

Parthenogenetic vs. Sexual Reproduction in the New Zealand stick insect *Clitarchus hookeri*

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Eligible for student prize

Although parthenogenetic individuals have many advantages over their sexual counterparts, in nature sexual reproduction is still the predominant mode among animals. The New Zealand stick insect *Clitarchus hookeri* is capable of both parthenogenetic and sexual reproduction. All females are capable of parthenogenetic reproduction but parthenogenetic females are unable to return to full sexual reproduction. What prevents parthenogenetic females from returning to sexual reproduction? After the loss of sexual reproduction, changes in reproductive morphology has been known to occur. Describing and comparing the reproductive anatomy of parthenogenetic and sexual individuals will provide a better understanding on their reproductive morphology and process. It is possible that infection by the microbe *Wolbachia* is responsible for the presence of parthenogenesis in *C. hookeri*. DNA analysis of the stick insects will be used to test whether this microbe induced parthenogenesis. Parthenogenetic females do not utilize males' sperm in the reproduction process. Therefore it would be a disadvantage for a male to mate with parthenogenetic females over sexual females, as their genes are not passed on to the offspring. Are males able to distinguish between parthenogenetic and sexual individuals? Male mate choice experiments will provide a better understanding on whether males are able to distinguish between parthenogenetic and sexual females. Previous research has indicated that *C. hookeri* exhibits geographic parthenogenesis, where the asexual females occur at higher latitudes than their sexual counterparts. The presence of a sexual population in the wellington region is interesting as it is part of the main parthenogenetic clade. Extensive survey of the area will help create a better picture of what is happening on as it might represent an ancestral sexual population or an invasion of males from the north.

