human actions such as land clearing. Some community members find living in proximity to roosting and foraging flying-foxes fearful and perceive their presence as an impact on their health, which is exacerbated by sensationalist media reports. Community concern is generally associated with nuisance (noise, odour and faecal drop) and fear of disease.

Unregulated and uncoordinated management is resulting in far greater pressure and expectation for local government to disperse, despite largely unsuccessful outcomes, risk and cost. This type of management commonly fractures the flying-fox population, often making conflict more widespread.

Extensive education for decision-makers, the media and the broader community is required to overcome the current community perception of flying-foxes. Engaging and educating people is key to encourage community understanding of the ecological importance of flying-foxes, the actual health risks, and options available to reduce impacts from roosting and foraging flying-foxes. Collecting and providing information should always be the first response to concerns to address issues before the need to actively manage flying-foxes or their habitat is required. When it is more invasive management is required, education should still be an essential component of any approach.

## Increased risk of disease

Clearing of critical foraging and roosting habitat is likely to increase short and long-term stress for individual flying-foxes. The effects of stress are linked to increased susceptibility and expression of disease in both humans (AIHW 2012) and animals (Aich et. al. 2009), including reduced immunity to disease. Forcing flying-foxes into closer proximity to one another, as occurs when fewer camp sites become available, increases the probability of disease transfer between individuals and within the population.

## Impact to natural biodiversity

Flying-foxes are keystone species, and a long-range pollinator, making them essential to the persistence of natural areas and the other species that rely on these areas. This is even more important in the fragmented landscape we are creating through ongoing development and urban spread.

These forests in turn give us fresh air, places for recreation, timber, medicinal resources as well as acting as carbon sinks.

## Impact to industry

### **Horticulture, forestry, agriculture**

Long-distance pollination and seed dispersal by flying-foxes is critical to our sustainable orchard species and hardwood production, so the loss of robust flying-fox populations would have a severe economic impact and impact to the livelihoods of those who rely on these industries.

Conversely, the impacts of foraging flying-foxes on growers can be substantial, and a national strategy must work towards ethical resolution to this conflict.

### **Racing**

Equine facility managers and local vets should be aware of Hendra virus (HeV) risk and appropriate mitigation measures.

While a HeV vaccination is available, there are real and perceived issues which are currently limiting its uptake.

A national management strategy will assist in coordinated disease management from a land/flying-fox management perspective.

### **Aviation**

Flying-foxes pose a significant hazard to aircraft being a large and commonly struck animal. Given their significant nightly foraging movements of up to 100 km, regardless of camp location foraging flying-foxes will frequent aerodrome space. Camp management may

increase strike risk directly with increased flying-fox activity during management, or indirectly by altering daily or seasonal flying-fox movement patterns. As such airport managers should be considered key stakeholders to flying-fox management and require a platform to effectively engage and communicate with land managers.

## Reactive land use planning

The issues associated with managing flying-foxes are fundamentally related to land use planning. Whilst the potential to improve community understanding of flying-fox issues is high, the extent to which that understanding will help alleviate conflict issues is probably less so. It should be stressed that a long-term solution to the issue of human/flying-fox conflict resides with better understanding and appreciation of flying-foxes and applying that understanding to considered planning and development.

To avoid future land use conflict, planning instruments may be used to ensure adequate distances (buffers) are maintained between future residential developments and existing or historical flying-fox camps. While this management option will not assist the resolution of existing land use conflict, it may prevent issues for future residents. The inclusion of a flying-fox overlay and supporting code in local government planning schemes (or inclusion of this information within broader biodiversity overlays/codes) may help to alleviate future land use conflict around known permanent flying-fox camps.

Importantly, strategic, regional-scale consideration needs to be given to habitat creation and restoration specifically designed to provide suitable camp and foraging habitat in locations with low potential for community impact. These areas should be designated and protected in perpetuity through sensible planning provisions.

## Financial costs

Huge amounts of ratepayer funds are being wasted on management that is proven to be largely ineffective (Appendix 1).

The NSW Government committed \$2.5 million to the Bateman's Bay conflict (ABC News 2016). Eurobodalla Shire Council estimated the dispersal plan would cost \$6.2m over three years. In Queensland, the financial costs of individual dispersal attempts ranged from \$7,500 to more than \$400,000 with costs ongoing (Appendix 1).

These funds would have a much greater impact if applied to long-term solutions, such as habitat creation in suitable locations, and a strategic framework where active management is reserved for when it is most needed.

## 3 Where to from here?

### Implementation

It is envisaged that the NFFSV can be realised through the formation of a National Flying-fox Management Coordination Group (FFMCG) that facilitates and coordinates best practice standards nation-wide. The FFMCG would act as an information conduit between existing flying-fox experts, working groups, industry, research and government to support actions that are already underway and coordinate sharing of knowledge learnt through those actions. It is envisaged the FFMCG would:

- promote the adoption of the NFFSV principles by all levels of government, industry and groups involved in flying-fox management
- create a platform for information sharing, such as up-to-date research and effective flying-fox methods from management and trials around Australia
- have one annual general meeting and up to three state/regional meetings in Queensland, New South Wales and Victoria to exchange data, research and information on current practice and management of flying-foxes between stakeholders
- develop a detailed national strategy to effectively manage current conflict and address inconsistencies between current plans and policies. Development of a national strategy would be a key action of the FFMCG, with wide-ranging consultation to ensure it meets the needs of all stakeholders.

Positive work is already being achieved at all levels of government and by researchers and conservationists who carry out critical studies, monitoring and marketing. It is imperative that continuation of this work is supported and the outcomes shared.

### Endorsement and support

The first stage of consultation for the NFFSV received support from 75 delegates representing 38 different stakeholder groups, including local council, government and industry across Queensland, New South Wales, the ACT and Victoria.

The release of this background paper provides an opportunity for forum delegates and other stakeholders to seek official endorsement for the NFFSV from their organisations. The logos of signatories will be added to the NFFSV.

This will provide weight to the NFFSV, and drive wider uptake, as well as seeking the necessary funding to establish the FFMCG.

We also encourage everyone to include their support of this much-needed approach in relevant submissions and forums.

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# Appendix 1

## Summary of previous dispersal attempts

Ecosure, in collaboration with a Griffith University Industry Affiliates Program student, researched outcomes of management in Qld between November 2013 and November 2014 (the first year since the current Qld state flying-fox management framework was adopted). An overview of findings<sup>1</sup> is summarised below.

1. There were attempts to disperse 25 separate camps in QLD (compared with nine camps between 1990 and June 2013 analysed in Roberts and Eby (2013)). Compared with the historical average (less than 0.4 camps/year) the number of camps dispersed in the year since the Code was introduced has increased by 6,250%.
2. Dispersal methods included fog, birdfrite, lights, noise, physical deterrents, smoke, extensive vegetation modification, water (including cannons), paintball guns and helicopters.
3. The common dispersal methods used were extensive vegetation modification alone and extensive vegetation modification combined with other methods.
4. In nine of the 24 camps dispersed, dispersal actions did not reduce the number of flying-foxes in the LGA.
5. In all cases it was not possible to predict where new camps would form.
6. When flying-foxes were dispersed, they did not move further than 6km away.
7. As at November 2014 repeat actions had already been required in 18 cases.
8. Conflict for the council and community was resolved in 60% of cases, but with many councils stating that they feel this resolution is only temporary.
9. The financial costs of all dispersal attempts, regardless of methods used were considerable ranging from \$7,500 to more than \$400,000 (with costs ongoing).

These results are consistent with a summary of dispersals between 1990 and 2013<sup>2</sup> which showed that:

1. In all cases, dispersed animals did not abandon the local area<sup>1</sup>.
2. In 16 of the 17 cases, dispersals did not reduce the number of flying-foxes in a local area.
3. Dispersed animals did not move far (in approx. 63% of cases the animals only moved <600m from the original site, contingent on the distribution of available vegetation). In 85% of cases, new camps were established nearby.
4. In all cases, it was not possible to predict where replacement camps would form.
5. Conflict was often not resolved. In 71% of cases conflict was still being reported either at the original site or within the local area years after the initial dispersal actions.

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<sup>1</sup> This was based on responses to questionnaires sent to councils: some did not respond and some omitted responses to some questions

<sup>2</sup> Roberts and Eby 2013 review of past flying-fox dispersal actions between 1990-2013, unknown publisher.

6. Repeat dispersal actions were generally required (all cases except extensive vegetation removal).
7. The financial costs of all dispersal attempts were high ranging from tens of thousands of dollars for vegetation removal to hundreds of thousands for active dispersals (e.g. using noise, smoke etc).

Eby and Roberts found a few exceptions to these patterns up to 2013, but only when there were abundant financial and human resources (e.g. RBG Melbourne and RBG Sydney) and/or specific landscape characteristics (e.g., isolation from neighbours (Batchelor, NT) or habitat link to 'acceptable' location (RBG Melbourne)). See Table 1 for further detail.

Table 2 Summary of dispersals 1990 to 2013 (source: Eby and Roberts 2013)

Location	Species	FF population estimate at time of dispersal	Method	Did the animals leave the local area?	Did the local population reduce in size?	How far did they move?	Were new camps formed (number of new camps if known)?	Number of separate actions	Cost (if known)	Was conflict resolved at the original site?	Was conflict resolved for the community?
Barcaldine, Qld	R	>50,000	VN	no	no	≈2 km	yes (1)	trees in township felled		yes	no
Batchelor, NT	B	200	BNS	no	no	<400 m	yes (1)	2		yes	yes
Boyne Island, Qld	BR	25,000	LNS	no	no	<500 m	yes (2)	3		yes	no
Bundall, Qld <sup>3</sup>	GB	1580	V	uk	no	uk, but 7 camps were within 5 km	no	1	\$250,000	yes	yes
Charters Towers, Qld	RB	variable	HLNPOW	no	no	200 m	no (returned to original site)	repeated since 2000	>\$500,000	no	no
Dallis Park, NSW	BG	28,000	V	no	yes	300 m	yes (1)	2		yes	no
Duaringa, Qld	R	>30,000	VNFO	no	no	400 m	yes	1	\$150,000	yes	uk
Gayndah, Qld	RB	200,000	VN	no	no	600 m	yes	3 actions, repeated		yes	no
Maclean, NSW	BGR	20,000	NS	no	no	350 m	yes (7)	>23	>\$400,000 and ongoing	no	o
Mataranka, NT	BR	>200,000	BHLNOSW	no	no	<300 m	uk	>9		no	no

<sup>3</sup> Bundall information amended from Roberts and Eby (2013) based on Ecosure's direct involvement and understanding of camp management activities and outcomes.



Location	Species	FF population estimate at time of dispersal	Method	Did the animals leave the local area?	Did the local population reduce in size?	How far did they move?	Were new camps formed (number of new camps if known)?	Number of separate actions	Cost (if known)	Was conflict resolved at the original site?	Was conflict resolved for the community?
North Eton, Qld	B	4800	VNFB	uk	no	<1.5 km initially	yes (≈4 majority temporary)	2	45,000	yes	yes (conflict at one site)
Royal Botanic Gardens, Melbourne, Vic	G	30,000	NS	no	no	6.5 km	yes (2)	6 mths	\$3 million	yes	yes, ongoing management required
Royal Botanic Gardens, Sydney, NSW	G	3,000	LNPOW	no	no	4 km	no	ongoing daily actions for 12 mths	>\$1 million and ongoing	yes	
yes											
Singleton, NSW	GR	500	LNUW	no	no	<900 m	no (returned to original site)	>3	\$117,000 and ongoing	no	no
Townsville, Qld	BR	35,000	BNS	no	no	400 m	no (returned to original site)	5		no	no
Warwick, Qld	GRB (dispersal targeted R)	200,000	NLBP	no	no	≈1 km	no (site known to be previously occupied by GB)	5 days	\$28,000	yes	uk (complaints persisted until migration)

\* G = grey-headed flying-fox; B = black flying-fox; R = little red flying-fox

# B = "birdfrite"; F = fog; H = helicopter; L = lights; N = noise; P = physical deterrent; O = odour; S = smoke; U = ultrasonic sound; V = extensive vegetation removal; W = water.

## Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed by	Approved by
00	20/01/2017	National Flying-fox Strategic Vision – Background Paper	Emily Hatfield, Ecologist	Jess Bracks, Principal Wildlife Biologist  Beth Kramer, Senior Environmental Scientist	Phil Shaw, Managing Director

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