

## **The distribution, phylogeography and morphology of the New Zealand ground weta, *Hemiandrus maculifrons*.**

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New Zealand has around 40 species of ground weta, most of which have restricted ranges and are found on either North Island or South Island. *Hemiandrus maculifrons*, however, is found throughout most of New Zealand, making it the most widespread Anostostomatid in the country. The objective of this research was to understand why this species is so widespread. The presence of *H. maculifrons* on both North and South Islands might be the result of recent extensive range expansion, or the maintenance of high population size and gene flow across a wide geographic range. Alternatively, *H. maculifrons* could in fact be a cryptic species complex consisting of more than one taxon. To assess this I measured and described morphological characters and analysed mitochondrial cytochrome oxidase I DNA sequences from specimens across the distributional range of *H. maculifrons*. MtDNA showed that *H. maculifrons* consists of two clades with high genetic distances between clades (14.3% to 20.4%) as well as within clades. Morphological analysis revealed a concordance between mtDNA lineage and the shape of male terminalia and weta size. Furthermore, there was genetic evidence of isolation by distance within clades but not between clades, and these two putative entities exist in sympatry in part of their range. This is evidence that *H. maculifrons* is at least two taxa. More recently I have employed geometric morphometrics to further investigate differences between the two species.

