

The Biodiversity and Systematics of The Parasitoid Wasp Genus *Apanteles*

Background

Microgastrinae is a mega-diverse subfamily of wasps in the family Braconidae. As parasitoids of caterpillars, microgastrines play an important role in regulating native caterpillar populations, and as biological control agents. The genus *Apanteles* comprises a large portion of microgastrine diversity, but only nine species are currently recorded from Australia, and Australia's *Apanteles* have not been formally studied for almost 30 years ⁽¹⁾.

With possibly only 10% described, we remain unaware of their distribution, diversity & conservation needs.

Described

Predicted

Aims

- Investigate the diversity of *Apanteles* in Australia using high-throughput DNA barcoding.
- Explore the relationships among species using molecular and morphological data.
- Undertake an integrative taxonomic revision of a species group of *Apanteles*.



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Methods

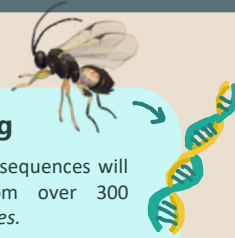
Specimen collection

- From existing material in storage at The University of Adelaide.
- New material collected from under-sampled arid regions across the Eyre Peninsula and Hiltaba Nature Reserve



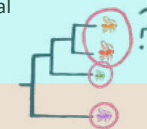
DNA Sequencing

- *COI* and *Wingless* sequences will be obtained from over 300 Australian *Apanteles*.
- Additional *COI* data for *Apanteles* from around the world will be sourced from The Barcode Of Life Database.



Analysis

Phylogenetic analysis will be used to visualise relatedness among specimens, and provide a framework to assist with species delimitation and morphological investigation.



Taxonomy

A species-group of Australian *Apanteles* will be examined more closely, using high resolution imaging for rapid identification and morphological descriptions of up to 10 new species.



Outcomes

- Improved records on the distribution and systematics of *Apanteles* in Australia, including publicly available online data.
- A better understanding of the species diversity of *Apanteles* in Australia.
- Descriptions of new Australian *Apanteles* species.
- Identification of focus areas for further work on improving the taxonomy and systematics of *Apanteles* in Australia.