

A new deep-sea species of *Stephonyx* (Lysianassoidea: Uristidae) from off the central coast of Brazil

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Abstract

The REVIZEE Benthos Program investigated the fauna of benthos from off Brazilian coast. The samples were collected from October, 1997 to June, 2002. The studied material was found in two stations, off Bahia State, central Brazilian coast. A new deep-sea lysianassoid species of the family Uristidae, *Stephonyx uncinatus* sp. nov. is described herein. A key for the world species of *Stephonyx* is presented.

Key-words: Amphipoda; *Stephonyx uncinatus* sp. nov.; taxonomy; baited trap; southwestern Atlantic ocean.

Introduction

Lowry and Stoddart (1989) revised *Euonyx* s. l. Norman, 1867, of the family Uristidae Hurley, 1963, dividing it into two genera: *Euonyx* s. s. and *Stephonyx* Lowry and Stoddart, 1989. However, the classification proposed by Lowry and Stoddart (1989) was not recognized by Barnard and Karaman (1991). *Euonyx* s. s. was maintained as a genus of lysianassoids living as commensals on other invertebrates and with very specialized mouth parts. *Stephonyx*, to which most of the species of the genus *Euonyx* s. l. were transferred, is composed by scavenger species. This genus has a world-wide distribution. Knowledge about the scavenger fauna of amphipods in Brazilian deep-sea is very limited. Recently, Senna and Serejo (in press) and Serejo *et al.* (in press) recorded two species of deep-sea lysianassoids, *Eurythenes obesus* (Chevreux, 1905) and *E. gryllus* (Lichtenstein in Mandt, 1822), respectively. These species are both scavengers and are commonly captured by baited traps, just as the *Stephonyx* species.

The REVIZEE Program (*Avaliação do Potencial Sustentável de Recursos Vivos na Zona Econômica Exclusiva Brasileira/Petrobras*) has as general objec-

tive do an inventory and to estimate the sustainable potential of live resources in the Exclusive Economical Brazilian Zone (Lavrado, 2006), between 12 and 200 miles from off the coast. Because of the large extension of the Brazilian coast, the Exclusive Economical Brazilian Zone was divided into four regions, in accordance with their oceanographical and biological characteristics and type of dominant substratum (Noronha, 2006). Each area was coordinated by regional subcommittees of research (SCOREs). The Central Score provided the specimens for this study.

In this work we described one lysianassoid species of the family Uristidae, *Stephonyx uncinatus* sp. nov. This is the first record of the genus *Stephonyx* and the family Uristidae from Brazilian waters.

Material and Methods

The area of study includes the central coast of Brazil, from 11°S to 22°S, including islands and submerged mountains of the Vitória-Trindade Chain, and covering the continental shelf and the slope, mainly between 50 and 500 m depth. The

stations from larger depths than 500 m present bottom of mud or sand, while the most shallow stations present bottom formed by rhodolites or corals and calcareous algae (Lavrado, 2006).

The material was collected using rectangular and circular baited traps (Netto *et al.*, 2005) aboard the N/Pq *Diadorim*, of the IEAPM (Instituto de Estudos do Mar Almirante Paulo Moreira) on April 2001 and it is lodged at the Crustacea Collection of the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ). The nomenclature of gnathopod 2 palm is based on Poore and Lowry (1997).

List of abbreviations: Hd: Head; A1-2: Antennae 1-2; Mp: Maxilliped; Mx1-2: Maxilla 1-2; STA-D: Setal-teeth A-D; ST1-7: Setal-teeth 1-7; Md: Mandible; E: Epistome; Gn1-2: Gnathopods 1-2; P3-7: Pereopods 3-7; Ep3: Epimeral plate 3; U1-3: Uropods 1-3; T: Telson.

Systematics

Superfamily Lysianassoidea Dana, 1849

Family Uristidae Hurley, 1963

Genus *Stephonyx* Lowry and Stoddart, 1989

Euonyx: Stebbing, 1888: 669; 1906: 19; Chevreux, 1908: 1; 1919: 576; 1927: 47; Sheard, 1938: 169; Barnard, 1967: 55; Griffiths, 1977: 98; Barnard and Karaman, 1991: 485 (in part).

Stephonyx Lowry and Stoddart, 1989: 521; Bellan-Santini, 1997: 13; Lowry and Stoddart, 1997: 129.

Diagnosis: Antenna 1 with calynophores well developed in females and males. Mandible, incisors symmetrical, *lacinia mobilis* well developed and smooth, accessory row with five or less small spines, molar setose and triturative. Maxilla 1, outer plate narrow, with 11 long setal-teeth, multi-cuspidate, forming a distal crown of seven setal-teeth and a row of four setal-teeth extending along the medial margin. Maxilla 2 with inner plate smaller than outer plate. Maxilliped, outer plate suboval, apical setae and spines present, medial spines present, extremely reduced in size. Gnathopod 1 chelate, coxa very reduced. Rami of uropod 3, in

males and females, with plumose setae (Lowry and Stoddart, 1989).

Type species: *Euonyx biscayensis* Chevreux, 1908

Remarks: The genus *Stephonyx* contains nine species: *S. biscayensis* (Chevreux, 1908); *S. carinatus* Bellan-Santini, 1997; *S. incertus* Bellan-Santini, 1997; *S. laqueus* (Barnard, 1967); *S. normani* (Stebbing, 1888); *S. pirloti* (Sheard, 1938); *S. scutatus* (Griffiths, 1977); *S. talismani* (Chevreux, 1919); and *Stephonyx uncinatus* sp. nov.

Stephonyx uncinatus sp. nov.

(Figs. 1-3)

Material examined: holotype, 1 male, 36 mm, REVIZEE Program – Benthos, N/Pq *Diadorim* col., 14°27'654"S-38°51'130"W, 730-739 m, 01.iv.2001 (MNRJ 19498).

Paratypes: 13 specimens (four males, five females, and four juveniles), REVIZEE Program – Benthos, N/Pq *Diadorim* col., 14°27'654"S-38°51'130"W, 730-739 m, 01.iv.2001 (MNRJ 18292); four specimens (one male, two females, and one juvenile), REVIZEE Program – Benthos, N/Pq *Diadorim* col., 15°30'548"S-38°37'821"W, 687-691 m, 07.iv.2001 (MNRJ 18293).

Etymology: The specific name *uncinatus* refers to the subterminal nail on dactylus of gnathopod 1.

Diagnosis: Head, lateral cephalic lobe rounded. Gnathopod 1 chelate; carpus, elongate 1.25x the

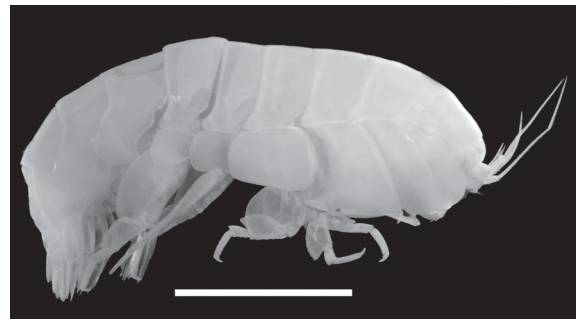


Figure 1. *Stephonyx uncinatus* sp. nov. Male holotype, 14°27'39"S-38°51'08"W, 730-739 m, 01.iv.2001 (MNRJ 19498). Scale bar 10 mm. photograph by A. R. Senna.

length of propodus; palm extremely obtuse, crenate, with margin slightly convex and with three distolateral stout setae; dactylus slightly longer

than palm, subterminal nail present. Gnathopod 2, palm convex. Pereopod 6, coxa small, anterior margin slightly concave. Uropod 3, rami subequal

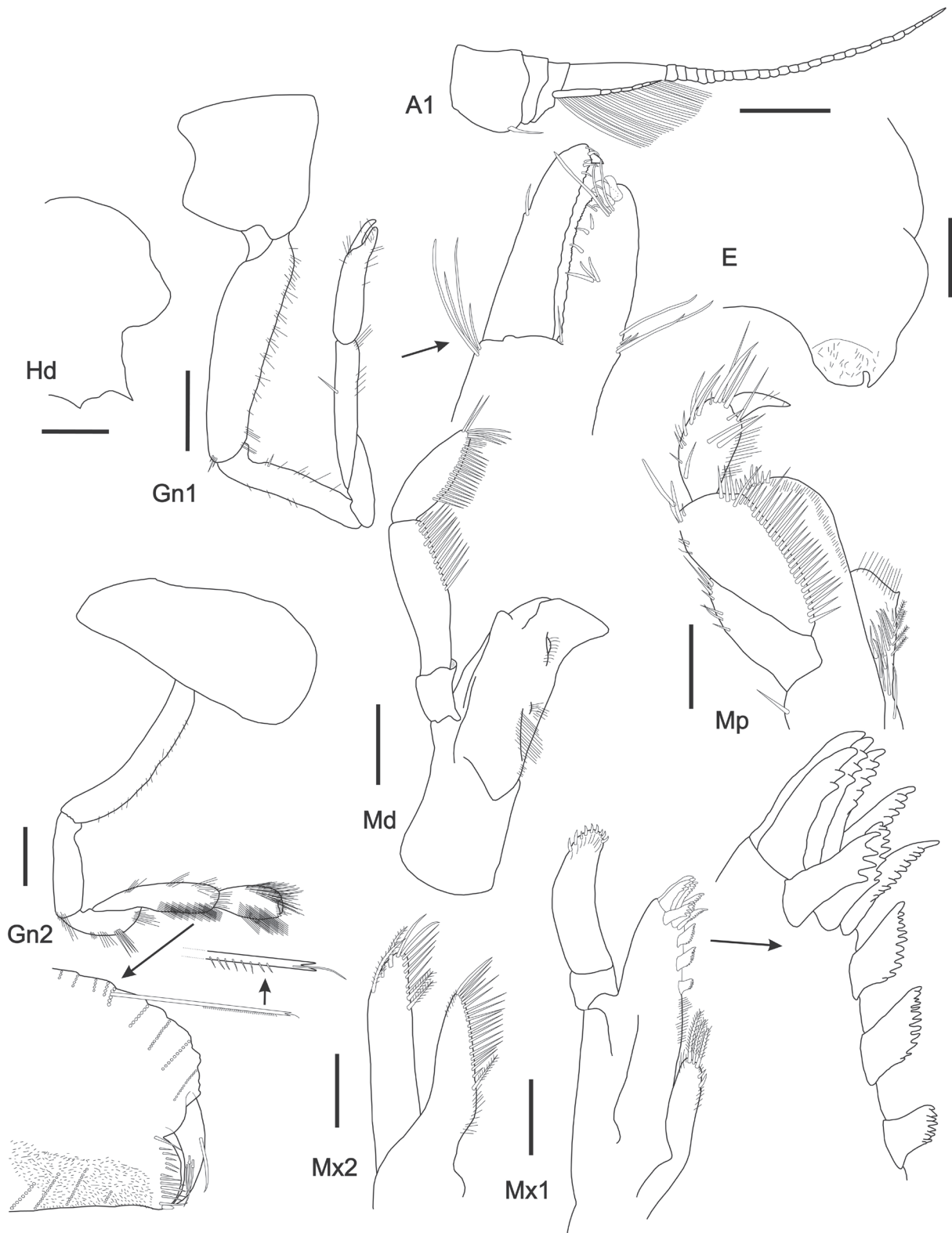


Figure 2. *Stephonyx uncinatus* sp. nov., male holotype, 14°27'39"S-38°51'08"W, 730-739 m, 01.iv.2001 (MNRJ 19498). Scale bars: 1.0 mm for A1, Gn1 and Gn2; 0.5 mm for the remains.

in length, lanceolate, posterior margins with plumose setae, outer ramus 2-articulate. Telson 2x longer than broad, deeply cleft (80%), distal margin rounded, smooth.

Description: Holotype, male, 36 mm, Head, deeper than long; lateral cephalic lobe rounded; rostrum absent. Antenna 1 small, approximately 0.5x antenna 2 length; article 1 of peduncle small, as long as broad; primary flagellum with 28 articles; accessory flagellum with eight articles; callynophores well developed in 2 fields. Antenna 2, peduncle articles 2 and 3 with a row of small tufts of setae on the ventral margin; flagellum elongate, with approximately 60 articles.

Mouthparts forming a subquadrate bundle. Epistome and upper lip separate, produced. Mandible, incisor smooth and round; *lacinia mobilis* reduced and slightly setose; accessory row with four small setae; molar setose, distal surface smooth; palp attached medially on the mandible, 3-articulate; first article short, 2x as long as wide; second article 2.75 as long as wide, slender, inner margin with 15 slender setae; third article suboval, inner margin with 26 slender setae, with two apical setae. Maxilla 1, inner plate narrow and small, with three apical plumose setae; outer plate narrow with 11 setal-teeth, forming an apical crown with seven large and thin setal-teeth, multicuspitate, and a row of four short and robust setal-teeth, coming down along the inner margin, ST1 3-cuspitate, ST2 2-cuspitate, ST3 non-cuspitate, ST4 3-cuspitate, ST5-6 5-cuspitate, ST7 10-cuspitate, STA 7-cuspitate, STB 10-cuspitate, STC 11-cuspitate and STD 8-cuspitate; palp 2-articulate, distal margin with nine stout setae. Maxilla 2, inner plate narrow, medial margin setose, length approximately 0.75X the outer plate; outer plate narrow, distally setose. Maxilliped, inner plate subquadrate, with two stout nodular setae on the distal margin, close to distomedial corner; medial margin with four plumose setae; outer plate suboval with seven apical stout setae and subterminal slender setae; palp well developed, 4-articulate, second article with inner margin setose, third article suboval, inner and outer margins setose, medial surface with two setae, distolateral corner with four setae, dactylus well developed, with two subterminal slender setae, nail present and terminal setae absent.

Pereon dorsally smooth, without carina. Gnathopod 1, chelate; coxa reduced, anterior margin straight, posterior margin concave; base, anterior margin straight, with small slender setae; ischium elongate, 5x as long as wide, approximately 2/3 the basis length; carpus elongate, with a slender setae in the anterior margin, 6.7x as long as wide and 1.25x the length of the propodus; propodus, 4x as long as wide, margins subparallels, anterior margin with a tuft of distal setae; palm extremely obtuse, crenate, with margin slightly convex and with three distolateral stout setae; dactylus slightly longer than palm, posterior margin with a slender seta, subterminal nail present. Gnathopod 2 subchelate; coxa well developed; base elongate, slightly curved posteriorly, anterior margin setose; ischium elongate, 3.4x as long as wide, with a tuft of setae on posterodistal corner; merus with posterior margin rounded, with three tufts of setae; carpus elongate, approximately 5x as long as wide, anterior margin slightly convex, posterior margin straight, with rows of setae; propodus suboval, small, length 0.5x the merus, twice as long as wide, anterior and posterior margins with rows of slender crenate setae, bifid and with a minute apical accessory seta; palm with convex margin, 13 submarginal setae and a stout seta on the posterodistal corner; dactylus with three thin pedunculate setae and anterior margin with one submarginal seta.

Pereopod 3, coxa larger than coxa 2; base 2.5x as long as wide; merus anterodistally expanded; propodus thin, 6x as long as wide; dactylus simple, posterior margin concave. Pereopod 4, coxa, posteroventral lobe well developed; base with a tuft of setae on the posteroventral corner; merus anterodorsally expanded; propodus thin; dactylus simple, curved. Pereopod 5, coxa bilobated, anterior and posterior margin rounded; base expanded, anterior margin rounded, crenate and setose, posterior margin slightly crenate, posterodistal margin rounded; ischium short; merus posterodistally expanded, posterior margin slightly crenate; carpus, anterior margin with small slender setae; propodus slender; dactylus simple, curved. Pereopod 6, coxa small, anterior margin slightly concave; base expanded, anterior margin slightly crenate and setose, posterior margin slightly crenate, posteroventral lobe well developed, posteroventral margin rounded; ischium small; merus posterodistally expanded,

anterior margin crenate, posterior margin slightly crenate; propodus thin; dactylus simple. Pereopod 7, base expanded, anterior margin slightly concave, posterior margin slightly crenate, posterodistal margin rounded; ischium short; merus posterodistally expanded; carpus with anterior margin slightly crenate and setose; propodus thin; dactylus simple.

Pleon and urosome dorsally smooth. Epimeral plate 3, ventral margin with ten simple slender setae, posteroventral corner with a slight tooth. Uropod 1, peduncle with dorsal margin setose, lateral crest setose; rami subequal in length; inner ramus with 12 dorsal setae; outer ramus with a lateral seta. Uropod 2, peduncle with dorsal margin

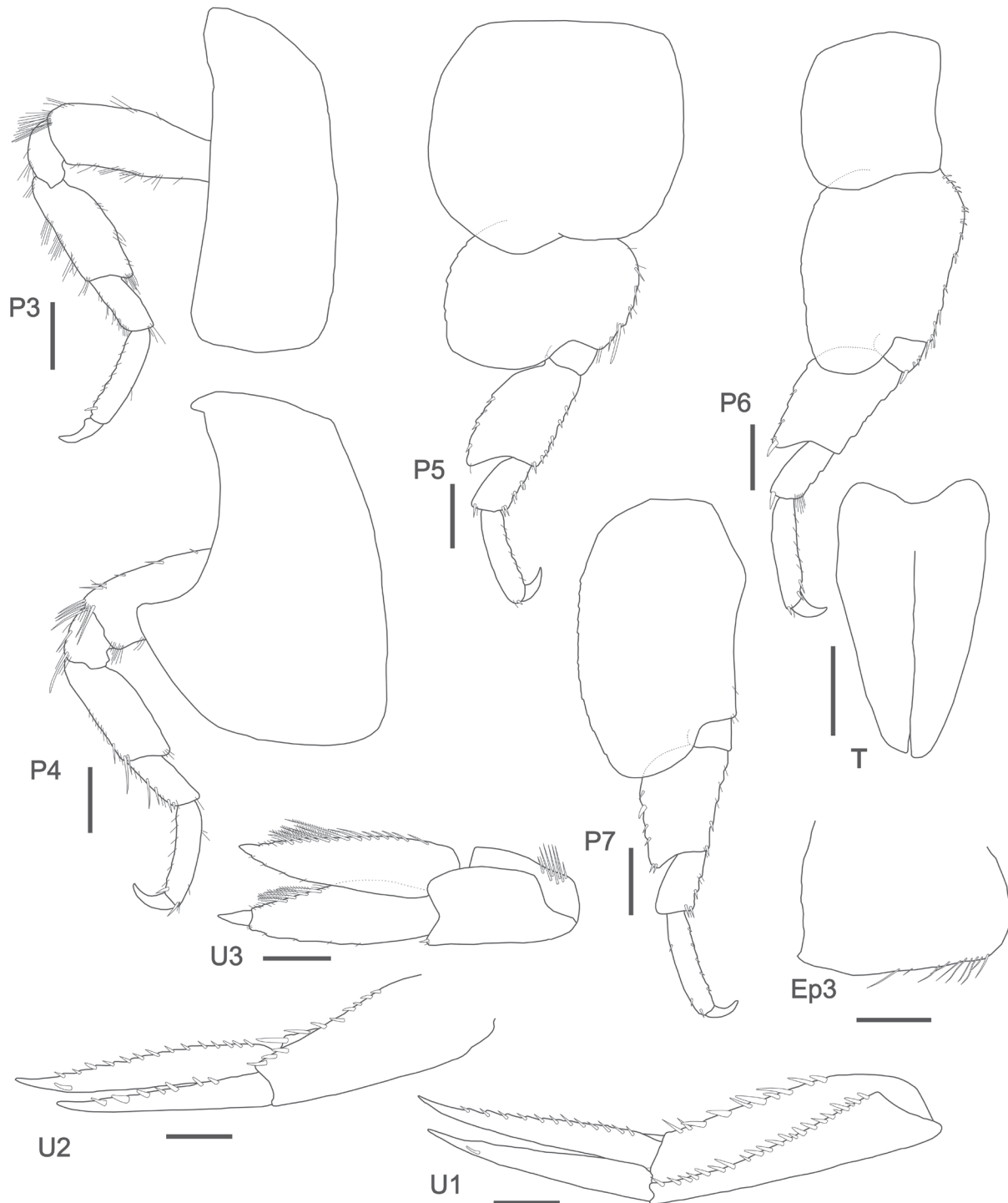


Figure 3. *Stephonyx uncinatus* sp. nov., male holotype, 14°27'39"S-38°51'08"W, 730-739 m, 01.iv.2001 (MNRJ 19498). Scale bars: 1.0 mm.

setose; inner ramus 1.2x the outer ramus. Uropod 3, peduncle 0.65x the length of the rami; rami subequal in length, lanceolate, posterior margin with plumose setae, outer ramus 2-articulate. Telson twice as long as wide, deeply cleft (80%), distal margin rounded, smooth and without setae.

Remarks: The genus *Stephonyx* was established by Lowry and Stoddart (1989) for a group of scavenging lysianassoid amphipods, which originally were included in the genus *Euonyx*. Species of *Euonyx* s. s. are considered commensals on echinoderms, with modified buccal apparatus, mandible with molar absent and vestigial *lacinia mobilis*, and maxilla 1 with simple and reduced setal-teeth, different from the pattern found in the species of *Stephonyx*.

Stephonyx uncinatus sp. nov. is very similar to *S. biscayensis*, differing from it in the gnathopod 1 with carpus larger than the propodus, dactylus with subterminal nail present, and telson with apical margin round and smooth, while *S. biscayensis* has the gnathopod 1 with carpus and propodus subequal, dactylus with subterminal nail absent, and telson with apical margin truncated and with small stout setae.

This is the first record of the genus for Brazilian waters.

Distribution: *Stephonyx uncinatus* sp. nov. was collected at two stations on the slope off the Bahia State coast, ranging from 687 to 739 m depth (Figure 4).

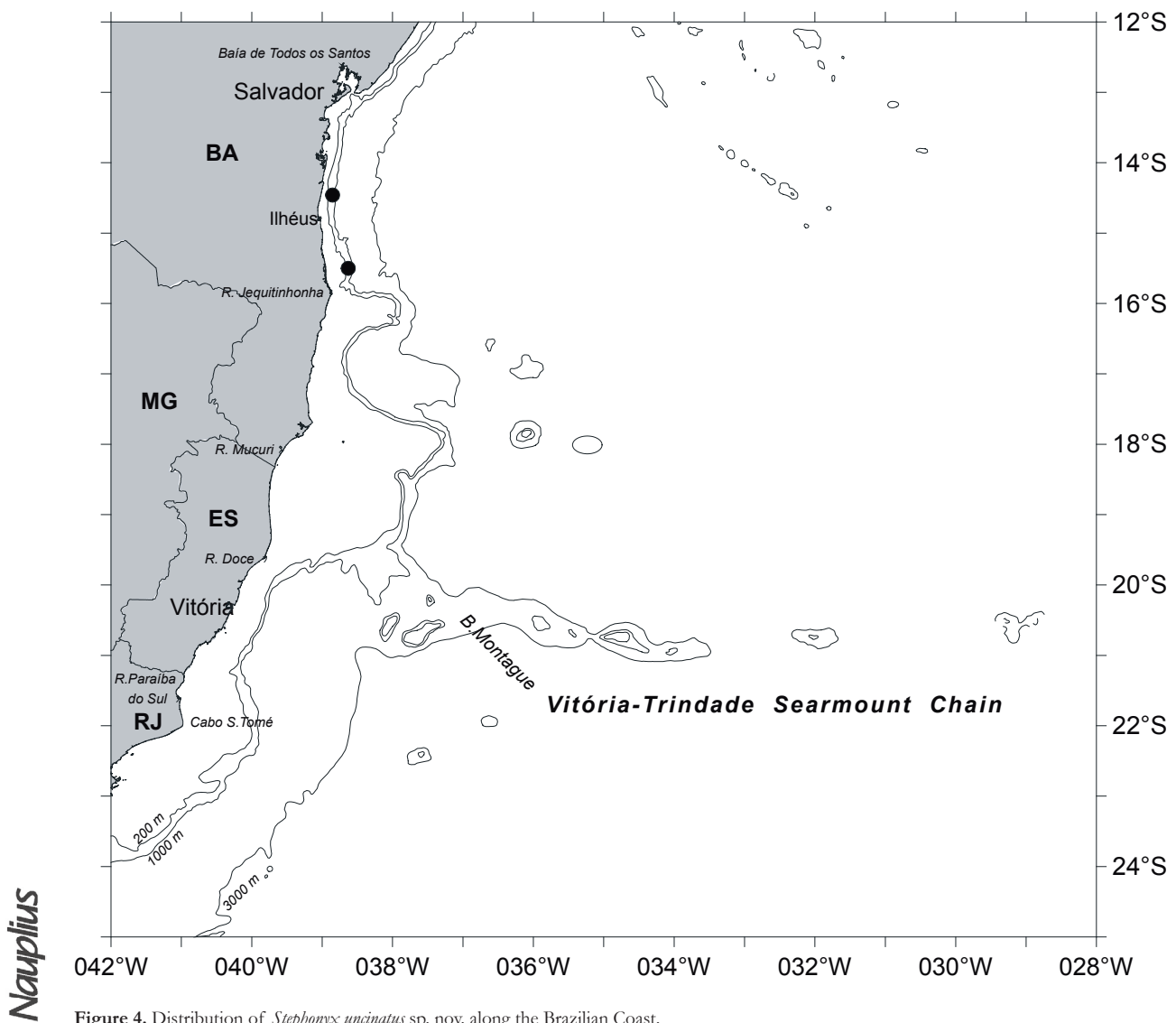


Figure 4. Distribution of *Stephonyx uncinatus* sp. nov. along the Brazilian Coast.

Key to world species of *Stephonyx*

- 1a. Body with pereon and pleon dorsally carinate2
- 1b. Body with pereon and pleon dorsally smooth3
- 2a. Dorsal carina with progressively more produced posterior teeth; lateral cephalic lobe acute; gnathopod 2, propodus distally broadened, palm straight, transverse; coxa 5 produced in a conical hump *S. scutatus*
- 2b. Dorsal carina with a high, rounded keel on urosomite 1; lateral cephalic lobe tapering and distally rounded; gnathopod 2, propodus subrectangular, palm convex; coxa 5 without a conical hump.....*S. carinatus*
- 3a. Gnathopod 2, palm concave4
- 3b. Gnathopod 2, palm straight or convex.....5
- 4a. Gnathopod 2, palm strongly concave, dactylus shorter than palm; lateral cephalic lobe acute *S. talismani*
- 4b. Gnathopod 2, palm strongly or weakly concave, dactylus subequal in length to palm; lateral cephalic lobe rounded6
- 5a. Lateral cephalic lobe rounded; gnathopod 2, carpus approximately 4x longer than propodus; epimeral plate 3, posteroventral corner rounded..... *S. pirloti*
- 5b. Lateral cephalic lobe rounded, subquadrate or tapering and distally rounded; gnathopod 2, carpus approximately 2x longer than propodus; epimeral plate 3, posteroventral corner with a slight tooth.....7
- 6a. Gnathopod 2, propodus suboval, stout, palm strongly concave; uropod 3 with thin rami, which are subequal in length*S. laqueus*
- 6b. Gnathopod 2, propodus suboval, slender, palm slightly concave; uropod 3 with broad rami, inner ramus as long as first article of outer ramus*S. normani*
- 7a. Lateral cephalic lobe rounded; gnathopod 1, carpus longer than propodus, dactylus with a subterminal nail present; gnathopod 2, palm convex; telson, apical margin rounded, smooth*S. uncinatus* sp. nov.
- 7b. Lateral cephalic lobe subquadrate or tapering and distally rounded; gnathopod 1, carpus subequal in length to or shorter than propodus, dactylus without a subterminal nail;

- gnathopod 2, straight or convex; telson, apical margin rounded or truncated, but bearing setae and spines8
- 8a. Lateral cephalic lobe tapering and distally rounded; gnathopod 1, carpus subequal in length to propodus, dactylus as long as palm; gnathopod 2, propodus subrectangular, palm convex; uropod 3, rami subequal in length; telson, apical margin truncated, with short spines and penicillate setae*S. biscayensis*
- 8b. Lateral cephalic lobe subquadrate; gnathopod 1, carpus shorter than propodus, dactylus slightly longer than palm; gnathopod 2, propodus suboval, palm straight; uropod 3, inner ramus as long as first article of outer ramus; telson, apical margin rounded, with one stout and one slender seta on each lobe*S. incertus*

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References

- Barnard, J. L. 1967. Bathyal and abyssal gammaridean Amphipoda of Cedros Trench, Baja California. United States National Museum Bulletin, 260:1-205.
- Barnard, J. L. and Karaman, G. S., 1991. The families and genera of marine gammaridean Amphipoda (except marine gammaroids). Records of the Australian Museum, Supplement 13(Part 2):419-866.
- Bellan-Santini, D. 1997. Amphipods of the cold seep community on the South Barbados accretionary prism. Crustaceana, 70(1):1-30.
- Chevreaux, E. 1908. Diagnoses d'amphipodes nouveaux provenant des campagnes de la Princesse-Alice dans l'Atlantique nord. Bulletin du Musée Océanographique de Monaco, 117:1-13.
- Chevreaux, E. 1919. Note préliminaire sur les amphipodes recueillis par les expéditions du Travailleur et du Talisman (1880-1883). Bulletin du Museum d'Histoire Naturelle, 1919:574-580; 1920:7-12.
- Chevreaux, E. 1927. Crustacés amphipodes. Expedition Scientifique de Travailleur et du Talisman Pendant les Années 1880, 1881, 1882, Malacostraces (Suite) 9:41-152, 14 pls.
- Griffiths, C. L. 1977. Deep-sea amphipods from west of Cape Point, South Africa. Annal of the South Africa Museum, 73(4):93-104.

- Lavrado, H. P. 2006. Capítulo 1. Caracterização do ambiente e da comunidade bentônica. Pp. 19-64 *In* Lavrado, H. P. and Ignácio, B. L. eds. Biodiversidade bentônica da região central da Zona Econômica Exclusiva brasileira. Rio de Janeiro: Museu Nacional. (Série Livros n. 18).
- Lowry, J. K. and Stoddart, H. E. 1989. *Stephonyx*, a new, widespread genus of lysianassoid Amphipoda. *Zoologica Scripta*, 18(4):519-525.
- Lowry, J. K. and Stoddart, H. E. 1997. Amphipoda Crustacea IV. Families Aristiidae, Cyphocarididae, Endeavouridae, Lysianassidae, Scopelochelidae, Uristidae. *Memoirs of the Hourglass Cruises*, 10(1):1-148.
- Netto, E. B. F.; Gaelzer, L. R.; Carvalho, W. F. and Costa, P. A. S. 2005. Prospecção de recursos demersais com armadilhas e pargueiras na região central da Zona Econômica Exclusiva entre Salvador – BA (13°S) e o Cabo de São Tomé – RJ (22°). Pp. 129-143. *In* Costa, P. A. S.; Martins, A. S. and Olavo, G. eds. Pesca e potenciais de exploração de recursos vivos na região central da Zona Econômica Exclusiva brasileira. Rio de Janeiro: Museu Nacional. (Série Livros n. 13).
- Norman, A. M. 1867. Report of the committee appointed for the purpose of exploring the coasts of the Hebrides by means of the dredge. Part II. On the Crustacea, Echinodermata, Polyzoa, Actinozoa, and Hydrizoa. *British Association for the Advancement of Science, Report for 1866*:193-206.
- Noronha, R. 2006. Apresentação. Pp. 13-14 *In* Lavrado, H. P. and Ignácio, B. L. eds. Biodiversidade bentônica da região central da Zona Econômica Exclusiva brasileira. Rio de Janeiro: Museu Nacional. (Série Livros n. 18).
- Poore, A.G.B. and Lowry J.K. 1997. New amphithoid amphipods from Port Jackson, New South Wales, Australia (Crustacea: Amphipoda: Amphithoidae). *Invertebrate Taxonomy*, 11, 897-941.
- Senna, A. R. and Serejo, C. S., in press. First record of *Eurythenes obesus* (Chevreux, 1905) (Amphipoda, Lysianassoidea, Eurytheneidae) in Brazilian waters. *Arquivos dos Museu Nacional*.
- Serejo, C.S.; Young, P.S.; Cardoso, I.C. Tavares, C.; Rodrigues, C. and Almeida, T.C., in press. Abundância, diversidade e zonação de Crustacea no talude da costa central do Brasil (11°-22°S) coletado pelo Programa REVIZEE Pesca – Score Central. *In*: Costa, P.A.S.; Martins, A.S., Olavo, G. (Eds.). Pesca e potenciais de exploração de recursos vivos da região central da Zona Econômica Exclusiva brasileira. Rio de Janeiro, Museu Nacional Série Livros n. 15.
- Sheard, K. 1938. The amphipod genera *Euonyx*, *Syndexamine* and *Paradexamine*. *Records of the South Australian Museum*, 6:169-186, 9 figs.
- Stebbing, T. R. R. 1888. Report on the Amphipoda collected by H.M.S. Challenger during the years 1873-1876. Report on Scientific Results of the Voyage of H.M.S. Challenger during the years 1873-76, *Zoology*, 29:1-1737, pls. 1-210.
- Stebbing, T. R. R. 1906. Amphipoda. I. Gammaridea. *Das Tierreich*, 21:1-806.

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