Taxonomic revision of the mydas-fly genus Plyomydas

Wilcox & Papavero, 1971 (Insecta: Diptera)

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Materials

Mydidae, a fly family with some 573 species world-wide, display short periods of annual activity and limited geographical distributions, thus contributing to their scarcity in insect collections3 and the lack of extensive taxonomic study.

The mydas-fly genus Plyomydas Wilcox & Papavero, 1971, was described from a single species, P. peruviensis Wilcox & Papavero, 1971, occurring in the coastal region of the Peruvian Andes (Fig. 1b) and has not been studied further since. New material of this genus has been discovered in several natural history collections that extend the distribution of Plyomydas to the eastern Argentinean Andes and Paraguay. Flies of Plyomydas are relatively large with a wing length between 10–19 mm and P. peruviensis is smaller than the Argentinean and Paraguayan species. The expansion of this genus across the Andean mountains indicates that there may be additional species within Plyomydas that have not been collected.

We conducted a morphological taxonomic revision of the known species P. peruviensis and describe two new species. Light microscopy, macrophotography, and digital illustrations were used to compile an extensive list of characters to generate diagnostic characters for species identification and a dichotomous key.

Methods

A standard set of whole habitus photographs were taken using a Visionary Digital Passport II system (base and StackShot), an Olympus digital Micro 4/3 camera, a 60 mm macro lens, and a Visionary Digital Passport II to compile an extensive list of characters to generate diagnostic characters for species identification. We thank the museum curators who provided the specimens to make this study possible. We also gratefully acknowledge support from the National Science Foundation. In addition, a special thanks to Gene Hunt, Elizabeth Cottrell, and Virginia Power for their support and administration of the NHRE Program.

Discussion

Using modern cybertaxonomic tools we were able to generate an extensive list of characters to aid in a comprehensive species description of Plyomydas. We determined that the genus needs to be placed in the Mydinae and not Leptomydinae due to the presence of the M3 vein that reaches the costal vein and the female terminalia which lack the acanthophorite spines found in Leptomydinae for oviposition in sand. Instead, they are simple as in New World Mydidae, which either oviposit in wood or ant nests. Additionally, the 14 available museum specimens collected in Peru represent P. peruviensis, while the sixteen specimens collected in Argentina and Paraguay represent two new species. P. sp. nov. 1 distributed in the Salta and Catamarca provinces and P. sp. nov. 2 in La Rioja and Mendoza provinces. However, since there is one outlying record of Plyomydas from Paraguay, more specimens are required to confirm that there are populations of P. sp. nov. 1 in Paraguay.

Although the male terminalia may often be reliable for inferring phylogeny and in taxonomy delineating species boundaries, it has been found to be conserved with little interspecific variation in some Mydidae, including Plyomydas. The pubescence pattern on the thorax appear to be more reliable for species delimitation in Plyomydas. We can confidently assert that we have discovered new species and that this genus is more widespread than previously known. Our morphological taxonomic revision will provide an accessible dichotomous key, images, and occurrence data as references for species identification.

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Literature Cited