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A new genus and species of Leptocheliidae (Crustacea: Peracarida: Tanaidacea) from Isla del Coco (Costa Rica)

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Abstract

Samples from the scarcely-studied sedimentary seabed from the Isla del Coco (Costa Rica) yielded a single species of Tanaidacea, belonging to a new genus of Leptocheliidae, *Cocotanais.* The new genus shows affinities with *Pseudonototanais* and *Heterotanais* in bearing a conspicuous forcipate cheliped in the males, which in *Cocotanais* has a modified merus and carpal flange. Other distinct characters of the males are a triangular cephalothorax, a three-articled antennular peduncle and swollen bases of pereopods 4–6. Females have a four-articled antennule, a maxilliped endite with three distal flat spines and two inner coupling hooks, and a maxilliped basis with two long setae. The species was found in sheltered bays, both free-living in the sediment and also as a commensal of anemones (Infraorder Boloceroidaria), thus representing the first reported case of such an association.

Key words: Leptocheliinae, *Cocotanais puravida, Heterotanais, Pseudonototanais,* forcipate cheliped, Pacific Ocean

Resumen

En muestras procedentes de los escasamente estudiados fondos sedimentarios de la Isla del Coco (Costa Rica) se halló una única especie de tanaidáceo, perteneciente a un nuevo género de Leptocheliidae, *Cocotanais*. El nuevo género muestra afinidades con *Heteotanais* y *Pseudonototanais,* siendo la más remarcable la presencia de un quelípedo en forma de fórceps, que en *Cocotanais* presenta rebordes en el carpo. Otros caracteres distintivos son pedúnculo antenular tri-articulado y basis de los perópodos 4–6 protuberantes. Las hembras presentan una anténula tetra-articulada, endito del máxilípedo con tres espinas planas y dos ganchos de unión internos, y basis con dos setas largas. La especie fue encontrada en bahías abrigadas, tanto en el sedimento como siendo comensal de anémonas (Infraorden Boloceroidaria), representando por tanto el primer caso documentado de comensalismo de un tanaidáceo en un cnidario.

Introduction

The Isla del Coco National Park (onwards ICNP, Figure 1) is an oceanic island in the Pacific Ocean, about 500 km off the mainland of Costa Rica and more than 630 km from Malpelo and the Galapagos Islands; it lies between 5º30'N 87º01'W and 5º34'N87º06'W (Lizano, 2001). The island is a World Heritage Site that supports a high biodiversity in its terrestrial and marine ecosystems. In spite of its remoteness, the island is visited daily by divers, tourists, and scientists (Sibaja-Cordero *et al.,* 2012a). Nevertheless, the benthic fauna of ICNP remains largely understudied, particularly that from its shallow sedimentary environments. To date, the only report of a tanaidacean in ICNP was "*Anatanais?*", based on an incomplete specimen of tanaidomorph (Nunomura 1979). From other areas of the Costa Rican Pacific coast, the only report of a tanaidomorph was given by Heard *et al*. (2009), who mentioned female specimens of an unidentified species of *Pseudoleptochelia* Lang, 1973.

Only one tanaidacean species was found in the sedimentary bottoms of ICNP in the present study, belonging to

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biased to females at every station is typical of the Paratanaoidea. Furthermore, the quantitative, exhaustive sampling method minimizes the possibility of missing species present in the study area. As a consequence, there is no reason to consider the male and female specimens found as belonging to different species.

The male/female ratio was relatively high for leptocheliids, which can reach ratios over 1:1000 (Bamber, 2010). No ovigerous female, manca or early stage juvenile was found in the samples, suggesting that the time of sampling (April) was a pre-reproductive period, and that the life cycle of *Cocotanais puravida* is markedly seasonal. In species in which males are not able to feed, and die after breeding, these are present seasonally (Bamber, 2010). Laboratory experiments have shown that in *Hargeria rapax* (Harger, 1879) and *Heterotanais oerstedii* (Krøyer, 1842) juveniles and ovigerous females are absent in the population in winter (Bückle-Ramirez, 1965; Modlin & Harris, 1989) while in *Leptochelia* sp. indet. (as *Leptochelia. savignyi* [Krøyer, 1842] see Bamber, 2010) ovigerous females (and hence, reproduction) occur year-round (Masunari, 1983). Modlin & Harris (1989) suggest that seasonality in reproduction of leptocheliids is related to seasonal changes in temperature and salinity in temperate latitudes, while in *Leptochelia* sp. indet. this phenomenon does not occur because Masunari worked in tropical, stable environments. The ICNP is a tropical island and rains occur throughout the year, but seasonal changes in either oceanographic conditions or biotic factors could cause this population structure in certain months. Laboratory experiments or year-round sampling would help to solve this question.

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