

## The identity of *Leptomithrax sinensis* Rathbun, 1916, and the description of *L. eldredgei*, sp. nov. from Hong Kong (Crustacea: Decapoda: Brachyura: Majidae)

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**Abstract.** A new species of majid crab, *Leptomithrax eldredgei*, sp. nov. is described from Hong Kong. The species is most similar to the poorly known *L. sinensis* Rathbun, 1916, described from Hong Kong only on the basis of a carapace. *Leptomithrax sinensis* is figured for the first time, and differs from *L. eldredgei* in the structure and armature of the carapace.

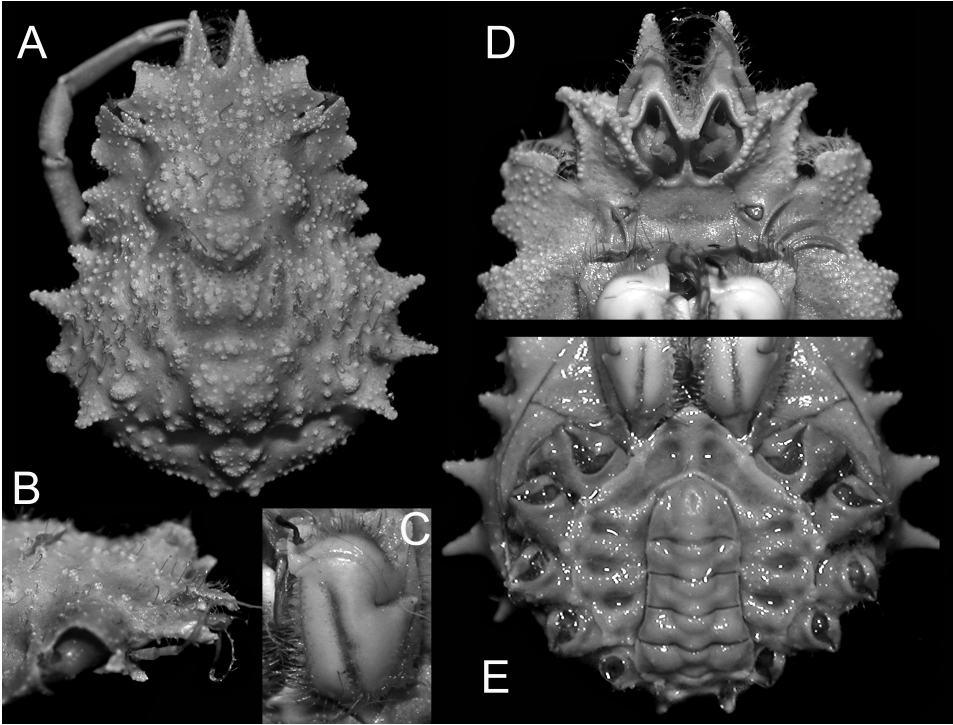
### Introduction

Members of the majid genus *Leptomithrax* Miers, 1876, are separated from species of the closely related genus *Maja* Lamarck, 1801, primarily by having the antennal flagellum distinctly excluded from the orbit (see Sakai 1976, Griffin & Tranter 1986). Fourteen species are recognized at present, all from temperate and cold waters in northwestern Asia and Australasia (Griffin & Tranter 1986, Ng *et al.* 2008). Four species are known from northwestern Asia: *L. edwardsii* (De Haan, 1835), *L. bifidus* (Ortmann, 1893), *L. sinensis* Rathbun, 1916, and *L. kiiensis* Sakai, 1969 (Griffin 1976, Sakai 1976, Griffin & Tranter 1986). In a recent revision of *Maja*, Ng & Richer de Forges (in press) reappraised the taxonomy of *L. kiiensis* and reassigned it to a new genus. *Leptomithrax sinensis* is poorly known species known only from a carapace from East Asia (Rathbun 1916), and has never been figured.

We here diagnose a new species of *Leptomithrax* collected from off Hong Kong. It is compared with its closest congener, *L. sinensis*, and the type carapace of the latter species is figured for the first time.

### Methods

Specimens examined are deposited in the Kanagawa Prefectural Museum of Natural History (KPM), Iriuda, Japan; Zoological Reference Collection (ZRC) of the Lee Kong Chian Natural History Museum (ex Raffles Museum of Biodiversity Research), National University of Singapore; The Natural History Museum (NHM), London, UK; and United States National Museum of Natural History (USNM), Smithsonian Institution, Washington D.C., USA. Measurements provided, in millimeters, are of the post-pseudorostral carapace length (base of spines to posterior carapace margin) and the maximum carapace width (across base of spines), respectively. The abbreviation G1 is used for the male first gonopod. We have provided a detailed diagnosis of the new species rather than a full description as it is sufficient at the moment to differentiate it from the similar *L. sinensis* which is known only from a carapace. A full description will be provided later as part of an ongoing revision of *Leptomithrax*.



**Fig. 1.** *Leptomithrax eldredgei*, sp. nov. **A, C, D**, paratype female (21.1 × 17.4 mm) (ZRC 1970.2.17.2), off Hong Kong; **B, E**, holotype male (13.3 × 10.1 mm) (ZRC 1970.2.17.1), off Hong Kong. **A**, overall dorsal view of carapace; **B**, fronto-lateral view of orbits and front showing position of antenna; **C**, left third maxilliped; **D**, ventral view of carapace showing antennae, antennules and epistome; **E**, ventral view showing thoracic sternum and abdomen.

### Taxonomy

#### *Leptomithrax eldredgei*, sp. nov.

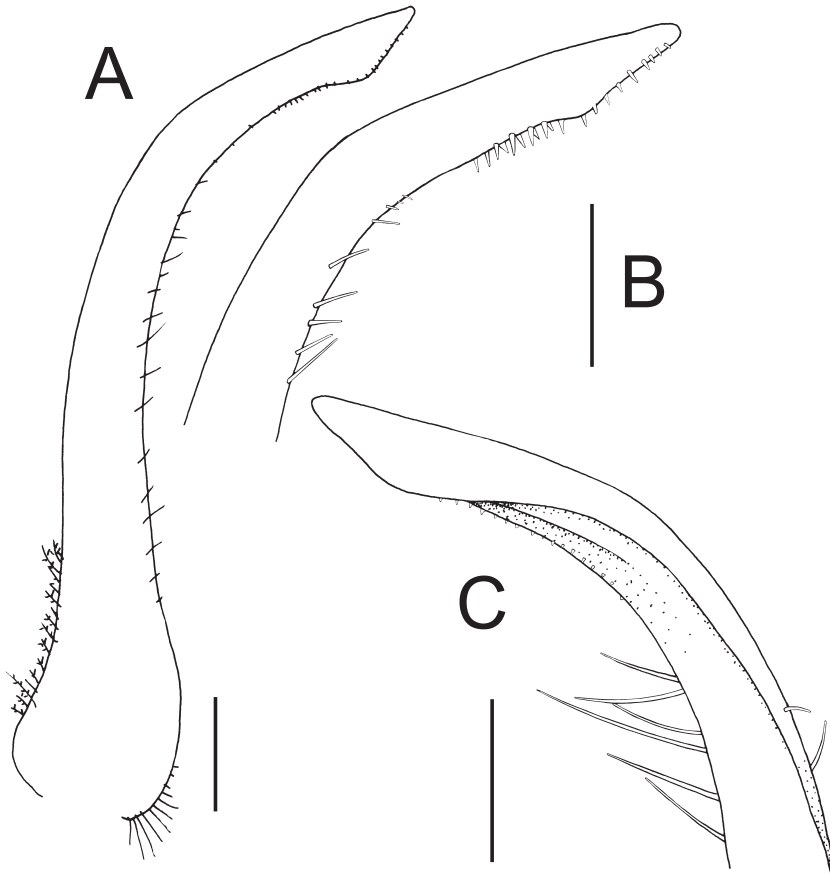
Figs. 1, 2

*Maja* sp. – Yang, 1979: 9.

**Material examined.** Holotype: male (13.3 × 10.1 mm) (ZRC 1970.2.17.1), Cr 2/63, station 24, T./10, Hong Kong, coll. & don. Fisheries Research Station of Hong Kong, 1967. Paratypes: 2 ovigerous females (21.1 × 17.4 mm, 1 broken laterally), 1 female (14.9 × 11.3 mm), 1 crushed specimen (ZRC 1970.2.17.2–5), same data as holotype.

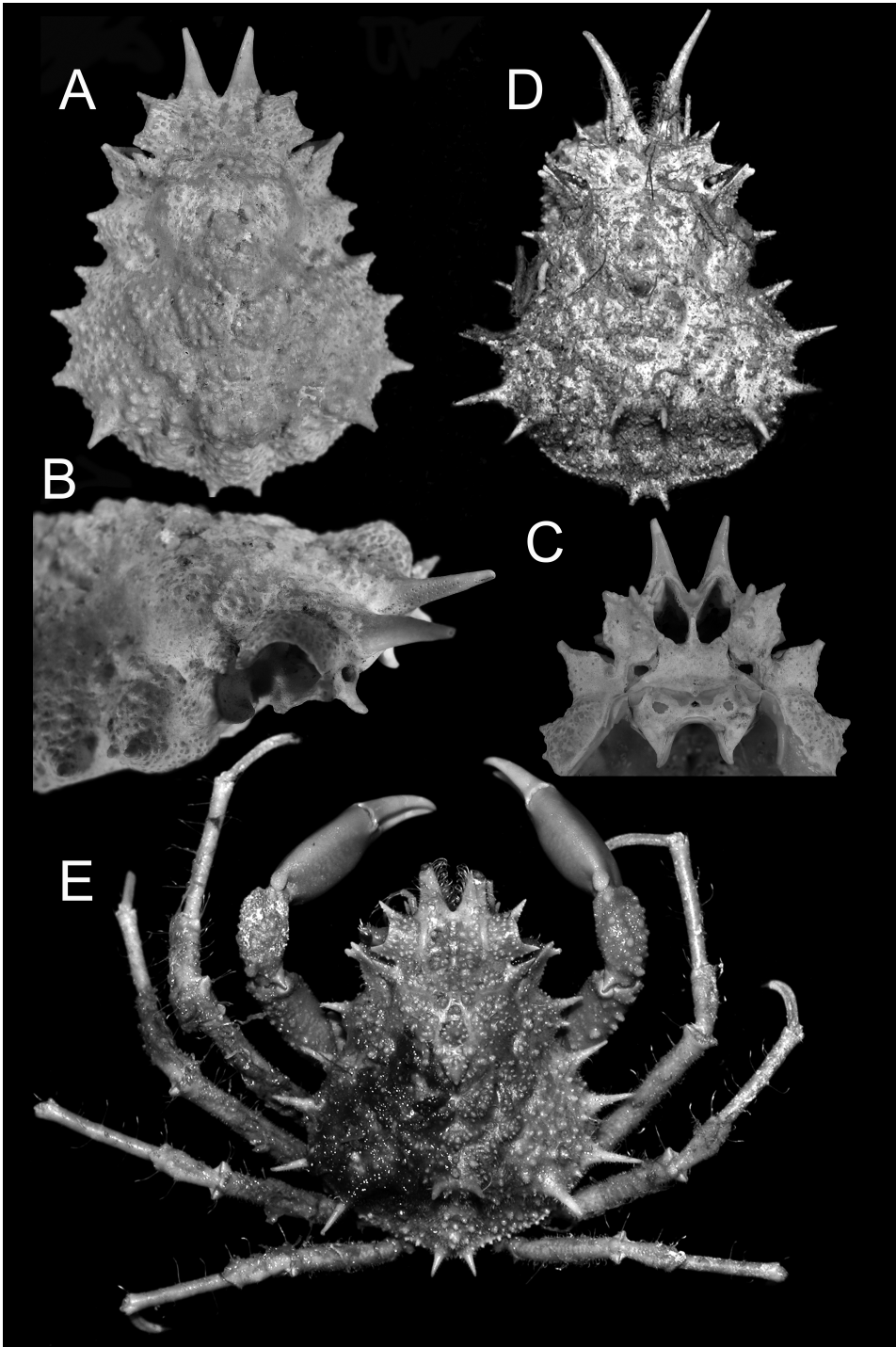
**Comparative material examined.** *Leptomithrax edwardsii* (De Haan, 1835): 1 female (55.9 × 49.7 mm) (ZRC 2013.1186), Amakusa, Shikizuki, Kyushu, Japan, from fishermen, coll. J. Lai, September 2002. — 8 males (largest 69.8 × 62.8 mm), 7 females (ZRC 2013.1401), Amakusa, Tomioka Port, Kyushu, Japan, coll. J. Lai & S. Arakaki, 7–9 September 2002. — 1 male (75.8 × 69.4 mm) (ZRC 2001.56), Tashi, Taiwan. *Leptomithrax sinensis* Rathbun, 1916: holotype carapace (dried) (32.0 × 25.3 mm) (including spines, 38.3 × 28.8 mm) (USNM 48219), station 5311, South China Sea, near southern Luzon, 21°33'N 116°15'E, 88 fathoms, Philippines, coll. RV *Albatross*, 4 November 1908. *Leptomithrax bifidus* (Ortmann, 1893): 1 dried male (36.5 × 29.4 mm) (KPM NH4024), Kii-Nagashima, Japan, T. Sakai Collection, coll. March 1969. — 2 males (32.5 × 27.5 mm, 27.5 × 20.6 mm) (NHM 1961.11.13.28–29), Seto, Shirahama, Japan, coll. gill nets, I. Gordon & Harada, 1950s.





**Fig. 2.** *Leptomithrax eldredgei*, sp. nov., holotype male (13.3 × 10.1 mm) (ZRC 1970.2.17.1), off Hong Kong. Left G1. A, E = 5.0 mm; B-G = 1.0 mm; F, G, H-J = 0.5 mm. A, ventral view; B, ventral view of distal part; C, dorsal view of distal part.

**Diagnosis.** Carapace pyriform; dorsal surface with regions distinct, covered with numerous tubercles, granules and clusters of granules (Fig. 1A). Pseudorostral spines short, dorsoventrally flattened, gently diverging, appearing almost subparallel (Figs. 1A, B). Supraocular cave wide, forming sharp posterior angle corresponding to antorbital spine; anterior edge gently expanded; intercalated spine stout, dorso-ventrally flattened, with tip distinctly bifurcated, margins touching antorbital and overlapping postorbital spine; postorbital spine very broad, foliate, outer margin prominently clefted to form 2 distinct lobes; hepatic region with 2 short, blunt, dorsoventrally flattened spines (Figs. 1A, B). Median row of carapace raised, covered with granulated tubercles, no spines; posterior carapace margin with 2 low spines; regions between cardiac and intestinal regions transversely depressed (Fig. 1A). Basal antennal article as wide as long, completely fused with carapace, margins distinctly granulated, internal distal margin forming low tooth, external distal corner with elongated projection (Figs. 1B, D). Antenna positioned far from orbit (Fig. 1B). Eye short, almost completely protected inside depression on inner surface of postorbital tooth (Figs. 1B, D). Epistome rectangular, almost smooth (Fig. 1D). Third maxilliped relatively short; anterior margin of merus setose; proximal part of merus and most of ischium swollen, forming boss-like structure, glabrous; ischium with deep oblique submedian sulcus, inner margin strongly denticulated, outer margin with large, sharp



**Fig. 3.** General habitus. **A–C**, *Leptomithrax sinensis* Rathbun, 1916, holotype carapace (32.0 × 25.3 mm) (USNM 48219), Philippines; **D**, *Leptomithrax bifidus*, dried male (36.5 × 29.4 mm) (KPM NH4024), Japan [only carapace depicted]; **E**, *Leptomithrax bifidus*, male (32.5 × 27.5 mm) (NHM 1961.11.13.28), Japan. **A, D, E**, overall dorsal views of carapaces; **B**, fronto-lateral view of orbits and front showing position of antenna; **C**, ventral view of carapace showing antennae, antennular fossa and epistome.

tooth (Fig. 1C). Anterior part of male sternum with deep depressions on sternites 3 and 4, medially separated by low raised ridge; sternites 5–7 with distinct median depression (Fig. 1E). Male abdomen subrectangular, all 6 somites and telson free; telson broadly triangular with convex lateral margins (Fig. 1E). G1 relatively thick, curved, distal part with lower margin slightly expanded, lined with short spines (Figs. 2A–C).

**Etymology.** We name this species in honour of Lucius G. Eldredge, a good friend, and close colleague, with whom we shared a long-time interest in majoid and homoloid crabs.

**Remarks.** *Leptomithrax eldredgei* sp. nov. is most similar to *L. sinensis* in the general shape of the carapace. It can easily be separated by having the margins of the pseudorostral spines straight in dorsal view (Fig. 1A) (versus concave on the outer margin in *L. sinensis*, Fig. 3A), the truncate intercalated spine (Fig. 1A) (versus acutely triangular in *L. sinensis*, Fig. 3A), and the broadly foliaceous postorbital spine that is divided into two lobes (Fig. 1A) (versus slender and acutely triangular with tip weakly bifid in *L. sinensis*, Fig. 3A). The regions of the carapace of *L. eldredgei* are more prominent and the granules proportionately larger (Fig. 1A) compared to *L. sinensis* (Figs. 3A, C) but this may be due to the fact that the type (and only known specimen) of *L. sinensis* is only an eroded carapace. The type locality of *L. sinensis* is in the South China Sea, near southern Luzon, which is not far from Hong Kong and from where *L. eldredgei* has been found. The differences observed between *L. eldredgei* and *L. sinensis*, however, support their distinctness as separate species. *Leptomithrax sinensis*, however, is very close to *L. bifidus* (Figs. 3D, E) from Japan, and most of the differences in the spine proportions can be explained by the erosion of the structures in *L. sinensis*. The two species may prove to be synonymous

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