

5268

Davie + Crosnier 2006
JMP

Echinolatus n. gen. (Crustacea, Decapoda, Portunidae) with description of two new species from the South-West Pacific

Peter J. F. DAVIE

Queensland Museum, P.O. Box 3300, South Brisbane, Queensland, Australia
Peter.Davie@qm.qld.gov.au

Alain CROSNIER

Muséum national d'Histoire naturelle, Département Systématique et Évolution, 55 rue Buffon, 75231 Paris cedex 05, France
crosnier@mnhn.fr

ABSTRACT

Echinolatus n. gen. is described for four species, *E. bullatum* (Balss, 1923), from the Juan Fernandez Islands off Chile, *E. caledonicum* (Moosa, 1996) from New Caledonia, *E. proximum* n. sp. from French Polynesia, and *E. poorei* n. sp. from the Great Australian Bight and southern Victoria. The first two species had been previously attributed to *Nectocarcinus* A. Milne Edwards, 1860. *Echinolatus* is characterised by a subhexagonal carapace, a quadrilobate front, at least the last pair of anterolateral carapace teeth, and usually others, bearing spinules or spiniform denticles on the anterior margins, the chelipeds having the carpus armed with a long pointed tooth at its anterointernal angle which also has a smaller strong tooth basally. *E. bullatum* is redescribed.

RÉSUMÉ

Echinolatus n. gen. (Crustacea, Decapoda, Portunidae) et description de deux nouvelles espèces du Sud-Ouest Pacifique. *Echinolatus* n. gen. est décrit pour quatre espèces, *E. bullatum* (Balss, 1923), des Îles Juan Fernandez au large du Chili, *E. caledonicum* (Moosa, 1996) de Nouvelle-Calédonie, *E. proximum* n. sp. de Polynésie française, et *E. poorei* n. sp. de la Great Australian Bight et du Victoria du sud en Australie. Les deux premières espèces avaient été rattachées, auparavant, à *Nectocarcinus* A. Milne Edwards, 1860. *Echinolatus* se caractérise par une carapace subhexagonale, un front quadrilobé, la dernière paire de dents antérolatérales de la carapace, au moins, portant sur leur bord antérieur des spinules ou des denticules spiniformes, les chélicépes dont le carpe est armé, à son angle antéro-interne, d'une longue dent aiguë présentant une autre dent nettement plus petite à sa base. *E. bullatum* est redécrit.

DAVIE P. J.-F. & CROSNIER A. 2006. — *Echinolatus* n. gen. (Crustacea, Decapoda, Portunidae) with description of two new species from the South-West Pacific, in RICHER DE FORGES B. & JUSTINE J.-L. (eds), Tropical Deep-Sea Benthos, volume 24. *Mémoires du Muséum national d'Histoire naturelle* 193: 393-410. Paris ISBN: 2-85653-585-2.

INTRODUCTION

The discovery of a new species of portunid crab from the deeper continental shelf off southern Australia, that is most closely related to the atypical south-eastern Pacific species of *Nectocarcinus* A. Milne-Edwards, 1860, *N. bullatus* Balss, 1923, raised questions about the homogeneity of *Nectocarcinus*. Following further collections of another putative new species in the Austral Islands, in French Polynesia, it was realised that all three species, along with the more recently described *N. caledonicus* Moosa, 1996, formed a natural monophyletic grouping that deserved separate generic status. The present paper describes this new genus, two new species, and redescribes the poorly known *N. bullatus*.

Measurements in millimetres (mm) are of the carapace length followed by the maximum carapace width including the lateral teeth. P2-5, pereopods 2-5; G1, G2, male gonopods 1 & 2. Institutions where specimens are lodged are abbreviated as: MNHN, Muséum national d'Histoire naturelle, Paris; NHMG, Naturhistoriska Riksmuseet, Göteborg; NMV, Museum of Victoria, Melbourne; QM, Queensland Museum, Brisbane; SAM, South Australian Museum, Adelaide; ZSM, Zoologische Staatssammlung, München.

SYSTEMATICS

Family PORTUNIDAE Rafinesque, 1815

Subfamily CARCININAE Macleay, 1838

A definition for the subfamily CARCININAE has been provided by Dell *et al.* (1970: 50).

Genus ***ECHINOLATUS*** n. gen.

Type species: *Echinolatus bullatum* (Balss, 1923), the first species described that is attributable to the new genus.

ETYMOLOGY. — From the Latin *echinatus*, spiny or prickly, coupled with *latus*, side, referring to the characteristic denticles or spines that variously occur on the anterior margin of the anterolateral carapace teeth. Gender is neuter.

DIAGNOSIS. — Carcinine with subhexagonal carapace, and well defined regions. Front quadrilobate, median lobes smaller than submedians. Anterolateral margins convex, bearing 4 teeth (including exorbital angle); teeth often unequal in size and shape, almost always with one or more accessory spinules, or strong spines, at their base and/or on their anterior margin. Basal antennal article c. 3 times longer than broad, free, flagellum able to enter orbit. Antennules not located in fossae, but fold transversely into an excavation below projecting frontal lobes. Third maxillipeds elongated, merus projecting beyond anterior buccal margin of sunken epistome. Chelipeds relatively robust, subequal, moderately lengthened, c. 1.5 times longer than carapace). Fifth pereopods with propodus and dactylus markedly flattened and widened for swimming; dactylus lanceolate, smooth, without marked ridges or grooves. Male abdomen with 7 segments. Male G1 relatively stout, slightly sinuous or almost straight, with minute spinules, and sometimes some very short setae. Male G2 long, slender, weakly sinuous.

SPECIES OF THE GENUS. — *Echinolatus* includes four species: *E. bullatum* (Balss, 1923) known from the East Pacific (Juan Fernandez Archipelago), *E. caledonicum* (Moosa, 1996) known from New Caledonia and the Chesterfield Islands, *E. poorei* n. sp. from southern Australia, and *E. proximum* n. sp. from French Polynesia (Austral Islands).

REMARKS. — The four species included in *Echinolatus* clearly form a natural grouping distinct from *Nectocarcinus sensu*

lato. While they agree reasonably well with the definition of that genus given by Stephenson & Campbell (1960: 82), the most significant differences are: the basal antennal article is completely free, and not fused to the front; the antennules are not located in fossae, but fold transversely into an excavation below the projecting frontal lobes; and the dactyli of the fifth pereopods are smooth and not markedly ridged or grooved.

KEY TO SPECIES

1. First anterolateral tooth of carapace (behind exorbital angle) slender and acute (Fig. 7A) 2
— First anterolateral tooth of carapace (behind exorbital angle) broad (Fig. 1B) 3
2. Second anterolateral tooth of carapace without accessory spine on anterior margin. Median frontal lobes much smaller, narrower, and less protruding than laterals (Fig. 9E) *E. caledonicum*
— Second anterolateral tooth of carapace with strong accessory spine on anterior margin. Median frontal lobes slightly narrower, but not markedly smaller than laterals, and similarly protruding (Fig. 7A)
..... *E. poorei*
3. Fifth pereopods with dactylus c. 2.4 times longer than broad (excluding peduncle); apex distinctly pointed (Fig. 6A). Telson of male abdomen c. 1.2 times broader than long *E. bullatum*
— Fifth pereopods with dactylus c. 2.1 times longer than broad (excluding peduncle); apex blunt and less conspicuously pointed (Fig. 6B). Telson of male abdomen with breadth equal to length .. *E. proximum*

Echinolatus bullatum (Balss, 1923)

Figs 1, 2, 6A, 9A-C

Nectocarcinus bullatus Balss, 1923: 335, fig. 2.

Nectocarcinus bullatus — Garth 1957: 38. — Garth & Stephenson 1966: 3. — Dell *et al.* 1970: 61-63, pl. 3, fig. A. — Stephenson 1972: 21. — Dupré 1975: 20 (in list). — Retamal 1982: 28, fig. 143 (copy fig. 2 of Balss 1923); 1999: 195, fig. (copy fig. 2 of Balss 1923). — Andrade 1985: 111, 114 (in list). — Baez & Ruiz 1985: 102. — Rozbaczylo & Castilla 1987: 182, 183 (in list) — Guzmán *et al.* 1999: 4 (in list). — Retamal & Jara 2002: 207 (in list).

TYPE MATERIAL. — 1 lectotype ♂ 5.0 × 5.4 mm and 1 ovigerous ♀ paralectotype 5.2 × 5.7 mm (NHMG Crust. 5162, in part), chosen by Des Griffin in 1967 amongst the material kept under Crust. 5162 at the Göteborg Naturhistoriska Museum.

MATERIAL EXAMINED. — Chile. Juan Fernandez, Masatierra, det.: 6 ♂ 4.5 × 5.1 – 5.3 × 6.0 mm; 7 ♀ 3.5 × 3.8 – 5.0 × 5.4 mm; 30-40 m, sand, 1.04.1917, Kåre Bäckström coll., H. Balss det.: 12 ♂ 3.7 × 4.0 – 5.2 × 5.8 mm; 1 ♀ 4.9 × 5.3 mm (NHMG Crust. 5161). — *Ibidem*, 30-35 m, sand, 11.04.1917, Kåre Bäckström coll., H. Balss det.: 1 ♂ 3.8 × 4.2 mm (NHMG Crust. 5160). — *Ibidem*, 10-35 m, sand, 11.04.1917, Kåre Bäckström coll., H. Balss det.: 6 ♂ 4.5 × 5.1 – 5.3 × 6.0 mm; 7 ♀ 3.5 × 3.8 – 5.0 × 5.4 mm; 3 ovig. ♀ 4.9 × 5.6 – 5.2 × 5.7 mm (NHMG Crust. 5162). — *Ibidem*, no depth mentioned, Kåre Bäckström coll., H. Balss det.: 4 juv. 3.2 × 3.3 mm; 1 ♂ 5.7 × 6.7 mm; 1 ovig. ♀ 6.5 × 7.8 mm (ZSM A 20044898).

TYPE LOCALITY. — Chile. Juan Fernandez, Masatierra, 10-35 m, sand.

DESCRIPTION (using the type series of Balss). — Carapace subhexagonal, slightly broader than long (ratio 1.08-1.14). Front produced well in advance of small inner orbital lobes; maximum width of carapace about 3.2 times frontal width; composed of 4 lobes: lateral pair well developed, apically rounded; median pair much smaller, separated medially by V-shaped notch and from lateral lobes by broad sulcus; relative prominence of lobes varying with size of specimen. Supraorbital margin with two fissures, outermost not easily visible on smallest specimens. Anterolateral margins of

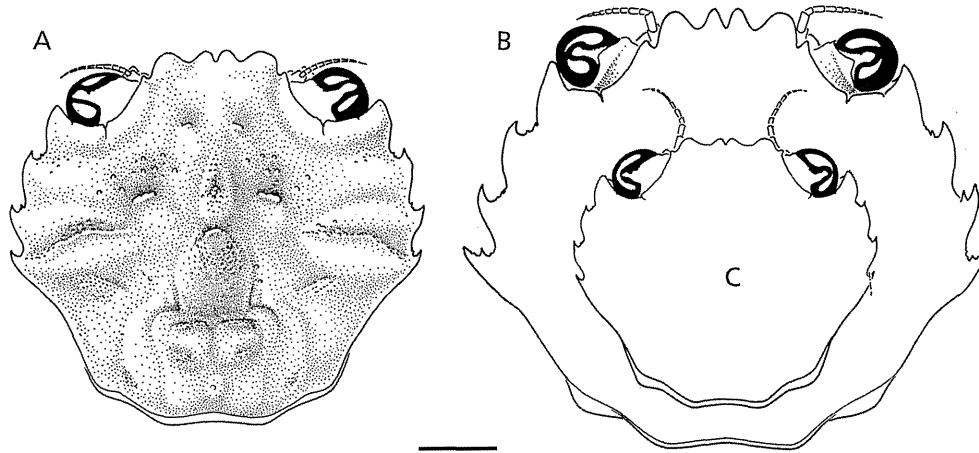


FIG. 1. *Echinolatus bullatum* (Balss, 1923). A, ♀ lectotype 5.0 × 5.4 mm, Chile, Juan Fernandez, Masatierra, 10-35 m (NHMG Crust. 5162, in part), carapace; B, ♀ ovig. 6.5 × 7.8 mm, *ibidem*, no depth mentioned (ZSM A 20044898, in part), carapace outline; C, ♂ 3.7 × 4.0 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, in part), carapace outline. Scale bar = 1 mm.

FIG. 1. *Echinolatus bullatum* (Balss, 1923). A, ♀ lectotype 5.0 × 5.4 mm, Chili, Juan Fernandez, Masatierra, 10-35 m (NHMG Crust. 5162, en partie), carapace; B, ♀ ovig. 6.5 × 7.8 mm, *ibidem*, profondeur non indiquée (ZSM A 20044898, en partie), contour de la carapace; C, ♂ 3.7 × 4.0 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, en partie), contour de la carapace. Échelle = 1 mm.

carapace slightly convex; exorbital lobe well developed, bluntly pointed, with convex outer margin; three following teeth acute, slightly decreasing in size from first to third; outer margins convex, first two pointed anteriorly, last tooth more anterolaterally. Maximum carapace width at level of second teeth on smallest specimens, but across last anterolateral teeth in larger specimens. Inner anterior margins of teeth (except for very small specimens) with one or more spinules towards base. Posterolateral borders concave. Posterior margin slightly sinuous, slightly more than half width of carapace. Dorsal face of carapace with some isolated granules on protogastric regions, anterior part of mesogastric region, and in vicinity of anterolateral teeth; otherwise with a number of more or less transverse elevations varying in length, bearing more or less coalescent granules; most marked elevations occur on metagastric and cardiac regions, and epibranchial ridges; mesogastric, protogastric and median and posterior parts of branchial regions less obviously raised.

Antennae in communication with orbit; basal article elongated, slender and mobile. Antennules not located in fossae, but fold transversely into an excavation below projecting frontal lobes.

Third maxillipeds identical to *E. proximum* (Fig. 5B). Merus projecting beyond anterior buccal margin of sunken epistome.

Chelipeds equal, merus with granular superior surface, armed at distal two-thirds with small spinous tooth, bent forwards. Carpus with conspicuous, very strong, long, acute tooth at anterointernal angle; ventrally close to its base is a second strong tooth about one-quarter size of major tooth; superior and external surfaces of carpus with numerous granules organized in small clusters or in ridges, one of these finishing on lower part of external face in a marked denticle. Chela with inner superior surface bearing a projecting granular ridge ending in denticle; superior face with median longitudinal row of three large granules; and longitudinal ridge marking outer edge of superior surface. Fingers almost as long as palm; both with triangular cutting teeth, often tricuspid; extremities pointed, recurved and crossing when closed; superior margin of mobile finger with several denticles.

Pereiopods 2-4 smooth, subequal, length c. 1.35 times carapace length; slender (P4 merus length/breadth ratio c. 3.2), with long dactylus c. 1.3 times longer than propodus). Fifth pereiopods also smooth, hardly shorter than P2-4; propodi and dactyli dorsoventrally flattened for swimming. Dactylus lanceolate, c. 2.4 times longer than broad (excluding

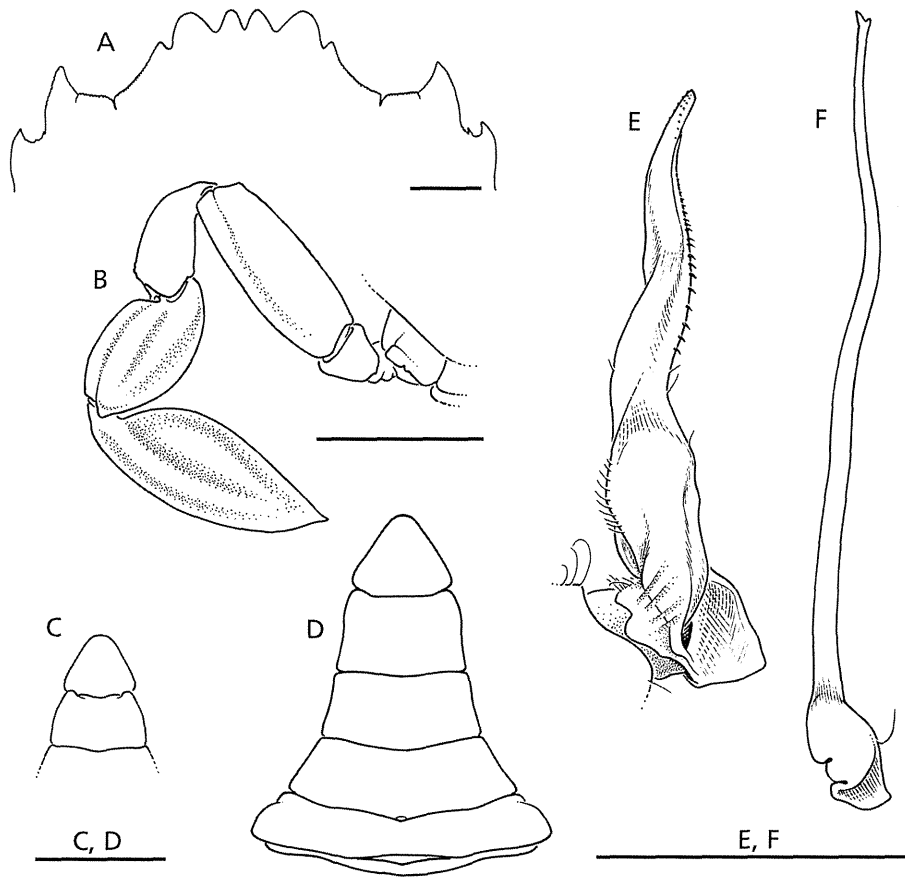


FIG. 2. *Echinolatus bullatum* (Bals, 1923). A, ♀ ovig. 6.5 × 7.8 mm, Chile, Juan Fernandez, Masatierra, no depth mentioned (ZSM A 20044898, in part), anterior part of carapace, outline; B, ♀ lectotype 5.0 × 5.4 mm, *ibidem*, 10-35 m (NHMG Crust. 5162, in part), left P5; C, ♂ 3.7 × 4.0 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, in part), abdominal segments 6-7; D-F, ♂ 5.2 × 5.8 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, in part); D, abdomen; E, first left pleopod, ventral view; F, second left pleopod, ventral view. Scale bars: A-F = 1 mm.

FIG. 2. *Echinolatus bullatum* (Bals, 1923). A, ♀ ovig. 6.5 × 7.8 mm, Chili, Juan Fernandez, Masatierra, profondeur non indiquée (ZSM A 20044898, en partie), partie antérieure de la carapace, contours; B, ♀ lectotype 5.0 × 5.4 mm, *ibidem*, 10-35 m (NHMG Crust. 5162, en partie), P5 gauche; C, ♂ 3.7 × 4.0 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, en partie), segments abdominaux 6-7; D-F, ♂ 5.2 × 5.8 mm, *ibidem*, 30-40 m (NHMG Crust. 5161, en partie); D, abdomen; E, premier pléopode gauche, vue ventrale; F, deuxième pléopode gauche, vue ventrale. Échelle: A-F = 1 mm.

peduncle); surface without any marked relief; anterior margin slightly convex; posterior margin more strongly convex over basal two-fifths, then almost straight; apically ending in small point (Fig. 6A).

Male abdomen 7-segmented. Sixth segment quadrangular, c. 1.6 times broader than long, lateral edges slightly sinuous. Telson triangular, c. 1.2 times broader than long, apically rounded, lateral margins straight and strongly converging.

Male G1 (Fig. 2E) stout, sinuous but not strongly curved; becoming gradually narrower distally; distal part with tiny spinules; external face with short, recurved, rather stiff setae.

Male G2 (Fig. 2F) slender, distinctly longer than G1; very slightly sinuous; slightly forked apically.

COLOURATION. — Unknown.

REMARKS. — This species was captured in rather large number (4 juveniles, 20 males and 12 females including 4 ovigerous), during the Swedish expedition of 1916-17 to Juan Fernandez Islands, off Chile. Thanks to Dr. Torsten Nordander of Göteborgs Naturhistoriska Museets, we were able to examine most of this collection (19 males and

11 females including 3 ovigerous). The remainder of the specimens studied by Balss were kept in Munich (4 juveniles, a male and an ovigerous female — the last the specimen figured in Balss (1923) but without showing the eggs that it carries), and these were also lent to us through the kind help of Drs Roland Melzer and Stefan Friedrich of the Zoologisches Sammlung of Bayerischen Staates.

All these specimens are of small size, the largest not exceeding 6.5×7.8 mm, and with the exception of some juveniles, all are adult and several females are ovigerous. All are uniform in morphology.

There is a probable labelling error that casts minor doubt as to whether Balss (1923) examined all of the above material. Balss quotes a collection dated 1.04.1917 from 10-35 m depth, but this does not correspond with the current labels. It is very likely that there has been a subsequent transcription labelling error and that the collection currently recorded under the n° Crust. 5162 was made on 1.04, and not 11.04 as the current label indicates.

Balss (1923) included a drawing of a female that, based on the enlargement indicated (7.5 not 75 as printed), would measure about 6.3×8.0 mm. These measurements correspond most closely to the female measuring 6.5×7.8 mm currently preserved in Munich (ZSM A 20044898). This specimen corresponds well to the drawing of Balss except that it is ovigerous, and it thus seems likely that Balss simply omitted to draw the eggs.

Balss did not designate a holotype for *N. bullatus*, and thus Dell *et al.* (1970), as part of their revision of *Nectocarcinus*, designated as lectotype one of the two females they had on loan from Gothenburg Museum (we have here figured the carapace of this specimen [Fig. 1A]). It would have been preferable to designate as lectotype the female drawn by Balss in 1923, as discussed above, but this specimen was not available at the time of their revision.

In 1965, the research ship *Anton Bruun*, also working off the Juan Fernandez Island in 125-200 m depth, captured two males and a female with carapace widths of 14.6, 24.6 and 20.2 mm. These were deposited in the collections of the Allan Hancock Foundation in Los Angeles. These specimens, much larger than those collected by the Swedish expedition, were identified as *E. bullatum* by Dell *et al.* (1970), who published a photograph (1970, pl. 3A) of the largest specimen, a male of 24.6 mm carapace width. This photograph is reproduced in the present work (Fig. 9C) with the kind permission of the Royal Society of New Zealand (Robert Lynch, Publishing Manager, in litt. 16 March 2005). We tried to re-examine this material, but it appears to have been lost. Some time ago the collections of the Allan Hancock Foundation were transferred to the Natural History Museum of Los Angeles County. Unfortunately, the *Anton Bruun* specimens of *N. bullatus* could not now be located. In the hope that they had not been returned after being examined by Dell and his colleagues, we also enquired at the Australian Museum, Sydney, and the National Museum of New Zealand, Wellington, but no such specimens could be located. Similarly the USNM, in Washington does not have these specimens.

It therefore must remain unconfirmed whether these large *Anton Bruun* specimens are definitely *E. bullatum* as indicated by Dell *et al.* (1970). All the specimens in the type series are fully adult at small sizes (ovigerous female measuring 4.9×5.6 mm), and the largest of the types is only about one-third the size of the largest of the *Anton Bruun* crabs. While this initially concerned us, such a disparity of size at maturity does not seem aberrant in the Portunidae. In the collections of the MNHN are females of *Thalamita parvidens* (Rathbun, 1907), *T. philippinensis* Stephenson & Rees, 1967 and *T. pseudoculea* Crosnier, 1984, that are ovigerous at sizes of only 6.7×9.8 , 6.8×10.1 and 7.3×11.0 mm respectively. All of these *Thalamita* species typically reach much larger sizes in excess of 35 mm in width (personal observations based on collections of the MNHN).

If it is considered that the specimens of *Anton Bruun* also belong to *E. bullatum*, the above description must be modified by noting that in large adults:

- the carapace breadth/length ratio can reach 1.45;
- maximum width of carapace can reach about 5.5 times frontal width;
- the frontal lobes, especially the lateral ones, become narrower and more pointed; and,
- the anterolateral teeth develop spinous teeth on their anterior margin, including one on the first and second teeth, and two on the third; in addition, while the first anterolateral tooth remains directed anteriorly, the second develops anterolaterally and the third laterally.

DISTRIBUTION. — Only known from the Juan Fernandez Archipelago, off Chile, in depths between 10 and 40 metres. Retamal (1981) listed the distribution of *E. bullatum* as “Australia Oriental, Nueva Zelandia, Tasmania e Islas Auckland”. This error was caused by confusion over the distribution of the species *E. bullatum* versus the broader distribution of the genus *Nectocarcinus* (Retamal in litt.).

***Echinolatus proximum* n. sp.**

Figs 3, 4, 5, 6B, 9D, 10

TYPE MATERIAL. — The ♀, 19.0 × 25.4 mm (MNHN-B 29637) is the holotype. The ♂ 12.1 × 16.1 mm (MNHN-B 29633) is the allotype. The ♂ 8.6 × 10.8 mm (QM-W27790), the ♀ 16.2 × 21.6 mm (MNHN-B 29639) and the ovigerous ♀ 18.4 × 24.5 mm (MNHN-B 29635) are paratypes.

MATERIAL EXAMINED. — French Polynesia. Austral Islands. BENTHAUS: *MacDonald seamount*, stn DW 1877, 28°59'S, 140°15.1'W, 59-150 m, 4.11.2002: 1 ♂ 6.25 × 7.5 mm (MNHN-B 29632). — *Marotiri Islands*: stn CAS 1878, 27°52.3'S, 143°31.7'W, 122-129 m, 5.11.2002: 1 ♂ 12.1 × 16.1 mm (MNHN-B 29633); stn DW 1880, 27°55'S, 143°29.4'W, 90-94 m, 6.11.2002: 2 ♂ 5.4 × (damaged) and 5.7 × 6.7 mm (MNHN-B 29634), 1 ♀ 13.2 × (damaged) (QM-W27791), 1 ♀ ovig. 18.4 × 24.5 mm (MNHN-B 29635); stn DW 1881, 27°54.6'S, 143°28.5'W, 112-121 m, 6.11.2002: 2 ♂ 5.6 × 6.7 and 6.0 × 7.3 mm (MNHN-B 29636). — *Shoal in the NE of Rapa*: stn DW 1901, 27°24.8'S, 144°01.7'W, 115-120 m, 9.11.2002: 1 ♂ 19.0 × 25.4 mm (MNHN-B 29637); stn DW 1905, 27°25.4'S, 144°02.6'W, dredging, 120-140 m, 9.11.2002: 2 ♂ 5.9 × 7.0 and 6.0 × 7.3 mm (MNHN-B 29638), 1 ♀ 16.2 × 21.6 mm (MNHN-B 29639). — *Neilson Reef*: stn DW 1913, 27°01.5'S, 146°00.3'W, 120 m, 11.11.2002: 1 ♂ 8.6 × 10.8 mm (QM-W27790); stn DW 1915, 27°03.4'S, 146°03.9'W, 120-200 m, 11.11.2002: 1 ♂ 5.9 × 7.0 mm (MNHN-B 29640).

TYPE LOCALITY. — French Polynesia, Austral Islands (off Rapa), 27°24.8'S, 144°01.7'W, 115-120 m.

ETYMOLOGY. — From the Latin *proximus*, very near, referring to how similar this species is to *E. bullatum*.

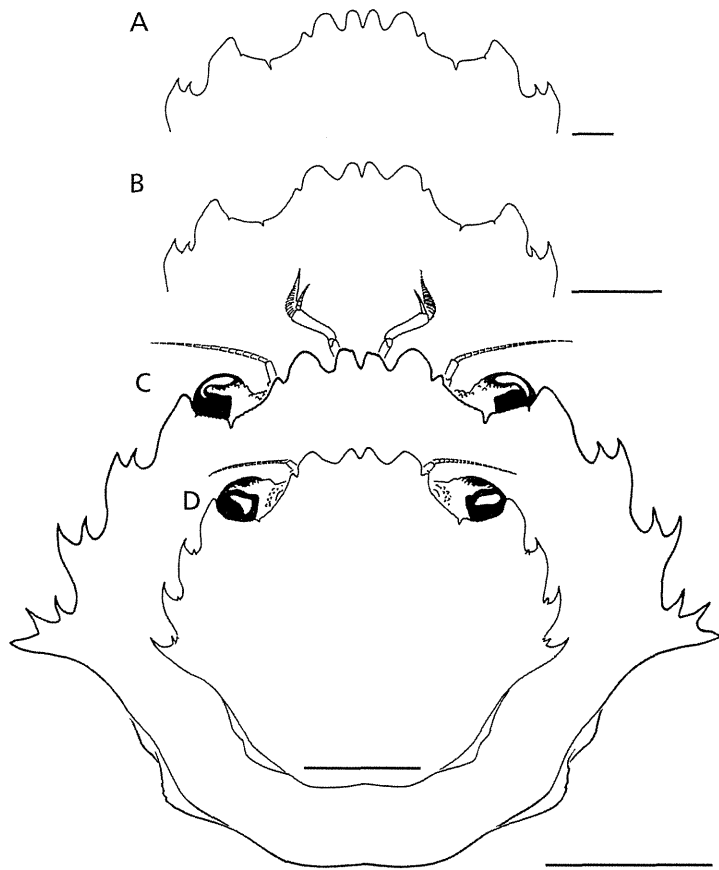


FIG. 3. *Echinolatus proximum* n. sp. A-B, carapace anterior border: A, ♂ paratype 8.6 × 10.8 mm, Polynesia, Austral Islands, Neilson Reef, BENTHAUS, stn DW 1913, 120 m (QM-W27790); B, ♀ holotype 19.0 × 25.4 mm, *ibidem*, shoal NE of Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637); C-D, carapace outline: C, ♀ paratype 16.2 × 21.6 mm, *ibidem*, shoal NE Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639); D, ♂ 5.9 × 7.0 mm, *ibidem*, shoal NE Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29638 in part). Scales bars: A, B, D = 2 mm; C = 5 mm.

FIG. 3. *Echinolatus proximum* n. sp., A-B, bord antérieur de la carapace : A, ♂ paratype 8.6 × 10.8 mm, Polynésie, Îles Australes, Récif Neilson, BENTHAUS, stn DW 1913, 120 m (QM-W27790); B, ♀ holotype 19.0 × 25.4 mm, *ibidem*, banc NE de Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637); C-D, contour de la carapace : C, ♀ paratype 16.2 × 21.6 mm, *ibidem*, banc NE de Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639); D, ♂ 5.9 × 7.0 mm, *ibidem*, banc NE de Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29638 en partie). Échelles : A, B, D = 2 mm; C = 5 mm.

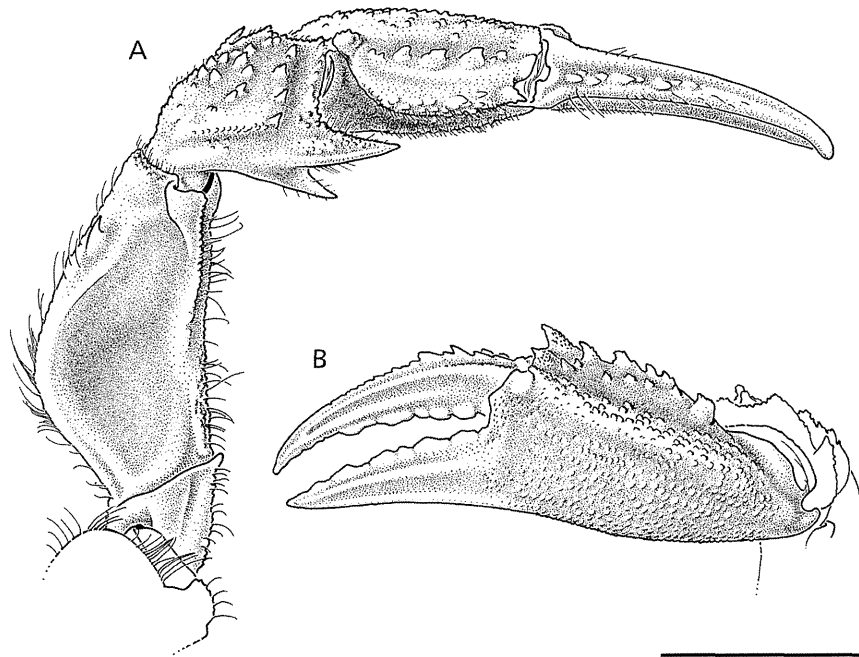


FIG. 4. *Echinolatus proximum* n. sp. ♀ paratype 16.2 × 21.6 mm, Polynesia, Austral Islands, shoal NE Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639): A, left cheliped, dorsal view; B, left chela, external view. Scale bar = 5 mm.

FIG. 4. *Echinolatus proximum* n. sp. ♀ paratype 16.2 × 21.6 mm, Polynésie, Îles Australes, banc NE de Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639) : A, chélopède gauche, vue dorsale ; B, pince gauche, vue externe. Échelle = 5 mm.

DESCRIPTION. — Carapace subhexagonal, distinctly broader than long in adults (for c.l. > 12 mm, width/length ratio 1.33-1.36), less in smaller specimens (for c.l. 5.6 mm to < 8.6 mm, width/length ratio 1.18-1.25). Front produced well in advance of small inner orbital lobes; maximum width of carapace about 3.4 times frontal width (small specimens) to 4.9 times (large specimens); quadrilobate, median lobes narrower, about as long as broad at base, shorter in small specimens, separated medially by V-shaped notch; relative prominence of lobes varying with size of specimen; lateral lobes similar in height to medians but twice as broad at base; separated from median lobes by deep sulcus. In young specimens, frontal lobes less prominent, and lateral sulci broader and shallower. Supraorbital margin with two fissures, outermost not easily visible on smallest specimens. Anterolateral margins of carapace moderately convex; exorbital lobe well developed, bluntly pointed, with convex outer margin; three following teeth spinous, first two angled forwards, last tooth directed laterally; in juveniles these teeth armed with a denticle towards base of anterior margin, quickly becoming spinous as crab matures, finally being subequal in size to original anterolateral spine. First and second teeth appear bifid; third trifurcate; third extending laterally much further than first two teeth, and forming maximum carapace width. Posterolateral margins concave. Posterior border slightly sinuous, slightly wider than half carapace width. Dorsal surface of carapace granular; regions well defined; anterior half, in front of epibranchial regions with sparse large granules, more obviously present on hepatic, mesogastric and protogastric regions; elevated areas comprise: transverse bumps on epibranchial and metagastric regions, two short bumps side by side on anterior portion of cardiac region, longitudinal elevations on cardiac and intestinal regions; on anterior part of carapace, three small granular clusters on posterior part of protogastric and mesogastric regions; branchial regions with low bump between each epibranchial region and cardiac region, posteriorly some clusters of granules forming an interrupted longitudinal line, continuing parallel with that on posterior part of cardiac region and on intestinal region; finally, behind these longitudinal lines of granular clusters, a short transverse cluster of granules close to posterior edge of carapace.

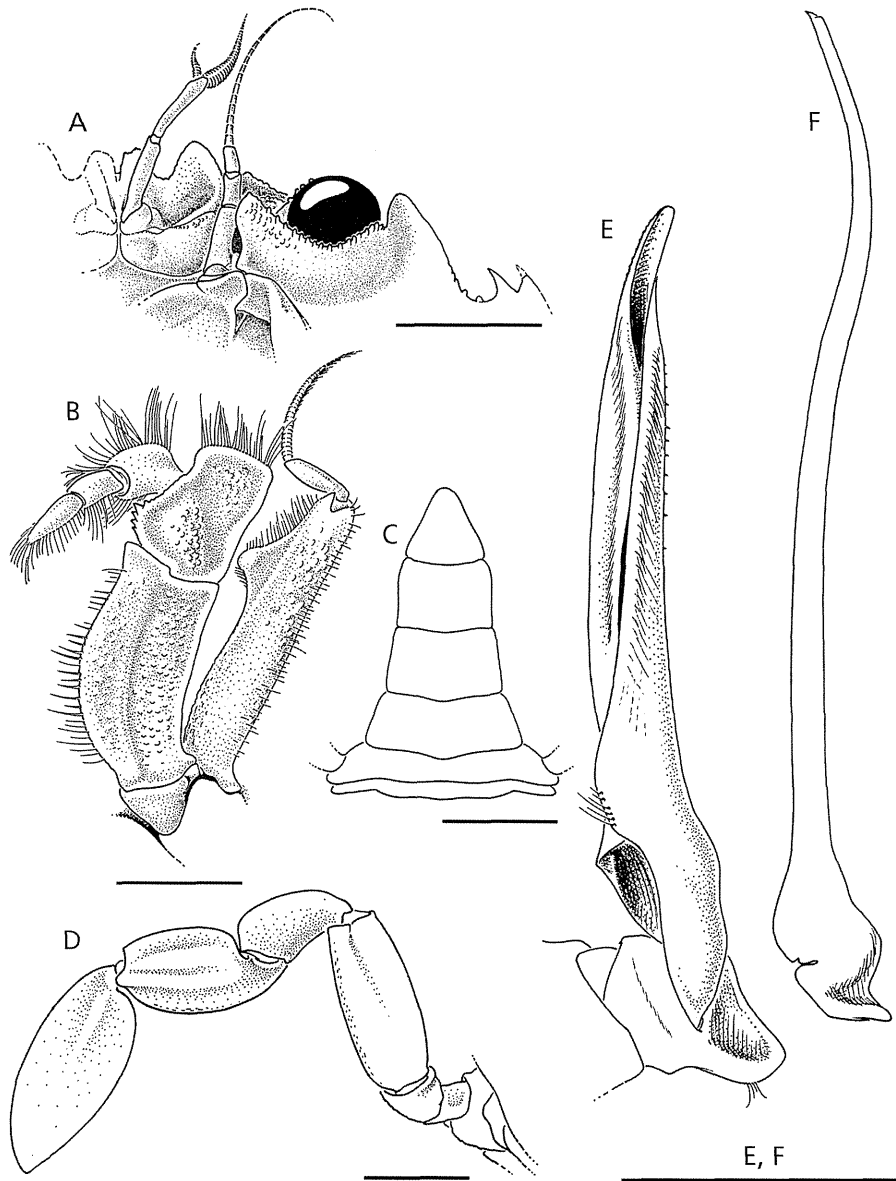


FIG. 5. *Echinolatus proximum* n. sp. A-B, ♀ paratype 16.2 × 21.6 mm, Polynesia, Austral Islands, shoal NE Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639): A, frontal view showing antennae and antennules; B, left third maxilliped; C-D, ♂ 5.9 × 7.0 mm, *ibidem*, shoal NE Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29638 in part); C, abdomen; D, left P5; E-F, ♂ allotype 12.1 × 16.1 mm, *ibidem*, Marotiri, BENTHAUS, stn CAS 1878, 122-129 m (MNHN-B 29633): E, left first pleopod, ventral view; F, left second pleopod, ventral view. Scale bars: A = 3 mm; B = 2 mm; C-F = 1 mm.

FIG. 5. *Echinolatus proximum* n. sp. A-B, ♀ paratype 16.2 × 21.6 mm, Polynésie, Îles Australes, banc NE de Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29639) : A, vue frontale montrant antenne et antennule ; B, troisième maxillipède gauche ; C-D, ♂ 5,9 × 7,0 mm, *ibidem*, banc NE de Rapa, BENTHAUS, stn DW 1905, 120-140 m (MNHN-B 29638 en partie) : C, abdomen ; D, P5 gauche ; E-F, ♂ allotype 12,1 × 16,1 mm, *ibidem*, Marotiri, BENTHAUS, stn CAS 1878, 122-129 m (MNHN-B 29633) : E, premier pléopode gauche, vue ventrale ; F, second pléopode gauche, vue ventrale. Échelles : A = 3 mm ; B = 2 mm ; C-F = 1 mm.

Antennae in communication with orbit; basal article elongated, slender, mobile (Fig. 5A). Antennules not located in fossae, but fold transversely into excavation below projecting frontal lobes.

Third maxillipeds (Fig. 5B) with merus prolonged well beyond insertion of carpus, projecting beyond anterior buccal margin of sunken epistome.

Chelipeds subequal (right chela slightly stouter than left); merus little ornamented except for a small spine, placed close to posterior edge at about three-quarters length from base, and some small granules on anterior margin. Carpus with conspicuous, very strong, long, acute tooth at anterointernal angle; ventrally close to its base is a second strong tooth about one-third size of major tooth; superior and external surfaces of carpus with scattered granules of different sizes, more or less dentiform, and more or less arranged in line; along lower edge are two not very sharp-edged teeth prolonged behind as carinae, posterior one larger than anterior one. Except for fingers, chelae finely granular; superior surface with granular crest running length of internal margin and ending in distal tooth that may or may not be spiniform; external face separated from superior face by ridge of small granules; superior surface medially with many more or less large, more or less spiniform denticles, in two more or less longitudinal lines. Fingers almost as long as palm; cutting margins armed with triangular cutting teeth, often tricuspid; dactyl of largest chela (typically right) with large molariform excrescence basally; superior margins of mobile fingers with basal denticles, four or five being well developed; inner and outer lateral faces of both fingers each with two smooth longitudinal crests extending their length, except for lower crest of fixed finger which does not reach base of finger; ends of fingers pointed, recurved and crossing.

Pereiopods 2-4, smooth, subequal, length 1.25 to 1.3 times that of carapace; slender (P4 merus length to breadth ratio from 2.5 to 2.85, with largest ratios in juveniles); dactyli long, c. 1.3 times longer than propodus. Fifth pereiopods also smooth, not much shorter than P2-4; propodi and dactyli dorsoventrally flattened for swimming. Dactylus lanceolate, c. 2.1 times longer than broad (excluding peduncle); surface showing a median longitudinal swelling, but not markedly ridged or grooved, bordered on both sides by areas of short setae; anterior margin slightly convex; posterior margin strongly convex over basal part; ending in a bluntly rounded point (Fig. 6B).

Male abdomen 7-segmented; sixth segment quadrangular, c. 1.35 times broader than long, lateral margins slightly sinuous. Telson triangular, as broad as long, lateral margins strongly convergent; apically rounded.

Male G1 (Fig. 5E) stout, almost straight, distal part narrowed, slightly bent; dorsal face distally with tiny spinules; external margin with some short, recurved, rather stiff setae.

Male G2 (Fig. 5F) slender, distinctly longer than first; proximal half almost straight; broadly curved over distal third; apically pointed with short bevel and small gutter.

COLOURATION. — Two distinct colour patterns were observed and are reproduced in fig. 10. It must be noted that the P5 dactyli are translucent, and their colour in the figure is artificial and merely induced by the background colour of the photograph.

REMARKS. — This species is very close to *E. bullatum*, so much so that it must be questioned whether differences observed

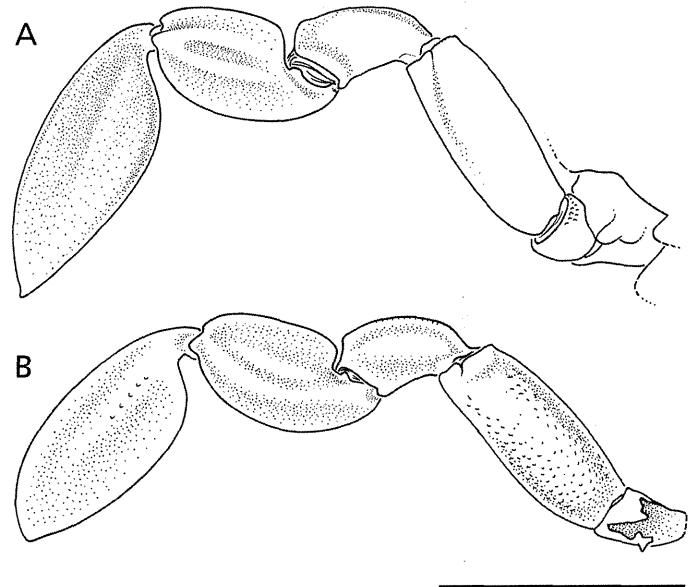


FIG. 6. Left P5: A, *Echinolatus bullatum* (Bals, 1923), ♀ ovig. 6.5 × 7.8 mm, *ibidem*, no depth mentioned (ZSM A 20044898, in part); B, *Echinolatus proximum* n. sp., Polynesia, Austral Islands, Marotiri Islands, BENTHAUS, stn DW 1880, 90-94 m (MNHN-B 29634). Scale bar: 2 mm.

FIG. 6. P5 gauche: A, *Echinolatus bullatum* (Bals, 1923), ♀ ovig. 6.5 × 7.8 mm, *ibidem*, profondeur non indiquée (ZSM A 20044898, en partie); B, *Echinolatus proximum* n. sp., Polynésie, Îles Australes, Îles Marotiri, BENTHAUS, stn DW 1880, 90-94 m (MNHN-B 29634). Échelle: 2 mm.

between the two species may simply be the result of growth changes, or variation due to geographic and bathymetric differences. However there are several reasons why we consider the observed differences to be at the species level. The first relates to size at sexual maturity: in *E. bullatum*, the males are adult at 5 mm length, whereas in *E. proximum* males of 8 mm are still entirely juvenile without any development of the gonopods; even the 13.0 mm male does not yet seem fully mature. Similarly in females of *E. bullatum*, there are several ovigerous females between 4.9 and 5.2 mm in length, while in *E. proximum* the only examined ovigerous female is 18.4 mm in length.

Morphologically, *E. bullatum* and *E. proximum* can be separated by several characters:

— *proportions of the carapace*: while the larger specimens of *E. proximum* are clearly broader than the smaller *E. bullatum* specimens of the type series (which have a small last anterolateral tooth), when compared with the large adult male *E. bullatum* of the Anton Bruun, *E. proximum* is conversely proportionally narrower. For the male and the three females of *E. proximum* (widths respectively 16.1, 21.6, 24.5 and 25.4), the carapace length/width ratio is very consistent and ranges from 0.748 to 0.751. The same ratio for the male of *E. bullatum* (width 24.6 mm), photographed in the work of Dell *et al.* (1970) and of which we reproduce the photograph (Fig. 9C), is only 0.69.

— *the dactylus of the fifth pereopods* in *E. bullatum* is, excluding the peduncle, c. 2.4 times longer than broad, and terminates in an acute point (Fig. 6A), whereas in *E. proximum* it is only c. 2.1 times longer than broad, and lacks an acute terminal point (Fig. 6B). These differences are consistent across all sizes of specimens.

— *the male abdomen* is proportionally narrower in *E. proximum* than in *E. bullatum* (Figs 5C and 2D). In a specimen of *E. proximum* measuring 5.9 × 7.0 mm, the sixth abdominal segment is 1.36 times broader than long, and the telson as broad as long, while in an *E. bullatum* measuring 5.2 × 5.8 mm, these ratios are respectively 1.56 and 1.22.

— *the male G1* is straight in *E. proximum* (Fig. 5E) but sinuous in *E. bullatum* (Fig. 2E). However this needs to be confirmed by the examination of other males of *E. proximum*.

Finally, comparing *E. proximum* with the photograph of the large specimen of *E. bullatum* collected by the Anton Bruun from Juan Fernandez (Fig. 9C), the frontal lobes, as well as the exorbital teeth, are relatively more pointed than in *E. proximum* of similar size; while in *E. proximum* the granulation of the carapace seems more developed, and the granules larger.

DISTRIBUTION. — Known only from Austral Islands, in French Polynesia. Dredged from 59-150 and 120-200 m depth, but seems most abundant between 90-130 m depth.

Echinolatus poorei n. sp.

Figs 7, 8, 9F

Nectocarcinus aff. *bullatus*: Poore, 2004: 412.

Lupocyclus sp. — Poore 2004: 418, fig. 132a.

TYPE MATERIAL. — The ♂ (NMV J52217) is the holotype, the ♀ the allotype.

MATERIAL EXAMINED. — Australia. South Australia, Great Australian Bight, stn SS01/00 334, 33°15.87'S, 130°37.83'E, 139 m, 9.05.2000, coll. by Yvonne Bone Sled: 1 ♂ 10.8 × 15.5 mm (holotype) (NMV-J52217); 1 ♀ 8.9 × 11.9 mm (allotype) (NMV-J53154). — Stn SS01/00 350, 33°16.00'S, 130°36.59'E, 10 May 2000, 143 m, epibenthic sled: 1 ♂ (16.5 × 11.6 mm); 1 ♀ (18.1 × 13.5 mm) (almost all limbs detached, ♀ with abdomen missing) (NMV-J52216), 1 ♂ (16.5 × 11.9 mm); 1 ♀ (12.0 × 8.7 mm) (almost all limbs detached) (MNHN-B 29843). — Stn SS01/00

350, 33°16.00'S 130°36.59'E, 10 May 2000, 134 m, epibenthic sled: 1 ♂ (19.1 × 13.3 mm) (all limbs detached except right P5) (NMV-J52218). — South Australian Research and Development Institute (S.A.R.D.I.) GAB 912, stn 1M3, 34°24'13"S, 134°48'30"E, 18 April 2002, 77 m: 3 ♂ (14.8 × 11.2, 15.1 × 11.5, 16.3 × 12.1 mm) (SAM TC16667). Victoria, stn SS01/00 186, 38°11.46'S, 149°34.02'E, 21 April 2000, 520 m, epibenthic sled: 1 ♂ (15.4 × 10.8 mm) (all limbs detached except right P5) (NMV-J52215).

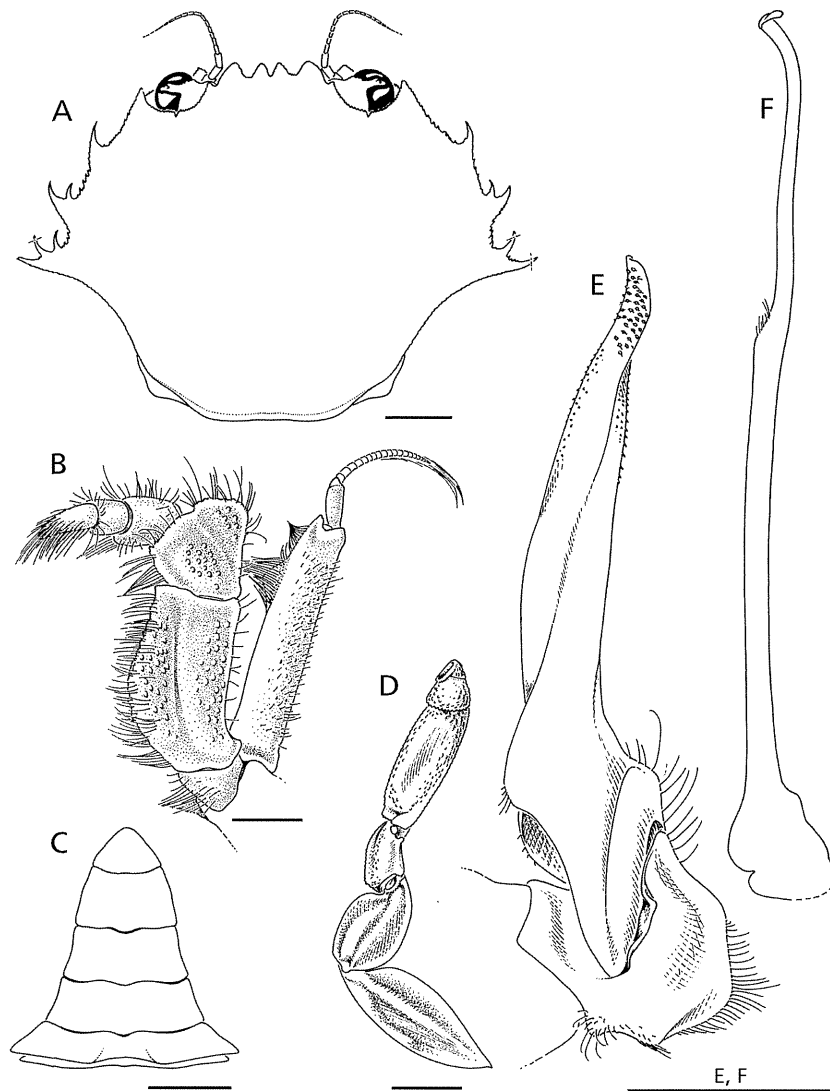


FIG. 7. *Echinolatus poorei* n. sp. ♂ holotype 10,8 × 15,5 mm, Australia, Great Australian Bight, stn SS01/00 334, 139 m (NMV J62217 in part): A, carapace outline; B, left third maxilliped; C, abdomen; D, left P5; E, left first pleopod, ventral view; F, left second pleopod, ventral view. Scale bars: A, C, D = 2 mm; B, E, F = 1 mm.

FIG. 7. *Echinolatus poorei* n. sp. ♂ holotype 10,8 × 15,5 mm, Australie, Great Australian Bight, stn SS01/00 334, 139 m (MV J62217 en partie) : A, contours de la carapace ; B, troisième maxillipède gauche ; C, abdomen ; D, P5 gauche ; E, premier pléopode gauche, vue ventrale ; F, second pléopode gauche, vue ventrale. Échelles : A, C, D = 2 mm ; B, E, F = 1 mm.

TYPE LOCALITY. — Australia. Great Australian Bight, 33°15.87'S, 130°37.83'E, 139 m.

ETYMOLOGY. — Named in honour of Dr Gary C.B. Poore for his outstanding contribution to understanding the crustacean biodiversity of southern Australia.

DESCRIPTION. — Carapace subhexagonal, distinctly broader than long (c. 1.34-1.38 in females and 1.39-1.44 in males). Front produced well in advance of small inner orbital lobes; maximum width of carapace about 4.4 times frontal width in female and 4.9 times in male; composed of 4 lobes: lateral pair well developed, triangular, margins slightly convex, apically

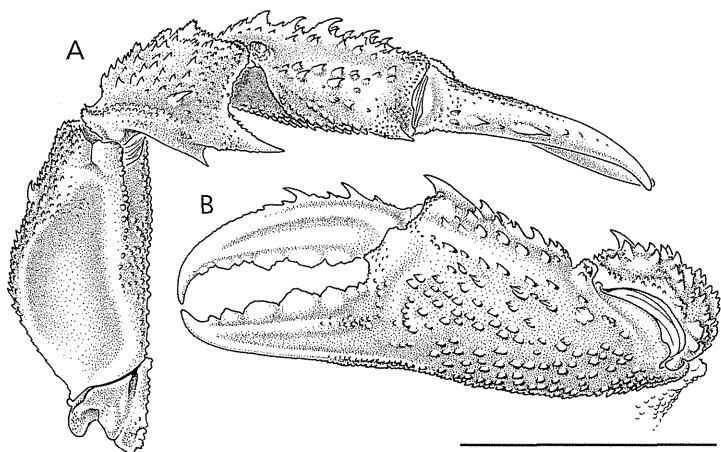


FIG. 8. *Echinolatus poorei* n. sp. ♂ holotype 10,8 × 15,5 mm, Australia, Great Australian Bight, stn SS01/00 334, 139 m (NMV J62217 in part): A, left cheliped, dorsal view; B, left chela, external view. Scale bars = 5 mm.

FIG. 8. *Echinolatus poorei* n. sp. ♂ holotype 10,8 × 15,5 mm, Australie, Great Australian Bight, stn SS01/00 334, 139 m (MV J62217 en partie): A, chélopède gauche, vue dorsale; B, pince gauche, vue externe. Echelles = 5 mm.

rounded; median pair a little smaller, lateral margins very slightly concave, apically bluntly rounded, separated medially by V-shaped notch, and from lateral lobes by a broader U-shaped sulcus. Supraorbital margin with two fissures, but outermost not clearly marked. Anterolateral margins of carapace convex; margins bearing tiny denticles over entire length; exorbital lobe well developed, triangular, bluntly pointed, external margin straight; three following teeth spiniform, size increasing from first to third, first tooth pointed anteriorly, second tooth directed anterolaterally, third tooth pointed laterally; maximum width of carapace between third teeth. First teeth lacking any spinous accessory teeth, second with one on anterior margin, and third typically with two but sometimes one only. Posterolateral margins concave, with dentiform granules. Posterior

margin slightly sinuous, slightly more than half width of carapace. Dorsal surface of carapace granular over entire surface; regions well marked; variously elevated, particularly on metagastric, cardiac and intestinal regions, and along epibranchial ridges; lower elevations on mesogastric, protogastric, and on posterior part of branchial regions.

Antennae in communication with orbit; basal article elongated, slender and mobile. Antennules not located in fossae, but fold transversely into an excavation below projecting frontal lobes (as figured for *E. proximum* [Fig. 5A]).

Third maxillipeds (Fig. 7B) with merus projecting beyond anterior buccal margin of sunken epistome.

Chelipeds equal, covered with coarse denticles and even low spines. Merus granular on external and internal surfaces; outer superior margin armed at about distal 7/10 with small, fine spinous tooth, bent forwards. Carpus with conspicuous, very strong, long, acute tooth at anterointernal angle; ventrally close to its base is a second strong tooth about one-sixth size of major tooth; superior and external surfaces of carpus with many dentiform granules, a fine recurved tooth on dorsal surface interior to spine at anterointernal angle; two short stout teeth on anteroinferior margin. Chelae covered in many dentiform granules; a row of large granules at juncture of upper and external faces; below this posteriorly, a series of 4-5 fine and recurved teeth; superior surface with numerous granules and small recurved teeth more or less arranged in two lines (not very clear); upper internal margin formed by uneven projecting granular row, ending distally in strong tooth; internal and inferior surfaces entirely covered in homogenous sized granules. Fingers almost as long as palm; both with triangular cutting teeth, often tricuspid; extremities pointed, recurved and crossing; superior margin of mobile finger with a row of two or three spinous teeth accompanied by several granules; external and internal faces of both fingers each with two smooth longitudinal ridges.

Pereiopods 2-4 smooth, subequal, relatively slender (P4 merus length/breadth ratio c. 2.3); dactyli long (1.25-1.4 times longer than propodus); length from 1.25-1.35 times that of carapace.

Fifth pereiopods (Fig. 7D) also smooth, not much shorter than P 2-4; propodus and dactylus dorsoventrally flattened for swimming. Dactylus lanceolate, from 2.2-2.3 times longer than broad (excluding peduncle); surface with low, rounded median longitudinal swelling; anterior margin convex over entire length; posterior margin convex over basal half then curving and becoming slightly concave; terminating in small point apically.

Male abdomen (Fig. 7C) 7-segmented. Sixth segment quadrangular, c. 1.6 times broader than long, lateral margins very slightly sinuous. Telson triangular, c. 1.2 times broader than long, apically rounded; lateral margins straight, strongly convergent.

Male G1 (Fig. 7E) stout, narrowing very gradually; straight except for slightly recurved distal portion; with small spinules over distal end; subdistally with tiny denticles, and short, recurved, rather stiff setae.

Male G2 (Fig. 7F) slender, distinctly longer than first; constricted suddenly over distal third; almost straight except for internally recurved distal tenth, ending with short strip reflexed at right angles towards outside.

REMARKS. — *Echinolatus poorei* looks superficially most similar to large *E. bullatum* and *E. proximum* because of its markedly protruding last anterolateral teeth. However it can be easily separated from these species by the form of the first anterolateral tooth behind the exorbital angle, which is spiniform and unarmed along its leading edge (versus a much broader tooth carrying an accessory spine or spinule in the other two species). The form of the first anterolateral tooth is similar to *E. caledonicum*, but in that species all the anterolateral spines are smaller and less protuberant, especially the last. Also in *E. caledonicum* the second anterolateral tooth lacks an accessory spine on its anterior margin, whereas *E. poorei* has a strong accessory spine in this position. In addition, *E. caledonicum* has the median frontal lobes relatively much smaller, narrower, and less protruding than the laterals (Fig. 9E), whereas in *E. poorei* the median frontal lobes are slightly narrower but not markedly smaller than the laterals, and similarly protruding (Fig. 7A).

DISTRIBUTION. — Only known from off southern Australia between 130°36.59'E and 149°34.02'E longitude. All specimens were taken using epibenthic sleds in depths from 134-520 m.

Echinolatus caledonicum (Moosa, 1996)

Fig. 9E

Nectocarcinus caledonicus Moosa, 1996: 508, figs 1, 2, 9a.

TYPE MATERIAL. — A ♂ 12 × 16 mm (MNHN-B 22816) is the holotype. Moosa (1996, fig. 9a) has published a photograph of it. The seven other specimens mentioned by Moosa are paratypes and registered under the numbers (MNHN-B 22817-22822).

MATERIAL EXAMINED. — All the material from New Caledonia and the Chesterfield Islands mentioned by Moosa 1996 and in addition:
 New Caledonia. NORFOLK 2, stn CP 2119, 23°23'S, 168°02'E, 300 m, 1.11.2003: 1 ovig. ♀ 8.5 × 11.6 mm (QM-W27789); stn DW 2135, 23°02'S, 168°21'E, 295-330 m, 3.11.2003: 1 ♂ 13.2 × 17.7 mm (QM-W27788), 1 ♂ 12.6 × 17.2, 2 ♀ 9.7 × 12.6 and 9.7 × 12.9 mm, 1 ovig. ♀ 9.9 × 13.2 mm (MNHN-B 29641); stn DW 2136, 23°01'S, 168°23'E, 400-410 m, 3.11.2003: 1 ♂ 9.2 × 12.3, 1 ovig. ♀ 10.1 × 12.8 mm (MNHN-B 29642).

TYPE LOCALITY. — Chesterfield Islands.

DIAGNOSIS (modified from Moosa 1996). — Carapace wider than long, finely but sparsely granular; regions clearly defined. Front quadrilobate; median lobes rounded, much smaller than laterals; lateral lobes triangular, pointed; inner orbital angle separated from lateral lobe by wide sulcus. Epibranchial region forming an almost straight, raised area nearly reaching cervical groove; cardiac region with two raised rounded areas. Anterolateral margin convex, with four teeth: first tooth large and blunt; second to third as sharp spines, about equal in size; fourth larger than preceding two, with one or two small, accessory spines at or near base. Antennules not located in fossae, but folding transversely into an excavation below projecting frontal lobes. Third maxillipeds narrow, merus much longer than broad, outer angle not laterally produced; carpus placed medioternally. Chelipeds subequal; anterior border of merus granular, without spine on either margin, but covered with setae; carpus broad, dorsal surface sparsely granulated, armed with a strong spine on inner angle, and a much smaller spine ventrally at its base, outer surface with small spine; palm denticulated, without carinae on inner



FIG. 9. A-C, *Echinolatus bullatum* (Balss, 1923): A, ♀ lectotype 5.0 × 5.4 mm, Chile, Juan Fernandez, Masatierra, 10-35 m (NHMG Crust. 5162, in part); B, ♀ ovig. 6.5 × 7.8 mm, *ibidem*, no depth mentioned (ZSM A 20044898, in part); C, ♂ 24.6 mm, off Juan Fernandez, Anton Bruun, reproduced from Dell *et al.* 1970 (with permission of the Royal Society of New Zealand); D, *Echinolatus proximum* n. sp., ♀ holotype 19.0 × 25.4 mm, French Polynesia, Austral Islands, shoal NE Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637); E, *Echinolatus caledonicum* (Moosa, 1996), ♀ paratype 12 × 16 mm, Chesterfield Islands, MUSORSTOM 5, stn 330, 360-365 m (MNHN-B 22817); F, *Echinolatus poorei* n. sp., ♂ holotype 10.8 × 15.5 mm, Australia, Great Australian Bight, stn SS01/00 334, 139 m (NMV J62217 in part).

FIG. 9. A-C, *Echinolatus bullatum* (Balss, 1923) A, ♀ lectotype 5.0 × 5.4 mm, Chili, Juan Fernandez, Masatierra, 10-35 m (NHMG Crust. 5162, en partie), B, ♀ ovig. 6.5 × 7.8 mm, *ibidem*, sans indication de profondeur (ZSM A 20044898, en partie), C, ♂ 24.6 mm, au large de Juan Fernandez, Anton Bruun, reproduit d'après Dell *et al.* 1970 (avec la permission de la Royal Society of New Zealand); D, *Echinolatus proximum* n. sp., ♀ holotype 19.0 × 25.4 mm, Polynésie française, Îles Australes, banc NE de Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637); E, *Echinolatus caledonicum* (Moosa, 1996), ♀ paratype 12 × 16 mm, Îles Chesterfield, MUSORSTOM 5, stn 330, 360-365 m (MNHN-B 22817); F, *Echinolatus poorei* n. sp., ♂ holotype 10.8 × 15.5 mm, Australie, Great Australian Bight, stn SS01/00 334, 139 m (MV J62217 en partie).

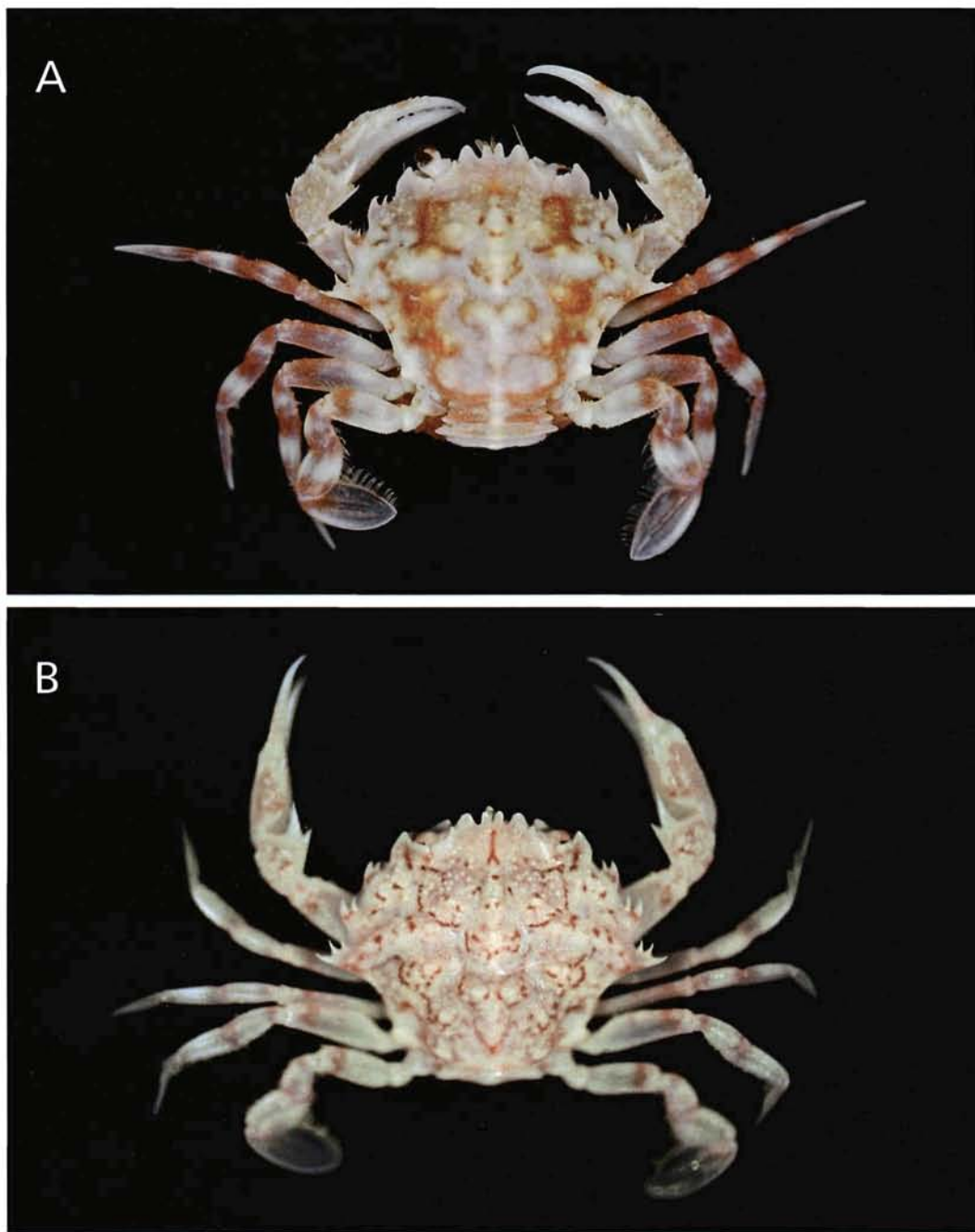


FIG. 10. *Echinolatus proximum* n. sp. A, ♀ ovig. paratype 18.4 × 24.5 mm, French Polynesia. Austral Islands, Marotiri Islands, BENTHAUS, stn DW 1880, 90-94 m (MNHN-B 29635); B, ♀ holotype 19.0 × 25.4 mm, French Polynesia. Austral Islands, shoal NE Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637).
FIG. 10. *Echinolatus proximum* n. sp. A, ♀ ovig. paratype 18.4 × 24.5 mm, Polynésie française. Îles Australes, Îles Marotiri, BENTHAUS, stn DW 1880, 90-94 m (MNHN-B 29635); B, ♀ holotype 19.0 × 25.4 mm, Polynésie française. Îles Australes, banc NE de Rapa, BENTHAUS, stn DW 1901, 115-120 m (MNHN-B 29637).

and outer surfaces except on dactylus, inner margin covered with setae; upper surface of hand with spine on distal inner margin. P2-P4 relatively slender, granulated, covered with stiff bristles; posterior margins of propodus and dactylus pilose; P4 carpus also pilose posteriorly; dactyli longer than propodi. P5 merus finely granulated, not densely pilose, length more than twice width, unarmed; propodus with margins pilose; dactylus ovate, c. 2.5 times longer than wide, posterior margin pilose, anterior margin with stiff setae, apex blunt. Male abdomen 7-segmented; telson heart-shaped, slightly wider than long; penultimate segment parallel in proximal four-fifths, slightly wider than long. Male G1 stout, almost straight, twisted over distal two-thirds, apex slim, slightly curved anterolaterally, outer surface of straight section and exterior of apex covered with short spinules; G2 slender, much longer than first.

REMARKS. — *Echinolatus caledonicum* differs most conspicuously from other species of the genus by the form of the front. The lateral frontal lobes are triangular, and broad at their base, while the medians are much smaller, and shorter, with their tops set markedly behind the lateral lobes, nearly to the level of the inner-orbital lobes. In addition the anterolateral carapace teeth are particularly small and slender, and the first two lack an accessory spine on the leading edge. Moosa (1996) published good drawings of this species.

DISTRIBUTION. — Known only from New Caledonia and the Chesterfield Islands, between 200 and 580 m.

DISCUSSION

With the removal of *Nectocarcinus bullatus* Balss, 1923 and *N. caledonicus* Moosa, 1996, *Nectocarcinus* is hereby restricted to six species: *Nectocarcinus integrifrons* (Latreille, 1825), *N. antarcticus* (Hombron & Jacquinot, 1846), *N. tuberculosus* A. Milne-Edwards, 1860, *N. spinifrons* Stephenson, 1961, *N. bennetti* Takeda & Miyake, 1969, and *N. pubescens* Moosa, 1996.

However, it seems clear to us that *Nectocarcinus* remains polyphyletic. The two Australian species, *Nectocarcinus integrifrons* (Latreille, 1825) and *N. tuberculosus* A. Milne-Edwards, 1860, are clearly very closely related and indeed juveniles and subadults can be quite difficult to separate because a central notch in the frontal margin of *N. integrifrons* (lost in adults) is variably present. Dell *et al.* (1970) discussed and tabulated a number of characters useful in distinguishing both juveniles and adults of the two species. *Nectocarcinus spinifrons* Stephenson, 1961, seems to be most similar to the other two Australian species, although Dell *et al.* (1970) expressed some reservations, in particular that the basal antennal article is capable of a small amount of movement, and not completely fixed as in the other two species. The importance of this character needs to be reassessed. All three species have broadly bilobed fronts, similar carapace shapes and armature, lack epibranchial ridges, and have similar shaped natatorial legs, even though the dactylus of *N. spinifrons* may be a little more narrowly lanceolate. A. Milne-Edwards (1860: 220) originally included four species in his new genus *Nectocarcinus*, viz. *Portunus integrifrons* Latreille, 1825, *Portunus antarcticus* (Hombron & Jacquinot, 1846), and two new species *N. melanodactylus* and *N. tuberculosus*, but without designating a specific genotype. Dell *et al.* (1970: 52), have subsequently designated *Portunus integrifrons* Latreille, 1825, as the type species for *Nectocarcinus*. Thus if further study reveals that the three Australian species should be separated from the New Zealand pair, a new generic name will be required for *N. antarcticus* and *N. bennetti*.

Nectocarcinus pubescens Moosa, 1996, while superficially more similar to *N. spinifrons* than to other carcinines, also differs markedly from that species by its relatively much narrower legs. It also seems likely that a new genus should be erected for this species.

ACKNOWLEDGEMENTS

Gary Poore (Victoria Museum, Melbourne), Bertrand Richer de Forges (IRD, Nouméa) and Joseph Poupin (École Navale, Lanveoc-Poulmic) collected the new species described here. Torsten Nordander (Göteborgs Naturhistoriska Museet) sent on loan all the specimens of *E. bullatum* in Göteborg studied by Balss. Roland Melzer and Stefan Friedrich

(Zoologisches Sammlung des Bayerischen Staates, München) sent on loan the rest of the specimens studied by Balss. Marco Retamal (Universidad de Concepcion) helped with the bibliography and by introducing us, unfortunately without result, to other scientists from Chile. Paul Clark (The Natural History Museum, London), Rafael Lemaitre (National Museum of Natural History, Washington), Joel Martin and Georges Davis (Natural History Museum of Los Angeles County, and Rick Webber (Museum of New Zealand Te Papa Tongarewa) helped in various ways. Joseph Poupin (École Navale, Lanveoc-Poulmic) took the colour photographs. Jean-François Dejouannet (IRD, Paris) has executed the figures and the black and white photographs illustrating this paper with his usual talent. Finally, thanks to Drs Peter K. L. Ng and Bertrand Richer de Forges for helpful comments on the manuscript.

REFERENCES

- ANDRADE H. V. 1985. — Crustáceos Decápodos marinos del Archipiélago de Juan Fernández, in ARANA P. (ed.), *Investigaciones marinas en el Archipiélago de Juan Fernández*. Escuela de Ciencias del Mar, UCV, Valparaíso: 109-116.
- BAEZ P. & RUIZ R. 1985. — Crustaceans of the oceanic islands of Chile in the National Museum of Natural History, in ARANA P. (ed.), *Investigaciones marinas en el Archipiélago de Juan Fernández*. Escuela de Ciencias del Mar, UCV, Valparaíso: 94-108.
- BALSS H. 1923. — Decapoden von Juan Fernandez, in SKOTTSBERG C. (ed.), *The Natural History of Juan Fernandez and Easter Island. Vol. III*. Almqvist and Wiksell, Uppsala: 329-340, figs 1-3.
- DELL R. K., GRIFFIN D. J. G. & YALDWYN J. C. 1970. — A new swimming crab from the New Zealand subantarctic and a review of the genus *Nectocarcinus* A. Milne Edwards. *Transactions of the Royal Society of New Zealand. Biological Sciences* 12 (7): 49-68, figs 1-3, pls 1-3 h. t.
- DUPRÉ E. 1975. — Lista de Crustáceos Decápodos citados para el Archipiélago de Juan Fernández. *CIMAR Documento Técnico* 08/75: 1-46.
- GARTH J. S. 1957. — Reports of the Lund University Chile Expedition 1948-1949. No. 29: The Crustacea Decapoda Brachyura of Chile. *Lunds Universitet Arsskrift* N.F. 2, 53 (7): 1-127.
- GARTH J. S. & STEPHENSON W. 1966. — Brachyura of the Pacific Coast of America. Brachyrhyncha: Portunidae. *Allan Hancock Monographs in Marine Biology* 1: 1-154, 12 pls.
- GUZMÁN G. G., NICOSIA W. D. & PEREDO R. M. 1999. — Cangrejos Portunidae (Crustacea, Decapoda) asociados al evento "El Niño" 1997-1998 en la zona norte de Chile, con el primer registro de *Areneus mexicanus* (G.). *Noticario mensual del Museo nacional de Historia Natural* 338: 4-6.
- MILNE-EDWARDS A. 1860. — Histoire des Crustacés Podophthalmaires fossiles. *Annales des Sciences naturelles (Zoologie)*, série 4, 14:129-293, pls 1-10.
- MOOSA M. K. 1996. — Crustacea Decapoda: Deep-water swimming crabs from the South-West Pacific, particularly New Caledonia (Brachyura, Portunidae), in CROSNIER A. (ed.), *Résultats des Campagnes MUSORS-TOM 15. Mémoires du Muséum national d'Histoire naturelle* 168: 503-530.
- POORE G. C. B. 2004. — *Marine Decapod Crustacea of Southern Australia: A Guide to Identification*. CSIRO Publishing, Melbourne, i-ix + 574 p., 181 figs, 32 colour pls.
- RETAMAL M. A. 1981. — Catálogo ilustrado de los Crustáceos Decápodos de Chile. *Gayana (Zoología)* 44: 1-110, figs 1-208.
- RETAMAL M. A. 1999. — Decápodos de Chile. *World Biodiversity Database*, CD-ROM Series, ETI-UNESCO.
- RETAMAL M. A. & JARA C. 2002. — La Carcinología en Chile, in HENDRICKX M. E. (ed.), *Contribuciones al Estudio de los Crustáceos del Pacífico Este*. Instituto de Ciencias del Mar y Limnología, Unidad Académica Mazatlán, Mexico 1: 195-208.
- ROZBACZYLO N. & CASTILLA J. 1987. — Invertebrados Marinos del Archipiélago de Juan Fernández, in CASTILLA J. C. (ed.), *Islas Oceánicas chilenas: Conocimiento Científico y Necesidades de investigaciones*. Ediciones Universidad Católica de Chile, Santiago: 167-189.
- STEPHENSON W. 1972. — An annotated check list and key to the Indo-West-Pacific swimming crabs. *Royal Society of New Zealand Bulletin* 10: 1-64.
- STEPHENSON W. & CAMPBELL B. 1960. — The Australian portunids (Crustacea: Portunidae). IV. Remaining genera. *Australian Journal of Marine and Freshwater Research* 11 (1): 73-122, pls 1-6.