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Ancylomenes kuboi and *A. okunoi* spp. nov. (Decapoda: Pontoniinae), from the Australian Northwest Shelf, Vietnam and the Philippines*

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Abstract

Two new species of *Ancylomenes* (Decapoda: Pontoniinae), *A. kuboi* sp. nov. (Australian northwestern shelf and Vietnam, from 9.2–82 m) and *A. okunoi* sp. nov., (Australian north-western shelf and the Philippines, from 80–134 m, are described and illustrated. Both are most closely related to *A. tosaensis* (Kubo, 1951), also found on the Northwest Shelf, and a key for their separation is provided.

Key words: *Ancylomenes kuboi, A. okunoi* spp. nov., Decapoda, Pontoniinae, Australian Northwest Shelf, Vietnam, Philippines, taxonomy

Introduction

The newly described pontoniine genus *Ancylomenes* Okuno & Bruce, 2009, includes 18 species, of which 15 occur in the Indo-West Pacific region. Morphologically all species, except one, are similar in having biunguiculate dactyli on the ambulatory pereiopods. The single exception is *Ancylomenes tosaensis* (Kubo, 1951). A number of *Ancylomenes* specimens with simple dactyli were collected from the Australian Northwest Shelf during the course of CSIRO surveys (1983) of this region by the FRV *Soela* and initially identified as *Periclimenes tosaensis* Kubo, 1951. Recent re-examination of these specimens has shown that the material belongs to two new related species which are now described and illustrated. Further specimens of these new species have also been collected from the Philippines by the MUSORSTOM 1 Expedition (1976) by the NO *Vauban*, and from Vietnam, collected by Zdeněk Ďuriš. The number of *Ancylomenes* species is now increased to 20 species. The Northwest Shelf specimens were collected from depths of 80–83 m, the Philippines specimens from 122–143m and the Vietnam specimens from 9.2 m. The specimens are deposited in the collections of the Northern Territory Museum, Darwin, Queensland Museum, Brisbane, and the Muséum national d'Histoire Naturelle, Paris.

Abbreviations used: CL post-orbital carapace length CSIRO, Commonwealth Scientific and Industrial Research Organization; MNHN, Muséum national d'Histoire Naturelle, Paris; NTM Northern Territory Museum, Darwin; R rostral dentition, epigastric tooth + dorsal/ventral rostral teeth.

Systematics

Palaemonidae Rafinesque, 1815

Pontoniinae Kingsley, 1879

Genus *Ancylomenes* Okuno & Bruce, 2010: 86–88

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***Ancylomenes kuboi* sp. nov.**
(Figs. 1–2)

Material examined. (i) 1 holotype female, 1 male paratype, 1 sex unknown, CLs 3.0, 3.5 mm, FRV *Soela*, stn NWS–17, B4, Northwest Shelf, Western Australia, 19°05.3'S, 118°53.8'E, 80 m, beam trawl, 26 April 1983, NTM Cr015049; (ii) 1 female paratype, CL 2.2 mm, FRV *Soela*, stn NWS–15, B4, Northwest Shelf, Western Australia, 19°05.4'S, 118°53.3'E, 80 m, epibenthic sledge, 27 April 1983, NTM Cr015054.

Additional, non-type material examined: (iii) 1 male, CL 2.2 mm; 1 female, CL 3.7 mm, FRV *Soela*, stn NWS-23, B4, Northwest Shelf, Western Australia, 19°03.5'S 119°03.1'E, 82 m, epibenthic sledge, 28 April 1983, NTM Cr.015047; (iv) 1 ov. female, CL 2.8 mm, FRV *Soela*, stn BT–10, Northwest Shelf, Western Australia, 19°04.6'S, 118°57.9'E, 81 m, beam trawl, 30 June 1983, NTM Cr015052; (v) 3 males, 1 ov. female, CL 2.7, 2.4, 2.0; 3.3 mm, Nha Trang Bay, Vietnam, scuba, 9.2 m, 5 September 2008, leg. Z. Ďuriš & I. Horká, #122A, on *Actinodendron* sp., QM W28917.

Diagnosis. A species of *Ancylomenes* closely resembling *A. tosaensis* (Kubo, 1951). R, 1+6–8/1; third abdominal tergite posteriorly feebly produced, bluntly subcarinate; with small angular interocular process; second pereiopod with fingers completely edentate, without proximal diastema, sparsely setose, subequal to palm length, carpus longer than palm; ambulatory propodi with slender simple dactyli, about 0.3 of propodus length, 9.5 times longer than basal width, propodus with single short terminal distoventral spine about 0.05 of dactylus length.

Description. A typical member of the genus *Ancylomenes* Okuno & Bruce, 2009.

Rostrum (Figs. 1A–B) reaching to about distal margin of proximal segment of antennular peduncle, about 0.68 of CL, slightly arched, at about 8° to longitudinal carapace axis, dorsal carina well developed, convex, extending onto anterior carapace, with 7–9 small acute teeth, posterior tooth on carina, posterior to orbital margin, well separated from second tooth, more anterior teeth closer, ventral margin feebly concave, densely setose, with small acute preterminal tooth; inferior orbital angle acutely produced, with well developed ventral flange, antennal spine marginal, well below inferior orbital angle level, hepatic spine lower still, anterior to level of epigastric spine; third abdominal tergite posterodorsally produced, bluntly carinate, rounded or slightly angular in profile, second pereiopod (Fig. 1C) exceeding antennular peduncle by carpus and chela, chela (Fig. 1D) about 0.85 of CL, palm oval in section, about 3.2 times longer than depth, fingers (Fig. 1E) subequal to palm length, dactylus slender, about 6.3 times longer than proximal depth, with strongly hooked tip, cutting edge laminar, without teeth, fixed finger similar, carpus about 1.5 times palm length, merus subequal to carpal length, ischium 1.25 times carpal length; third pereiopod with dactylus (Fig. 1G) about 0.38 of propodus length, slender, 9.5 times longer than basal width, unguis about 0.3 of corpus length, corpus without distal accessory tooth, propodus (Fig. 1F) about 0.75 of CL, feebly bowed, about 17.0 times longer than depth, sparsely setose, with single, very small, distoventral spine (Fig. 1H) only, length about 0.5 of the distal propodus width.

Measurements (mm). Holotype female, postorbital carapace length, 3.6; carapace and rostrum, 6.0; total body length, (approx.) 21.0; second pereiopod chela, 3.0.

Systematic position. Most closely related to *A. tosaensis* (Kubo, 1951), and *A. okunoi* sp. nov., the only other Indo-West Pacific species of the genus *Ancylomenes* group known to have simple ambulatory dactyli. All other species of this group have biunguiculate dactyli, although in some species the accessory tooth may be relatively small. *Ancylomenes kuboi* sp. nov. is readily distinguished from both these species by the very short distoventral spines on the ambulatory propodi.

Host. The specimens from Vietnam were found in association with *Actinodendron* sp. [Actiniaria].

Colouration. The colouration of the Vietnamese specimens is illustrated in Fig. 2. Field notes for specimen (i) are: third abdominal segment with submedian red dorsal spots outlined in white on the anterior portion, posterior region with carina white with red apical spot; rostrum transparent; second pereiopods with palm with distal two thirds yellow, proximal third whitish, fingers deep purple, carpus with distal third whitish, proximal two thirds ventrolaterally purple.

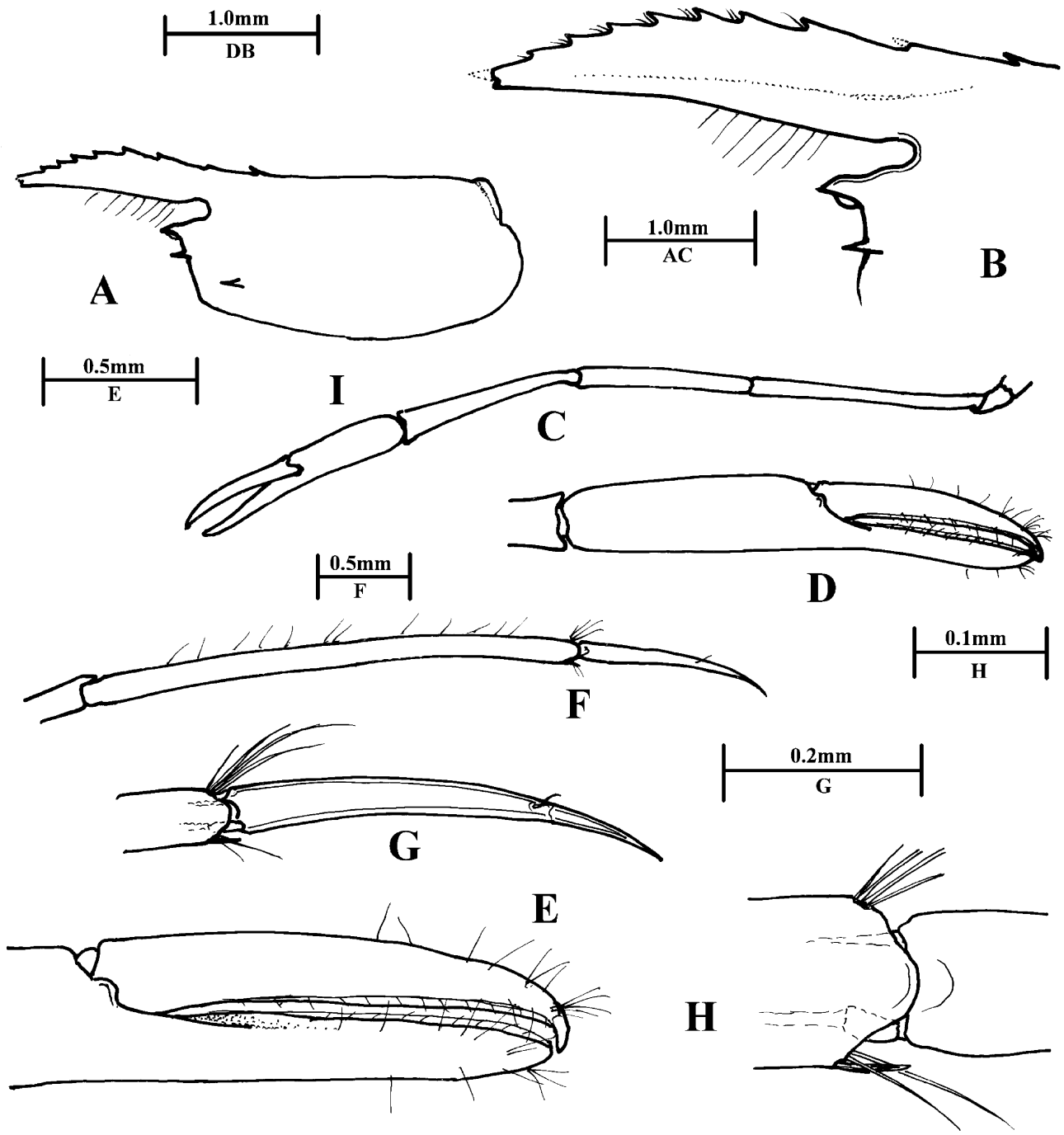

FIGURE 1. *Ancylomenes kuboi* sp. nov., holotype female, Northwest Shelf, Western Australia, 80m, NTM Cr015049: A, carapace and rostrum; B, rostrum and orbital region; C, second pereiopod; D, same, chela; E, same, fingers; F, third pereiopod, propodus and dactylus; G, same, distal propodus and dactylus; H, same, dactylo-propodal joint.

Etymology. The specimen is named in honour of Prof. Itsuo Kubo (1909-1968), of the Tokyo University of Fisheries, Japan, in recognition of his studies on pontoniine shrimp, including the original description of *Periclimenes tosaensis*.

Remarks. A full illustrated description is not provided as this species conforms so closely to *A. tosaensis* and the other species of *Ancylomenes*. The salient features outlined above should enable it to be readily recognised.

The Northwest Shelf specimens are not in good condition. All specimens except one have intact rostra. The female holotype specimen (i) and the paratype (ii) each have a single second pereiopod. The third

specimen lacks much of the abdomen. The holotype and (ii) also lack the posterior half of the telson. Only the female (iv), CL 2.8 mm, is ovigerous, with ova of normal length, about 0.5 mm. The Vietnamese specimens are in good condition with intact rostra, the female, CL 3.3, has a dentition of 1+7/1 and the males, CLs 2.7, 2.4 and 2.0, have 1 +6/1, the female and two males have both second pereiopods.

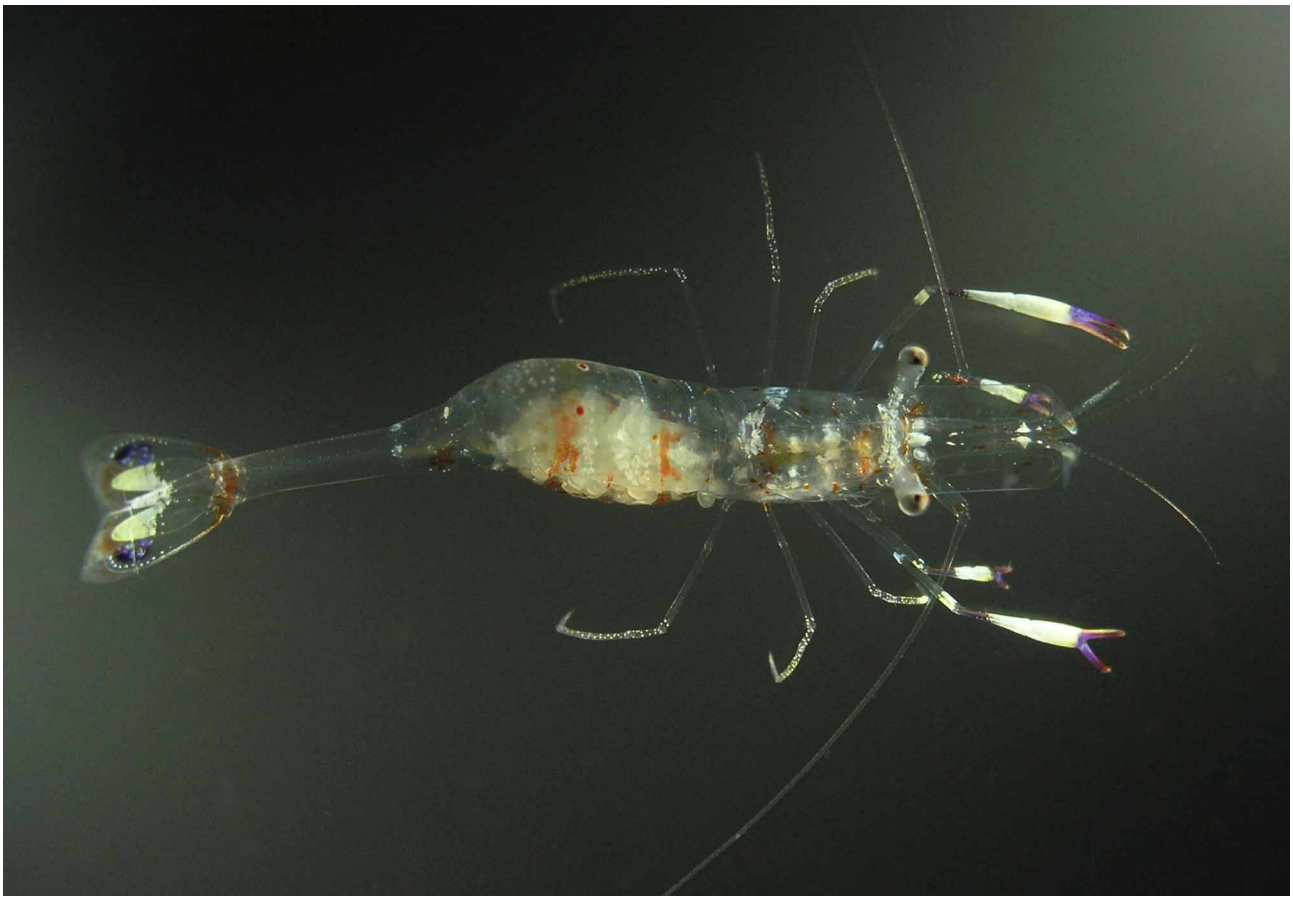

FIGURE 2. *Ancylomenes kuboi* sp. nov.: ovigerous female from Nha Trang Bay, QM W28917, photo by Ivona Horká.

***Ancylomenes okunoi* sp. nov.**
(Fig. 3)

Periclimenes tosaensis. — Bruce, 1981: 196, fig. 5. — Li & Bruce, 2006: 721.

Material examined. (i) 1 female holotype; 1 male allotype, CLs 5.9, 4.6 mm. FRV *Soela*, stn. B5, 19°05.0”S 118°50.5’E, Northwest Shelf, Western Australia, 83 m, 29 June 1983, leg. T. Ward, beam trawl, NTM Cr015051.

Additional, non-type material examined: (ii) 1 male, CL 4.8 mm, FRV *Soela*, stn. NWS–20, 19°03.5’S, 119°03.6’E, Northwest Shelf, Western Australia, 80 m, beam trawl, 28 April 1983, NTM Cr015045; (iii) 1 female, CL 2.2 mm, FRV *Soela*, stn NWS–19, 19°04.3’S, 117°47.8’E, Northwest Shelf, Western Australia, 80 m, 27 April 1983, NTM Cr015046; (iv) 2 ov. females, CL 5.1–5.3 mm, MUSORSTOM 1, NO *Vauban*, stn 56, 13°53.1’N, 120°08.9’E, Philippines, 129-134 m, 26 March 1976, MNHN Na3834; (v) 2 ov. females, CL 4.6–4.8 mm, MUSORSTOM 1, NO *Vauban*, stn 72, 14°11.0’N, 120°28.7’E, Philippines, 122–127 m, 28 March 1976, MNHN Na3562.

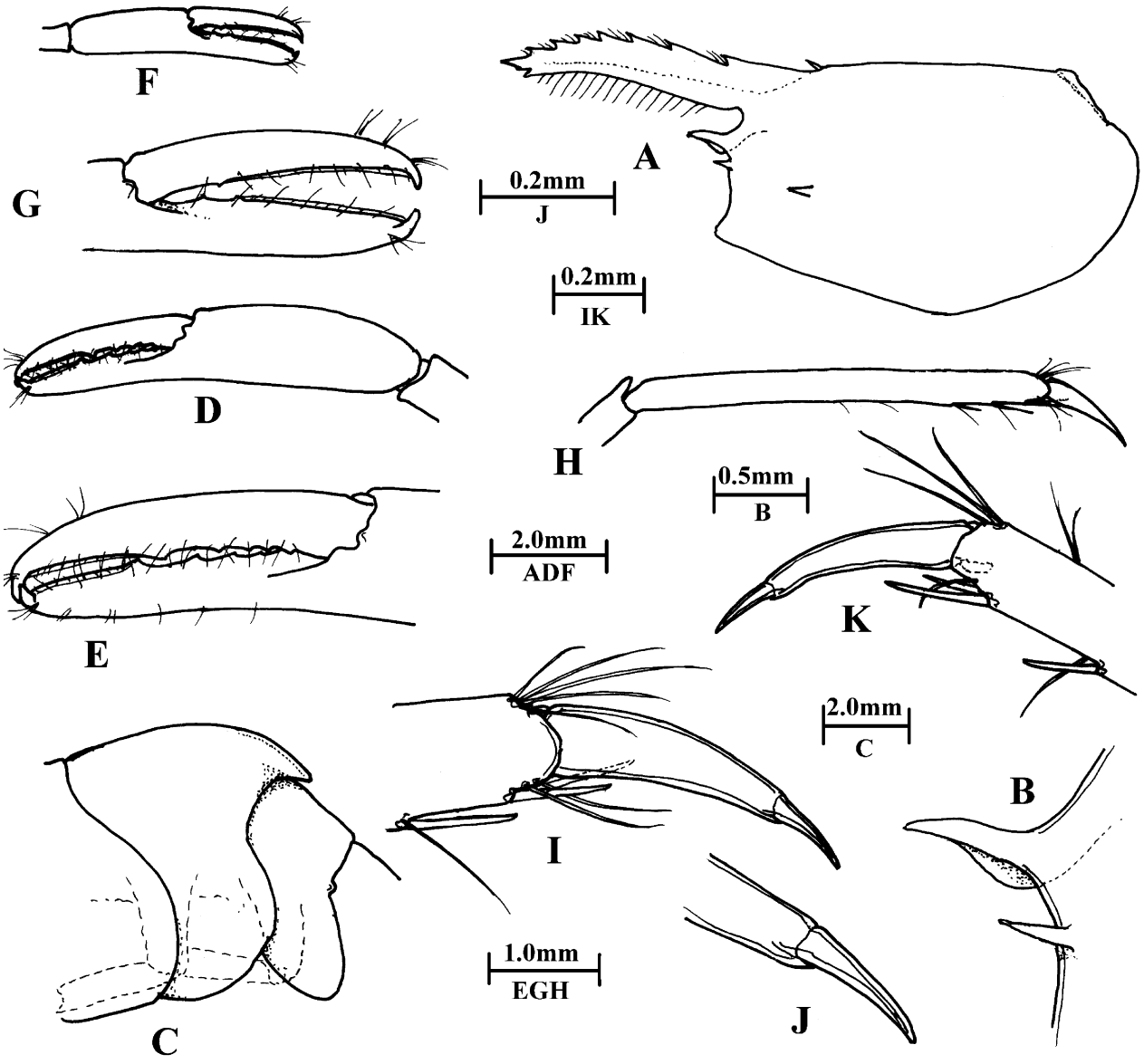

FIGURE 3.*Ancylomenes okunoi* sp. nov., Northwest Shelf, Western Australia, 83 m, NTM Cr015051: A, carapace and rostrum; B, inferior orbital angle; C, third abdominal tergite; D, major second pereiopod, chela; E, same, fingers; F, major second pereiopod, chela; G, same, fingers; H, third pereiopod, propodus and dactylus; I, same, distal propodus and dactylus; J, same, distal dactylus; K, third pereiopod, distal propodus and dactylus. A–E, H–J (holotype female), F–G, K (allotype male).

Diagnosis. A medium sized *Ancylomenes* species, R. 1+7–9/2, rostral elevation 15°, third abdominal tergite posteriorly produced, rounded in profile, non-carinate, second pereiopod fingers dentate, ambulatory dactyli simple, propodi with long slender paired subterminal spines.

Description. Rostrum (Fig. 3A) reaching to distal end of middle segment of antennular peduncle, dentition 1+7–9/2, terminal ventral tooth minute, preterminal tooth slightly larger, with articulated epigastric tooth at about 0.23 of CL, well separated from first rostral tooth situated over posterior margin of orbit. Inferior orbital angle (Fig. 3B) acutely produced with well developed ventral flange. Third abdominal somite (Fig. 3C) acutely produced posteriorly, non-carinate. Female major second pereiopod chela (Fig. 3D) with fingers (Fig. 3E) about 0.83 of palm length, strongly dentate, 4/5 slightly acute recurved teeth, tips strongly hooked, male chela (Fig. 3F) with fingers (Fig. 1G) feebly dentate, 1/2 respectively. In holotype, with 4 small slightly recurved teeth on fixed finger and single small tooth opposes gap between two distal teeth of fixed finger.

Third pereiopod ambulatory dactylus (Fig. 3IK) with unguis feebly demarcated from corpus, with suggestion of obsolete accessory tooth closely adpressed to base of unguis (Fig. 3J); propodus (Fig. 3H) with 2-1-1-1 spines from distal end, longer distoventral spine slender, straight, about 0.33 of dactylus length.

Measurements (mm). Holotype female, postorbital carapace length, 4.6; carapace and rostrum, 8.5; total body length,(approx.) 30.0; major second pereiopod chela, 5.0; length of ovum, 0.7.

Systematic position. Closely related to *A. tosaensis* (Kubo) and *A. kuboi* sp. nov.. Distinguished by the posteriorly produced third abdominal tergite, well armed fingers of the female second pereiopod and shorter paired distoventral spines on the third ambulatory propodus, with the presence of a vestigial accessory tooth on the dactylus.

Colouration. No data.

Etymology. Named in honour of Dr Junji Okuno, of the Coastal Branch of the Natural History Museum and Institute, Chiba, Japan, in recognition of his contributions to knowledge of the Japanese decapod fauna, particularly of pontoniine shrimps.

Remarks. Specimens (i) each have only a single second pereiopod. Specimen (ii) lacks the rostrum and both second pereiopods; an epigastric spine is present and the third abdominal segment and ambulatory dactyli are as in the type specimens. Specimen (iii) lacks the distal half of the rostrum, has no second pereiopods and only two ambulatory pereiopods. It differs slightly from the type specimens in that the third abdominal tergite is less produced, dorsally angular in transverse section and the fourth ambulatory pereiopod has the longer distoventral spine distinctly more than half the dactylus length. The adpressed vestigial accessory tooth is distinct.

The specimens (iii) and (iv) from the Philippines have been previously reported upon as *Periclimenes tosaensis* by Bruce (1981).

Ancylomenes tosaensis (Kubo, 1951)

(Fig. 4)

Periclimenes (Ancylocaris) tosaensis Kubo, 1951: 268–271, figs. 7–8.
Periclimenes tosaensis. — Hayashi 1986: 100–101, 261, pl. 61. — Li 2000: 243–244, fig. 323. — Li *et al*. 2005: 548–549, fig. 33. — Bruce 2008; 15–16, fig. 9, 14D.
Ancylomenes tosaensis. — Okuno & Bruce, 2010: 101.

Material examined. (i) 1 male, CL 3.3 mm, FRV *Soela*, stn NWS–16, B4, Northwest Shelf, Western Australia, 19°04.3'S 118°50.5'E, 80 m, sledge, 27 April 1983, NTM Cr015053.

Remarks. The single specimen has a rostral dentition 1+8/2 (Fig. 4A), with the epigastric tooth separated by a larger interval from the first rostral tooth than between remaining teeth, both distal ventral teeth very small, exactly as illustrated by Li *et al*. (2005): plumose ventral setae particularly long (Fig. 4A). The proximal dorsal surface of the stylocerite also has numerous plumose setae. The basicerite has a small acute disto-dorsal tooth (Fig. 4A). The interocular process is small and rounded. The single second pereiopod has the fingers subequal to the palm length, dactylus and fixed finger both unarmed; the carpus also subequal to the palm length. The third ambulatory pereiopod has the dactylus (Fig. 4C) about 0.22 of the propodus length, 5.4 times longer than the proximal width, dorsal margin smoothly convex, without setae, ventral margin smoothly concave, unguis not clearly demarcated, about 0.3 of corpus length; propodus (Fig. 4B) about 0.68 of CL, 13.5 times longer than deep, disto-ventral angle oblique, with several simple setae disto-dorsally and a pair of slender unequal pre-terminal spines proximo-ventrally, lateral spine almost half the dactylus length, twice distal propodus width, medial spine about 0.6 of medial spine length, ventral margin with distal pair of one long and one very short spines and two small single spines.

Colouration. (i) From field notes: mainly transparent, rostrum transparent, third abdominal tergite with anterior red spot and posterior white transverse bar, antennular peduncle with yellow spots distally on each segment, scaphocerite transparent, first pereiopod similar to second, purple much less intense, second pereiopod chelae with palm white, hinge region and proximal part of fingers deep purple, more distal fingers

feebly purplish, carpus yellow, distally purple, merus and ischium similar, ambulatory pereiopods with dactyli purple, propodi yellowish outlined with purple-red, coxae pale yellow, distal two thirds of telson white, with anterolateral red patch; uropodal exopod with distal two thirds white, with large distal purple eyespot, endopod with distal three fourths white, proximal fourth reddish.

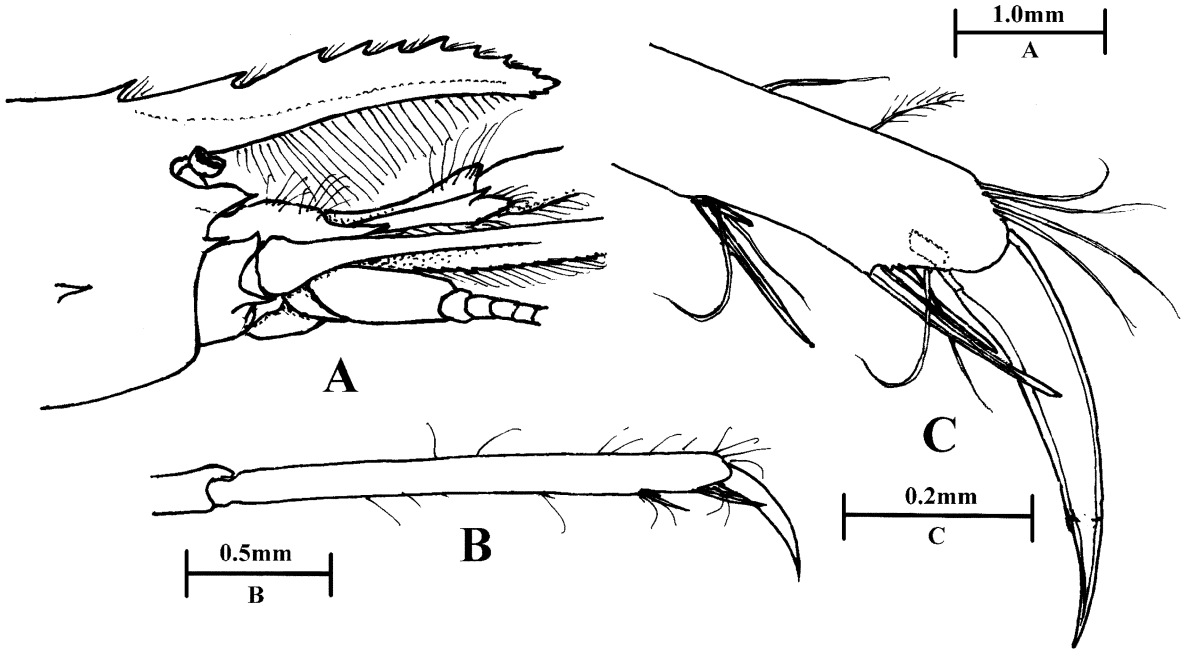

FIGURE 4. *Ancylomenes tosaensis* (Kubo) male, Australian Northwest Shelf, NTM Cr015053: A, anterior carapace, rostrum and bases of antennae; B, third pereiopod, propodus and dactylus; C, same, distal propodus and dactylus.

Distribution. Type locality: Usa, Tosa Bay, Shikoku, Japan. Previously reported from the Northwest Shelf, from 100 m by Bruce (2008). Also known from Kü Channel, (Sakamoto & Hayashi 1977) and Amakusa Island, Japan (Fujino 1978)**;** the South China Sea (Bruce 1966, 1979, 2003; Li & Bruce 2006; Li *et al.* 2005) and East China Sea (Li 2006).

Reports from the Seychelle Islands, (Bruce 1976), Indonesia, Papua New Guinea and the Philippines (Debelius 2001) are dubious. The ovigerous female Fijian specimen, from 144-150 m, referred to *P. tosaensis* by Li & Bruce (2006), a perfect specimen, has clearly been misidentified as the ambulatory dactyli have well developed accessory teeth. The specimen has been re-examined and is now considered to be referable to *A. tenuirostris* (Bruce 1991).

Key to Indo-West Pacific *Ancylomenes* species with simple ambulatory dactyli

1. Ambulatory propodi with very short distoventral spine; R. 1+6–8/1 ..... ***A. kuboi* sp. nov.**
– Ambulatory propodi with long distoventral spines..... 2
2. Third abdominal tergite not posteriorly produced, second pereiopod fingers unarmed, R. 1+7–9/2–3 .... *A. tosaensis* (Kubo)
– Third abdominal tergite posteriorly produced, second pereiopod fingers distinctly dentate, R. 1+7–9/1..... ..... ***A. okunoi* sp. nov.**

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