**Notonyx angulatus**, a New Species of Goneplacid Crab (Crustacea, Decapoda, Brachyura) from Amami-Oshima, the Ryukyu Islands, Japan

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**Abstract** A new species of the genus *Notonyx* A. Milne-Edwards, 1873, is described from Amami-Oshima Island, the Ryukyu Islands, Japan. The new species named *N. angulatus* can be distinguished from the congeners by its diagnostic shape of the G1 and the strong and produced anterolateral angle of the carapace. This paper brings the number of *Notonyx* species to nine.

**Key words**: Decapoda, Brachyura, Goneplacidae, *Notonyx*, new species, Ryukyu Islands, Japan.

**Introduction**

The goneplacid genus *Notonyx* A. Milne-Edwards, 1873, currently contains eight species from the Indo-West Pacific: *N. nitidus* A. Milne-Edwards, 1873, *N. vitreus* Alcock, 1900, *N. gigacarcinicus* Clark et Ng, 2006, *N. latus* Ng et Clark, 2008, *N. kumi* Naruse et Maenosono, 2009, *N. sagittifer* Ng et Clark, 2010, *N. rayneri* Ng et Clark, 2010, and *N. guinotae* Rahayu et Ng, 2010. Among them, two species with old names (*N. nitidus* and *N. vitreus*) have been recorded from several localities, but Clark and Ng (2006) spotted that those that have been identified as *N. nitidus* and *N. vitreus* contain more than two species, each. Indeed, *N. latus*, *N. kumi*, *N. sagittifer* and *N. rayneri* have formerly been identified as *N. nitidus* by Tesch (1918) and Stephens (1946). Clark and Ng (2006) already noted that the G1s of “*N. vitreus*”, shown by Serène and Soh (1976: Fig. 16) from the Andaman Sea and by Takeda (1989: Fig. 15F, G) from Amami-Oshima Island in the Ryukyu Islands, differ remarkably from each other. In the present paper, we describe the Ryukyu crab as a new species.

The holotype of the new species is deposited in the National Museum of Nature and Science, Tokyo (NSMT).

Abbreviations, CL, CW, G1 and G2, indicate the carapace length, carapace width, male first gonopod, and male second gonopod, respectively.

**Taxonomy**

Family Goneplacidae

Genus *Notonyx* A. Milne-Edwards, 1873

*Notonyx angulatus* sp. nov.

[New Japanese name: Amami-kaku-enkou-gani]

(Figs. 1–2)

*Notonyx vitreus*: Takeda, 1989, p. 170, fig. 15; Clark and Ng, 2006, p. 550 (part); Naruse and Maenosono, 2009, p. 183 (part).

**Material examined.** Holotype: male, CL 3.9 mm, CW 4.8 mm, NSMT-Cr 9742, west side of Nominoura, Oshima Passage, Amami-Oshima, Ryukyu Islands, Japan, st. 20, 45 m depth, coarse

Diagnosis. Carapace rectangular, CW 1.23 times CL; dorsal surface smooth, glabrous, region ill-defined; front gently sloping ventrally, external orbital angle rounded, lateral margin very slightly convergent posteriorly. Ocular peduncle proximally wider, lower margin subdistally concave, eye closely fit into orbit. Third maxilliped rectangular, merus slightly shorter than ischium, not expanded distolaterally. Male abdominal somites all free; first somite concealed under posterior margin of carapace, second somite narrower than third somite, third somite laterally produced, distal half of third somite to telson triangular in outline. Left cheliped larger in holotype; merus with subdistal tooth on dorsal margin; carpus with sharp tooth on inner margin; palm smooth, keel present along ventral margin of outer surface from proximal one-third of palm to distal tip of immovable finger; fingers pointed, no gap left when chela closed; ventral keel of palm present on minor chela. Ambulatory legs slender, dactylus only slightly shorter than respective propodus. G1 straight, claviform, slightly narrowed subdistally, opening distolaterally, proximolateral angle with distally rounded lobe. G2 longer than G1, small but strong spines aligned in V-shape at proximal two-fifths of slender part of G2, distal one-fifth with lateral margins upcurved, eaves trough-like, distal end bent mesially.

Etymology. The name of the new species derives from the Latin *angulatus* (angular), alluding to its angular external orbital angle of the carapace.

Remarks. Alcock (1900: 319) described *N. vitreus* based on a single specimen (CL 5 mm, CW 6 mm) collected from Andaman Sea. Later Alcock and McArdle (1903: Pl. 61, fig. 3) showed a dorsal view of habitus. This drawing clearly shows the rounded anterolateral angle of the carapace and an obtuse inner angle of the cheliped carpus. Serène and Soh (1976) recorded *N. vitreus* from the western coast of Thailand. He also observed that it lacks acute inner angle from cheliped carpus (Serène and Soh, 1976: 18). Considering morphological similarity as well as close localities, the Thai specimen of Serène and Soh (1976: Fig. 16A–D) can be identified as *N. vitreus* s.s.

The holotype of *N. angulatus* from Amami-Ohima Island, Ryukyu Islands, Japan, was first identified as *N. vitreus* with hesitation (Takeda, 1989: 170). Detailed description of *N. angulatus* (as *N. vitreus*) by Takeda (1989) and our reexamination of the specimen allowed us to confirm that *N. angulatus* is different from *N. vitreus* s.s. in the following characters. *Notonyx angulatus* possesses an acute tooth on the inner margin of the cheliped carpus (Fig. 2a), while that of *N. vitreus* is rounded (Alcock and McArdle, 1903: Pl. 61, fig. 3). The G1 of *N. angulatus* is straight and claviform (Fig. 2b), while that of *N. vitreus* is incurved subdistally (Serène and Soh, 1976: Fig.
Furthermore the G2 of *N. angulatus* (Fig. 2c) appears to be proportionally shorter than that of *N. vitreus* (Serène and Soh, 1976: Fig. 16C). The row of the spines is placed on the proximal two-fifths of the slender part of the G2 in *N. angulatus* (Fig. 2c), while those of *N. vitreus* is placed at distal to the proximal half of the slender part (Serène and Soh, 1976: Fig. 16C). *Notonyx angulatus* differs from *N. vitreus* specimen in the angular anterolateral angle of the carapace (Fig. 1a) (vs. rounded in *N. vitreus*, Serène and Soh, 1976: Fig. 16D) and longer ocular peduncle (vs. shorter in *N. vitreus*, Serène and Soh, 1976: Fig. 16D) too.

The new species can be also differentiated from the other congeners by its diagnostic shape of the G1 as well as strong and produced anterolateral angle of the carapace.

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