

## **Courtship in Caves: Mating and fighting behaviours of the Waitomo cave weta**

Joanna Mackisack \*<sup>1</sup>, Greg Holwell <sup>1</sup>

<sup>1</sup> School of Biological Sciences, University of Auckland, Auckland, New Zealand

Eligible for student prize

Weta are a well recognised national icon, and the focus of an increasing amount of research. Native cave weta of the family Rhabdophoridae are notable for their long legs, with males appearing to have the most impressive body size to hind leg ratio. Preliminary data from study in the Mangapohue and Weir caves of Waitomo support the prediction that longer hind legs are sexually selected for in males, while anecdotal evidence suggests that these are used during male-male combat in the acquisition and defence of mates. In studying the mating behaviour of the cave weta my thesis will 1) seek to understand the population structure and movements of the Waitomo cave weta, and 2) to observe and quantify variation in sexual behaviour, specifically focusing on mating and male competition and 3) to determine if variation in male mating and competitive success relates to body morphology. To address these aims, adult cave weta were individually marked, and a range of morphological traits measured, allowing subsequent observation of known individuals and their relative mating and competitive success. Focal observations and population surveys will allow determination of the individuals that experience most success in mating and fighting, and how this relates to their morphology. Weta form an important part of our cave and forest fauna and the Rhabdophoridae are the most basal family of the Ensifera (crickets). Therefore, understanding of their mating behaviour may shed light on the evolution of mating behaviour in the Orthoptera as a whole, and contribute to our knowledge of the behavioural ecology of this poorly studied group.

