

Submission to the Senate Committee on the effectiveness of threatened species and ecological communities' protection in Australia.

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My expertise is with the genus *Pteropus*, specifically the Australian flying-foxes. There are four mainland species and of these, two: the Grey-headed Flying-fox (*Pteropus poliocephalus*) and the Spectacled Flying-fox (*P. conspicillatus*) are considered vulnerable under the Threatened Species Conservation Act. The listing of these flying-foxes were effective on the 6/12/2001 and the 14/5/2002 respectively.

In the years subsequent to their listing there has been little effective protection of these species despite the legal protection that listing them should have provided.

There are similar problems in the implementation of protection with both species however I will restrict this submission to the failure of protection given to Grey-headed Flying-fox (*P. poliocephalus*) and to only a few of the terms of reference.

Management of key threats to listed species and ecological communities

The threats and their levels of priority are from the Draft National Recovery Plan (DNRP) for the Grey-headed Flying-fox. July 2009.

1. Habitat Loss: High Priority Threat

This has been the consistent major problem identified by various authors over the last 20 years. While roosting habitat is important the critical factor for flying-foxes is the loss of foraging habitat.

The first two "Specific objectives" identified in the DNRP are:

To identify and protect foraging habitat critical to the survival of Grey-headed Flying-foxes throughout their range

To protect and increase the extent of key winter and spring foraging habitat of Grey-headed Flying-foxes.

Neither has been implemented.

The result of this lack of action has been that episodes of food shortage have become common throughout the range of the species. The most recent widespread "starvation event" occurred in the autumn and winter of 2010. Dead and starving flying-foxes were found throughout the eastern coast of Australia and new sites were occupied throughout the species' distribution (Centennial Park Sydney and Gordon Park Nambucca are two of many examples) and outside its normal range (Canberra and Adelaide are the most extreme examples) to utilise any food available.

The urbanisation of flying-foxes can be understood in this context. Over the last 30-40 years with the destruction of flying-fox foraging habitat in rural areas, there has been a greening of our cities and towns and much of the vegetation planted is suitable flying-fox food. So each year there are reports of new urban sites being used by flying-foxes and in general once a site has been used during a food shortage it will persist over a number of years. As the urban plantings generally provide food throughout the year, these new urban sites tend to be occupied throughout the year and so their presence is a potential source of conflict with their human neighbours. This conflict would not exist if we managed the species correctly by safeguarding their natural food supplies. ("Negative public attitudes and conflict with humans" is considered a Medium Priority Threat in the DNRP)

2. Deliberate destruction associated with commercial horticulture: High Priority Threat

In the DNRP Objective 5 is

To substantially reduce deliberate destruction of Grey-headed Flying-foxes in fruit crops

In this case the objective DNRP is wrong. Effective protection of this vulnerable species means that it should be illegal to shoot flying-foxes.

Illegal shooting may still occur however the Government should not countenance giving a licence to shoot a vulnerable animal in the breeding season.

Many studies have shown that:

- Far more flying-foxes are killed in orchards than are covered by the License given to fruit growers and orchardists are on record as underestimating the numbers of animals shot.
- The bulk of shooting occurs during a critical part of the breeding season of the species (Nov-Dec when the females are lactating and feeding young) when there is a disproportionate effect on its reproduction success.
- Shooting flying-foxes is inherent cruel and so orchardists are being licensed to transgress the Prevention of Cruelty to Animals Act 1986.

Attachment 1 is an abstract of a study done on flying-fox carcasses collected from an orchard in western Sydney where considerably more animals were killed than were licenced. It found that not only were the casualties mostly breeding females but a large percentage of the animals shot did not die within a reasonable time limit. So there are issues in both conservation and animal welfare which should support the required protective measures to be instituted.

Flying-foxes only have one offspring per year. In general these babies are carried by their mother for the first 3-4 weeks of their life and thereafter left at the colony site while their mother forages. When lactating females are killed in an orchard, their babies either are with them, or are back at the colony site where they die of hunger, thirst and attacks from birds and blowflies.

A colony site on the Central Coast of NSW was monitored from Friday 16/11/2012 until Friday 14/11/2012 during the time that 3 local orchardists had licences to shoot flying-foxes.

Twenty-one dying and seventy-two dead dying baby flying-foxes were found near the ground at the site over this time. This represents only a fraction of the number of lactating females killed, as most babies left by themselves in the canopy die there or be taken by predators. A conservative estimate that number of the dying babies represent a tenth of the lactating females killed would result in more than 200 lactating females killed during the month. This is more flying-foxes than are specified on the licences and does not include flying-foxes that that were killed that are not lactating females.

On 1 September 2008 the Queensland Government stopped issuing licences for the killing of flying-foxes on the grounds of animal cruelty. However this decision was overturned when the government changed after the State Election.

In NSW licences are issued every year and efforts are made to monitor them. This is a difficult activity to police and likely to be ineffective.

Development and implementation of recovery plans

- *P. poliocephalus* 'vulnerable status was effective as of the 6/12/2001.
- The original Draft Recover Plan was produced in 2006 after considerable consultation.
- There was no action to adopt or implement it.
- The current Draft Recover Plan is dated 2009 and sometimes 2010.
- There is no action to adopt or implement it.

The EPBC Act was amended in 2006/2007 so that "If a recovery plan is required it must be in force within three years". However this does not appear to apply to *P. poliocephalus*.

The Independent Review of the Environment Protection and Biodiversity Conservation Act 1999: interim report (2009) appears to be accurate when it stated that:

- *Recovery planning, especially species-by-species planning, is not as effective or as efficient as it could be.*
- *Concern is focussed on failure to prepare effective plans and failure to implement plans*

Management of critical habitat across all land tenures

The fourth DNRP objective is to:

To protect and enhance roosting habitat critical to the survival of Grey-headed Flying-foxes

Very few colony sites have been protected despite this issue being flagged as important since the species was listed in 2001.

In particular, sites on private land or government owned land outside National Parks or sites adjacent to such land tenures have no protection and there are many cases of such sites have been bulldozed, or having been disturbed by the development of adjacent land.

The classic case is the Desalination Plant at Kurnell, Sydney where the disturbance of the Plant being built next to the site resulted in the colony relocating to parks in Oatley and Kareela and being a cause of conflict with the nearby residents.

There are many other examples however the most publicised is probably the Singleton colony at Burdekin Park in the Hunter which is a cause of much conflict. This colony relocated from a disturbed site near a mine.

The Matcham site on the Central Coast in NSW was in Wambina Nature Reserve until a small packet of private land was developed next to it. The hanging swamp was filled, the dams were destroyed and the watercourse was changed, all apparently with the approval of Gosford Council. NPWS was apparently powerless to protect the Reserve or to deal effectively with the developers. The colony left and initially went to a tiny gully surrounded by residential development in Wyoming and now is in suburban North Avoca on the edge of the Lagoon and surrounded on three sides by houses.

To protect colony sites NPWS or their equivalent needs to be given the power to deal with sites on or adjacent to land held under different tenures.

Flying-foxes are highly mobile. And their requirements for a colony site are not understood. Colonies can be moved on inadvertently as above, or they can be forcibly “relocated” (eg the RBG site in Sydney) however the new site is often in a worse location than the original for either or both humans and flying-foxes. There is a great need for flying-foxes to be managed globally rather than locally and to do this there needs to be considerably more energy put into their management on a National level than currently has been on offer.

Conclusion

We have developed population models that show *P. poliocephalus* could, under the present set of parameters, become functionally extinct within the next 50 years.

If the species is to recover, action needs to be taken to address the high priority threats affecting it.

However very few people either scientists or flying-fox rehabilitators would say that there is effective protection of the vulnerable flying-foxes in Australia. It is generally considered that while a lot is written about this topic, very little is done. It is all talk and little action. So unless there is sufficient will and effective action the population growth rates, of both species will continue to decrease.

Deaths and injuries to Grey-headed Flying-foxes, *Pteropus poliocephalus* shot at an orchard near Sydney, New South Wales

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ABSTRACT

For several years, animal welfare concerns have been raised over the practice of shooting Grey-headed Flying-foxes (GHFF) in commercial fruit orchards in Australia, and the role of government agencies in licensing the kill. In NSW the practice is poorly monitored and insufficient evidence has been available to assess welfare concerns. This study reports the first systematically acquired data on flying-foxes shot under licence in NSW. In the 2006/07 season the average number of GHFFs licensed to be harmed was <40 individuals per licence. Despite this, a total of 164 dead or injured flying-foxes were collected ($n = 146$) or observed ($n = 18$) from an orchard in western Sydney over two weeks in spring 2007, after shooting had occurred at the orchard to protect fruit crops. Detailed information, including sex, reproductive state, age and description of injuries, was compiled on 136 collected bats. The sex ratio was strongly skewed towards females (1:1.73), of which 54 (65%) were lactating at the time. Thirteen of these were shot while carrying their dependent young, while 41 neonates would have been left behind in the camp to die. Hence, the total estimate of flying-foxes that died due to shooting in the orchard over the two-week period was 205. Collected bats suffered from various injuries, and at least 30% (44% including the neonates left in the camp) were alive and unattended more than 8.5 hours after shooting. This is in contravention of the definition of 'humane killing' and the Prevention of Cruelty to Animals Act 1979. Importantly, the GHFF is vulnerable under NSW and Federal legislations and the killing of reproducing females in crops contributes to its declining numbers, making Sydney Basin an ecological trap for this species.

Key words: Flying-fox, *Pteropus poliocephalus*, shooting, orchard, humane killing, animal welfare

Introduction

The Grey-headed Flying-fox, GHFF, *Pteropus poliocephalus* is a large bat endemic to Australia. Its distribution extends along the eastern coast, from mid Queensland to southern coastal Victoria (Hall and Richards 2000). It is listed as vulnerable in NSW (*Threatened Species Conservation Act 1995*), Victoria (*Flora and Fauna Guarantee Act 1988*) and under Federal legislation (*Environment Protection and Biodiversity Act 1999*). This listing is a direct result of a reported population decline of 30% over ten years (Parry-Jones 2000), attributed mainly to the loss and degradation of foraging and roosting habitat (Tidemann *et al.* 1999; Dickman and Fleming 2002; Eby and Lunney 2002; Department of Environment and Climate Change (NSW) 2008). The vulnerability of the species is linked to its life history, which is at the slow end of the slow-fast continuum (Read and Harvey 1989).

A 'slow' characteristic of the life history of *P. poliocephalus* is the relative high investment that is put into individual young. The species has a low reproductive rate (Jones *et al.* 2003): the majority of females do not reproduce until they are three years old (Divljan 2008) and there is a relatively high level of post-natal care. Females are pregnant for six months (Nelson 1965; Martin *et al.* 1987; O'Brien 1993) and have only one young a year (Ratcliffe 1931; Nelson

1965; Martin and McIlwee 2002). The mothers carry neonates continuously for the first three weeks of their life and then leave them with other flightless young at a camp site at night while they feed (Nelson 1965). As the young do not fly under three months and they are weaned between the age of four to six months old (Nelson 1965; Hall and Richards 2000) a juvenile flying-fox left in the camp at night is dependent on its mother for at least three months and if she fails to return from her foraging trips the young flying-fox will die (Parry-Jones 2000).

P. poliocephalus preferentially feeds on nectar and pollen from native myrtaceous species (e.g. species of *Eucalyptus*, *Corymbia* and *Melaleuca*) but also eats various native and introduced fruits (Parry-Jones and Augée 2001). At times flying-foxes feed on orchard fruit and historically this behaviour resulted in them being considered a pest species and the subject of various attempts at eradication (Ratcliffe 1931; Ullio 2002). Crops grown in coastal areas in NSW and southern Queensland are most commonly affected, and the perception is that the incidence of fruit damage by bats has been increasing in the recent years (Biel 2002). However, in a study of flying-fox droppings in the Sydney area, Parry-Jones and Augée (2001) showed that the stone fruit (plums,