

A NEW SPECIES OF *ILYOPLAX* (DECAPODA, BRACHYURA,  
DOTILLIDAE) FROM PANGLAO, THE PHILIPPINES

BY

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ABSTRACT

A new species of *Ilyoplax*, *I. danielae*, is described from the Philippines. It differs from its closest congeners, *I. stapletoni* (De Man, 1908), *I. ningpoensis* Shen, 1940, and *I. formosensis* Rathbun, 1921, by differences in carapace shape and proportions, shape and dentition of the chela and the morphologies of the walking legs and male first gonopods.

RÉSUMÉ

Une nouvelle espèce d'*Ilyoplax*, *I. danielae* est décrite des Philippines. Elle diffère de ses congénères les plus proches, *I. stapletoni* (De Man, 1908), *I. ningpoensis* Shen, 1940, et *I. formosensis* Rathbun, 1921, par des différences portant sur la forme et les proportions de la carapace, la forme et les dents de la pince et la morphologie des pattes marcheuses et des gonopodes mâle.

INTRODUCTION

The genus *Ilyoplax* Stimpson, 1848, has had relatively little taxonomic attention since the 1930s, with only two new species having been described in recent times: *I. strigicarpus* Davie, 1990, from northern Australia, and *I. pacifica* Kitaura & Wada, 2006, from the Philippines and Indonesia. Both species are closely allied to *I. orientalis* (De Man, 1888). There are currently

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26 species recognized (see Ng et al., 2008), but an ongoing revision of this group by Davie & Kosuge indicates not only a number of new species, but also that *Ilyoplax* is polyphyletic and as such it will need to be split into several new genera. This concurs with recent behavioural and DNA phylogenetic studies by Kitaura & Wada (1998, 2006b) that also recognized three separate lineages within *Ilyoplax*. An earlier review of the genus by Serène & Lundoer (1974) also recognized three primary groups based on the morphology of the male first gonopod, although *I. integer* (Tesch, 1918) was considered to stand alone. In addition, their “Group II” was also found not to be homogeneous. Serène & Lundoer (1974) provided the most recent published key to *Ilyoplax sensu lato*.

*Ilyoplax* species, though typically small in size, can numerically dominate the shores on which they occur, and thus have some ecological significance (see Snowden et al., 1991). Like other shore Ocypodoidea they also have evolved some complex and noteworthy behaviours, and these have been the subject of numerous studies (e.g., Wada, 1981, 1983a-c, 1984, 1987a, b; Kosuge et al., 1994; Kitaura & Wada, 1998, 2006a).

The new species reported here was collected as part of the PANGLAO Marine Biodiversity Project of 2004 undertaken by the Raffles Museum of Biodiversity Research, Singapore, the Museum national d’Histoire naturelle, Paris, and the Philippine National Museum, Manila. Extensive collections were made from Panglao Island area in Bohol, the Philippines, by sampling of mudflats, seagrass beds and mangroves, and by scuba diving, trawling, dredging, trapping, and tangle netting. Together with collections from the PANGLAO Deep-Sea Cruise in 2005, it has been estimated that between 150 and 250 new crustacean species have been discovered from a total of more than 1200 identified decapods (see Bouchet et al., 2009).

The material examined is deposited in the Crustacean Collection of the National Museum of the Philippines (NMCR), Manila; Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore; and the Queensland Museum (QM), Brisbane. The abbreviations P2-P5 refer to the pereopods 2-5, respectively; and G1 refers to the male first gonopod. Measurements provided are of the carapace width (CW) and length (CL), respectively.

## TAXONOMY

## DOTILLIDAE Stimpson, 1858

*Ilyoplax* Stimpson, 1858

*Ilyoplax* Stimpson, 1858: 98. (Type species: *Ilyoplax tenella* Stimpson, 1858 by monotypy.)

*Dioxippe* De Man, 1888: 137 (junior homonym of *Dioxippe* Thomson, 1860 [Insecta, Coleoptera]; gender feminine). (Type species: *Dioxippe orientalis* De Man, 1888 by subsequent designation of Davie, 2002.)

*Tympanomerus* Rathbun, 1897: 164 (new name for *Dioxippe* De Man, 1888; gender masculine).

***Ilyoplax danielae* sp. nov. (figs. 1, 2)**

Material examined. — Holotype: NMCR, male (5.4 × 3.9 mm), Stn B31, Dauis, Panglao I., Bohol Province, Philippines, rubble on sandy bottom and seagrass, 1-2 m, 9°38.7'N 123°50.4'E, coll. PANGLAO 2004 Expedition, 26 June 2004. Paratypes: QM-W28924, male (4.6 × 3.3 mm), data as for holotype. ZRC, female (5.2 × 3.7 mm), Stn M47, Panglao, Philippines, fringe of mangrove, 0-0.5 m, middle part of Danao embayment, 9°33.6'N 123°45.1'E, coll. PANGLAO 2004 Expedition, 29 June 2004.

Etymology. — Named in honour of our friend and mentor Danièle Guinot. The species epithet is used as a noun in the genitive case.

Description. — Carapace (figs. 1, 2A) sub-rectangular, 1.4 times as wide as long, widest between anterolateral angles, lateral margins slightly converging posteriorly; regions poorly defined; smooth or microscopically granular, with short transverse ridges edged with very short setae. Front relatively broad, about one-quarter distance between exorbital angles, noticeably deflexed, lateral borders converging, rounded; distinctly concave dorsally. Gastrocardiac groove defined; cardiac region with low swelling on either side of mid-line, each bearing transverse ridge; branchial regions with several low oblique setiferous crests posterolaterally. Posterior border straight, broadly rounded laterally, with broad rim. Supraorbital borders moderately sinuous; sloping obliquely backward; smooth. Exorbital angles bluntly rounded, separated from rounded anterolateral prominence by broad shallow sulcus; anterolateral margin minutely granular, extending as oblique ridge for short distance onto dorsal carapace surface. Infraorbital borders project beyond supraorbital borders medially; evenly granular; slightly sinuous, separated from exorbital angle by V-shaped notch; secondary minutely granular ridge extending below ocular peduncle from adjacent to basal antennal segment, creating a broad, transverse sulcus in front of orbit. Eyestalks thick, approx. 0.4 times distance between exorbital angles; cornea bulbous.



Fig. 1. *Ilyoplax danielae* sp. nov., holotype male (5.4 × 3.9 mm), Panglao I., Bohol Province, Philippines (NMCR).

Third maxillipeds (fig. 2B) with merus longer than ischium (approx. 1.3×); antero-internal angle of ischium broadly triangular; produced along edge of merus; ischium with oblique distolateral line of microscopic granules equipped with long plumose setae, longest near outer margin. Maxillipeds moderately bulging; completely closing buccal cavity.

Male abdomen (fig. 2G) with telson elongate, apically rounded, slightly shorter and narrower than sixth somite; sixth somite with sub-parallel margins, 1.15 times as long as wide; fifth somite much shorter (approx. 0.66×) than sixth, markedly constricted at about 0.4 height from base; fourth and third somites similar, fourth slightly narrower, with slightly concave lateral margins; second short, similar in width; first with transverse keel subparallel to anterior margin. Female abdomen relatively narrow (fig. 2F).

Chelipeds (fig. 2C) massive, equal; merus trihedral, inner and outer margins granular, posterior border rounded; outer face sparsely granular; inner face with vertical medial band of small, well-spaced granules. Carpus short, rhomboidal, unarmed. Chela of adult male holotype greatly inflated, with broad gape basally between fingers; dorsal margin of palm marked by raised granular

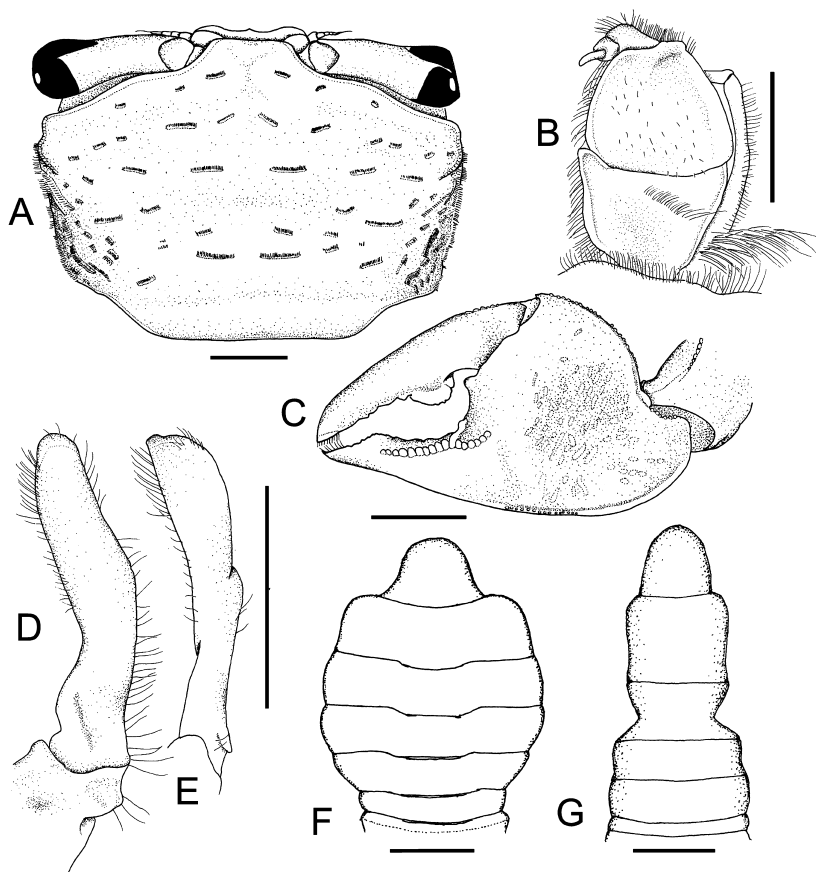


Fig. 2. *Ilyoplax danielae* sp. nov., A-E, G, holotype male, Panglao I., Bohol Province, Philippines (NMCR); F, paratype female (ZRC). A, carapace; B, third maxilliped; C, left chela external aspect; D, G1 abdominal view; E, G1 sternal view; F, female abdomen; G, male abdomen. Scale lines = 1 mm.

rim extending from articulation with carpus to inner edge of dactylus; outside face smooth; lower margin with finely granular low crest extending full length almost to tip of fixed finger. Fixed finger with cutting margin with low teeth becoming granular distally; slightly raised broad subdistal tooth; accessory row of large granules arising subdistally outside cutting margin, extending to base of finger, terminating in short, upwardly directed arc of larger granules. Fingers hollowed, tipped with chitinous rim, brush of setae on inner tips. Upper margin of dactyl finely granular; cutting margin with low teeth over distal half; large, broad, rounded tooth differentiated in basal half.

P2-P4 all of similar length; relatively broad; P4 merus approx. 2.3 times as long as wide, about same length as carpus and propodus combined; dactylus

slender, smooth, tapering to acute point, noticeably shorter than propodus. Tympani not present on either face of meri. Dense fur present on distal two-thirds of carpus and proximal half of propodus of P2 and P3.

G1 (fig. 2D, E) short, thick, not tapering distally; slightly twisted medially; apex bluntly rounded, without obvious prominences, lobes or thick spines.

Habitat. — The species was collected from the edge of mangroves and seagrass beds in the intertidal zone.

Geographical distribution. — Only known from Panglao Island, Bohol Sea, central Philippines.

Remarks. — Using the key of Serène & Lundoer (1974), the present specimens of *Ilyoplax danielae* sp. nov. arrive at the last couplet that includes *I. stapletoni* (De Man, 1908) and *I. ningpoensis* Shen, 1940. Neither of these species are very similar. The carapace of *I. stapletoni* has more convex lateral margins and is widest medially, whereas in *I. danielae* the lateral margins are moderately convergent posteriorly, and the widest point is between the anterolateral angles just posterior to the orbit. The walking legs of *I. stapletoni* are also relatively more slender and lack the fur of setae on the P2-P4 carpi and propodi, and the male chela also lacks the large differentiated tooth near the base of the cutting margin of the dactylus.

*Ilyoplax ningpoensis* is a much larger species (adults to approximately 10 mm CW); the carapace is proportionately wider (approx. 1.5 times as wide as long) than *I. danielae* (1.4 times); the meri of the walking legs are relatively broader, with those of P2-P4 possessing tympani; and the male G1 is of a different form, possessing a long, tongue-like apical extension.

*Ilyoplax danielae* is most similar in carapace shape to *I. formosensis* Rathbun, 1921. It is also similar to the latter in lacking stridulatory teeth on the lower orbital margin, having short, broad legs with a thick fur of setae on the carpus and propodus of P2 to P4, and similar chela dentition. *Ilyoplax formosensis*, however, has a tympanum on the meri of the walking legs, lacks a marked constriction at the fifth segment of the male abdomen, and has an obviously different male G1 shape (cf. Serène & Lundoer, 1974, fig. 9).

Another species of *Ilyoplax*, *I. philippinensis* (Rathbun, 1914) was described from the shore at Guihulngan, Negros Island, in the central Philippines, relatively close to the north-west of Panglao Island. This species is still poorly known, but is being redescribed as part of the revision of the genus (P. J. F. Davie & T. Kosuge, work in progress). *Ilyoplax philippinensis* differs in the shapes of the carapace and gonopods and, most importantly, it lacks the strongly constricted fifth segment of the male abdomen that is characteristic of a large group of *Ilyoplax* species including *I. danielae* sp. nov.

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