Zootaxa 3579: 71–79 (2012)
www.mapress.com/zootaxa/

Article

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

urn:lsid:zoobank.org:pub:C736A8DE-9BD7-4AE2-BC42-425C8F0D3F3B

Lysmata jundalini, a new peppermint shrimp (Decapoda, Caridea, Hippolytidae) from the Western Atlantic

ANDREW L. RHYNE[1,2,5], RICARDO CALADO[3] & ANTONINA DOS SANTOS[4]

[1]*Department of Biology and Marine Biology, Roger Williams University, One Old Ferry Road, Bristol, RI 02809, USA*
[2]*New England Aquarium, Research Department, New England Aquarium, One Central Wharf Boston, MA 02110*
[3]*Departamento de Biologia & CESAM, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal*
[4]*Instituto Nacional de Recursos Biológicos - IPIMAR, Avenida de Brasilia s/n, 1449-006 Lisbon, Portugal*
[5]*Corresponding author. E-mail: arhyne@rwu.edu*

Abstract

A new peppermint shrimp species, *Lysmata jundalini* **sp. nov.**, is described based on five specimens collected in shallow subtidal waters on Enrique Reef at the University of Puerto Rico, Mayagüez Isla, Magueyes Laboratories. *Lysmata jundalini* **sp. nov.** was identified from fresh material collected at the reef crest and back reef among coral rubble in June 2005 and April 2009. The new species is most closely related to the Atlantic *Lysmata intermedia* and eastern Pacific L. *holthuisi*. It can be readily distinguished from all those in the genus *Lysmata* by its color pattern, the presence of a well developed accessory branch, the number of free *vs.* fused segments of the accessory branch, the number of carpal segments of the second pereiopod and well developed pterygostomian tooth.

Key words: Hermaphrodite, *Lysmata intermedia* complex, cryptic taxa

Introduction

The caridean shrimp genus *Lysmata* Risso, 1816 is commonly placed within the family Hippolytidae Bate, 1888. However, as referred by De Grave *et al.* 2009, the cladistic analysis performed by Christoffersen (1987) on the relationships of hippolytid genera, suggests that the genus *Lysmata* should be once again re-assigned to the Lysmatidae Dana, 1852 (Bracken *et al.* 2009). The molecular phylogeny of the genus has already started to be addressed (Baeza *et al.* 2009a, b; Baeza 2010, Fiedler *et al.* 2010) and may help to clarify the origins of the puzzling sexual system of these shrimp – protandric simultaneous hermaphroditism (Lin and Zhang 2001, Bauer 2004, Baeza 2006, 2007).

Lysmata species have become popular organisms in the marine aquarium trade. These shrimp have become increasingly traded either for their dazzling coloration and fish cleaning behavior (i.e. *L. amboinensis and L. debelius*) (Calado *et al.* 2003) or by their ability to control pest organisms in modern reef aquaria (i.e. peppermint shrimp such as *L. wurdemanni*) (Rhyne *et al.* 2004, Calado and Narciso 2005, Calado 2008, Rhyne *et al.* 2009). The increased research interest on *Lysmata*, either due to their sexual system, popularity in the aquarium trade or renewed focus on aquaculture production, has provided the first clues for the existence of numerous cryptic species complexes within this genus. In fact, Rhyne and Lin (2006) only reported the existence of a "peppermint shrimp complex" in the Western Atlantic after the authors repeatedly recorded the existence of subtle but consistent morphological and coloration differences among *Lysmata* specimens stocked for culture and reproductive trials (Williams 1984, Chace 1997). After the description of four new *Lysmata* species for Atlantic waters by Rhyne and Lin (2006), five more species have already been described for this region (Baeza and Anker 2008, Rhyne and Anker 2008, Baeza *et al.* 2009, Laubenheimer and Rhyne 2010). So far, the total number of species in the genus *Lysmata* recorded in the Atlantic Ocean is 20: five in the Eastern Atlantic, 14 in the Western Atlantic and one true amphi-Atlantic species (Udekem d'Acoz 1999, Laubenheimer and Rhyne 2010).

The present study reports the occurrence of a new *Lysmata* species from Caribbean waters, particularly the

Accepted by J.W. Goy: 25 May 2012; published: 11 Dec. 2012