

Phylogeny of Australian *Saprinus* spp. Erichson (Coleoptera: Histeridae) - contrasting ecological, morphological and molecular data

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The genus *Saprinus* Erichson (Coleoptera: Histeridae) is a highly conspicuous taxon of predatory beetles often observed on mammalian carcasses throughout Australia. Recent studies in Richmond, NSW found that due to the relatively predictable presence of *Saprinus* spp. and other Sapriniinae at carrion throughout the year, these taxa may provide potential as indicators for estimating the post mortem interval. Their preference for feeding on dipteran maggots and pupae also makes them potentially important biological control agents. However, the identification and classification of many of the taxa within the subfamily of Sapriniinae based on morphology alone is difficult and remains unresolved. This is especially evident for the species currently identified as *Saprinus australis*, *S. cyaneus*, *S. pseudocyaneus* and their existing synonyms. We therefore utilised available information about morphology as well as molecular techniques in an attempt to clarify the identification and classification of the Australian *Saprinus* spp. This was achieved using fresh, field-collected, as well as dry museum specimens. Initial results utilising the mitochondrial cytochrome oxidase I (COI) and nuclear 18S rRNA genes have shown that the current classification of the genus *Saprinus*, based on morphology, is polyphyletic. Despite the previous synonymisation of *S. cyaneus* and *S. laetus* the current study has shown that they are, separate species. This study also shows that while *S. cyaneus* and *S. pseudocyaneus* have previously been differentiated morphologically, they are indistinguishable on the basis of COI and 18S genes. Further work on other *Saprinus* spp. and other genera in the Sapriniinae will attempt to further elucidate the identity and phylogeny of this important beetle subfamily.

