

A REVIEW OF THE GENUS *LEONTOCARIS* (CRUSTACEA: CARIDEA: HIPPOLYTIDAE)
WITH DESCRIPTIONS OF THREE SPECIES FROM SOUTHEASTERN AUSTRALIAN
SEAMOUNTS AND SLOPE

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Abstract

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The genus *Leontocaris* and its species are diagnosed. *Leontocaris bulga* sp. nov. and *Leontocaris yarramundi* sp. nov. are described and illustrated, compared with four other species of the genus, and a key for their identification provided. New observations of *L. amplexipes* Bruce, 1990 are made from new material from seamounts southeast of Tasmania.

Introduction

Leontocaris Stebbing, 1905, a small genus of hippolytid caridean shrimps, comprises *L. paulsoni* Stebbing, 1905 from 240–265 m off South Africa (Barnard, 1950), *L. lar* Kemp, 1906 from 1000–1300 m from the northwest Atlantic Ocean off Ireland, *L. pacificus* Zarenkov, 1976 from 680–700 m from the Pacific Ocean off western South America and *L. amplexipes* Bruce, 1990 from 1000 m off southeastern Australia. Bruce (1990) reviewed the genus and provided a key to three species. He discussed the possible association of the species with cnidarians.

A small collection of hippolytid shrimps from seamounts (750–1450 m depth) southeast of Tasmania contains additional specimens of *Leontocaris* belonging to three species. Here, two new species are described, one on the basis of five specimens, and another on the basis of a carapace and anterior limbs. We take the opportunity to rediagnose *L. amplexipes* in the light of new material and the other species so far described. All species of *Leontocaris* possess a tympanum or thinning of the exoskeleton on the inner surface of the propodus of pereopod 2. The size of this varies between species and may play a part in extension of the folded limb.

Abbreviations are: cl., carapace length; NMV, Museum of Victoria, Melbourne; TM, Tasmanian Museum, Hobart, where material is lodged. In habitus drawings pereopods were drawn after separation from the body and flattened.

***Leontocaris* Stebbing**

Leontocaris Stebbing, 1905: 98–99.—Barnard, 1950: 699.

Diagnosis. Pereopods without arthrobranchs. Mandible with incisor and 1- or 2-articulate palp. Maxilliped 3 without exopod or epipod. Epipods present only on maxilliped 1 and 2. Rostrum half as long or as long as carapace. Supraorbital spine absent. Pereopod 1 slender, carpus elongate. Pereopod 2 strongly asymmetrical, carpus 4-segmented. Major pereopod 2 with elongate and robust propodus and enlarged, chopper-shaped dactylus. Pereopods without arthrobranchs. Maxillipeds 2–3 and pereopods 1–4 with pleurobranchs.

Remarks. Barnard's (1950) generic diagnosis stated that the mandibular palp is small and uniarticulate. We amend that to allow the 2-articulate palp seen in *Leontocaris bulga* sp. nov.

Kemp (1910) reported a thin-walled sausage-shaped structure in the groove on the inner margin of the propodus of the major pereopod 2. This area of thin exoskeleton or tympanum is surrounded by what appear to be minute villi. The long proximal segment of the carpus lies in this groove when the limb is folded and is held in place by the merus which interacts with the groove. The size and shape of the tympanum differs between species, being elongate in most but only a small circular structure in *L. amplexipes*. What function, if any, this structure plays in the assumed rapid extension of the pereopod remains to be investigated.

Key to species of *Leontocaris*

1. Rostrum with 4–16 dorsal teeth, 2–4 in epigastric region; mandibular palp 1-articulate; scaphocerite with 11–21 marginal teeth.....2
- Rostrum with >19 dorsal teeth, 1 in epigastric region; mandibular palp 2-articulate; scaphocerite with 26 marginal teeth.....*L. bulga* sp. nov.
2. Rostrum 1.0–1.46 times carapace length, with 8 or more ventral teeth; ambulatory pereopods with dactylus between 0.1 and 0.25 of propodus length; exopod of uropod distolaterally serrate.....3
- Rostrum 0.58–0.85 of carapace length, with 2–4 ventral teeth; ambulatory pereopods with dactylus about 0.5 of propodus length; exopod of uropod distolaterally entire, with small mobile spine only.....*L. amplexipes* Bruce
3. Telson with 4–5 pairs of marginal dorsal spines and 2–3 pairs of terminal spines.....4
- Telson with 7 pairs of marginal dorsal spines and 1 pair of terminal spines.....*L. pacificus* Zarenkov
4. Inferior orbital angle acute; pereopod 2 with fixed finger teeth simple, pleuron of abdominal somite 5 with 1 posterior tooth; telson with 5 pairs of marginal dorsal spines.....5
- Inferior orbital angle blunt; pereopod 2 with fixed finger teeth denticulate, pleuron of abdominal somite 5 with 3 posterior teeth; telson with 4 pairs of marginal dorsal spines.....*L. yarramundi* sp. nov.
5. Rostrum with 9–10 dorsal teeth; distolateral tooth of scaphocerite small; cornea large; abdominal somite 3 without posterodorsal tooth; posterior margin of telson rounded.....*L. lar* Kemp
- Rostrum with 6 dorsal teeth; distolateral tooth of scaphocerite large; cornea small; abdominal somite 3 with posterodorsal tooth; posterior margin of telson bilid.....*L. paulsoni* Stebbing

Leontocaris amplexipes Bruce

Figure 1

Leontocaris amplexipes Bruce, 1990: 121–130, figs 1–6.

Material examined. Holotype, Victoria, S of Point Hicks (38°21.90'S, 149°20.00'E), 1000 m, WHOI epibenthic sled, G.C.B. Poore et al. on ORV *Franklin*, 23 Jul 1986 (stn SLOPE 32), NMV J41438 (2 specimens).

S of Point Hicks (38°19.60'S, 149°24.30'E), 930–951 m, rock, rubble, clay, sand, biogenic sediment, WHOI epibenthic sled, M.F. Gomon et al. on ORV *Franklin*, 23 Jul 1986 (stn SLOPE 33), NMV J41439 (2 specimens).

Other material, Tasmania, 82.6 km SSE of Southeast Cape, "J1" seamount (44°14.4'S, 147°21.6'E), 1200–1450 m, 27 Jan 1997 (stn SS01/97/40), NMV J41247 (5 specimens, cl. 5.0–9.6 mm), TM G3952 (5 specimens, cl. 6.5–8.8 mm), 70.0 km SSE of Southeast Cape, "Macka's" seamount (44°12.6'S, 147°03.0'E), 750–900 m, 29 Jan 1997 (stn SS01/97/52), NMV J41248 (1 specimen, cl. 8.0 mm), 65.1 km SSE of Southeast Cape, "Andy's" seamount (44°10.8'S, 146°59.4'E), 900–1100 m, 29 Jan 1997 (stn SS01/97/57), NMV J41249 (2 specimens, cl. 8.7 mm, 9.6 mm), 81.3 km SSE of Southeast Cape, "38" seamount (44°13.2'S, 147°22.8'E), 1140–1140 m, 30 Jan 1997 (stn SS01/97/58), NMV J41250 (1 specimen, cl. 8.4 mm), 82.9 km SSE of Southeast Cape, "Sister 1" seamount (44°16.2'S, 147°17.4'E), 1100–1122 m, 23 Jan 1997 (stn SS01/97/15), NMV J41251 (1 specimen, cl. 8.5 mm). All collected using epibenthic sled by T.N. Stranks et al. on FRV *Southern Surveyor*.

Victoria, S of Point Hicks (38°21.90'S, 149°20.00'E), 1000 m, WHOI epibenthic sled, G.C.B. Poore et al. on ORV *Franklin*, 23 Jul 1986 (stn SLOPE 32), NMV J41438 (2 specimens).

Diagnosis. Rostrum 0.58–0.85 of carapace length, shorter than antennular peduncle. Rostrum and carapace with 12–18 dorsal teeth (including 2–3 in epigastric region), and 2–4 ventral teeth. Inferior orbital angle blunt. Scaphocerite without strong distolateral tooth, with 11–15 marginal teeth. Cornea well developed, broader than stalk. Mandibular palp of 1 article. Major pereopod 2 with fixed finger short, stout, blunt, denticulate. Pereopod 3 with dactylus about 0.5 of propodus. Abdominal somite 3 posterodorsally unarmed. Abdominal somite 5 pleuron rounded, unarmed. Telson with 4 pairs of marginal dorsal spines; posterior margin broadly rounded, with 4 pairs of spines.

Remarks. The holotype falls within the variability of the rostrum in the new material. The number of ventral rostral teeth ranges from 2 to 4, the



Figure 1. *Leontocaris amplexitipes* Bruce, 1990, NMV J41247: major pereopod 2 chela, lateral view.

number of dorsal teeth on the carapace and rostrum ranges from 12 to 18 (2–3 in epigastric region). The rostrum of the holotype is 0.65 times the carapace length. The rostrum of the new material ranges from 0.58 to 0.85 of the carapace length. The scaphocerite is armed with 11–15 lateral teeth. Of the 12 complete specimens examined, six had the major pereopod 2 on the right, and six on the left.

The tympanum in the groove near the margin of the inner surface of the propodus of pereopod 2 is round, much smaller than other species, and does not seem to be surrounded by the villi seen in other species (Fig. 1). It was not illustrated by Bruce (1990).

Leontocaris amplexitipes is distinct from all other species of the genus in that the rostrum is much shorter than the carapace length and does not exceed the antenna 1 peduncle. In addition, the dactylus of pereopod 3 is about half of the carpal length whereas in all other species it is 0.12–0.25 carpal length.

The new material extends the range of the species from southeastern Victoria at 1000 m depth to seamounts off southeastern Tasmania at depths between 750 and 1450 m.

Leontocaris bulga sp. nov.

Figures 2–4

Material examined. Holotype. Tasmania, 94.5 km SSE of Southeast Cape, "V" seamount (44°24.0'S, 147°09.0'E), 1400–1650 m, epibenthic sled, T.N. Stranks et al. on FRV *Southern Surveyor*, 31 Jan 1997 (stn SS01/97/69), NMV J39938 (1 specimen without abdomen, el. 12.7 mm).

Diagnosis. Rostrum subequal to carapace length. Rostrum and carapace with >19 dorsal teeth (including 1 in epigastric region), and >11 ventral teeth. Inferior orbital angle rounded. Scaphocerite with 1 strong distolateral tooth and 26 marginal

teeth. Cornea well developed, broader than stalk. Mandibular palp of 2 articles. Major pereopod 2 with fixed finger short, stout, blunt, dentate. Pereopod 3 with dactylus about 0.13 of propodus length. Abdomen unknown.

Description. Carapace smooth; rostrum well developed, slightly inclined dorsally over distal two-thirds, subequal to carapace length, exceeding antennular peduncle and scaphocerite, extreme tip missing; rostrum with 19 acute dorsal teeth on carapace and rostrum, uniform in size, 1 occurring in the epigastric region; 11 ventral teeth; supraorbital and hepatic spines absent; inferior orbital angle produced, rounded; antennal spine well developed, submarginal, falling short of inferior orbital angle; anterolateral angle of branchiostegite broadly rounded, falling short of inferior orbital angle.

Abdomen unknown.

Antenna 1 distinctly exceeding rostrum, with proximal article of peduncle subcylindrical, slender, 3.8 times as long as distal width, unarmed, stylocerite long, exceeding distal margin of proximal article; intermediate article 0.37 of proximal article length, subcylindrical, unarmed; distal article 0.44 of proximal article length, subcylindrical, unarmed; flagella damaged, upper flagellum robust, lower flagellum slender.

Antenna 2 scaphocerite well developed, exceeding antennular peduncle, broad, 4.8 times as long as central width, proximal third of lateral margin straight, entire, distal two-thirds mostly straight, feebly convex at most distal end, with 26 acute lateral teeth, distal lamella broadly rounded, as long as distolateral tooth. Basicerite with slender, well developed distoventral tooth.

Eye with large globular cornea, diameter 0.14 of carapace length, well pigmented, without ocellus; stalk short, broad.

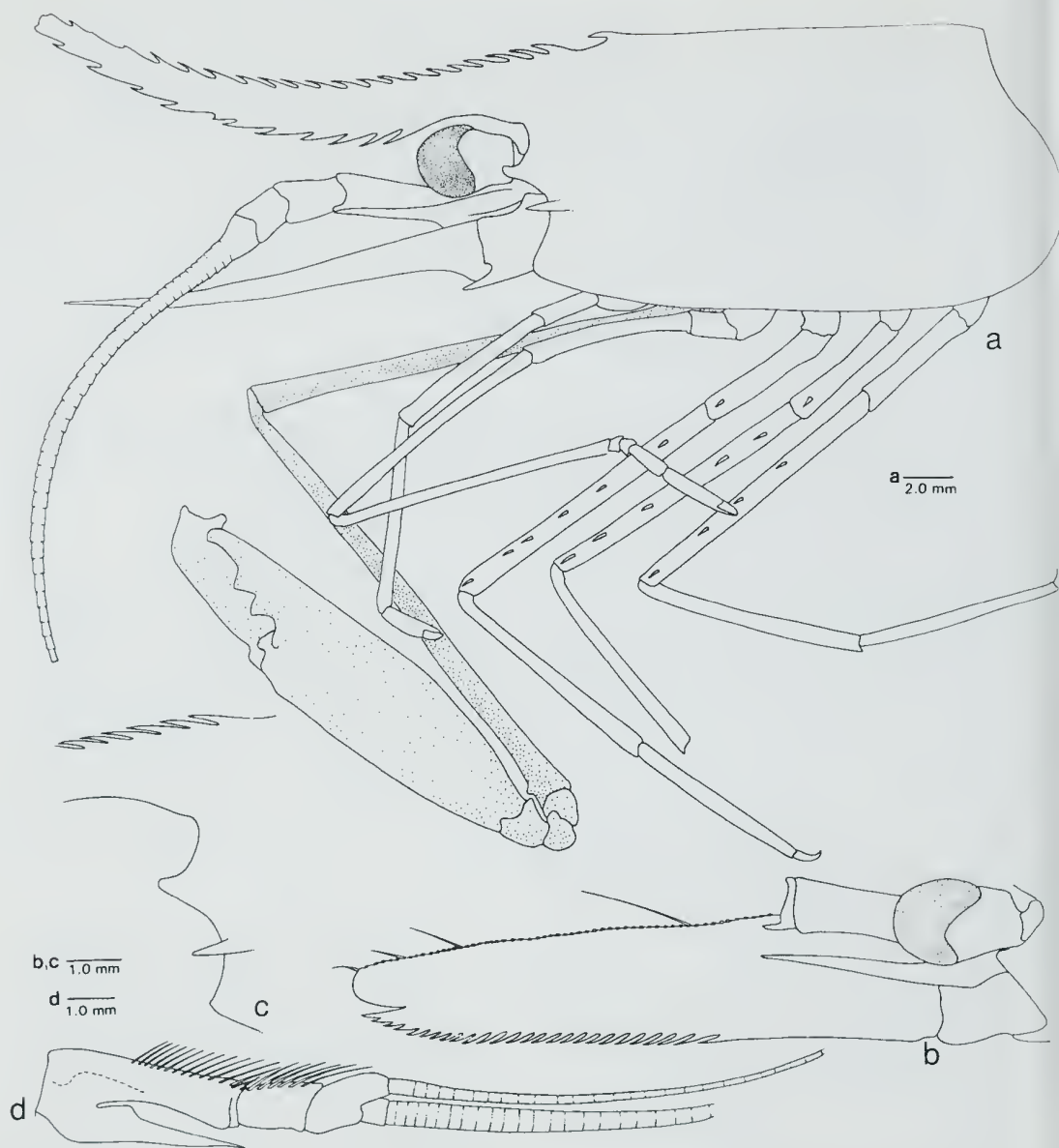


Figure 2. *Leontocaris bulga* sp. nov., holotype. a, habitus. b, eye and antenna 1 region, dorsal. c, antero-lateral carapace, orbital region. d, antenna 1.

Mandible with 2-articulate palp, 9.6 times as long as wide, distal article 0.74 of proximal article, with 6 simple distal setae; incisor process with 5 acute teeth, medial and lateral teeth larger than central teeth. Maxilla 1 with slender feebly bilobed palp, upper lobe rounded, with 2 long

setae, lower lobe angular, with single simple seta; upper lacinia broadened centrally, distal border with row of about 7 short, stout spines and numerous simple setae; lower lacinia slender, tapering distally with numerous long, simple setae. Maxilla 2 with short, slender palp, with 4 long distal



Figure 3. *Leontocaris bulga* sp. nov., holotype. a, mandible. b, maxilla 1. c, maxilla 2. d, maxilliped 1. e, maxilliped 2. f, maxilliped 3.

setae, basal endite bilobed, distal lobe broader than proximal, both with numerous simple setae distally, coxal endite simple, short, sparsely setose; scaphognathite 3.0 times as long as broad; posterior lobe broad, anterior lobe

broad, as long as wide. Maxilliped 1 with short subcylindrical palp, with several terminal and preterminal simple setae; basal endite rounded, densely setose medially; exopod with large broad caridcan lobe; flagellum well

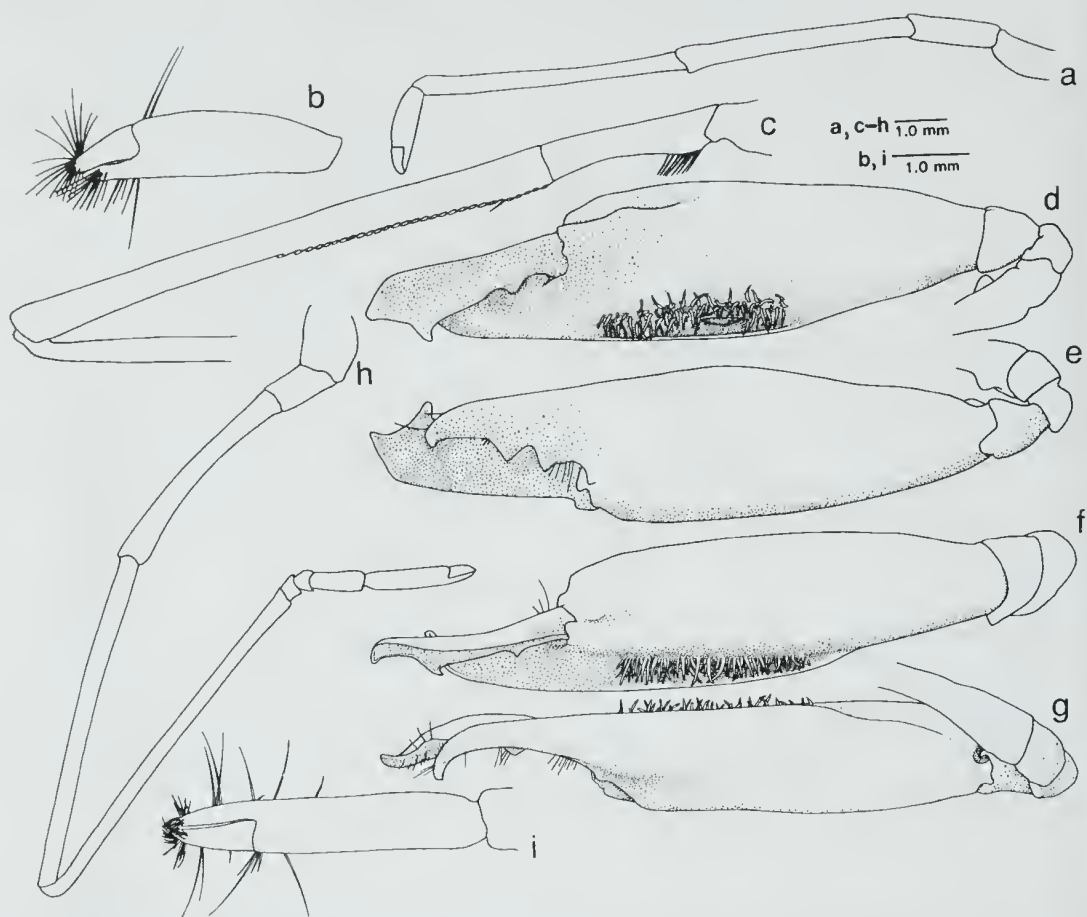


Figure 4. *Leontocaris bulga* sp. nov., holotype. a, pereopod 1. b, same, chela. c, major pereopod 2, ischium and merus. d–g, same chela in lateral, mesial, lower and upper views. h, minor pereopod 2. i, same, chela.

developed with short, simple setae; epipod large, deeply bilobed. Maxilliped 2 with endopod dactylar article short, 3.7 times as long as wide, coxa produced; exopod with slender flagellum; epipod simple with podobranch. Maxilliped 3 slender, falling short of scaphocerite, exceeding antenna 1 peduncle, without exopod or epipod; ishiomerus length 9.6 times proximal width, broadly expanded proximally, slender, subcylindrical distally, penultimate segment subcylindrical, 5.5 times as long as wide, 0.2 of ischial length, distal segment 14.5 times as long as proximal width, tapering distally, 0.5 of ischial length; basis without exopod, with small, well developed arthrobranch.

Pereopods 1 similar, reaching beyond distal margin of antenna 1 peduncle; without epipod or

arthrobranch; without exopod; ischium 0.37 of carpal length, 3.50 times as long as distal width, unarmed; merus 0.88 of carpal length, 10.3 times as long as central width, unarmed; carpus 3.0 times chela length, unarmed, 12.7 times as long as distal width; chela 3.6 times as long as deep; dactylus 0.26 of propodus length, with dense arc of short setae distodorsally.

Pereopods 2 grossly unequal, dissimilar. Major (right) chela exceeding antennal peduncle by carpus and chela; ischium 0.31 of merus length, 8.1 times as long as central width, posteromedial margin armed with 9 strong setae; merus 0.73 of proximal carpal length, slightly expanded distally, 16.2 times as long as central width, with distinct flange posteromedially, evidence of the presence of setae along flange although

all but 1 are broken off; carpus long and slender, unarmed, 4-segmented with proximal segment 1.2 times palm length, subcylindrical, moderately expanded distally, 23.3 times as long as central width, most distal segment 1.5 times as long as proximal 2 segments which are subequal, distal segments unarmed; chela with propodus smooth, glabrous, 3.8 times as long as central width; groove on upper lateral face with lens-shaped tympanum and lined with numerous digitate villi; dactylus strongly compressed, laminar, far exceeding fixed finger, 3.5 times as long as central depth, lateral margin straight.

Minor pereopod 2 with distal margin of merus just falling short of proximal article of antenna 1 peduncle; ischium 0.62 of meral length, 11.4 times as long as central width; merus 0.89 of proximal carpal segment length, 18.2 times as long as distal width; carpus 4-segmented, unarmed, distal segment 0.46 of palm length, 2 subdistal segments short, subequal, 0.13 of palm length, proximal segment elongate, 3.4 times length of chela, 20.4 times as long as distal width; chela small, propodus smooth, 5.6 times as long as deep, dactylus 0.26 of palm length, 2.6 times as long as proximal width, small acute hooked tooth distally; fixed finger similar, with small distal tooth.

Ambulatory pereopods moderately slender. Pereopod 3 ischium 0.45 of merus length, armed with one distal spine; merus 1.27 times as long as carpus length, armed with 6 spines; carpus 1.30 times propodus length, 11.0 times as long as distal width, unarmed; propodus 12.0 times as long as central width, unarmed; dactylus curved ventrally, 0.13 of propodus length, 3.4 times as long as basal width, unguis visible. Pereopod 4 broken at distal end of carpus; ischium 0.45 of meral length, armed with 1 distal spine; merus armed with 6 spines. Pereopod 5 ischium unarmed, 0.43 of meral length; merus armed with 4 spines. Pereopod 5 propodus 1.1 times length of propodus of pereopod 3; carpus 0.95 length of carpus of pereopod 3; merus 0.95 length of merus of pereopod 3.

Measurements. Carapace and rostrum, 10 mm; carapace, 4.75 mm; major pereopod 2 chela, 4.40 mm; minor pereopod 2 chela, 0.85 mm.

Colour. No data.

Etymology. Derived from an Australian Aboriginal word for mountain.

Remarks. Although lacking an abdomen, this specimen is described as a new species because of

the unequivocal differences it shows from all other species of *Leontocaris*. *Leontocaris bulga* is distinguished from all other species of the genus by the presence of a 2-articulate mandibular palp rather than a simple single palp, a higher number of dorsal rostral teeth (>19 compared to 5–16), and a single epigastric tooth compared with 2–4 in other species.

Leontocaris lar Kemp

Leontocaris lar Kemp, 1906: 299–300.—Kemp, 1910: 113–117, pl. 27 figs 1–17.—Bruce, 1990: 128–129.

Diagnosis. Rostrum exceeding length of carapace and of antenna 1 peduncle. Rostrum and carapace with 12–13 dorsal teeth (including 3 in epigastric region) and 9–13 ventral teeth. Inferior orbital angle acute. Scaphocerite without strong distolateral tooth and 17 marginal teeth. Cornea well developed, broader than stalk. Mandibular palp of 1 article. Major pereopod 2 with fixed finger acute, simple. Pereopod 3 with dactylus about 0.2 of propodus length. Abdominal somite 3 posterodorsally unarmed. Abdominal somite 5 pleuron with 1 posterior tooth. Telson with 5 pairs of marginal dorsal spines; posterior margin broadly rounded, with 3 pairs of spines.

Remarks. This species is recognised by the combination of the following characters: telson with five pairs of marginal dorsal spines, the absence of a posterodorsal tooth on the third abdominal somite, and the absence of a strong distolateral tooth on the scaphocerite. The species is known from 1000–1300 m depth from the northwest Atlantic Ocean off Ireland.

Leontocaris pacificus Zarenkov

Leontocaris pacificus Zarenkov, 1976: 8–18, fig 3.

Diagnosis. Rostrum approximately equal to length of carapace, exceeding antenna 1 peduncle. Rostrum and carapace with 6 dorsal teeth (including 2 in epigastric region) and 12 ventral teeth. Inferior orbital angle acute. Scaphocerite with strong distolateral tooth and 18–19 marginal teeth. Cornea well developed, broader than stalk. Mandibular palp of 1 article. Major pereopod 2 unknown. Pereopod 3 with dactylus about 0.2 of propodus length. Abdominal somite 3 posterodorsally armed. Abdominal somite 5 pleuron with 1 posterior tooth. Telson with 7 pairs of marginal dorsal spines; posterior margin rounded with 1 pair of terminal spines.

Remarks. This species is immediately recognised by the seven pairs of marginal dorsal spines and single pair of terminal spines on the telson. The species is known from a single specimen collected from 680–700 m depth at 31° off central Chile (Zarenkov, 1976).

Leontocaris paulsoni Stebbing

Leontocaris paulsoni Stebbing, 1905: 99–102, pl. 26. – Kemp, 1910: 113–117, pl. 27 figs 1–17. —Bruce, 1990: 128–129.

Diagnosis. Rostrum approximately 1.1 times length of carapace, exceeding antenna 1 peduncle. Rostrum and carapace with 8 dorsal teeth (including 2 in epigastric region) and 6–8 ventral teeth. Inferior orbital angle acute. Scaphocerite with strong distolateral tooth and 19 marginal teeth. Cornea reduced, narrower than stalk. Mandibular palp of 1 article. Major pereopod 2 with fixed finger slender, acute, simple. Pereopod 3 with dactylus about 0.25 of propodus length. Abdominal somite 3 posterodorsally armed. Abdominal somite 5 pleuron with 1 posterior tooth. Telson with 5 pairs of marginal dorsal spines; posterior margin acute, bifid, with 2 pairs of spines.

Remarks. This species is immediately recognised by the acute, bifid posterior margin of the telson and the reduced cornea. The species is known from 240–265 m off South Africa (Barnard, 1950), the shallowest depth of any species in the genus.

Leontocaris yarramundi sp. nov.

Figures 5–7

Material examined. Holotype, Tasmania, 82.8 km SSE of Southeast Cape, “U” seamount (44°19.2'S, 147°07.2'E), 1083–1448 m, trapline, T.N. Stranks et al. on FRV *Southern Surveyor*, 27 Jan 1997 (stn SS01/97/41), NMV J41272 (? male, cl. 10.5 mm)

Paratypes, Tasmania, 82.6 km SSE of Southeast Cape, “J1” seamount (44°14.4'S, 147°21.6'E), 1200–1450 m, 27 Jan 1997 (stn SS01/97/40), NMV J41273 (1 ovig. female, cl. 11.2 mm). 65.1 km SSE of Southeast Cape, “Andys” seamount (44°10.8'S, 146°59.4'E), 900–1100 m, 29 Jan 1997 (stn SS01/97/57), NMV J41274 (1 specimen, cl. 8.0 mm), TM G3951 (2 specimens, cl. 6.2 mm, 7.5 mm). All collected using epibenthic sled by T.N. Stranks et al. on FRV *Southern Surveyor*.

Diagnosis. Rostrum 1.05–1.46 times carapace length, exceeding antenna 1 peduncle. Rostrum and carapace with 9 dorsal teeth (including 4 in epigastric region) and 15–18 ventral teeth. Inferior orbital angle blunt. Scaphocerite with

strong distolateral tooth and 17–21 marginal teeth. Cornea well developed, broader than stalk. Mandibular palp of 1 article. Major pereopod 2 with fixed finger short, acute, denticulate. Pereopod 3 with dactylus about 0.22 of propodus length, propodus about 0.76 of carpal length. Abdominal somite 3 posterodorsally unarmed. Abdominal somite 5 pleuron with 3 posterior teeth. Telson with 4 pairs of marginal dorsal spines; posterior margin broadly rounded, with 4 pairs of spines.

Description. Carapace smooth, glabrous, depressed anteriorly; rostrum well developed, inclined dorsally over distal two-thirds, 1.44 times carapace length, exceeding antenna 1 peduncle and scaphocerite, extreme tip missing; rostrum with 9 acute dorsal teeth on carapace and rostrum, 4 occurring in the epigastric region, decreasing slightly in size distally; 16 ventral teeth; supraorbital and hepatic spines absent; inferior orbital angle produced, blunt; antennal spine well developed, submarginal, falling short of inferior orbital angle; anterolateral angle of branchiostegite projecting further forward than inferior orbital angle.

Abdomen smooth; somite 3 without posterodorsal tooth; somite 4 with 1 dorsolateral tooth on the posterior margin; fifth somite with 1 dorsolateral tooth, lateral plate with 2 teeth on posterior margin; fifth somite 0.65 of sixth somite length; sixth somite 2.0 times as long as deep, posterolateral angle acute. Telson 1.7 times sixth somite length, 4.0 times as long as anterior width, 4 pairs of marginal spines at 0.20, 0.44, 0.67 and 0.88 of telson length, posterior margin 0.42 of anterior margin width, with 4 pairs of simple spines, lateral posterior spines about equal in size to the lateral marginal spines, submedian spine 0.07 of telson length, 2.0 times lateral posterior spine length.

Antenna 1 distinctly exceeding rostrum with proximal article of peduncle subcylindrical, slender, 5.4 times as long as distal width, unarmed; stylocerite long, broad; intermediate article 0.42 of proximal article length, unarmed; distal article 0.24 of proximal segment length, unarmed; upper flagellum robust, lower slender.

Antenna 2 scaphocerite well developed, exceeding antennular peduncle, broad, 4.0 times as long as central width, proximal two-fifths of lateral margin straight, entire, distal three-fifths mostly straight, feebly convex at most distal end, with 17 acute marginal teeth, distal lamella broadly rounded, shorter than distolateral tooth. Basicerite unarmed.

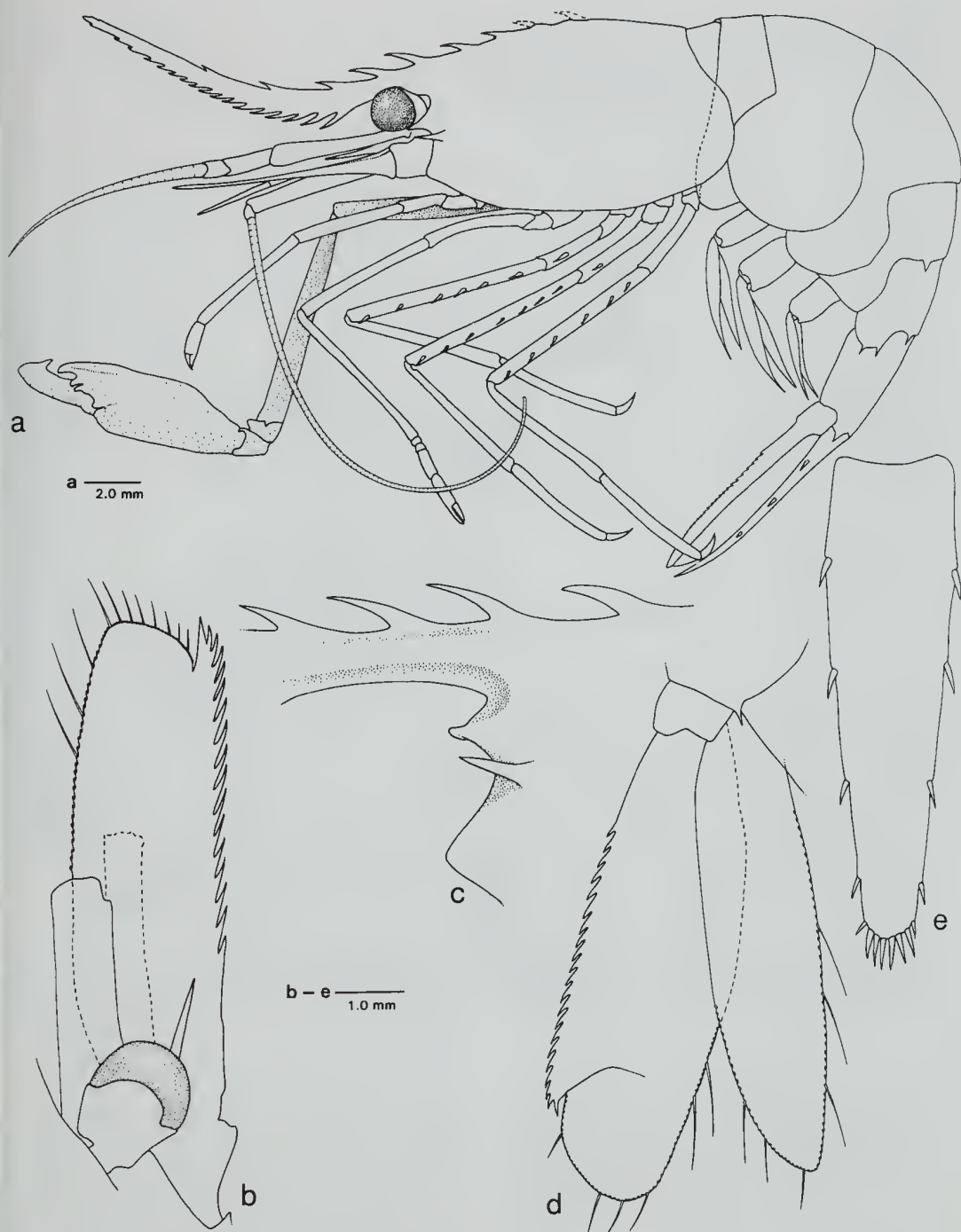


Figure 5. *Leontocaris yarramundi* sp. nov., holotype. a, habitus. b, eye and antenna 1 region, dorsal. c, anterolateral carapace, orbital region. d, uropod. e, telson.

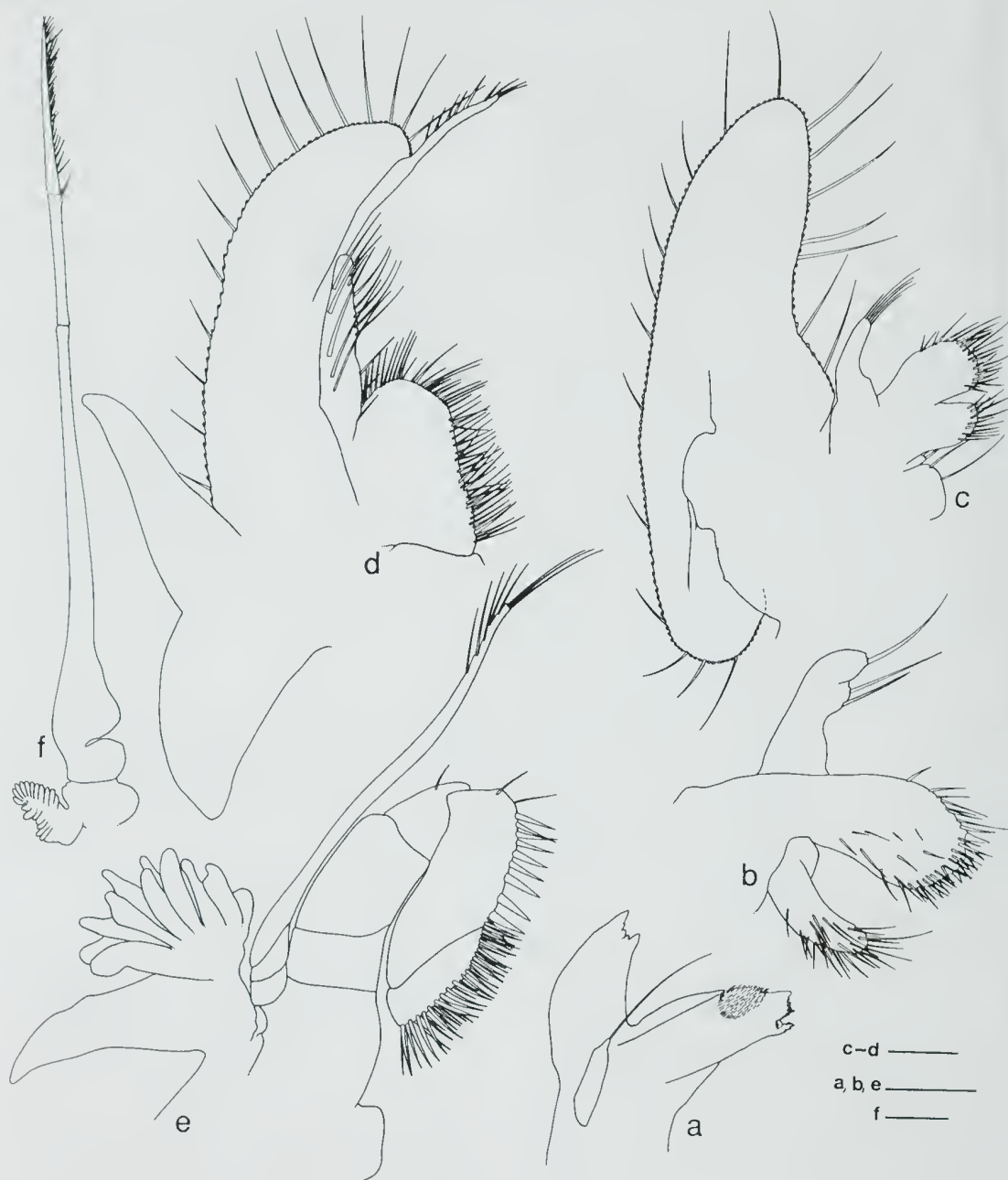


Figure 6. *Leontocaris yarramundi* sp. nov., holotype. a, mandible. b, maxilla 1. c, maxilla 2. d, maxilliped 1. e, maxilliped 2. f, maxilliped 3.

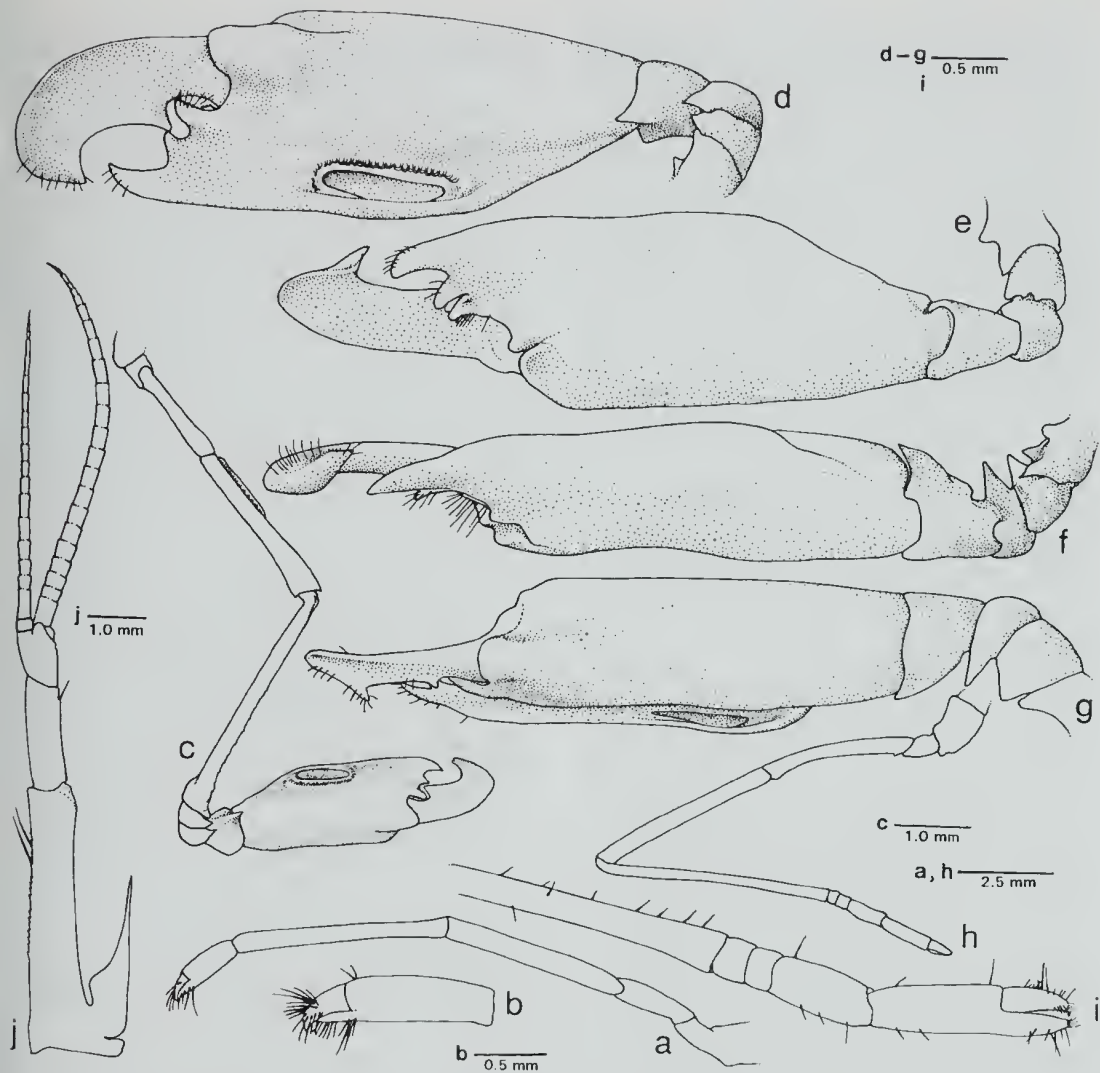


Figure 7. *Leontocaris yarramundi* sp. nov., holotype. a, percopod 1 b, same, chela. c, major pereopod 2. d-g, same chela in lateral, mesial, lower and upper views. h, minor pereopod 2. i, same, chela. j, antenna 1.

Eye with large globular cornea, diameter 0.14 of carapace length, well pigmented, without ocellus; stalk short, broad.

Mandible with 1-articulate palp, slender, 4.1 times as long as wide, with single simple distal setae; incisor process with 5 acute teeth, medial and lateral teeth larger than central teeth. Maxilla 1 with slender, feebly bilobed palp, upper lobe rounded, with long slender setae, lower lobe angular, with shorter simple seta; upper lacinia broadened centrally, distal border with double

row of about 9 short, stout spines and numerous simple setae; lower lacinia slender, tapering distally with numerous long, simple setae. Maxilla 2 with short, slender palp, with 6 long, distal seta, basal endite bilobed, distal lobe broader than proximal, both with numerous simple setae distally, coxal endite simple, short, sparsely setose; scaphognathite 3.0 times as long as broad; posterior lobe broad, anterior lobe broad, as long as wide. Maxilliped 1 with short subcylindrical palp, with several preterminal simple setae; basal

endite rounded, densely setose medially; exopod with large, broad caridean lobe; flagellum well developed with short, simple setae; epipod large, deeply bilobed. Maxilliped 2 with endopod dactylar article short, slender, 2.6 times as long as wide; exopod with slender flagellum; epipod simple with podobranch. Maxilliped 3 slender, falling short of scaphocerite, exceeding antennular peduncle; without exopod or epipod; ischiomerus distinct from basis medially, 6.3 times proximal width, broadly expanded proximally, slender, subcylindrical distally, penultimate segment subcylindrical, 9.0 times as long as wide, 0.3 of ischial length, distal segment 9.4 times as long as proximal width, tapering distally, 0.4 of ischial length; without exopod; with well developed arthrobranch.

Pereopods 1 similar, reaching to distal margin of antenna 1 peduncle; without epipod or arthrobranch; without exopod; ischium 0.44 of carpal length, 3.60 times as long as distal width, unarmed; merus 0.85 of carpal length, 7.8 times as long as central width, unarmed; carpus 2.7 times chela length, unarmed, 11.0 times as long as distal width; chela small, 3.2 times as long as deep; dactylus 0.34 of palm length, with small, acute hooked tip, dense arc of short setae distodorsally.

Pereopods 2 grossly unequal, dissimilar. Major (right) chela exceeding antenna 2 peduncle by distal third of carpus and chela; ischium 0.62 of merus length, 8.0 times as long as central width, unarmed; merus 0.67 of proximal carpal length, slightly expanded distally, 10.6 times as long as central width, unarmed, with distinct flange posteromedially; carpus long and slender, unarmed, 4-segmented, with proximal segment 1.12 times palm length, subcylindrical, moderately expanded distally, 18.8 times as long as central width, most distal segment 2.9 times as long as proximal 2 segments which are subequal, distal segments unarmed; chela with palm smooth, glabrous, 2.6 times as long as central width, groove on upper lateral face with elongate tympanum surrounded by row of digitate villi; dactylus strongly compressed, laminar, far exceeding fixed finger, 3.0 times as long as central depth, lateral margin straight.

Minor pereopod 2 with distal margin of merus extending to about end of proximal article of antenna 1 peduncle; ischium 0.66 of meral length, 10.3 times as long as central width; merus 0.84 of proximal carpal segment length, 10.3 times as long as distal width; carpus 4-segmented, unarmed, distal segment 0.52 of palm length, 2 subdistal segments short, subequal, 0.13 of palm

length, proximal segment elongate, 3.10 times length of chela, 14.6 times as long as distal width; chela small, 0.19 of carapace length, palm smooth, 4.20 times as long as deep, dactylus 0.34 of palm length, 3.0 times as long as proximal width, small acute hooked tooth distally; fixed finger similar, with small distal tooth.

Ambulatory pereopods moderately slender. Pereopod 3 ischium 0.32 of merus length, armed with one distal spine; merus 1.25 times as long as carpus length, armed with 6 spines; carpus 1.30 times propodus length, 11.6 times as long as distal width, unarmed; dactylus curved ventrally, 0.22 of propodus length, 3.4 times as long as basal width, unguis visible, 12.0 times as long as central width, unarmed. Pereopods 4 and 5 generally similar, propodus of fifth subequal to propodus of third, propodus of fourth 0.92 of propodus of third; carpus subequal, 0.92 of third propodus length; merus subequal, 0.94 of third carpus length, pereopod 4 and 5 armed with 7 and 6 spines respectively; ischium of pereopod 4 armed with 1 distal spine, pereopod 5 ischium unarmed.

Uropods with protopod unarmed; exopod subequal to posterior margin of telson, 2.9 times as long as wide, lateral margin straight, armed with 21 conspicuous immobile spines; endopod 0.95 of exopod length, 4.4 times as long as wide.

Measurements. Total body length approx. 45 mm, carapace and rostrum, 22.5 mm; carapace, 10.5 mm; major second pereopod, chela, 6.7 mm; minor second pereopod, chela 1.7 mm.

Colour. No data.

Etymology. Derived from an Australian Aboriginal word for deep-water.

Remarks. All of the paratypes examined have 9 dorsal teeth on carapace and rostrum (4 occurring in epigastric region) but differ from the holotype in having 15–18 ventral teeth. The number of teeth on the scaphocerite varies from 17 to 21; the number of spines on the carpus of the ambulatory legs ranges from 6 to 8 for pereopod 3, 6 to 9 for pereopod 4 and 6 to 7 for pereopod 5. The major chela of pereopod 2 occurs on the right side for all but one specimen which has the major chela on the left side. *Leontocaris yarramundi* is distinguished from all other species by the presence of three posterior teeth on the fifth abdominal somite (excepting *L. bulga* where abdomen is unknown). Both *L. paulsoni* and *L. lar* have a single spine and *L. amplexipes* is unarmed. The number of ventral rostral teeth (15–18) exceeds those of *L. amplexipes* (2–4), *L. bulga* (approx. 11), *L. lar* (9–13) and *L. paulsoni* (6–8).

Discussion

The new species of *Leontocaris* increase from four to six the number of known species and point to a radiation in Australia. However, the monophyly of the Australian species remains to be demonstrated. The three species of *Leontocaris* from Australia are similar to each other and differ from the two species from the Atlantic in the following characters: the inferior orbital angle is blunt or rounded rather than acute; at least *L. amplexipes* and *L. yarramundi* have four pairs of marginal dorsal spines on the telson rather than five; the posterior margin of the telson has four pairs of spines rather than two as in *L. paulsoni* or three as in *L. lar*. The three species from Australia differ from *L. pacificus*, the Pacific species, by the absence of a posterodorsal tooth on abdominal somite 3 and the arrangement of spines on the telson.

The six species of *Leontocaris* all occur in deep water. *Leontocaris paulsoni* has been reported from 246 to 265 m (Barnard, 1950); *L. pacificus* is known from 680 to 700 m (Zarenkov, 1976); *L. lar* from 914 m and 1146 m (Kemp, 1910); and *L. amplexipes* from 700 to 1450 m. *L. amplexipes* and the new species were collected from Tasmanian seamounts at 900–1450 m. The seamounts are dominated by coral cover many metres thick and the association of the genus with corals is reinforced.

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