

Sexual selection in New Zealand sheet-web spiders, *Cambridgea* spp.

Leilani Walker *¹, Greg Holwell ¹, Cor Vink ²

¹ University of Auckland, Private Bag 92019 Auckland 1142 New Zealand

² Canterbury Museum, Christchurch

Eligible for student prize

Sexual selection is a powerful force that generates both great diversity and great exaggeration of traits which influence reproductive success. This is particularly true in the case of male weaponry and genitalia. Weapons are used in physical interactions during contests, but can also function to signal status to rivals, making them key predictors for the outcomes of conflicts between males vying for access to females. Meanwhile, variations in genital morphology can generate differential success in copulation and fertilisation. Sexual selection is likely to be an important driver of diversification among the endemic New Zealand sheet-web spiders, (Stiphidiidae: *Cambridgea* spp.). This remarkable genus includes species with exaggerated chelicerae and species in which males fall into one of two morphs, one morph containing larger males and the other consisting of smaller males that more closely resemble females. Male pedipalp morphology is highly species-specific, but intriguingly, exhibits intraspecific polymorphism in some species. This makes *Cambridgea* an ideal group for studying the varying actions of sexual selection and how it influences weapon and genital evolution and behaviours associated with reproduction. Morphometric analyses will assess within- and between-species variation of traits; behavioural trials will be used to test for any sexually selective advantages of these traits; and a molecular phylogeny will be developed to identify general evolutionary patterns operating on morphological traits in this diverse genus. Pilot data from behavioural observations of the widespread *Cambridgea foliata* fighting will be presented along with preliminary morphometric data for male chelicerae.

