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Second representative of the order Misophrioida (Crustacea, Copepoda) from Australia challenges the hypothesis of the Tethyan origin of some anchialine faunas

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Abstract

A new species of the genus *Speleophria* is described from a cave in the Nullarbor region in southern Western Australia. Its congeners include species from the Balearics, Croatia, Bermuda, Yucatan peninsula and north-western Western Australia, all considered to be Tethyan relicts. However, the discovery of the new speleophriid in the Nullarbor region has important biogeographic and ecological implications.

From the biogeographic perspective, it either suggests dispersal as the process determining the current distribution pattern of the aquatic fauna found on the Roe Plains or significantly extends the Tethyan track across Australia, from the north-western coastal margin of the continent to the southern coastal margin. From an ecologic perspective, the new speleophriid suggests the possible existence of anchialine habitats in southern Australia.

Speleophria nullarborensis **sp. nov.** can be distinguished from its four congeners by its plesiomorphic 3-segmented endopod of the first swimming leg (2-segmented in other species) and unusually long innermost apical seta on the caudal ramus. Another character that easily distinguishes our new species, and seems to be an autapomorphic feature, is its constricted preanal somite.

Key words: *Speleophria*, new species, taxonomy, zoogeography, Western Australia, Nullarbor

Introduction

The Australian subterranean fauna was poorly known until recently, but during the last decade or so many stygal copepods have been described from freshwater habitats (Pesce *et al*. 1996a, 1996b; Pesce & De Laurentiis 1996; De Laurentiis *et al*. 1999, 2001; Karanovic 2003, 2004a, 2004b, 2005a, 2006). In Karanovic (2004a) alone, 24 new copepod species and five new genera were described from the Murchison region of Western Australia, while Karanovic (2006) included descriptions of five new genera, two new subgenera, 22 new species and one new subspecies of stygal copepods from the Pilbara region of Western Australia. Many more publications regarding freshwater copepods from Queensland, New South Wales, Northern Territory and Western Australia are in preparation by the senior author. Recently, intensive investigations of Australian sandy beaches also revealed an interesting marine interstitial copepod fauna (Karanovic 2008), which included many new poecilostomatoid and cyclopoid species and even one new cyclopoid family.

Although investigations of anchialine waters is still in the early phase of exploration in Australia (Humphreys 2006; Humphreys & Danielopol 2006; Bruce & Davie 2006; Seymour *et al*. 2007), an interesting anchialine copepod fauna has, nonetheless, been described from north-western Australia and Christmas Island (Jaume & Humphreys 2001; Jaume *et al*. 2001; Karanovic *et al*. 2001; Karanovic & Pesce 2002). In this paper

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