

## SHORT COMMUNICATION

### FOUR AMPHI-ATLANTIC SHRIMPS NEW FOR SÃO TOMÉ AND PRÍNCIPE (EASTERN CENTRAL ATLANTIC).

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The shrimps *Thor amboinensis*, *Lysmata grabhami*, *Tuleariocaris neglecta*, and *Janicea antiguensis* are recorded from São Tomé and Príncipe for the first time.

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#### INTRODUCTION

During an expedition to the islands of São Tomé and Príncipe (Gulf of Guinea, eastern central Atlantic), marine invertebrates were photographed and collected in a depth range of 0-60 m. I here report on four amphi-Atlantic shrimp species not yet recorded from the area.

#### MATERIAL AND METHODS

All observations were made during an expedition to the islands of São Tomé and Príncipe in February and March 2004. The first part of the expedition was to the north coast of Príncipe. Seven dives during the night and 24 dives during daytime were made in the area of Bom Bom Island. In the second part of the expedition, one night dive and two dives during the day were made at the northern and north-eastern coasts of São Tomé Island.

The four species listed below were photographed in the field. Specimens of *Thor amboinensis* and *Janicea antiguensis* were also collected and are now in the Natural History Museum at Leiden (Naturalis), The Netherlands, with the registration RMNH D 50697 and RMNH D 50696.

#### RESULTS

##### *Thor amboinensis* (De Man, 1888)

This small shrimp was observed several times in the area of Bom Bom Island (01°41'N, 007°24'E), always in association with the sea anemone *Telmatactis cricoides* (Duchassaing, 1850). The species has been recorded in association with a large number of sea anemone and coral species from Madeira to the Cape Verde Islands in the Eastern Atlantic and in the tropical Western Atlantic and in the tropical Indo-Pacific (D'UDEKEM D'ACÓZ 1999; WIRTZ 1997).

##### *Lysmata grabhami* (Gordon, 1935)

The cleaner shrimp *Lysmata grabhami* was repeatedly observed and photographed during dives at Bom Bom Island and Pedra da Galé, a small rocky outcrop about 4 km north of Bom Bom island (01°43'N, 007°22'E). Two individuals were seen close together in each case. This is not a surprise since it has previously been reported that the species usually occurs in pairs of two simultaneous hermaphrodites (WIRTZ 1997). *Lysmata grabhami* has been recorded from Madeira to Ascension Island in the Eastern Atlantic (Annobon Island being the closest previous record to Príncipe Island) and in the tropical western Atlantic (D'UDEKEM D'ACÓZ 1999).

***Tuleariocaris neglecta*** Chace, 1969

This shrimp was recorded twice, in the area of Bom Bom Island (01°41'N, 007°24'E), clinging to spines of the sea urchin *Diadema antillarum* Philippi, 1845. The species has been recorded, always in association with *Diadema antillarum*, from Madeira to the Canary Islands in the eastern Atlantic and in the tropical western Atlantic (D'UDEKEM D'ACÓZ 1999, GONZÁLES PÉREZ & QUILES LUCAS 2003, WIRTZ et al. 1988).

***Janicea antiguensis*** (Chace, 1972)

Santana Island is a small rocky cone off the north-eastern coast of São Tomé island (00°14' N, 006°46' E). It is bisected by a tunnel which has a small side-branch on its eastern side, in about 5 m depth. This side tunnel contained a large number of *Janicea antiguensis* and some *Cinetorhynchus rigens* (Gordon, 1936). A bythiid fish, *Grammonus longhursti* (Cohen, 1964), also captured in this tunnel regurgitated several *Janicea antiguensis* when brought to the surface. This shrimp has been recorded from the tropical western Atlantic and, in the eastern Atlantic, from the Cape Verde Islands (D'UDEKEM D'ACÓZ 1999, 2000). A book on the marine life of the Canary Islands (HANQUET 2001, page 153) contains a photo of *Janicea antiguensis* labelled "Cleaner shrimp: undetermined". This suggests that in the eastern Atlantic, the range of *J. antiguensis* extends as far north as the Canarian archipelago.

## DISCUSSION

The fact that amphi-Atlantic species in the subtropical and tropical eastern Atlantic are proportionally more common towards the equator than in temperate waters argues for a connection of the marine faunas of the eastern and western Atlantic by equatorial currents (WIRTZ & MARTINS 1993, and references therein). The Equatorial Undercurrent, flowing from west to east, appears to be the most likely candidate (SCHELTEMA 1971); see MUSS et al. (2001) for a map of the area and the main current patterns in it. I have therefore suggested (WIRTZ 2001) that records of amphi-Atlantic (sub)tropical species from the Canary Islands or from Madeira but not

from further south are likely to be artefacts resulting of much lower collecting efforts in southern areas. In a previous publication on invertebrates from São Tomé Island (WIRTZ 2003), I already reported the amphi-Atlantic shrimp *Gnathophyllum americanum* Guérin-Méneville, 1855 and four other previously unrecorded amphi-Atlantic marine invertebrates. The four records of amphi-Atlantic shrimps described here provide further support for this hypothesis.

Even though planktonic larvae could cross the Atlantic in as little as 35 to 105 days in the Equatorial Undercurrent (SCHELTEMA 1971), it remains unclear if the western and eastern Atlantic populations of amphi-Atlantic species are still linked genetically today or if their crossing the Atlantic is an historic event, perhaps from the time when the Atlantic was narrower than now. A molecular genetic study of the fish *Ophioblennius atlanticus* (Valenciennes in Cuvier & Valenciennes, 1836) (MUSS et al. 2001) suggested that eastern and western Atlantic populations of this species have been genetically distinct for about 5.5 million years and should probably be considered sister species. In contrast, there appears to be ongoing gene flow between American and African populations of the sea urchin *Eucidaris tribuloides* (Lamarck, 1816) (LESSIOS et al. 1999).

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