



Searching for a leaf in a forest: A taxonomic and phylogenetic revision of leaf mining moths *Phyllocnistis* (Lepidoptera: Gracillariidae) in Australia.

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Phyllocnistis is a genus of leaf mining moths in the family Gracillariidae. Globally there are over 110 described species of *Phyllocnistis*. Previously, only 15 species of this genus were known from Australia. In this project, over 480 specimens of *Phyllocnistis* from various entomological collections around Australia were examined to determine the diversity of this group. A majority of these specimens were located at the Australian National Insect Collection (ANIC). Many of the specimens at ANIC have unpublished associated host plant information, which allows us to better understand the host plant specificity of this group. Whole genome shotgun sequencing was used to extract 13 protein-coding mitochondrial genes from the degraded DNA of museum specimens, and this data was combined with morphological and life history information to delineate new species and to understand their relationships.

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