



Can translocations help restore ecosystem function?

Linking hihi foraging to habitat restoration

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Over the past century, translocations have become vital tools for conservation. At the same time, behavioural ecologists have recognized that individuals within species behave differently. However, few studies examine the consequences of this variation for the environment. This raises the question: *can the restorative effects of translocations be enhanced by selecting individuals that will bring the greatest benefits to an ecosystem?* This approach could be particularly beneficial in New Zealand, where widespread losses of avifauna have been linked to severe declines in native plants. Hihi (*Notiomystis cincta*) make an excellent case study, as their diet of fruit and nectar links them reciprocally to plants, and frequent translocations from the closely-monitored Tiritiri Matangi Island population provide an opportunity to track individuals as they are moved to new environments.

This study explores the potential for hihi to restore and shape their own ideal ecosystems through pollination of native plants. During Spring 2017, I will conduct an experiment linking hihi foraging to pollination of hangehange (*Geniostoma ligustrifolium*), an important hihi food that is widespread but believed to be pollen-limited. The contribution of hihi to hangehange pollination will be quantified by comparing fruit set for plants accessible and inaccessible to bird pollinators, at sites with (Tiritiri Matangi and Zealandia Ecosanctuary) and without (Tawharanui Regional Park and Belmont Regional Park) hihi. Detailed habitat assessments on Tiritiri Matangi will be used to further explore the relationship between pollination efficiency and plant density; results can help identify sites of known plant density where hihi reintroductions could have the greatest restorative effect and guide planting efforts at other sites toward that optimal density. I will also observe how hihi interact with novel feeders to assess whether individual differences in cognition can be used to identify superior pollinators for translocation. Finally, in Autumn 2018, I will follow up on previous work on Tiritiri Matangi, at Bushy Park Sanctuary, and with the newly-established hihi population at Rotokare Scenic Reserve to examine the extent to which foraging behaviour changes as birds either remain at their natal site or are translocated to a novel environment.



Adult male hihi



Adult female hihi



Male hihi feeding on hangehange nectar