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*BITIAS STOCKI*, A NEW GENUS AND NEW SPECIES OF PANDALID SHRIMP  
(CRUSTACEA, DECAPODA, CARIDEA) IN THE EASTERN ATLANTIC OCEAN\*

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## ABSTRACT

A new genus and species of Pandalidae, *Bitias stocki*, is described and figured. The species was found near the Azores and the Cape Verde Islands in water between 1100 and 1350 m depth.

## INTRODUCTION

During the CANCEP-5 expedition with HMS 'Tydeman' to the Azores in 1981, and during the CANCEP-6 expedition to the Cape Verde Islands in 1982, 3 small Pandalid shrimps were caught at depths between 1100 and 1350 m. With the risk of losing the gear an Agassiz trawl fished on a hard bottom (sta. CANCEP 5.090) and over basaltic rocks (sta. CANCEP 6.049). The fauna of rocky areas in the deep-sea is not well known because of the risks that have to be taken to fish there. During the CANCEP-expeditions these rocky areas were not avoided and the discovery of this new species is one of the results.

A few abbreviations have been used throughout the text: RMNH stands for Rijksmuseum van Natuurlijke Historie (at present named Nationaal Natuurhistorisch Museum), Leiden; pocl. stands for postorbital carapace length.

*Bitias* new genus

Definition. — Rostrum short, immovable, upper margin provided only with articulating teeth, lower margin with fixed teeth. Carapace without longitudinal carinae. Abdomen with pleura of first four somites rounded, pleura of fifth somite acutely pointed. Eyes well developed, pigmented, with cornea broader than eyestalk. Posterior lobe of scaphognathite truncate. Third maxilliped devoid of exopod. Epipods and arthrobranchs present on first four pairs of pereopods. Second legs equal in shape and size, with multiarticulate carpi.

Type species. — *BITIAS STOCKI* new species.

Etymology of the genus name. — *Bitias* is the brother of *Pandarus* and the son of *Alkanor*. With *Aeneas*, *Bitias* and *Pandarus* sailed to Sicily.

Systematic position. — This new genus which at present contains the type species only, seems most closely related to the genera *Pandalus* Leach, 1814, and *Pandalina* Calman, 1899. It differs from *Pandalus* in having the rostrum short and the posterior lobe of the

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scaphognathite truncate, while in *Pandalus* the rostrum is long and the posterior lobe of the scaphognathite acutely produced. From *Pandalina* the new genus differs in the presence of arthrobranchs on the first four pereopods.

***Bitias stocki*** new species (Figs. 1-3)

*Material examined.* — RMNH D 39051: Sta. CANCAP 5.090; Azores, S of Pico, 38°09'N 28°31'W; 1320-1350 m depth, hard bottom with fossil corals; 1.2 m Agassiz trawl; 2.vi.1981; 1 male, pochl. 7.9 mm (holotype); 1 ovigerous female, pochl. 7.0 mm (allotype). — RMNH D 39052: Sta. CANCAP 6.049; Cape Verde Islands, SW of Fogo, 14°52'N 24°32'W; 1100-1300 m depth, basaltic rocks and sandy clay; 1.2 m Agassiz trawl; 10.vi.1982; 1 female, pochl. 4.5 mm (paratype).

*Description of male holotype.* — Rostrum (fig. 1a-b) short, not reaching beyond second segment of antennular peduncle. Dorsal rostral lamina almost straight, slightly convex; 18 evenly spaced articulate teeth present of which 8 situated posterior to orbital margin. Lateral carina present. Ventral rostral lamina straight with one distal fixed tooth. Orbit (fig. 1c) regularly concave in dorsal half, strongly convex in ventral half. Antennal spine robust. Pterygostomian tooth small.

Abdomen (fig. 1d) with third somite rounded posteriorly, unarmed, without median carina. Pleura of four anterior somites rounded, fifth with sharp marginal tooth and convex ventral margin. Sixth somite about 1.7 times as long as fifth and about 2 times as long as its maximum height. Telson (fig. 1f) 1.25 times as long as sixth somite with six pairs of dorsolateral spinules, posteriormost pair situated dorsolateral to base of outer posterior spine; posterior margin of telson with 2 pairs of spines, the outer longest. Uropods longer than telson, exopod overreaches endopod.

Tegumental scales not found. Tegument pitted.

Eye (fig. 1g) pyriform. Ocellus not developed.

Antennular peduncle (fig. 1h) with small tooth on ventromesial margin of basal segment. Stylocerite acute, reaching distal margin of basal segment; outer margin slightly concave, inner margin strongly convex. Second and third segment of antennular peduncle about as wide as long.

Scaphocerite (fig. 1i) about twice as long as antennular peduncle, 4 times as long as its maximum width. Outer margin almost straight, ending in distal tooth reaching distal margin of lamina. Inner margin of lamina straight in its distal part, convex in its proximal part. Strong external tooth present on basal segment of antennal peduncle, near base of scaphocerite.

Incisor process of mandible (fig. 2a) with 5 teeth. Molar process ends in two blunt lobes and bears series of short setae. Mandibular palp three-segmented. Basal segment widening proximally; ultimate segment oblong, about as long as basal and penultimate segments together. First maxilla (fig. 2b) with lower and upper endite rather robust; palp bilobed. Second maxilla (fig. 2c) with lower endite strongly reduced, upper endite divided in two lobes of which the upper best developed. Palp well developed. Scaphognathite with posterior lobe rounded. First maxilliped (fig. 2d) with endites of basis and coxa separated by a distinct notch; palp slender, two-segmented. Exopod present, caridean lobe well developed. Epipod large, bilobed. Second maxilliped (fig. 2e) with triangular ultimate segment, penultimate segment oblong. Exopod present. Well developed epipod with podobranch. Third maxilliped (fig. 2f, g) long and slender reaching with distal half of ultimate segment beyond scaphocerite. Ultimate segment with 1 apical and 3 subapical teeth. Penultimate segment 0.8 times as long as ultimate segment. No exopod. Epipod well developed. Two arthrobranchs present.

Branchial formula (fig. 2h) as in table I.

First pereopod (fig. 2i) reaching distal end of third maxilliped; not chelate, dactylus minute. Propodus with numerous spines, proximal part mesially with setiferous cleaning organ. Carpus

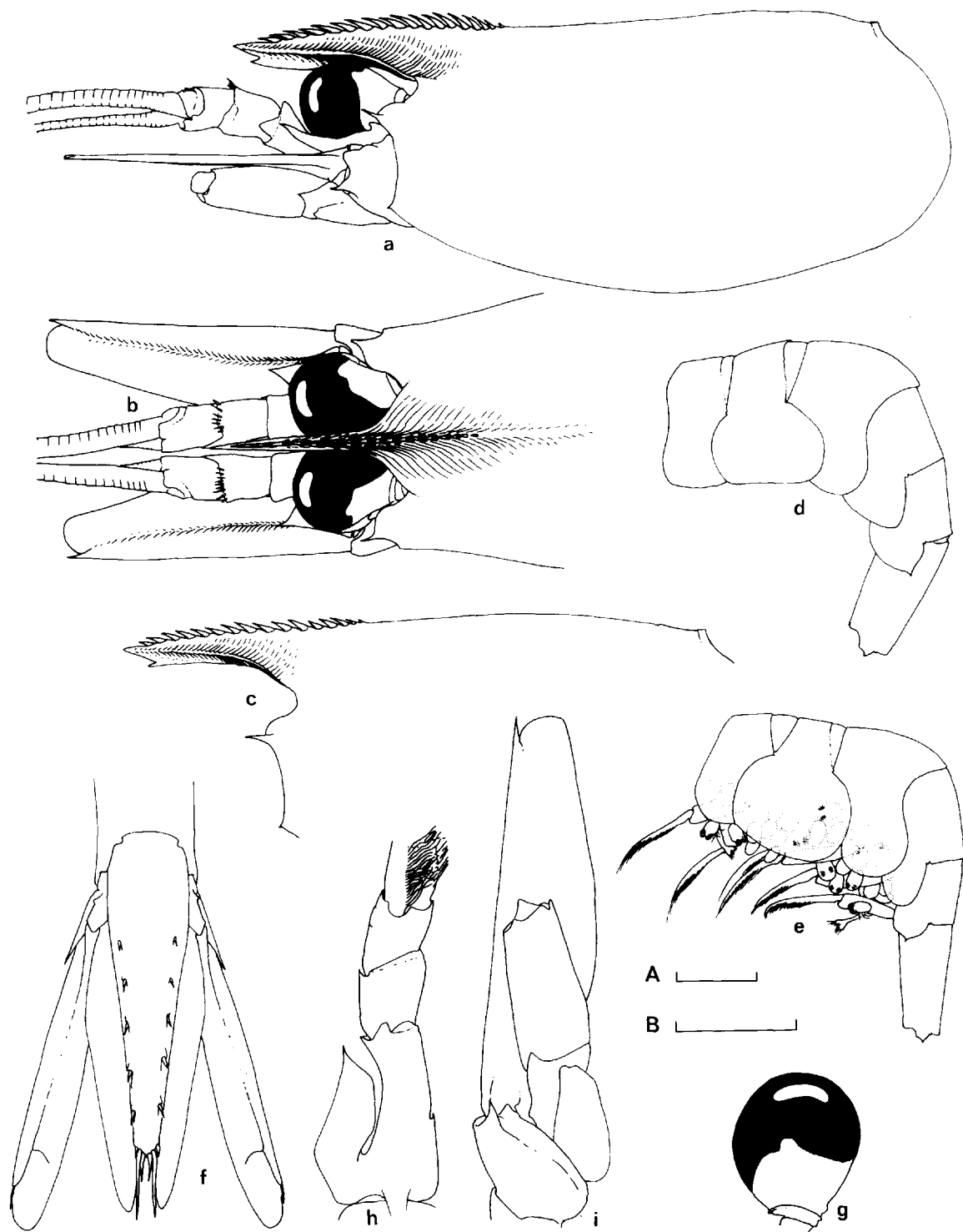


Fig. 1. *Bitias stocki* new species, RMNH D 39051 (a, b, d, f-i, male holotype, carapace length 7.9 mm; c, e, female allotype, carapace length 4.5 mm). a, carapace and anterior appendages, left aspect; b, anterior appendages, dorsal aspect; c, carapace, left aspect; d, abdomen male, left aspect; e, abdomen ovigerous female, left aspect; f, telson, dorsal aspect; g, right eye, dorsal aspect; h, right antennular peduncle, ventral aspect; i, right scaphocerite, ventral aspect. (Scale A: g-i = 2.5 mm. Scale B: a-c, f = 2 mm; d, e = 4 mm).

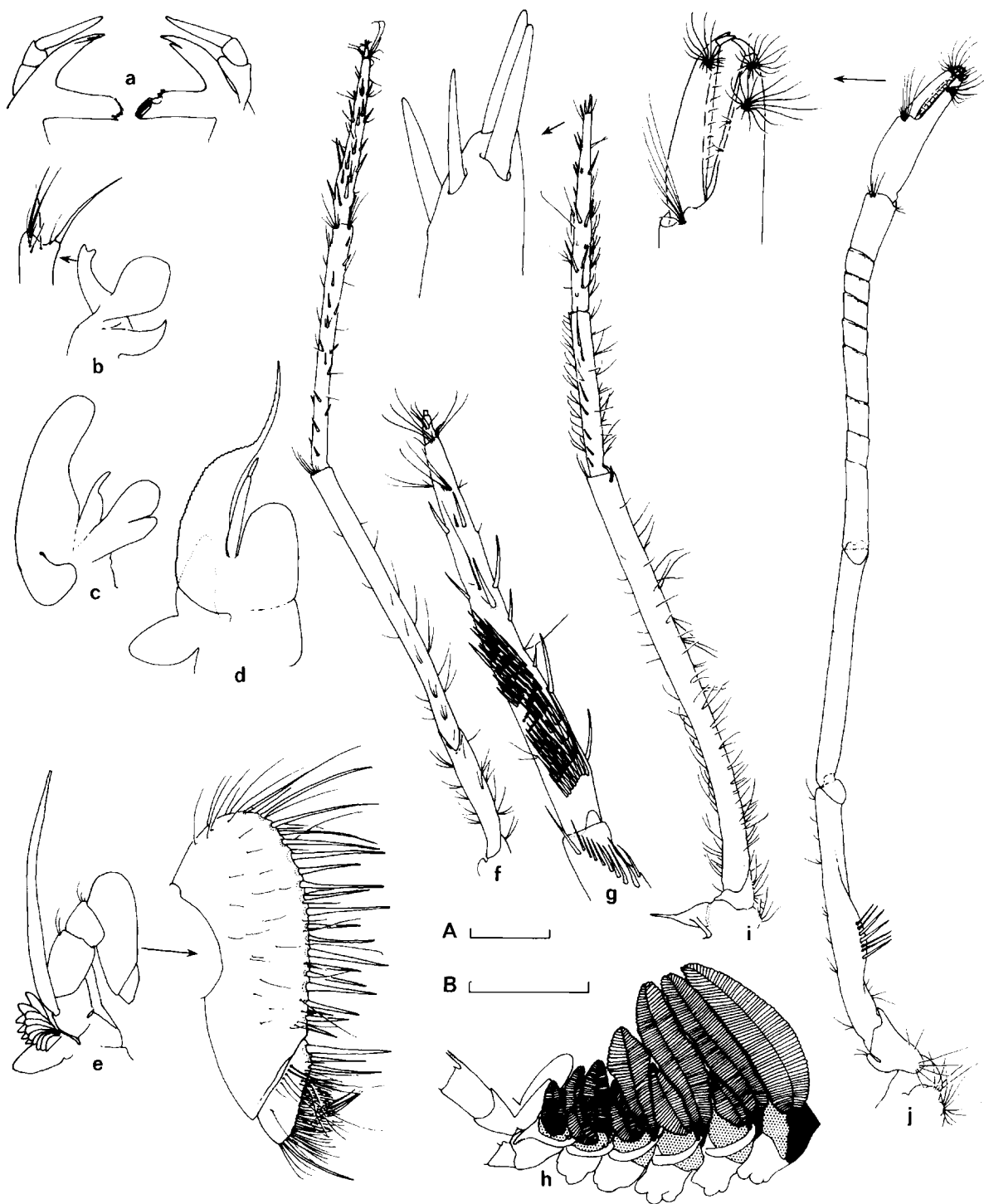


Fig. 2. *Bitias stocki* new species, RMNH D 39051 (male holotype, carapace length 7.9 mm). a, right mandible, ventral and dorsal aspect; b, right first maxilla, ventral aspect; c, right second maxilla, ventral aspect; d, right first maxilliped, ventral aspect; e, right second maxilliped, ventral aspect; f, right third maxilliped, outer lateral aspect; g, ultimate segment right third maxilliped, inner lateral aspect; h, left branchial cavity, lateral aspect; i, right first pereopod, outer lateral aspect; j, right second pereopod, outer lateral aspect. (Scale A: a-f, i, j = 2.5 mm; g = 1 mm. Scale B: h = 2 mm).



Fig. 3. *Bitias stocki* new species, RMNH D 39051 (male holotype, carapace length 7.9 mm). a, right third pereiopod, outer lateral aspect, - inner lateral aspect ischium; b, right fourth pereiopod, outer lateral aspect, - inner lateral aspect ischium; c, right fifth pereiopod, outer lateral aspect; d, dactylus right third pereiopod, outer lateral aspect; e, dactylus right fourth pereiopod, outer lateral aspect; f, dactylus right fifth pereiopod, outer lateral aspect; g, right endopod of first pleopod; h, right appendix interna and appendix masculina. (Scale: a-c = 2.5 mm; d-f = 0.25 mm; g, h = 0.1 mm).

Table I. Branchial formula in *Bitias stocki* new species.

	Maxillipeds			Pereiopods				
	I	II	III	I	II	III	IV	V
Pleurobranchs	-	-	-	1	1	1	1	1
Arthrobranchs	-	-	2	1	1	1	1	-
Podobranchs	-	1	-	-	-	-	-	-
Epipods	1	1	1	1	1	1	1	-
Exopods	1	1	-	-	-	-	-	-

1.5 times as long as propodus. Merus slightly longer than carpus. Ischium about 0.4 times the merus length. Left and right second pereiopods (fig. 2j) equal in length and shape reaching end of scaphocerite with last carpal articulation. Chela simple. Carpus with 10 segments. Ischium and merus of same length. Third, fourth and fifth pereiopods (fig. 3a-c) similar. Third pereiopod reaches with distal part of carpus beyond scaphocerite. Fourth pereiopod reaches with carpus to top of scaphocerite. Fifth pereiopod almost reaches with carpus top of scaphocerite. Dactyli (fig. 3d-f) short, about 0.1 times propodus length. Five ventral spines present in each dactylus. Propodi bear several lateral and ventral spines and plumose setae in their distal part. Carpi bear small ventral and lateral spines. Carpus of third pereiopod slightly shorter than propodus. Carpus of fourth pereiopod about 0.75 times propodus length, that of fifth about 0.65 propodus length. Meri about 1.6 times propodus length. Merus of third pereiopod with 6 lateral and 4 ventral spines. Merus of fourth pereiopod with 6 lateral and 3 ventral spines. Merus of fifth pereiopod with only 6 lateral spines. Ischium of ambulatory pereiopods about 0.3 times merus length. Ischium of third and fourth pereiopod with two ventral spines, ischium of fifth pereiopod devoid of spines.

Endopod of first pleopod in male (fig. 3g) truncate with emarginate top. Second pleopod of male with appendix interna (fig. 3h) as long as appendix masculina.

*Description of female allotype and paratype.* — Number of dorsal rostral spines in female from sta. CANCAP 5.090 is 16, that of female from sta. CANCAP 6.049 is 13. Ovigerous female

bearing few (ca. 100) large eggs (fig. 1e), about 1 mm in diameter. From both specimens the pereiopods are wanting or incomplete.

*Type-locality.* — Azores, S of Pico, 38°09'N 28°31'W; 1320-1350 m.

*Range.* — Known from the type-locality at the Azores, and from the Cape Verde Islands in depths between 1100 and 1350 m.

*Etymology of the species name.* — This species is named for Prof. Dr Jan H. Stock, in recognition of his many contributions to the study of Crustacea.

## REMARKS

In his work on the recent genera of caridean and stenopodidean shrimps, Holthuis (1955: 118) lists a total of 16 genera in the family Pandalidae. Since then few changes occurred. *Anachlorocurtis* Hayashi, 1975 and *Miropandalus* Bruce, 1983 were described and seem related to *Chlorocurtis* Kemp, 1925. Chace (1985) lumped the nominal taxa *Parapandalus* and *Plesionika*—the last having priority—on the basis of the phylogenetically meaningless presence or absence of strap-like epipods on the pereiopods. *Stylopandalus* Coutière, 1905 (only species: *Stylopandalus richardi* Coutière, 1905) was split off from what was *Parapandalus* sensu auct.

In the present species the ovigerous females bear only few and relatively large eggs when compared with other species in the family Pandalidae. This is also known for the genus *Pandalina*. In most of the other genera the number of eggs is between 500 and 20.000.

## ACKNOWLEDGEMENTS

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