

NOTES ON SOME INDO-PACIFIC PONTONIINAE, XLVIII.
ONYCOCARIS NIELI SP. NOV., A NEW PONTONIINE
SHRIMP FROM HERON ISLAND, QUEENSLAND

BY

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ABSTRACT

A new species of the pontoniine shrimp genus *Onyccaris* Nobili, 1904, *O. nieli*, from the Great Barrier Reef, is described and illustrated. This species most closely resembles *O. temiri* Marin, 2005, known only from Vietnam but is readily distinguished by differences in the armament of the second pereopod chelae. This raises to 16 the species number of this genus, which is known only from the tropical Indo-West Pacific region. A key for their identification is provided.

RÉSUMÉ

Une nouvelle espèce de crevette Pontoniinae du genre *Onyccaris* Nobili, 1904, *O. nieli*, de la Grande Barrière de Corail est décrite et illustrée. Cette espèce est la plus proche de *O. temiri* Marin, 2005, connue seulement du Vietnam, mais s'en distingue aisément par des différences dans l'armature des pinces du second péreïopode. Ceci porte à 16 le nombre d'espèces de ce genre, qui est connu seulement de la région tropicale indo-ouest pacifique. Une clé d'identification des espèces de ce genre est fournie.

INTRODUCTION

The Indo-West Pacific pontoniine shrimp genus *Onyccaris* Nobili, 1904 currently includes 15 species, all associated with sponges, where the hosts are known. Five species are known from Australian waters and three from Heron Island. A specimen collected from a Heron Island sponge by Dr Niel L. Bruce in 1978 has been recently re-examined and its status as a new species is confirmed. An illustrated description is now provided. The holotype specimen is deposited in the

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collection of the Queensland Museum, Brisbane. A key to 13 species of *Onyccaris* was provided by Chace & Bruce (1993). Two further species have since been described, *O. stradbrokei* Bruce, 1998 and *O. temiri* Marin, 2005. A revised key to the 16 species now known is provided and the number of pontoniine shrimps known from Heron Island increases to 112 (Bruce, 2010a, b).

Abbreviations used: AJB#, A. J. Bruce collection number; CL, post-orbital carapace length; QM, Queensland Museum, Brisbane.

TAXONOMY

Subfamily PONTONIINAE Costa, 1844

Genus *Onyccaris* Nobili, 1904

***Onyccaris nieli* sp. nov.**

(figs. 1-5)

Material examined. — One ovig. ♀, holotype, stn NLB-5, Heron Island, Capricorn Islands, Queensland, reef flat, 2 June 1978, coll. N. L. Bruce, AJB#2667, QM W29073.

Diagnosis. — Rostrum short, slightly exceeding eyes, with two small acute dorsal teeth, tip up-turned, carina not posteriorly elevated, distolateral tooth of proximal segment of antennular peduncle long, scaphocerite with strong distolateral tooth, well exceeding lamella, second pereopods subequal, similar, palm minutely tuberculate, dactyl scaphoid, cutting edges finely denticulate, distally simple, fixed finger deeply grooved, with both margins finely denticulate, distally deeply bifid, without large teeth, merus sparsely tuberculate ventrally, ischium unarmed, ambulatory dactyl biunguiculate, unguis and distal accessory tooth slender, simple, ventral margin of corpus with 8 slender, erect teeth, dorsal telson spines at 0.35 and 0.63 of telson length.

Description. — A relatively large species of *Onyccaris* with typically plump subcylindrical body form.

Rostrum (figs. 1C, 5A) short, about 0.13 of CL, about 1.4 times as long as basal width in dorsal view (fig. 1B), slightly exceeding tips of paraorbital teeth, dorsal carina feebly developed, with 2 small acute dorsal teeth, both anterior to level of posterior orbital margin, tip acute, up-turned, ventral margin convex, non-setose.

Carapace (fig. 1A) glabrous, smooth, without supraorbital, epigastric, hepatic or antennal spines, with acute paraorbital tooth lateral to eye (fig. 1C), inferior orbital angle obsolete, anterolateral branchiostegite broadly rounded.

Abdomen without special features, smooth, third somite not posteriorly produced, sixth somite (fig. 1I) subequal to length of fifth, posterolateral angles small, acute, posteroventral angles large, acute, pleura all rounded.

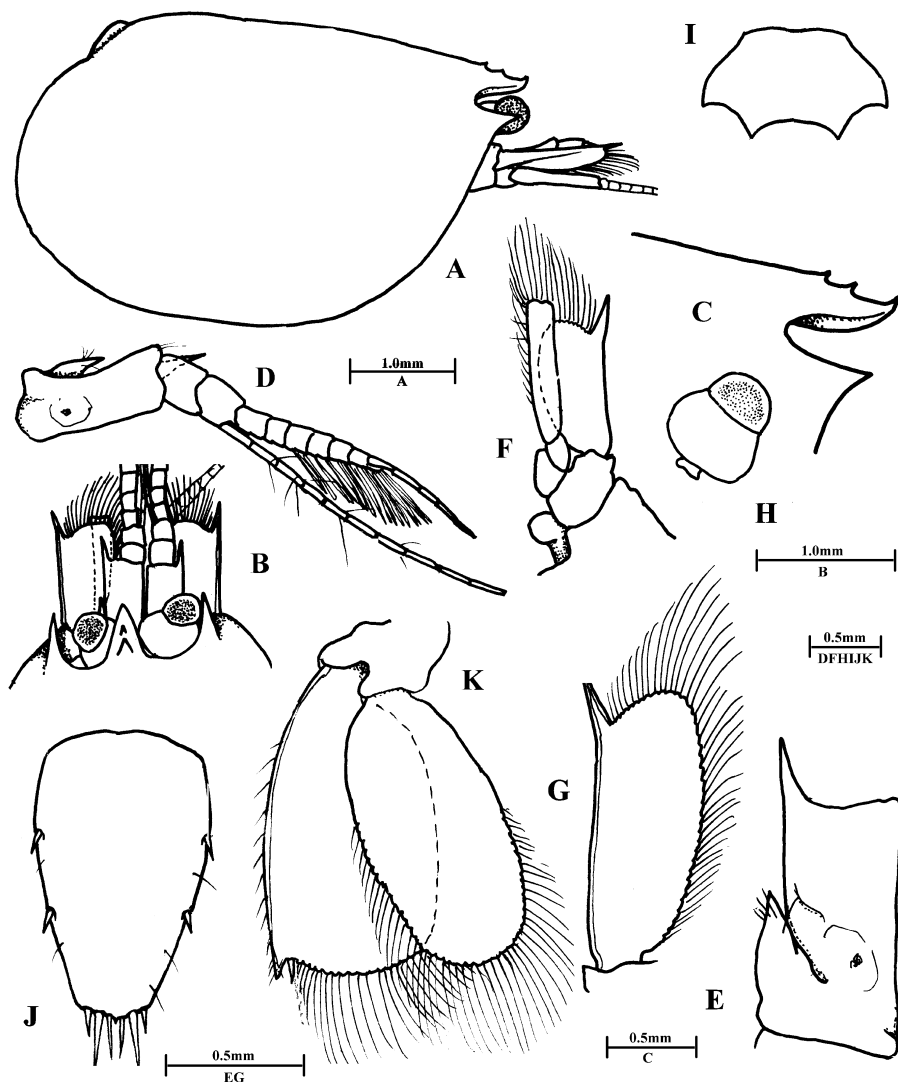


Fig. 1. *Onycocaris nieli* sp. nov., ovigerous female holotype, Heron Island, Queensland, QM W29073. A, carapace and antennae; B, anterior carapace and appendages, dorsal; C, rostrum and orbit; D, antennule, medial aspect; E, same, proximal segment of peduncle; F, antenna; G, same, scaphocerite; H, eye; I, sixth abdominal somite, dorsal; J, telson; K, uropod.

Telson (fig. 1J) about 0.55 of CL, 1.6 times as long as anterior width, lateral margins feebly convex, posteriorly convergent, sparsely setose, with 2 pairs of small marginal dorsal spines, about 0.08 of telson length, at 0.35 and 0.63 of telson length, posterior margin (fig. 5H) 0.4 of anterior width, with small acute median point, lateral spines about 0.1 of telson length, intermediate spines 0.2 and submedian spines, setulose, 0.14 of telson length.

Epistome with small rounded submedian swellings.

Antennule (fig. 1D) with proximal segment of peduncle (fig. 1E) about twice as long as broad, medial and lateral margins sub-parallel, medial margin without ventral tooth, lateral margin with strong distal tooth, stylocerite reaching half segment length, acute, with several short plumose setae disto-dorsally, statocyst poorly developed, with obsolescent statolith; intermediate and distal segments subequal, combined length about 0.8 of proximal segment length, upper flagellum biramous, rami with proximal 6 segments fused, short free ramus with single segment, longer ramus short, with 5 slender segments, with about 11 groups of aesthetascs, lower flagellum slender, as long as upper flagellum, with 10 segments, with several long slender setae.

Antenna (fig. 1F) with basicerite unarmed, coxa with large tubercle medially, carpopocerite subcylindrical, 5.0 times as long as wide, slightly exceeding distal margin of scaphocerite lamella, scaphocerite (fig. 1G) well developed, lamella about 0.28 of CL, 2.6 times as long as wide, lateral margin straight, with strong distal tooth, about 0.22 of lateral margin length, far exceeding lamella.

Ophthalmic somite without median pigment spot.

Eye (fig. 1H) not quadrate, cornea hemispherical, 0.09 of CL, poorly pigmented, without accessory pigment spot, eyestalk swollen, length subequal to corneal diameter, 1.7 times wider than long.

Labrum without special features.

Mandible (fig. 2A) with slender corpus, without palp; molar process (fig. 5C) slender subcylindrical, distally oblique, with few small acute teeth and groups of short setae; incisor process (fig. 5B) broad, medially scaphoid, tapering to single acute distal tooth, medial edge unarmed, extending along anterior margin of molar process.

Maxillula (fig. 2B) of normal form, palp (fig. 5D) very feebly bilobed, lower lobe without ventral tubercle, with longer simple seta ventrally and more slender, shorter seta dorsally; upper lacinia (fig. 5E) distally rounded, with 7 slender simple marginal spines and sparse feebly setulose setae; lower lacinia feebly tapering distally with numerous setulose spiniform setae.

Maxilla (fig. 2C) with slender tapering non-setose palp; distal endite simple, broad, rounded with 10 slender simple setae distally; coxal endite obsolete, margin rounded, non-setose; scaphognathite normal, about 2.6 times as long as broad, anterior lobe broad, 1.2 times as long as wide, medial margin convex, posterior lobe narrow, 2.0 times as long as wide, 0.75 of anterior lobe length.

First maxilliped (fig. 2D) with well developed non-setiferous palp, more robust than maxillary palp, extending well beyond caridean lobe, basal and coxal endites fully fused, distal margin broadly rounded, medial margin straight, with sparse

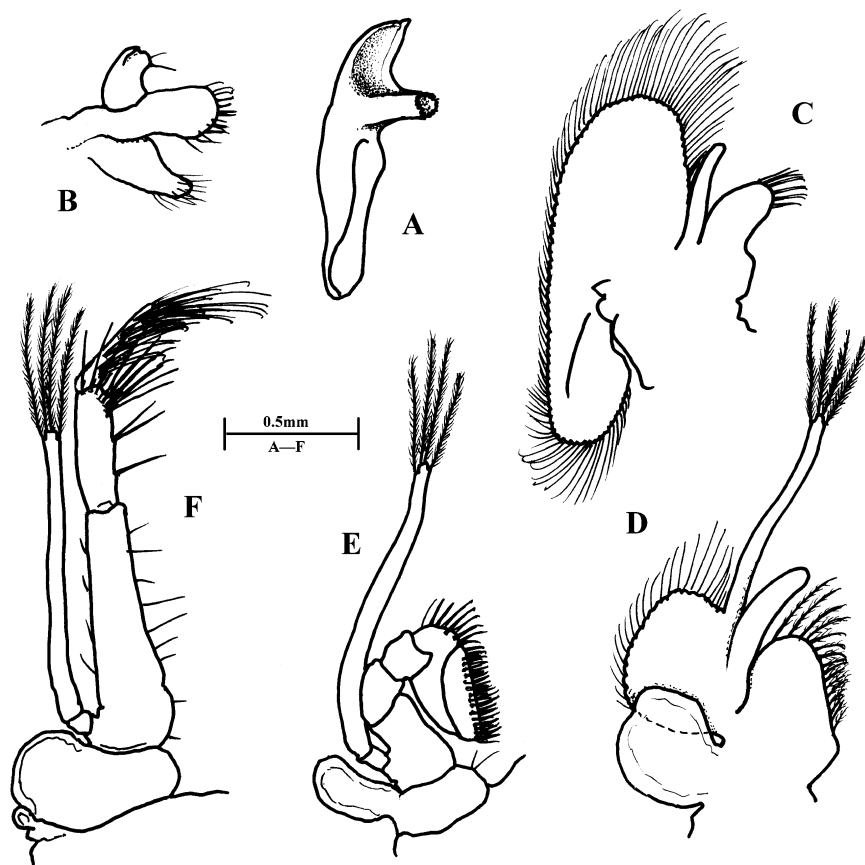


Fig. 2. *Onycocaris nieli* sp. nov., ovigerous female holotype, Heron Island, Queensland, QM W29073. A, mandible; B, maxillula; C, maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped.

long setulose setae distally, shorter setae proximally, coxal portion convex, non-setose; exopod with slender flagellum with 4 plumose terminal setae, caridean lobe well developed, rounded; epipod rounded, feebly bilobed, almost as large as caridean lobe.

Second maxilliped (fig. 2E) of normal form, dactyl 2.7 times as long as broad, medial margin straight, with numerous coarsely setulose spines; propod with antero-medial margin rounded, with numerous longer finely setulose spines; carpus and merus without special features, ischiobasis excavate medially, exopod with well developed slender flagellum with 4 plumose terminal setae; coxa with medial margin rounded with 2 simple setae, epipod twice as long as wide, rounded, without podobranch.

Third maxilliped (fig. 2F) endopod slender, extending to end of carapocerite, ischiomerus completely fused to basis, junction marked by small notch at 0.25 of

medial margin length, combined segment length 3.4 times as long as proximal width, tapering distally, distal width 0.5 of proximal width, lateral margin straight, medial feebly concave, both sparsely setose; carpus 0.5 of antepenultimate segment length, subcylindrical, 3.4 times as long as wide, sparsely setose medially, numerous long spiniform setae distoventrally; terminal segment subequal to carpal length, tapering slightly distally, with about 6-7 transverse rows of spiniform setae; exopod with well developed slender flagellum reaching to middle of carpal segment, with 4 plumose terminal setae; coxa medially rounded, non-setose, with well developed rounded lateral plate, with rudimentary arthrobranch.

Thoracic sternites unarmed, 1-3 broad, fourth broad, without median process, fifth narrow, sixth to eighth broad, of increasing width posteriorly, unarmed.

First pereiopod (fig. 3A) long, slender, exceeding scaphocerite by distal half of merus; chela (fig. 3B) 0.37 of CL, palm subcylindrical, about 5.0 times as

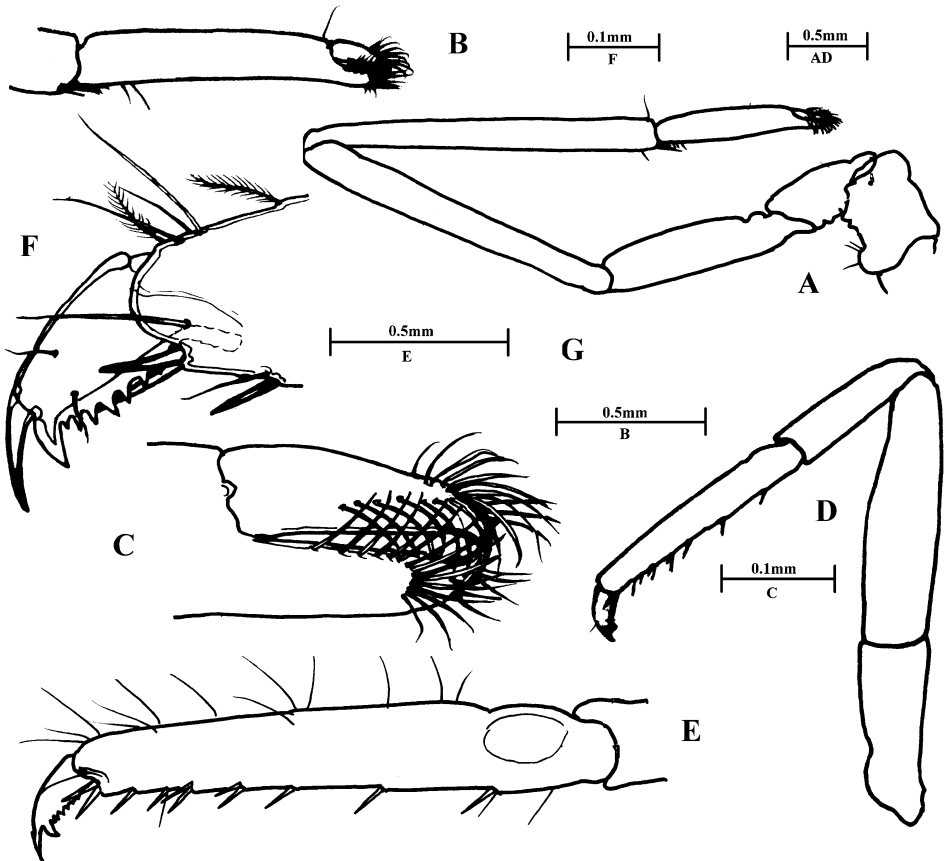


Fig. 3. *Onycocaris nieli* sp. nov., ovigerous female holotype, Heron Island, Queensland, QM W29073. A, first pereiopod; B, same, chela; C, same, fingers; D, third pereiopod; E, same, propod and dactyl; F, same, distal propod and dactyl.

long as wide, with sparse cleaning setae proximo-ventrally, fingers (fig. 3C) short, about 0.22 of palm length, similar, with acute hooked tips, cutting edges feebly developed, entire, with numerous curved basket-like marginal setae; carpus long, slender, 2.1 times length of chela, subcylindrical, about 11.0 times as long as distal width, tapering slightly proximally, with few distoventral cleaning setae; merus 0.95 of carpus length, 11.0 times as long as distal width, tapering slightly proximally; ischium 0.5 of carpus length, 4.6 times as long as central width; basis 0.45 of ischial length, coxa robust, subequal to basis length, without distoventral process.

Major second (fig. 4A) pereopod with chela about 1.32 times CL, palm strongly compressed, 1.3 times as long as deep, very finely tuberculate, particularly ventrally, sparsely setose; dactyl (fig. 4B) slender, about 1.1 times palm length, 5.3

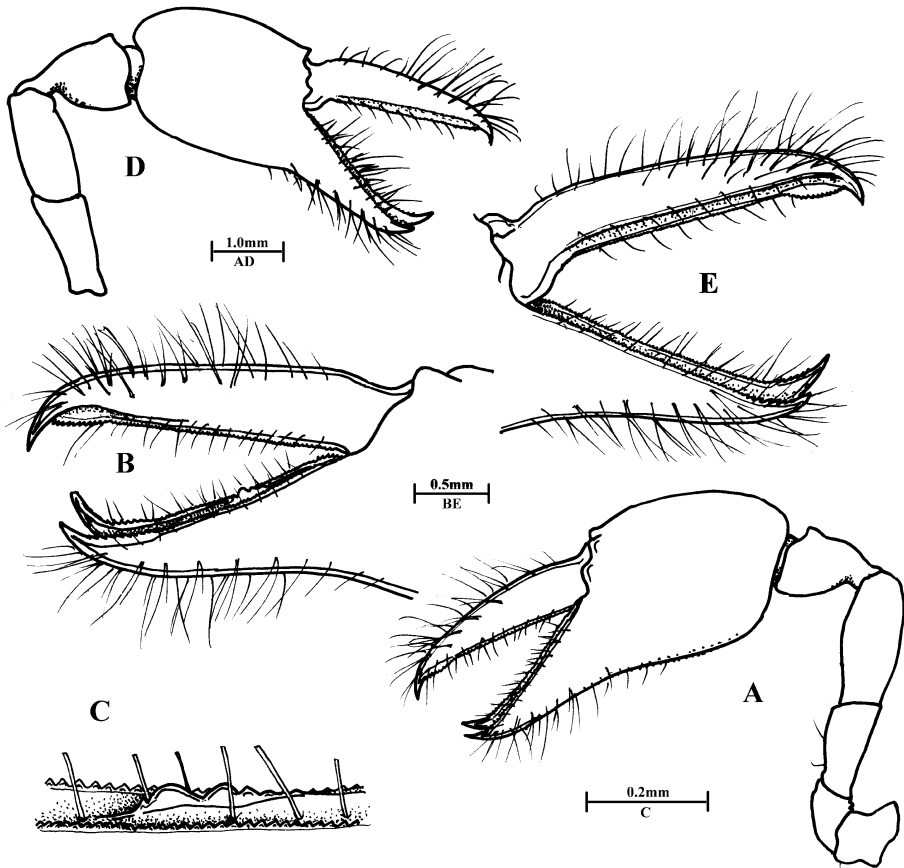


Fig. 4. *Onycocaris nieli* sp. nov., ovigerous female holotype, Heron Island, Queensland, QM W29073. A, major second pereopod; B, same, fingers, medial; C, same, fixed finger, central cutting edge; D, minor second pereopod; E, same, fingers, medial.

times as long as proximal depth, tapering distally to single stout acute hooked tip, ventrally scaphoid, medial and lateral cutting edges straight, denticulate, with minute subacute or rounded denticles, slightly expanded distally with slightly larger more acute teeth, dorsal surface with numerous long simple setae, occlusal surface with shorter setae; fixed finger (fig. 4B) about 2.5 times as long as basal width, deeply bifid (fig. 5F) distally with stout acute hooked tips separated by deep notch, occlusal surface longitudinally grooved, medial and lateral cutting edges minutely denticulate, with low irregular tooth centrally between cutting edges (fig. 4C), at about half length, setae as on dactylus; carpus short, stout, about 0.5 of palm length, distally robust, strongly tapered proximally, smooth, unarmed; merus 1.5 times carpal length, 0.66 of palm length 2.4 times as long as central width, smooth, unarmed; ischium subequal to carpal length, 2.4 times as long as distal width, tapering proximally, smooth, unarmed; basis and coxa robust, without special features.

Minor second pereopod (fig. 4D) similar to major pereopod but slightly smaller, chela about 1.24 times CL, with palm about 0.8 of major chela palm length, dactyl (fig. 4E) 1.2 times palm length, 6.0 times as long as proximal depth, ventrally scaphoid with medial and lateral denticulate occlusal edges, tip simple, acute, hooked; fixed finger (fig. 4E) similar to major chela but without low tooth between cutting edges; proximal segments similar to those of major chela, slightly less robust.

Third pereopod (fig. 3D) normal, extending to about end of scaphocerite; dactyl (fig. 3F) about 0.2 of propod length, unguis well developed, simple, slender, 3.6 times as long as basal width, 0.6 of length of dorsal margin of corpus, curved, corpus compressed, 1.6 times as long as basal width, dorsal margin feebly convex, ventral margin with stout simple ventral tooth, about half unguial length, broader based, anterior margin convex, posterior margin straight, ventral margin of corpus (fig. 5G) with 8 slender acute erect teeth, fifth tooth longest, other teeth decreasing in size proximally and distally, corpus with 2 lateral sensory setae; propod (fig. 3E) about 0.62 of CL, 6.2 times as long as width, tapering slightly distally, with paired simple slender distoventral spines, lateral spine longer, greater than half corpus length, medial spine less than half, ventral margin with 7 sets of similar slender spines, fourth and fifth sets doubled; carpus, merus and ischium without special features, carpus 0.6 of propod length, merus 1.1 times and ischium 0.6 times, all unarmed.

Fourth pereopod and fifth pereopod with dactyls similar to third, propods subequal in length, fourth with 2 distoventral spines, 6 ventral spines, fifth with 2 and 4 spines.

Uropod (fig. 1K) with protopodite unarmed, distolaterally rounded; exopod 1.1 times telson length, broad, 1.8 times as long as wide, distal margin truncate, feebly

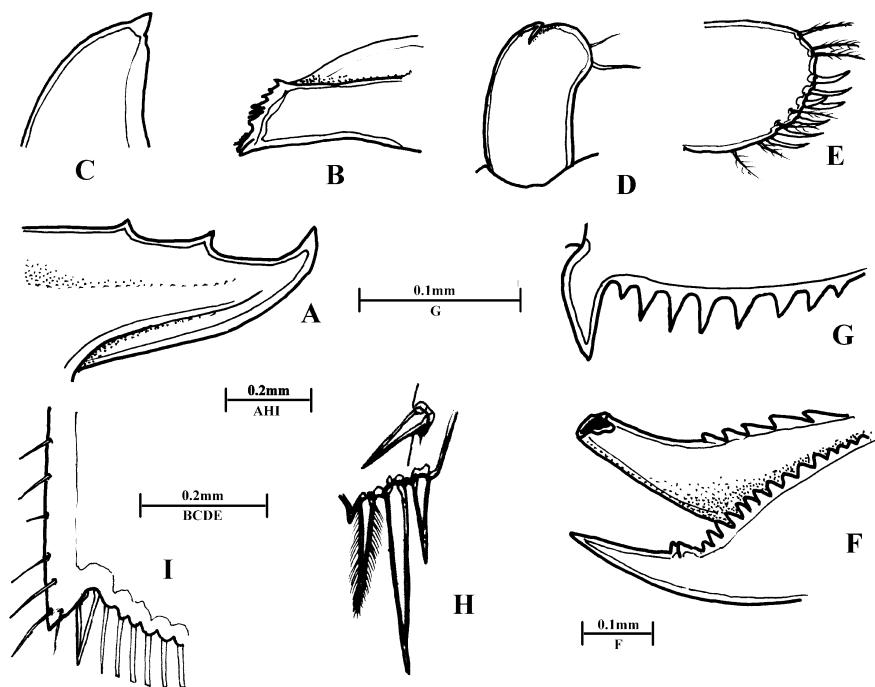


Fig. 5. *Onycocaris nieli* sp. nov., ovigerous female holotype, Heron Island, Queensland, QM W29073. A, rostrum; B, molar process; C, incisor process; D, maxillula, palp; E, same, upper lacinia; F, major second pereiopod fixed finger tip; G, third pereiopod dactyl, ventral corpus; H, posterior telson spines, right, dorsal spine inset; I, exopod of uropod, distolateral angle.

convex, lateral margin convex, entire, setose, with acute distolateral tooth with longer mobile spine medially (fig. 5I), subequal to dorsal telson spine length, diaeresis obsolete; endopod slightly shorter than exopod, twice as long as wide.

Ova (eyed, on point of eclosion), numerous, large.

Measurements (mm). — Postorbital carapace length, 3.5; carapace and rostrum, 4.4; total body length (approx.), 15.0; major second pereiopod chela, 4.7; minor second pereiopod chela, 4.4; ova length 1.2.

Coloration. — Yellow.

Host. — Sponge, unidentified.

Etymology. — The species is named after the collector, Dr Niel L. Bruce. It thus is a noun in the genitive singular.

Systematic position. — *Onycocaris nieli* sp. nov. most closely resembles *O. temiri* Marin, 2005 but the females of these species may be distinguished by the following features: rostrum shorter, about 0.13 of CL, scarcely exceeding paraorbital tooth (Marin, 2005, fig. 3a), with 2 dorsal teeth (vs. 0.16 of CL, well exceeding paraorbital teeth, with four dorsal teeth (Marin, 2005, fig. 3a); posterior

rostral carina not inflated (vs. inflated); second pereopod with chelae subequal, similar (vs. unequal, dissimilar), with palms finely tuberculate (vs. smooth); chelae without strongly developed teeth on cutting edges (vs. with robust teeth), fixed fingers deeply bifid distally (vs. simple distally); ambulatory dactyl with accessory tooth anteriorly smoothly convex (vs. angular and irregular); ventral margin of corpus with 8 shorter broader erect teeth (vs. longer narrower anteroverted teeth); dorsal telson spines at 0.35 and 0.63 of telson length (vs. at 0.42 and 0.75 of telson length, Marin, 2005, fig. 7h).

Onycocaris nieli sp. nov. also generally resembles *O. zanzibarica* Bruce, 1971, which also has the second pereopod chelae subequal and similar, but the fixed finger, although notched distally, is not deeply bifid, having only a single robust acute hooked distal tip, with a small adjacent lateral flange with a rounded crenulate margin (Bruce, 1971).

Remarks. — The single specimen is complete with all appendages preserved.

The ova are unusually large (length 1.2 mm) and may be compared with those of the *O. temiri* holotype in which they appear to be about 0.33 mm (Marin, 2005, fig. 1).

The species of *Onycocaris* are known only from the Indo-West Pacific region and, as far as is known, are generally found in heterosexual pairs in sponge hosts. Several species are still poorly known, e.g., *O. quadratophthalma* (Balss, 1921), or known with certainty only from the holotype specimen, e.g., *O. trullata* Bruce, 1978, *O. longirostris* Bruce, 1980, *O. profunda* Bruce, 1985, *O. nieli* sp. nov., or pair of specimens, e.g., *O. bocki* Bruce, 1993, *O. furculata* Bruce, 1979. The range of intraspecific morphological variation, particularly in the second pereopods, is largely unknown. The following key should therefore be used with caution.

KEY TO THE SPECIES OF THE GENUS *ONYCOCARIS* NOBILI, 1904

- 1 – Rostrum dorsally dentate 2
 - Rostrum dorsally unarmed 8
- 2 – Rostrum well developed, reaching almost to end of antennular peduncle, with three large acute teeth; with large distoventral tooth on second pereopod merus
 - *O. longirostris* Bruce, 1980
 - Rostrum not exceeding proximal segment of antennular peduncle; second pereopod merus without large distoventral tooth 3
- 3 – Ambulatory dactyl comparatively elongate, about 0.33 of propod length, corpus with bilobed distal accessory tooth, rostrum short, with two feeble dorsal teeth
 - *O. furculata* Bruce, 1979
 - Ambulatory dactyl comparatively short, less than 0.25 of propod length, corpus with simple distal accessory tooth 4
- 4 – First pereopod chela about 3.0 times chela length *O. profunda* Bruce, 1985
 - First pereopod chela less than 3.0 times propod length 5
- 5 – Fingers of major second pereopod feebly dentate *O. nieli* sp. nov.
 - Fingers of major second pereopod strongly dentate 6

- 6 – Second pereopods subequal and similar, fixed finger with small distolateral flange
 *O. zanzibarica* Bruce, 1971
- Second pereopods unequal, dissimilar 7
- 7 – Minor second pereopod fingers subequal to palm length, slender, finely denticulate
 *O. temiri* Marin, 2005
- Minor second pereopod fingers shorter than palm length, robust, coarsely denticulate;
 ventral border of ambulatory dactyls with short broad acute teeth
 *O. seychellensis* Bruce, 1971
- 8 – Second pereopods with merus with several large acute teeth ventrally; ventral border of
 ambulatory dactyls with long slender acute teeth *O. spinosa* Fujino & Miyake, 1969
- Second pereopods with merus without large acute teeth ventrally 9
- 9 – Second pereopods with inner row of large teeth on fingers
 *O. callyspongiae* Fujino & Miyake, 1969
- Second pereopods without inner row of teeth on fingers 10
- 10 – Second pereopod merus and ischium unarmed 11
- Second pereopod merus and/or ischium with tubercles or teeth 12
- 11 – Rostrum relatively well developed, eyes normal in dorsal view, dorsal telson spines at 0.3
 and 0.5 of telson length, major second pereopod distally strongly bifid, first pereopod chela
 with fingers about 0.5 of palm length *O. trullata* Bruce, 1978
- Rostrum greatly reduced, eyes quadrate in dorsal view, dorsal telson spines at 0.38 and 0.75
 of telson length, major second pereopod distally simple, first pereopod chela with fingers
 about 0.3 of palm length *O. quadratophthalma* (Balss, 1921)
- 12 – Second pereopod merus and ischium with acute distoventral tooth 14
- Second pereopod ischium with acute distoventral tooth, merus unarmed 13
- 13 – Second pereopods subequal, similar; ambulatory dactyls with accessory tooth posteriorly
 denticulate *O. amakusensis* Miyake & Fujino, 1969
- Second pereopods unequal, dissimilar; ambulatory dactyls with accessory tooth posteriorly
 unarmed *O. bocki* Bruce, 1993
- 14 – Dorsal telson spines at 0.55 and 0.8 of telson length, distal cutting edge of second pereopod
 dactyl with about 30 small rounded teeth, distolateral flange with about 23 marginal
 denticles, ambulatory unguis without ventral denticles *O. stradbrokei* Bruce, 1998
- Dorsal telson spines at 0.33 and 0.66 of telson length, distal cutting edge of second
 pereopod dactyl with about 10 small subacute teeth, distolateral flange with 2-3 distal
 denticles only, ambulatory unguis ventrally denticulate 15
- 15 – Second pereopods with distoventral meral tooth well developed, ambulatory unguis with
 feeble basal denticles *O. oligodentata* Miyake & Fujino, 1969
- Second pereopods with distoventral meral tooth feebly developed, ambulatory unguis with
 well developed denticles throughout length *O. aualitica* (Nobili, 1904)

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