

A new species of *Batella* (Crustacea, Decapoda, Alpheidae) from New Caledonia

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ABSTRACT

KEY WORDS
Crustacea,
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Batella,
New Caledonia,
new species.

A new species of alpheid shrimp, *Batella praecipua* n. sp., from 400-450 m deep off New Caledonia is described and illustrated. The new species can be readily distinguished from the other species of *Batella* by its non-tridentate rostrum and with non-biunguiculate, serrate unguis on the dactyl of the ambulatory pereiopods. This new discovery presents the deepest record for the genus.

RÉSUMÉ

Une nouvelle espèce de Batella (Crustacea, Decapoda, Alpheidae) de Nouvelle-Calédonie.

MOTS CLÉS
Crustacea,
Decapoda,
Alpheidae,
Batella,
Nouvelle-Calédonie,
nouvelle espèce.

Une nouvelle espèce de crevette de la famille des Alpheidae, *Batella praecipua* n. sp., récoltée par 400-450 m de fond au large de la Nouvelle-Calédonie, est décrite et illustrée. Cette nouvelle espèce de *Batella* se distingue aisément des autres représentants du genre par son rostre non-tridenté et par la présence d'un ongle unique mais denticulé sur le dactyle des péreiopodes ambulatoires. Le genre *Batella* n'avait jamais été signalé à des profondeurs aussi importantes.

INTRODUCTION

The genus *Batella* Holthuis, 1955 presently contains only two species. *Batella parvimanus* (Bate, 1888) occurs in the Torres Strait, Australia (Bate 1888, as *Cheirothrix parvimanus*), East China Sea (Miya & Miyake 1968, as *Batella bifurcata*; Hayashi 1996) and the Philippines (Chace 1988). The type specimen came from a depth of 8 fathoms (14.6 m), whilst the East China Sea specimens came from 140 and 156 m. The Philippine specimens are the deepest record of the species, having been obtained from 216 m. *Batella leptocarpus* Chace, 1988 is known only from the unique male holotype taken in the western part of the Mindanao Sea, Philippines (Chace 1988) from a depth of 296 m. Although no associations were recorded for either species, Bruce (1988) postulated that these shrimps could be associated with either Hexactinellida or other Porifera, based on their general resemblance to species of *Synalpheus*.

The present note reports on a new species of *Batella*, obtained by dredge from New Caledonian waters at depths of 400–450 m, the deepest record for the genus to date. Type material has been deposited in the Muséum national d'Histoire naturelle, Paris (MNHN) and the Zoological Collections of the Oxford University Museum of Natural History (OUMNH).

SYSTEMATICS

Family ALPHEIDAE Rafinesque, 1815
Genus *Batella* Holthuis, 1955

Batella praecipua n. sp.
(Figs 1–3)

TYPE MATERIAL. — Holotype: MUSORSTOM 6, New Caledonia, 22°53'8"S, 167°13'9"E, 425–440 m, "dans une éponge avec des sténopodides", non ovigerous ♀, post-orbital carapace length (pocl) 5.50 mm (MHNN Na 11396). Paratype: New Caledonia, 22°52'42"S, 167°11'90"E, 400 m, rocky bottom with sponges, 12.V.1995, leg. A. A. Myers, non ovigerous ♀, pocl 2.60 mm (OUMNH 2004-01-0001).

ETYMOLOGY. — From the Latin *praecipuus*, meaning peculiar. In reference to the frontal region of the carapace, exhibiting a non-tridentate structure.

HABITAT. — Known only from New Caledonia, 400–440 m deep. The holotype was collected with unidentified stenopodidean shrimp from a sponge. No host association is recorded for the paratype specimen, but this latter sample also contained examples of *Spongiicola levigata* Hayashi & Ogawa, 1987 and *Periclimenes forcipulatus* Bruce, 1991, both known hexactinellid sponge associates.

DESCRIPTION

Carapace smooth, lacking setae (Fig. 1A–C, E, F). Anterior margin trilobed; rostrum poorly developed, tip upturned, adrostral furrows shallow, falling short of eyes. Pterygostomial angle produced, rounded. Ventral margin of carapace straight, not fringed with setae; posterior margin with shallow cardiac notch. Inconspicuous tubercle present on gastric region. Eyes not visible in dorsal or lateral view, anteriorly exposed.

Antennular peduncle (Fig. 2D) short, second and third segments subequal in length, approximately half length of first segment; stylocerite well developed, slightly overreaching first segment, narrowing distally to a blunt point, ventral carina of first article poorly developed, statocyst well developed. External flagellum biramous, outer branch consisting of single segment (Figs 2D; 3A), longer free ramus approximately 0.4 times carapace length. Mesial flagellum slender, filiform, approximately 0.7 times carapace length.

Carpocerite of antenna (Fig. 1A, B, E, F) falling short of antennular peduncle; basicerite with well developed ventral tooth; scaphocerite (Fig. 3B) reaching just past antennular peduncle, oval shaped, anterior margin rounded, lateral tooth rounded (Fig. 3C), poorly developed, not reaching past lamina. Flagellum filiform, approximately equal to or slightly longer than carapace length. Mouthparts typical for the genus. Mandible (Fig. 2A) deeply bifurcated, palp absent; molar process cylindrical ending in tuft of spines; incisor process spatulate, distal part terminating in tuft of setae. Third maxilliped (Fig. 2B, C) overreaching antennular peduncle; exopod falling short of antepenultimate segment; ultimate segment

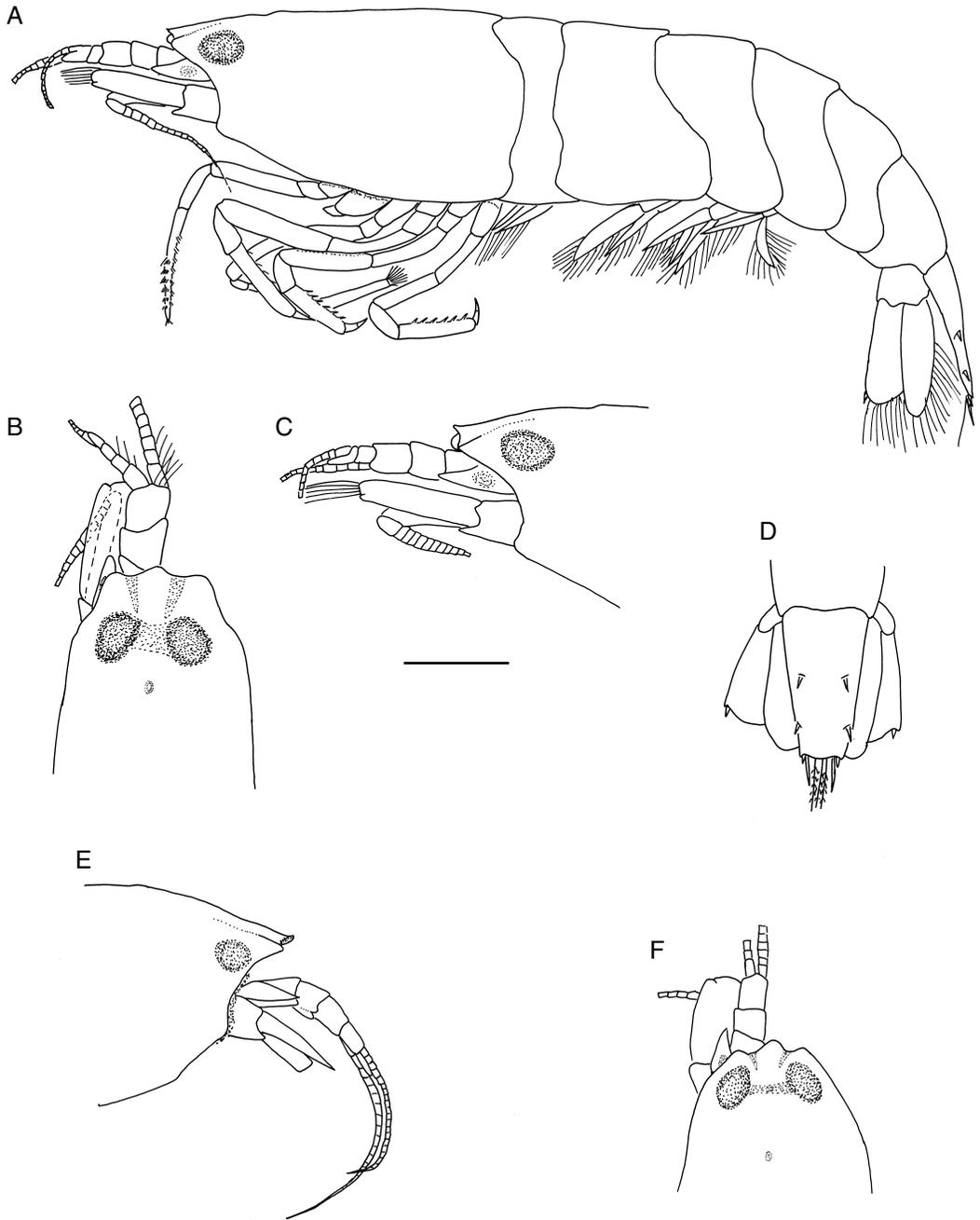


FIG. 1. — *Batella praecipua* n. sp.; **A-D**, paratype (OUMNH 2004-01-0001); **A**, lateral view; **B**, frontal region, dorsal view; **C**, frontal region, lateral view; **D**, caudal fan; **E, F**, holotype (MHNN Na 11396); **E**, frontal region, lateral view; **F**, dorsal view. Scale bar: A, E, 1 mm; B-D, 0.5 mm.

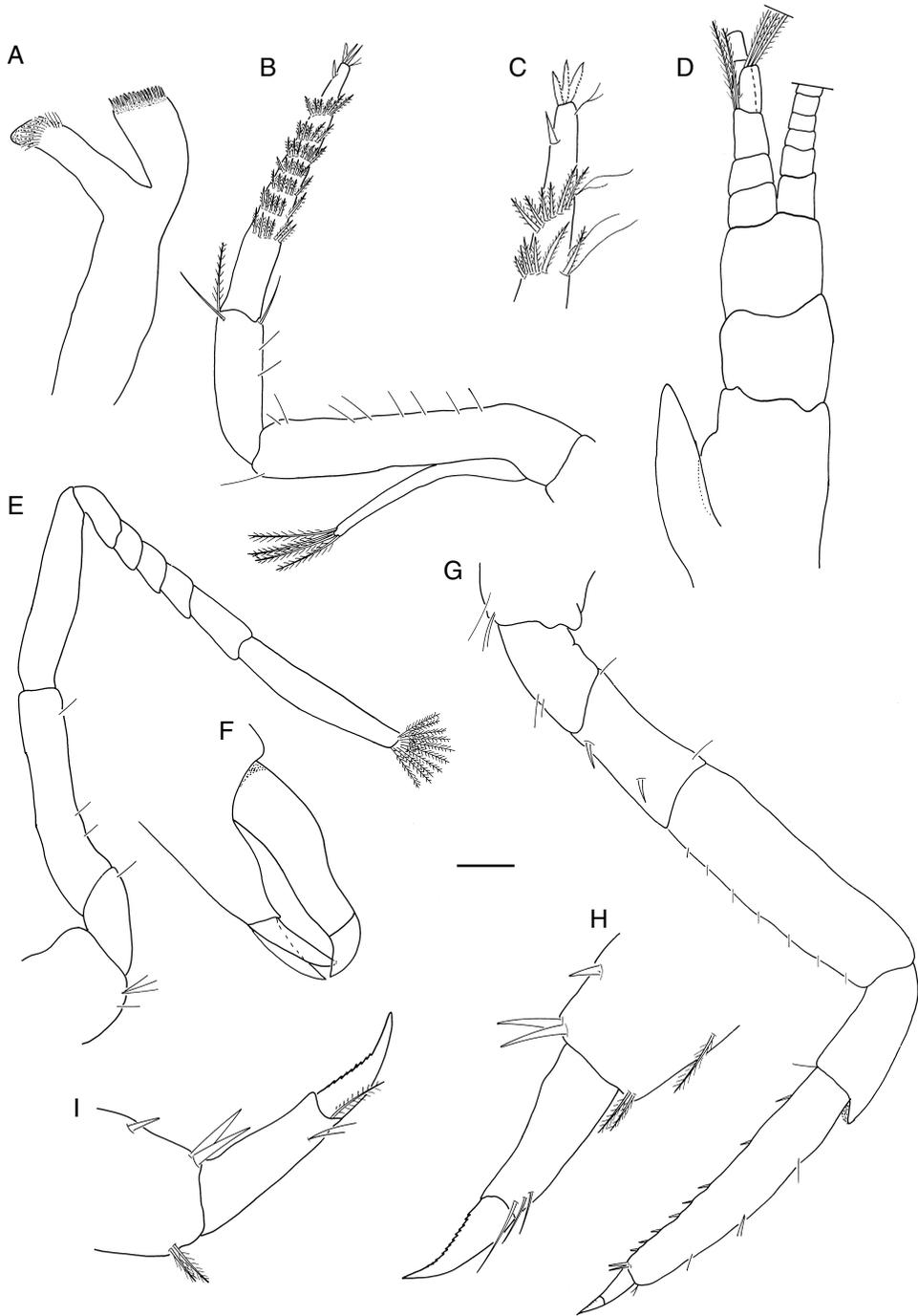


FIG. 2. — *Batella praecipua* n. sp., paratype (OUMNH 2004-01-0001); **A**, mandible; **B**, third maxilliped; **C**, tip of third maxilliped; **D**, antennular peduncle; **E**, second pereiopod; **F**, tip of second pereiopod (denuded); **G**, third pereiopod; **H**, dactyl of third pereiopod; **I**, dactyl of fourth pereiopod. Scale bar: A, C, 0.1 mm; B, D, E, G, 0.2 mm; F, 0.03 mm; H, I, 0.05 mm.

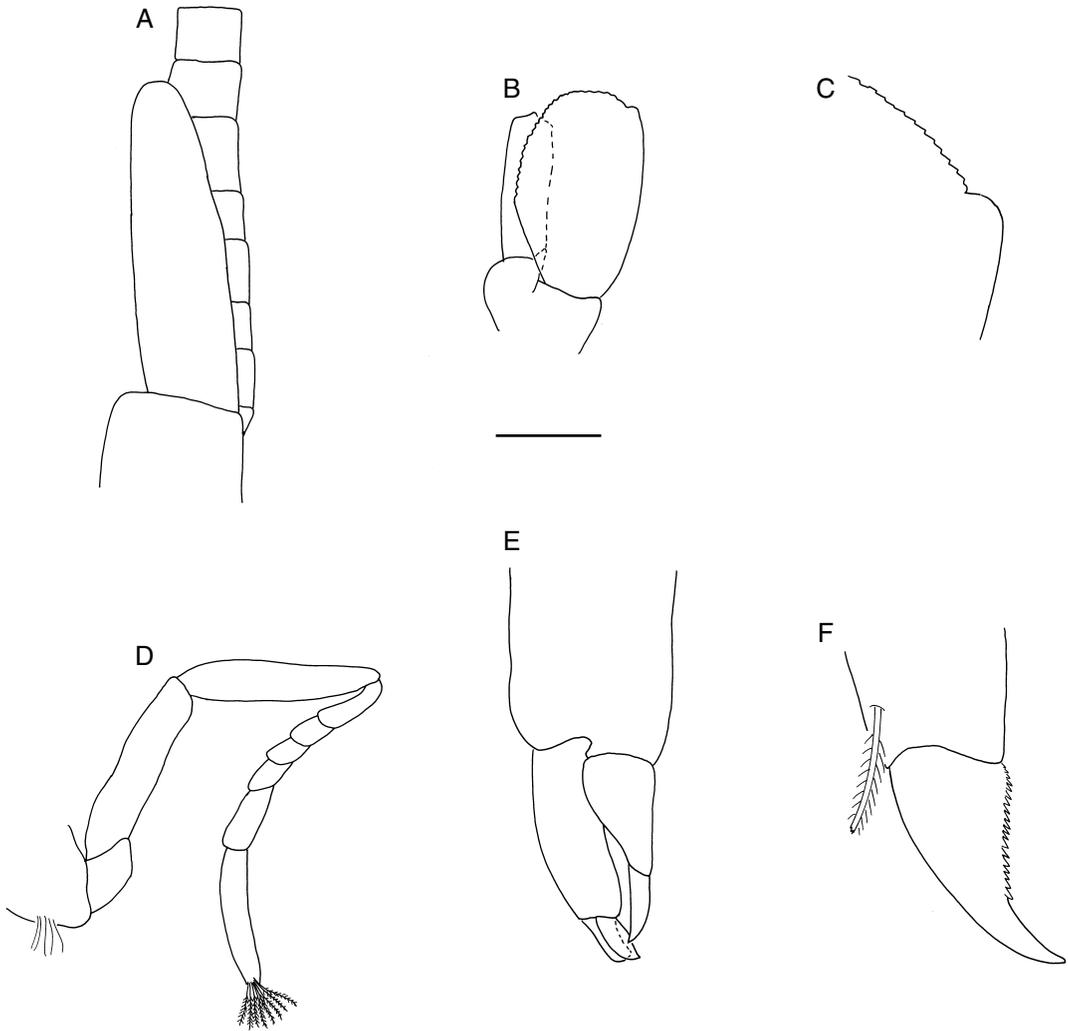


FIG. 3. — *Batella praecipua* n. sp., holotype (MHNN Na 11396); **A**, outer branch of external flagellum of antenna; **B**, scaphocerite; **C**, detail of anterolateral corner; **D**, second pereiopod; **E**, chelae of second pereiopod (denuded); **F**, dactyl of third pereiopod. Scale bar: A, 0.1 mm; B, D, 0.8 mm; C, 0.02 mm; E, F, 0.05 mm.

bearing seven semicircular rows of plumose setae on mesioventral side, single spine subdistally, tip provided with three serrated spines.

First pereiopods lacking in both holo- and paratype.

Second pereiopods (Figs 2E; 3D) short, subequal in length to third maxilliped. Ischium and merus elongate; carpus five-segmented, distal segment longest, segment length ratio (proximal to distal) 1.0:0.5:0.5:0.6:1.2. Dactylus (Figs 2F; 3E) short,

beak-like; 0.15 in length of propodus; terminating in small spine; fixed finger terminating in two blunt spines; fingers with distal tufts of plumose setae.

Third pereiopod (Fig. 2G) robust; ischium with two spines on inferior margin; merus unarmed, provided with row of short, simple setae on mesial margin, 2.1 times length of ischium; carpus unarmed, equal in length to ischium; propodus armed with eight spines along inferior

margin and two spines mediodistally, equal in length to merus; dactylus (Figs 2H; 3F) slightly curved, approximately 0.25 times length of propodus, unguis clearly demarcated, serrated on inferior margin, not biunguiculate.

Fourth and fifth pereopods similar to third, unguis (Fig. 2I) serrated on inferior margin, not biunguiculate; fifth pereopod more slender.

Pleopods of usual alpheid type.

Uropodal endopod reaching to end of telson, exopod slightly shorter, protopod laterally rounded, exopod with diarsis complete, ending in semi-acute lateral tooth, lateral spine well developed, overreaching distal margin.

Telson approximately 1.3 length of sixth somite, lateral margins straight, narrowing distally; two pairs of dorsal spines, situated at 0.45 and 0.80 of telson length; posterior margin broadly rounded, laterally with two pairs of spines, mesial pair longest, medially with three to five plumose setae.

REMARKS

Although both specimens lack the first pereopods (a diagnostic feature in Alpheidae), they clearly belong to the genus *Batella*, as demonstrated by the lack of a mandibular palp, the incisor of the mandible terminating in setae rather than serrations, and the tufts of long, plumose setae covering the tips of the fingers of the second pereopods (Miya & Miyake 1968; Chace 1988). Until now only two species were known in the genus: *Batella parvimanus* and *Batella leptocarpus*. The third described species, *Batella bifurcata* Miya & Miyake, 1968, was considered a junior synonym of *Batella parvimanus* by Miya (1984), as its distinctive characters were based on a misinterpretation of Bate's figures.

The new species can at once be distinguished from the other species by the non-tridentate nature of the frontal part of the carapace, which is clearly tridentate in both *B. parvimanus* and *B. leptocarpus*, although damaged in the unique specimen of the latter species (Chace 1988). Although it was at first assumed that this non-tridentate nature was possibly due to damage to the specimens and potential regeneration, further

morphological differences are apparent. The unguis of the ambulatory pereopods is serrate and non-biunguiculate in *B. praecipua* n. sp. vs non-serrate and biunguiculate in *B. parvimanus* and *B. leptocarpus*; the pterygostomial angle is rounded and only slightly produced in *B. praecipua* n. sp. vs triangularly produced in the other species; the uropods are near-equal in length to the telson, as opposed to being distinctly shorter than the telson as in the other species.

Batella praecipua n. sp. further differs from *B. parvimanus* in having only a single segmented outer branch of the external flagellum on the antennule, this character being unknown in *B. leptocarpus* (Chace 1988).

The holotype was collected from a sponge containing stenopodidean shrimp, whilst the sample containing the paratype also contained two specimens of *Spongicola laevigata* and a single specimen of *Periclimenes forcipulatus*. As both of these species are known associates of hexactinellid sponges, this lends further credence to the hypothesis by Bruce (1988) that *Batella* species are all probably hexactinellid or other sponge associates. The specimens were collected from depths between 400 and 450 m, representing the deepest record so far for the genus.

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REFERENCES

- BATE C. S. 1888. — Report on the Crustacea Macrura dredged by H.M.S. *Challenger* during the years 1873-1876. *Report on the Scientific Results of the Exploring Voyage of H.M.S. Challenger 1873-1876, Zoology* 24: i-xc, 1-942, plates 1-150.
- BRUCE A. J. 1988. — *Bannereus anomalus*, new genus, new species, a deep-sea alpheid shrimp from the Coral Sea. *Pacific Science* 42 (3-4): 139-149.

- CHACE F. A. JR. 1988. — The caridean shrimps (Crustacea: Decapoda) of the *Albatross* Philippine Expedition, 1907-1910, part 5: family Alpheidae. *Smithsonian Contributions to Zoology* 466: 1-99.
- HAYASHI K.-I. 1996. — Prawns, shrimps and lobsters from Japan (90). Family Alpheidae. Genera *Metalpheus*, *Batella* and *Nennalpheus*. *Aquabiology* 18 (5): 381-385.
- MIYA Y. 1984. — *Batella bifurcata* Miya & Miyake, 1968, a junior synonym of *B. parvimanus* (Bate, 1888) (Decapoda, Alpheidae). *Crustaceana* 47 (2): 217-219.
- MIYA Y. & MIYAKE S. 1968. — Redefinition of the genus *Batella* (Crustacea, Decapoda, Alpheidae), with description of a new species from Kyushu, Japan. *Ohmu* 1 (5): 113-120.

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