The Impact of Isolation from Mammalian Predators on the Anti-Predator Behaviours of the North Island robin (*Petroica longipes*)

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Abstract

Conservation in New Zealand has begun to focus heavily on the restoration of degraded mainland ecosystems and the reintroduction of native species that have become locally extinct. In many cases the individuals that are selected for reintroduction are harvested from 'mammal-free' offshore islands. This thesis examines the effects of isolation from mammalian predators on the predator avoidance behaviours and predator recognition abilities of New Zealand birds using the North Island robin as a model. It also investigates whether any effects of isolation from mammalian predators has a lasting impact on mainland populations founded by individuals from offshore islands.

Nest site selection behaviours were compared across three populations that are exposed to different suites of predators and have differing translocation histories; Benneydale, Tiritiri Matangi and Wenderholm. Point height intercept and point-centred quarter surveys were used to compare habitat availability between the sites and to compare nest sites with the available habitat. Eight nest characteristic variables were also compared across the three sites using a principle component analysis. Benneydale nests were located higher in the trees and were more concealed than nests at the other two sites. Nests on Tiritiri Matangi were supported by large numbers of thin branches and were located toward the periphery of the nest tree. Unfortunately these differences are very difficult to interpret due to a high degree of variation in the habitat types present at the three sites.

The anti-predator behaviours initiated in response to a model stoat, model morepork and control were used to test the ability of nesting robins to recognise the threat that each of these treatments might pose to nest success. Behavioural variables were

compared between Benneydale, Tiritiri Matangi and Wenderholm using a response intensity scoring system and a principle component analysis. The results indicated that isolation from mammalian predators on Tiritiri Matangi has suppressed the ability of robins on the island to recognise the predatory threat posed by a stoat. They also suggest that the intense mammal control carried out at Wenderholm may have inhibited the ability of local robins to produce strong anti-predator responses when faced with a stoat.

North Island robin adult with chick (photograph by T. Lovegrove)

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