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## Review of the *Gauromydas* giant flies (Insecta, Diptera, Mydidae), with descriptions of two new species from Central and South America

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### Abstract

*Gauromydas* Wilcox, Papavero & Pimentel, 1989 are giant flies, and include the largest fly known, *G. heros* (Perty, 1833). This genus was originally erected to group four Neotropical species, namely *G. apicalis* (Wiedemann, 1830), *G. autuorii* (d'Andretta, 1951), *G. heros*, and *G. mystaceus* (Wiedemann, 1830). As with most of the remaining Mydidae, adults of *Gauromydas* are very rarely collected. We here describe two new species of *Gauromydas* (*G. mateus* **sp. nov.** and *G. papaveroi* **sp. nov.**) discovered in entomological collections, including specimens unstudied for up to eight decades. We also provide revised diagnoses for the remaining four species of *Gauromydas*, along with a new key and new distribution records for the genus.

**Key words:** taxonomy, distribution, biodiversity, Neotropical region, *Mydas*

### Introduction

*Gauromydas* Wilcox *et al.*, 1989 (Insecta, Diptera, Mydidae, Mydinae) comprise species of giant flies, including the largest fly known, *G. heros* (Perty, 1833), reaching up to 7 cm in body length (Autuori 1952). This genus originally grouped four Neotropical species, namely *G. apicalis* (Wiedemann, 1830), *G. autuorii* (d'Andretta, 1951), *G. heros* and *G. mystaceus* (Wiedemann, 1830), all of them formerly placed in the genus *Mydas* Fabricius, 1794. The following features have been considered diagnostic for *Gauromydas*: hind tibia with well-developed ventral keel and apical spur, the latter always larger than width of hind tarsomere 1; hind tarsomere 1 long, at least subequal in length to hind tarsomeres 2–3 and always longer than hind tarsomere 5; distal postpedicel about 6 times longer than wide or more (Wilcox *et al.* 1989).

*Gauromydas* are sometimes misidentified as *Protomydas* Wilcox, Papavero & Pimentel, 1989, another Neotropical Mydinae currently comprising three valid species (Papavero 2009). The two genera, however, can be distinguished by the relative size of the apical spur of the hind tibia: always shorter than width of hind tarsomere 1 (almost absent in females) in *Protomydas* (Wilcox *et al.* 1989) (Fig. 1E), and often larger than width of hind tarsomere 1 in *Gauromydas* (Figs 1 F,G,H), except in female specimens of *G. mystaceus* (pers. obs.). They can be also discriminated by the relative length of the ventral keel of the hind tibia, which is visible all along the length of the tibia in *Gauromydas* and underdeveloped, visible only on the basal half (or less) of the tibia in *Protomydas* (Wilcox *et al.* 1989).

As with most of the remaining Mydidae, adults of *Gauromydas* are present for short periods of the year, being very rarely collected. Male adults of *G. heros* are flower visitors, while females apparently do not feed at all (Zikán 1942). Larvae have been found in the waste chamber of ant nests of *Atta* Fabricius, 1804 (Formicidae, Myrmicinae, Attini), apparently feeding upon other immature insects, like Dynastinae beetles (Scarabaeidae) (Autuori 1952; Zikán 1942, 1944). The mature larva abandons the waste chamber and digs up through the soil to a depth of 10–20 cm below the surface, where it constructs a pupation chamber (Zikán 1944).