Zootaxa 3190: 31–46 (2012)
www.mapress.com/zootaxa/

Article

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

Molecular taxonomy of *Speleonectes fuchscockburni*, a new pseudocryptic species of Remipedia (Crustacea) from an anchialine cave system on the Yucatán Peninsula, Quintana Roo, Mexico

MARCO T. NEIBER[1,5], FINJA C. HANSEN[2], THOMAS M. ILIFFE[3],
BRETT C. GONZALEZ[3] & STEFAN KOENEMANN[4]

[1]*Zoological Museum, University Hamburg, Hamburg, Germany*
[2]*Institute for Animal Ecology and Cell Biology, University of Veterinary Medicine Hannover, Hannover, Germany*
[3]*Department of Marine Biology, Texas A&M University at Galveston, Galveston, Texas, U. S. A.*
[4]*Montessori Bildungshaus Hannover, Hannover, Germany*
[5]*Corresponding author. E-mail: mneiber@hotmail.de*

Abstract

A new species of Remipedia (Crustacea) is described from a recently discovered section of the anchialine cave system Cenote Crustacea, situated on the northeastern coast of the Yucatán Peninsula. *Speleonectes fuchscockburni* **n. sp.** is the second remipede species from the Caribbean coast of Mexico. Adult specimens are relatively small and slender, with body lengths between 12 and 16 mm, and up to 35 trunk segments. The new species can be distinguished morphologically from *S. tulumensis* by sparsely setose appendages, a ventral antennular flagellum composed of 5–6 segments, and 10–12 deeply incised denticles of the terminal maxillary and maxillpedal claws. The status of *Speleonectes fuchscockburni* as a new species is validated by a comparison of cytochrome c oxidase subunit I (COI) sequences from selected remipede taxa, including *Speleonectes tulumensis*. The uniquely high abundance of *S. tulumensis* in Cenote Crustacea and the distribution of the two remipedes in this cave are discussed in relation to hydrology and cave morphology.

Key words: Remipedia, Speleonectidae, pseudocryptic species, COI, genetic distance

Introduction

All species of extant Remipedia Yager, 1981 (WoRMS 2010) are known from hypoxic saltwater layers of anchialine or fully marine cave systems. As obligatory stygobionts, remipedes are eyeless and unpigmented, occurring typically in low abundances within cave passages. A notable exception to this is Cenote Crustacea, Yucatán Peninsula, where cave divers have reported an astonishingly high density of remipedes numbering into the hundreds. The size of this population has remained relatively stable since remipedes were first noted there more than a decade ago. This large population of remipedes occurs on the eastern side of the cave, in the same section as do enormous numbers of the atyid shrimp *Typhlatya pearsei* Creaser, 1936, which the remipedes have been observed to prey upon (Koenemann *et al.* 2007b).

Koenemann *et al*. (2006, 2007b) noted that adult specimens from Cenote Crustacea appeared larger and longer, differing in their habitus from *Speleonectes tulumensis* Yager, 1987b (redescribed by Felgehauer *et al*. 1992). *Speleonectes tulumensis* inhabits a number of cenotes near its type locality, Cenote Carwash, near Tulum (Fig. 1A). The geographic distance between Cenote Ponderosa and Cenote Chac Mool, the northern-most cave systems *S. tulumensis* is known from, and Cenote Crustacea (~45 km) seems to support the idea of two isolated populations or species. Consequently, the specimens from Cenote Crustacea were referred to as *Speleonectes* cf. *tulumensis* in a number of publications that dealt with systematic and ecological issues (Yager & Madden 2002; Koenemann *et al*. 2006, 2007b, 2009a).

In 2009, diving explorations in Cenote Crustacea resulted in the discovery of a series of underwater passages extending off the west side of the entrance pool. In this new section of the cave, divers collected five specimens

Accepted by K. Meland: 15 Dec. 2011; published: 10 Feb. 2012