

Project overview:

Understanding banded rail habitat use in New Zealand's mangroves

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Mangrove forests in New Zealand are expanding seawards, fuelled by anthropogenic increases in terrigenous sediments and nutrients in estuaries. In response, large-scale mangrove removal has been carried out throughout New Zealand in attempt to restore open tidal flats. However, little is known about how the expansion and concomitant removal of mangroves may affect some fifty bird species which use mangrove forests. Of these species, the banded rail *Gallirallus philippensis assimilis* is likely most dependent on mangroves; an estimated ninety percent of New Zealand's banded rail population is today restricted to coastal pockets of saltmarsh and mangrove forest found in the North Island. In addition, the banded rail population is predicted to decline by ten to thirty percent over the next ten years. Unfortunately, the cryptic nature of banded rails means their ecology is poorly understood; data collected on banded rails are sparse and inferences into their precise habitat use are severely limited. There is a clear need for research into this species-habitat relationship as an absence of information on mangrove-avifauna management hinders targeted conservation management.

My research project seeks to answer two key questions regarding banded rail habitat use. Firstly, which coastal environments do banded rails use at a home range scale? Secondly, how do banded rails make use of mangrove habitats specifically? Thus, I will assess banded rail habitat use at two scales. To answer my first research question, I will track banded rails using GPS loggers to determine their home-ranges sizes and estimate how they use different estuarine vegetation types. To answer the second question, I will evaluate banded rail activity within localised patches of mangroves, using footprint surveys to assess banded rail micro-habitat use and activity. Initial findings indicate that banded rails make extensive use of mangrove forests, as evidenced by multiple observation techniques.