

DOES COLOUR-BANDING AFFECT THE SURVIVAL OF ADULT HONEYEATERS?

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INTRODUCTION

Although colour-banding is an important technique essential to many ornithological studies in Australia, its effects (if any) on survival are not known. During two previous studies of colour-banded birds at Rawlinna, Western Australia (Brooker *et al.* 1979) and at Shark Bay, Western Australia (Brooker 1989), it was found that, despite the appearance of a sedentary population of Singing Honeyeaters *Lichenostomus virescens*, there was actually a constant turnover of birds. At Shark Bay, new individuals were caught on each banding trip and few previously banded birds were ever re-sighted, even in the short term. At the Rawlinna study site, 40 birds were colour-banded over a four year period but only eight were ever seen again. The same phenomenon was apparent in other species, e.g. Willie Wagtails *Rhipidura leucophrys* (Brooker, pers. obs.).

In this paper we examine the possibility that colour-banded birds experience an increased risk of mortality, which might result in the constant recolonization of an area by unbanded individuals. Saunders (1988) found that Short-billed Black-Cockatoos *Calyptorhynchus latirostris* with shiny patagial tags suffered higher mortality than birds with no tags.

METHODS

Honeyeaters and other species of birds have been mist-netted at the CSIRO Laboratory at Helena Valley, Western Australia since 1981. From 16 February 1989, alternate new captures of New Holland Honeyeaters *Phylidonyris novaehollandiae* and Brown Honeyeaters *Lichmera indistincta* were colour-banded with orange and blue plastic bands on the right tarsus and a metal band on the left; others (the control group) received a metal band only. All plastic bands were sealed with acetone. Although nine other species of honeyeaters, including Singing Honeyeaters, occur in the area, the two target species were the only ones present in sufficient numbers to use for this experiment. The area was netted opportunistically on 30 occasions up until 1 May 1995.

Relative survival was measured by comparing (a) the proportion of individuals recaptured after banding and (b) the median, mean and distribution of the longest elapsed time from banding to latest recapture.

RESULTS

New Holland Honeyeaters

Survival analyses gave no indication that the colour-banded group (CB) did not survive as well as the control group without colour-bands (NCB). There were no significant differences between CB birds and NCB birds in either (i) the proportions recaptured (34/115 vrs 25/119 respectively; $\chi^2_1 = 2.3$; $p > 0.1$; ns) or (ii) the proportions recaptured more than once (7/34 vrs 4/25 respectively; Fisher's Exact Test $p = 0.745$; ns) or (iii) the proportions recaptured after 20 days (25/115 vrs 16/119 respectively; $\chi^2_1 = 2.2$; $p > 0.1$; ns) or (iv) the proportions recaptured >100 days from initial recapture (12/115 vrs 10/119 respectively; $\chi^2_1 = 0.09$; $p > 0.7$; ns). The median and mean elapsed times from banding to latest recapture were 59 and 245 days respectively for CB birds compared to 28 and 135 days respectively for NCB birds and the means for elapsed time (log transformed) were not significantly different ($t = 0.81$; $df = 57$; $p = 0.42$). Furthermore the median and mean elapsed times both showed the opposite trend to that expected if the CB birds were not surviving as well as the NCB birds. The distributions of elapsed times are shown in Figure 1.

Brown Honeyeaters

The recapture rate of the 135 Brown Honeyeaters trapped during the experimental period was lower than expected. During the eight years prior to the study, 16 per cent (33/205) were recaptured more than 19 days after initial capture, compared to only 3 per cent (4/135) in the

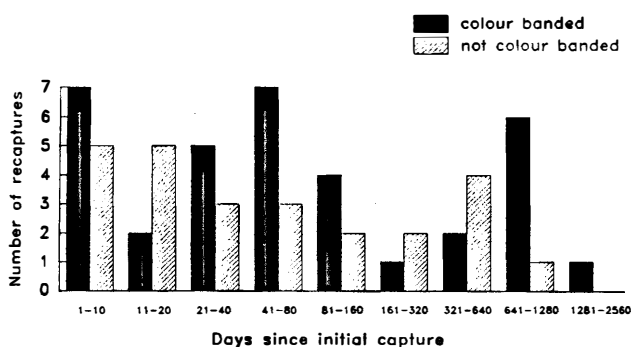


Figure 1. Frequency distribution of elapsed time (days) from banding to latest recapture for colour banded and control groups of New Holland Honeyeaters.

6.5 years of the study. Of all recaptures during the study, 4 of 67 CB birds were recaptured with elapsed times of 2, 13, 363 and 518 days; while seven of 68 NCB birds were recaptured after 2, 2, 11, 13, 13, 21 and 43 days.

DISCUSSION

The results of this experiment show that banding New Holland Honeyeaters with orange and blue colour bands in addition to a metal band does not affect their survival compared with individuals wearing a metal band alone.

BOOK REVIEW

Penguins Birds of Distinction.

Jonathan Chester, 1996.

Penguin Books Australia Ltd., Ringwood, Victoria.

112 pp. RRP \$24.95

In the world of birds, there are penguin people and others. Jonathan Chester is clearly a penguin person. He watched penguins as a boy but, seeing them in Antarctica in 1985, he was bewitched just as were all penguinologists before him. This fascination has flowed through to his magnificent photography. Most of the photographs were taken by him. The cover is stunning, depicting two King Penguins, one leaning aggressively towards the other which appears to be reacting as if affronted. Facing Part 1 is an astonishing view of an Antarctic peak in red, gold, black and misty mauve. There are wonderful panoramic shots of the penguin's world and portraits enough to sway the most indifferent reader.

Chester is concerned and rightly so for the future of penguins and warns of the dangers posed by unregulated tourism, overfishing and degradation of the environment. It is to be hoped that readers will react positively to the warnings.

While this finding may not apply to other species (such as small sedentary passerines or migrants) it is probably safe to conclude that similar birds, such as Singing Honeyeaters, would be equally unaffected. At Helena Valley the number of avian and mammalian predators is at least equal to and probably greater than on the arid sites of Brooker *et al.* (1979) and Brooker (1989), so colour-banding can now be discounted as a likely explanation for the population turnover of Singing Honeyeaters in those studies. Perhaps the patchy distribution of their food resource in time and space has selected against a sedentary existence for such species.

ACKNOWLEDGMENTS

Belinda Brooker assisted with netting the birds and Lesley Brooker with data analysis. Peter Cale, Robert Lambeck, Richard Major and an anonymous referee commented on the manuscript.

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- Brooker, M. G. (1989). Land birds at Monkey Mia, Peron Peninsula, Western Australia 1985-1987. *West. Aust. Nat.* 18: 29-34.
- Saunders, D. A. (1988). Patagial tags: do benefits outweigh risks to the animal? *Aust. Wild. Res.* 15: 565-69.

The easy-to-read text covers in a general fashion the world of penguins but presents nothing unavailable in other recent books covering all the penguins. I have a few quibbles. Penguins do not have crops; they regurgitate food to their chicks straight from their stomachs. The word 'rookery' is usually displaced by 'colony' these days; both terms are used by Chester. I was surprised to learn that 'Giant Petrels are the main predator of Emperor Penguin colonies, accounting for over 30% of chick losses.' Giant Petrels are absent from mainland Antarctica when Emperors are breeding but it may be that they prey on fledging young. Not all penguins allopreen — Gentoos do not. On page 23, were the penguins truly decimated? I know that my objection will be regarded as pedantry because the word has slipped into general use to mean a large number but how much better to adhere to its strict meaning of removing one in every ten. But my quibbles are minor and not intended to detract from the worth of this book.

This beautiful book with its high quality layout and production is a worthy adjunct to the shelves of all those who treasure books about these 'Birds of Distinction'.

Pauline Reilly

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