A new genus of speleophriid copepod (Copepoda: Misophrioida) from a cenote in the Yucatan, Mexico with a phylogenetic analysis at the species level

GEOFF A. BOXSHALL¹,6, SARAH ZYLINSKI², DAMIÀ JAUME³, THOMAS M. ILIFFE⁴ & EDUARDO SUÁREZ-MORALES⁵

¹Department of Life Sciences, The Natural History Museum, Cromwell Road, London SW7 5BD, UK
²School of Biology, University of Leeds, Leeds LS2 9JT, UK
³Instituto Mediterráneo de Estudios Avanzados (CSIC-UIB), c/ Miquel Marquès, 21, 07190-Esporles (Illes Balears), Spain
⁴Department of Marine Biology, Texas A & M University at Galveston, 200 Seawolf Pkwy, Galveston, TX 77553, USA
⁵El Colegio de la Frontera Sur (ECOSUR), Unidad Chetumal, Av. Centenario Km 5.5, 770795 Chetumal, Quintana Roo, Mexico
⁶Corresponding author. E-mail: g.boxshall@nhm.ac.uk

Abstract

A new genus and species of speleophriid copepod, Mexicophria cenoticola gen. et sp. nov., is described based on material collected from a cenote in the Yucatan Peninsula of Mexico. It is characterised by relatively reduced fifth legs that are located adjacent to the ventral midline in both sexes, by the possession of a bulbous swelling on the first antennulary segment in both sexes, and by the reduced setation of the swimming legs. The presence of just one inner margin seta on the second endopodal segment of legs 2 to 4 is a unique feature for the family. A phylogenetic analysis places the new genus on a basal lineage of the family together with its sister taxon, Boxshallia Huys, 1988, from Lanzarote in the Canary Islands, and recovers the existing genera as monophyletic units. The zoogeography is discussed at local, regional, ocean basin and global scales.

Key words: descriptive taxonomy, new species, Speleophriidae, phylogeny, anchialine fauna

Introduction

The family Speleophriidae currently comprises eight genera and 19 species: Speleophria Boxshall & Iliffe, 1986 (5 species), Expansophria Boxshall & Iliffe, 1987 (4 species), Dimisophria Boxshall & Iliffe, 1987 (1 species), Boxshallia Huys, 1988 (1 species), Speleophriopsis Jaume & Boxshall, 1996 (4 species), Huysia Jaume, Boxshall & Iliffe, 1998 (1 species), Protospeleophria Jaume, Boxshall & Iliffe, 1998 (1 species) and Archimisophria Boxshall, 1983 (2 species) (Boxshall & Halsey 2004). Almost all speleophriid species occur in anchialine coastal habitats, the only exceptions being the two species of Archimisophria, both of which occur in the deep hyperbenthic community in the tropical Atlantic (Boxshall 1983, Alvarez 1985).

The first cave-dwelling misophrioid to be described, Speleophria bivexilla Boxshall & Iliffe, 1986, was reported from Bermuda by Boxshall & Iliffe (1986) and since then new taxa have been found in many anchialine habitats in tropical and subtropical latitudes. As well as Bermuda, Speleophria species have been described from the Balearic Islands (Spain), northern Western Australia, Croatia and the Nullarbor region of southern Western Australia (Jaume & Boxshall 1996a, Jaume et al. 2001, Kršinić 2008, Karanovic & Eberhard 2009). Expansophria species are known from the Galapagos (Ecuador), Sardinia (Italy), Palau, and the Canary Islands (Spain) (Boxshall & Iliffe 1987, 1990, Jaume & Boxshall 1996b), the sole species of both Dimisophria and Boxshallia are from Lanzarote in the Canary islands (Boxshall & Iliffe 1987, Huys 1988). Speleophriopsis species are known from the Balearic and Canary islands, from Palau and from Bermuda (Boxshall & Iliffe 1987, Jaume & Boxshall 1996a), while the sole species of both Huysia and Protospeleophria are recorded only from the Exuma Cays in the Bahamas (Jaume et al. 1998). The three richest genera, comprising four or five species, each display an extreme disjunct distribution with species known from anchialine habitats in at least two ocean basins.
NEW GENUS OF SPELEOPHIIDAE

References


http://dx.doi.org/10.1080/00222939600770921


http://dx.doi.org/10.1080/00222939800770351


http://dx.doi.org/10.1080/00364827.1999.10807346


http://dx.doi.org/10.1016/s0921-8181(99)00068-5

http://dx.doi.org/10.1007/s12526-009-0021-8


http://dx.doi.org/10.1080/17451000801930072

http://dx.doi.org/10.1111/j.1365-2699.2004.01226.x

http://dx.doi.org/10.1371/journal.pone.0001618

http://dx.doi.org/10.1071/it9920719

http://dx.doi.org/10.1038/nature10891

http://dx.doi.org/10.1038/28134


http://dx.doi.org/10.1080/00222939300770491


