Geographic and Between-Sex Vocal Variation in Miromiro/Tomtit

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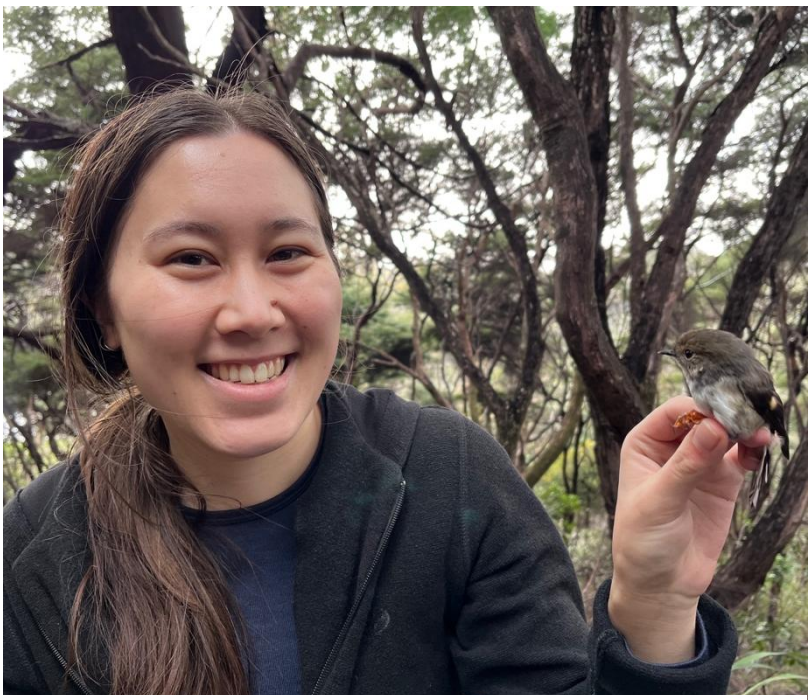
Bird songs and calls within a species can vary geographically and between sexes. This vocal variation can be caused by a variety of mechanisms. Geographic variation (bird 'dialects') can form due to vocal learning, dispersal between populations and evolutionary selective pressures (social or environmental). In comparison, between-sex variation forms due to differences in learning mechanisms, dispersal patterns or physiology. Songs and calls can vary by duration, frequency, composition and complexity across whole or parts of vocalisations. Vocal variation is interesting to study as it can indicate bird dispersal patterns, population connectivity, and functions of different vocalisations. However, historically, study of bird vocalisations has been strongly biased towards Northern Hemisphere, male bird song only. Many New Zealand native species have been under-studied, including the tomtit or miromiro (*Petroica macrocephala*).

This project seeks to document and compare geographic and between-sex vocal variation in mainland miromiro. Findings will contribute to understanding dispersal and geneflow between populations, and sex-differences in dispersal patterns and vocalisation functions. The project also aims to collect DNA samples from North Island miromiro populations, to be analysed as part of a future study investigating genetic similarity of populations and utility of using bioacoustics as a monitoring tool for population connectivity. Therefore, this collection of acoustic and DNA data will lay a foundation for future study of miromiro.

The proposed study has **three key aims**:

1. Investigate whether geographic variation in vocalisations (dialects) exist between North and South Island miromiro (*Petroica macrocephala toitoi* and *P. m. macrocephala*) using publicly archived recordings.
2. Investigate whether geographic and between-sex variation occurs between five different populations of North Island miromiro, using recordings collected in the field (Bay of Islands, Waitakere Ranges, Hunua Ranges, Boundary Stream Mainland Island, Wellington Region).
3. Collect DNA samples from miromiro for use in future research.



A female miromiro on Moturua Island, Bay of Islands

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