Zootaxa 3949 (1): 123–128
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3949.1.6
http://zoobank.org/urn:lsid:zoobank.org:pub:53ED428D-E1BD-4294-8A59-FCC16D74BA64

Pseudonannolene lundi n. sp., a new troglobitic millipede from a Brazilian limestone cave (Spirostreptida: Pseudonannolenidae)

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Abstract

Pseudonannolene lundi **n. sp.**, is described from Lapa Sem Fim Cave, a limestone cave from Luislândia municipality, Minas Gerais State, Brazil. The species is the eighth troglobitic millipede and the third of the genus *Pseudonannolene* described from Brazilian caves. *Pseudonannolene lundi* shows pronounced depigmentation and decrease of body size, as found in other troglobitic species belonging to the genus. The gonopod has a robust and evident internal branch, and a solenomere slightly trianguliform.

Key words: *Pseudonannolene*, Cave, Conservation, Neotropics, troglobitic

Introduction

In Brazil, the troglobitic fauna is of great importance to cave conservation. According to the decree 6.640/2008, Brazilian caves containing at least one endemic troglobitic species are considered as of maximum relevance, thus cannot be destroyed. Unfortunately, other caves that are not considered of maximum relevance can be severely impacted. Currently, seven troglobitic millipedes species are known from Brazil (Schubart 1946a, 1946b, 1957; Golovatch & Wytwer 2004; Iniesta *et al*. 2012; Iniesta & Ferreira 2013a, 2013b). Among these, two species belong to the genus *Pseudonannolene* Silvestri, 1895: *P. spelaea* Iniesta & Ferreira 2013 from iron ore caves of Para state (Iniesta & Ferreira 2013a), and *P. ambuatinga* Iniesta & Ferreira 2013 from limestone caves of Minas Gerais state (Iniesta & Ferreira 2013b). For these species, the strong depigmentation, a reduction of the number of ocelli and a relative decrease in body size in comparison to non-troglobitic species are recognized as troglomorphic traits (Iniesta & Ferreira 2013a). In this paper, we describe a new, third troglobitic species of *Pseudonannolene*, from a Brazilian limestone cave in Minas Gerais state.

Material and methods

Collection and preservation: Type specimens were collected during 2014 and are deposited in the Zoology Collection, Seção de Invertebrados Subterrâneos (ISLA) at the Universidade Federal de Lavras, Campus Universitário de Lavras, Minas Gerais, Brazil. All specimens were collected by hand and fixed in vials containing 70% ethanol.

Photography and scanning electron microscopy (SEM): Dissections were made with fine entomological pins. The images were obtained using the AxioCam 506 color connected to a stereoscope Axio Zoom.V16 (ZEISS). For observation on a LEO EVO 40 XVP scanning electron microscope (Leo Electron Microscopy), samples were mounted on aluminum support stubs, placed on a film of aluminum foil with carbon tape and sputter-coated with gold using a Baltec SCD 050. For the measurements of body length, length of legs, tarsal claws and antennae, the distance between two farthest points on their extremities was used. For the diameter, the maximum vertical diameter was used. The ratio between the lengths of structures with midbody diameter was made using the midbody diameter as maximum measurement (100%).

Accepted by W. Shear: 26 Mar. 2015; published: 23 Apr. 2015

Acknowledgements

Acknowledgments to all the team from the Centro de Estudos em Biologia Subterrânea (CEBS/UFLA). To Msc. Lucas Mendes Rabelo and Dr. Marconi Souza Silva for helping in sampling. To the Espeleo grupo Peter Lund for all their help and attention and to Grupo Bambui de Pesquisas Espeleológicas for attention and for sending the map of Lapa Sem Fim cave. To Dr. Eduardo Alves (Laboratório de Microscopia—Departamento de Fitopatologia—UFLA) for enabling our use of the scanning electron microscope. To Vale Company for an incentive to research regarding subterranean biology in Brazil, as well as for the financial support provided to CEBS. We are also grateful to Dr. William Shear for all attention with us. R. Ferreira is grateful to the Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG) for funding support (process CRA – APQ-01281-13) and to the National Council of Technological and Scientific Development (CNPq) for a research grant (process No. 304682/2014-4).

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