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The Nearctic genera of Agathidinae (Hymenoptera: Braconidae) with a phylogenetic analysis, illustrated generic key, and the description of three new genera

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Abstract

The genera of Nearctic Agathidinae are revised based on a phylogenetic analysis of COI and 28S sequence data; 151 in-group taxa are included. Three new genera are proposed, i.e., *Aphelagathis* Sharkey **n. gen.**, *Pneumagathis* Sharkey **n. gen.** and *Gelastagathis* Sharkey **n. gen.**. The enigmatic species *Agathis verticalis* Cresson is identified and placed in *Aphelagathis*, *Aphelagathis verticalis* (Cresson) **n. comb.**, and a neotype for the species is designated. Two species are described, i.e., *Gelastagathis grisselli* Sharkey **n. sp.** and *G. frosti* Sharkey **n. sp.** Two new combinations are proposed, *Bassus spiracularis* Muesebeck and *Bassus brooksi* Sharkey are transferred to *Pneumagathis*, *Pneumagathis spiracularis* (Muesebeck) **n. comb.**, *Pneumagathis brooksi* (Sharkey) **n. comb.** An illustrated key to the Nearctic genera of Agathidinae is provided.

Key words: taxonomy, systematics, parasitoid, new genera, species

Introduction

Agathidinae is a moderately large subfamily of medium-sized to large Braconidae with 1,154 described species worldwide and 109 in the Nearctic (Yu *et al.* 2012), although there are an estimated 2,000–3,000 species awaiting description worldwide (Sharkey *et al.* 2006). The subfamily has a cosmopolitan distribution, but its members are more common in subtropical and tropical regions than in temperate areas. The history of the classification of the Agathidinae was summarized by Sharkey (1992), and Sharkey *et al.* (2006) conducted phylogenetic analyses based on morphology and the D2–D3 regions of 28S rDNA. This is the fifth of a series of papers (Sharkey & Clutts 2011; Sharkey & Stoelb 2013; Sharkey & Stoelb 2012; Sharkey *et al.* 2009) that reclassify what was once considered the genus *Bassus* (or *Microdus*, or *Agathis s.l.*).

Methods

Morphological terms. The length of the first metasomal tergite is measured from the apex of the tendon emanating from the propodeum to the posterior border of the tergite. Other terms are from Sharkey & Wharton (1997) and are matched to the Hymenoptera Anatomy Ontology (HAO; Yoder *et al.* 2010). Identifiers (URIs) in the format http://purl.obolibrary.org/obo/HAO_XXXXXXX represent anatomical concepts in HAO version <http://purl.obolibrary.org/obo/ha0/2011-05-18/ha0.owl>. They are provided to enable readers to confirm their understanding of the anatomical structures being referenced. To find out more about a given structure, including images, references and other metadata, use the identifier as a web-link, or use the HAO:XXXXXXX (note colon replaces underscore) as a search term at <http://glossary.hymao.org>. In this paper, terms are linked to the ontology in the results section, each couplet of the key, and in the first description of a taxon (genus *Aphelagathis*). From this point forward, only terms that do not appear in these areas are hyperlinked.