

**ON THE OCCURRENCE OF *CESTOPAGURUS TIMIDUS*  
(ROUX, 1830) (DECAPODA: PAGURIDAE)  
IN MADEIRA ISLAND WATERS**

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With 2 figures

*ABSTRACT.* The present work reports the occurrence of *Cestopagurus timidus* (Roux, 1830) (Decapoda: Paguridae) in Madeira Island, extending the species geographic distribution in the eastern Atlantic. Diagnostic characters and relevant illustrations are presented.

*RESUMO.* O presente trabalho refere a ocorrência de *Cestopagurus timidus* (Roux, 1830) (Decapoda: Paguridae) na Ilha da Madeira, estendendo a distribuição geográfica desta espécie no Atlântico Este. Os caracteres diagnosticantes e as ilustrações relevantes são apresentadas.

## INTRODUCTION

In the older literature *Cestopagurus timidus* (Roux, 1830) is generally designated as *Pagurus timidus* and *Catapaguroides timidus*; however SAINT LAURENT (1968a) included this species in the genus *Cestopagurus* BOUVIER, 1897.

Only two species are known in the genus *Cestopagurus*: *C. timidus*, from the eastern Atlantic and Mediterranean Sea, and *C. coutieri* BOUVIER, 1897, from the Red Sea and western Indian Ocean (SAINT-LAURENT, 1968b).

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*Cestopagurus timidus* has been recorded in a wide variety of habitats, namely *Zostera* and *Posidonia* fields, calcareous concretions of *Mesophyllum*, marine caves, rocky and soft muddy bottoms, ranging in depth from shallow water to 80 m (LEDOYER, 1966a, b; SAINT-LAURENT, 1968b; GARCÍA RASO, 1982 and GARCÍA RASO & FERNANDEZ-MUÑOZ, 1987).

*Cestopagurus timidus* has been discussed and illustrated by several authors (e. g. PESTA, 1918; BOUVIER, 1940; ZARIQUIEY ALVAREZ, 1946 and INGLE, 1993). The diagnostic characters summarized herein are provided to help in the identification of future specimens of this species that may be found in Madeira Island.

The specimens used remain deposited in Museu Municipal do Funchal (MMF). Shield length (sl) was measured from the tip of the rostrum to the midpoint of the posterior margin of the shield.

#### ***Cestopagurus timidus* (Roux, 1830) (Figs. 1 and 2)**

References and synonyms (according to SAINT-LAURENT, 1968a, b)

*Pagurus timidus* ROUX, 1828-1830; *Eupagurus timidus* HELLER, 1863; BOUVIER, 1896; *Catapaguroides acutifrons* MILNE-EDWARDS & BOUVIER, 1892; *Catapaguroides timidus* BOUVIER, 1900; PESTA, 1918; *Catapaguroides crassipes* FENIZIA, 1935; *Catapaguroides acanthodes* FENIZIA, 1935; *Catapaguroides macrochirus* FENIZIA, 1937; *Catapaguroides macrochirus* var. *platichelus* FENIZIA, 1937; *Catapaguroides crassipes* var. *tuberculatus* FENIZIA, 1937; *Catapaguroides timidus* var. *neapolitanus* FENIZIA, 1937; *Catapaguroides timidus* BOUVIER, 1940; ZARIQUIEY ALVAREZ, 1946, 1968; HOLTHUIS & GOTTLIEB, 1958; *Cestopagurus timidus* SAINT-LAURENT, 1968b; FALCIAI & MINERVINI, 1992; NOEL, 1992; INGLE, 1993; UDEKEM d'ACÓZ, 1999.

#### MATERIAL EXAMINED

Madeira Island - MMF 25269. Santa Cruz, 40 m; June 1992; Agassiz bottom trawl; 7 males (shield length 1.2-2.2 mm); collected by Manuel Biscoito; MMF 31980. Baía d'Abra, 22 m; June 2000; Van Veen grab; 1 female (ovigerous) (shield length 1 mm); collected by Natacha Nogueira.

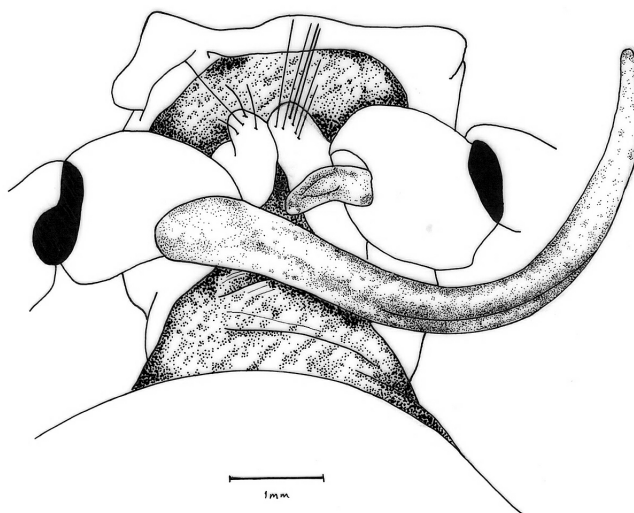


Fig. 1 - *Cestopagurus timidus* (Roux, 1830). Male (MMF 25269, sl 2.2 mm). Ventral aspect of sternite of last thoracic somite, and coxae of fifth pereopods showing sexual tubes. Scale bar: 1 mm.

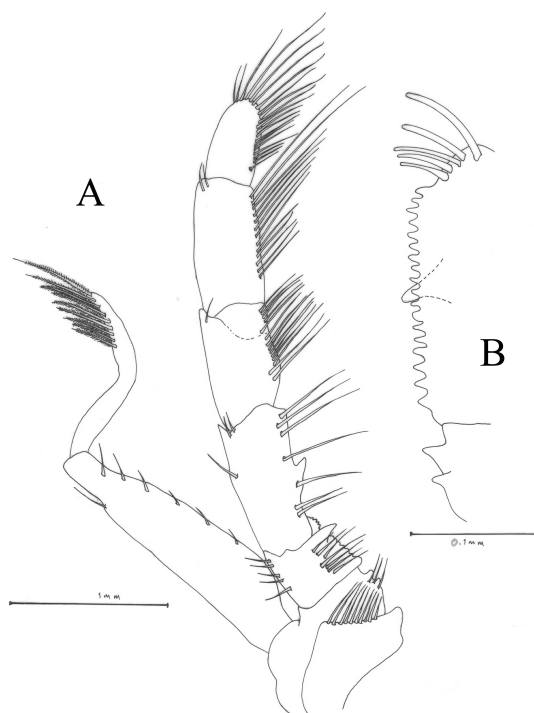


Fig. 2 - *Cestopagurus timidus* (Roux, 1830). Male (MMF 25269, sl 2.2 mm). A - Right maxilliped 3; B - *crista dentate* of same, dorsal aspect. Scale bar: 1 mm.

### Diagnosis

Ischium of third maxilliped with *crista dentata* armed with 1 accessory tooth; merus with an acute process on the inner medial margin and the outer distal margin (Fig. 1). Chelipeds clearly unequal, with right more robust than left, and displaying strong sexual dimorphism. Larger males have longer and less spiny palms than females and younger males. Males with large hiatus at base of cutting edges of fingers of left cheliped. Walking legs are stout; dactyls with numerous long spiniform setae on ventral margins.

Asymmetric coxae on males fifth pair of pereopods: right coxa displaying long sexual tube directed more or less inwards towards left side, left coxa presenting short tube curving inwards (Fig. 2). Third to fifth pair of male pleopods unpaired, and biramous. Females with paired gonopores, and second to fifth pleopods unpaired, and biramous.

### Coloration

The present study only dealt with preserved specimens. However, ZARIQUIEY ALVAREZ (1954) has provided a detailed description of this species coloration in life: specimens have a dark violet coloration with a red median longitudinal line on the shield; the upper part of the ocular peduncles is violet with a red line in the inner side; chelipeds are dark brownish, having two longitudinal red lines in the palms; meri of second and third pairs of pereopods are red and violet with whitish ends; carpi are violet with a dorsal and ventral longitudinal red line, while dactyls are violet with a longitudinal red line.

### Distribution

British Isles (INGLE, 1993) to the coasts of Morocco (SAINT-LAURENT, 1968b), Canary Islands (INGLE, 1993), and Mediterranean (INGLE, 1993). The present work extends the geographical range in the eastern Atlantic to Madeira Island. According to UDEKEM d'ACÓZ (1999), this species is far more common in the Mediterranean than in the Atlantic, thus probably explaining why it has not been previously recorded in Madeira Island coastal waters.

### Remarks

This species displays considerable morphological variations. According to SAINT-LAURENT (1968b), some individuals may present a shorter and/or rounder rostrum, as well as ocular, antennular and antennal peduncles of variable lengths. The same author also noted that the corneal region could sometimes be dilated and that the

spine shape projection on the carpus of the right cheliped could be very faint or even completely absent. Therefore, special attention should be paid to the above-referred characteristics, in order to evaluate possible morphological coloration variations of *Cestoparus timidus* in Madeira Island waters.

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