

# A new species of the crab genus *Cosmonotus* Adams & White *in White*, 1848 (Crustacea, Podotremata, Raninidae) from the Indo-West Pacific Ocean

**Marcos TAVARES**

Museu de Zoologia, Universidade de São Paulo,  
Av. Nazareth, 481, Ipiranga 04263-000, São Paulo, SP (Brazil)  
mdst@usp.br

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## ABSTRACT

A new species of the crab genus *Cosmonotus* Adams & White *in White*, 1848, *Cosmonotus mclaughlinae* n. sp., is described from the Indo-West Pacific Ocean. This new species inhabits coarse sand and shell bottoms between 75 and 369 m and is so far known from La Réunion, Philippines, Indonesia (Kai Islands), Salomon, Futuna, Vanuatu, Loyalty Islands (Lifou), Fiji, Tonga (N Ha'apai Group). This new species is morphologically close to *C. genkaiae* Takeda & Miyake, 1970, from which it is easily separated by: 1) the carapace covered by squamiform tubercles (instead of long striae); 2) the lack of the median rostral process (instead of being present and short); 3) the dorsal carpal face of chelipeds with rounded tubercles (instead of striae); and 4) the slender, eyestalks (instead of stout).

## KEY WORDS

Crustacea,  
Decapoda,  
Brachyura,  
Podotremata,  
Raninidae,  
*Cosmonotus*,  
Indo-West Pacific Ocean,  
new species.

## RÉSUMÉ

*Une nouvelle espèce de crabe du genre Cosmonotus Adams & White in White, 1848 (Crustacea, Podotremata, Raninidae) de l'Indo-Ouest Pacifique.*

Une nouvelle espèce du genre *Cosmonotus* Adams & White *in White*, 1848, *Cosmonotus mclaughlinae* n. sp., est décrite de l'Indo-Ouest Pacifique. *Cosmonotus mclaughlinae* n. sp. habite les fonds de sable grossier et coquillier entre 75 et 369 m de profondeur. La nouvelle espèce est connue des localités suivantes: La Réunion, Philippines, Indonésie (îles Kai), Salomon, Futuna, Vanuatu, îles

## MOTS CLÉS

Crustacea,  
Decapoda,  
Brachyura,  
Podotremata,  
Raninidae,  
*Cosmonotus*,  
Indo-Ouest Pacifique,  
espèce nouvelle.

Loyauté (Lifou), Fidji, Tonga (groupe N Ha'apai). *Cosmonotus mclaughlinae* n. sp. est proche de *C. genkaiaae* Takeda & Miyake, 1970, mais s'en sépare en particulier par: 1) sa carapace ornée de tubercules en forme d'écailles (au lieu de longues stries); 2) l'absence de processus rostral médian (au lieu d'un processus court mais distinct); 3) la face dorsale du carpe des chélipèdes ornée de tubercules en forme d'écaille (au lieu de stries); et 4) les pédoncules oculaires effilés (au lieu de trapus).

## INTRODUCTION

As part of an ongoing systematic revision of the world raninoid crabs, a new species of the genus *Cosmonotus* Adams & White in White, 1848 (see Clark & Presswell 2001) is described from the Indo-West Pacific Ocean.

Specimens have been deposited in the Muséum national d'Histoire naturelle, Paris (MNHN), Museu de Zoologia da Universidade de São Paulo (MZUSP), and National Museum of Natural History, Smithsonian Institution, Washington D.C. (USNM). Measurements are listed as carapace length, taken dorsally along body axis.

## ABBREVIATIONS

|       |                            |
|-------|----------------------------|
| CP    | beam trawl;                |
| DC    | Charcot's dredge;          |
| DR    | rocky dredge;              |
| DW    | Warén's dredge;            |
| Mxp3  | third maxilliped;          |
| ovig. | ovigerous;                 |
| P2-P5 | second to fifth pereopods. |

## SYSTEMATICS

Family RANINIDAE De Haan, 1839

Genus *Cosmonotus*

Adams & White in White, 1848

*Cosmonotus mclaughlinae* n. sp.

(Fig. 1)

*Cosmonotus grayii* – Takeda & Miyake 1970: 197, 198, fig. 1A. Non *Cosmonotus grayii* Adams & White in White, 1848.

TYPE MATERIAL. — Holotype: **Philippines**. MUSORSTOM 3, stn CP 96, 14°00'N, 120°18'E, 190-194 m,

1.VI.1985, ♂ 9 mm (MNHN-B 29929).

Paratypes: **La Réunion**. Cruise MD32, stn DC 86, 20°59.3'S, 55°15.1'E, 75-90 m, 27.VIII.1982, 1 ♂; 1 ovig. ♀; 1 juvenile ♀ (MNHN-B 20350).

**Philippines**. MUSORSTOM 1, stn CP 26, 14°00.9'N, 120°16.8'E, 189 m, 22.III.1976, 1 ♂ (MNHN-B 13417). — Stn CP 55, 13°55.0'N, 120°12.5'E, 200-194 m, 26.III.1976, 1 ♀ (MNHN-B 13419). — Stn CP 71, 14°09.3'N, 120°26.2'E, 174-204 m, 28.III.1976, 1 ♂; 1 juvenile ♀ (MNHN-B 12319).

MUSORSTOM 2, stn CP 51, 13°59.3'N, 120°16.4'E, 170-187 m, 27.XI.1980, 1 ♂ (MNHN-B 29930).

MUSORSTOM 3, stn DR 130, 11°36.7'N, 121°43.5'E, 178-195 m, 5.VI.1985, 2 ♂♂; 2 ♀♀ (MNHN-B 29931).

**Indonesia**. KARUBAR, stn DW 29, Kai Islands, 5°36'N, 132°56'E, 181-184 m, 26.X.1991, 3 ♂♂, including 1 juvenile; 3 ♀♀, including 1 juvenile (MZUSP 16902).

**Solomon Islands**. SALOMON 1, stn DW 1811, 9°46.3'S, 160°51.3'E, 182-203 m, 3.X.2001, 1 ♂ (MNHN-B 29932).

SALOMON 2, stn DW 2280, 8°38.2'S, 157°21.5'E, 195-200 m, XI.2004, 1 ♂ paratype (MZUSP 16903).

**Futuna Island**. MUSORSTOM 7, stn DW 497, 14°20'S, 178°05'W, 355-369 m, 10.V.1992, 1 ♂ (MNHN-B 29933).

**Vanuatu**. MUSORSTOM 8, stn DW 1094, 15°08.02'S, 167°11.99'E, 312-314 m, 6.X.1994, 1 ♂; 1 ♀ (MNHN-B 29934). — Stn DW 1003, 18°48.94'S, 168°59.16'E, 327-200 m, 25.IX.1994, 1 ♂ (USNM).

**Loyalty Islands (Lifou)**. Atelier LIFOU, stn DW 1649, baie du Santal, pointe Lefèvre (= Nem), 20°54.2'S, 167°01.1'E, 150-220 m, 8.XI.2000, 1 ♂ (MNHN-B 29935).

**Fiji**. BORDAU 1, stn CP 1507, 18°09'S, 178°38'W, 294-300 m, 13.III.1999, 1 ♂ (MNHN-B 29936). — Stn DW 1426, 17°15'S, 179°02'W, 1.III.1999, 330-367 m, 1 ♂ (MNHN-B 29937). — Stn DW 1465, 18°09'S, 178°39'W, 290-300 m, 6.III.1999, 1 ♂ (MNHN-B 29938).

**Tonga**. BORDAU 2, stn DW 1577, N Ha'apai Group, 19°42'S, 174°19'W, 257-265 m, 11.VI.2000, 2 ♂♂ (MNHN-B 29939).

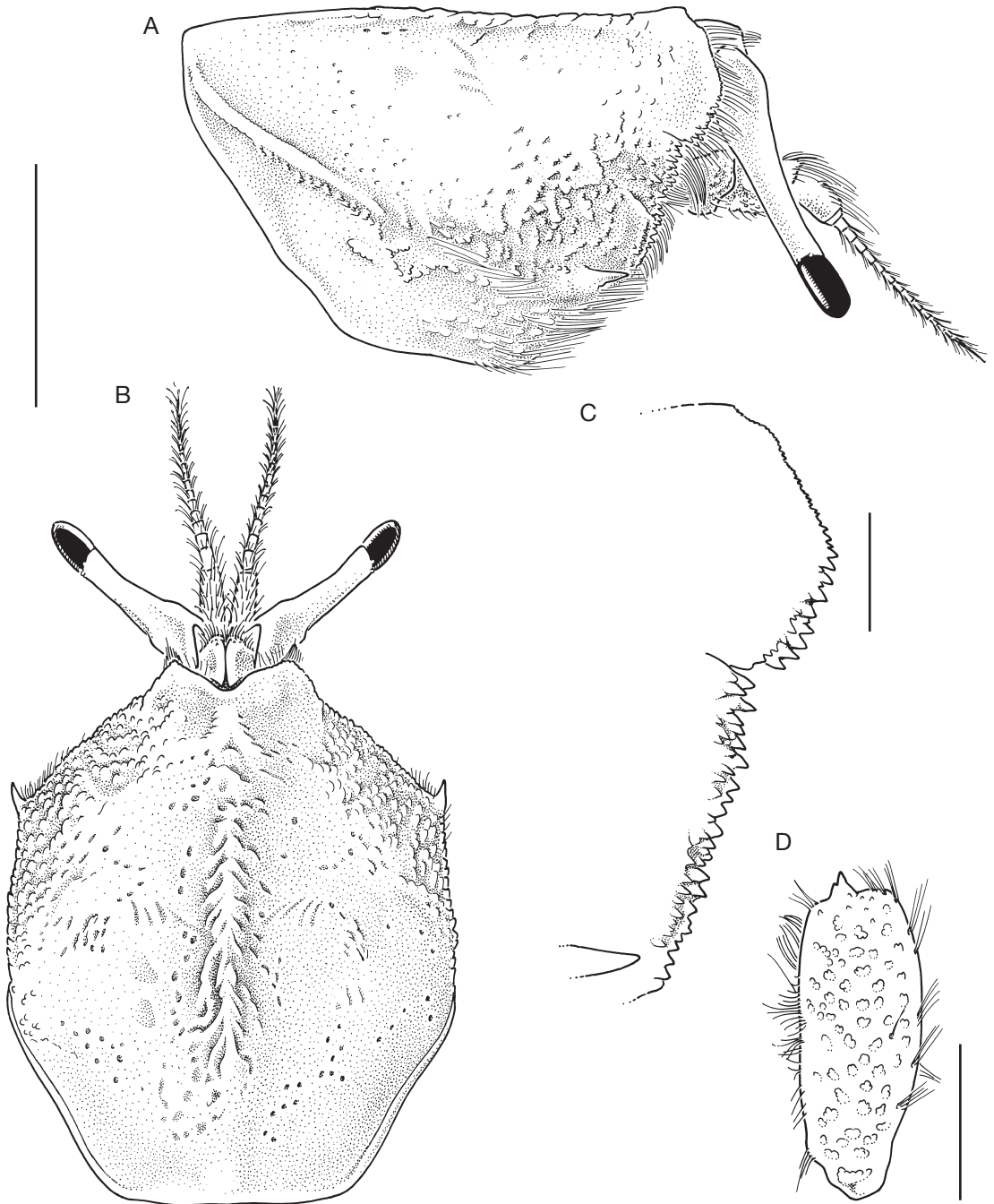


FIG. 1. — *Cosmonotus mclaughlinae* n. sp., ♂ holotype, Philippines (MNHN-B 29929): **A**, **B**, lateral and dorsal view of the carapace; **C**, detail of fronto-orbital margin of the carapace, setae excluded; **D**, dorsal surface of carpus of right cheliped. Notice the absence of median rostral process (**A**), presence of only one supraorbital notch (**C**), and carpus of cheliped densely ornamented with rounded tubercles (**D**). Scale bars: A, B, 4 mm; C, D, 1 mm.

ETYMOLOGY. — The name is a noun in the genitive case honouring Pat McLaughlin, for her outstanding contributions in the field of decapod crustacean systematics.

OTHER MATERIAL EXAMINED. — **Philippines.** MUS-ORSTOM 1, stn CP 56, 13°53.1'N, 120°08.9'E, 134–129 m, 26.III.1976, 1 ♂ (MNHN-B 13415). — Stn CP 64, 14°00.5'N, 120°16.3'E, 194–195 m, 27.III.1976, 1 ♂ badly damaged (MNHN-B 13414).

TYPE LOCALITY. — Philippines, 14°00'N, 120°18'E, 190–194 m.

DISTRIBUTION. — La Réunion, Philippines, Indonesia (Kai Islands), Salomon, Futuna, Vanuatu, Lifou, Fidji, Tonga (N Ha'apai Group), from 75 to 369 m in coarse sand and shell bottoms.

#### DESCRIPTION

Carapace distinctly longer than wide, strongly compressed laterally, especially anteriorly; with distinct keel extending over midline, strongly marked anteriorly, weaker posteriorly. Surface ornamented with squamiform tubercles each fringed with row of short hairs; squamiform tubercles more prominent and dense towards supraorbital and hepatic regions; central parts of carapace weakly ornamented, almost smooth, intestinal and branchial regions smooth, naked. Front excised as V-shaped sinus, serration almost imperceptible; no median rostral process. One supraorbital notch on fronto-orbital margin of carapace. Orbital cavity remarkably long, directed downwards, densely fringed with long setae. Eystalk long, slender, compressed laterally, highly movable, cornea well developed; basophthalmite extending beyond front. Supraorbital margin prominently dentate, teeth progressively smaller in size towards lateral margins of carapace. Hepatic spine strong, acute, directed forwards. Antennule, antenna, and merus of Mxp3 densely setose.

Chelipeds stouter than ambulatory legs, outer and inner surfaces ornamented similarly to carapace, squamae fringed with row of hairs. Palm strongly compressed laterally, inner and outer surfaces equally squamose. Dactyl smooth, except for inconspicuous blunt prominence on cutting edge, and closing vertically on immovable finger; with upper surface excavated from proximal end to approximately mid-length, and row of long hairs inside and along excavation, otherwise naked. Immobile finger

short, similar but sharper and longer than teeth from cutting edge of palm. Dorsal surface of carpus densely ornamented, with rounded tubercles, and acute tooth at upper distal extremity.

Ambulatory legs hairy, strongly compressed laterally. P2, P3, and P4 smooth. Dactyl of P4 foliaceous, merus about three times as long as ischium, coxa small. P5 with propodus and carpus only slightly squamose, with squamae similar to carapace and fringed with row of hairs; dactyl, upper and lower margins of merus and ischium ornamented with small rounded tubercles, coxa smooth except for few minute tubercles on upper margin. P5 subdorsal in position, only slightly smaller than P4; dactyl foliaceous, merus approximately twice as long as ischium, coxa remarkably large.

Abdomen of six segments and telson, all freely movable. Abdominal segments 1–2, and 6 noticeably longer than segments 3–5, segment 2 longest. Telson narrow, short.

#### REMARKS

Currently, *Cosmonotus* comprises two recent species, *C. grayii* Adams & White *in* White, 1848 and *C. genkaiae* Takeda & Miyake, 1970 (Dawson & Yaldwyn 1994: 18). *Cosmonotus genkaiae* and *C. mclaughlinae* n. sp. differ from *C. grayii* in the possession of only one supraorbital notch (instead of two) on the fronto-orbital margin of the carapace. The two species can be easily differentiated from one another by the following characters: 1) carapace ornamented with squamiform tubercles in *C. mclaughlinae* n. sp., whereas there are distinct long striae in *C. genkaiae*; 2) central parts of the carapace weakly ornamented, with squamiform tubercles fringed with rows of short setae mainly restricted to the supraorbital and hepatic regions of the carapace, whereas striations are present all over the carapace, except for the intestinal and branchial regions in *C. genkaiae*; 3) no median rostral process is present in *C. mclaughlinae* n. sp., whereas there is a short but distinct median rostral process in *C. genkaiae*; 4) dorsal surface of carpus of the cheliped densely ornamented with rounded tubercles, whereas the carpus is striated in *C. genkaiae*; and 5) eystalks distinctly slender, whereas they are stout in *C. genkaiae*.

Takeda & Miyake (1970: 197, 198) compared their material of *C. genkaiiae* with a male from east of Tsushima assigned to *C. grayii*. However, Takeda & Miyake's (1970: 198, fig. 1A) illustration is not attributable to *C. grayii* as it depicts only one supraorbital notch instead of two as is diagnostic of *C. grayii*. While it is possible that the male from east of Tsushima belongs to an undescribed *Cosmonotus* species, the specimen is provisionally assigned to *C. mclaughlinae* n. sp. until such time as examination of that material is possible.

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