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Submission: Inquiry into flying-fox management in eastern states of Australia

PREFACE:

It seems likely that the genesis of this inquiry is linked to public concerns about flying-foxes: Concerns that are in part fuelled by recent events in urban roosts, the inconveniences suffered by a section of the community, sensational media coverage, and requests for local politicians to “do something about the problem”.

Public statements about management of flying foxes often acknowledge the importance of these bats; but all too often the rhetoric that follows attempts to dismiss that importance. The role of flying foxes as a critical keystone species is often underestimated: Particularly the crucial role they play in the pollination and seed dispersal of Australia’s native forests, including world heritage areas such as the Wet Tropic and Gondwana rainforests. ⁱ Spectacled flying-foxes for example, feed on the fruit of more than a dozen rainforest species for which *no other seed dispersers are known* and can spread ingested seeds up to 80 km away. ⁱⁱ

It is known that further decline of these species will impact on important Australian forests: which are vital habitat for hundreds of plants and animal species, prevent erosion, act as carbon sinks, and contribute to the Australian economy through tourism and forestry. ⁱⁱⁱ

Health impacts on humans by flying foxes are often greatly exaggerated by the media. For example, reports of respiratory problems associated with nearby flying-fox colonies are not supported by Australian medical authorities who have found no correlation between flying-foxes and respiratory ailments. Some believe that pollen from the flowering events which attract flying-foxes to an area are the most likely cause of coincidental respiratory ailments.

It has been claimed that flying foxes can carry a multitude of diseases, including Salmonellosis, Histoplasmosis, and Leptospirosis. In truth, these can be carried by any number of animals, but inquiries indicate that there is no record of Salmonellosis, Histoplasmosis or Leptospirosis infections ever being transmitted by flying-foxes.

Hendra Virus cannot be transmitted from Flying-foxes to humans, but it is a risk for horses and people who come into contact with infected horses. There is now a vaccine and the risk has largely been mitigated. Over the past three years, only six cases of Hendra Virus have been confirmed. The largest single cause of death for otherwise healthy horses is euthanasia of unwanted horses – accounting for in excess of 20,000 horses per year.

Australian Bat Lyssavirus (ABLV) is the only known cause of death from interaction with flying-foxes. Only two cases of Lyssavirus infection from flying foxes have ever been recorded, making ABLV one of the rarest causes of death in the world. By comparison, a report from the Australian National Coroners Information System advises that domestic pets are responsible for an average 2-3 deaths every year.

There is a perception, encouraged by the media, that Flying-foxes are increasingly invading towns and cities. But the reality is that human (residential, agricultural and industrial) expansion is 'invading' / clearing traditional flying-fox habitat and forcing them to seek alternative roost sites. These increasing interactions may give the impression that flying-fox numbers are on the increase, but the National Flying Fox Monitoring Programme^{iv} is not seeing evidence of an increase in population numbers (other than seasonal variations).

Laws which could have (and arguably should have) protected flying-fox habitat have been progressively weakened, facilitating the destruction of a significant proportion of flying fox habitat. The watering-down of these laws represents an effort to balance the need for human expansion with the conservation needs of wildlife. Instead, the weakening of these laws, together with increased rate of land clearing are likely to be directly contributing to the increasing number of negative interactions between flying-foxes and humans.

In summary, the negativity and fear of flying foxes are founded on myths, ignorance and misinformation. In Biodiversity terms, flying-foxes are an important, native species responsible for the generation and maintenance of forests, while humans are an invasive species, largely responsible for deforestation. Flying foxes have more to fear from us than we from them. Flying foxes have been implicated (directly and indirectly) in the deaths of 6 people over the past two hundred years (two from ABLV and four indirectly through Hendra Virus), but over the same time period, humans have been responsible for the death of hundreds of thousands (if not millions) of flying-foxes; through legal and illegal shooting, electrocution and entanglements in barbed-wire and inappropriate tree netting.

SCOPE OF THE PARLIAMENTARY INQUIRY:

1. The circumstances & process by which flying-foxes are listed and delisted as threatened species at both the state and Commonwealth levels;

This is a thorough, exhaustive and well-documented process, often over several years, to determine the conservation status of a species. The processes are evidence-based whereby there must be incontrovertible evidence of significant changes in population size and evidence of the viability of population sizes, given a number of criteria, including the influence of existing threatening processes. It is a scientific process and should not in any circumstances be interfered with for financial or political gain.

2. The interaction between the state and Commonwealth regulatory frameworks

This is not a topic I am qualified to comment on in any detail, other than to say there is a public expectation that there should be a greater degree of commonality and that the precautionary principle should always apply. Extinction is by definition irreversible, and so where there is any doubt as to a listing of any species, the assumption should be made that the greatest risk applies until there is irrefutable evidence to the contrary. It is a simple and well understood principle. There are few circumstances where applying the precautionary principle causes harm, whereas the impact of not applying the precautionary principle could be devastating and irreversible.

3. Strategic approaches to managing species at a regional scale

There is an acceptance in scientific and government agency circles that each species of flying fox is considered a single population across its entire range.^v Tracking studies have demonstrated that individual flying foxes can and do traverse the full range of their species. This makes *national coordination* important in managing these species.^{vi}

It is known that actions taken at one location can impact on the entire species, and that actions (dispersals or culls) can create a vacuum effect and that removing flying foxes from a location is seldom successful as the vacuum caused by that action will be filled by movements of the remaining population.^{vii}

A regional approach to the management of flying-foxes is ineffective and potentially dangerous. The recent changes to conservation legislation in regards to flying foxes allows for a questionable level of self-regulation, with little or no requirement for reporting on actions to environmental authorities. This combination is ineffective and dangerous from a conservation perspective.

Self-regulation is inappropriate in relation to the management of flying-foxes due to the lack of knowledge of many land managers, and the irrational fear and dislike perpetuated by media and ill-informed commentators. There is often a strong financial incentive for land-managers to remove flying-foxes, which renders the ethical and appropriate management of these animals unlikely in self-assessment situations.

History has shown many instances of illegal culls, such as the well-documented Booth V Bosworth case where the offender was found to have illegally killed thousands of threatened Spectacled Flying-foxes per season, over several seasons. Environmental authorities took no action, and it was left to an environmentalist to (successfully) initiate prosecution of the offender. There are other instances that indicate self-assessment options will be abused by a percentage of land-holders; sometimes (as with Bosworth) with significant consequences to the entire species - especially considering that an imposed mortality as low as 10% (in addition to natural mortality) can lead to rapid decline of even a large population.^{viii}

There have been other cases where minor fines have been issued for illegal killing of threatened flying-foxes, with no prosecution by environmental authorities. The lack of compliance activity by state and federal authorities is another weak link in the chain in terms of the conservation of flying-foxes.

The lack of central reporting (mentioned above) is another significant weakness, resulting in environmental agencies being unaware of actions being taken locally. Thus, even in the circumstance where a land manager makes an application, the authority is unlikely to be aware of other actions in that same area, and unable to make an effective assessment of the risk that action represents. The lack of reporting requirements is an appalling exclusion.

It is accepted by most authorities that an effective and sustainable management approach can ONLY be managed at a federal in collaboration with states. Policies and processes that have been suggested and in some cases successful include:

- Local Council engagement with residents living near flying fox roosts, providing information and support. This may include tree lopping, availability of pressure cleaners, car covers and grants to go towards air-conditioning and or double-glazing expenses where residents are affected by small and/or noise.
- Councils can amend their local environmental plans (LEPs) by, for example, zoning camps for 'environmental protection' to ensure the long-term security of flying-fox camps used continuously or annually.^{ix}
- Flying-fox camps expand or move locally, so the suitability of zoning adjacent land for flying-fox habitat should be considered. Certain land uses are inherently more compatible in the vicinity of a flying-fox camp than others, for example, light industrial or rural compared to high density urban residential.
- Development control plans (DCPs) under s. 72 of the EP&A Act are another mechanism through which councils can plan for the management of flying-fox camps. A DCP could:^{ix}
 - define a council's responsibilities for managing and conserving flying-fox camps ensure that flying-fox camps are considered when planning, designing and constructing developments in the area
 - identify a landscape approach to flying-fox camp management in the area subject to the DCP
 - identify appropriate vegetation rehabilitation activities in the camp, for example, removing non-native canopy roost trees at the same time as planting native trees suitable for roosting
 - identify the level of information that must be submitted by proponents of development, and ensure that the camp is considered when preparing and assessing development applications
 - identify prohibited and exempt activities in or adjacent to flying-fox camps
 - provide guidelines for council officers assessing development applications, in terms of avoiding conflict between adjoining land uses.
- Site-specific features such as topography and prevailing winds may affect the level of noise and smell experienced by nearby residents, creating a spatial separation may prevent noise and odour from affecting people living nearby.^{ix}
- Encourage the planting of native plants in less intensively settled areas near a camp. Flying-foxes may use such areas over time, reducing the overall density of the camp, alleviating impacts on neighbours and reducing conflict.^{ix}
- Where development already exists, consider the type of redevelopment to be permitted around a camp and whether intensification of existing development should be permitted. The aim is to encourage development that will coexist with the camp and discourage development that will cause conflict or degrade the camp vegetation. Appropriate development near camps could be light industry or rural uses. Inappropriate development near camps includes schools, hospitals, playgrounds, playing fields, aged care facilities and urban residential areas.^{viii}

- Education about the size of camps, which can fluctuate in response to seasonal food supplies. This may result in the number of flying-foxes in a camp increasing quickly as more flying foxes arrive. A large increase in flying-fox numbers over a short period of time may give the impression of flying foxes breeding rapidly in response to food abundance, they have a low reproductive rate with females producing only one young annually.^{ix}
- Use appropriate native vegetation rehabilitation or planting to attract flying-foxes away from residential areas. Planting and landscaping can also be used to mitigate issues such as noise and smell associated with camps. Such actions will help mitigate problems associated with increasing numbers of flying-foxes at certain times of the year.^{ix}
- Consider selection of plants for landscaping in parks and on streets. Flying-foxes eat the blossom and nectar of eucalypts, melaleucas and banksias and the fruit and nectar of rainforest trees and vines. Trees with good canopy cover and adequate shelter from the elements can be used as roosts, as can the exposed branches of canopy trees. Informed species selection, vegetation rehabilitation or planting can be used to attract flying-foxes to more suitable areas (from the perspective of human habitation) and to discourage them from using less suitable areas. An extensive list of plants eaten by flying-foxes can be found in Hall and Richards 2000.^{ix}
- Manage impacts of droppings by covering cars, laundry areas and children's play areas or constructing these areas so they can be easily cleaned, for example, by paving them.^{ix}
- Alleviate community concerns about disease. Some flying-foxes carry Australian bat lyssavirus (ABL). Direct contact with an ABL-infected flying-fox from a saliva-contaminated bite, scratch or mucous membrane can be a serious health risk. Infection in sick and injured flying-foxes is much greater than in the general flying-fox population. Not handling flying foxes will significantly reduce health risks to people. Should a person be scratched or bitten, the area should be washed thoroughly for approximately 5 minutes with soap and water. An effective vaccination is available for anyone bitten or scratched by a flying-fox. However, authorities recommend that only vaccinated and appropriately trained people handle flying-foxes. Eating fruit that has been bitten by flying-foxes is not regarded as a mode of transmission, but for aesthetic and general hygiene reasons, eating such fruit is not recommended. Further information is available from the Department of Health.^{ix}

4. Opportunities to streamline the regulation of flying-fox management

Over the past decade, Federal and state legislation in regard to flying fox management has already been streamlined to the extent that in some circumstances it is already too easy to gain permission to take harmful management actions. Having said that; national and state guidelines both state that camp dispersals should only be undertaken as a last resort.^{iv}

While this streamlining has been in response to community concerns and political pressure, the reality is that there needs to be a process to ensure that the safety of residents and the protection of native species are given appropriate consideration. As has been noted earlier, the health risks posed by bats are often exaggerated and the reality is that many flying-fox management activities do not address genuine matters of human safety, but matters of amenity and convenience.

This is not to underestimate the inconvenience to residents of a nearby flying-fox roost, especially very large roosts; but all too often the public discussion is about getting rid of flying foxes, as priority must be given to assuring the safety of local residents. But the truth is that statistically, the residents' pets and neighbours present a significantly greater risk to their health than a nearby flying fox roost.

Put into perspective of a conflict between the survival of a species, and the convenience and access to amenities of a relatively small number of residents, it is reasonable to propose that a thorough process should be in place, even if this takes a little time. Proponents and especially local government representatives need to consider the genuine issues being faced (not the hyperbole), and not perpetuate the misconception that a local flying-fox roost represents a serious health risk to local residents. Australia Health authorities confirm that living near a flying-fox roost is not a health risk.^x Even in the worst-case scenario (where a person is bitten or scratched by a bat) there is only a small chance that the bat is infected with Lyssavirus, and appropriate and immediate medical attention will remove any risk of harm for the injured person.

In short, the existing management processes already err on the side of being too streamlined and any further 'streamlining' would be inappropriate.

5. The success or otherwise of management actions, such as dispersal of problematic flying-fox camps

A 2013 review of camp dispersals^{xi} shows that of 17 dispersal actions undertaken between 1990 and 2013, none succeeded in forcing the flying foxes to abandon the local area: most (around 63%) moved less than 600 meters from the original site.

A number of dispersals have been reported in the media as being successful, but in almost every case, the flying-foxes have returned to the roost, or to a very close location within weeks or months of the dispersal. Despite the premature claims of success – the reality is that almost all attempts have failed. A few which have enjoyed some degree of success have involved ongoing maintenance efforts (that is, ongoing dispersal).

Some so-called successful dispersals (such as Bateman's Bay 2016 and the dispersal of Little Red Flying-foxes in Queensland) are misleading. In the case of Batemans Bay, the unusual influx of Grey-headed Flying-foxes appeared to result from a significant flowering of trees in and around Batemans Bay, at the same time as a relative food shortage was being experienced elsewhere in their range. People familiar with Flying-fox behaviour advised local authorities that the roost would likely disperse when the local flowering came to an end, and/or when other areas started to come into flower.

By the time the dispersal efforts began, the bats had already started to disperse of their own volition in response to the declining availability of food. The dispersal efforts may have marginally expedited some of the dispersal, but it is likely that the majority of animals would have left soon after in any case.

Little-red Flying-foxes are the most nomadic of the mainland Flying-fox species. They rapidly respond to changes in food availability and can move in large numbers between sites in a few hours, and will leave just as quickly once the local food supply dwindles. We know that dispersal activities of this species have failed completely while local food is in abundance, but may be seen successful when action is taken when local food supply is dwindling, or there are alternative food sources appearing.

Increased urban roosts are in part a by-product of our continued expansion and lack of foresight when it comes to planning: We need to take a more intelligent approach to development. Dispersals don't work and they are expensive – sometimes in the hundreds of thousands of dollars – and yet some land managers continue to see this as a viable option rather than adopting longer term strategies such as those noted in section 3 (many of which are recommendations of the NSW Flying Fox Management Policy). I believe that the only effective and sustainable approach is to begin adopting long-term solutions as per the dot-points in section 3. Had we started to do so ten years ago, we may already be starting to accrue the benefits. But if we continue to clear land that is known flying-fox habitat, without having a long-term plan for their conservation and management, we will continue to experience the issues that we have today.

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ⁱ www.environment.gov.au/biodiversity/threatened/species/flying-fox-law

ⁱⁱ Westcott, unpublished data, cited in Queensland Department of Environment and Resource Management (2009) National recovery plan for the spectacled flying fox *Pteropus conspicillatus*. Report to the Department of the Environment, Water, Heritage and the Arts, Canberra

ⁱⁱⁱ The Importance of Flying-foxes www.ehp.qld.gov.au/wildlife/livingwith/flyingfoxes/importance.html

^{iv} www.environment.gov.au/biodiversity/threatened/species/flying-fox-monitoring

^v Dept Environment 2015 Referral Guidelines for managing actions in grey-headed and spectacled flying-fox camps

^{vi} www.environment.gov.au/biodiversity/threatened/publications/referral-guideline-management-actions-flying-fox-camps

^{vii} McIlwee A, Martin L. (2002). The effects of culling the flying foxes, *Pteropus conspicillatus* in northern Queensland, and *Pteropus poliocephalus* in Victoria, NSW and southeast Queensland

^{viii} McIlwee A, Martin L. (2002). On the intrinsic capacity for increase of Australian flying-foxes. (*Pteropus* spp., Megachiroptera). *Australian Zoologist*. 32: 76-100

^{ix} NSW Flying-fox Management Policy Dept of Environment & Heritage 2007 ISBN 9781741224603

^x www.health.nsw.gov.au/environment/factsheets/Pages/flying-foxes.aspx

^{xi} Roberts & Eby 2007 Review of past flying-fox dispersal actions between 1990 and 2013