



## Five new species of *Coniceromyia* Borgmeier (Diptera: Phoridae) from the Atlantic Forest, Brazil

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### Abstract

Five new species of *Coniceromyia* from the Atlantic Forest in Brazil are herein described— *Coniceromyia apechoneura*, **sp. nov.**, *C. brandaoi*, **sp. nov.**, *C. diaphaniptera*, **sp. nov.**, *C. franciscana*, **sp. nov.**, and *C. sanctaethersae*, **sp. nov.** Both *C. diaphaniptera* and *C. franciscana* have patterned wings. The male foretibia provides important diagnostic features for the species, as well as additional characters to propose clades within the genus. The male hypopygial morphology is described.

**Key words:** Diptera, Phoridae, *Coniceromyia*, taxonomy, Brazilian Atlantic Forest

### Introduction

The phorid subfamily Phorinae (*sensu* Brown, 1992) includes the genera with presumed clasping modifications in the male terminalia: *Anevrina* Lioy, *Phora* Latreille, *Chaetopleurophora* Schmitz, *Coniceromyia* Borgmeier, *Neopleurophora* Brown, *Chaetocnemistoptera* Borgmeier, *Spiniphora* Malloch, *Plethysmochaeta* Schmitz, *Mannheimsia* Beyer, *Rhyncomicropteron* Annandale, and *Brachyselia* Schmitz. Information on the hypopygial morphology can help in the delimitation of the subfamily, and can be useful in the reconstruction of the relationships between Phorinae genera (e.g., Brown, 1992). Morphology of the hypopygium in Phorinae has received special attention from Gotô (1984, 1985a, 1985b, 1985c, 1986) in papers on *Phora*, but detailed studies on the evolution of this structure and on the complex homology of these sclerites are still wanting for most of the subfamily.

*Coniceromyia* Borgmeier (1923) presently includes 47 Neotropical and three Nearctic species. Sexual dimorphism in the genus is evident and a number of diagnostic features concern males, as the shape of the first flagellomere, the presence of patterned wings, diverse foretibial features and the large distance between M<sub>1</sub> and M<sub>2</sub>. The genus is supposedly monophyletic, with synapomorphies in the male terminalia and a characteristic anteroapical process on anterior metatarsus of males.

Knowledge on the diversity of *Coniceromyia* has increased in recent years with the description of new species by Kung & Brown (2000) and by Kung (2009). The information particularly about the morphology of the male terminalia in the genus as a whole, however, is still deficient. The last revision of *Coniceromyia* was made when there were only 21 species in the genus (Borgmeier, 1950) and the keys for species identification (Borgmeier, 1963; Kung & Brown, 2000) include only part of the species now known for the genus. Also, the original descriptions of the species of the genus in the literature highly differ in the amount of details given, so relevant information for the proper identification is lacking for many species. No phylogenetic or biogeographic hypotheses have been advanced for the genus to date.

The hypopygium of *Coniceromyia* species is asymmetrical, as in other Phorinae genera, and is particularly complex. In the most important study to date about homology of male terminalia sclerites in Phorinae, Brown (1992) analyzed five *Coniceromyia* species, as well as species of other genera of the subfamily. He proposed