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PRELIMINARY DESCRIPTIONS OF ONE NEW GENUS AND THREE NEW SPECIES OF HYMENOSOMATID CRABS FROM SOUTHEAST ASIA (CRUSTACEA: DECAPODA: BRACHYURA)

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ABSTRACT. - Preliminary descriptions are provided for one new genus and three new species of Southeast Asian hymenosomatids - *Limnopilos naiyanetri*, new genus and species (Thailand); *Elamena globosa*, new species, and *Elamena mendosa*, new species (both from Singapore). *Limnopilos* is the second freshwater hymenosomatid known from Southeast Asia, and the first from Thailand.

INTRODUCTION

Lucas (1980) in his revision of the Australian Hymenosomatidae, commented that the hymenosomatid fauna of Southeast Asia is poorly studied and indicated that many more taxa probably still await discovery. Compared to the 29 species known from Australia, only seven species have been reported from Southeast Asia - *Elamena sindensis* Alcock, 1896 (Singapore, fide Yang, 1979), *Halicarcinus coralicola* (Rathbun, 1909) (Singapore, Thailand, fide Rathbun, 1909; Naiyanetr, 1980), *Trigonoplax unguiformis* (de Haan, 1839) (Singapore, fide Lanchester, 1900); *Elamenopsis exigua* (Kemp, 1917) (Thailand, fide Kemp, 1917), *Elamenopsis palawanensis* Serène, 1971 (Palawan, fide Serène, 1971; Lucas, 1980), *Elamenopsis mangalis* Ng, 1988 (Singapore, fide Ng, 1988), and *Cancrocaeca xenomorpha* Ng, 1991 (Sulawesi, fide Ng, 1991).

A study of the Hymenosomatidae in the collection of the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore, shows that the hymenosomatid fauna of Southeast Asia is more diverse than previously believed. Two of the old records from Singapore proved to be incorrect: the material reported as *Elamena sindensis* is actually *Elamenopsis mangalis*; whereas *Trigonoplax unguiformes* is an undescribed species of *Elamena*, here named *E. mendosa*, new species. The second known Southeast Asian freshwater hymenosomatid is described from Thailand - *Limnopilos naiyanetri*, new genus and species. A new species of *Elamena*, *E. globosa*, with the most swollen carapace known thus far for any hymenosomatid, is also described from sublittoral waters in Singapore.

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As the names of some of these new taxa are needed for other reports and studies currently under preparation, preliminary diagnoses are provided for the new genus and three new species to faciliate the usage of the names. The detailed taxonomic account of the nine known species from Southeast Asia, including redescriptions of poorly known taxa (e.g. *Halicarcinus coralicola* and *Elamenopsis palawanensis*), new records etc., will be published at a later date.

Measurements, in milimetres, are of the carapace width and length respectively. The terminology used here follows that by Melrose (1975) and Lucas (1980). Specimens are deposited in the ZRC; Reference Collection of the Chulalongkorn University (CNHM), Bangkok, Thailand; and the Rijksmuseum van Natuurlijke Historie (RMNH), Leiden, Netherlands.

TAXONOMY

Limnopilos, new genus

Type species. - *Limnopilos naiyanetri*, new species, designated herein.

Diagnosis. - Rostrum of carapace absent, Milne Edwards openings with more than two thirds fused grooves and margin. Distal portion of chela with dense setae on upper and lower margins. All male and female abdominal segments free.

Etymology. - The genus name *Limnopilos* is an arbitary combination of letters with a vague reference to the fact that the animals of this genus inhabit fresh water and are hairy. The gender of *Limnopilos* is masculine.

Remarks. - The absence of a rostrum is an unusual feature in hymenosomatids, and allies *Limnopilos* with the monotypic genera *Hymenicoides* Kemp, 1917, and *Halicarcinides* Lucas, 1980. Other than in having no rostrum however, *Limnopilos naiyanetri* differs from *Hymenicoides carteri* Kemp, 1917, in that its telson is not trilobate and the male first pleopods are simpler in structure. *Limnopilos* differs from *Halicarcinides nuytsi* (Hale, 1927) in that the eyes are not concealed by the anterior part of the carapace (from dorsal view), carapace shape, shorter epistome and different male first pleopod structure. *Limnopilos* also resembles the genus *Elamenopsis* A. Milne Edwards, 1873, sensu Lucas, 1980, in having well defined carapace grooves and narrow third maxillipeds, but differs very significantly in not having a rostrum, the highly setose body and the male and female abdominal segments are all free (not with some segments fused). A new genus thus has to be established for *naiyanetri* new species.

Limnopilos naiyanetri, new species
(Fig. 1)

Material examined. - Holotype - 1 male, 6.0 by 5.9 mm (ZRC), Mae Nam Nakhon Chaisi, Amphoe Nakhom Chaisi, Changwat Province, Nakhom Pathom, leg. Naunsri, 1988.

Paratypes - 24 males, 13 females (ZRC), 5 males, 5 females (CNHM), 10 males, 2 females (RMNH), same data as holotype.

Diagnosis. - Carapace flat with distinct contiguous gastro-cardiac grooves and margin; rostrum absent. Chela with dense setae on upper and lower margins of distal portion; propodus with row of setae on inner edge 1.6 times longer than those on upper margin ; distal part of immovable finger with four teeth, ending in a facet; dactylus with a tooth on medial proximal portion; carpus with two marginal teeth; merus with a tooth on medial lower edge. All male and female abdominal segments free.

Etymology. - The species is named in honour of Professor Phaibul Naiyanetr of the Department of Biology, Chulalongkorn University, Bangkok, Thailand, who has made many outstanding contributions to Thai carcinology, helped the second author on so many occasions over the years and kindly referred the present specimens to the authors for study.

Remarks. - This very unusual species is characterised by its pilose carapace and chelipeds, and this respect, resembles *Amarinus pilosus* (A. Milne Edwards, 1873) from New Caledonia (see also Holthuis, 1968). It differs however significantly in the absence of a rostrum, and structures of the male abdomen and male first pleopod.

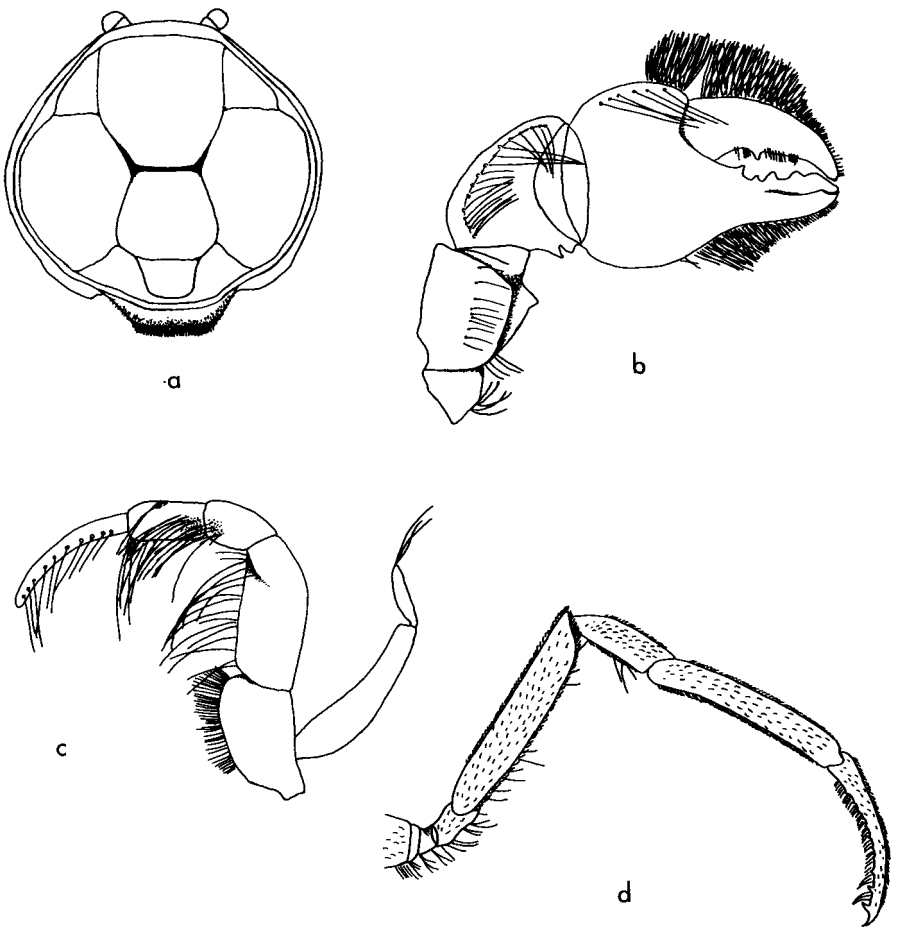

Fig. 1. *Limnopilos naiyanetri*, new genus, new species. a, dorsal surface of carapace; b, left cheliped; c, left third maxilliped; d, right second walking leg.

Elamena globosa, new species
(Fig. 2a-d)

Material examined. - Holotype - 1 male, 2.2 by 2.65 mm (ZRC), Pulau Ayer Chawan island, southern Singapore, leg. Reef Ecology Team, 1986.

Diagnosis. - Carapace approximately circular, lateral carapace margin without spines; dorsal surface highly convex, appears inflated, with faint grooves; rostrum triangular, not concealing antennae, antennules and most of the eyes; medial ridge running from tip of rostrum to base of carapace. Male first pleopod with a distinct double twist. Third and fourth male abdominal segments fused, without distinct sutures, other segments free.

Etymology. - This species is named after its distinctly inflated carapace.

Remarks. - *Elamena globosa*, new species, is the most globose species of hymenosomatid yet known, and this feature will easily serve to distinguish it from all others. The male first pleopod has a very distinctive double twist, a feature shared by few other hymenosomatids, e.g. *Cancrocaeca xenomorpha* Ng, 1991 (see Ng, 1991).

Elamena mendosa, new species
(Fig. 2e-g)

Material examined. - Holotype - 1 male, 2.2 by 2.65 mm (ZRC), Sisters Islands, southern Singapore, leg. 1985.

Paratypes - 2 females (ZRC), off East Coast, southern Singapore, leg. P. K. L. Ng, 1981.

Diagnosis. - Carapace approximately triangular; dorsal surface slightly convex, with no distinct grooves; rostrum triangular, slightly upturned, with rounded apex, without keel on the ventral surface, concealing antennae, antennules and most of the eyes. Male and female fifth segment and telson fused, sutures not visible, all other male and female abdominal segments free.

Etymology. - The species name is derived from the Latin "mendosus" which means faulty, wrong or mistaken; alluding to the long mistaken identity of the crab.

Remarks. - Lanchester (1900) identified a female specimen from Singapore as *Trigonoplax unguiformes* (de Haan, 1839). This record has since been cited by subsequent workers like Tesch (1918), Sakai (1976) and Lucas (1980). Specimens obtained from Singapore waters show that while these resemble *T. unguiformes* s. str. superficially, the shape of the carapace, rostrum and Milne Edwards openings showed obvious and constant differences. These differences necesssitate the establishment of a new taxon for the Singapore specimens. The Milne Edwards openings of *E. mendosa* are also fused for only less than one third of their length, the main character cited by Lucas (1980) for separating *Trigonoplax* from *Elamena* (the openings are fused for more than half its length in *Trigonoplax*).

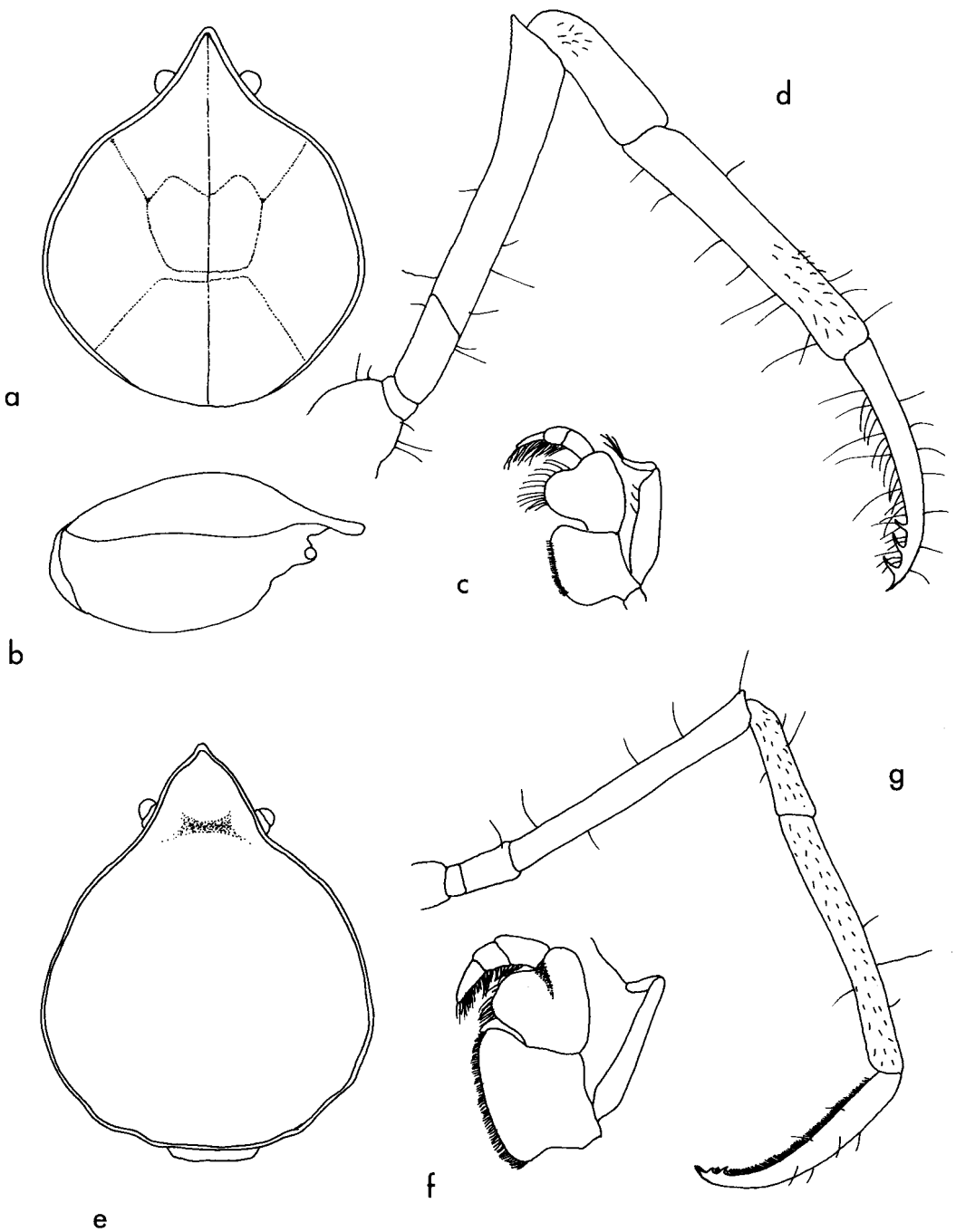

Fig. 2. a-d, *Elamena globosa* new species. a, dorsal surface of carapace; b, lateral view of carapace; c, left third maxilliped; d, right third walking leg. e-g, *Elamena mendosa* new species. e, dorsal view of carapace; f, left third maxilliped; g, right walking leg.

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