

The giant deep-sea amphipods (Lysianassoidea: Eurytheneidae) from Brazilian waters

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Abstract

The two amphipod species of the family Eurytheneidae Stoddart and Lowry, 2004 present along off the Brazilian coastline are recorded herein. The bathypelagic material was assessed from the Brazilian slope and abyssal plain, during campaigns of two different marine biodiversity inventory programs. *Eurythenes gryllus* (Lichtenstein in Mandt, 1822), type species of the genus *Eurythenes* Smith, 1882, have its first formal record for the Brazilian deep-sea. It is also presented a further record of *Eurythenes obesus* (Chevreux, 1905) for Brazilian waters. A table of diagnostic characters distinguishing the eurytheneid species is provided, just as a distributional map for Brazilian waters. This study has the aim of to raise the knowledge about the Brazilian Lysianassoidea Dana, 1849, particularly the family Eurytheneidae, poorly known for these waters, and clarify the taxonomic differences in this group.

Key-words: Amphipoda; lysianassoids; *Eurythenes*; taxonomy; new records; Brazil.

Introduction

The family Eurytheneidae Stoddart and Lowry, 2004 is a non-specious group, containing only three species, grouped in a single widespread genus, *Eurythenes* Smith, 1882. Stoddart and Lowry (2004) revised the genus erecting it to the family status, however the authors did not resolve the question as the type species of the genus, *E. gryllus* (Lichtenstein in Mandt, 1822), represents a single cosmopolitan species or several species, subspecies, races and populations. Two of these species, *E. gryllus* and *E. obesus* (Chevreux, 1905), are cosmopolitan and frequently recorded from all major marine water bodies, with the exception of the Mediterranean Sea. *Eurythenes obesus* is also not recorded to the Southeastern Pacific Ocean (Stoddart and Lowry, 2004). A third species, *E. thurstoni* Stoddart and Lowry, 2004, is recorded only to the Southwestern Pacific Ocean and to the North-western Atlantic Ocean.

Scavenging amphipods possess mouthparts adapted to slicing, biting and chewing, but, since the guts of some contain sediment, scavenging might not be an exclusive way of life (Gage and Tyler, 1991). The *Eurythenes* species are bathypelagic,

with scavenger and predator habits, and commonly are collected by midwater trawls or baited traps (Bousfield, 1982; Barnard and Karaman, 1991).

Stoddart and Lowry (2004) comment that the Eurytheneidae appear to be the sister taxon to the *Hirondellea*-group, in the most basal clade within the Lysianassoidea Dana, 1849, also with Opisidae Lowry and Stoddart, 1995, Podoprioninae Lowry and Stoddart, 1996 and Uristidae Hurley, 1963 (s.s.). As a rule, members of these groups are calynophorate in both sexes, have molar as a setose tongue or flap, setal-teeth of the maxilla 1 outer plate in 8/3 or 7/4 crown arrangement, well developed uropod 3, and elongate deeply cleft telson.

Recently, some of these calynophorate groups have been recorded to Brazilian waters. Senna and Serejo (2007) described a new scavenger species of the close related Uristidae from the slope off the central coast of Brazil. *Eurythenes gryllus* and *E. obesus* were consecutively recorded by Serejo *et al.* (2007) and Senna and Serejo (2008). Nevertheless, *E. gryllus* was recorded without any figure, diagnoses, or collection number.

In this work, the amphipod species *Eurythenes gryllus* has its first formal record to the Brazilian waters, and some taxonomic comments are

given regarding the morphological differences, when compared with the type material description. A further record of *E. obesus* is also presented, accompanied by a diagnostic characters table showing the main differences between the three species grouped in the genus. A distributional map for *E. gryllus* and *E. obesus* in Brazilian waters is provided too.

Material and Methods

Material was collected from the Brazilian slope and abyssal plain, between the coordinates 13°S and 22°S, and in depths that vary of 728 m to 1730 m. The studied specimens were assessed during the campaigns of two marine biodiversity inventory programs, supported by the Brazilian oil company, *Petróleo Brasileiro S/A* (PETROBRAS).

The fisheries project of the *Projeto Recursos Vivos da Zona Econômica Exclusiva Brasileira* – PETROBRAS (REVIZEE Score Central) realized two campaigns aboard of the *N/Oc Thalassa* in 1999 and 2000, off the central Brazilian coast, using two trawl types, Great Opening Vertical trawl (GOV), and to deeper rocky bottoms, the ARROW trawl (Serejo *et al.*, 2007). In the subproject REVIZEE-Covos, were used rectangular and circular baited traps to collect the scavenger fauna, aboard of the *N/Pq Diadorim*, of the *Instituto de Estudos do Mar Almirante Paulo Moreira* (IEAPM), Brazilian Navy (Netto *et al.*, 2005). In the *Programa de Caracterização Ambiental das Águas Profundas da Bacia de Campos* – PETROBRAS the collections were made with a Semi-Balloon door trawl, aboard of the *N/R Astro Garoupa*, in two campaigns, February and August 2003, in Campos Basin, off the Rio de Janeiro State coast (Senna and Serejo, 2008).

Specimens were dissected under stereoscope microscope and drawings were made with a camera lucida. Illustrative figures were prepared in the software CorelDraw X3, and the distributional map was developed in the software ArcGis 9.2. All the material is housed at the Crustacean Collection of the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ), and preserved in ethanol 70%.

Setal nomenclature is based on Watling (1989). Nomenclature of the setal-teeth on maxilla 1 outer plate is based on Lowry and Stoddart (1992, 1993).

Abbreviations: Mx1 Op: maxilla 1 outer plate; Mx2: maxilla 2; Gn1: gnathopod 1; P7: pereopod 7; Ep1-3: epimeral plate 1-3; U3: uropod 3; T: telson; STA-D: setal-teeth A-D; ST1-7: setal-teeth 1-7.

Systematics

Order Amphipoda Latreille, 1816

Superfamily Lysianassoidea Dana, 1849

Family Eurythenidae Stoddart and Lowry, 2004

Genus *Eurythenes* Smith, 1882

Eurytenes: Lilljeborg, 1865a: 11 (non *Eurytenes* Förster, 1862, homonym, Hymenoptera); 1865b: 6; Boeck, 1871: 105; 1872: 143. Type species: *Lysianassa magellanica* H. Milne Edwards, 1848, junior synonym of *Gammarus gryllus* Lichtenstein in Mandt, 1822 (original designation).

Eurythenes: Smith, 1882: 135 (nom. nov.); Stebbing, 1906: 72; Schellenberg, 1927: 678; K.H. Barnard, 1932: 58; Stephensen, 1933: 12; Gurjanova, 1951: 265; J.L. Barnard, 1961: 34; 1969: 343; Hurley, 1963: 58; Barnard and Karaman, 1991: 485; Stoddart and Lowry, 2004: 428; Senna and Serejo, 2008: 374.

Euryporeia: G.O. Sars, 1891: 85 (invalid replacement for *Eurytenes* Lilljeborg, 1865, same type species); Della Valle, 1893: 847.

Katius: Chevreux, 1905: 1; Schellenberg, 1927: 681; K.H. Barnard, 1932: 55. Type species: *Katius obesus* Chevreux, 1905 (original designation).

Composition of the genus

The genus *Eurythenes* groups three species: *Eurythenes gryllus* (Lichtenstein in Mandt, 1822); *E. obesus* (Chevreux, 1905); and *E. thurstoni* Stoddart and Lowry, 2004.

Diagnosis

Head exposed, much deeper than long, not extending much below insertion of antenna 2, without cheek notch. Antennae with calceoli present in male, absent in female. Antenna 1 with

well developed two-field callynophore in both male and female. Antenna 2, peduncular article 3 without distal hook. Mouthpart bundle subquadrate. Epistome and upper lip separate. Mandible incisors present, well developed, symmetrical, convex, smooth; right *lacinia mobilis* absent; accessory setal row without distal tuft of setae; molar as a setose tongue, with small triturative surface; palp present, mid-anteriorly attached. Maxilla 1, inner plate with more than two apical pappose setae; outer plate narrow with setal-teeth in 8/3 crown arrangement, setal-teeth large, ST6 and ST7 slender, ST7 slightly displaced from ST6; palp large, with apical robust setae. Maxilla 2, inner plate significantly shorter than outer plate. Maxilliped, outer plate present, medial setae small; palp four-articulate, article 4 well developed. Gnathopod 1 subchelate to parachelate; coxa small; merus and carpus not rotated; carpus short; propodus large, palm straight to convex; dactylus slightly curved, not hidden by setae. Gnathopod 2, coxa small, shorter than coxa 3. Pereopods simple; distal spurs absent. Pereopod 3, coxa large. Pereopod 4, coxa large with well developed posteroventral lobe. Pereopod 5, coxa with anterior and posterior subequal lobes. Uropod 2,

inner ramus without constriction. Uropod 3, biramous. Telson cleft.

Modified from Stoddart and Lowry (2004).

***Eurythenes gryllus* (Lichtenstein in Mandt, 1822)
(Figs. 1-2)**

Gammarus gryllus: Lichtenstein in Mandt, 1822: 34.

Lysianassa magellanica: Milne Edwards, 1848: 398; Lucas, 1857: 13, pl. 1, fig. 3; Bate, 1862: 66, pl. 10, fig. 5; 1866: 330; Lilljeborg, 1865a: 3; 1865b: 2, Bethune, 1869: 431; M. Sars, 1869: 260.

Eurytenes magellanicus: Lilljeborg, 1865a: 11, pls. 1-3; 1865b: 6; G.O. Sars, 1891: pl. 30.

Lysianassa gryllus: Goes, 1866: 517, pl. 36 fig. 1; Bate, 1867: 229.

Eurytenes gryllus: Boeck, 1871: 105; 1872: 144; Stuxberg, 1880: 62; Stephensen, 1912a: 528.

Eurythenes gryllus: Smith, 1884a: 54; Hansen, 1888: 67; Chevreux, 1889: 298; 1935: 50, pl. 1, figs. 6, 7; Stebbing, 1893: 80; 1906: 73; Chilton, 1911: 563; Stephensen, 1925: 110; 1932: 356 (in part); 1933: 12, figs. 4, 5 (in

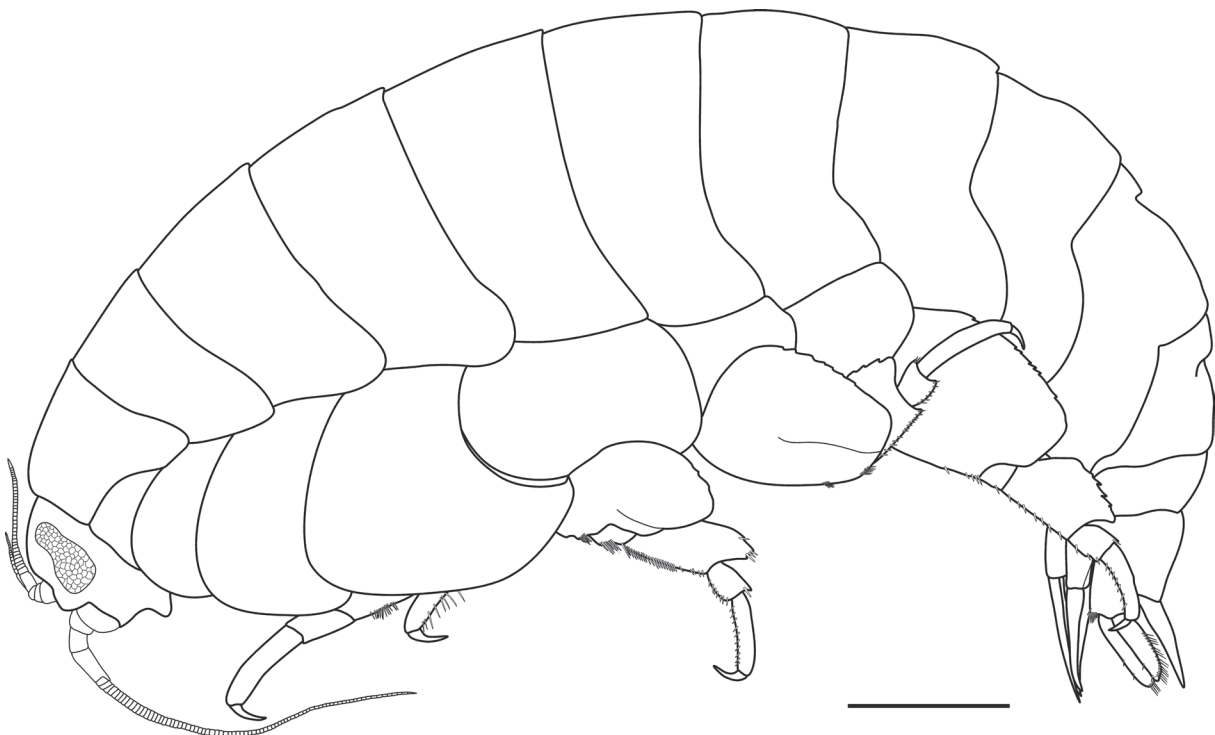


Figure 1. *Eurythenes gryllus*, female, REVIZEE Program, 14°36,579'S-38°49,544'W to 14°39,605'S-38°50,134'W, 1067 m depth, MNRJ 15135. Scale bar: 10 mm.

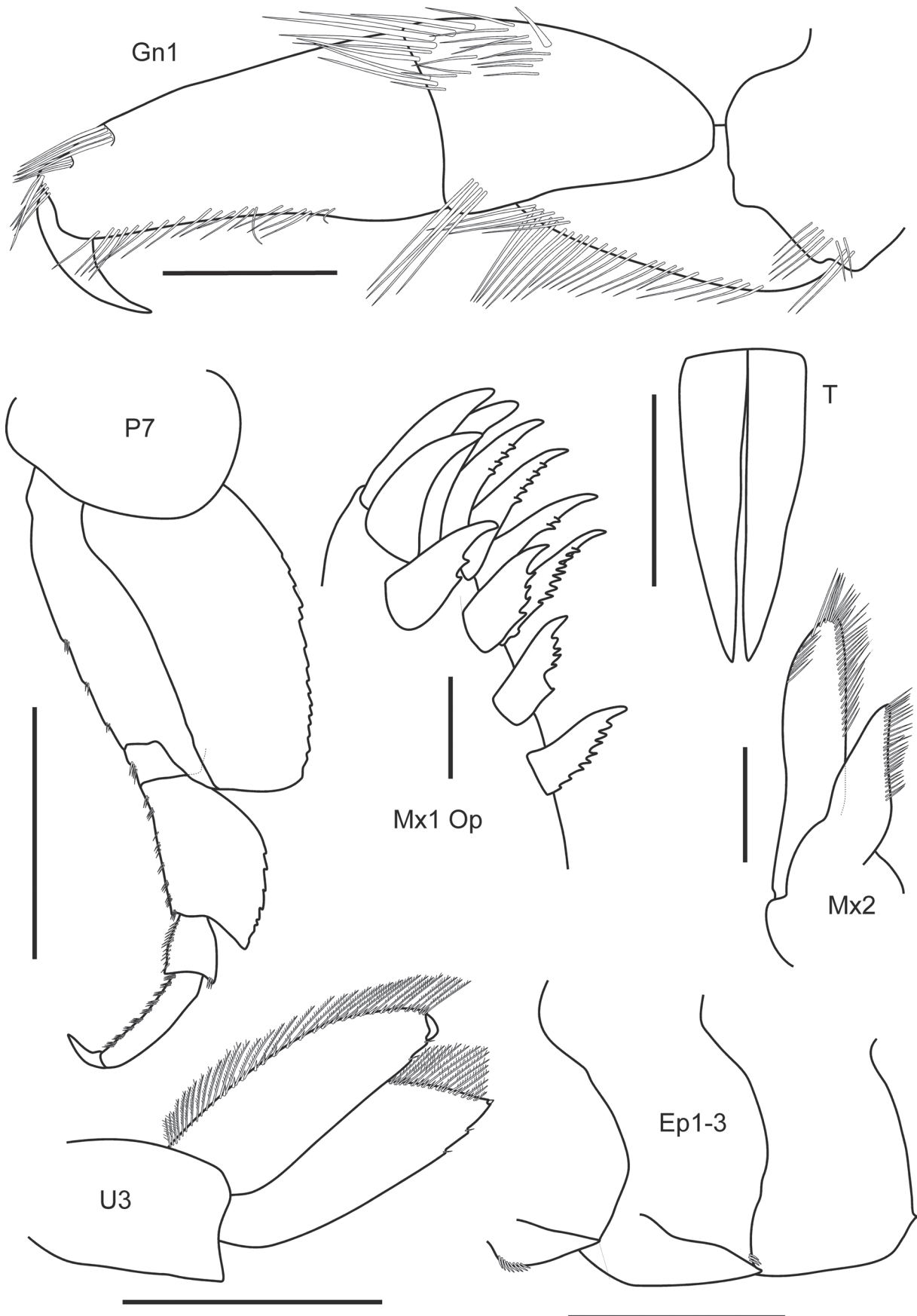


Figure 2. *Eurythenes gryllus*, female, REVIZEE Program, 14°36,579'S-38°49,544'W to 14°39,605'S-38°50,134'W, 1067 m depth, MNRJ 15135. Scale bars: 2 mm for Mx2 and Gn1; 5 mm for Mx1 Op, U3, and T; 10 mm for P7 and Ep1-3.

- part); 1935: 91; 1942: 474 (in part); 1949: 3 (in part); Schellenberg, 1927: 679, fig. 70; 1955: 192; K.H. Barnard, 1937: 144; Shoemaker, 1945: 186 (in part); 1956: 177; Gorbunov, 1946: 43; Gurjanova, 1951: 265, fig. 134; 1962: 340; 1964: 277; Dahl, 1954: 3; Birstein and Vinogradov, 1955: 225; 1958: 228; 1960: 183; 1962: 36; 1970: 420; Hurley, 1957: 2 (in part); J.L. Barnard, 1958: 92; 1961: 35 (in part); Oldevig, 1959: 19; Templeman, 1967: 215, figs. 1-3; Beck, 1969: 34, 35; Bowman and Manning, 1972: 193, figs. 2-5; Paul, 1973: 289; Rannou and Nouguier, 1974: 142; Shulenberger and Hessler, 1974: 185; Dahl *et al.*, 1976: 75, 78; Lowry and Bullock, 1976: 90; Shulenberger and Barnard, 1976: 241; Griffiths, 1977: 97; Intes, 1978: 4, fig. 4; Andres, 1979: 96; 1983: 186; 1987: 96; Dahl, 1979: 168, fig. 6; George, 1979a: 283; 1979b: 63; Hessler *et al.*, 1979: 704; Ortiz, 1979: 19; Smith *et al.*, 1979: 57; Thurston, 1979: 56; 1990: 262; 1994: 14; 2000: 684, 688, 690; Hallberg *et al.*, 1980: 280; Just, 1980: 164, 167, 171; Prince, 1980: 63; Hessler, 1981: 397; Kamenskaya, 1981: 95, figs. 1, 2; Umezu, 1982: 2; 1984: 128; Ingram and Hessler, 1983: 683; 1987: 1889; Lampitt *et al.*, 1983: 73; Smith and Present, 1983: 183; Wickins, 1983: 83; Smith and Baldwin, 1984: 1179; Desbruyères *et al.*, 1985: 233; Hargrave, 1985: 443; Hopkins, 1985: 202, 206, 210; Laver *et al.*, 1985: 1136; Rauschert, 1985: 319; Wilson *et al.*, 1985: 1248; Ainley *et al.*, 1986: 848; Hasegawa, *et al.*, 1986: 70; Reinhardt and Van Vleet, 1986: 151, 157; Baldwin and Smith, 1987: 425; Bucklin *et al.*, 1987: 1795; Charmasson and Calmet, 1987: 1509; 1989: 159; 1990: 227; Sainte-Marie and Hargrave, 1987: 436; Calmet and Charmasson, 1989: 163; Costello *et al.*, 1989: 32; Christiansen *et al.*, 1990: 35; 2001: 2409; Rauschert, 1990: 454; G.M. Vinogradov, 1990: 42, 92; M.E. Vinogradov, 1997: 77; Wakabara *et al.*, 1990: 5; 1996: 355, tab. 1, 360, tab. 2; Barnard and Karaman 1991: 486; Boudrias, 1991: 13, figs. 1, 2; 2002: 581; Gage and Tyler, 1991: 78; Gonzalez, 1991: 59; Palerud and Vader, 1991: 35; Rauschert, 1991: 37, 39; Sainte-Marie, 1991: 217; 1992: 105; Steele and Steele, 1991: 1250, figs. 3, 4; Hargrave *et al.*, 1992a: 37; 1992b: 41; 1994: 1489; 1995: 1905; K.L. Smith, 1992: 1040; Smith *et al.*, 1992: 669, 671, tab. 3; Britton and Morton, 1993: 369; 1994: 391; Christiansen and Thiel, 1993: 12; De Broyer and Jazdzewski, 1993: 67; Heinrich *et al.*, 1993: 6; Lopes *et al.*, 1993: 209; Ishimaru, 1994: 58; Kaufmann, 1994: 54; Thurston and Bett, 1995: 201; Christiansen, 1996: 345; France and Kocher, 1996a: 633 (in part); 1996b: 304; Vinogradov *et al.*, 1996: 8; Gebruk *et al.*, 1997: 116; Jones *et al.*, 1998: 1124; Matsumasa *et al.*, 1998: 686; Takeuchi and Watanabe, 1998: 285; Creasey and Rogers, 1999: 28, 32, 42, 43, 50, 78, 81, 87, 96, fig. 11; Witte, 1999: 142; Christiansen and Martin, 2000: 3027; Janssen *et al.*, 2000: 3011, tab. 5; Bluhm *et al.*, 2001: 642; Bühring and Christiansen, 2001: 369; Dauby *et al.*, 2001: 81; Johnson *et al.*, 2001: 198, tab. 3; Klages *et al.*, 2001: 293; Takeuchi *et al.*, 2001: 653; Cherel *et al.*, 2002a: 272, tab. 6; 2002b: 288, tab. 3, 292, tab. 4; Thurston *et al.*, 2002: 205; Treude *et al.*, 2002: 1281; Premke *et al.*, 2003: 283; Stoddart and Lowry, 2004: 429, figs. 1-11; Serejo, *et al.*, 2007: 138, tab. 2.
- Euryporeia gryllus*: G.O. Sars, 1891: 86, (pl. 30 as *Eurytenes gryllus*); Della Valle, 1893: 848, pl. 60, fig. 58; Chevreux, 1895: 426; 1899a: 147, 148; 1899b: 152; 1900: 24, pl. 14, fig. 4; 1903: 96; 1905: 7; 1910: 4; Holmes, 1903: 277; Brügggen, 1907: 215; Grieg, 1925: 21.
- Eurythenes magellanicus*: K.H. Barnard, 1932: 59; J.L. Barnard, 1958: 92; Beck, 1969: 35; Conroy, 1972: 56; Arnaud, 1974: 592.
- Eurythenes gryllus*: Smith, 1884b: 181 (*lapsus calami*, reprinted from Smith, 1884a).
- Eurythenes grillus*: Gilchrist and MacDonald, 1980: 35 (*lapsus calami*).
- Eurythenes gryllus*: Poupin *et al.*, 1990: 94, pl. 2, fig. g.; Poupin, 1994: 16; 1996: 42, fig. h. (*lapsus calami*).
- Eurythenes* cf. *gryllus*: Lowry and Stoddart, 1994: 158 (in part).
- Not *Eurythenes gryllus*: Murdoch, 1885 (= *Anonyx nugax*); K.H. Barnard, 1940: 440, 515 (= *E. obesus*); Springer and Bullis, 1956: 6 (= *E. obesus*); Lowry and Stoddart, 1993: 72 (= *E. thurstoni*).
- Unnamed specimen in photograph: Yayanos, 1978: 1056, fig. 1.

Material Examined

Brazil. 1 male, REVIZEE Program, Score central, campaign Bahia II, #E-0537, 20°26,850'S-39°41,636'W to 20°23,542'S-39°38,943'W, 1545 m depth, 02.vii.2000, *N/Oc Thalassa* col., ARROW trawl, MNRJ 15132; 1 female, in stomach of shark, REVIZEE Program, Score central, campaign Bahia II, #E-0528, 19°45,258'S-39°03,003'W to 19°47,581'S-38°59,827'W, 1237 m depth, 29.vi.2000, *N/Oc Thalassa* col., ARROW trawl, MNRJ 15133; 1 female, REVIZEE Program, Score central, campaign Bahia II, #E-0538, 20°27,667'S-39°38,101'W to 20°32,771'S-39°37,650'W, 1680 m depth, 02.vii.2000, *N/Oc Thalassa* col., ARROW trawl, MNRJ 15134; 1 female, REVIZEE Program, Score central, campaign Bahia II, #E-0506, 14°36,579'S-38°49,544'W to 14°39,605'S-38°50,134'W, 1067 m depth, 10.vi.2000, *N/Oc Thalassa* col., ARROW trawl, MNRJ 15135; 1 female, REVIZEE Program, Score central, campaign Bahia II, #E-0519, 13°19,944'S-38°19,654'W to 13°22,615'S-38°21,960'W, 1730 m depth, 20.vi.2000, *N/Oc Thalassa* col., ARROW trawl, MNRJ 15136.

Additional Material Examined

United States of America. 1 male, 8.67 cm, S. Luke Don., H292, off San Diego, State of California, xii.1995, without coordinates, without depth data, MNRJ 7163; 1 male, 12.43 cm, S. Luke Don., H272, off San Diego, State of California, xii.1995, without coordinates, without depth data, MNRJ 7164.

Diagnosis

Head, anterodorsal margin smooth. Gnathopod 1 parachelate; basis length 2 to 2.5 times breadth; propodus slightly tapering distally. Pereopods 3 to 7, dactyli short. Pereopod 4, coxa as deep as wide. Pereopod 7 basis, length of anterior margin subequal to breadth; posteroventral margin straight. Pleonite 3 with anterodorsal notch. Epimeral plate 3, posteroventral corner broadly rounded. Urosomite 1 not dorsodistally produced over urosomite 2. Uropod 3 peduncle, medial face without robust setae. (Table I).

Modified from Stoddart and Lowry (2004).

Description

Head much deeper than long, extended slightly below the articulation with antenna 2; rostrum absent; anterodorsal margin smooth; lateral cephalic lobe present, small, rounded to subacute; eyes apparent. Antenna 1, flagellum with strong two-field calynophore. Antenna 2 nearly twice longer than antenna 1.

Mouthparts forming a subquadrate bundle. Epistome and upper lip separate. Maxilla 1, outer plate narrow with setal-teeth in 8/3 crown arrangement, STA 2-cuspidate, STB 4-cuspidate, STC 5-cuspidate, 8-cuspidate, ST1-3 naked, ST4 4-cuspidate, ST5 5-cuspidate, ST6 2-cuspidate, ST7 8-cuspidate, ST7 slightly displaced from ST6. Maxilla 2, subtriangula, length nearly half than outer plate, inner margin setose, slightly concave.

Gnathopod 1 parachelate; coxa small; basis slender, length 2.5 times breadth; merus, posterior margin setose; carpus, subtriangular, twice longer

Table I. Diagnostic characters in the *Eurythenes* species.

	<i>Eurythenes gryllus</i> (Lichtenstein in Mandt, 1822)	<i>Eurythenes obesus</i> (Chevreux, 1905)	<i>Eurythenes thurstoni</i> Stoddart and Lowry, 2004
Head, anterodorsal margin	smooth	smooth	with upturned ridge
Gn1, basis length	2 to 2.5X breadth	2 to 2.5X breadth	more than 3X breadth
Gn1, propodus	tapering distally	tapering distally	subparallel margins
P4, coxa	as deep as wide	as deep as wide	deeper than wide
P3-7, dactyli	shortened	elongate	shortened
P7 basis, anterior margin length	subequal to breadth	subequal to breadth	1.5X breadth
P7 basis, posteroventral margin	straight	rounded	straight
Pleonite 3, dorsal notch	present	present	absent
Ep3, posteroventral corner	rounded	subquadrate	subquadrate
Urosomite 1	not produced over urosomite 2	not produced over urosomite 2	dorsally produced over urosomite 2
U3 peduncle, medial face	without stout seta	with or without stout seta	with stout seta

than broad; propodus, 2.5 times longer than broad, slightly tapering distally. Pereopods 3 to 7, dactyli short. Pereopod 4, coxa as deep as wide. Pereopod 7, basis expanded posteriorly, length of anterior margin subequal to breadth, posteroventral lobe well-developed, posterior margin serrate, posteroventral margin straight; merus expanded posteriorly, posterior margin serrate; carpus, anterior margin continuously setose; propodus elongate, anterior margin with nine tufts of slender setae.

Pleonite 3 with anterodorsal notch. Epimeral plates 1 and 2 with triangular ventral process present. Epimeral plate 1, anteroventral margin with a group of slender setae; posterior margin naked. Epimeral plate 2, ventral margin naked; posterior margin with a distal tuft of slender setae; Epimeral plate 3, ventral margin naked; posterior margin with a distal small spine; posteroventral corner broadly rounded. Urosomite 1 not dorsodistally produced over urosomite 2. Uropod 3, peduncle short, length 1.7 times breadth, without dorsolateral flange, without medial stout setae; both rami with plumose slender setae and small stout setae on lateral margin; inner ramus with a subarticulated apical point; outer ramus slightly longer than inner ramus, 2-articulate; article two reduced, rounded. Telson very longer than broad, deeply cleft, tapering distally.

Remarks

The material examined has all the diagnostic characters defining the species *E. gryllus*: anterodorsal margin of head smooth; gnathopod 1 with basis 2.5 times longer than broad, and propodus tapering distally; pereopods 3 to 7 with dactyli shortened; basis of pereopod 7 with anterior margin as long as broad, and posteroventral margin straight; pleonite 3 with anterodorsal notch present; epimeral plate 3 with posteroventral corner rounded; urosomite 1 not produced over urosomite 2; and uropod 3 without medial stout seta on peduncle. From those characters listed above, just one of them is exclusive to this species, the posteroventral corner rounded in the epimeral plate 3. Stoddart and Lowry (2004) define that the absence of any medial stout seta on peduncle of the uropod 3 is an exclusive character state for *E. gryllus*. However, the Brazilian material of *E. obesus*, the other widespread eurytheneid species analyzed by Senna and Serejo (2008), do not present that ornamentation too.

Stoddart and Lowry (2004) redescribe the species *E. gryllus* based in three different specimens, the holotype of *Gammarus gryllus* Lichtenstein in Mandt, 1822, the holotype of *Lysianassa magellanica* Milne Edwards, 1848, and one specimen of Lilljeborg (1865a) used to establish the genus *Eurythenes*. Those three specimens show many morphological differences, for example in the gnathopod 1 palm. The gnathopod 1 palm in the Lichtenstein's and the Lilljeborg's specimens is small and straight, while that in the Milne Edwards' specimen is very small and convex. The Brazilian specimens of *E. gryllus* present the gnathopod 1 palm similar to that in the Milne Edwards' specimen, very small and slightly convex.

On the other hand, the Brazilian material shows some differences from all three specimens described by Stoddart and Lowry (2004). Their eyes are well apparent, discolored in ethanol. All previously recorded specimens of *E. gryllus* have eyes not apparent, like as in the other species of the *Eurythenes*. Stoddart and Lowry (2004) describe the eyes of *E. thurstoni* as an irregular area, without ommatidia, and completely disappeared when preserved in ethanol.

The pattern of cuspidation on setal-teeth of the outer plate of maxilla 1 in the Brazilian specimens is not the same in the Milne Edwards' and the Lilljeborg's specimens. The ST1 to ST3 are non-cuspidate, the ST6 is 2-cuspidate, and the STC presents a concavity between its two proximal cusps. The Lichtenstein's specimen was illustrated by Goes (1866), but he did not illustrate the mouthparts, that were removed and vanished.

An additional character which differs the Brazilian material from the other known specimens is the posterior margin of the epimeral plate 3 with a distal small spine. All the other described specimens of *E. gryllus* do not bear this spine.

Distribution

Eurythenes gryllus is a cosmopolitan lysianasoid species recorded for all oceans of the world, with a particular exception to the Mediterranean Sea. In the Brazilian waters, this species was collected in five sampling sites, one of them from the stomach of a shark, between 13°S and 20°S, off Bahia State and Espírito Santo State, central coast of Brazil (Fig. 4).

***Eurythenes obesus* (Chevreux, 1905)
(Fig. 3)**

Katius obesus: Chevreux, 1905: 1, figs. 1-3; 1935: 63; Stebbing, 1906: 721; Tattersall, 1906: 29; 1909: 210; Stephensen, 1912a: 89; 1912b: 614; 1913: 123; 1915: 37; 1925: 126; 1933: 12, 13, 18, figs. 6, 7; Shoemaker, 1920: 8E; 1956: 177; Schellenberg, 1926: 217, fig. 26d; 1927: 681, fig. 72; 1931: 16; K.H. Barnard, 1932: 56, fig. 21, pl. 1, fig. 1; Belloc, 1960: 7; Costello *et al.*, 1989: 32.

Eurythenes obesus: Schellenberg, 1955: 183, 192; Shoemaker, 1956: 178; J.L. Barnard, 1958: 92; 1961: 38, fig. 8; Birstein and Vinogradov, 1960: 184; 1962: 36; 1964: 163; 1970: 420, tab. 1; Hurley, 1963: 59; Brusca, 1967: 384; Imber, 1973: 652; Bellan-Santini and Ledoyer, 1974: 681, pl. 25; Griffiths, 1975: 145; 1976: 56, 100; Lowry and Bullock, 1976: 89; Ortiz, 1979: 19; Andres, 1983: 186; 1987: 96, 97; Umezu, 1984: 128; Hopkins, 1985: 202; Costello *et al.*, 1989: 32; Barnard and Karaman, 1991: 486; Boudrias, 1991: 13; Palerud and Vader, 1991: 35; De Broyer and Jazdzewski, 1993: 68; Kaufmann,

1994: 54; Piatkowski *et al.*, 1994: 19, tab. 1; Thurston and Bett, 1995: 201; Johnson *et al.*, 2001: 198, tab. 3; Cherel *et al.*, 2002a: 268, tab. 3; 2002b: 288, tab. 3, 292, tab. 4; Stoddart and Lowry, 2004: 445; Senna and Serejo, 2008: 374, figs. 1, 2.

Eurythenes gryllus: K.H. Barnard, 1940: 440, 515; Springer and Bullis, 1956: 6.

Eurythenes gryllus: Stephensen, 1932: 356 (in part).

Material examined

Brazil. 1 female, REVIZEE Program, Score central, campaign Covos, #8176, 16°27,995'S-38°27,160'W, 728 m to 809 m depth, 10.iv.2001, *N/Pq Diadorim* col., baited traps, MNRJ 19268.

Diagnosis

Anterodorsal margin of head smooth. Gnathopod 1 parachelate; basis length 2 to 2.5 times its breadth; propodus slightly tapering distally. Pereopods 3 to 7, dactyli elongate. Pereopod 4, coxa as deep as wide. Pereopod 7, basis, length of anterior margin subequal to breadth; posteroventral

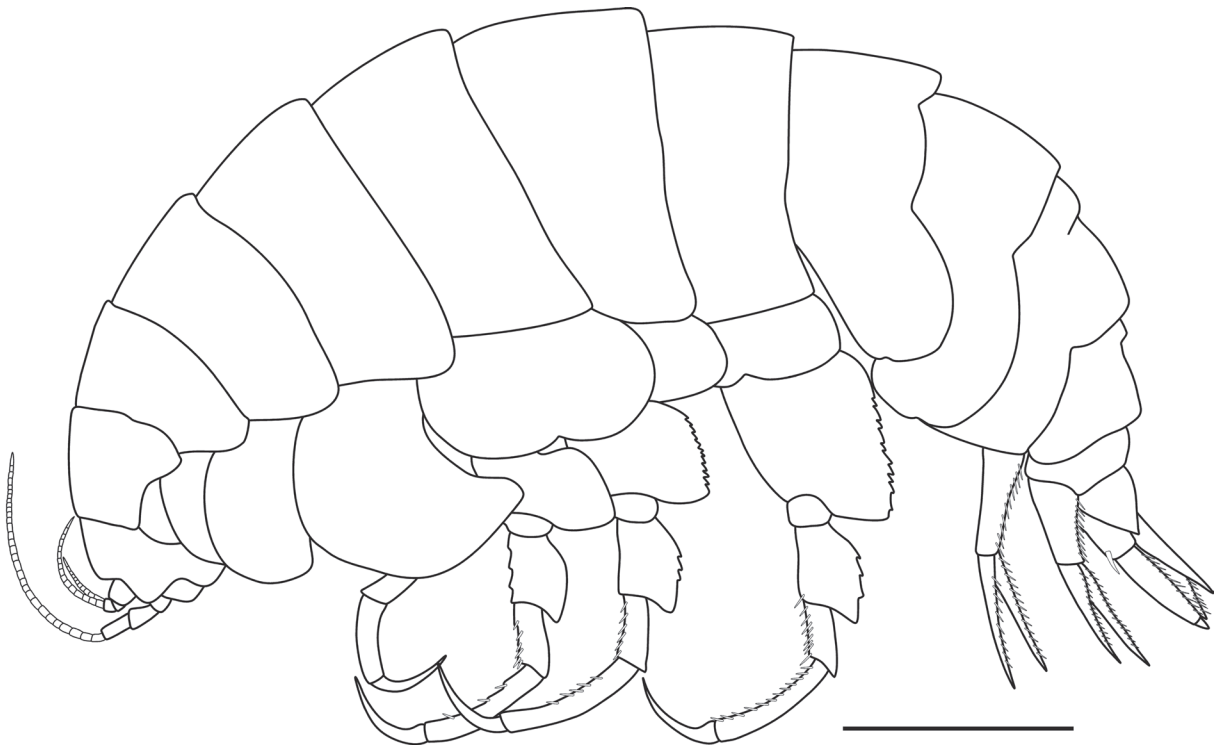


Figure 3. *Eurythenes obesus*, female, REVIZEE Program, 16°27,995'S-38°27,160'W, 728 m to 809 m depth, MNRJ 19268. Scale bar: 10 mm.

margin rounded. Pleonite 3 with anterodorsal notch. Epimeral plate 3, posteroventral corner subquadrate. Urosomite 1 not dorsodistally produced over urosomite 2. Uropod 3 peduncle, medial face with or without robust setae. (Table I).

Modified from Senna and Serejo (2008).

Description

A complete description of *E. obesus*, based on the Brazilian material, is found in Senna and Serejo (2008).

Remarks

Eurythenes obesus was previously recorded to Brazil by Senna and Serejo (2008) when Brazilian material was compared with the description of the neotype specimen, designated by Stoddart and Lowry (2004) from NE Cabo Verde Islands, and some morphological differences were noticed by

the authors. *Eurythenes obesus* is similar to *E. gryllus* in presenting the anterodorsal margin of the head smooth, gnathopod 1 with basis length 2 to 2.5 times breadth and propodus slightly tapering distally, coxa of pereopod 4 as deep as wide, anterior margin of the pereopod 7 basis with length subequal to breadth, pleonite 3 with anterodorsal notch present, and urosomite 1 not produced over urosomite 2. On the other hand, *E. obesus* is unlike to *E. gryllus* on the pereopods 3 to 7 with dactyli elongate, the pereopod 7 basis with posteroventral margin rounded, the epimeral plate 3 with posteroventral corner subquadrate, and the medial face of the uropod 3 peduncle that can bear a stout seta. The diagnostic characters states that distinguish the three species grouped in the genus are presented on Table I.

In this paper, *E. obesus* has an additional record from off the southern Bahia State coast. This is the northern record of *E. obesus* from Brazilian waters, seeing that this species has previous record from Brazil, known only to the Campos Basin, off the Rio de Janeiro State coast.

The life habits of *E. obesus* are not very known, and Stoddart and Lowry (2004) cite that it has never been taken in baited traps. However, the material of the new record cited above, was taken exactly at that rate, being the foremost occurrence of this species collected by this method.

Distribution

Eurythenes obesus is a cosmopolitan lysianasoid species. It is recorded from the North and South Atlantic Ocean, Indian Ocean, North Pacific, and Australia. In Brazil, this species was previously recorded from Campos Basin, off Rio de Janeiro State, 22°S-39°W. In this paper, *E. obesus* has a further record from Brazilian waters, off Bahia State, in a single sampling site, 16°27,995'S-38°27,160'W (Fig. 4).

Acknowledgements

I would like to thank *Petróleo Brasileiro S/A* (PETROBRAS) for providing the material and *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES) for fellowship. I am also grateful to Danielle Cintra, *Pontifícia Universidade Católica do Rio de Janeiro*, for help me with the map, and to the anonymous referees for valuable comments on the manuscript.

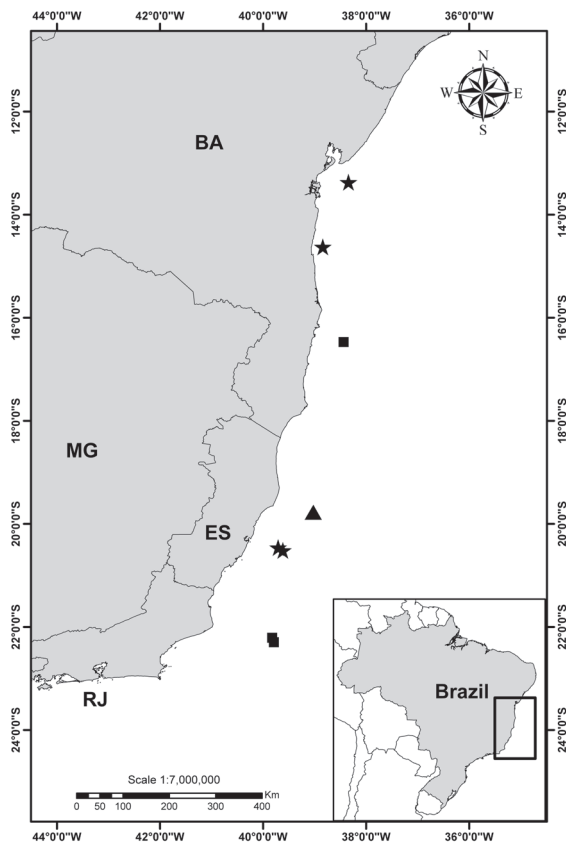


Figure 4. Distribution of *Eurythenes* species in Brazilian waters: star, *E. gryllus* collected by ARROW trawl; triangle, *E. gryllus* from stomach of shark; square, *E. obesus*.

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Submitted: 30/03/2009

Accepted: 25/05/2009