The river crabs of the genus *Mekhongthelphusa* Naiyanetr, 1985 (Crustacea: Decapoda: Brachyura: Parathelphusidae), with description of a new species from Thailand

P. Naiyanetr & P.K.L. Ng

Naiyanetr, P. & P.K.L. Ng. The river crabs of the genus *Mekhongthelphusa* Naiyanetr, 1985 (Crustacea: Decapoda: Brachyura: Parathelphusidae), with description of a new species from Thailand.
Zool. Med. Leiden 69 (28), 29.xii.1995: 365-374, figs 1-6.— ISSN 0024-0672.
Phaibul Naiyanetr, Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand.
Peter K.L. Ng, Department of Zoology, National University of Singapore, Kent Ridge, Singapore 0511, Republic of Singapore.

Key words: Crustacea, Decapoda, Parathelphusidae, *Mekhongthelphusa*, revision, spec. nov., Thailand.
River crabs of the genus *Mekhongthelphusa* Naiyanetr, 1985 (family Parathelphusidae) are revised, and a new species, *M. kengsaphu*, is described from Mun River in Thailand.

Introduction

The river crabs of the family Parathelphusidae in Thailand and Indo-China belong to four genera, viz. *Siamthelphusa* Bott, 1968, *Heterothelphusa* Ng & Lim, 1986, *Mekhongthelphusa* Naiyanetr, 1985, and *Chulathelphusa* Naiyanetr, 1994, with eight known species between them (see Ng & Naiyanetr, 1993: 46; Naiyanetr, 1994: 698). The present paper serves to characterise in detail and revise the genus *Mekhongthelphusa*. A new species is also described from the Mun River in Thailand. *Mekhongthelphusa* previously contained only one species, *M. tetragona* (Rathbun, 1902).

The abbreviations G1 and G2 are used for the male first and second pleopods respectively. Measurements taken are of the carapace width and length respectively. The descriptive terminology used essentially follows that used by Ng (1988). The Thai terms Changwat and Amphoe refer to the province and district respectively.

Specimens examined are deposited in the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore; Chulalongkorn University Natural History Museum (CUMZ), Bangkok; Nationaal Natuurhistorisch Museum [previously the Rijksmuseum van Natuurlijke Historie (RMNH)], Leiden; Senckenbergischen Naturforschenden Gesellschaft (SMF), Frankfurt am Main; and Muséum National d'Histoire Naturelle (MNHN), Paris.

Descriptive part

Family Parathelphusidae Alcock, 1910

Mekhongthelphusa Naiyanetr, 1985

Mekhongthelphusa Naiyanetr, 1985: no pagination; Ng & Naiyanetr, 1993: 46; Naiyanetr, 1994: 697, 699.

Type species.— *Potamon (Parathelphusa) tetragonum* Rathbun, 1902, by original designation.

Diagnosis.— Carapace squarish; dorsal surfaces flat, smooth; epigastric and postorbital cristae sharp, epigastric cristae distinctly anterior of postorbital cristae, postorbital cristae reaching to base of third epibranchial tooth; anterolateral margins with three epibranchial teeth (excluding external orbital angle); posterolateral margins subparallel. Third maxilliped with quadrate ischium; flagellum on exopod longer than width of merus. Merus of ambulatory legs with distinct dorsal subdistal tooth. Suture between sternal segments 2 and 3 distinct, concave towards buccal cavity. Male abdomen T-shaped, lateral margins of segment 6 concave. G1 gently sinuous; with dilated basal part, gently tapering towards tip; distal part distinctly twisted to one side, resembling a terminal segment. G2 with elongate basal segment, distal segment much shorter than basal segment.

Remarks.— Naiyanetr (1985), in brief conference abstract (without any pagination or figures), established *Mekhongthelphusa* for *Potamon (Parathelphusa) tetragonum* Rathbun, 1902. He characterised the genus mainly by its very squarish-looking carapace and distinctively shaped G1. Naiyanetr (1994: 699) subsequently figured the carapace and G1 of *Mekhongthelphusa tetragona* and provided a key to the known Thai parathelphusid genera. The G1 of *Mekhongthelphusa* resembles that of *Chulathelphusa* Naiyanetr, 1994, but the carapaces of these two genera differ markedly (Naiyanetr, 1994: fig. 5, 699), with that of *Chulathelphusa* having the dorsal surfaces distinctly convex longitudinally and transversely (flat in *Mekhongthelphusa*).

Two species of *Mekhongthelphusa* are here recognised - *M. tetragona* (Rathbun, 1902), and *M. kengsaphu* spec. nov. Like other river crabs, members of the genus *Mekhongthelphusa* are called Pu Mae Nam in Thai.

Mekhongthelphusa tetragona (Rathbun, 1902)
(figs. 1-3)

Potamon (Parathelphusa) tetragonum Rathbun, 1902: 186; Rathbun, 1905: 250, pl. 12 fig. 2.
Paratelphusa (Paratelphusa) tetragonum - Kemp, 1923: 36, pl. 4 fig. 11.
Somanniathelphusa germaini - Bott, 1968: 408 (part); Bott, 1970: 110 (part) (not *Potamon (Parathelphusa) germaini* Rathbun, 1902).
Somanniathelphusa tetragonum - Naiyanetr, 1985: no pagination.
Mekhongthelphusa tetragona - Naiyanetr, 1985: no pagination; Ng & Naiyanetr, 1993: 46; Naiyanetr, 1994: 697, 699, fig. 5.
Mekhongthelphusa tetragonum - Naiyanetr, 1988: 6, pl. 3.

Material.— Lectotype, ♀, 25.0 by 22.0 mm (MNHN-318S) (dried), no other data. — Paralectotypes, 3 ♀♀ (MNHN-318S), same data as lectotype.— 1 ♂, 24.5 by 21.0 mm, 2 ♀♀, 31.9 by 25.7 mm, 33.5 by 28.1 mm (ZRC 1995.285), 1 ♂, 19 ♀♀ (CUMZ), along bank, under stones, on muddy sand, Mekhong River, Amphoe Maung, Changwat Mukdahan, northeastern Thailand, coll. P. Naiyanetr, 9.xii.1982.— 2 ♂♂, 5 ♀♀ (CUMZ), along bank, under stones, on muddy sand, Mekhong River, Amphoe Maung, Changwat Mukdahan, northeastern Thailand, coll. P. Naiyanetr, 2.xii.1982.— 8 ♂♂, 8 ♀♀ (CUMZ), 1 ♂, 1 ♀ (RMNH), 1 ♂, 1 ♀ (SMF), along bank, under stones, on muddy sand, Mekhong River, Amphoe Maung, Changwat Mukdahan, northeastern Thailand, coll. P. Naiyanetr, 17.iv.1984.

Diagnosis.— Postorbital cristae interrupted medially; epibranchial teeth acutely triangular, anterolateral margin appearing truncated, short; posterobranchial regions

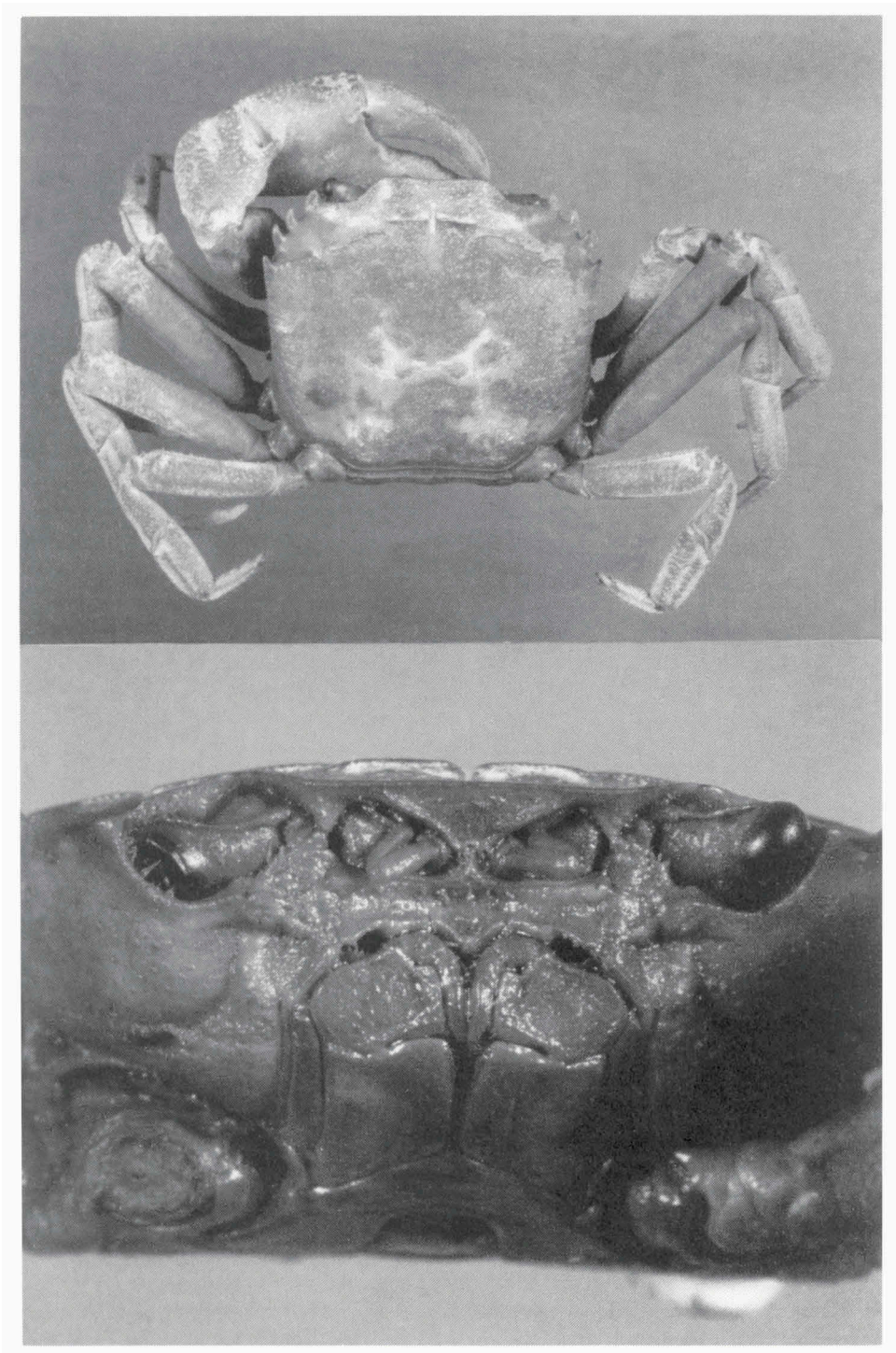

Fig. 1. *Mekhongthelphusa tetragona* (Rathbun, 1902). ♂, 24.5 by 21.0 mm (ZRC 1995.285a). Top, dorsal view; Bottom, frontal view.

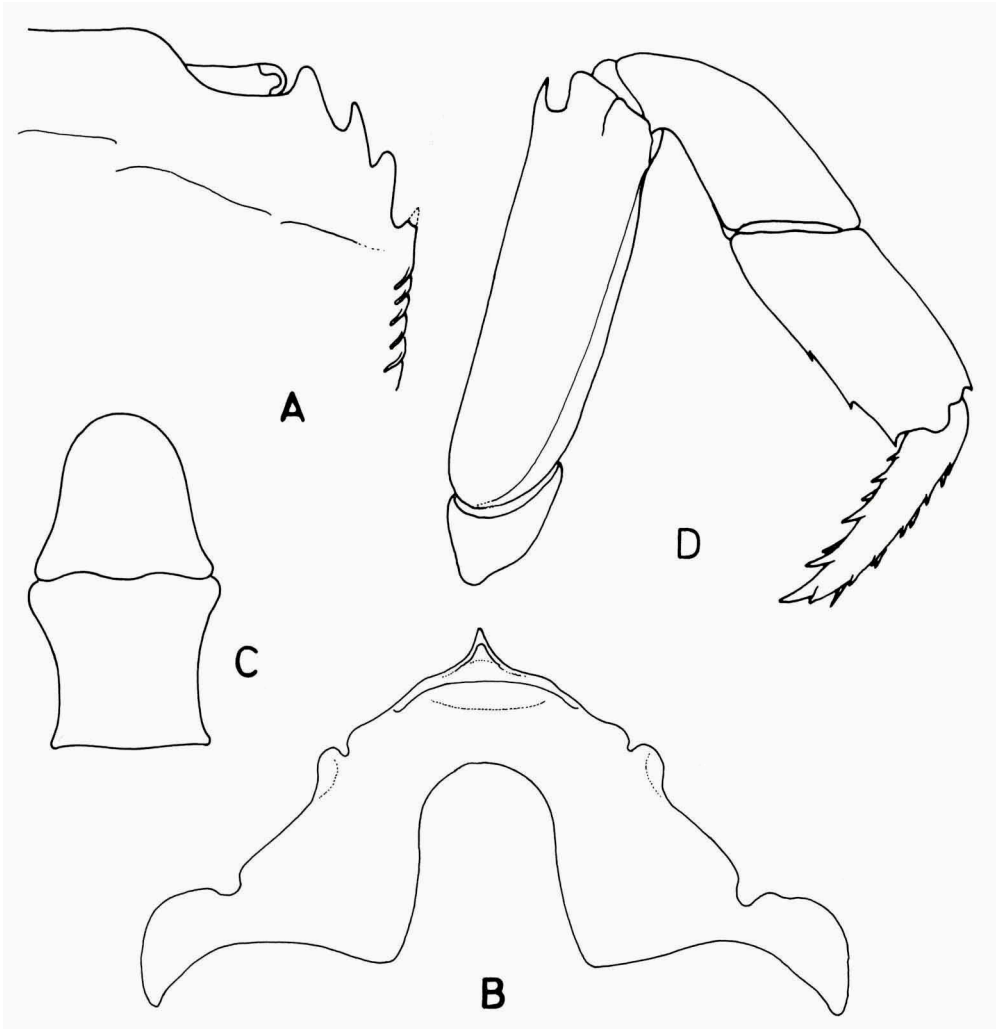

Fig. 2. *Mekhongthelphusa tetragona* (Rathbun, 1902). A-C, ♂, 24.5 by 21.0 mm (ZRC 1995.285a); D, ♀, 31.9 by 25.2 mm (ZRC 1995.285b). A, right half of carapace; B, anterior thoracic sternum; C, sixth male abdominal segment and telson; D, right fourth ambulatory leg.

flat. Carpus of cheliped with distinct, sharp inner distal spine. Dactylus of fourth ambulatory leg shorter than length of propodus. G1 distal part with tip appearing rounded to subtruncate. G2 0.95 times length of G1; distal segment 0.11 times length of basal segment.

Remarks.— *Potamon* (*Parathelphusa*) *tetragonum* Rathbun, 1902, was briefly described on the basis of an unspecified number of specimens from an unknown location(s) in Indo-China. Rathbun (1902: 3) provided measurements for one female specimen - 25 by 21 mm and noted that "... individus typiques sont sans indications de localité; les autres ont été recueillis par M. Harmand, juillet 1876, probablement en Cochin-chine." In her 1905 monograph, she commented "La localité des types de cette espèce est inconnue. Ce sont 6 femelles qui portent le numéro 62-96. Un autre

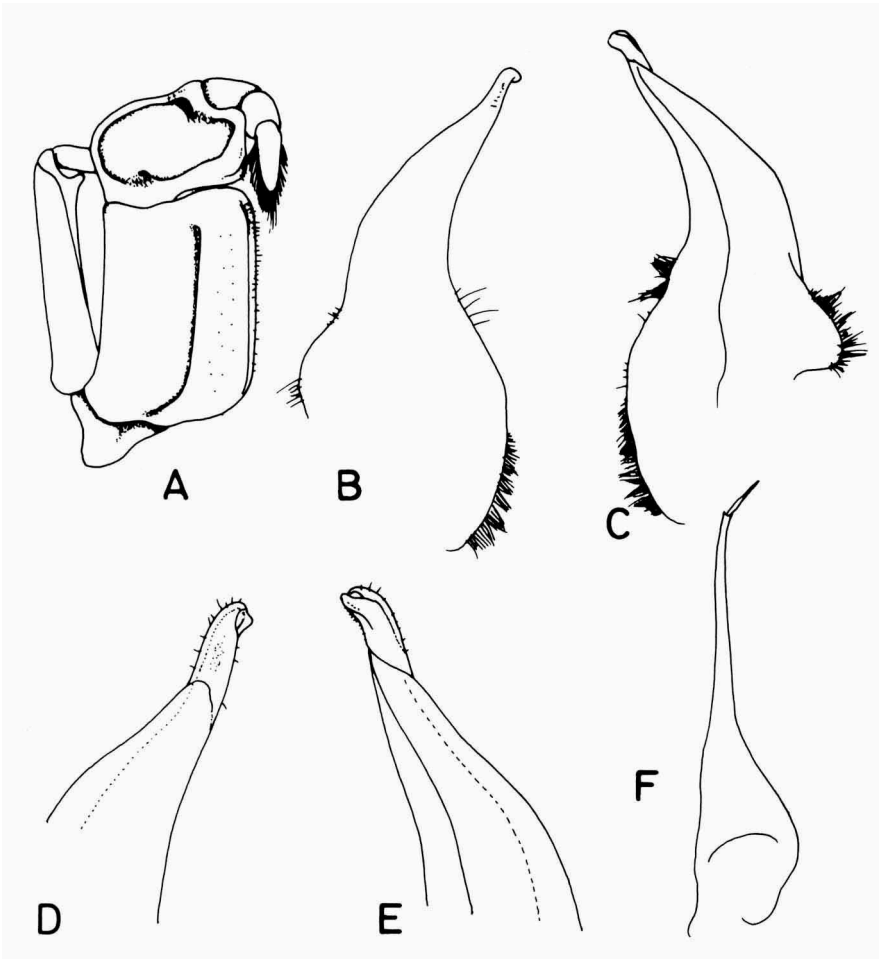

Fig. 3. *Mekhongthelphusa tetragona* (Rathbun, 1902). ♂, 24.5 by 21.0 mm (ZRC 1995.285a). A, left third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view.

lot de spécimens, 4 femelles fut récolté par M. Harmand (juillet, 1876), probablement en Cochin-chine." (Rathbun, 1905: 251). This suggests that only the first lot of specimens from an unknown location and without any data were types. In her captions to her text-figure 62, she indicated that it was the type (= holo- or lectotype) which was illustrated, but as only the leg and chela was figured, and only the magnification was provided, it is not possible to establish the carapace size of the specimen from this data. It is thus best to regard all the specimens from the first lot, that is, the type specimens, as syntypes.

The four female specimens in the Paris Museum (MNHN-318S) were examined by one of the first authors, and do not carry any data with them except an old indication - "62-96", i.e. they are part of the first lot (i.e. the type material) of Rathbun's. They are dried specimens and are recorded in the registrar as types (D. Guinot, pers. comm.). Rathbun (1902, 1905) had indicated that the second, non-type lot of four specimens were obtained by Harmand, and these are catalogued as MNHN-17664

(D. Guinot, pers. comm.). We did not manage to examine these specimens while we were in MNHN. As the identity of the type identified by Rathbun (1902, 1905) cannot be ascertained from the available data, we are here regarding the four specimens (MNHN-318S) examined by Rathbun as syntypes and select a lectotype for the species. The largest female specimen examined measures 25.0 by 22.0 mm (MNHN-318S) and agrees well with the dimensions provided by Rathbun (1902, 1905). It is here designated as the lectotype.

In the original description, Rathbun (1902) provided only a brief description, and she (Rathbun, 1905) subsequently described it in much greater detail and figured the ambulatory leg and chela in her monograph. Kemp (1923: 39) reported the species from the Mekhong River (Lakhon and Nong Kay), and his detailed description and excellent figure agree very well with the specimens we have on hand. Bott (1968, 1970) synonymised *Potamon* (*Parathelphusa*) *tetragonum* Rathbun, 1902, under *Somanniathelphusa germaini* (Rathbun, 1902) with hardly any comment despite their very different carapaces (see Rathbun, 1905). Naiyanetr (1985) however, regarded *Potamon* (*Parathelphusa*) *tetragonum* as a good species and transferred it to its own genus, *Mekhongthelphusa*.

Comparisons of the types (all females) with the present series of specimens from the Thai side of the Mekhong River showed no significant differences and they are here regarded as conspecific. Unfortunately, all the types of *M. tetragona* are females and the taxonomically important G1s are not available for study. However, since the recently obtained females agree so well with the types, there seems no reason not to regard them as conspecific.

It is of interest to note that in random collecting by the first author, the majority of the specimens obtained were females, the males being relatively rare. It would appear that in this species, the male and female ratios are very unbalanced.

Mekhongthelphusa kengsaphu spec. nov.
(figs. 4-6)

Material.— Holotype, ♂, 33.7 by 26.5 mm (ZRC 1995.286), under water plants, Mun River, Kengsaphu, Amphoe Phibun Mamgsahan, Ubon Ratchatani, coll. Somluck Kuntarphrug, 27.iii.1991.— Paratypes, 1 ♀, 31.9 by 25.2 mm (ZRC 1995.287), 1 ♂, 1 ♀ (RMNH), 3 ♂♂, 3 ♀♀ (CUMZ), same data as holotype.

Diagnosis.— Postorbital cristae entire; epibranchial teeth broadly triangular, anterolateral margin appearing long; posterobranchial region gently inflated. Carpus of cheliped with distinct, acute, sharp inner distal spine. Dactylus of fourth ambulatory leg subequal in length to propodus. G1 distal part with sharp tip. G2 0.97 times length of G1; distal segment 0.18 times length of basal segment.

Remarks.— *Mekhongthelphusa kengsaphu* spec. nov., resembles *M. tetragona* but can easily be separated by the proportionately broader epibranchial teeth (vs. acutely triangular, cf. figs. 1, 2A, 4, 5A), proportionately shorter anterolateral margin (cf. figs. 1, 2, 4, 5A), entire postorbital crista (vs. interrupted medially, cf. figs. 1, 2A, 4, 5A), slightly swollen posterobranchial regions (vs. flat, cf. figs. 1, 4), the postorbital cristae sloping towards the anterolateral margin more gradually (cf. figs. 1, 4), the last ambulatory dactylus is as long as the propodus (vs. shorter, cf. figs. 2D, 5B), the

Fig. 4. *Mekhongthelphusa kengsaphu* spec. nov. Holotype ♂, 34.0 by 27.0 mm (ZRC 1995.286). Top, dorsal view; Bottom, ventral view.

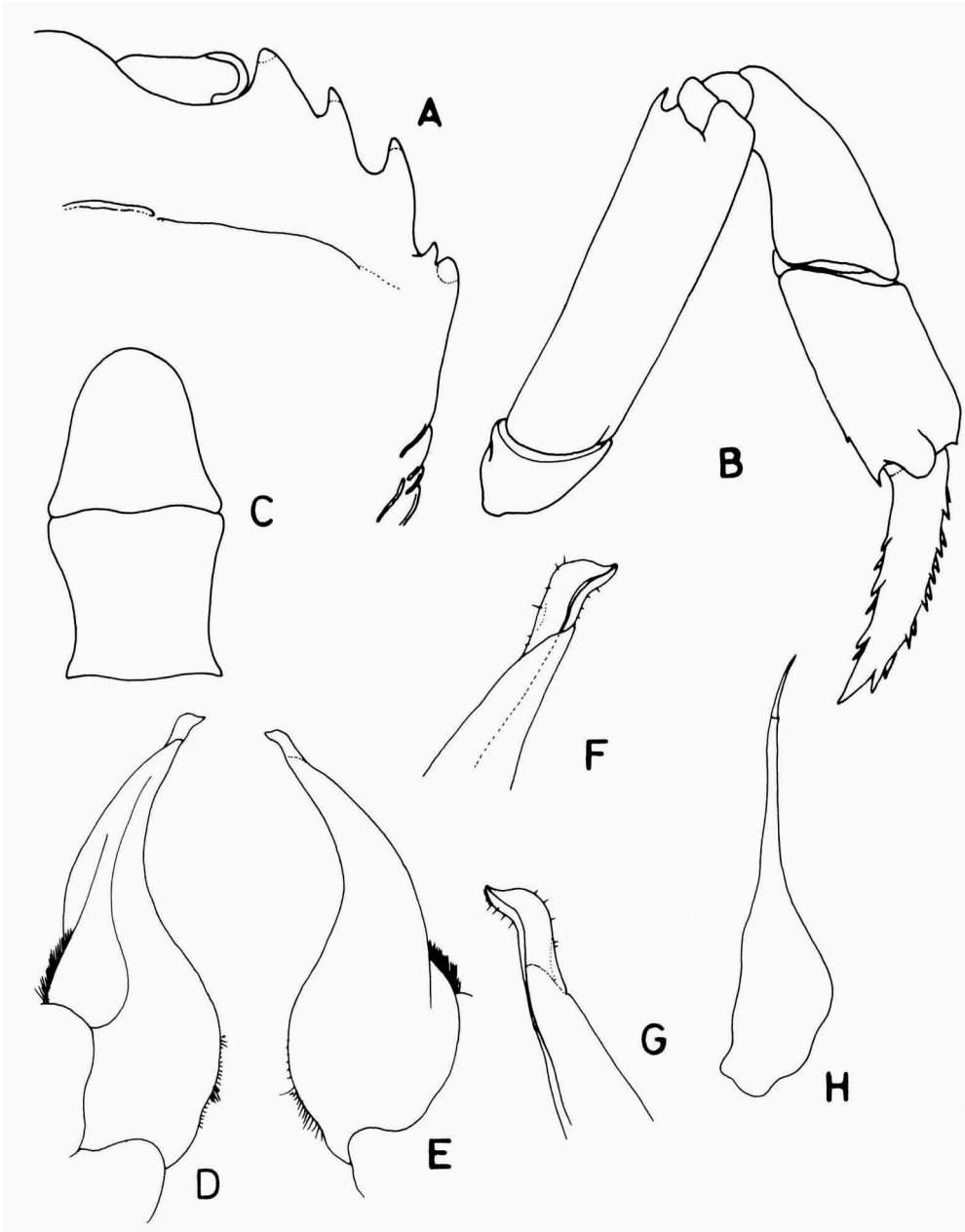

Fig. 5. *Mekhongthelphusa kengsaphu* spec. nov. Holotype ♂, 34.0 by 27.0 mm (ZRC 1995.286). A, right half of carapace; B, right fourth ambulatory leg; C, sixth male abdominal segment and telson; D-G, left G1; H, left G2. D, F, ventral view; E, G, dorsal view.

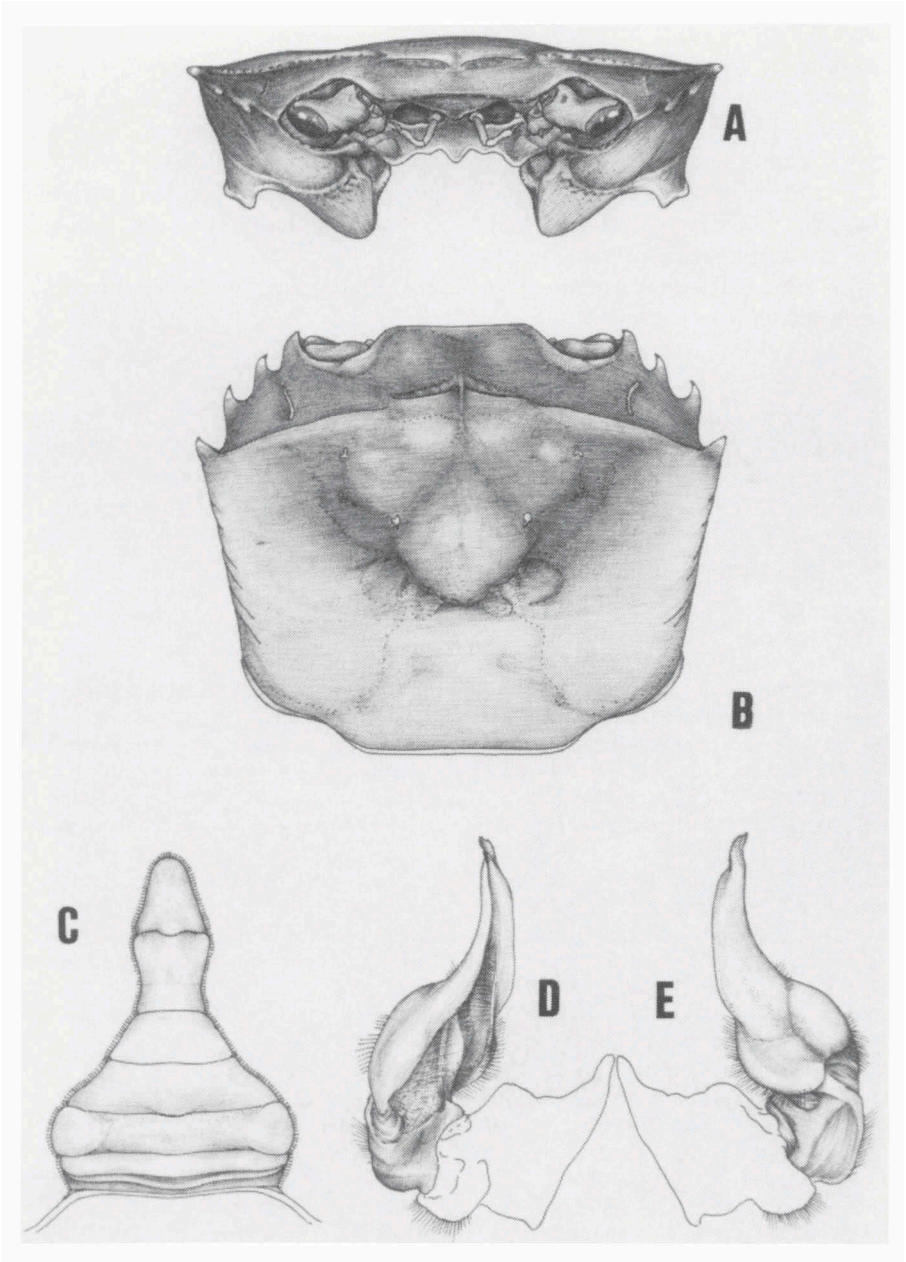

Fig. 6. *Mekhongthelphusa kengsaphu* spec. nov. Paratype ♂, 35.0 by 28.0 mm (RMNH). A, frontal view; B, dorsal view; C, abdomen; D, E, right G1.

median part of the G1 is proportionately more slender (vs. stout, cf. figs. 3B, C, 5D, E), distalmost part of the G1 having a different shape (cf. figs. 3B-E, 5D-G), and the G2 basal segment being proportionately shorter (cf. figs. 3F, 5H).

The holotype male is unusual in that the third epibranchial tooth is bifurcated (fig. 5A), giving the anterolateral margin the appearance of having four teeth (excluding the external orbital angle). This however, is almost certainly the result of damage and anomalous regrowth, the left anterolateral margin of the specimen, and those in all other specimens being normal.

Etymology.— The species name is derived from the type locality and is used as a noun in apposition.

Acknowledgements

The authors are most grateful to Danièle Guinot for her kind hospitality during their visits to the MNHN, and prompt help in checking the data for *M. tetragona*. Many thanks are also due to Ms Somluck Kuntaphrug for collecting the specimens of the new species. The study has been partially supported by a research grant (RP 900360) to the second author from the National University of Singapore.

References

Bott, R., 1968. Parathelphusiden aus Hinterindien (Crustacea, Decapoda, Parathelphusidae).— Senckenbergiana biol. 49 (5): 403-422.

Bott, R., 1970. Die Süsswasserkrabben von Europa, Asien, Australien und ihre Stammesgeschichte. Eine Revision der Potamoidea und Parathelphusoidea (Crustacea, Decapoda).— Abhand. Senckenen. Naturf. Ges. 526: 1-338, pls. 1-58.

Kemp, S., 1923. On a collection of river crabs from Siam and Annam.— J. Nat. Hist. Soc. Siam 6 (1): 1-42.

Naiyanetr, P., 1985. *Mekhongthelphusa*, a new genus of freshwater crab (Decapoda, Parathelphusidae).— Proc. 23rd Conf. Fish. Sec., Kasetsart Univ., Bangkok, Abstr. 2, 1 pg.

Naiyanetr, P., 1988. Freshwater crabs in Thailand. In: Book published in memory of the Royal Cremation of Associate Professor Dr. Praphun Chitachumnong, Mahidol University, Phaisalsilpa Press, Bangkok, 15 pp., 8 colour pls.

Naiyanetr, P., 1994. On three new genera of Thai ricefield crabs allied to *Somanniathelphusa* Bott, 1968 (Crustacea: Decapoda: Brachyura: Parathelphusidae).— Raffles Bull. Zool. 42 (3): 695-700.

Ng, P.K.L., 1988. The Freshwater Crabs of Peninsular Malaysia and Singapore: i-viii, 1-156, figs. 1-63, 4 colour pls.— Dept. Zool., Natn. Univ. Singapore, Shinglee Press, Singapore.

Ng, P.K.L. & R.P. Lim, 1986. Description of a new genus and species of lowland freshwater crab from Peninsular Malaysia (Crustacea, Decapoda, Brachyura, Parathelphusidae).— Indo-Malay. Zool. 3 (1): 97-103, pl. 1.

Ng, P.K.L. & P. Naiyanetr, 1993. New and recently described freshwater crabs (Crustacea: Decapoda: Brachyura: Potamidae, Gecarcinucidae and Parathelphusidae) from Thailand.— Zool. Verh. Leiden 284: 1-117, figs. 1-68.

Rathbun, M.J., 1902. Description des nouvelles especés de *Parathelphusa* appartenant au Museum de Paris.— Bull. Mus. natn. Hist. Nat., Paris, 1902 (3): 184-187.

Rathbun, M.J., 1905. Les crabes d'eau douce.— Nouv. Arch. Mus. Hist. nat. Paris (4) 7: 159-323, pls. 13-22.

Received: 18.viii.1995
Accepted: 18.viii.1995
Edited: C.H.J.M. Fransen