Unexpected genetic variation in an endemic ground beetle: the molecular surprise of Megadromus guerinii (Coleoptera: Carabidae)

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Megadromus guerinii Chaudoir 1865, an endemic carabid beetle found only on Banks Peninsula (Canterbury, New Zealand), is a forest specialist considered common and panmictic throughout its range. Recent data collected from the mitochondrial gene, cytochrome c oxidase subunit 1 (CO1), however, suggest that M. guerinii may not form a single panmictic population, or even represent a single species. Preliminary sequence data have identified two genetically distinct populations found in different areas of the peninsula. Specimens of M. guerinii were collected from various localities and reserves in the Banks Peninsula area to provide a sound geographic representation. Currently, work is being undertaken to both expand the CO1 dataset and to obtain sequences from nuclear genes. GIS software will be used, along with genetic data, to provide a higher resolution and more in-depth picture of the patterns of genetic diversity across the peninsula. The aim of this study is twofold: (1) to gain a greater biogeographic understanding of a range-restricted, but locally abundant, species and (2) to solve the molecular mystery of Megadromus guerinii.