

A new species of *Notonyx* A. Milne-Edwards, 1873 (Crustacea, Brachyura, Goneplacidae) from the intertidal zone of Phuket, Thailand

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ABSTRACT

Notonyx A. Milne-Edwards, 1873 (Crustacea, Brachyura, Goneplacidae) is currently represented by two species. The type species *N. nitidus* A. Milne-Edwards, 1873 has a reported range from Fiji to the Persian Gulf, and *N. vitreus* Alcock, 1900 is known only from the type locality Andaman Sea, Red Sea, Indonesia and New Guinea, off Thailand and Japan. Two specimens of *Notonyx* collected intertidally from reef rubble in Phuket, western Thailand, are here described and assigned to a new species, *Notonyx gigacarcinicus* n. sp., on the basis of the male abdominal and gonopodal structures. *Notonyx* is also transferred to the Goneplacinae.

KEY WORDS

Crustacea,
Decapoda,
Brachyura,
Goneplacidae,
Notonyx,
new species.

RÉSUMÉ

Une espèce nouvelle de Notonyx A. Milne-Edwards, 1873 (Crustacea, Brachyura, Goneplacidae) de la zone intertidale de Phuket, Thaïlande.

Il est couramment admis que le genre *Notonyx* A. Milne-Edwards, 1873 (Crustacea, Brachyura, Goneplacidae) renferme deux espèces : l'espèce type *N. nitidus* A. Milne-Edwards, 1873, récoltée des îles Fidji au golfe Persique, et *N. vitreus* Alcock, 1900, connue seulement de la localité type en mer d'Andaman, de la mer Rouge, de l'Indonésie et de la Nouvelle-Guinée, du large de la Thaïlande et du Japon. Deux spécimens de *Notonyx* récoltés à Phuket, en Thaïlande occidentale, dans la zone intertidale, au milieu de débris coralliens, sont décrits ici et considérés comme appartenant à une espèce nouvelle, *Notonyx gigacarcinicus* n. sp., compte tenu des caractéristiques de l'abdomen et des gonopodes du mâle. Par ailleurs, le genre *Notonyx* est transféré dans les Goneplacinae.

MOTS CLÉS

Crustacea,
Decapoda,
Brachyura,
Goneplacidae,
Notonyx,
espèce nouvelle.

INTRODUCTION

Notonyx nitidus A. Milne-Edwards, 1873 is a goneplacid rarely recorded in the literature. This species was described from one female specimen collected in New Caledonia (A. Milne-Edwards 1873: 269). Since then, the species has been reported from south of New Guinea (Miers 1886: 236), Persian Gulf (Alcock 1900: 319), Sumbawa, Ambon, Timor and other Lesser Sunda Islands in Indonesia (Tesch 1918: 219; Stephensen 1946: 172); Fiji (Balss 1938: 74), and recently, Sitankai, Philippines (Serène & Umali 1972: 82). Balss (1938: 74) measured the largest known specimen with a carapace width 12.0 mm and carapace length 9.0 mm, while Tesch (1918: 219) examined an ovigerous crab measuring carapace width 5.8 mm and carapace length 3.9 mm, and also reported the depth range from 13 to 54 m. The first and second male gonopods were illustrated by Stephensen (1946: fig. 47A, B), and Serène & Umali (1972: figs 92-95).

Tesch (1918: footnote, p. 203) and Stephensen (1946: 172) both questioned the identity of *Cerato-plax laevis* Miers, 1884, by Lanchester (1900: 751) from Singapore. But Balss (1938: 74) commented that on the basis of Lanchester's information, *N. nitidus* should be the senior synonym of *C. laevis*. However the conclusions by Balss are incorrect because Miers' species is the type of a pilumnid genus, *Pronotonyx* Ward, 1936 (see Ward 1936: 2; Ng 1987: 98).

Alcock (1900: 319) described a second species from the Andaman Sea, *Notonyx vitreus*, mainly on the differences of cheliped morphology (see also Alcock & McArdle 1903: pl. 61, fig. 3). His species lacked denticles on the dorsal surface of the cheliped propodus (A. Milne-Edwards 1873: figs 3, 3b), and the acute spine present on the inner margin of the cheliped carpus (A. Milne-Edwards 1873: fig. 3). Tesch (1918: 219) subsequently reported this second species from the west coast of Flores and northwestern New Guinea at 32 to 91 m, and Balss (1924: 14) recorded a single female from Tor, Sinai, Red Sea. Later, Serène & Soh (1976: 18) noted the species from off Thailand. Takeda (1989: 170, fig. 15) then recorded the species from Oshima Passage in Japan. The largest specimen of

N. vitreus was a female recorded by Tesch (1918: 222), carapace width 7.8 mm, carapace length 6.7 mm and the male gonopods were figured by Serène & Soh (1976: fig. 16A-C) and Takeda (1989: fig. 15F-H).

A new and third species of *Notonyx* collected in intertidal reef rubble, at Ao Tang Khen Bay, Phuket, western Thailand, is described here.

ABBREVIATIONS

IRD	Institut de Recherche pour le Développement (formerly Institut français de Recherche scientifique pour le Développement en Coopération – ORSTOM);
MNHN	Muséum national d'Histoire naturelle, Paris;
NHM	The Natural History Museum, London;
ZRC	Zoological Reference Collection of the Raffles Museum, National University of Singapore;
coll.	collected;
det.	determined;
G1	first male gonopod;
G2	second male gonopod;
juv.	juvenile;
ovig.	ovigerous;
stn	station.

Measurements given in the text are carapace width followed by length.

SYSTEMATICS

Family GONEPLACIDAE MacLeay, 1838
Subfamily GONEPLACINAE MacLeay, 1838

Genus *Notonyx* A. Milne-Edwards, 1873

REMARKS

While *Notonyx* A. Milne-Edwards, 1873 has traditionally been classified in the Goneplacidae, its subfamilial position remains uncertain. In his discussion on the taxonomy of the Goneplacidae, Serène (1964a, b) did not consider the genus. Later Serène (1968: 91) referred *Notonyx* to the Rhizopininae Stimpson, 1858, which at that time was regarded as a subfamily of the Goneplacidae. In later works, *Notonyx* was assigned without comment to the Goneplacinae (Serène & Umali 1972; Serène & Soh 1976). In her synopsis of xanthoids and selected goneplacids, Guinot (1971) did not



FIG. 1. — *Notonyx nitidus* A. Milne-Edwards, 1873, holotype ♀ 9.2 × 6.6 mm (MNHN-B 10220), New Caledonia, coll. M. Balansa.

consider *Notonyx*. Ng (1987), removed the Rhizopinae from the Goneplacidae, and transferred it to the Pilumnidae. He commented that *Notonyx* was neither a rhizopine nor a pilumnid, and that the systematic position of the genus required review. In a recent major study of the phylogeny and classification of the Goneplacidae (Karasawa & Kato 2003), the systematic status of *Notonyx* was not discussed.

The male abdominal and gonopod characters of *Notonyx* species suggest that the genus should be assigned to the Goneplacinae as presently defined. All the male abdominal segments are free and mobile, the G1 is relatively stout and armed with distinct short spines, and the G2 is prominently longer than the G1 with the distal part elongate. The quadrate carapace and smooth outline of *Notonyx* species, however, is atypical in form from other goneplacines, but this feature must be considered as less phylogenetically significant than the male abdominal and gonopodal structures.

Notonyx nitidus A. Milne-Edwards, 1873
(Figs 1-3; 6A)

Notonyx nitidus A. Milne-Edwards, 1873: 269, pl. 12, fig. 3. — Miers 1886: 236. — Alcock 1900: 319. — Tesch 1918: 219. — Balss 1938: 74. — ?Stephensen 1946: 172, fig. 47A, B. — ?Serène & Umali 1972: 82, figs 90-95. — Serène & Soh 1976: fig. 16E.

Non *Ceratoplax laevis* Miers, 1884: 244, pl. 25, fig. C. — Lanchester 1900: 751. — Tesch 1918: 203. — Stephensen 1946: 172. — Balss 1938: 74. Valid name as *Pronotonyx laevis* (Miers, 1884), see Ward 1936: 2 and Ng 1987: 98.

TYPE MATERIAL. — New Caledonia. Coll. M. Balansa, ♀ holotype 9.2 × 6.6 mm (MNHN-B 10220).

TYPE LOCALITY. — New Caledonia.

MATERIAL EXAMINED. — New Caledonia. LAGON, stn 116, île Ouen, baie du Prony, 22°26'S, 166°42'E, 43 m, 22.VIII.1984, coll. Bertrand Richer de Forges, 1 ♀ 7.4 × 5.3 mm (MNHN-B 29885). — Stn 131, île Ouen, baie du Prony, 22°28'S, 166°50'E, 38 m, 23.VIII.1984, 1 ♂

6.2 × 4.5 mm; 1 ♀ damaged (MNHN-B 29886). — Stn 150, île Ouen, baie du Prony, 22°30'S, 166°50'E, 62-68 m, 24.VIII.1984, 1 ♀ 7.0 × 5.7 mm (MNHN-B 29887). — Stn 247, île Ouen, baie du Prony, 22°24'S, 166°51'E, 43 m, 24.X.1984, 2 ♂♂ 5.8 × 4.5-6.5 × 4.9 mm (MNHN-B 29888). — Stn 322, Grand Récif Sud, 22°30'S, 166°58'E, 71 m, 27.XI.1984, 1 ♂ 7.0 × 5.4 mm; 1 ♀ 7.7 × 5.8 mm (ZRC 2005.0139). — Stn 326, Grand Récif Sud, 22°26'S, 167°02'E, 67 m, 28.XI.1984, 1 ♀ 6.3 × 5.1 mm (MNHN-B 29889). — Stn 355, Grand Récif Sud, 22°30'S, 167°04'E, 82 m, 29.XI.1984, 1 ♀ 6.2 × 4.9 mm (MNHN-B 29890). — Stn 615, 22°06.7'S, 166°57.0'E, 56-60 m, 5.VIII.1986, 1 ♀ 7.0 × 5.3 mm (MNHN-B 29891). — Stn 684, 21°37.2'S, 166°16.7'E, 30-31 m, 9.VIII.1986, 1 ♀ 6.8 × 5.2 mm (MNHN-B 29892). — Stn 875, 20°36.7'S, 164°52.2'E, 21 m, 13.I.1987, 1 ♂ 4.3 × 3.0 mm; 1 ovig. ♀ 5.4 × 3.8 mm (MNHN-B 29893). — LAGON, stn DW 1235, 22°24.08'S, 166°55.44'E, 51 m, 9.III.1993, coll. Robert Leborgne 5 ♂♂ 5.4 × 4.2-6.7 × 5.1 mm; 4 ♀♀ (2 ovig.) 6.3 × 4.9-6.8 × 5.0 mm (MNHN-B 29894). MUSORSTOM 4, stn 232, 22°28.8'S, 167°04.7'E, 77 m, 1.X.1985, coll. Bertrand Richer de Forges, 1 juv. 4.8 × 3.9 mm (MNHN-B 29895).

Chesterfield Islands. CORAIL 2, stn DW 154, 19°52.04'S, 158°26.50'E, 35 m, coll. Bertrand Richer de Forges, 1.VIII.1988, 1 juv. 4.5 × 3.6 mm (MNHN-B 29896).

New Guinea. HMS *Challenger*, stn 188, 9°59'0"S, 139°42'0"E, South of New Guinea, 51 m, 10.VIII.1874, det. E. J. Miers, pres. Lords of the Admiralty, 1 ♂ 8.0 × 5.1 mm; 1 ♀ 8.5 × 6.7 mm (NHM 1884.31).

Timor Sea. Holothuria Bank, 13°35'S, 126°E, 71 m, coll. P. Bassett Smith, HMS *Penguin*, pres. Lords of the Admiralty, 1 ♂ 6.1 × 4.7 mm; 1 ♀ 6.1 × 4.6 mm (NHM 1892.3.26.125-126).

DEPTH RANGE. — 13 m (Tesch 1918) to 82 m (LAGON, stn 355).

REMARKS

Notonyx nitidus was described from a female collected in New Caledonia and illustrated with a small, schematic figure (A. Milne-Edwards 1873: pl. 12, fig. 3). The male gonopods were unknown until Stephensen (1946: fig. 47A, B) from the Lesser Sunda Islands, and Serène & Umali (1972: figs 92-95) from the Philippines, illustrated the morphology. However, the meticulous collecting of IRD has made available a number of males from New Caledonia, and the gonopods of one of these (ZRC 2005.0139) are figured here (Fig. 4M, N). Interestingly, the gonopods figured by Stephensen (1946: fig. 47A, B) and Serène & Umali (1972:

figs 92-95) do not agree with those in specimens from New Caledonia. Serène & Umali (1972: figs 92-95) stated that the male gonopod is from a male 9.0 × 7.0 mm, but this is incorrect as these are the measurements of the holotype female as documented by A. Milne-Edwards (1873: 269, pl. 12, fig. 3). Serène & Soh (1976: 19) subsequently corrected this when they figured the carapace of the Philippines specimen and stated that it actually measured 7.5 × 5.0 mm.

The gonopods of the specimens from New Caledonia (Fig. 2), Philippines (Serène & Umali 1972: figs 92-95) and Lesser Sunda Islands (Stephensen 1946: fig. 47A, B), differ markedly and cast doubt on whether all are conspecific. The New Caledonian specimen figured here is topotypic and the G1 shows a simple, slender tube with the distal part gently curving inwards. The G1 of the Philippines specimen (7.5 × 5.0 mm) is more prominently curved distally but has the tip bifurcated, and there is a swelling on the subdistal ventral margin. The Lesser Sunda Islands specimen (10.0 × 7.0 mm) has a G1 which resembles that of the Philippines male, but the distal part is even more strongly curved, appearing hook-like, and there is only a slight subdistal ventral swelling. As the male from the Lesser Sunda Islands is larger than that from the Philippines, it is possible that the differences are ontogenetic. The difference in size of the subdistal ventral swelling can easily be accounted for by the G1s being drawn from slightly different orientations. However, the tips of the distal segment of the G2 also differ, with the Lesser Sunda Islands specimen having the tip twisted upwards (Stephensen 1946: fig. 47B) while that from Philippines has the tip bent downwards like a hook (Serène & Umali 1972: figs 94, 95). Considering the distance between these two localities, it is possible that the Philippines and Lesser Sunda Islands specimens belong to separate species.

The largest New Caledonian male examined during the present study (7.0 × 5.4 mm, ZRC 2005.0139) is similar in size to the Philippines specimen (7.5 × 5.0 mm), so that the differences in the G1 cannot be explained by size differences. It appears that the Philippines and Lesser Sunda Islands specimens (regardless of whether they are conspecific) are not

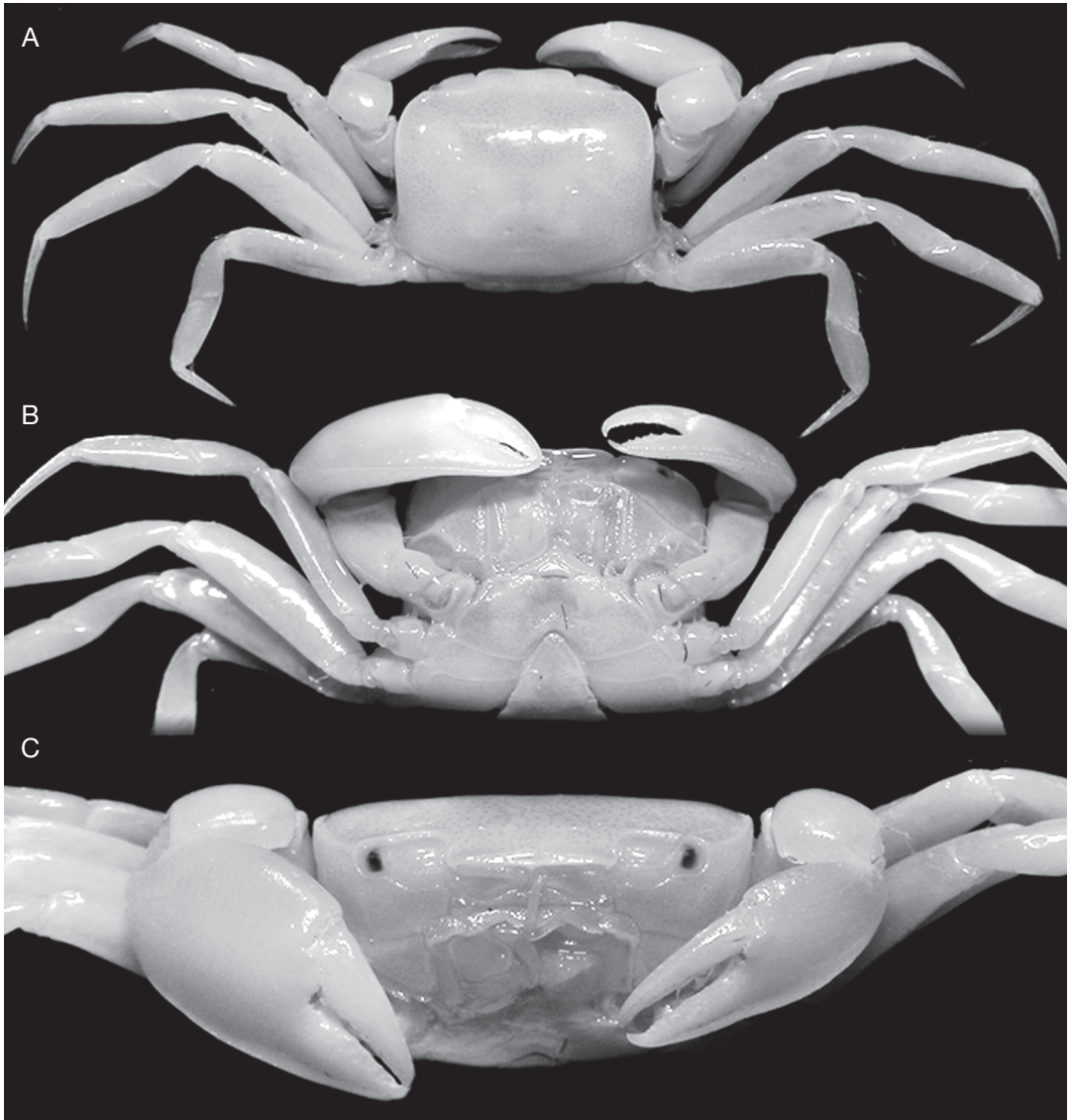


FIG. 2. — *Notonyx nitidus* A. Milne-Edwards, 1873, ♂ topotypic 7.0 × 5.4 mm, New Caledonia (ZRC 2005.0139), carapace: **A**, dorsal view; **B**, ventral view; **C**, frontal view.

N. nitidus s.s. They are also not the new species described here, differing in a number of characters and their identities will need to be resolved when the specimens can be re-examined.

Alphonse Milne-Edwards (1873) described and figured the dorsal margin of the propodus of the chela of *N. nitidus* as possessing denticles but these

structures were not observed in the material studied, including the type female (Fig. 1). The surface of the larger specimens has the surface somewhat more uneven and gently pitted but is certainly not denticulate. What is apparent is a row of low, somewhat longitudinal granules on the outer surface of the dactylus (Fig. 5A).

Tesch (1918: 220) noted that according to A. Milne-Edwards (1873), *N. nitidus* was a “rosy colour with longitudinal and oblique reddish stripes” while his specimens from Indonesia were “ivory white”. Alphonse Milne-Edwards (1873: 269) described his female in detail when the colour was fresh as: “Sa couleur est rosée avec des bandes rougeâtres, disposées régulièrement : l’une occupe la ligne médiane de la région cardiaque et se bifurque en avant pour en rejoindre deux qui bordent la région gastrique; chacune de celles-ci se relie à une autre bande oblique qui se détache du bord latéral, en arrière de l’insertion des pattes antérieures”. In the New Caledonia specimens examined, most of their colour was faded, and although it is still possible to discern numerous small spots on the carapace, this is insufficient to confirm any colour patterns.

The male and female (NHM 1884.31) from south of New Guinea are considered to be *Notonyx nitidus* s.s. They are larger than the New Caledonian material examined, and the G1 looks identical, except that the median part is slightly more swollen. In the specimen figured, the median part of the G1 has a slight dilation (Fig. 2I) and in this larger male from New Guinea, it is slightly more swollen. But this is not to the extent or shape of the new species described here. Also, the male abdomen is somewhat broader than the smaller male from New Caledonia (cf. Fig. 2F), with the lateral margins of segments 5 and 6 much less concave and appearing almost straight. This is interpreted as a size-related difference. The form of the carpus of the cheliped and third maxilliped are identical with the New Caledonian material.

The two specimens from Holothuria Bank (NHM 1892.3.26.125-126) are here regarded as *N. nitidus* s.s., even though they are from northwestern Australia, and relatively close to the Lesser Sunda Islands. The G1 of the male specimen is similar to those from New Caledonia except that the distal quarter is slightly more elongate and curved, but considered within the variation for the species. However, the pleopod is different from those illustrated by Stephensen (1946) from the Lesser Sunda Islands, which has the subdistal part swollen and the distal part distinctly hooked towards the mid line of the crab.

The only record of *Notonyx nitidus* from the Persian Gulf is by Alcock (1910: 319), which is based on a specimen 11 × 8.5 mm in size. This specimen, presumably in the Zoological Survey of India (Calcutta), will need to be re-examined to ascertain its identity.

Notonyx gigacarcinicus n. sp.
(Figs 4; 5; 6B; 7)

TYPE MATERIAL. — **Thailand.** Phuket, Ao Tang Khen Bay, in reef rubble, V.2000, coll. Paul Clark and Peter Ng, ♂ holotype 12.1 × 8.7 mm; 1 ♀ paratype 13.8 × 9.9 mm (ZRC 2000.0981).

TYPE LOCALITY. — Ao Tang Khen Bay, Phuket, Thailand.

ETYMOLOGY. — Giant, from the Oxford Dictionary a person of extraordinary ability; carcinology, the study of Crustacea. Named in recognition of the immense contribution made by Pat McLaughlin to the study of Crustacea. The specific name *gigacarcinicus* is a compound adjective derived from the Greek *gigas* and *carcinus*. Gender masculine.

DESCRIPTION

Holotype male: carapace subquadrilateral, length about 3/4 width, frontal marginal straight, just over 1/3 width. Anterolateral margin short but entire, curved, without teeth; posterolateral margin longer. Dorsal surface of carapace smooth, without indication of regions except for shallow impression in gastric region; dorsal surface convex anteriorly and posteriorly.

Antennules relatively long with terminal setae reaching cornea of eye. Basal antennal joint relatively small, short, positioned orbital hiatus. Cornea of eye small.

Gape present between third maxillipeds when closed; merus slightly shorter than ischium. Anterior and outer (external) margin of merus forms a right angle.

Chelipeds subequal, with distinct keel on ventral margin of fixed finger. Dorsal margin of propodus smooth, devoid of denticles. Inner margin of carpus rounded, without acute tooth or spine.

Pereiopods smooth, unarmed with some scattered setae.

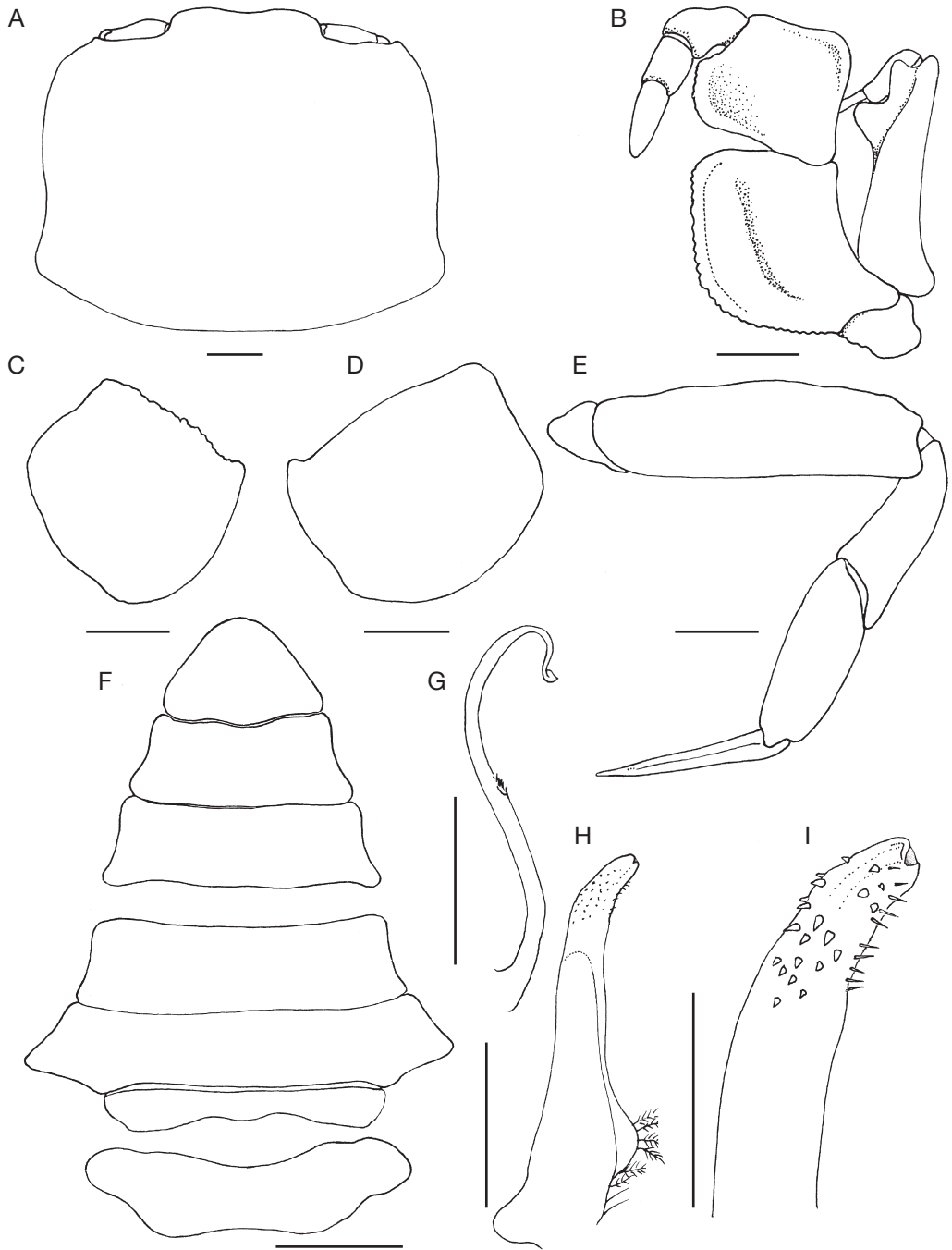


FIG. 3. — *Notonyx nitidus* A. Milne-Edwards, 1873, ♂ topotypic 7.0 × 5.4 mm, New Caledonia (ZRC 2005.0139): **A**, dorsal view of carapace; **B**, third maxilliped; **C**, carpus of left cheliped; **D**, ischium of left cheliped; **E**, right fifth pereopod, setae denuded; **F**, male abdomen; **G**, left second male gonopod; **H**, left first male gonopod; **I**, distal end of left first male gonopod. Scale bars: A, C-H, 1.0 mm; B, I, 0.5 mm.



FIG. 4. — *Notonyx gigacarcinicus* n. sp., holotype ♂ 12.1 × 8.7 mm, Thailand (ZRC 2000.0981), carapace: **A**, dorsal view; **B**, ventral view; **C**, frontal view.

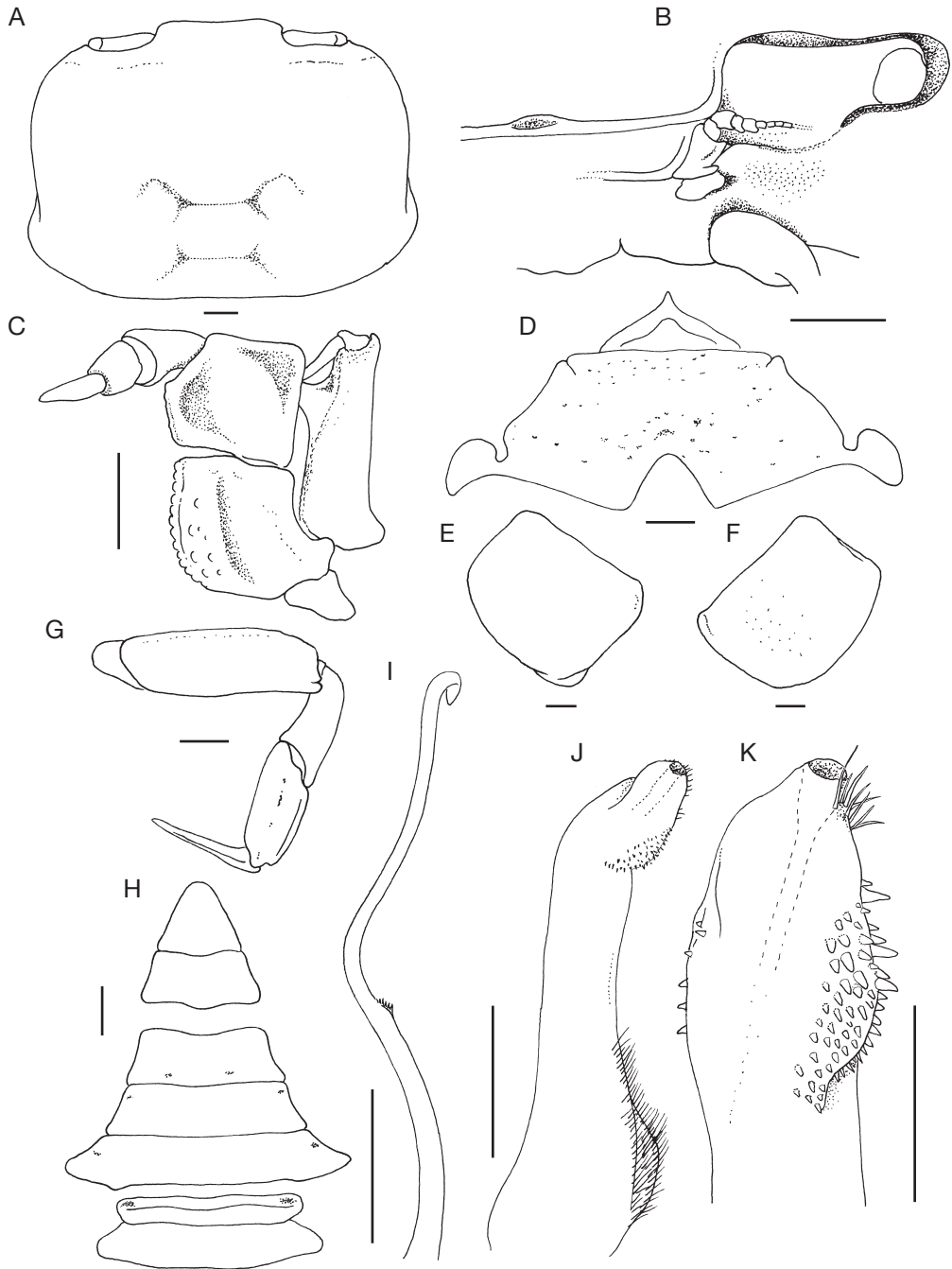


FIG. 5. — *Notonyx gigacarcinicus* n. sp., holotype σ 12.1 \times 8.7 mm, Thailand (ZRC 2000.0981): **A**, dorsal view of carapace; **B**, frontal view including antenna; **C**, third maxilliped; **D**, sternal segments 1-3; **E**, carpus of left cheliped; **F**, ischium of left cheliped; **G**, right fifth pereiopod, setae denuded; **H**, male abdomen; **I**, left second male gonopod; **J**, left first male gonopod; **K**, distal end of left first male gonopod. Scale bars: A-J, 1.0 mm; K, 0.5 mm.

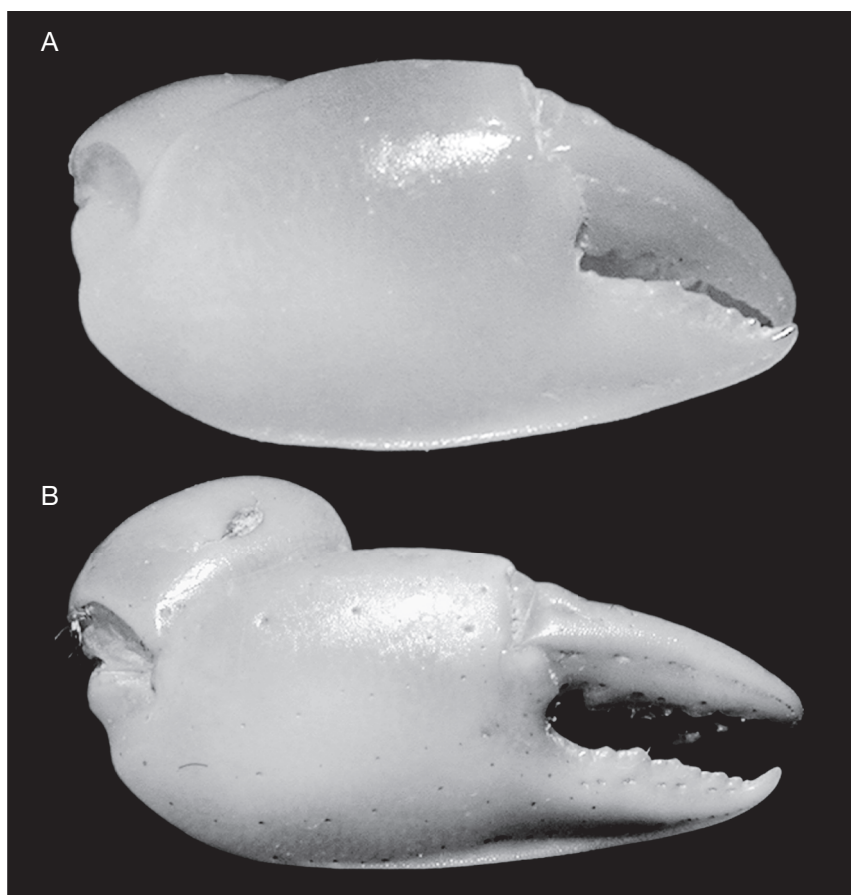


FIG. 6. — Outer surface of right chela: **A**, *Notonyx nitidus* A. Milne-Edwards, 1873, ♂ topotypic 7.0 × 5.4 mm, New Caledonia (ZRC 2005.0139); **B**, *Notonyx gigacarcinicus* n. sp., holotype ♂ 12.1 × 8.7 mm, Thailand (ZRC 2000.0981).

Thoracic sternum relatively broad; surface lightly pitted. Sternites 1 and 2 completely fused, separated from sternite 3 by distinct transverse suture. Sternites 3 and 4 fused except for lateral incision marking somites.

Male abdomen with third somite distinctly broader than second and fourth. First and second pleopods as figured.

Colour

In life (Fig. 7), cream overall with two prominent longitudinal maroon stripes on the dorsal surface between the protogastric and hepatic regions of the carapace. There is also a maroon spot on the cardiac

region, and the posterolateral part of the branchial regions are similarly coloured.

REMARKS

Notonyx gigacarcinicus n. sp. differs from *N. nitidus* s.s., in several key aspects: the acute spine on the inner margin of the cheliped carpus is absent, forming instead a relatively smooth and curved margin (Fig. 3C vs. Fig. 4E), the merus and ischium are subequal in length (Fig. 5E, F) (vs. the ischium distinctly longer, Fig. 3C, D), the telson of the male abdomen is distinctly more triangular (Fig. 5H) (vs. basally broader with the sides somewhat convex, Fig. 3F), the ambulatory meri are proportionately



FIG. 7. — *Notonyx gigacarcinicus* n. sp., holotype ♂ 12.1 × 8.7 mm, Thailand (ZRC 2000.0981), dorsal view of carapace colour.

stouter (Figs 3E; 5G), the tip of the G2 is hooked downwards (Fig. 5I) (vs. directed laterally, Fig. 3G), and most significantly, the G1 is relatively much stouter, with the subdistal ventral part prominently swollen (Fig. 5J, K) (vs. the entire G1 more slender and evenly cylindrical, Fig. 3H, I). In the form of the swollen distal part of the G1, *N. gigacarcinicus* n. sp. resembles the specimens from the Philippines, and to some degree, the Lesser Sunda Islands which had been identified to “*N. nitidus*” (possibly incorrectly as discussed above). However, the G1 of *N. gigacarcinicus* n. sp. is not only relatively much stouter, the distal part is not elongated, curved or hooked, and the subdistal ventral swelling is far more strongly developed. In addition, the ischium of the third maxilliped of the Philippines specimen (cf. Serène & Umali 1972: fig. 90) is distinctly longer than the merus, whilst in *N. gigacarcinicus* n. sp., the two segments are subequal in length (Fig. 5C). The male telson of the Philippines specimen, as figured by Serène & Umali (1972: fig. 91) is also markedly more broadly triangular than that of *N. gigacarcinicus* n. sp. (Fig. 5H). In contrast to the down-turned tip of the G2 of *N. gigacarcinicus* n. sp., that of the Lesser Sunda Islands specimen is

upturned (Stephensen 1946: fig. 47B). The G2 of the Philippines specimen (Serène & Umali 1972: figs 94, 95), however, agrees well with *N. gigacarcinicus* n. sp. All indications are that *N. gigacarcinicus* n. sp. is not conspecific with the specimens from the Lesser Sunda Islands and Philippines.

The life colour of *N. gigacarcinicus* n. sp. differs markedly from that described or reported for *N. nitidus*. The type of *N. nitidus* was described as rosy with stripes (A. Milne-Edwards 1873), and the topotypes appear to be spotted. *Notonyx gigacarcinicus* n. sp. is creamy white with just two prominent longitudinal maroon stripes across the median part of the carapace, with the cardiac region and posterolateral part of the branchial regions also similarly coloured (Fig. 7).

The new species differs markedly from *N. vitreus*, in that the carapace is proportionately broader transversely (vs. more squarish), the male telson is triangular (vs. more semicircular), the subdistal ventral part is prominently swollen (Fig. 5J, K) (vs. evenly cylindrical) and the tip of the G2 is hooked downwards (vs. prominently upturned) (cf. Alcock 1900: 319; Alcock & McArdle 1903: pl. 61, fig. 3; Tesch 1918: 221; Serène & Soh 1976: fig. 16).

A statement must be made regarding the male specimen of *N. vitreus* reported by Takeda (1989) from a depth of 45 m at Oshima Passage in Japan. It is not the species of Alcock (1900). In his report, Takeda (1989: 170, fig. 15C) commented that while his specimen had a proportionately narrower carapace, it did possess a spine on the inner margin of the carpus of the cheliped unlike the type and previous descriptions. The G1 structure figured by Takeda (1989: fig. 15F-H) also differs markedly from that figured by Serène & Soh (1976: fig. 16A-C), being straighter, stouter and having the distal section dilated. While Takeda's (1989) specimen is somewhat larger than that of Serène & Soh (1976) (4.8 × 3.9 mm vs. 4.0 × 3.2 mm), the differences observed are still significant, especially since Serène & Soh (1976) also concurred that the carpus of the cheliped of their specimens were unarmed. It thus seems unlikely that the specimen of Takeda is *N. vitreus*. Further, Takeda (1989) did not cite the paper of Serène & Soh (1976) in his bibliography, which suggests he was not aware of their record from western Thailand.

ECOLOGICAL NOTES

The specimens of *N. gigacarcinicus* n. sp. were under a large coral rock atop rubble in the lower tidal zone. The specimens were not under the rock per se but dwelled 18-22 cm deeper in the rubble. This habitat is hardly ever collected, difficult to sample (Dennis & Aldhous 2004), and has already yielded some interesting brachyuran finds in recent years (e.g., Ng 2002a, b; Ng & Takeda 2003; Tan & Ng 2003; Ng & Ng 2003). It is noteworthy that all previous specimens of other *Notonyx* species have been collected in deeper subtidal waters with dredges that are unable to scrape deep into rubble substrates.

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