

# THE CAPACITY OF URBAN RESTORED FORESTS TO SUPPORT NATIVE BIRDS

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Photo by Huatoki Native Plant Nursery.

Studies have highlighted the great potential cities have to act as refuges for native flora and fauna. Habitat restoration in cities has been championed as a means to improve bird conservation and reconnect city residents with native nature.

My research combines ecological and social science to evaluate the contribution that restored native forests in urban areas in New Zealand can make to native bird conservation and reconnecting ur-

ban residents with native nature. The purpose of the research is to identify which factors among local habitat variables, landscape characteristics, site age and predation levels determine the ability of native New Zealand bush birds to benefit from urban restored forests. The study further investigates how the resources provided by these forests change over time since restoration.

Using qualitative, semi-structured interviews, the study ex-

plores the question whether frequent use of restored forest, either as a restoration volunteer or simply as a city resident, can re-establish a relationship between people and native nature and lead to greater support for biodiversity conservation. An online survey investigates the role native birds play in re-establishing this relationship and, more specifically, whether appreciation for native birds can promote wildlife gardening efforts and other pro-conservation behaviour.

We are monitoring birds and predators at 43 sites in Hamilton and New Plymouth. Sites represent three types of urban forest: unrestored (n = 6), restored (n = 26) and remnant (n = 6), as well as the nearest non-urban forest remnant to each city (n = 6) – the Hakarimata Range for Hamilton, and the Kaitake Range for New Plymouth. Restored sites represent an age gradient of 1 to 73 years since initial restoration planting. Bird counts are conducted along fixed-width transects in the spring and winter to measure bird species richness and diversity. Predators, which include rats, possums and cats, are monitored using wildlife cameras and chew cards. We have conducted two seasons' worth of fieldwork – spring 2016 and winter 2017 and are gearing up for the spring 2017 season.

A total of 529 individuals from 25 bird species were recorded during the spring 2016 fieldwork – 9 of these were native and 16 were non-native. The nine natives were silvereyes (detected at 40 of the 42 sites), fantails (31), grey warblers (22), tui (21), kingfisher (16), kereru (7), bellbird (2), tomtit (2) and whitehead (2). Bellbirds, whiteheads and tomtits were only detected in non-urban forest remnants and kereru only in non-urban forest remnants and two urban remnants in New Plymouth. Preliminary analysis of the data showed that grey warblers, tui, kereru and chaffinches tended to be associated with forest remnants and older restoration plantings. Open country birds, such as goldfinches, starlings, greenfinches and yellowhammers, were typically found at young restored sites. Unrestored sites were mainly associated with non-native species, such as mynas, song thrushes, redpolls



*Eurasian blackbirds were the second most frequently detected bird species after silvereyes.*

and California quail. The three most abundant species were silvereyes (34.6% of the total number of birds detected), fantails (14%) and house sparrows (11.7%).

The most frequently detected predator in Hamilton during the spring 2016 field season was the cat, with 41% of total camera triggers, followed by hedgehogs (20%) and possums (17%). The most frequently photographed animal in New Plymouth was the dog (32%), followed by cats (19%) and hedgehogs (15%).

We have one more year of fieldwork before we conduct the final analysis. We will use ArcGIS to further measure landscape variables, such as patch area, distance to the nearest forest fragment, roads and water sources, and landscape composition in the area surrounding each site. We are in the process of measuring local habitat variables, such as vegetation composition, leaf litter depth and canopy height. The correlation of bird species richness and diversity with landscape measures, local habitat variables, relative

abundance of predators, and site age will be analysed using generalised linear models.

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