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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 illustrée de la zone bathyale supérieure de Nouvelle-Caledonie. Une clé 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.

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 Zariquieyoon 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 Organisation; MNHN, Muséum national d’Histoire naturelle; NTM: Northern Territory.
Fig. 1. A. Platypilumnus gracilipes, female 23.6x27.5 mm, Vietnam (MNHN B 6459). B. P. inermis, female ovigerous paratype 26.8x32 mm, Reunion Island (MNHN B 10525).

Systematics

*Platypilumnus gracilipes* Alcock, 1894

Fig. 1A


Material examined. VIETNAM, 300 m, 22 December 1960, collected and identified by Zarenkov: 1 female 23.6x27.5 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.
Richer de Forges: *Platypilumnus* from New Caledonia

![Image of Platypilumnus](image)

**Fig. 2.** A, *Platypilumnus soelae*, male paratype 32x40.2 mm, northwest Australia (NTM, number CR 002024).
B, *P. jamiesoni* n.sp., male holotype 26.2x30.6 mm, New Caledonia, (MNHN B 22730).

*Platypilumnus inermis* Guinot, 1985

![Image of Platypilumnus inermis](image)

*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** 11x13 mm (MNHN B 10525), 1 ovigerous female **PARATYPE** 26.8x32 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

**Material examined.** NEW CALEDONIA, BATHUS 2 cruise, station CP 741, 22°35.53'S 166°26.56'E, 700–950 m: 1 male HOLOTYPE, 26.2x30.6 mm (MNHN B 22730). Station CP 762, 22°18.86'S 166°09.78'E, 620–700 m, 16 May 1993: 1 male PARATYPE 18.6x21.5 mm, 1 female PARATYPE 20.4x25.2 mm (MNHN B 22731). Station CP 764, 22°09.41'S 166°02.93'E, 560–570 m, 17 May 1993: 1 male PARATYPE 30.4x35.4 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 spines 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 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.

**Material examined.** NEW CALEDONIA, BATHUS 2 cruise, station CP 0184, 12°49.4'S 121°32.3'E, 178 m, 12 February 1984: 1 male PARATYPE 32x40.2 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 PARATYPE 27.3x31.2 mm (PROLIP).
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

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

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

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

4. Posterolateral border of carapace smooth; infra-orbital border denticulated
   5. *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 serrated 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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References


Guinot, D., 1985. Crabes bathyaux de l’île de La Réunion; description de *Cystomaia guillei* sp. nov., de *Platypilumnus inermis*; sp. nov. et de *Psopheticus vocans* sp. nov. (Crustacea Decapoda, Brachyura). Comité National Français de la Recherche Antarctique, 55: 7–31, figs 1–6, pls. I–IV.