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Reintroducing hihi (*Notiomystis cincta*) to the New Zealand mainland.



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ABSTRACT

This thesis investigated the potential for establishing a self-sustaining population of an endangered forest bird, the hihi (*Notiomystis cincta*) on the New Zealand mainland, and the factors that may influence this. Previous reintroduction attempts, mostly to offshore islands, have met with limited success, or been dependent on ongoing management. However, future conservation measures for hihi aim to reintroduce populations to the mature forest found on the mainland that hihi may be best adapted to. Such reintroductions come with new challenges for hihi conservation.

The first reintroduction of hihi to this environment occurred with two releases of hihi from Tiritiri Matangi Island to “Ark in the Park”, a predator-controlled site in Auckland’s Waitakere Ranges, in February and June 2007. This study reports on the survival and dispersal of hihi following these releases, using radio transmitters for post-release monitoring, and also gives information on the vulnerability of hihi to predators, and foraging behaviour at this site.

In terms of survivorship, birds released in February had higher apparent survival than those released in June, but this may have been due to higher dispersal in June. Birds released under a “delayed-release” strategy had lower long-term survival than those released immediately. There was some evidence that transmitters may have had an impact on dispersal and behaviour, but there was no evidence that transmitters reduced survival.

Individuals in better condition were more likely to disperse further in the first week post-release, but it was not possible to examine the relationship between condition and survival. Clutch size and hatching date were the two most influential factors found to affect individual condition in juvenile hihi from Tiritiri Matangi Island. It may be possible to use this information when selecting individuals for future translocations, but

the impact on the source population should first be investigated, as well as the relationship between condition and survival.

The failure of previous hihi reintroductions has in part been attributed to a lack of diversity of natural food in regenerating forest, and all successfully reintroduced populations to date rely on supplementary food. However, little is known about how the diet of hihi changes at different life stages, between the sexes, by season and in different habitats. In this study, such information was provided for the first time for hihi using stable isotope analysis. I found evidence for dietary shifts across different life stages (nestling, fledgling, juvenile and adult), between the sexes, and in different habitats (regenerating forest vs mature forest), and I showed that diet may be one of the proximate factors influencing individual condition.

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