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## Three new species of the bee genus *Ruizantheda sensu lato* (Hymenoptera: Halictidae: Caenohalictina)

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### Abstract

Males of *Ruizantheda* Moure *sensu lato* differ from males of other Caenohalictina in having the outer gonostylar plate with a large membranous region that extends to the ventral region, and the ventral gonostylus in the form of a retrorse lobe. These features permit the placement of three new species described here in the genus in this broader sense. However, despite having simple mandibles, they do not have the traits considered as apomorphies of *Ruizantheda s. str.* or *Ruizantheda* + *Oragapostemon* Cure by earlier authors, and neither do they possess features of *Ruizanthedella* Moure. Moreover, in the new species, the outer gonostylar plate is short, ending before the apex of the main gonostylar lobe and has long setae on its dorsal surface, while in other *Ruizantheda*, the outer gonostylar plate extends beyond the apex of the main gonostylar lobe and lacks setae. Additionally, two of the new species have a distribution different from those of most *Ruizantheda*—*Ruizantheda inca* n. sp. is found in Ancash, Peru and *R. aerugineus* n. sp. in the state of Minas Gerais, Brazil. Instead of including the three species in a new genus, we believe that it is more reasonable to maintain the status of *Ruizantheda sensu lato* Michener and until a new phylogenetic analysis of the entire subtribe, inclusive of the species newly established here, is completed. The three new species, known only by the male, are described and illustrated, and a key to the species of *Ruizantheda s. l.* is provided. The homologies between the gonostylar structures, mainly those related to the dorsal gonostylar process, of males of *Ruizantheda*, *Caenohalictus* Cameron, and *Pseudagapostemon* Schrottky are discussed.

**Key words:** taxonomy, Apoidea, Anthophila, Halictinae

### Introduction

The bee tribe Halictini *sensu lato* Michener (2007) comprises four subtribes: Trinchostomatina, Caenohalictina, Sphecodina, and Halictina. Caenohalictina is the only subtribe represented exclusively in the New World, and its monophyly is supported by molecular (Danforth *et al.* 2004) and morphological (Gonçalves & Melo 2010) evidence. The species of *Ruizantheda s. l.* occur from Chile and Argentina to southern Brazil. A detailed historical overview for the genus was provided by Gonzalez-Vaquero & Roig-Alsina (2009).

*Ruizantheda* was established by Moure (1964) to include three species: *R. proxima* (Spinola) in the subgenus *Ruizantheda s. str.*, and *R. mutabilis* (Spinola) and *R. nigrocaerulea* (Spinola) in the subgenus *Ruizanthedella*. In 1989, Cure elevated *Ruizanthedella* to generic rank and described a new genus, *Oragapostemon*, based on *Halictus divaricatus* Vachal. Both genera were synonymized under *Ruizantheda* by Michener (2007). Although *Ruizantheda s. l.* was paraphyletic with respect to *Pseudagapostemon* Schrottky (Danforth *et al.* 2004), Moure (2007) maintained *Ruizanthedella*, *Ruizantheda*, and *Oragapostemon* as distinct genera. Gonzalez-Vaquero & Roig-Alsina (2009) redefined the genus *Ruizantheda* as a monophyletic group comprising *R. proxima*, *R. divaricata*, and *R. centralis* Gonzalez-Vaquero & Roig-Alsina. These authors suggested three putative synapomorphies for the group as recognized in males: apical margin of the labrum truncate, without an apical process; apical margin of the fourth metasomal sternum medially projected, and bearing a row of six specialized setae with their apices bent downward; and a basal projection on the retrorse lobe of the genital capsule. The male of *Ruizantheda* was also characterized

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