Armed Arachnids: Investigating male weaponry in a polymorphic native harvestman (Opiliones: Monoscutidae).

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Eligible for student prize

Exaggerated secondary sexual characteristics are common in animal groups where one sex competes for access to mates. Males of many invertebrate species are equipped with weaponry that is used in physical contests. Generally, larger weapons are associated with larger males (majors) who are more often successful in competitions for females. In some species, smaller and less well-armed males (minors) will avoid physical contests in favour of alternative strategies to achieve mating success. These alternative reproductive tactics (ARTs) are often associated with substantial differences in appearance and behaviour. Male polymorphism was recognised in some groups of New Zealand harvestmen more than 50 years ago but the nature of this intrasexual variation remains unknown. Males of a number of species in the genus *Pantopsalis* (Opiliones: Monoscutidae) exhibit dramatic morphological differences in the size and shape of the chelicerae which can constitute up to half of the total mass of the individual. These appendages are long and slender in some males while in others they are relatively short and broad. A third morph has been described that reportedly resembles the female, the chelicerae of which are much smaller than those of the armed males. Preliminary observations of a population of *Pantopsalis* sp. in and around two caves near Waitomo have confirmed the presence of the two armed male morphs. We hypothesise that (i) enlarged chelicerae are used in physical contests between males; (ii) fighting strategies differ between male morphs, and (iii) there is a relationship between body size, weapon size and the fighting tactic adopted. Using a combination of behavioural observations and allometric analyses we aim to answer some longstanding questions about one of New Zealand’s most secretive and heavily armed invertebrates.