



Systematics and Taxonomy of Australian Mesostoinae (Hymenoptera: Braconidae) on Kangaroo Island using Mitogenomes.

Shannon P. Tetley (University of Adelaide); Erinn P. Fagan-Jeffries (University of Adelaide & South Australian Museum); Richard V. Glatz (University of Adelaide & South Australian Museum & D'Estrees Entomology and Science Services).

The subfamily Mesostoinae (Hymenoptera: Braconidae) has historically been poorly understood, with challenging morphology and many poorly resolved phylogenies. There are six endemic Australian genera currently known, however most only contain a few described species. In order to broaden the understanding of the biodiversity of Mesostoinae in Australia, new species and genera need to be formally described, supported by robust phylogenies of the subfamily. The first Kangaroo Island (KI) endemic species of Mesostoinae was recently described, *Ovaustra aurantia*, and displays a unique biology and host relationship to the critically endangered enigma moth, *Aenigmatinea glatzella*. This discovery was the catalyst to a broader study of Kangaroo Island's mesostoinae. We revisited existing KI collections and conducted field work to find additional specimens through coarse morphological identifications. Specimens were shotgun sequenced and mitochondrial genes were extracted to be added to an existing mitogenomic dataset of the subfamily. The resulting phylogeny identified nine potentially new species of Mesostoinae from KI, which are currently undergoing diagnostic descriptions. This small study, restricted to just a single region of South Australia, implies that there are potentially many more undescribed species of Mesostoinae throughout Australia.

Shannon Tetley: a1749811@adelaide.edu.au