

Managing *Vespula* Wasp Invasion in New Zealand

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Eligible for student prize

Introduced *Vespula* wasps cause severe problems to New Zealand ecosystems. Though *Vespid* wasps have successfully invaded most of New Zealand's offshore islands, little is known about their abundance and population development on those islands. Anecdotal observations suggest three offshore islands in the Hauraki Gulf and on the coast of the Coromandel (Little Barrier Island, Korapuki and Tiritiri Matangi) have become *Vespula* wasp free following successful mammal eradication. This study aims to investigate the drivers of successful wasp suppression and the prevention of reinvasion. Wasp monitoring will be conducted on different offshore islands along the northern east coast of New Zealand's North Island to measure the relative abundance of wasps and to collect a database on the island's environmental parameters. The combination of wasp trapping and a molecular analysis of paternity levels will allow us to estimate nest densities on offshore islands. The proposed study is novel because it will use a combination of methods (field based and molecular) to assess the density of *Vespula* wasps in low-density areas, whereas previous work has focussed on honeydew beech forest where wasps reach extremely high densities. This database will also serve as a baseline for future investigations on pest dispersal and colonization processes.

