

A new species of *Oradarea* and notes on some other eusirids from Antarctica (Crustacea, Amphipoda)

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Abstract: A new species of Antarctic Eusiridae, *Oradarea crenelata* sp. nov., is described and illustrated. New data on morphology are reported for the eusirids *Liouvillea oculata*, *Eurymera monticulosa* and *Bovallia gigantea*, also recorded in the Antarctic region.

Résumé : Une nouvelle espèce d'Eusiridae Antarctique, *Oradarea crenelata* sp. nov., est décrite et figurée en totalité. De plus l'auteur ajoute quelques caractères intéressants qui n'avaient pas été signalés sur la morphologie des Eusiridae *Liouvillea oculata*, *Eurymera monticulosa* et *Bovallia gigantea*, provenant aussi de la Région Antarctique.

Keywords: Crustacea, Amphipoda, Eusiridae, Taxonomy, Antarctica.

Introduction

The purpose of the present study is to describe and illustrate the eusirid *Oradarea crenelata* n. sp., and to document the variability and/or provide partial redescriptions of *Liouvillea oculata* Chevreux, 1912, *Eurymera monticulosa* Pfeffer, 1888 and *Bovallia gigantea* Pfeffer, 1888, also members of the Eusiridae.

These Antarctic amphipods, including species of *Oradarea* Walker, 1903, are widely distributed and their zoogeographical ranges have been well-documented in recent years (Thurston, 1974a, 1974b; Lowry & Bullock, 1976; De Broyer & Jazdzewski, 1993). Although not mentioned in the latter work, *E. monticulosa* and *B. gigantea* were recorded previously in the South Shetland Islands from Potter Cove on King George Island by Casaux *et al* (1990).

Material and methods

Most of the present specimens were collected adventitiously by means of acrylic traps left on rocky bottom at 10 meters depth. These traps contained stones to allow the colonization of the benthic communities.

Length measurements are the distance between the tip of the rostrum and the tip of the telson on the straightened animal.

The material has been deposited at the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN), Buenos Aires.

Oradarea crenelata n. sp.
(Figs 1-32)

Material examined: South Shetland Islands, King George Island: Potter Cove (Scientific Station Jubany: 62°14'S, 58°40'W), 10 m depth, February 1992; female holotype with medium-sized non-setose oostegites (MACN # 33875). Material collected by the diver G. Mercuri and donated by F. Momo.

Description of the holotype

A small species, female with oostegites, ca 9 mm.

Body light brown in alcohol. Integument with regular scales, uniformly distributed on all segments of peraeon and pleon (Fig. 1) Peraeon, segment 7 without tooth. Pleon, segments 1-3 not carinate; segment 1 produced dorsally into a small sub-acute tooth, segment 2 with a slightly larger dorsal acute tooth, segment 3 dorsally and posteriorly well-rounded in profile (Figs 2, 3).

Head (Fig. 4), rostrum reaching about 1/3 the length of peduncle article 1 on antenna 1, with apex slightly downturned; lateral cephalic lobes rounded, rather produced downward; antennal lobes produced, sub-acute; notch between lobes rather deep, incised. Eyes sub-circular, large, major diameter about half the height of head; colour in alcohol dark red.

Antennae 1-2 elongate. Antenna 1 (Fig. 5), flagellum broken at 64th article. Antenna 2 (Fig. 6), flagellum broken at 70th article. Upper lip apically rounded, finely setose (Fig. 7). Right mandible, molar and incisor as figured (Figs 8, 9); palp, article 3 with apex obliquely truncate (Fig. 10). Lower lip (Fig. 11) without inner lobes; outer lobes, apically sub-rounded, almost triangular. Maxilla 1 (Figs 12, 13), inner lobe with distalmost seta as thick as adjacent setae; outer plate bearing 11 spines. Maxilla 2 (Fig. 14), oblique row of setae on inner lobe. Maxilliped (Fig. 15), palp article 3 distally widened, produced into a small lobe, with a notch distally, and the apex, at the base of article 4, narrower.

Gnathopod 1 (Figs 16, 17), coxa ovate, widened distally; carpus about 2/3 as long as propodus; propodus sub-rectangular, palm oblique and not concave, with palmar corner rounded, defined by one socketed spine; dactylus over-reaching palmar angle. Gnathopod 2 (Figs 18, 19), carpus about 4/5 as long as propodus, with posterior margin setose; propodus elongate, moderately stout, densely setose, slightly expanded distally, with palm nearly transverse, almost straight, bearing 2 socketed spines at palmar corner.

Peraeopods 3-7 with carpus, propodus and dactylus missing, moderately stout, relatively short (Figs 20-24).

Epimeron 1 (Fig. 25), posterodistal angle with a small, sub-acute tooth. Epimeron 2 (Fig. 26), posterior margin concave, posteroventral angle produced into an acute tooth. Epimeron 3 (Fig. 27), ventral margin strongly convex, posterior margin slightly convex, posterodistal angle with a small upturned acute tooth.

Uropods 1-2 as figured (Figs 28, 29). Uropod 3, outer ramus approximately 85 percent as long as inner ramus (Figs 30, 31). Telson (Fig. 32), rather broad, length ca 1.2 times width; apex rounded, with irregular crenellations.

Etymology: the specific name refers to the telson crenellations.

Remarks: Revisions of the species content of *Oradarea* Walker, 1903 appeared necessary considering the different

concepts of this genus (Thurston, 1974a; Barnard & Karaman, 1991) to which a varying number of species has been assigned. An examination of boreal and deep-sea species, in relation to the Antarctic ones, is required but is beyond the scope of this paper.

Thurston (1974a) elaborated a key to the recognized Antarctic and Subantarctic species of *Oradarea*. Since then, only one more species, described in the present contribution, has been added to the genus.

Oradarea crenelata n. sp. resembles *O. bidentata* Barnard, 1932 and *O. ocellata* Thurston, 1974a by the peraeon and pleon dorsal teeth formula; the general aspect of the head is similar with *O. ocellata*. It is distinguished from the first species by the shape of the lateral cephalic lobes, the prolonged antennal lobes, the somewhat expanded distal part of the propodus on gnathopod 2 and the crenelate apex of the telson. It can be separated from the second species primarily in having much larger eyes, the palm of gnathopod 2 slightly convex, and by the type and number of crenellations on apex of telson.

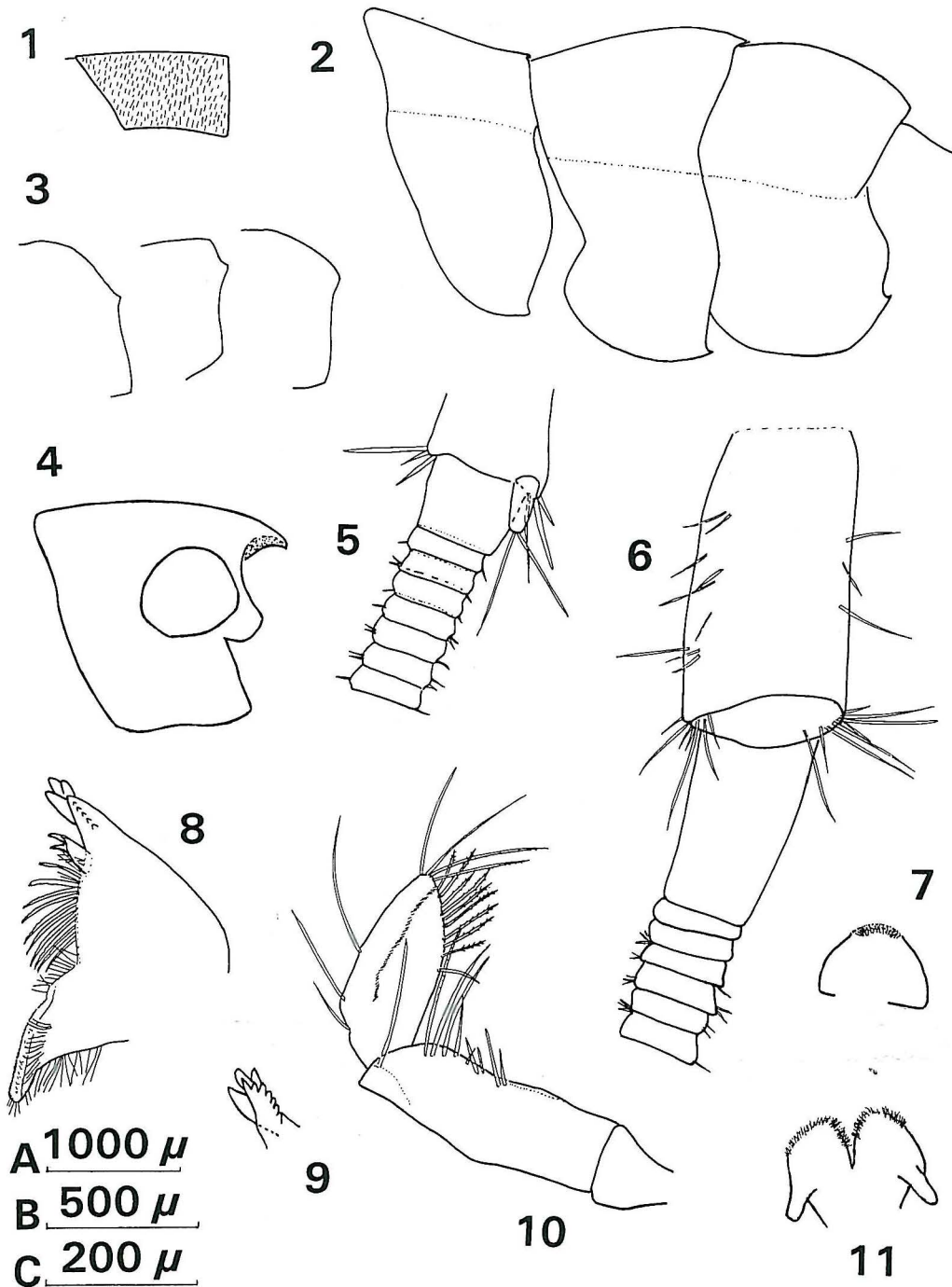
Liouvillea oculata Chevreux, 1912 (Figs 33-38)

Liouvillea oculata Chevreux, 1912: 214.

Liouvillea oculata: Chevreux, 1913: 139-142, figs. 34-36; Barnard, 1932: 152; Thurston, 1974a: 71-72, figs. 29 f, g.

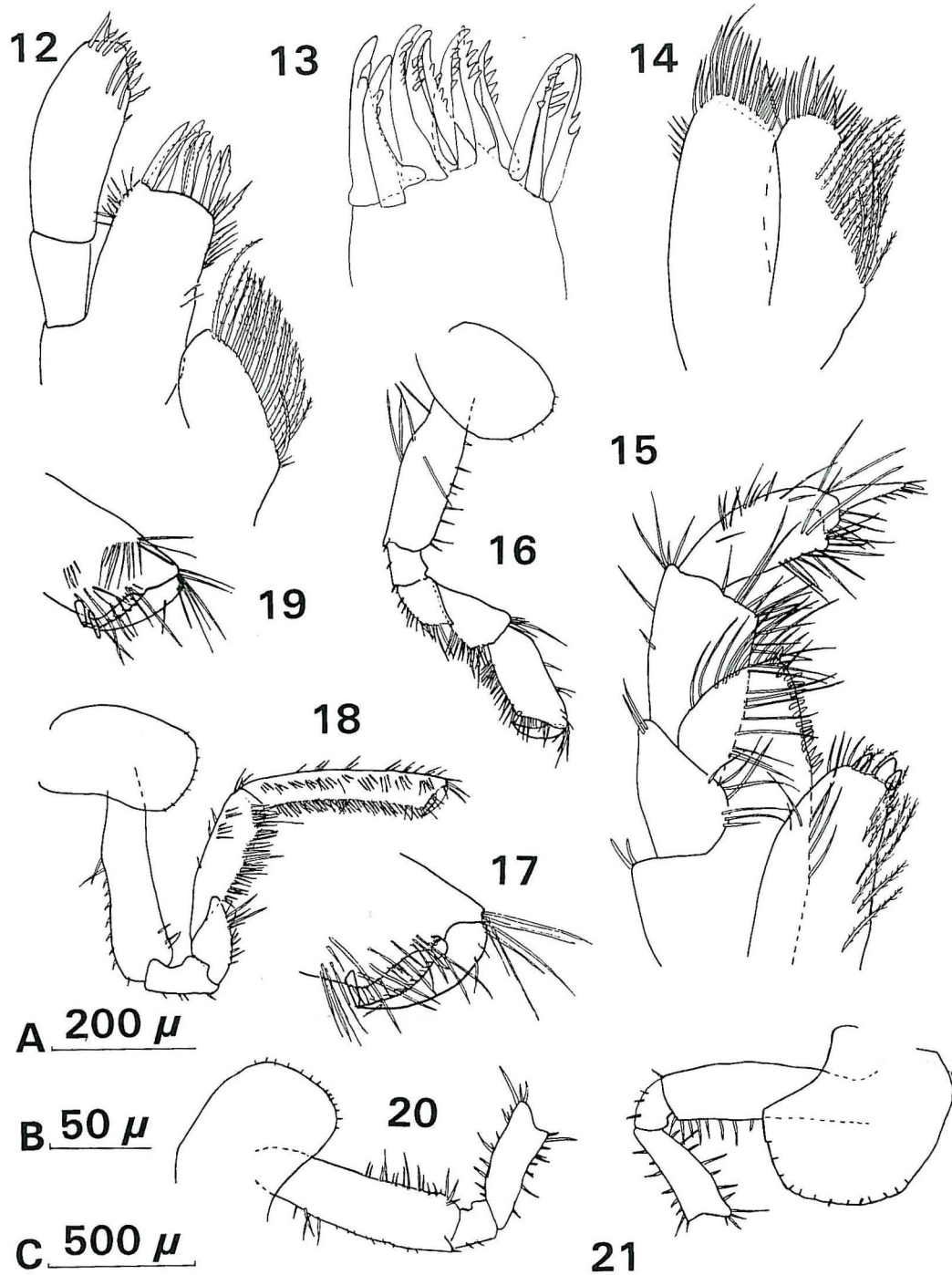
Material examined: Paradise Harbour (64°53'S, 62°53'W); 1977; one ovigerous female of 16 mm length dissected (MACN # 33876), one ovigerous female of 17 mm length (MACN # 33877). Material donated by D. Vergani.

Remarks: The studied material is considerably larger than Chevreux's examples but within the size range of specimens studied by Barnard (1932) and Thurston (1974a). Both ovigerous females agree broadly with the specimen described by Chevreux (1913), but differ in some morphological characters. The body of the present specimen bears a small triangular dorsal projection on peraeonite 7 (Figs 33, 34) and an acute dorsal tooth with carina on segment 1 of the pleon (Fig. 34) contrasting with larger acute teeth dorsally on peraeonite 7 and pleonite 1 and a rounded tooth on pleonite 2 on Chevreux's material. Epimeron 2 posterolateral angle is sharply produced (Fig. 35), a character not described or figured by Chevreux. The right and left mandibles (Figs 36, 37) have incisors with 5-6 and 5 teeth and the lacinia mobilis with 3 and 4 teeth, respectively, instead of incisors with 3 and 4 teeth and lacinia mobilis tridentate in both right and left mandibles as described by Chevreux. The right and left inner lobes of maxillae 1 have 9 setae rather than 5 and 7 setae as described by Chevreux (Fig. 38).



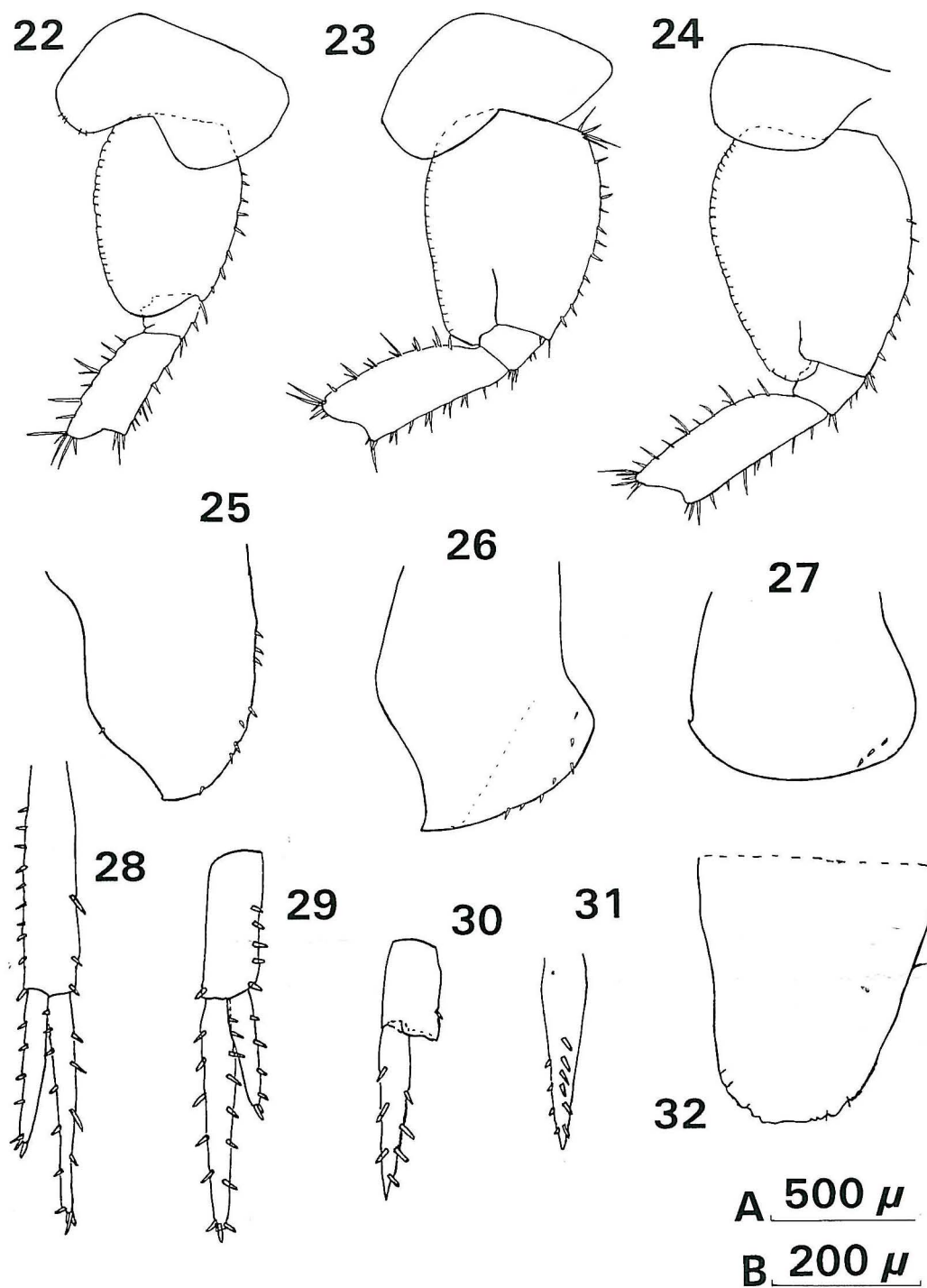
Figures 1-11. *Oradarea crenelata* n. sp. Holotype female: 1, integument (peraeonite 7); 2, pleosome (lateral view); 3, pleonites 1-3 (dorsal view); 4, head; 5, 6, antennae 1, 2; 7, upper lip; 8, mandible; 9, incisor (detail); 10, mandibular palp; 11, lower lip. Scales: A, Figs 1, 2; B, Figs 3, 4, 7, 11; C, Figs 5, 6, 8-10.

Figures 1-11. *Oradarea crenelata* n. sp. Holotype femelle : 1, tégument (péréionite 7) ; 2, pléosome (vue latérale) ; 3, pléonites 1-3 (vue dorsale) ; 4, tête ; 5, 6, antennes 1, 2 ; 7, lèvres supérieure ; 8, mandibule ; 9, processus incisif ; 10, palpe mandibulaire ; 11, lèvres inférieure. Echelles : A, Figs 1, 2 ; B, Figs 3, 4, 7, 11 ; C, Figs 5, 6, 8-10.



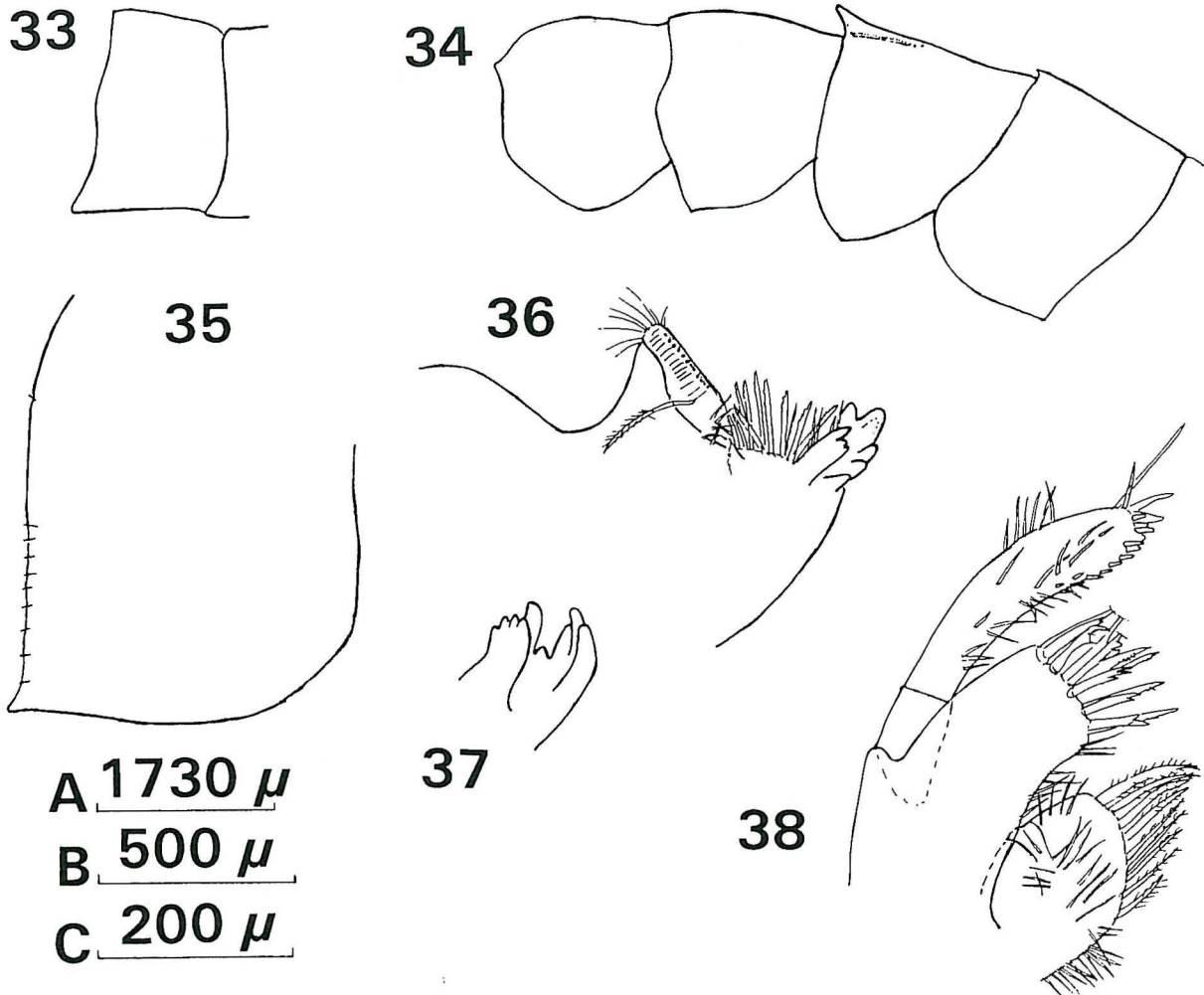
Figures 12-21. *Oradarea crenelata* n. sp. Holotype female: 12, maxilla 1; 13, outer plate of maxilla 1; 14, maxilla 2; 15, maxilliped; 16, gnathopod 1; 17, propodus of gnathopod 1; 18, gnathopod 2; 19, propodus of gnathopod 2; 20, 21, peraeopods 3, 4 (broken). Scales: A, Figs 12, 14, 15, 17, 19; B, Fig. 13; C, Figs 16, 18, 20, 21.

Figures 12-21. *Oradarea crenelata* n. sp. Holotype femelle : 12, maxille 1 ; 13, lobe externe de la maxille 1 ; 14, maxille 2 ; 15, maxillipède ; 16, gnathopode 1 ; 17, propode du gnathopode 1 ; 18, gnathopode 2 ; 19, propode du gnathopode 2 ; 20, 21, péréiopodes 3, 4 (incomplets). Echelles : A, Figs 12, 14, 15, 17, 19 ; B, Fig. 13 ; C, Figs 16, 18, 20, 21.



Figures 22-32. *Oradarea crenelata* n. sp. Holotype female: 22-24, peraeopods 5-7 (broken); 25-27, epimera 1-3; 28, 29, uropods 1, 2; 30, uropod 3 (broken); 31, inner ramus of uropod 3; 32, telson. Scales: A, Figs 22-31; B, Fig. 32.

Figures 22-32. *Oradarea crenelata* n. sp. Holotype femelle : 22-24, périopodes 5-7 (incomplets) ; 25-27, plaques épimérales 1-3 ; 28, 29, uropodes 1, 2 ; 30, uropode 3 (incomplet) ; 31, rame interne de l'uropode 3 ; 32, telson. Echelles : A, Figs 22-31 ; B, Fig. 32.



Figures 33-38. *Liouvillea oculata* Chevreux, 1912. Ovigerous female: 33, peraeonite 7 (dorsal view); 34, peraeonite 7 and pleosome (lateral view); 35, epimeron 2; 36, right mandible; 37, left incisor and lacinia mobilis; 38, maxilla 1. Scales: A, Figs 33, 34; B, Fig. 35; C, Figs 36-38.

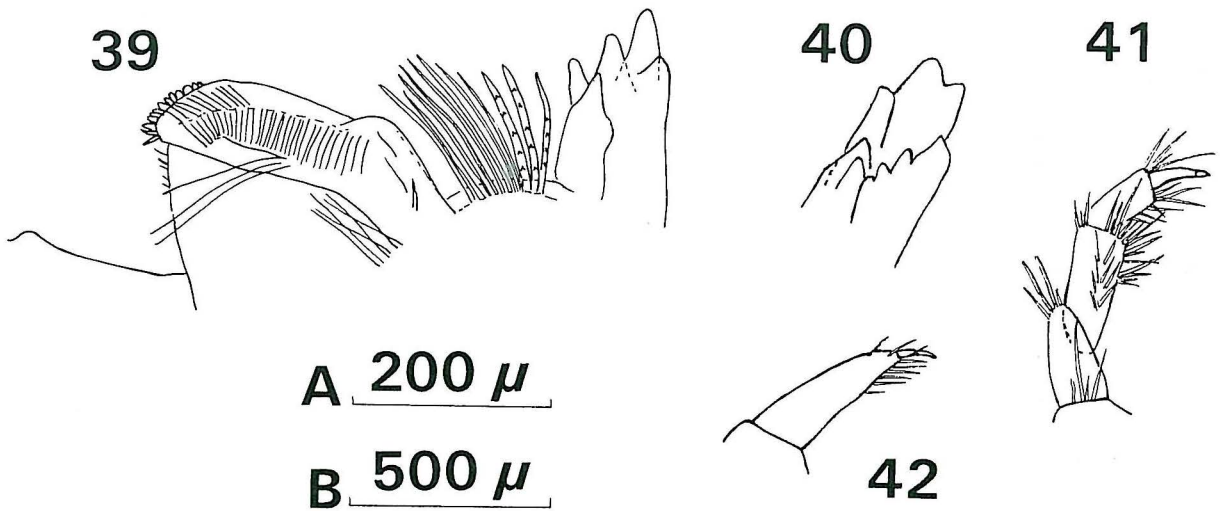
Figures 33-38. *Liouvillea oculata* Chevreux, 1912. Femelle ovigère : 33, péréionite 7 (vue dorsale) ; 34, péréionite 7 et pléosome (vue latérale) ; 35, plaque épimérale 2 ; 36, mandibule droite ; 37, processus incisif gauche et lacinia mobilis ; 38, maxille 1. Echelles : A, Figs 33, 34 ; B, Fig. 35 ; C, Figs 36-38.

Barnard (1932) observed some variations with regard to the dorsal body teeth in his specimens, which were also larger than Chevreux's, in that the tooth on peraeonite 7 was nearly or quite obsolete, and the tooth on pleonite 1 was present in some specimens and absent in others. The grooves noted by Barnard (op. cit.) and Thurston (1974a), are also present in the examined material, but they are shallow and only on the pleon segments. Thurston (op. cit.) remarked that both right and left maxillae 1 have their inner lobes armed with 9 setae. These differences may result from the size difference between Chevreux's specimen (9 mm curled, ca 12 mm straightened) and the larger specimens described by Barnard, Thurston or here.

Eurymera monticulosa Pfeffer, 1888
(Figs 39-42)

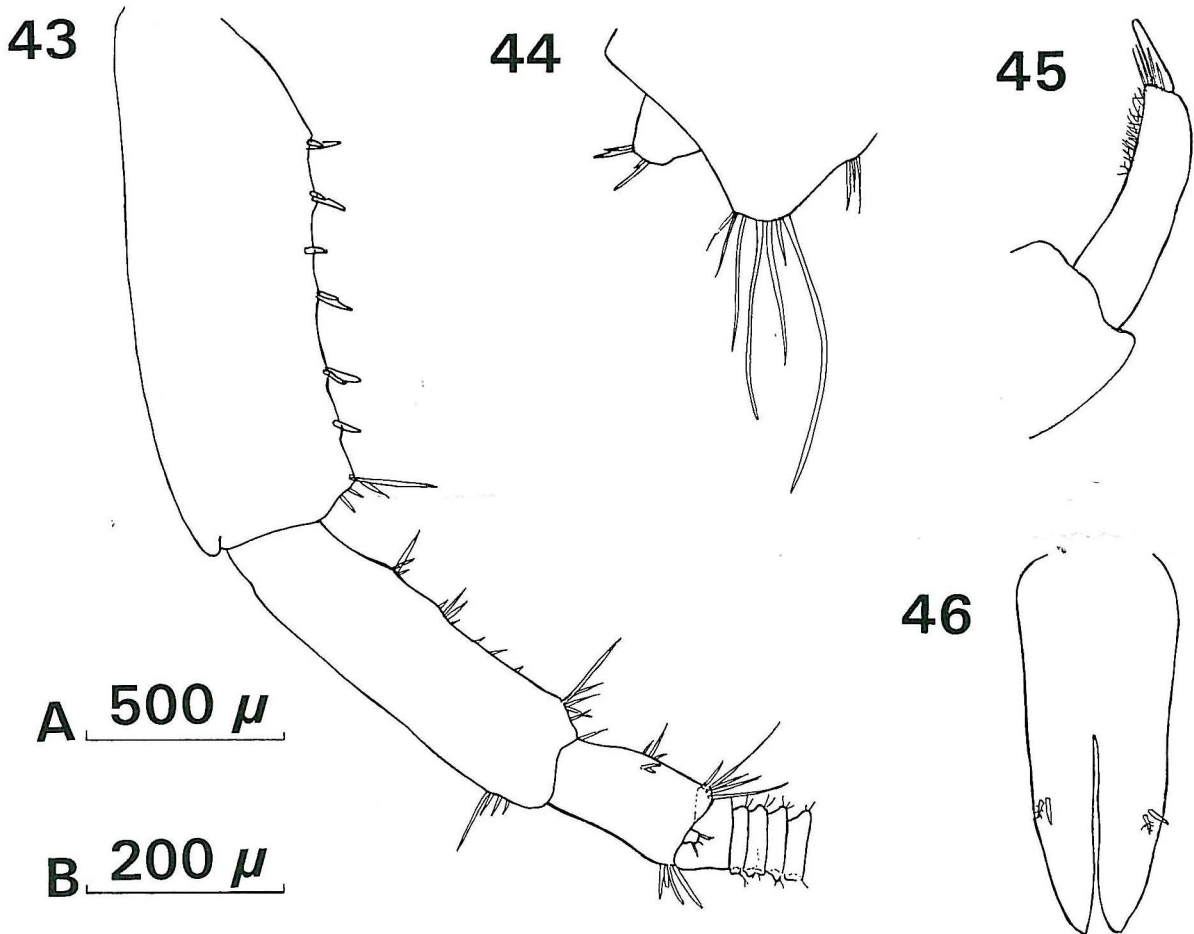
Eurymera monticulosa Pfeffer, 1888: 103-110, taf. 1, fig. 3.
Eurymera monticulosa: Chevreux, 1906: 59-64, figs. 34-36; Stebbing, 1906: 357; Thurston, 1974a: 84-85.

Material examined: South Shetland Islands, King George Island: Potter Cove (Scientific Station Jubany: 62°14'S, 58°40'W), 10 m depth, February 1992; one female with large non-setose oostegites of 23 mm length (MACN # 33878). Material collected by the diver G. Mercuri and donated by F. Momo.



Figures 39-42. *Eurymera monticulosa* Pfeffer, 1888. Adult female: 39, right mandible; 40, left incisor and lacinia mobilis; 41, maxillipedal palp; 42 fourth article of maxillipedal palp. Scales: A, Figs 39, 40, 42; B, Fig. 41.

Figures 39-42. *Eurymera monticulosa* Pfeffer, 1888. Femelle adulte : 39, mandibule droite ; 40, processus incisif gauche et lacinia mobilis ; 41, palpe du maxillipède ; 42, 4^e article du palpe du maxillipède. Echelles : A, Figs 39, 40, 42 ; B, Fig. 41.



Figures 43-46. *Bovallia gigantea* Pfeffer, 1888. Adult male: 43, antenna 1; 44, accessory flagellum of antenna 1; 45, fourth article of maxillipedal palp; 46, telson. Scales: A, Figs 43, 46; B, Figs 44, 45.

Figures 43-46. *Bovallia gigantea* Pfeffer, 1888. Mâle adulte : 43, antenne 1 ; 44, flagelle accessoire de l'antenne 1 ; 45, 4^e article du palpe du maxillipède ; 46, telson. Echelles : A, Figs 43, 46 ; B, Figs 44, 45.

Remarks: This species agrees with the specimens described and figured by Pfeffer (1888) and Chevreux (1906). The illustrations presented herein show some morphological characters in greater detail. Thus, the right and left mandibles (Figs 39, 40) have incisors with 4 and 5 teeth respectively, and the lacinia mobilis has an irregular shape on the right mandible and 4 teeth on the left; Chevreux (1906) found that the lacinia mobilis had 2 teeth in both right and left mandibles. The maxilliped bears an apical nail on palp article 4 (Figs 41, 42). This character is neither figured nor described by Pfeffer (1888) or Chevreux (1906).

Bovallia gigantea Pfeffer, 1888
(Figs 43-46)

Bovallia gigantea Pfeffer, 1888: 96-102, taf. 1, fig. 5.

Bovallia gigantea: Chevreux, 1906: 54-59, figs. 31-33; Schellenberg, 1929: 277; 1931: 180-181, figs. 92 a, b; Barnard, 1932: 196-197, fig. 118 a; Thurston, 1974a: 86-87.

Material examined: South Shetland Islands, King George Island: Potter Cove (Scientific Station Jubany: 62°14'S, 58°40'W), 10 m depth, February 1992; one male with genital papillae of 22 mm length (MACN # 33879). Material collected by the diver G. Mercuri and donated by F. Momo.

Remarks: The male studied does not show any sexual dimorphism when compared to the female figured by Chevreux (1906).

The antenna 1, peduncle article 3 bears an accessory flagellum composed of one small article (Figs 43, 44). The maxilliped palp article 4 has its inner margin spinose and bears an apical nail (Fig. 45). The telson is armed by a couple of lateral setae on the distal third of each half (Fig. 46).

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