2007

The status of the greater glider "Petauroides volans" in the Illawarra region

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The Status of the Greater Glider *Petauroides volans* in the Illawarra Region

A thesis submitted in partial fulfillment of the requirements for the award of the degree

Masters of Science-Research

from

University of Wollongong

by

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BenvSc (Hons)
Grad. Dip. Ed

School of Biological Sciences

2007

CERTIFICATION

I, Kevin S. Maloney, declare that this thesis, submitted in partial fulfillment of the requirements of the award of Masters of Science-Research, in the School of Biological Sciences, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Kevin S. Maloney

18 November 2007

Abstract

Anecdotal evidence suggested that the Greater glider *Petauroides volans* Kerr 1792 had been eliminated from Royal National Park by wildfires in 1994. This thesis is concerned with the distribution of the Greater glider in the Illawarra region, the reasons why it appears unable to recolonise an area in which it was formerly found, and the potential for re-establishing the former population. The specific aims of this study were to (1) clarify the taxonomy of this species; (2) review the distribution and abundance of Greater gliders in the Illawarra area and the current threats to populations; (3) conduct a detailed field study in the region; and (4) develop a translocation proposal for reintroduction of Greater gliders to Royal National Park.

Early accounts of the Greater glider *Petauroides volans* (Marsupialia: Pseudocheiridae), started with Arthur Phillips' 1789 account in *The Voyage of Governor Phillip to Botany Bay*, but, since then, the species has had a quite peripatetic and confusing taxonomic history. It has been listed as a member of 10 genera, with about 23 different binomial names. The taxonomy and early descriptions of the species' morphology, dentition, behaviour, distribution and abundance are complex, and *P. volans* has frequently been confused with a number of other gliding possums, particularly the Yellow-bellied glider, *Petaurus australis*. Early descriptions of the morphology of *P. volans* were given only in broad general terms. More value can be placed on the early behavioural observations, and on the earliest records of their occurrence.

Recent distribution records of the Greater glider in the study area show that its range and numbers have declined over a 35 year period. Many factors may have contributed to this decline including; removal of habitat and den trees, predators, and the timing and frequency of fire events. The population of Greater gliders that was present at Royal National Park prior to 1994 was depleted by the shooting of 21 individuals between 1978 to 1980. A number of barriers in the landscape will limit the ability of the Greater glider to disperse from adjacent areas back to Royal National Park.

My detailed field study, using spotlighting, at 19 sites confirmed that it is no longer present in many areas in which it was once observed. It is present in areas that are conserved as part of Sydney catchment Authority, and is indeed absent from Royal National Park. This information suggests that a reintroduction of the Greater glider to Royal National Park would be worthwhile, particularly as the Greater glider was formerly abundant at Royal National Park.

The biological and ecological factors required by the New South Wales National Parks and Wildlife Service policy document for the translocation of fauna are considered for the translocation proposal of the Greater glider to Royal National Park. These factors include; the reintroduction of 18 individuals using a sex ratio of 1:2 (6 males and 12 females), at two sites (Jersey Springs and Bola Creek) with three lots of F-M-F at each site (3 males and 6 females). Monitoring of the translocated individuals would use radio collars, reflective tags and spotlighting to determine initial success of the reintroduction. The low population numbers of the Greater glider in the Illawarra region call for sourcing the individuals from other areas. The taxonomy and the current and former range of the Greater glider are reviewed.

The Greater glider lives for 10 – 15 years with adult females having one young per year, with greater success in forests with higher nutrient levels. The species is solitary and virtually silent, with populations ranging from 0.01 to 5 individuals per hectare. It is a hollow dependent, nocturnal folivorous marsupial which feeds high in the canopy and consumes some 33 eucalypt and ten non eucalypt species across its distribution. The home range size for the Greater glider is 1.4 to 2.6 ha for males and 0.8 to 2.5 ha for females. Threats to this species include habitat clearing, logging, fire and predation with ten predators reported. The only disease reported is *Chlamydia* which appears not to have any effect, while three ectoparasites and eight endoparasites were also recorded for this species. There have been no previous translocation programs undertaken for the Greater glider; other analogous species which have been translocated include the Sugar glider, Koala and Common Brushtail possum.

The source population for the translocation of the Greater glider to Royal National Park, should come from an area other than the Illawarra as these populations are in low numbers and are of local conservation priority.

Preface

The work presented in this thesis is predominantly my own work; publications and contributions from other people are detailed below:

The work presented in chapter two was undertaken in collaboration with Jamie M. Harris and resulted in the following manuscript:

MALONEY, K.S. AND HARRIS, J.M. (2008). Early natural history of the greater glider *Petauroides volans* (Kerr, 1792). *Proceedings of the Linnean Society of New South Wales* **129**, 39-55.

Acknowledgements

There are many people to thank when undertaking a research thesis.

Many thanks to Marieann, Declan and Ruby (the three amigos) who have been helpful and understanding in many ways, such as listening to the rants and raves of a fanatic and also putting up with the mess around the house.

The NSW NPWS personnel who helped with data provision; Peter Ewin and Kylie Madden. Field work; Helen Jessup. Advice; Debbie Andrew and Geoff Ross.

The staff of the Sydney Catchment Authority for access to Authority lands

Thanks to the following for help with field work (DD's provided); Matt Clancy, Declan Maloney, Jamie Harris, Michelle Haynes and Damon Maloney (the Demon).

Big thanks to the library staff at the Australian Museum (AM) Sydney; Natural History Museum, London; and the University of Wollongong. For translating French articles, I am grateful to Betty Hassen, and for translating German, Peter Simmons. I also thank Sandy Ingleby for access to the mammal collection in the AM and Cécile Callou for correspondence and photograph of a specimen from the MNHN.

Finally, I owe a debt of gratitude to Rob Whelan as supervisor for helpful discussion, encouragement and comments on this work.

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