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Three new bee species of *Rhophitulus* Ducke (Hymenoptera, Apidae, Protandrenini) from Argentina and Brazil

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Abstract

This work describes three newly discovered species of *Rhophitulus* Ducke, 1907: *R. labiosus* n. sp. from Minas Gerais (Brazil), *R. mimus* n. sp. from Salta (Argentina), and *R. xenopalpus* n. sp. from Catamarca and Tucumán (Argentina). Photographs of the holotype of *Rhophitulus steinbachi* (Friese, 1916) are provided, and modifications in the morphology of a female of *R. xenopalpus* n. sp. when parasitized by Strepsiptera are recorded for the first time for the genus.

Key words: Andreninae, Apoidea, South America, Strepsiptera, taxonomy

Introduction

Rhophitulus Ducke, 1907 comprises slender and small bees (4–7 mm long), endemics of the Neotropical Region, and most abundant in areas covered by open vegetation in Argentina, Brazil, and Paraguay (Schlindwein & Moure 1998, 1999; Michener 2007; Moure *et al.* 2007, 2012). Species of the genus are commonly collected on flowers of Apiaceae, Asteraceae, Cactaceae, Onagraceae, Oxalidaceae, and Verbenaceae (Sakagami *et al.* 1967; Schlindwein & Moure 1998, 1999; Gimenes 2003; Gonçalves & Melo 2005). However, nothing is known about their nesting biology.

Within Protandrenini, *Rhophitulus* is closely related to three other South American genera—*Cephalurgus* Moure & Lucas de Oliveira, *Chaeturginus* Lucas de Oliveira & Moure, and *Panurgillus* Moure—especially in having a dorsal sclerotization at the base of the genital capsule (Ruz & Melo 1999; Ascher 2003; Michener 2007). *Rhophitulus* differs from *Chaeturginus* mainly by the following combination of characters: subantennal suture not strongly convergent below, metasomal sterna of female without irregular row of coarse hairs, and metapostnotum striate (Ruz & Melo 1999; Michener 2007). However, the diagnostic morphological features of *Rhophitulus* in relation to *Cephalurgus* and *Panurgillus* are poorly defined, and the inclusion of these taxa as synonyms of *Rhophitulus* is not consensual (Ruz 1986; Michener 2000, 2007; Silveira *et al.* 2002; Moure *et al.* 2007, 2012). A taxonomic revision of the genus following a larger phylogenetic investigation is necessary to provide a robust generic definition of *Rhophitulus*, as well as to accurately place a large number of undescribed species (Ruz 1986; Silveira *et al.* 2002; Michener 2007; Ramos & Melo 2010). In this paper, *Rhophitulus* is employed in a narrower sense considering *Panurgillus* as its only junior synonym. *Rhophitulus* can be distinguished from *Cephalurgus* mainly by the combination of head narrower than mesosoma, antennal flagellum of male longer than head width, and metasomal terga of the male with postgradular area depressed when compared to their discs.

The goal of this work is to describe and illustrate three newly discovered species of *Rhophitulus* from dry areas in Argentina and Brazil. The nesting biology of two of these species will be treated in a forthcoming paper (Rozen, submitted). Additionally, images of the holotype of *Rhophitulus steinbachi* (Friese, 1916) are provided and modifications in the morphology of a female *R. xenopalpus* n. sp. due to stylopization (Strepsiptera) are reported for the first time.

study of this group. Thanks to Frank Koch, Viola Richter, and Bernhard Schurian (Museum fuer Naturkunde Berlin) for providing the images of *R. steinbachi*. I am also grateful to Olivia Evangelista, Claus Rasmussen and anonymous reviewers for providing comments and suggestions that helped to improve this article. This work was supported by the *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP, 2010/17046-5).

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