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The Genus *Platypilumnus* Alcock and Description of *P. jamiesoni* n.sp. from New Caledonia (Crustacea, Decapoda, Brachyura)

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ABSTRACT. A new species of the genus *Platypilumnus*, *P. jamiesoni* n.sp., is described and illustrated from the upper bathyal zone of New Caledonia. A key to the four species in the genus is given along with new illustrations for *P. inermis, P. gracilipes* and *P. soelae*. The placement of this genus in Goneplacidae and its affinities with *Neopilumnoplax* Serène, 1969 are discussed.

RÉSUMÉ. Une nouvelle espèce du genre *Platypilumnus, P. jamiesoni* n.sp., est décrite et illustré de la zone bathyale supérieure de Nouvelle-Calédonie. Une clef des quatre espèces du genre est donnée ainsi que de nouvelles illustrations pour *P. inermis, P. gracilipes* et *P. soelae*. La position de ce genre dans les Goneplacidae et ses affinités avec *Neopilumnoplax* Serène, 1969 sont discutées.

RICHER DE FORGES, B., 1996. The genus *Platypilumnus* Alcock and description of *P. jamiesoni* n.sp. from New Caledonia (Crustacea, Decapoda, Brachyura). Records of the Australian Museum 48(1): 1–6.

In the course of the BATHUS 2 expedition, on board R.V. *Alis*, we collected four specimens of the genus *Platypilumnus* Alcock, from the outer reef slope off New Caledonia. This resulted in an investigation of the three described species of the genus, known from a very small number of specimens, and led to the following description of a new species from New Caledonia, *Platypilumnus jamiesoni* n.sp.

The genus *Platypilumnus* has until now included the following species: *Platypilumnus gracilipes* Alcock, 1894, from the Andaman Sea and Vietnam; *P. inermis* Guinot, 1985, from La Réunion Island; and *P. soelae* Garth, 1987, from northwestern Australia.

Different authors have hesitated about the systematic position of this genus; it has been placed in both the Goneplacidae and the Geryonidae. According to Guinot (1969a), the genus *Platypilumnus* could be "étroitement apparenté à *Geryon*". Manning & Holthuis (1989) proposed that the Geryonidae should be limited to only the genera *Geryon, Chaceon* and *Zariquieyon* and that *Platypilumnus* be excluded. I consider *Platypilumnus* is closest to *Neopilumnoplax* and in consequence, I place *Platypilumnus* in Goneplacidae.

Abbreviations: CSIRO, Commonwealth Scientific and Industrial Research Organsisation; MNHN, Muséum national d'Histoire naturelle; NTM: Northern Territory

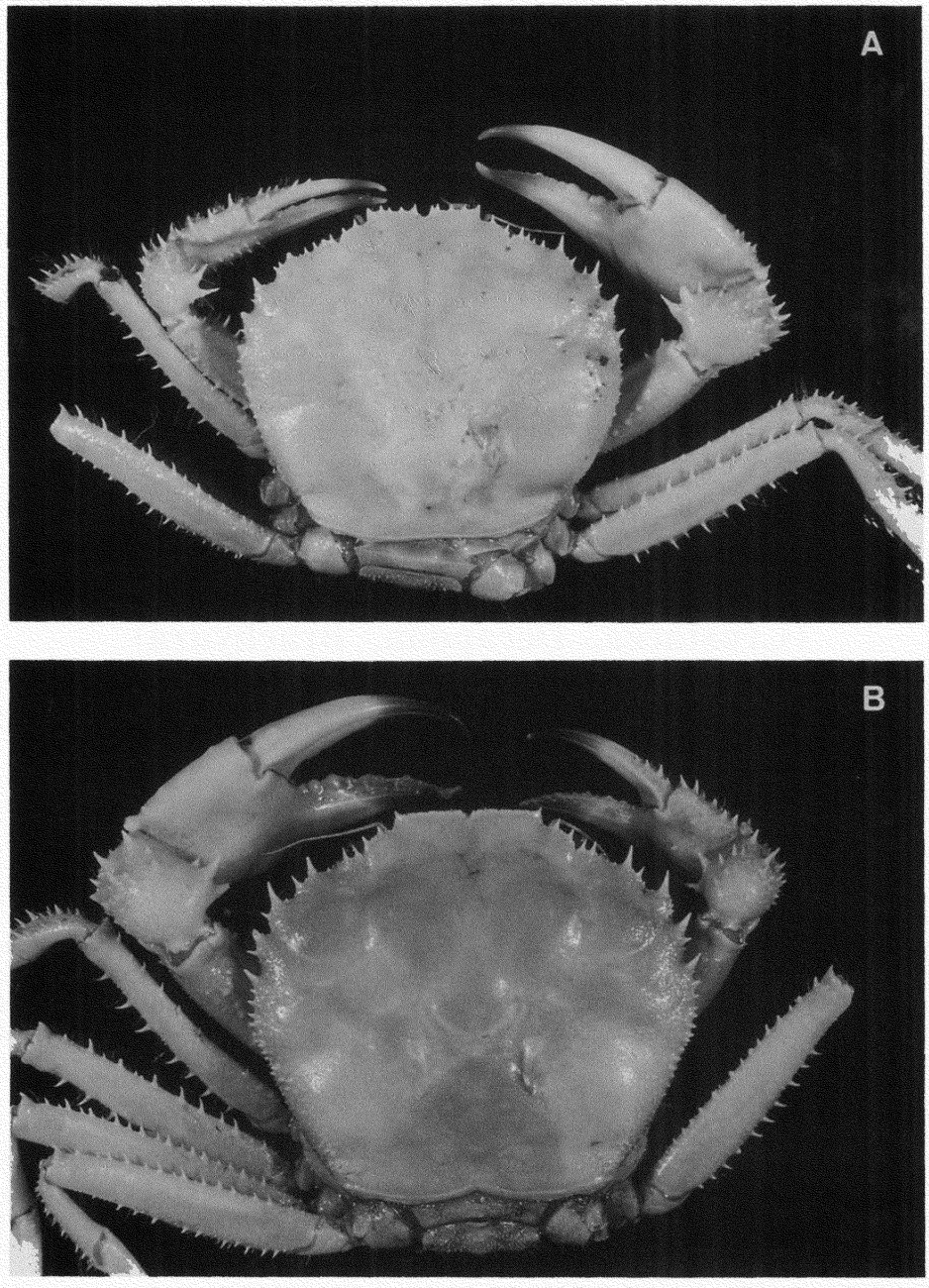

Fig. 1. A, *Platypilumnus gracilipes*, female 23.6×27.5 mm, Vietnam, (MNHN B 6459). B, *P. inermis*, female ovigerous paratype 26.8×32 mm, Réunion Island (MNHN B 10525).

Museum; ORSTOM, L'Institut Français de Recherche Scientifique pour le Développement en Coopération.

Systematics

Platypilumnus gracilipes Alcock, 1894

Fig. 1A

Platypilumnus gracilipes Alcock, 1894: 401, pl. 14, fig. 6.—Guinot, 1969b: 512, 692, fig. 4, pl. II, fig. 97.—Guinot, 1985: 16, 24, pl. II A–D.—Garth, 1987: 35.

Material examined. VIETNAM, 300 m, 22 December 1960, collected and identified by Zarenkov: 1 female 23.6×27.5 mm, with an Isopod Bopyrid parasite (MNHN B 6459).

Remarks. *Platypilumnus gracilipes* is very poorly known. It was described from the Andaman Sea and, since then, has only been found off Vietnam. Alcock (1894) described the fresh colouration as yellowish red.

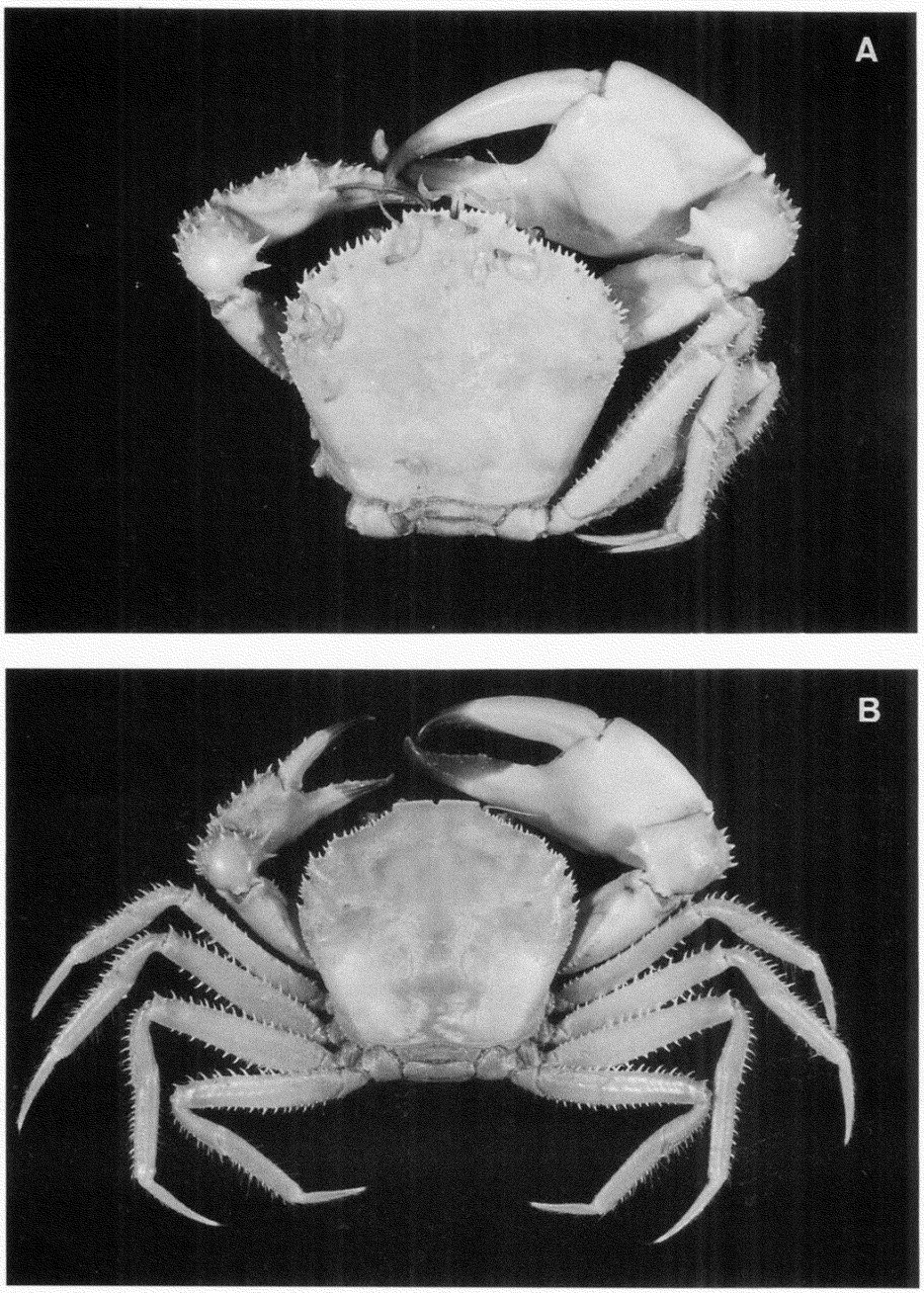

Fig. 2. A, *Platypilumnus soelae*, male paratype 32×40.2 mm, northwest Australia (NTM, number CR 002024). B, *P. jamiesoni* n.sp., male holotype 26.2×30.6 mm, New caledonia, (MNHN B 22730).

Platypilumnus inermis Guinot, 1985

Fig. 1B

Platypilumnus inermis Guinot, 1985: 16, 24; fig. 2: B, D1, D2, E–H; fig. n.n.(A,B); pls II(E–J), IV.—Garth, 1987: 35.

Material examined. LA RÉUNION, MD 32 cruise, station CP 60, 21°03.3'S 55°01.5'E, 460–490 m: 1 male HOLOTYPE 11×13 mm (MNHN B 10525), 1 ovigerous female PARATYPE 26.8×32 mm (MNHN B 10525).

Remarks. The male holotype of *P. inermis* is a juvenile and therefore may not be reliable to compare with other species. In spite of the small size of the specimen, heterochely is already well developed. It is the right claw that is more developed on the holotype, while on the female paratype, it is the left claw.

Guinot (1985: pl. IV) gives a colour photograph of the holotype of *P. inermis*: the carapace is orange over the anterior part, and mostly whitish on the branchial regions. Pereopods 2–4 have a white merus with the distal extremity orange, the carpus, propodus and dactylus are uniformly orange.

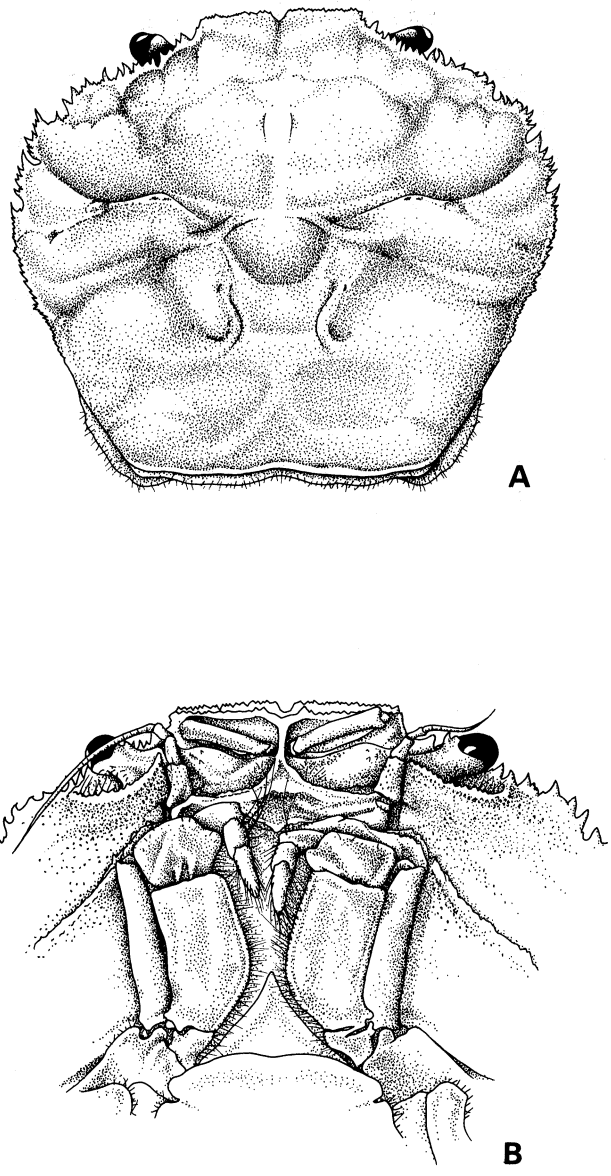

Fig. 3. *Platypilumnus jamiesoni* n.sp., holotype. A, dorsal view; B, anterior part of the ventral view.

Platypilumnus soelae Garth, 1987

Fig. 2A

Platypilumnus soelae Garth, 1987: 35, figs 1, 2A–E.

Material examined. AUSTRALIA, North West Shelf, station 64, FRV *Soela*, CSIRO cruise 0184, 14°49.4'S 121°32.3'E, 178 m, 12 February 1984: 1 male PARATYPE 32×40.2 mm (NTM, CR 002024). INDONESIA, *Karubar* cruise, station CP 59, 8°20.01'S 132°09.32'E, 405–399 m, 31 October 1991: 1 female 27.3×31.2 mm (PROLIPI).

Remarks. This species found recently on the continental shelf of Northwestern Australia, was known from only three male specimens. I attribute to it here a female specimen from the Timor Sea, Indonesia. This female specimen shows the following characteristics: *chelipeds*, the right is bigger than the other (heterochely) with the external face of the propodus smooth; the propodus of the small cheliped is completely spinulous. *Female abdomen* seven segmented.

Platypilumnus jamiesoni n.sp.

Fig. 2B, 3A,B, 4A–C

Material examined. NEW CALEDONIA, BATHUS 2 cruise, station CP 741, 22°35.53'S 166°26.56'E, 700–950 m: 1 male HOLOTYPE, 26.2×30.6 mm (MNHN B 22730). Station CP 762, 22°18.86'S 166°09.78'E, 620–700 m, 16 May 1993: 1 male PARATYPE 18.6×21.5 mm, 1 female PARATYPE 20.4×25.2 mm (MNHN B 22731). Station CP 764, 22°09.41'S 166°02.93'E, 560–570 m, 17 May 1993: 1 male PARATYPE 30.4×35.4 mm; gonads sampled for sperm studies; MNHN B 22729.

Description. Size small. Carapace very flattened, regions visible but little marked. Surface of carapace smooth, carrying gastric groove with gastric fossetts. Curved groove on either side of the cardiac region. Front prominent and rectilinear, bimarginate, with median concavity; superior border finely serrated. Ten or eleven denticles, of equal length, on each side of median concavity. Epistome straight, with granular anterior border (Fig. 3B). Superior border of endostome forming crest interrupted on each side by concavity. Short, oblique crest on endostome.

Antenna short well protected, only flagellum passing anterior border of carapace. Anterolateral border curved, bearing some teeth flanked by spinules; spinules small, numerous, sharp.

Posterolateral border straight with row of granules anteriorly. Sub-hepatic region inflated and finely granular. Eyes short, little visible dorsally, hooked spine on ocular peduncle. Infra-orbital border with row of small spines ending in strong tooth at inner angle. Chelipeds of different sizes (also for females and juveniles): right cheliped very large on adult male, as long as carapace length; propodus very enlarged and flattened, with carina on inferior border; fingers apically hooked with black of fixed finger extending onto distal part; carpus quadrangular with two strong teeth at internal angle and row of seven spines on external border, superior face being smooth; superior border of merus carries some proximal spines. Small cheliped spinulate, less inflated; external face and superior border of propodus bearing strong spines, fingers thin and grooved; carpus spinular on superior face with two stronger spines at internal angle; merus with some distal spines on superior border and line of strong spines on ventral face; 2–3 spines on ventral face of coxa of pereopod 1. Pereopods 2–5 long and slender: merus with row of spinules on superior border and two parallel rows on inferior border; carpus and propodus with spinules only on superior border. Pleopods: as shown in Fig. 4. Colour: In life

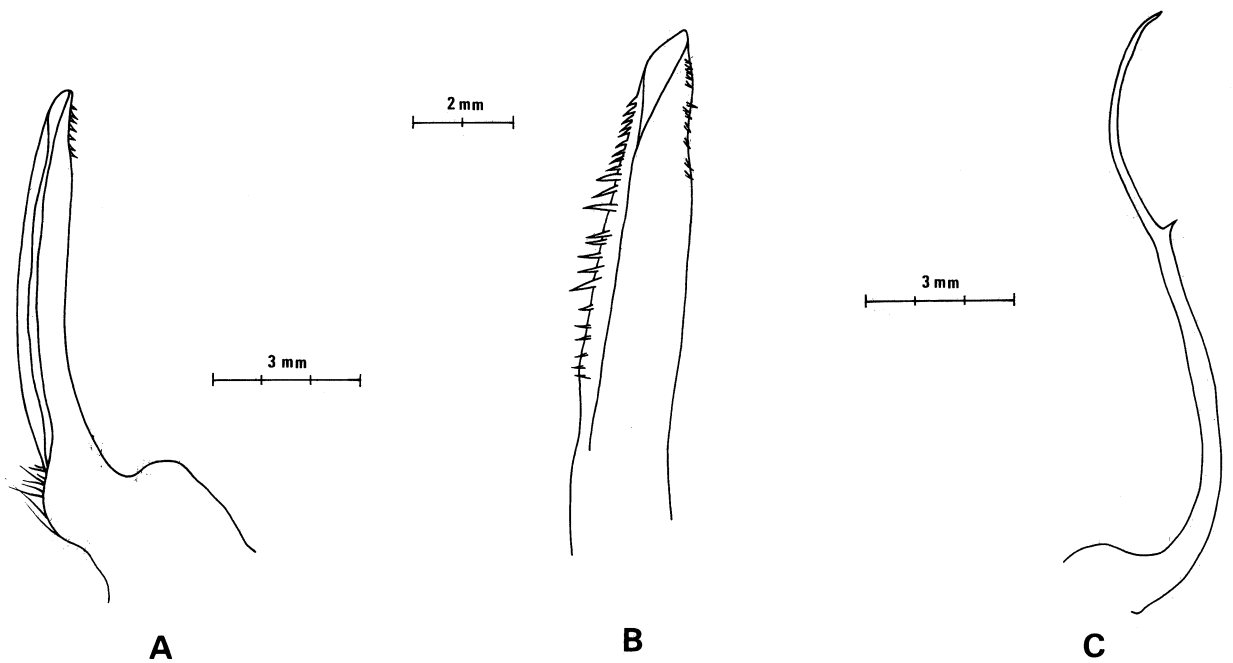

Fig. 4. *Platypilumnus jamiesoni* n.sp. male paratype 30.4×35.4 mm. A and B, first gonopod. C, second gonopod.

carapace is entirely milky white, pereopods 2–4 are reddish-orange on carpus, propodus and dactylus.

Etymology: dedicated to Professor Barrie Jamieson in honour of his work on the phylogeny of Brachyurans using the ultrastructural morphology of sperm.

Remarks. By the finely denticulate front, *P. jamiesoni* resembles *P. inermis*, however *P. inermis* has a much stronger spine at the outer edges of each side of frontal lobe, and the denticulation is much stronger. On *P. jamiesoni*, the infra-orbital border is denticulated, whereas it is only granular on *P. inermis*. The anterolateral border of the carapace carries numerous small, evenly sized spines on *P. jamiesoni* n.sp., whereas on *P. inermis* these spines are fewer, stronger, and irregularly sized. The posterolateral border is practically smooth on *P. jamiesoni* n.sp., but has a line of granules and spinules on *P. inermis*. The meri of pereopods 2–5 are more slender and less spinulous on *P. inermis* than on *P. jamiesoni*.

Platypilumnus jamiesoni n.sp. differs from *P. soelae* by: the front being more finely spinular; the carpus of the large claw has only four spines on the external crest, whereas it is spinular and granular on the superior face of *P. soelae*; the infra-orbital border has a row of serrated spines, while there are only some large spinules on *P. soelae*; the black colour of the fingers is more extensive on *P. jamiesoni* than on *P. soelae*.

P. jamiesoni n.sp. lives on muddy bottom, in the upper bathyal zone, between 300 and 700 m depth.

Key to the species of *Platypilumnus*

1. Frontal margins with a row of strong spines or spinules 2

—— Front finely serrulated 3

2. Front with 5 strong spines each side of median groove ..... *P. gracilipes*

—— Front with 7–8 spinules on each side ..... *P. soelae*

3. Posterolateral border of carapace carries spinules and granules; infra-orbital border granular ..... *P. inermis*

—— Posterolateral border of carapace smooth; infra-orbital border denticulated ..... *P. jamiesoni* n.sp.

Discussion

In several aspects the genus *Platypilumnus* Alcock, 1894, looks like *Neopilumnoplax* Serène, 1969: straight front divided into two lobes; flattened shell; a short first male gonopod and the second one long slender and curved (typical of many Goneplacids).

The very spinulous and serrulated anterolateral border of the carapace is similar to species of *Intesius* Guinot & Richer de Forges, 1981, but the spinulation of the walking legs is different. All these characters indicate *Platypilumnus* belongs to the Goneplacidae.

I have fixed the gonads from one of the specimens of *P. jamiesoni* n.sp., and from a specimen of the Geryonidae *Chaceon bicolor* Manning & Holthuis, 1989, so as to permit a study of the ultrastructure of the spermatozoa, in the hope that this will help to clarify the systematic problems.

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