

# NPWS operational management of commercial crop damage by flying-foxes — licensing in practice, a far north coast perspective

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## ABSTRACT

The National Parks & Wildlife Service (NPWS) on the far north coast of NSW has been involved with issues of flying-fox damage to fruit crops since the early 1980s. Although shooting is an ineffective method of crop protection and is not the one preferred by the majority of fruit growers, several fruit growers continue to use shooting to protect crops. From a field perspective, the current system of licensing on-crop shooting has not been conducive to achieving the nature conservation objectives of NPWS. In particular, compliance with licence conditions is inadequately monitored by NPWS due to insufficient resources, the nature of the activity and constraints on enforcement activities. I offer the following options for managing crop damage by Grey-headed Flying-foxes now that they are listed as threatened. Option A: prohibit culling of flying-foxes on crops. This is the most appropriate approach from a statutory perspective as NPWS has a clear responsibility to protect and conserve flying-foxes. Option B: instigate an amnesty on prosecution, and license unrestricted culling. This option should be considered if NPWS wants to gain a more accurate assessment of crop protection activities and the impacts of these activities on the conservation of the species. Option C: Continue to issue licences to shoot. This option is resource dependent. If resources to effectively regulate licences are not made available, the impacts of crop protection activities on flying-foxes in NSW will continue to be unknown. If Option 'B' or 'C' are implemented, I recommend a working group be set up to formulate workable strategies to resolve issues of population estimates, research priorities, humane treatment and land use planning.

## Introduction

The National Parks & Wildlife Service (NPWS) in the far north coast of NSW has been involved with issues of flying-fox damage to fruit crops since the early 1980s. The fruit industry in this region has expanded and diversified over the past 20 years (Slack 2000). As a result, the range of crops impacted by flying-foxes and the length of the season associated with flying-fox damage and licensed harm in crops have also expanded. Initially, flying-fox damage was concentrated in spring when low chill stonefruit crops ripen. However, these crops were followed by lychees, guavas, persimmons, mangoes, bananas and, most recently, coffee. At the present time the diverse array of crops

supports a licensing season that extends from September through to June, a period of 10 months.

Three species of the Genus *Pteropus* occur on the far north coast of NSW. These are the Grey-headed Flying-fox *Pteropus poliocephalus*, the Little Red Flying-fox *P. scapulatus* and the Black Flying-fox *P. alecto*, which, in this area, is at the southern limit of its distribution (Eby 1995).

I have been involved with issuing licences to shoot flying-foxes for 14 years. During that time it has become clear to me that shooting is ineffective as a crop protection method, and it certainly is not the method preferred by the majority of fruit growers.

## The current situation

Fortunately, exclusion netting is gaining acceptance as the most effective and time efficient method of protecting commercial orchards. Indeed, in 2000 it was estimated that 65% of stone fruit orchards on the north coast were under nets (Slack 2000).

However, several fruit growers continue to use culling as their primary method of crop protection. It would appear that pressure to obtain licences to harm flying-foxes comes mostly from fruit growers with small orchards that are economically marginal. During the 2000-2001 fruit season, NPWS issued 18 licences to fruit growers in the Richmond River area of NSW. Two were second licences. Twelve of the applicants grew stonefruit, three grew lychees and one grew guavas. The majority of the licence holders had relatively small operations, and had not netted their orchards because of insufficient economic returns or the steep topography of their land.

Licence holders with more substantial and economically viable orchards are installing nets as crop yields allow. However, while most licence holders in this group stated that they intended to net, to date they have not substantially netted their crops, and appear unlikely to do so in the near future. One grower has indicated that he will not install netting as a result of the low value of his crop. The same grower indicated that even with licensed shooting he continues to sustain heavy fruit loss.

Given the increasing area of fruit crops under nets, it is likely that these unprotected orchards face growing pressure from flying-foxes in seasons when native food sources are limited. Indeed the increase in flying-fox predation during the 2000/2001 season as reported by many licence holders is suspected in part to be a result of increased netting.

As to how NPWS responds to these circumstances, I offer some comments based on my field experience. I hope these comments will assist in formulating workable strategies.

## The NPWS policy and licensing

Since its inception in 1998, the NPWS Policy on Flying-foxes and Mitigation of Commercial Crop Damage has assisted field operators in maintaining a consistent approach to licensing procedures, including initial inspections, advice to applicants and determining crop damage with the assistance of NSW Agriculture (Waples 2002). The

conditions specified on licences provide an opportunity for NPWS to monitor compliance and enforce licence conditions if required. Annual reviews of the policy have provided statistical information on the number of licences issued, the intensity of damage, the location of affected areas, the types of crops affected and so on (Waples 2002).

NPWS is reliant upon licence holders to provide crucial information on the number and species of flying-foxes that are harmed. This information is required under licence condition 5 and is provided via the "Flying-fox Record Sheets". Licence condition 5 stipulates "The Licensee must complete the Flying-fox Record Sheet provided by NPWS within 24 hours after any shooting. The Record Sheet is to be available for inspection at any time and returned to the NPWS office of issue, on or before the expiry date of this licence." However, compliance with condition 5 has been poor. It is of concern that in each NPWS review of the policy, the flying-fox record sheets have not provided information that can assist with formulating future management decisions.

From a field perspective, the current licensing system or rather the 'system in practice' has not been conducive to achieving the nature conservation objectives of NPWS. In particular, it is clear to me that the actual numbers and species of flying-foxes being harmed are likely to be respectively greater and different than is reported in licence returns. To be fair, the question of validity of information from licence holders is certainly not the only reason for the inadequacies of the current licensing system.

## Comments from fruit growers

Some fruit growers have alluded to the discrepancy between the actual numbers of flying-foxes being taken and the numbers reported. Their comments indicate that the licences and associated recording are not taken seriously by many members of the industry and that if NPWS is interested to know what actually happens in orchards, an amnesty on prosecutions should be declared and applicants issued with open licences that do not place a limit on the number and species of flying-fox that may be harmed. In my experience, when losses of high value fruit run into many thousands of dollars, fruit growers (licensed or not) are prepared to contravene the *National Parks & Wildlife Act 1974* and risk prosecution to protect their livelihood.

Some fruit growers have also questioned the

accuracy and objectivity of recent estimates of flying-fox populations. They maintain that given the involvement of people interested in flying-fox protection, the counts are likely to underestimate the actual size of the population, and have suggested that acceptance of population estimates may be improved by involving fruit growers in counting activities.

Concern has also been expressed that research is presently aimed at conservation rather than mitigating the impacts of flying-foxes on the fruit growing industry. In my view, NSW Agriculture and industry have major roles in relation to research into mitigation strategies.

### Licence monitoring

Effective monitoring of compliance to licence conditions requires significant resources. These have not been made available to date and realistically will not be made available in the future. The lack of resources combined with the inherent difficulty of monitoring crop protection activities in the field can only result in a poor level of compliance.

A number of factors mitigate against effective monitoring of licence compliance:

- Fruit growers are forewarned of property inspections, allowing scope for illegal shooting to go undetected. Inspections must be unannounced to ensure a true and accurate appraisal of the licence holder's activities. Significant reconnaissance time is needed to ascertain if shooting is taking place at the time of the initial approach to the property.
- Crop protection occurs from late at night to early in the morning, presenting problems of poor visibility and poor access to fruit crops, e.g. locked gates. Daytime inspections are really only useful as a follow-up.
- Given that firearms are involved, police assistance may be required to ensure the safety of NPWS personnel. This assistance is often not available.
- There are additional health and safety issues associated with handling flying-foxes, particularly in relation to disease.
- Many NPWS Regions do not have the resources to take on these activities, given overall Regional priorities. There is a significant cost to NPWS of monitoring licence compliance, both in terms of direct financial cost (e.g. overtime) and impacts on other Agency priorities (e.g. park management, fire fighting activities).

- It is difficult to identify species at night or establish the numbers actually harmed. Given poor visibility at the time of shooting, poor species identification, the gregarious behaviour of flying-foxes, and the indiscriminate nature of a shotgun blast, it is unlikely that the licence holder or the licence regulator can determine the actual number and species harmed. Further, many wounded animals may die outside the orchard and not be included in the tally.
- It is impractical to monitor burial of killed animals. Licence condition 7 directs the licence holder to bury the carcasses of shot flying-foxes at a single, readily identified location. I am not aware of any monitoring of this condition by NPWS, which logically would need to be undertaken in daylight hours. To be of any value, gravesites would need to be exhumed (possibly using plant machinery to excavate), the carcasses counted and specimens dispatched for positive identification. It could be suggested that any licence holder could in fact use a number of gravesites at any time, with only one site being readily identifiable during inspections.

In theory, the licensing system and licence conditions are adequate. In practice, monitoring can only be described as superficial as a result of inadequate resources, the nature of the activity and constraints to compliance activities.

### Threatened species listing

Both the Grey-headed Flying-fox and the Black Flying-fox are threatened species in NSW and listed as Vulnerable under the *NSW Threatened Species Conservation Act 1995* (TSC Act). As a result of the extra conditions for harming threatened species, no licences to harm Black Flying-foxes have been issued since it was listed in 1992. If NPWS is considering issuing licences to harm the newly-listed Grey-headed Flying-fox for the purposes of crop protection, it must then also consider issuing licences to harm the Black Flying-fox which occurs on the far north coast of NSW. Recent investigations of breaches of the NPW Act have revealed that illegal crop protection activities involving shooting and electrocution have harmed Black Flying-foxes in higher proportions than Grey-headed Flying-foxes. It is therefore logical that this circumstance would also occur during any licensed crop protection activity, inadvertently or intentionally. If the licensing system is being adapted to accommodate one threatened species of flying-fox, it should equally be adapted to all threatened species of flying-fox in similar circumstances.

## Solutions – options from a field perspective

I offer the following options for managing crop damage by Grey-headed Flying-foxes now that they are listed as threatened:

- A) Prohibit culling:** From a NPWS field perspective this is the logical action to take. This approach simplifies the issue enormously as it negates confusion between illegal and licensed harm. Any reports of shooting of flying-foxes can be followed up as a straightforward law enforcement matter. This is much easier than attempting to monitor/enforce compliance to problematic licence conditions. This action will of course place significant pressure on the marginal fruit growers to sustain fruit losses, install nets or cut their losses and leave the industry.
- B) Instigate an amnesty on prosecution and license unrestricted culling:** Placing an amnesty on crop protection activities involving harm to flying-foxes would enable more accurate information to be gathered concerning the number and species of flying-foxes actually impacted by crop protection activities. This approach could involve the engagement of an independent agent(s) to undertake field assessments and compile a report.
- C) Issue licences:** Maintain the existing system of licensed culling, but set quotas on the basis of the current estimate of flying-fox populations. The continuation of licensing should be for a defined period and or number

of seasons. The provision of the necessary resources to monitor and enforce the conditions of licences is fundamental to the effective implementation of this option.

### Analysis of options

It is obvious that something has to change to resolve the issue.

Option 'A' is the most appropriate approach from a statutory perspective. NPWS has a clear responsibility to protect and conserve flying-foxes pursuant to the NPW Act and the TSC Act. It would be unfortunate to continue a licensing system for a period and find ourselves in the same situation as we face today.

Option 'B' should be considered if NPWS wants to gain a more accurate assessment of crop protection activities and the impacts of these activities on the conservation of the species.

Option 'C' from a field perspective is resource dependent. If resources to effectively regulate licences to harm flying-foxes are not made available it is likely that the level of impacts of crop protection activities on flying-foxes in NSW will continue to be unknown.

If Option 'B' or 'C' are implemented, I recommended a working group be set up involving the industry, NSW Agriculture, RSPCA, NPWS, Local Government, Australian Museum and Wildlife Carers. This group should formulate workable strategies to resolve issues of population estimates, research priorities, humane treatment and land use planning.

## References

**Eby, P. 1995.** *The biology and management of flying-foxes in NSW.* Species management report number 18. NSW National Parks and Wildlife Service, Hurstville, NSW.

**Slack, J. 2000.** *NSW North Coast Experience With Netting.* NSW Agriculture and SE NSW Horticultural Producers Association, Benefits of Protective Structures Seminar 4<sup>th</sup> August 2000.

**Waples, K. 2002.** Review of the NPWS policy on the mitigation of commercial crop damage by flying-foxes. Pp. 39-46 in *Managing the Grey-headed Flying-fox as a Threatened Species in NSW*, edited by P. Eby and D. Lunney, Royal Zoological Society of NSW. Mosman, NSW.

## QUESTIONS & ANSWERS

**CHRIS DICKMAN:** Thank you.

**LEN MARTIN (University of Queensland):** Just to raise the question of the Black Flying-fox which is tending to replace the Grey-headed Flying-fox in the north. It's been listed as vulnerable in NSW for years, so the question is what do you do about the licences for them already? The other question is: on the principle that all flying-foxes look alike in the dark, how do you tell whether crop damage is from Black or Grey-headed Flying-foxes?

**BRIAN McLACHLAN:** That's a good question and therein lies the problem. Inherently it's a difficult thing to assess. In my 14 years it has become obvious to me that the very nature of a shotgun blast ensures all three species are impacted in licensed or unlicensed activities. That's how it is.

**CHRIS DICKMAN:** Thank you, Brian, we should probably close here.