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Two new species of *Didicrum* Enderlein (Diptera, Psychodidae, Psychodinae) from Argentinean Patagonia

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Abstract

Two new species of *Didicrum* from Argentina are described and illustrated: *Didicrum naimae* and *Didicrum letitia*, based on male and female specimens. Specimens were collected with Malaise traps located in Nahuel Huapi National Park, Patagonian region. Including the two new species of *Didicrum*, twelve are described from South America.

Key words: moth flies, Argentina, taxonomy, new records

Introduction

Didicrum Enderlein is a southern hemisphere genus of Psychodidae that includes 21 species. Eleven are known from Oceania (New Caledonia, New Guinea, New Zealand and Tasmania), 9 from Patagonia (Argentina and Chile), and the recently described *D. colombensis* from the Colombian Andes (Moya et al. 2012). The genus is characterized by the following features: branched ascoids with 2–5 branches, terminal three flagellomeres reduced (last one with clavate apiculus), R_5 ending beyond wing tip and male terminalia usually with one tenaculum (Quate & Brown 2004; Duckhouse 1990). Although these characters define the genus, they are also present in other genera, and the monophyly of the group should be tested to clarify the relationship between the South American and Australasian faunas.

The history of the genus is complex, and appropriately summarized by Moya *et al.* (2012). In Argentina, specifically the Andean region (Patagonian subregion), *Didicrum* is the most diverse and widely distributed genus of Psychodidae, particularly in the *Notofagus* forest, with 5 species known to occur there: *D. inornatum* (Tonnoir), *D. contiguum* (Tonnoir), *D. pyramidon* Quate & Brown, *D. remulum* Quate & Brown and *D. simplex* (Tonnoir). In this paper the male and female of two new species of *Didicrum* from Argentina are described and illustrated.

Material and methods

Sampling sites and specimen preparation. Specimens were captured with Malaise traps located on the west side of the Nahuel Huapi National Park (NHNP), under the project Darwinian Initiative “Capacity building for biodiversity studies of freshwater insects in Argentina”. NHNP, with an area of 709.886 hectares, is located to the central north of Argentinean Patagonia in the Province of Río Negro, Subandean Patagonia province (Andean region, Patagonian Subregion). The sampling site receives approximately 4,000 mm of rainfall annually, one of the highest totals for Argentinean Patagonia. This allows the Valdivian Forest, which is mainly restricted to the Western slope of the Andes, to exist in part of NHNP. The Valdivian Forest has average temperatures ranging from 0 ° C in winter to 10.7 ° C in summer (Guía visual de los Parques Nacionales 2005). Dominant tree species in the area of sampling include “Ñire” (*Nothofagus antarctica*), “Coihue” (*Nothofagus dombeyi*), “Mañiu macho” (*Podocarpus nubigenus*), “Arrayan” (*Luma apiculata*) and “Alerce” (*Fitzroya cupressoides*) among others. The main shrub species include “Caña colihue” (*Chusquea culeou*), “Duraznillo” (*Colliguaya integerrima*), “Mutisia” (*Mutisia decurrens*) and “Cola de zorro” (*Hordeum comosum*) among others.

Discussion

Didicrum naimae sp. nov. differs from other described species of *Didicrum* by the modified hypandrium and the short aedeagus, thick and curved at its base. *D. naimae* males have some similarities with those of *Didicrum simplex* (Tonnoir), as the latter also has a short, slightly curved aedeagus; however, the latter species has a thick, wide distiphallus with apex split or divided (Quate & Brown 2004). Females of *D. naimae* differ from previously described females by the shape of longitudinal struts, the form of the hypovalve and the bowl-shaped internal sclerotization.

Didicrum letitia differs from other known species of *Didicrum* by the aedeagus divided into three rami, one dorsal ramus long and slightly curved, one ventral ramus short and bent and one ramus shorter than the previous two, ending in a sclerotized bulb covered with tooth-like projections. The aedeagal complex of *D. triuncinatum* (Satchell) is divided into four arms and in some ways resembles that of *D. letitia*. However, *Didicrum letitia* can be easily distinguished by the presence of a pair of parameres located laterally to the aedeagal complex, by the long rectangular basiphallus and a tapered ending distiphallus. The female of *D. letitia* differs from other females previously described by the form of the hypovalve and the internal sclerotization. The lateral strut and the genital duct share some similarities with *D. griseatum* (Tonnoir) but differs from this species by the characters mentioned above.

According to Morrone (2001, 2004), *Didicrum* has a clear distribution in the Austral Kingdom, and it is present in four of the five zones that form the Kingdom (Moya et al. 2012). Currently, the only exception to this distribution pattern is *D. colombensis*, recorded at the Oriental portions of the Colombian mountain chain. According to Morrone (2006), this anomalous distribution, seen in other insects such as Orthoptera, Diptera, Coleoptera, Hymenoptera and Lepidoptera, could have happened because most of the Andean biota originally evolved in Patagonia and then gradually spread northward into the South American transition zone during the Tertiary and Pleistocene, with the conversion of the tropical forests into temperate and arid communities. As it is mentioned above, the taxonomic relationships of the species included in the genus are unclear. Through its taxonomic history, *Didicrum* has been considered as belonging to different tribes such as Pericomaini, Maruinini, and Setomimini (Moya et al. 2012). Initially, Duckhouse (1990) noted that within the Australasian *Didicrum* species there were some morphological differences, and he suggested that the species of New Zealand could represent a subgenus distinct from those present in New Caledonia and New Guinea, but finally he concluded that these were part of a natural group of species and not a different subgenus. This concept highlights the complex taxonomy of the species involved, even with geographically related species.

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