



## **Unearthing *Agaricus* down under: Exploring species boundaries in eastern Australasian *Agaricus* (Basidiomycota).**

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*Agaricus* is a large basidiomycete genus estimated to contain >500 species globally. However, Australasian *Agaricus* remain underrepresented in taxonomic revisions of the genus and their diversity remains incompletely understood. Until recently, only twenty-eight species of *Agaricus* were described from Australasian type material. The majority of these were published between 1845 and 1974, and are unplaced in modern subgeneric classifications based on morphology or the phylogenetic inference of sequence data. Field observations indicate that current species do not accurately delimit the morphological and genetic diversity of Australasian *Agaricus*, and examination of herbarium and iNaturalist records indicate that several species names are applied too broadly. Over the last 2 years I have undertaken field work across four states, sampling 242 Australian *Agaricus* field and herbarium collections, and have received sequence data from 129 New Zealand *Agaricus* with a view to assessing species diversity, estimating the relationships of eastern Australasian *Agaricus* within a global framework, untangling species concepts, and investigating variation within the weedy *Agaricus xanthodermus* species complex. Here, I outline four novel *Agaricus* species described from the Northern Territory, revisit neglected morphological characters which remain significant for field identification, present preliminary phylogenetic results, and investigate the frequently misapplied name, *Agaricus austrovinaceus*.

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