

Recommendations for the recovery of the Grey-headed Flying-fox *Pteropus poliocephalus* in New South Wales

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Editors'
Note

This paper evolved as a postscript from the plenary discussion at the forum on 28 July 2001 and was most welcome because it followed directly from the discussions on the day.

Background

In the plenary discussions of the forum on Managing the Grey-headed Flying-fox as a Threatened Species in NSW convened by the Royal Zoological Society on 28 July 2001, it was noted that simple cessation of culling in orchards will not save the Grey-headed Flying-fox *Pteropus poliocephalus* from being vulnerable to extinction. Actual recovery is needed – at the level of strategic land clearing intervention, protection of old growth forests that provide higher quality and quantity nectar and pollen than regrowth timbers do, and de-fragmentation of habitat by incorporation of flying-fox forage species into broad-scale re-forestation programs.

Discussion focused on whether management of the Grey-headed Flying-fox as a threatened species in NSW would require development of further legislation; how to ensure that all stakeholders knew what the others' needs were; the need to do a lot more research before we will be able to save the Grey-headed Flying-fox; and who should pay. These deliberations led inexorably to "who is going to do the work?" The overall objective is to conserve and recover the Grey-headed Flying-fox. In our view strategic action in five areas (extension officers, legislation, consultation, lobbying, research) should allow us to achieve that objective. We offer the following recommendations.

Extension officers

Recommendation 1. Have Extension Officers "on the ground" from Monday July 30, 2001 to start implementation of recommendations from

the RZS Forum, particularly those concerning relevant legislation (see #2 below), establishment and coordination of a consultative taskforce (see #3 below) and lobbying for funding (see #4 below) for research (see #5 below).

- The Flying-Fox Extension Officers (FFEOs) may be needed for 5 years; this advice is based on the experience of some of the stakeholders present at the Forum.
- There are people already available who could be productive from the date of appointment. Suitable candidates may include people currently working as extension officers (e.g. secondment from NPWS or State Forests NSW), ecological consultants, landscape ecologists or wildlife management consultants.

Essential qualifications for FFEOs: scientific training in ecosystems management, natural resource management, zoology, or equivalent. Specific skills needed include report writing, driver's licence, ability to communicate with a broad range of people and in diverse contexts. Preferred qualifications include good knowledge of flying-fox biology; familiarity with primary industries especially production horticulture.

Actions

(a) NPWS to appoint several Flying-Fox Extension Officers (FFEOs).

Tasks for FFEOs are noted below, as 'Actions' (b) to (h).

(b) Extension officers to organise a Taskforce day after three years to again bring together the

stakeholders to review the success of the recovery strategies implemented – have the objectives been achieved? – and to revise or update the strategies if necessary.

There was little support at the 2001 Forum for a “Taskforce day” to be generated as a starting point for the recommendations - most felt that we had just participated in the first “Taskforce day”.

(c) Extension officers to undertake research targeted at answering key questions of flying-fox biology needed for conservation and recovery of the taxon. This may include such activities as mapping all known campsites and recording their pattern of usage, local food resources especially whether their residents typically use forests or orchards, and the category of ownership or land tenure of the site. They need to estimate the degree to which flying-foxes use old-growth compared with regrowth forests and whether flying-fox use of either forest type has a differential impact on orchards in the district. The specific research projects need to be designed in association with NPWS and the NSW FFCC (see #3 below – Consultation).

Legislation

Recommendation 2. The legislation currently available is generally considered adequate for conserving and recovering the Grey-headed Flying-fox.

Governments need to resource NPWS sufficiently to allow them to interpret, implement, manage and police existing legislation. This is a major resource commitment.

The exception to the “no additional legislation” view was some support for producing a flying-fox-specific State Environmental Planning Policy (SEPP) along the lines of the koala-specific SEPP44 - Koala Habitat Protection. This would bring together in a single document many of the relevant legislative instruments, making them readily accessible by the groups that are responsible for their enforcement, such as local government authorities, land developers, primary industry groups, community-based conservation organizations etc. However, the planning matters relevant to this issue are considerable and are presented in Conway (2002).

Actions

(c) FFEOs to analyse existing legislation. Does it provide for NPWS and other state and local administrators to remove threats to the Grey-

headed Flying-fox and its habitat? Is the legislation workable and enforceable or does it need modification? Would it be better implemented if the various instruments were drawn together in a SEPP? If further legislation or guidelines are needed the FFEOs would either frame them or advise the appropriate office of the need.

Consultation

Recommendation 3. Establish the **NSW Flying-Fox Consultative Committee (NSWFFCC)**.

Composition of NSWFFCC: to be chaired by the Director-General of NPWS or nominee; membership to include representatives of stakeholder groups that were present at the RZS Forum in July 2001, ensuring participation by conservation authorities, wildlife and resource management, primary industry, scientific fraternity, and other community groups and technical advisors when appropriate.

Terms of Reference (ToR) for a NSW FFCC:

- facilitate regular flow of communication between stakeholders
- utilise the model of the QFFCC where appropriate, replacing any aspects that do not pertain to NSW with versions more suited to local context
- implement recommendation #2 re legislation
- supervise and liaise with extension officers appointed by recommendation #1
- raise the positive profile of flying-foxes in the community through education to garner public support for management of the Grey-headed Flying-fox as a threatened species
- lobby potential funding sources, governmental, industrial and commercial, to place flying-fox conservation high in their priorities. This will facilitate implementation of recommendation #4
- identify research questions that stakeholders need answered to progress recovery of the Grey-headed Flying-fox under the Threatened Species Conservation Act (TSC Act)
- act as ongoing advisory committee to NPWS, as a continuation of the Forum.

Collateral gains for the conservation of congeneric species: the Committee’s Terms of Reference should extend to the Black Flying-fox *P. alecto* and the Little Red Flying-fox *P. scapulatus* whenever their overlapping geographic distributions or behaviours bring them within the

“workspace” of the NSW FFCC. Note that, like the Grey-headed Flying-fox, the Black Flying-fox is also listed as Vulnerable on Schedule 2 of the TSC Act.

Actions

(d) The FFEOs to effectively be the standing committee of the NSW FFCC, to act on its behalf between meetings, to implement its decisions, and to coordinate its activities. As such, the FFEOs may need to actually be appointed by NPWS on the recommendation of the NSW FFCC.

(e) In the role of mobile coordinators the FFEOs to attend meetings of fruit grower associations, ecosystem management and conservation organizations, scientific and bat research organizations, and relevant planning meetings of federal, state and local government to present the case of flying-foxes and to listen to the stakeholders as their needs and achievements constantly change. In this way the consultation process that progressed so very far during the Forum and which will occur formally through the NSW FFCC will be continuous.

Lobbying

Recommendation 4. Lobby governments for funds to support research.

Actions

(f) FFEOs to use a variety of approaches to increase research funding. Federal and state budgets are planned many months before they are delivered. Effective lobbying may involve year-round communication with conservation, horticulture and science organizations to establish what their needs are. FFEOs will then assist to identify the appropriate part of the state or federal public service whose portfolio¹ is relevant, and target information campaigns early enough that there is a chance that treasury papers will include funding for research and development in areas that will assist the conservation and recovery of the Grey-headed Flying-fox.

Discussions at the Forum also incorporated consideration of user-pays principles, and the question of the extent to which the broader community must share the costs of conservation, especially in relation to crop damage mitigation and land clearing constraints.

Action

(g) FFEOs will advise government and non-government funding agencies (e.g. Australian Research Council, Natural Heritage Trust, public trusts, private endowments etc) of priorities that need investment. Lobbying efforts will also target the retail sector and relevant primary producer organizations.

Research

Recommendation 5. Undertake targeted research into flying-fox biology.

During the Forum numerous stakeholders explicitly identified the need for further research on the biology of Grey-headed Flying-foxes to be undertaken before the Forum's aims of management of this threatened species could be achieved (see Bicknell, Tidemann, Hughes elsewhere in these proceedings).

Orchardists especially requested investigations of aversive and deterrent mechanisms to reduce use of orchard fruit by flying-foxes.

Humane Society International especially requested investigations into positive attractants (a) to draw animals towards flowering or fruiting forests as a means to discourage feeding in orchards, and (b) to draw animals into riverine roost sites away from sensitive sites such as schools, municipal swimming pools and town water supplies for their daytime camps.

Both groups highlighted the need for more basic knowledge of flying-fox biology. We recommend the initial budget should be the \$1.26M of federal funding that was identified in the costed recommendations of the *Action Plan for Australian Bats* (Tidemann *et al.* 1999). Many of the points made at the RZS Forum regarding the need for research echoed the recommendations made in the Action Plan, especially in relation to habitat clearance, survey and research, protection of roost sites, development of non-lethal techniques for protection of fruit crops, diseases and the need for national coordination of efforts.

At the Forum some of these recommendations were clarified to specific questions that need to be addressed. While these will need to be further developed by the NSW FFCC and the FFEOs they include the following:

1. How long is the potential lifespan of a flying-fox in the wild?
2. What is the maximum rate of reproduction of flying-foxes in the wild (this encompasses age when first giving birth, and differential mortality of separate age classes or reproductive classes)?
3. Where are the sites that flying-foxes use for roosting (i.e. camps)? Note that some camp sites are likely to be used regularly (e.g. annually or every few years) while others may be once-only sites. The pattern of occupation of sites used toward the edges of a species' geographic distribution may be different from patterns of usage of sites in coastal lowland regions but rarely used sites may constitute important refugia.
4. Where are the forests that flying-foxes use for foraging; which are on private land and which are on conservation reserves?
5. What steps need to be taken to provide sufficient phytophagous (both trees and shrubs) forage close to suitable safe refuge for camping?
6. What other factors determine what parts of the state can be used by flying-foxes - is their distribution limited by temperature, rainfall, altitude, free water in rivers and streams, distance between forest fragments, or is mapping nectar flow sufficient to predict flying-fox movements and habitat requirements?

Action

(h) FFEOs to compile a database listing what research has been done and what we still need to know in order to save the Grey-headed Flying-fox. They will then contact possible workers to indicate to them what work is needed. Some research questions may be able to be built into existing programs. However it should be recognised that government investment in recovery of the Grey-headed Flying-fox will probably have to include funding some consultancies directly to ensure that the most critical research does get done.

Applications of the Flying-Fox Research Database

1. By providing a centralised “clearing house” for flying-fox research, FFEOs may be able to accelerate recovery of the flying-fox by assisting to match appropriate researchers with appropriate sources of funds.
2. The database will allow ready cross-checking of goals against outcomes viz. how many of the important questions have been answered, which still need attention?
3. A central research database can prevent researchers or growers from reinventing the wheel. There are many folk remedies that have been tried as deterrents; a list of these needs to be included so that those techniques that have shown promise can be incorporated into adaptive management trials. The conditions under which each deterrent worked and did not work needs to be recorded to allow solutions to be tailored to specific orchard types and predation scenarios.

Collecting information in this way will hopefully narrow the range of non-lethal potential deterrents that are investigated - noise, smoke, non-lethal electrified grids, smell, affordable exclusion netting etc. Narrowing the range is seen as necessary to economise and spend research dollars in targeted ways. Development of deterrents extends to understanding flying fox behaviour. Do scouts exist? What is their role? How do they communicate and can we influence what is communicated?

4. The database will record all deterrent mechanisms that have been found to work and the situations in which each is useful. Field officers working in property management planning can use this information from the database to assist individual growers to develop the most appropriate on-farm management practices for them to use to avoid or minimise depredation of crops by flying-foxes. Many of the growers are likely to be members of their local Landcare organizations and will be looking for wildlife-friendly solutions.

¹ Relevant federal portfolios may include Agriculture, Fisheries & Forestry; Education, Science & Training; Environment & Heritage; or Industry, Tourism and Resources; state portfolios include Agriculture; Education & Training; Environment; Forestry; Land & Water Conservation; Local Government; Planning NSW; Rural Affairs; Small Business; or Tourism.

Concluding statement

Successful lobbying will allow the necessary research to be undertaken and existing legislation to be implemented, with guidance from the NSW FFCC. We reiterate the imperative that the government must resource NPWS adequately to implement its obligations

under the TSC Act. The intended outcome is removal of *Pteropus poliocephalus*, the Grey-headed Flying-fox, from the Schedule of Threatened Species as soon as it has been successfully recovered and is no longer threatened with extinction.

Reference

Conway, A. 2002. The planning system in NSW and Threatened Species. Pp 259-267 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.

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