A new troglobitic species of Coarazuphium Gnaspini, Vanin & Godoy (Coleoptera, Carabidae, Zuphiini) from a cave in Paraná State, Southern Brazil

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Abstract

A new troglobitic species of the Zuphiini genus Coarazuphium, *C. ricardoi* new species, is described on the basis of specimens collected inside the "Gruta do Varzeão" cave, in Paraná State. This is the first species of Coarazuphium described from Southern Brazil. The new species is compared with three other troglobitic species of the genus that are microphthalmous and have the elytral apical margins truncate (*C. pains* Álvares & Ferreira, *C. tapiguassu* Pellegrini & Ferreira and *C. whiteheadi* Ball & Shpeley). The most recent published keys for species identification of Coarazuphium are updated to include the new species.

Key words: cave beetles, morphology, Neotropics, taxonomy, troglobitic beetles

Introduction

In the summer of 2012, Sergio Antônio Vanin was asked by the colleague Ricardo Pinto-da-Rocha to identify some specimens of a carabid beetle collected by himself in the "Gruta do Varzeão", during his researches on the cave fauna of the state of Paraná. Upon a closer examination, the specimens were recognized to represent a new species of Coarazuphium Gnaspini, Vanin & Godoy, 1998. The genus Coarazuphium currently includes eight species, seven of which are troglobitic, occurring in caves of Central and Eastern Brazil (Godoy & Vanin 1990, Gnaspini, Vanin & Godoy 1998, Álvares & Ferreira 2002, Pellegrini & Ferreira 2011a, 2011b, and 2014) and one is probably troglophilic, from the mountains of Oaxaca, Mexico (Ball & Shpeley 2013).

Methods and material

Methods. The specimens used in this study were maintained in 70% ethanol and afterwards dried out and mounted on cards fixed on entomological pins. To study the male and female genitalia, the specimens were dissected in water, under a stereomicroscope (Wild M5A). The dissected structures were stored in capped microvials with a few drops of glycerin and pinned beneath the same specimen from which they were removed. Temporary slides were mounted in 100% glycerin medium. A stereomicroscope Wild SM-Lux with drawing tube was used for drawings and measurements were taken from these drawings. Photographs of adult structures were taken in a stereomicroscope Leica M125 with a magnifier coupled in DV camera Leica DFC. Terminology follows Liebherr & Will (1998) and Ball & Shpeley (2013). Abbreviations used in the text: bc, bursa copulatrix; bs, bursal sacculus; co, common oviduct; gc1, gonocoxite 1; gc2, gonocoxite 2; lp, left paramere; Lt, latero tergite; OS, ostial membrane; PL, phallus length; PW, phallus width; pg, spermathecal gland; rp, right paramere; spgd, spermathecal gland duct. The label data for types is reported exactly as was originally printed; each line in the label is separated by one slash.

Materials. The types of *C. tessai* Godoy & Vanin, 1990, *C. cessaima* Gnaspini, Vanin & Godoy, 1998 and *C. bezerra* Gnaspini, Vanin & Godoy, 1998, housed in the Museu de Zoologia da Universidade de São Paulo, São Paulo (MZSP), were examined. The type material of the new species is deposited in the collection of the MZSP.
6'. Head dorsally with one or two pairs of setae posteriad the anterior supraorbital setae ........................................... 8
7 (6'). Slight apical sinuosity of elytron (Pellegrini & Ferreira 2014, figs. 12A and 12C) .......................... C. formoso Pellegrini & Ferreira

7'. Pronounced apical sinuosity of elytron (Pellegrini & Ferreira 2014, figs. 12B and 12D) .......................... C. caatinga Pellegrini & Ferreira

8(6') Head dorsally with two pairs of setae (posterior supraorbitals and occipitals) at posterior border of head capsule (Gnaspini et al. 1998: 304, fig. 1.) Male left paramere broad, conchoid (Gnaspini et al. 1998: 305, fig. 3) ........................................... C. bezerra Gnaspini, Vanin & Godoy

8'. Single pair of setae (posterior supraorbitals) at posterior border of head capsule (Godoy & Vanin 1990: 796, fig. 1). Male left paramere styliform (Godoy & Vanin 1990: 798, fig. 2) ........................................... C. tessai (Godoy & Vanin)

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References

http://dx.doi.org/10.3897/zookeys.315.5293
http://dx.doi.org/10.11646/zootaxa.3765.6.2