

Sexual selection and morphological diversity: What can New Zealand Invertebrates tell us?

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Sexual selection is responsible for some of the most extravagant, exaggerated and complex traits that we observe in the animal kingdom. It has driven the evolution of extreme mandibles in stag beetles, spectacular iridescent colour in butterflies and ludicrous eye-stalks in stalk-eyed flies. While we know a great deal about how sexual selection promotes exaggeration within a species, the reason why sexually selected traits are so diverse is more perplexing. From the horns of dung beetles to the complex genitalia of plant bugs, sexually selected traits are the most diverse morphological structures, and yet we don't really know why. I will present recent and current research on sexual selection in New Zealand invertebrates, highlighting our extraordinary fauna as ideal for addressing many of the big questions surrounding sexual selection. I will explore the exaggerated rostra of male giraffe weevils which are used as weapons to fight for females, and see how weapon evolution has panned out across the whole brentid family. I will discuss a remarkable polymorphism in the animals with perhaps the most extreme weaponry in the animal world: our native monoscutid harvestmen. And I will present convincing evidence that a coevolutionary arms race between males and females has driven the evolution of spectacularly complex genitalia in our lichen tuft moths of the genus *Izatha*. There is so much to discover about our native invertebrates. I champion the view that aiming to understand these most fascinating aspects of their biology, and communicating this to the wider public can generate a greater appreciation for invertebrates in the community, and simultaneously contribute to our understanding of how the natural world works.

