

Introduced Mammalian Predators Induce Behavioural Changes in Parental Care in an Endemic New Zealand Bird

Melanie Massaro^{1*}, Aileen Starling-Windhof^{1#}, Jaqueline V. Bennett¹, and E. Martin²

¹ School of Biological Sciences, University of Canterbury, Christchurch, New Zealand, ² USGS Montana Cooperative Wildlife Research Unit, University of Montana, Missoula, Montana, United States of America

Abstract

The introduction of predator mammals to oceanic islands has led to the extinction of many endemic birds. Although introduced predators should favour changes that reduce predation risk in surviving bird species, the ability of island birds to respond to such changes remains unclear. We tested whether novel predation risk imposed by introduced mammalian predators has altered the parental behaviour of the endemic New Zealand bellbird (*Alcedo bledius*). We examined parental behaviour of bellbirds at three woodland sites in New Zealand that differed in predation risk: 1) a mainland site with exotic predators present (high predation risk), 2) a mainland site with exotic predators experimentally removed (low risk recently) and, 3) an off-shore island where exotic predators were never introduced (low risk always). We also compared parental behaviour of bellbirds with that of closely related Tasmanian honeyeaters (*Ptilinopus* spp.) that evolved with native nest predators (high risk always). Increased nest predation risk has been postulated to favour reduced parental activity, and we tested whether island bellbirds responded to variation in predation risk. We found that females spent more time on the nest per incubating bout with increased risk of predation, a strategy that minimised activity at the nest during incubation. Parental activity during the nestling period, measured as number of feeding visits/hr, also decreased with increasing nest predation risk across sites, and was lowest among the honeyeaters in Tasmania that evolved with native predators. These results demonstrate that some island birds are able to respond to increased risk of predation by novel predators in ways that appear adaptive. We suggest that conservation efforts may be more effective if they take advantage of the ability of island birds to respond to novel predators, especially when the elimination of exotic predators is not possible.

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* E-mail: melanie.massaro@canterbury.ac.nz

Current address: Department of Cellular Biochemistry, Max Planck Institute of Biochemistry, Martinsried, Germany

Introduction

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(*Trichosurus vulpecula*).

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(*Circus approximans*), - (Eu-
dynamys taitensis), (*Chrysococcyx lucidus*)
(*Hoplodactylus duvaucelii*).

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(2) (42°20' , 1 1340') , 5

2007 (3) (42°22' , 1 133') , 2004
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$p=0.004$.
 $p=1$)
 $0.5\% (\pm 1.3, n=22)$, $0.2\% (\pm 1.1, n=11)$, $0.7\% (\pm 1.5, n=11)$, $0.5\% (\pm 2.31, n=11)$

$(F_{3,27} = 5.5, p = 0.004)$
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