New and recently described freshwater crabs (Crustacea: Decapoda: Brachyura: Potamidae, Gecarcinucidae and Parathelphusidae) from Thailand

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The identity and taxonomy of 21 species of Thai freshwater crabs described between 1869 and 1992 of the families Potamidae (*Potamon kanchanaburiense* Naiyanetr, 1992; *P. maesotense* Naiyanetr, 1992; *P. boonyaratae* (Naiyanetr, 1987); *Potamon phuphanense* Naiyanetr, 1992; *P. erawanense* Naiyanetr, 1992; *P. maehongsonense* Naiyanetr, 1992; *P. yotdomense* (Naiyanetr, 1984); *Dromothelphusa phrae* (Naiyanetr, 1984); *Larnaudia chaiyaphumi* Naiyanetr, 1982; *Thaipotamon siamense* (A. Milne Edwards, 1869); *T. smitinandi* (Naiyanetr & Türkay, 1984); *Thaiphusa sirikit* (Naiyanetr, 1992); *Demanietta tritrungense* (Naiyanetr, 1986)), Gecarcinucidae (*Phricotelphusa ranongi* Naiyanetr, 1982; *Thaksinthelphusa yongchindaratae* (Naiyanetr, 1988)) and Parathelphusidae (*Somanniathelphusa bangkokensis* Naiyanetr, 1982; *S. maehongsonensis* Naiyanetr, 1987; *S. fangensis* Naiyanetr, 1987; *S. denchaii* Naiyanetr, 1984; *S. nani* Naiyanetr, 1984; *Heterothelphusa beauvoisi* (Rathbun, 1902)) are clarified. Four new genera are established (three belonging to the Potamidae: *Thaipotamon, Kanpotamon* and *Thaiphusa;* and one to the Gecarcinucidae: *Thaksinthelphusa*), and 13 new species (11 Potamidae: *Potamon lipkei, P. nan, P. namlang, P. jarujini, P. maesariang, P. ubon, P. somchaii, Thaipotamon lomkao, T. dansai, T. varoonphornae, Kanpotamon duangkhaei;* and two Parathelphusidae: *Somanniathelphusa phetchaburi, S. chiangmai*) described. Detailed descriptions and figures are provided of all the taxa.

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Contents

Introduction

The Thai freshwater crab fauna has been extensively studied over the past 15 years, predominantly by the second author, and the known fauna has increased substantially. Between 1978 and 1990, the second author has described some 30 species of Potamidae, Gecarcinucidae and Parathelphusidae from various parts of Thailand. Most of the descriptions of these species however, have appeared in Thai journals, abstracts of local seminars and meetings, as well as departmental publications which are not easily accessible to institutions outside Thailand. Many of the descriptions were also preliminary, done with the intention of validating the names for use in other studies. That many of the papers were written in Thai without figures has also made the use of these taxa difficult.

The present paper is intended to serve as a follow-up to the earlier Thai publications and clarify the status and identities of the various taxa. These taxa are: Potamidae -

"*Larnaudia chaiyaphumi* Naiyanetr, 1982", "*Potamiscus yotdomensis* Naiyanetr, 1984", "*Ranguna phrae* Naiyanetr, 1984", "*Ranguna smitinandi* Naiyanetr & Türkay, 1984", "*Ranguna duangkhaei* Naiyanetr, 1985", "*Ranguna tritrungensis* Naiyanetr, 1986", and "*Ranguna boonyaratae* Naiyanetr, 1987"; Gecarcinucidae: "*Phricotelphusa ranongi* Naiyanetr, 1982", and "*Phricotelphusa yongchindaratae* Naiyanetr, 1988"; Parathelphusidae: "*Somanniathelphusa maehongsonensis* Naiyanetr, 1987", "*Somanniathelphusa fangensis* Naiyanetr, 1987", "*Siamthelphusa phimaiensis* Naiyanetr, 1978", "*Somanniathelphusa bangkokensis* Naiyanetr, 1982", "*Somanniathelphusa denchaii* Naiyanetr, 1984", and "*Somanniathelphusa nani* Naiyanetr, 1984". "*Ranguna duangkhaei* Naiyanetr, 1985" is a nomen nudum and the species is redescribed here under a new genus. The names of five new species of Potamidae which proved to be nomen nuda (Naiyanetr, 1978a, 1980a) were recently briefly validated with the necessary descriptions (Naiyanetr, 1992b). These are *Potamon kanchanaburiense, Potamon maesotense, Potamon phuphanense, Potamon erawanense* and *Potamon maehongsonense.* In the present paper, detailed figures are provided of the whole animals and taxonomically important gonopods. Type allocations are also made and their depositories indicated.

The synonymy of *Siamthelphusa beauvoisi* (Rathbun, 1902) with "*Siamthelphusa phimaiensis* Naiyanetr, 1978" (a nomen nudum) (briefly noted by Naiyanetr & Ng, 1990a) is discussed. Two new genera and 11 new species of potamids, one new genus of gecarcinucid, and two new species of parathelphusids are also described. Several other recent Thai taxa which have been described by the authors and others will not be treated here as their descriptions do not cause any taxonomic uncertainties (see Chuensri, 1973; Türkay & Naiyanetr, 1987; Naiyanetr, 1989; Naiyanetr & Ng, 1990a, b; Ng, 1986b; 1988a, 1992a, b).

Materials and methods

The abbreviations G1 and G2 are for the male first and second pleopods respectively. All measurements are of the carapace width and length respectively. The measurements of the G1 terminal and subterminal segments, as well as the G2 basal segment are made along the longest longitudinal axis of each. In the case of the G2 distal segments which are often curved, the greatest length is taken over curves. The descriptive terminology used essentially follows that used by Ng (1988b). The Thai terms Changwat and Amphoe refer to the province and district, respectively.

Specimens examined are deposited in the Nationaal Natuurhistorisch Museum [previously the Rijksmuseum van Natuurlijke Historie (RMNH)], Leiden, The Netherlands; Chulalongkorn University Natural History Museum (CUMZ), Bangkok, Thailand; Senckenbergischen Naturforschenden Gesellschaft (SMF), Frankfurt, Germany; Muséum National d'Histoire Naturelle (MP), Paris, France; United States National Museum (USNM), Smithsonian Insitution, Washington D.C., U.S.A.; and the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore, Singapore.

Descriptive part

Family **Potamidae** Ortmann, 1896

Remarks.— Many of the potamid species described from Thailand have been referred to the genus *Ranguna* Bott, 1966. First established as a subgenus of *Potamiscus* Alcock, 1909, Bott (1970b) later elevated it to generic rank. The genus is supposed to be characterised by a distinct dorsal fold on the G1 terminal segment. Türkay & Naiyanetr (1987) noted that the type species of *Ranguna*, *Potamon rangoonense* Rathbun, 1898, is in fact, a species of *Potamiscus*. Türkay & Naiyanetr (1989) subsequently requested the International Commission on Zoological Nomenclature (ICZN) for a ruling to replace the type species of *Ranguna* with *Thelphusa longipes* A. Milne Edwards, 1879 (fide Bott & Türkay, 1977). This however, was not approved (ICZN Opinion 1640), and *Ranguna* is now a junior subjective synonym of *Potamiscus* (see Holthuis, 1990; Ng, 1990).

Naiyanetr (1992a) recognised the genus *Demanietta* Bott, 1966, previously used as a subgenus of *Ranguna*. The taxonomy of this genus, some members of which are terrestrial crabs, will be elaborated upon later (see Remarks for *Thaiphusa* gen. nov.). Naiyanetr (1992a) also proposed a new genus, *Dromothelphusa*, with *Thelphusa longipes* A. Milne Edwards, 1869, as the type species for many of the species previously classified under Bott's (1970b) *Ranguna* (see Remarks for this genus later). In this paper, one of the Thai species (*D. phrae*) is referred to *Dromothelphusa*. The affinities of *Dromothelphusa* and *Potamiscus* are not clear, especially since the third maxilliped condition of *D. longipes* is not known. Certainly their G1s are different (the dorsal terminal segment fold is absent in *Potamiscus*). In this paper, a new genus (*Thaipotamon*) has been erected for species with carapace features very different from *Dromothelphusa*, but which had been placed in *Ranguna* (see later).

Pending a complete revision of the Potamidae, the "catch-all" genus of *Potamon* Savigny, 1816, is used to contain many of the species discussed and described here (see also Naiyanetr & Ng, 1990b). The other recognised potamid genera (*Larnaudia* Bott, 1966, *Terrapotamon* Ng, 1986, *Stoliczia* Bott, 1966, and *Phaibulamon* Ng, 1992) are all very distinctive and easily separated from *Potamon* or *Potamiscus* (see Türkay & Naiyanetr, 1987; Ng, 1986a, 1988b, 1992a, b). Three new genera, *Thaipotamon*, *Kanpotamon* and *Thaiphusa* are established here to accommodate species with distinct suites of characters.

Potamon Savigny, 1816

Potamon Savigny, 1816: 251 (type species: *Cancer fluviatilis* Herbst, 1785, by monotypy).

Remarks.— The 14 species tentatively referred to *Potamon* here are a very heterogenous group. Four groups can be recognised, viz. 1) *Potamon kanchanaburiense* Naiyanetr, 1992; 2) *Potamon maesotense* Naiyanetr, 1992, and *Potamon boonyaratae* (Naiyanetr, 1987); 3) *Potamon namlang* spec. nov., *Potamon jarujini* spec. nov. and *Potamon maesariang* spec. nov.; and 4) *Potamon ubon* spec. nov. and *Potamon somchaii* spec. nov. The characters of these groups, and other known species in the above groups are discussed under the first species for each group. The placement of the

other species, *Potamon phuphanense* Naiyanetr, 1992, *Potamon erawanense* Naiyanetr, 1992, *Potamon maehongsonense* Naiyanetr, 1992, *Potamon yotdomense* (Naiyanetr, 1984), *Potamon lipkei* spec. nov. and *Potamon nan* spec. nov. are uncertain.

The usage of the genus *Potamon* here differs greatly from that by Bott (1966, 1970b) in which only species with cylindrical G1 terminal segments, the groove for the G2 being clearly ventral in position are included. Of the species treated here, only *P. erawanense*, *P. namlang*, *P. jarujini* and *P. maesariang* would be "true" *Potamon*" by Bott's definition. The species included in *Potamon* in this paper share only one attribute - they have a distinct and well developed flagellum on their third maxilliped exopod. A revision of the genus *Potamon* s. lato will have to be done, but such a study will only be useful when both the European and Indian species are considered.

Potamon kanchanaburiense Naiyanetr, 1992
(figs. 1, 34)

Ranguna kanchanaburiensis Naiyanetr, 1978a: 84 (nomen nudum); 1978b: 7 (nomen nudum); 1978c: 32 fig. 3 (nomen nudum); 1980a: 51 (nomen nudum); 1985a: no page number (nomen nudum); Ng, 1988a: 25 (nomen nudum).
Potamon kanchanaburiensis; Naiyanetr, 1988b: 9, pl. 6 fig. 5 (nomen nudum); 1992b: 2, fig. 1A, B.

Material.— Holotype, ♂ (RMNH D 42352), Sai Yok Noi Waterfall, Sai Yok District, Kanchanaburi Province, leg. P. Naiyanetr, 7.iii.1976 (62.4 by 47.7 mm). Paratypes: 1 ♀ (ZRC 1991.1835), 1 ♀ (CUMZ), same data as holotype; 1 ♂, 1 ♀ (RMNH D 41616), 2 ♂♂ (CUMZ), Sai Yok Noi Waterfall, Sai Yok District, Kanchanaburi Province, leg. P. Naiyanetr, 19.vii.1981; 1 ♂, 1 ♀ (SMF), Sai Yok Waterfall, Sai Yok District, Kanchanaburi Province, leg. Warin, 14.iv.1974.

Diagnosis.— Carapace transverse, flat; anterolateral region very rugose; posterolateral region with oblique striae; regions behind epigastric and postorbital cristae rugose; pterygostomial, suborbital and sub-branchial regions very granulose; frontal region rugose; anterolateral margin convex, cristate, serrated; epibranchial tooth distinct; front deflexed downwards; frontal margin almost straight; external orbital angle with outer margin 1.3 times length of inner margin; supraorbital margin entire; infraorbital margin finely beaded; epigastric cristae distinct, rugose, anterior of postorbital cristae, separated from epigastric cristae by distinct narrow groove; postorbital cristae rugose and very sharp. Third maxilliped with well developed flagellum which is distinctly shorter than width of merus. Outer surfaces of chelipeds rugose, covered with low flattened granules; fingers longer than length of palm; carpus with strong, sharp inner distal spine and basal granule. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining anterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 concave. G1 stout, gently sinuous, terminal segment stout, 0.60 times length of subterminal segment, almost straight, groove for G2 lateral, dorsal part appears swollen, subdistal part appears pectinated, adjacent areas surrounded by short, stiff hairs, tip rounded; no distinct collar separating the two segments. G2 distal segment 0.61 times length of basal segment.

Remarks.— The G1 terminal segment of *P. kanchanaburiense* is very stout and

long, about 0.60 times the length of the subterminal segment, the groove for the G2 on the G1 terminal segment is ventral in position, and the third maxilliped exopod has only a flagellum which is shorter than the width of the merus. The form of the G1 resembles that of some species of *Malayopotamon* Bott, 1968, from Sumatra and Java, e.g. *M. brevimarginatum* (de Man, 1892) (Sumatra), but members of this genus have the grooves for the G2 on the dorsal or marginal part of the G1 terminal segment, and have distinctly longer third maxilliped exopod flagella.

The G1 of this relatively large species is quite unlike any Thai species known thus far. On this character, the closest species would appear to be *Stoliczia chaseni* (Roux, 1934) from Peninsular Malaysia, but their carapace features are very different and the third maxilliped exopod of *S. chaseni* completely lacks a flagellum. It might perhaps be necessary in the future to erect a new genus for *P. kanchanaburiense*.

The nomenclature of this species was clarified by Naiyanetr (1992b).

Potamon maesotense Naiyanetr, 1992
(figs. 2, 35)

Ranguna maesotensis Naiyanetr, 1978a: 84 (nomen nudum); 1978b: 8 (nomen nudum); 1978c: 35 (nomen nudum); 1980a: 51 (nomen nudum); 1988b: pl. 8 fig. 6 (nomen nudum).
Potamon maesotense; Naiyanetr, 1992b: 4, fig. 1C, D.

Material.— Holotype, ♂ (ZRC 1991.1836), Pa Dang, Mae Sot District, Tak Province, leg. Rung Sangsiri, 30.vi.1977 (46.4 by 35.3 mm). Paratypes: 1 ♂, 1 ♀ (ZRC 1991.1837, 1838), 1 ♂, 1 ♀ (SMF), same data as holotype; 1 ♂, 1 ♀ (RMNH D 41617), 5 ♂♂, 1 ♀ (CUMZ), Pa Charoen, Mae Sot District, Tak Province, leg. P. Naiyanetr, 13.x.1989.

Diagnosis.— Carapace transverse, appears inflated; anterolateral region granulose; posterolateral region with distinct oblique striae; pterygostomial, suborbital and sub-branchial regions granulose; regions behind epigastric and postorbital cristae smooth; frontal margin sinuous, deflexed downwards; frontal region granulose; anterolateral margin strongly convex, cristate, serrated; epibranchial tooth distinct; external orbital angle triangular, outer margin slightly longer than length of inner margin; supraorbital margin entire; infraorbital margin beaded; epigastric cristae rugose but not sharp, anterior of postorbital cristae; clearly separated from postorbital cristae by distinct groove; postorbital cristae sharp, ends at beginning of cervical groove. Third maxilliped with flagellum longer than width of merus. Outer surfaces of chelipeds granulose to rugose; fingers slightly longer or subequal to length of palm; carpus with very strong inner distal spine and basal granule, upper inner margin with row of sharp granules. Ambulatory legs long, especially propodus; dorsal margins of meri gently serrated. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 concave. G1 gently sinuous, terminal segment slender, 0.43 times length of subterminal segment, very gently curving upwards, appears almost straight, dorsal fold broad but low, 0.55 times length of terminal segment, tip rounded; distinct collar separating segments. G2 distal segment 0.69 times length of basal segment.

Remarks.— Naiyanetr (1992b) clarified the nomenclature of the species.

The affinities of this species appears to be with *P. boonyaratae*, both species sharing a high, relatively squarish carapace, long ambulatory dactyli and a third maxilliped exopod with a long flagellum. These two species differ markedly from *Potamiscus* which has no flagellum on the third maxilliped exopod, or at best, a short, vestigial one. They also have distinctly longer ambulatory dactyli. The classification of these two species in *Potamon* is a purely stop-gap measure until this group of species is better understood.

Potamon boonyaratae (Naiyanetr, 1987)
(figs. 3, 36)

Ranguna boonyarate Naiyanetr, 1987a: 201, fig. 1.
Ranguna boonyaratae; Naiyanetr, 1988b: 10, pl. 8 fig. 2.

Material.— Holotype, ♂ (CUMZ), Khao Rakam, Muang Trat District, Trat Province, leg. Ms Tiparpha Boonyarat, 22.xi.1986 (46.0 by 38.0 mm). Paratypes: 2 ♂♂ (ZRC 1991.1859-1860) (larger 46.1 by 37.2 mm), 5 ♂♂ (CUMZ), same data as holotype. Others: 1 ♂, 1 ♀ (RMNH D 41623), 4 ♂♂, 5 ♀♀ (CUMZ), 1 ♀ (ZRC 1991.1861), same data as holotype.

Diagnosis.— Carapace squarish, very high, appears inflated; anterolateral region with numerous large, rounded, low granules; posterolateral region with distinct oblique striae; pterygostomial and suborbital regions granulose; sub-branchial region weakly rugose; frontal region granulose; anterolateral margin convex, cristate, serrated with rounded granules; epibranchial tooth distinct, sharp; frontal margin sinuous; external orbital angle with outer margin 1.3 times length of inner margin; supraorbital margin entire; infraorbital margin beaded; epigastric cristae strong, rugose but not sharp, anterior of postorbital cristae; appears confluent with postorbital cristae, groove separating them very faint and narrow; postorbital cristae sharp. Third maxilliped with flagellum longer than width of merus. Outer surfaces of chelipeds covered with large, flattened granules; fingers longer than length of palm; carpus with very strong inner distal spine and basal granule. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 distinctly longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 concave. G1 gently sinuous, terminal segment slender, 0.38 times length of subterminal segment, very gently curving outwards, dorsal fold short, low, 0.33 times length of terminal segment, tip rounded; collar separating segments narrow, not distinct. G2 distal segment 0.58 times length of basal segment.

Remarks.— The species was diagnosed and figured in the original paper as "*Ranguna boonyarate*". It was however specified that the species was to be named after Ms Tiparpha Boonyarat. The species name should thus be "*boonyaratae*" (fide Naiyanetr, 1988b). The male holotype and seven male paratypes were specified (but not their respective sizes) but the depository was not indicated (Naiyanetr, 1987a). The size of the species was stated as 46 by 38 mm. A separate male specimen from Khao Saming in the Smithsonian Insitution (USNM 105347) collected on 15 October 1928 was also listed in the material, but not designated as a paratype. Which of the

eight type specimens was figured was not indicated.

The affinities of *P. boonyaratae* have been discussed under *P. maesotense*.

Potamon namlang spec. nov.
(fig. 37)

Potamon spec.; Brouquisse, 1987: 32, fig. 4.3.
Potamon andersonianum; Ng, 1988a: 24, fig. 3 (nec Wood-Mason, 1871).

Material.— Holotype, ♂ (MP), Tham Hud, Nam Lang District, Mae Hong Son Province, leg. F. Stone, 27.vi.1986 (44.5 by 35.0 mm).

Diagnosis.— Carapace transverse, flat; anterolateral regions granulose; frontal region granulose; regions behind epigastric and postorbital cristae mildly granulose; pterygostomial and suborbital regions mildly granulose; sub-branchial regions distinctly granulose; anterolateral margin strongly convex, cristate, gently serrated; epibranchial tooth low, indistinct, gradually blending with external orbital margin, not clearly demarcated external orbital angle broadly triangular, outer margin finely serrated, about 2 times length of inner margin; supra- and infraorbital margins beaded; frontal margin deflexed downwards, slightly sinuous; epigastric cristae low, rugose, not sharp, distinct, separated by distinct Y-shaped groove; epigastric cristae anterior of postorbital cristae, separated by distinct groove; postorbital cristae rugose to granulose, becoming indistinct on reaching beginning of cervical grooves, merging with anterolateral margin via granules on branchial regions. Third maxilliped exopod with distinct flagellum slightly shorter than width of merus. Outer surfaces of chelipeds strongly granulose; fingers longer than palm; carpus with strong, sharp inner distal spine and sharp basal granule, inner upper margin with broad, low ridge lined with flattened, rounded granules. Meri of ambulatory legs gently serrated. G1 gently sinuous, terminal segment straight, subcylindrical, tapering to rounded tip, 0.35 times length of subterminal segment; collar separating segments very distinct. G2 distal segment 0.82 times length of elongate basal segment.

Etymology.— The species name (to be used as a noun in apposition) is derived from its type district, Nam Lang.

Remarks.— The present species is closest to *Potamon andersonianum* Wood-Mason, 1871, with which the present specimen was originally identified (Ng, 1988a). A reappraisal of the various characters however, indicates that the differences in the carapace and G1 cannot be attributed to mere intraspecific variation. A new taxon thus needs to be established, here named *P. namlang*. Ng (1988a: 25) had earlier commented that the specimens from northern Thailand might belong to a separate species. The specimens attributed to *Potamon andersonianum* by Naiyanetr (1978b, c, 1980a) belong to two separate species different from the present, which are described below (*P. jarujini* and *P. maesariang*).

Compared to *P. andersonianum* sensu stricto (fide Wood-Mason, 1871: pl. 27), the carapace of *P. namlang* (fide Ng, 1988a: fig. 3) is more ovate and less squarish, the postorbital cristae are not distinctly separated from the anterolateral granules leading to the epibranchial tooth (a distinct groove present in *P. andersonianum*), the

anterolateral margin is not distinctly separated from the external orbital angle, the indistinct epibranchial tooth being demarcated by the sudden ending of the serrated cristae of the anterolateral margin, the external orbital angle is more broadly triangular (acutely triangular in *P. andersonianum* sensu stricto), the frontal region less narrow, and the posterior carapace margin is more convex. Compared to Bott's (1966: pl. 16 fig. 1; 1970b: pl. 44 fig. 14 respectively) specimen, the carapace of the Thai species is distinctly more squarish (carapace width to length proportions are 1.27 against 1.38).

The G1 is similar to that of species of the *P. andersonianum* group figured by Bott, 1966: fig. 5, 6; Pretzmann, 1963: fig. 12; Bott, 1970b: pl. 37 fig. 16x. In *P. namlang*, the terminal segment is broader than in *P. andersonianum* and appears cylindrical, the sides being almost parallel (distinctly tapering in *P. andersonianum*), and the groove for the G2 is visible on the ventral surface only along the terminal segment, sloping to become marginal along the subterminal segment (groove is medial and subparallel to the sides of the terminal segment in *P. andersonianum*, and clearly visible on the ventral surface throughout most of the length of the subterminal segment).

Bott's (1966, 1970b) material of *P. andersonianum* was from the Karen Mountains, Burma, south of the type locality of the Katheim Mountains, Burma, and his specimens may well prove to be different from the true *P. andersonianum*. Pretzmann (1963: 365) examined two males from Cathein (= Katheim) and figured the G1 of one of these. The G1 of the Katheim male (Pretzmann, 1963) and that of the Karen male (Bott, 1966, 1970b) are somewhat different, with that from Katheim being stouter, less sinuous, and the terminal segment shorter and stouter. The carapace features of the Katheim and Karen males (fide Wood-Mason, 1871: pl. 27 figs. 16-20; and Bott, 1966: pl. 16 fig. 1; 1970b: pl. 44 fig. 14 respectively) differ significantly, with that of the Katheim specimen being more squarish, the frontal region wider, the anterolateral margin less convex, the external orbital tooth more acutely triangular and the supraobrital margin more strongly beaded.

The living holotype specimen was figured by Brouquisse (1987: 32), who commented that the animal was "... Le prisonnier de tham Hud".

Potamon jarujini spec. nov.
(figs. 4, 38)

Potamon andersonianum; Naiyanetr, 1978c: 33 (part); 1980a: 50 (part); 1986b: 26, fig. (part); 1988b: 9 (part) (nec Wood-Mason, 1871).

Material.— Holotype, ♂ (RMNH D 42344), Omkoi District, Chiangmai Province, leg. Jarujin Nabhitabhatha, 2-7.iv.1983 (50.0 by 38.5 mm). Paratypes: 2 ♂♂, 3 ♀♀ (CUMZ), 1 ♂, 1 ♀ (ZRC 1991.1865) (40.9 by 30.9 mm, ovigerous), same data as holotype.

Diagnosis.— Carapace transverse, flat; anterolateral regions granulose; frontal region covered with flattened granules; regions behind epigastric and postorbital cristae granulose; pterygostomial, suborbital and sub-branchial regions granulose, granules on sub-orbital arranged in a longitudinal series medially; anterolateral margin strongly convex, cristate, distinctly serrated; epibranchial tooth small but distinctly separated from external orbital margin by deep notch; external orbital angle

triangular, outer margin appears beaded, subequal in length to inner margin; supra- and infraorbital margins beaded; frontal margin deflexed downwards, sinuous; epigastric cristae rugose, strong, sharp, separated by distinct Y-shaped groove; epigastric cristae anterior of postorbital cristae, separated by narrow but distinct groove; postorbital cristae strongly rugose, sharp, becoming indistinct on reaching beginning of cervical grooves, merging with anterolateral margin via granules on branchial regions. Third maxilliped exopod with distinct flagellum subequal to width of merus. Outer surfaces of chelipeds rugose, fingers longer than palm; carpus with strong, sharp inner distal spine and sharp basal granule, inner upper margin with broad, low ridge lined with sharp, forward directed granules. Meri of ambulatory legs gently serrated. Suture between sternal segments 2 and 3 gently sinuous, shallow groove marks fusion of segments 3 and 4. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 slightly convex, lateral margins of segment 7 concave. G1 gently sinuous, terminal segment cone-shaped, tapering to a bifurcated tip, 0.40 times length of subterminal segment; collar separating segments distinct. G2 distal segment 0.98 times length of elongate basal segment.

Etymology.— The species is named after the collector, Mr Jarujin Nabhitabhatha.

Remarks.— This species differs from *P. namlang* in having a broader carapace in which the epibranchial tooth is distinct and clearly separated from the external orbital angle, a G1 with a shorter, stouter more cone-shaped terminal segment. The shape of the G1 terminal segment is generally similar to that of *P. andersonianum* (fide Bott, 1966, 1970b), but the position of the G2 groove differs as in *P. namlang* from that species. The differences in the carapace characters for *P. jarujini* and *P. andersonianum* (other than the demarcation of the epibranchial and external orbital angle) are similar to what has been discussed for *P. namlang*.

Potamon maesariang spec. nov.
(figs. 5, 39)

Potamon andersonianum; Naiyanetr, 1978c: 33 (part); 1980a: 50 (part); 1986b: 26, fig. (part); 1988b: 9 (part) (nec Wood-Mason, 1871).

Material.— Holotype, ♂ (RMNH D 42343), Mae Sariang District, Mae Hong Son Province, Phalat Waterfall, leg. P. Naiyanetr, Charal Ekavibhatha & Boonkiat, 3.v.1977 (47.0 by 36.0 mm). Paratypes: 1 ♂ (SMF), 2 ♀♀ (CUMZ), 1 ♀ (ZRC 1991.1867), same data as holotype.

Diagnosis.— Carapace transverse, flat; anterolateral regions granulose; frontal region granulose; regions behind epigastric and postorbital cristae covered with flattened granules; pterygostomial, suborbital and sub-branchial regions covered with small granules, granules on sub-orbital arranged in a longitudinal series medially; anterolateral margin strongly convex, cristate, serrated; epibranchial tooth small but distinctly separated from external orbital margin by deep notch; external orbital angle triangular, outer margin appears beaded, subequal in length to inner margin; supra- and infraorbital margins beaded; frontal margin deflexed downwards, sinuous; epigastric cristae distinct, rugose, sharp, separated by distinct Y-shaped groove; epigastric cristae anterior of postorbital cristae, separated by narrow but distinct

groove; postorbital cristae rugose, sharp, becoming indistinct on reaching beginning of cervical grooves, merging with anterolateral margin via granules on branchial regions. Third maxilliped exopod with distinct flagellum subequal to width of merus; outer surfaces of exopod and ischium with scattered stiff hairs. Outer surfaces of chelipeds rugose, fingers longer than palm; carpus with strong, sharp inner distal spine and sharp basal granule, inner upper margin with broad, low ridge lined with forward directed granules. Meri of ambulatory legs gently serrated. Suture between sternal segments 2 and 3 gently convex towards buccal cavity, very shallow groove marks fusion of segments 3 and 4. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 slightly convex, lateral margins of segment 7 almost straight. G1 gently sinuous, terminal segment straight, subcylindrical, tapering to a bifurcated tip, 0.39 times length of subterminal segment; collar separating segments distinct. G2 distal segment 0.84 times length of elongate basal segment.

Etymology.— The species is named after the district where the species occurs, Amphoe Mae Sariang. The name is to be used as a noun in apposition.

Remarks.— *Potamon maesariang*, especially in the general shape of its G1, is very similar to *P. namlang*, but differs in several key aspects, viz. the carapace broader, the epibranchial tooth is distinct and clearly demarcated from the external orbital angle by a notch, the external surfaces of the third maxilliped are setose (against absent), and the distal edge of the dorsal margin of the subterminal segment does not have a low and obtusely triangular structure (against present). Other than the degree of demarcation between the epibrachial tooth and external orbital angle, the other differences noted between *P. namlang* and *P. andersonianum* are also valid for *P. maesariang*.

Potamon ubon spec. nov.
(figs. 6, 40)

Potamon palustris; Naiyanetr, 1988b: 8 (part) (nec Rathbun, 1904).

Material.— Holotype, ♂ (RMNH D 42349), Senangkhanikhom District, Ubon Ratachathani Province, leg. P. Naiyanetr, 6.x.1985 (49.0 by 39.0 mm).

Diagnosis.— Carapace transverse, appears slightly inflated, surfaces of branchial and gastric regions distinctly convex; anterolateral regions rugose; frontal region covered with small rounded granules; regions behind epigastric and postorbital cristae smooth; sub-branchial region rugose; suborbital region with longitudinal median series of small granules, pterygostomial region with granulated only on upper part; anterolateral margin cristate, lined with rounded granules; epibranchial tooth small but distinct, separated from external orbital margin by distinct notch; external orbital angle acutely triangular, outer margin about 1.5 times length of inner margin; infraorbital margins beaded; frontal margin deflexed downwards, gently sinuous; epigastric cristae rugose, relatively sharp, separated by distinct Y-shaped groove; epigastric cristae separated from postorbital cristae by very short, indistinct oblique groove; postorbital cristae sharp, becoming granulose after passing cervical groove; cervical grooves very broad, shallow. Third maxilliped exopod with distinct

flagellum slightly longer than width of merus; outer surfaces of exopod and ischium with numerous stiff hairs. Outer surfaces of chelipeds rugose, fingers longer than palm; carpus with strong, sharp inner distal spine and sharp basal granule. Meri of ambulatory legs cristate. Suture between sternal segments 2 and 3 gently sinuous, no visible grooves mark fusion of segments 3 and 4. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 slightly convex, lateral margins of segment 7 slightly concave to almost straight. G1 bent outwards, terminal segment broad, dorsal fold broad, segment appears truncate, tip rounded, 0.43 times length of subterminal segment; collar separating segments distinct. G2 distal segment 0.65 times length of elongate basal segment.

Etymology.— The species name is derived from the province it is found, Ubon Ratachathani. The name is to be used as a noun in apposition.

Remarks.— The affinities of *Potamon ubon* and the next species (*P. somchaii* are clearly with *Potamon* (*Potamon*) *palustris* Rathbun, 1904, a species described from eastern Thailand. Bott (1970b) synonymised, with questionmark, Rathbun's species with *Potamon luangprabangensis* Rathbun, 1904 (as a *Ranguna*) but did not provide any explanation for this. The carapace of *P. palustris* and *P. luangprabangensis* are, however, quite different. The types of both species in the Paris Museum have been reexamined, and Bott's synonymisation is unjustified. *Potamon palustris* was described from a single 28.0 by 22.5 mm male collected by Harmand from "Laos, Siam" (present day eastern Thailand). Its G1 is illustrated here for the first time (fig. 42A-D). The exact locality of Harmand's specimen cannot be determined. The spelling of the species name should be corrected to "*palustre*" as the gender of the genus *Potamon* is neuter.

Potamon palustre, however, can be separated from *P. ubon* in the form of the carapace, which in *P. ubon* is more inflated, the dorsal surfaces of the gastric and branchial regions being more convex. The G1s of the two species also differ. Compared to *P. palustre*, the G1 terminal segment of *P. ubon* distinctly straighter (against curved), longer (0.43 against 0.37, relative to length of subterminal segment), the tip is rounded (against sharp) and the opening is lateral (against terminal). Although the holotype of *P. ubon* is larger, these differences cannot be explained by known variation due to age and size in potamids.

Potamon palustre, *P. ubon* and *P. somchaii* belong to a distinct group of *Potamon* species in having a subtruncate G1 terminal segment, the groove for the G2 being distinctly on the dorsal surface. In two species, the external surfaces of the third maxillipeds are also highly setose, to a degree not known for any other Thai potamid. The third maxilliped of *P. palustre* is however, is not setose (fig. 42F).

Potamon somchaii spec. nov.
(figs. 7, 41)

Potamon palustris; Naiyanetr, 1988b: 8 (part), pl. 5 fig. 4 (nec Rathbun, 1904).

Material.— Holotype, ♂ (RMNH D 42350), Si Songkhram District, Nakonphanom Province, leg. Tangphulphon Somchai, 6.xii.1975 (46.8 by 37.5 mm). Paratype: 1 ♀ (CUMZ), same data as holotype.

Diagnosis.— Carapace transverse, flat; anterolateral regions rugose or with flattened granules; frontal region covered with small rounded granules; regions behind epigastric and postorbital cristae smooth; sub-branchial region rugose; suborbital region with longitudinal median series of small granules; pterygostomial region with granules only on upper part; anterolateral margin cristate, lined with rounded granules; epibranchial tooth small but distinct, separated from external orbital margin by deep notch; external orbital angle acutely triangular, outer margin 1.5 times length of inner margin; infraorbital margins beaded; frontal margin deflexed downwards, gently sinuous; epigastric cristae rugose, low, separated by distinct Y-shaped groove; epigastric cristae slightly anterior of postorbital cristae, separated by distinct narrow subvertical groove; postorbital cristae sharp, becoming granulose after passing beginning of cervical groove; cervical grooves very broad, shallow. Third maxilliped exopod with distinct flagellum slightly longer than width of merus; outer surfaces of exopod and ischium with numerous stiff hairs. Outer surfaces of chelipeds rugose, fingers longer than palm; carpus with strong, sharp inner distal spine and sharp basal granule. Meri of ambulatory legs cristate. Suture between sternal segments 2 and 3 gently convex towards buccal cavity, faint grooves mark fusion of segments 3 and 4. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 slightly convex, lateral margins of segment 7 slightly concave to almost straight. G1 bent outwards, terminal segment broad, dorsal fold broad, segment appearing very truncate, tip blunted, 0.40 times length of subterminal segment; collar separating segments distinct. G2 distal segment 0.68 times length of elongate basal segment.

Etymology.— The species is named after its collector, Mr Somchai.

Remarks.— The carapace morphology of *P. somchaii* is very similar to that of *P. palustre*, but their G1s differ markedly. In *P. somchaii*, the G1 terminal segment is longer (0.40 against 0.37), straighter and the opening is subterminal, on the dorsal margin (against terminal). From *P. ubon*, *P. somchaii* differs in the form of the carapace (more inflated in *P. ubon*), condition of the epigastric cristae (sharper in *P. ubon*), and the epigastric and postorbital cristae being clearly disjunct (almost fused and confluent in *P. ubon*).

Potamon phuphanense Naiyanetr, 1992
(figs. 8, 43)

Ranguna phuphanensis Naiyanetr, 1978a: 84 (nomen nudum); 1978b: 7 (nomen nudum); 1978c: 32 (nomen nudum); 1980a: 51 (nomen nudum).
Potamon phuphanense; Naiyanetr, 1992b: 4, fig. 1E, F.

Material.— Holotype, ♂ (ZRC 1991.1839), Tad Ton Waterfall, Phu Phan Mountain, Muang Sakon Nakhon District, Sakon Nakhon Province, leg. Charal Ekavibhatha, 3.xi.1974 (32.6 by 26.5 mm). Paratypes: 2 ♂♂, 1 ♀ (ZRC 1991.1840-1842), 1 ♂, 1 ♀ (RMNH D 41618), 15 ♂♂, 13 ♀♀ (CUMZ), same data as holotype; 1 ♂, 1 ♀ (SMF), Huai Duak, Muang Sakon Nakhon District, Sakon Nakhon Province, leg. Phairoj, 17.viii.1973.

Diagnosis.— Carapace squarish; anterolateral regions rugose; frontal regions covered with numerous small rounded granules; sinuous; anterolateral margin con-

vex, slightly cristate, lined by small rounded granules; epibranchial tooth low but distinct; external orbital angle broadly triangular, outer margin longer but less than twice length of inner margin; frontal margin deflexed downwards; epigastric cristae rugose but not sharp, slightly anterior of postorbital cristae, separated by deep Y-shaped groove; epigastric and postorbital cristae confluent, not separated by grooves. Third maxilliped with flagellum much longer than width of merus. Cheliped fingers longer than palm; outer surfaces rugose; carpus with sharp inner distal spine, with blunt basal granule. Ambulatory legs short, second pair longest; dorsal margin of meri gently serrated, without spines. Suture between sternal segments 2 and 3 almost straight. Male abdomen triangular, segment 7 longer than segment 6, just reaching imaginary line connecting posterior edges of cheliped bases, lateral margins gently convex, lateral margins of segment 6 very gently convex or straight. G1 gently sinuous, terminal segment slender, 0.50 times length of subterminal segment, gently curving outwards, dorsal fold broad but low, 0.70 times length of terminal segment, tip sharp; collar separating segments indistinct. G2 distal segment 0.67 times length of basal segment.

Remarks.— Naiyanetr (1992b) clarified the nomenclatural problems associated with this species. *Potamon phuphanense* belongs to provisional Thai *Potamon* species which have G1 features of the genus *Dromothelphusa* in that the terminal segment has a slightly fold, and the groove for the G2 on the terminal segment is marginal. The carapace of *P. phuphanense* however, is very flat, and the epigastric and postorbital cristae are clearly disjunct. In general, *P. phuphanense* is very similar to the genus *Johora* Bott, 1966, from Peninsular Malaysia and southern Thailand, particularly with species like *J. tahanensis* Bott, 1966, and the affinities of *P. phuphanense* may be there instead.

Potamon erawanense Naiyanetr, 1992
(figs. 9, 44)

Ranguna erawanensis Naiyanetr, 1980a: 51 (nomen nudum); 1985b: 260 (nomen nudum).
Potamon erawanensis; Naiyanetr, 1988b: 9, pl. 6 fig. 3 (nomen nudum).
Potamon erawanense; Naiyanetr, 1992b: 5, fig. 1G, H.

Material.— Holotype, ♂ (ZRC 1991.1843), Erawan Waterfall, Kanchanaburi Province, leg. P. Naiyanetr, 25.v.1975 (34.0 by 25.3 mm). Paratypes: 1 ♂, 2 ♀♀ (ZRC 1991.1844-1846), 1 ♂, 1 ♀ (SMF), same data as holotype; 1 ♂, 1 ♀ (RMNH D 41619), 2 ♂♂ (CUMZ), Erawan Waterfall, Kanchanaburi Province, leg. P. Naiyanetr, 25.xi.1990.

Diagnosis.— Carapace broader than long; epigastric, postorbital, frontal, supraorbital and anterolateral regions rugose; anterolateral margin distinctly convex, cristate, gently serrated, clearly demarcated from posterolateral margin; epibranchial tooth distinct; external orbital angle distinct, broadly triangular, outer margin twice length of inner margin, separated from anterolateral margin by small but distinct cleft; frontal margin gently deflexed downwards, gently sinuous; epigastric cristae distinct but not sharp, rugose, anterior of postorbital cristae, separated by distinct Y-shaped groove; separated from sharp postorbital cristae by narrow groove. Third maxilliped exopod with flagellum longer than width of merus. Fingers of chelae subequal or slightly longer than palm; carpus with strong inner distal spine, base of

spine with one larger and one smaller sharp granule; distal outer surfaces of palm, carpus and merus gently rugose. Meri of ambulatory legs gently serrated or rough, without spines; second pair longest. Suture between sternal segments 2 and 3 straight. Male abdomen distinctly triangular, segment 7 equal in length to segment 6, segment 7 reaching imaginary line connecting anterior edges of cheliped bases, lateral margins gently concave, lateral margins of segment 6 gently convex. G1 gently sinuous, terminal segment curved very slightly outwards, 0.48 times length of subterminal segment, groove for G2 on ventral surface, distal part strongly setose; collar separating segments not distinct. G2 distal segment 0.47 times length of basal segment.

Remarks.— Naiyanetr (1992b) resolved the nomenclatural problems of this species.

Potamon erawanense has the male abdomen extending all the way to the longitudinal imaginary line connecting the anterior edges of the cheliped bases. In this respect, it differs significantly from species like *P. phuphanense* or *P. yotdomense* in which the male abdomen does not extend so forward.

Potamon maehongsonense Naiyanetr, 1992
(figs. 10, 45)

Potamon maehongsonensis Naiyanetr, 1980a: 50 (nomen nudum).
Potamon maehongsonense; Naiyanetr, 1992b: 6, fig. 1I, J.

Material.— Holotype, ♂ (ZRC 1991.1847), Haui Sang Fa, Muang Mae Hong Son District, Mae Hong Son Province, leg. 26.iv.1975 (39.0 by 30.2 mm). Paratypes: 1 ♂, 1 ♀ (ZRC 1991.1848-1849), 1 ♂, 1 ♀ (RMNH D 41620), 4 ♂♂, 1 ♀ (CUMZ), same data as holotype; 16 ♂♂, 12 ♀♀ (CUMZ), Huai Krung, Pai District, Mae Hong Son Province, leg. P. Naiyanetr & Charal Ekavibhatha, 7.x.1980.

Diagnosis.— Carapace transverse, flat; anterolateral regions covered with striae and flattened granules; posterolateral regions with weak oblique striae; pterygostomial and suborbital regions granulose; sub-branchial region rugose; frontal region granulose; regions behind epigastric and postorbital cristae rugose; anterolateral margin convex, cristate, gently serrated; epibranchial tooth low but visible; frontal margin straight; outer margin of external orbital angle 1.5 times length of inner margin; supraorbital margin entire; infraorbital margin beaded; epigastric cristae rugose, anterior of postorbital cristae; separated from postorbital cristae by distinct groove; postorbital cristae rugose to slightly sharp. Third maxilliped with flagellum slightly shorter than width of merus. Outer surfaces of chelipeds rugose; fingers longer than palm; carpus with sharp inner distal spine and sharp basal granule. Suture between sternal segments 2 and 3 straight. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 concave. G1 gently sinuous, terminal segment slender, distinctly bent ouwards at some 90° to axis of subterminal segment, 0.31 times length of subterminal segment, dorsal fold very low and short, 0.34 times length of terminal segment, tip sharp; no distinct collar separating segments. G2 distal segment long, 0.85 times length of basal segment.

Remarks.— The G1 of this species conforms to what Bott (1966, 1970b) regards as

Potamiscus. The dorsal fold on the terminal segment is very low and not distinct. The G1 is superficially similar to that of *P. lipkei*, but the terminal segment of *P. maehongsonense* is more curved and less stout. The ischium of the third maxilliped of *P. lipkei* is also distinctly proportionately longer.

Potamon yotdomense (Naiyanetr, 1984)
(figs. 11, 46)

Potamiscus yotdomensis Naiyanetr, 1984c: 231.
Potamicus Yotdomensis; Naiyanetr, 1987b: 77.
Potamon yotdomensis; Naiyanetr, 1988b: 8, pl. 6 fig. 4.

Material.— Holotype, ♂ (CUMZ), Nam Yun District, Ubon Ratchathani Province, leg. Komol Boonchai, 16.xi.1983 (47.0 by 36.0 mm). Paratypes: 1 ♂ (ZRC 1991.1850) (42.8 by 32.9 mm), 1 ♂ (RMNH D 41621), 1 ♂ (CUMZ), same data as holotype. Others: 1 ♀ (ZRC 1991.1851), 1 ♀ (CUMZ), same locality as holotype, leg. 19.xii.1984.

Diagnosis.— Carapace transverse, flat; anterolateral region with low, flattened granules; posterolateral region with distinct oblique striae; pterygostomial and suborbital regions granulose; sub-branchial region rugose; frontal region granulose; anterolateral margin gently convex, cristate, serrated; epibranchial tooth distinct but low, blunt; frontal margin slightly sinuous; external orbital angle with outer margin 1.3 times length of inner margin; supraorbital margin entire; infraorbital margin finely beaded; epigastric cristae rugose but not sharp, anterior of and confluent with postorbital cristae, not separated by groove; postorbital cristae sharp. Third maxilliped with flagellum longer than width of merus. Outer surfaces of chelipeds covered with low flattened granules; fingers subequal to length of palm; carpus with distinct inner distal spine and basal granule. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 slightly convex; lateral margins of segment 7 slightly concave. G1 gently sinuous, terminal segment slender, 0.40 times length of subterminal segment, distinctly curving outwards, dorsal fold distinct, broad, 0.81 times length of terminal segment, tip rounded; distinct collar separating segments. G2 distal segment 0.61 times length of basal segment.

Remarks.— The species was diagnosed (size stated as 47 by 36 mm, but not figured) from one male holotype and three male paratypes from Yotdom Wildlife Sanctuary, Ubon Ratchathani Province (the size of the holotype was not stated and no date or depository indicated). Naiyanetr (1987b) stated the holotype (47 by 36 mm) was in the CUMZ.

Potamon yotdomense has the same kind of G1 as *P. phuphanense* and the problems with its classification are similar. Compared to *P. phuphanense* however, *P. yotdomense* has a distinctly broader carapace.

As the gender for *Potamon* is neuter, the original spelling of the species name, "yotdomensis" (named after the Yotdom Wildlife Sanctuary), should be corrected to "yotdomense" instead.

Potamon lipkei spec. nov.
(figs. 12, 47)

Potamiscus tannanti; Naiyanetr, 1988b: 9, pl. 6 fig. 6 (nec Rathbun, 1904).

Material.— Holotype, ♂ (RMNH D 42353), Chiang Khong District, Chiang Rai Province, northwestern Thailand, leg. P. Naiyanetr, vi.1987 (56.8 by 42.8 mm).

Diagnosis.— Carapace distinctly broader than long, flat; anterolateral regions rugose to granulose; frontal region rugose; regions behind epigastric and postorbital cristae rugose; pterygostomial and suborbital regions smooth, sub-branchial regions gently rugose; anterolateral margin convex, cristate, gently serrated; clearly separated from posterolateral margin; epibranchial tooth sharp, small but distinct, separated from external orbital angle by a narrow cleft, no V-shaped notch present; external orbital angle broadly triangular, outer margin gently serrated, about 2 times length of inner margin; supra- and infraorbital margins beaded; frontal margin deflexed downwards, sinuous; epigastric cristae rugose, not sharp, distinct, separated by distinct Y-shaped groove; epigastric cristae distinctly anterior of postorbital cristae, separated by distinct groove; postorbital cristae rugose, sharp. Third maxilliped with flagellum longer than half width of merus. Outer surfaces of chelipeds strongly rugose, fingers longer than palm; carpus with strong, sharp inner distal spine, with sharp basal granule, inner upper margin with broad, low ridge lined with low, flattened, rounded granules. Meri of ambulatory legs gently serrated, second pair longest. Suture between sternal segments 2 and 3 slightly convex towards buccal cavity. Male abdomen triangular, segment 7 acutely triangular, distinctly longer than segment 6, reaching imaginary line connecting median part of cheliped bases, lateral margins gently concave, lateral margins of segment 6 gently convex. G1 bent outwards, terminal segment gently curving outwards, sharply tapered towards tip, strongly bent at about 100° from subterminal segment, ridge of hairs along upper margin, 0.32 times length of subterminal segment, tip sharp, appears pectinated, with ring of short stiff hairs surrounding it; collar separating segments very distinct, outer part appears truncate. G2 distal segment 0.51 times length of elongate basal segment.

Etymology.— The species name is a patronym honouring Professor Dr Lipke B. Holthuis for his encouragement and help to the authors over the years.

Remarks.— Specimens from northwestern Thailand had been referred to *Potamon* (*Potamon*) *tannanti* Rathbun, 1904, by Naiyanetr (1988b) (as a *Potamiscus*), albeit with some doubt. *Potamon tannanti* sensu stricto was described from one female specimen (36.0 by 28.0 mm) collected by Tannant from Laokoi, Tonkin, Indo-China. Bott (1966) examined a specimen in the Paris Museum from Tonkin, near Hanoi measuring 57.0 by 45.0 mm, also obtained by Tannant, but not a type specimen. He (1966, 1970b) figured the species, and his specimen differs from those in northwestern Thailand in several key aspects. A new taxon must thus be established for the Thai specimen, here named *Potamon lipkei* spec. nov. Compared to Tannant's specimens of *P. tannanti*, *P. lipkei* has a broader carapace (1.33 against 1.27-1.29, carapace width to carapace length), the more convex anterolateral margin and broader branchial region distinctly separates this margin from the posterolateral margin, having a "waist-like" appear-

ance, a narrow cleft separating the low epibranchial tooth from the external orbital angle (a distinct V-shaped notch is present in *P. tannanti* separating the external orbital angle from the epibranchial tooth), a proportionately longer third maxilliped ischium, with the anterolateral margin of the merus angular (rounded in *P. tannanti*) a very acutely triangular seventh male abdominal segment (broadly so in *P. tannanti*), the G1 terminal segment is not uniformly cone-shaped and directed obliquely outwards but gently curved outwards; and the outer edge of the collar separating the G1 terminal and subterminal segments being truncate and not rounded (cf. Rathbun, 1904: fig. 17, pl. 11 fig. 8; Bott, 1966: fig. 14; 1970b: pl. 38 fig. 30, pl. 47 fig. 28).

Bott (1966, 1970b) synonymised *P. tannanti* with *Potamon (Potamon) orleansi* Rathbun, 1904, without any comment. Although he had presumably examined the types of both species, the differences in the carapace features of the two species (fide Rathbun, 1904) suggest otherwise. The classification of *P. lipkei* in *Potamon* sensu lato is because of the well developed flagellum on the third maxilliped exopod. *Potamon lipkei* is also superficially similar to *P. flexum* Dai et al., 1980, from China, but differs in that the third maxilliped of *P. flexum* has a proportionately shorter ischium, the G1 is more strongly bent, and the terminal segment is broader and less cone-shaped.

Potamon nan spec. nov.
(figs. 13, 48)

Ranguna luangprabangensis; Naiyanetr, 1978b: 7; 1978c: 31; 1980a: 51; 1980b: 26, fig.; 1988b: 8, pl. 5 fig. 2 (nec Rathbun, 1904).

Material.— Holotype, ♂ (RMNH D 42345), Huai Sa Khorn, Sa District, Nan Province, leg. P. Naiyanetr, 24.iv.1983 (35.6 by 27.2 mm). Paratypes: 1 ♂ (ZRC 1991.1863), 1 ♂, 1 ♀ (RMNH D 41624), 15 ♂♂, 6 ♀♀ (CUMZ), same data as holotype.

Diagnosis.— Carapace transverse, flat; anterolateral and posterolateral regions strongly rugose and granulose; frontal, pterygostomial, suborbital and sub-branchial regions granulose to rugose; regions behind epigastric and postorbital cristae distinctly rugose; anterolateral margin convex, cristate, serrated with small rounded granules; epibranchial tooth small but distinct, clearly separated from external orbital angle; frontal margin gently sinuous; external orbital angle triangular, outer margin beaded, 1.5 times length of inner margin; supra- and infraorbital margins beaded; epigastric cristae low, rugose but not sharp, anterior of postorbital cristae; separated from postorbital cristae by distinct groove; postorbital cristae low, rugose, not sharp, sharp. Third maxilliped with distinct flagellum which is longer than width of merus. Outer surfaces of chelipeds rugose; fingers longer than length of palm; carpus with sharp strong inner distal spine and smaller basal spine. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining median part of cheliped bases; segment 7 longer than segment 6; lateral margins of segments 6 and 7 gently concave. G1 sinuous, distinctly bent outwards, terminal segment cone-shaped, tapering towards a sharp tip, approximately hook-shaped, 0.31 times length of subterminal segment, collar separating segments indistinct; outer margin of distal part of subterminal segment with distinct rectangular cleft. G2 distal segment 0.64 times length of basal segment.

Etymology.— The species is named after the Nan Province where it occurs. The species name is to be used as a noun in apposition.

Remarks.— This species had previously been referred to *Ranguna luangprabangensis* (Rathbun, 1904) (fide Naiyanetr 1978b, c, 1980a, b, 1988b), but that species differs from the Thai specimens in some features of the carapace, and more importantly in the form of the G1. The G1 is distinctly longer and has a different shape compared to that of the type of *R. luangprabangensis* figured by Bott (1970b). In *R. luangprabangensis*, the G1 terminal segment tapers gradually to a sharp tip but in *P. nan*, the proximal two thirds tapers very slightly, appearing subcylindrical in shape, and tapers more rapidly to a the rounded tip only towards the distal one third. The rectangular cleft on the outer margin of the distal part of the subterminal segment is also distinctly broader in *P. nan* compared to *R. luangprabangensis*. We have examined the G1 from the type of *P. luangprabangensis* in the Paris Museum, and these differences are valid. A new taxon is thus clearly warranted.

Dromothelphusa Naiyanetr, 1992

Dromothelphusa Naiyanetr, 1992a: 114 (type species *Thelphusa longipes* A. Milne Edwards, 1869, by original designation).

Remarks.— Naiyanetr (1992a) established *Dromothelphusa* as a replacement name for *Ranguna* Bott, 1966, sensu stricto as *Ranguna* was a subjective synonym of *Potamiscus* Alcock, 1909 (see Remarks for family). Although the G1 of the type species of *Dromothelphusa, D. longipes* (fide Bott & Türkay, 1977) has the typical dorsal fold on the terminal segment which Bott (1966, 1970b) used to define the genus, it certainly cannot be used for all the species previously classified under *Ranguna*. Ng (1988b, 1990) had commented that the genus *Ranguna* sensu Bott, 1970, was probably heterogenous, and the G1 terminal segment fold may not in fact be a good generic character. The genus *Dromothelphusa* may perhaps be better redefined as a genus with high, relatively domed carapace, the epigastric and postorbital cristae more or less confluent and fused, a triangular external orbital angle, relatively short ambulatory dactyli, the seventh segment of the male abdomen almost straight or slightly concave, and having a dorsal fold on the G1 terminal segment (fide A. Milne Edwards, 1869; Rathbun, 1904; Bott & Türkay, 1977). The condition of the third maxilliped exopod is not known. Bott (1970b) had described it as without a flagellum, but his Basel Museum specimens of *D. longipes* were not the types, and from his figures, these specimens do not appear to be that species at all.

The nearest genus to *Dromothelphusa* still seems to be *Potamiscus* (type species *Potamon (Potamon) annandalii* Alcock, 1909, by original designation). The taxonomic delineation of *Potamiscus* however, is still unsatisfactory. Although the G1s of *Potamiscus*, according to Bott (1966, 1970b) are simple conical structures with the grooves for the G2 on the dorsal side or margins, this is a general G1 form, and does not give us much clue as to the actual affinities of the species. It was primarily because of this that *Potamon (Potamon) rangoonensis* Rathbun, 1904, sensu stricto was transferred to *Potamiscus* by Türkay & Naiyanetr (1987), making the genus *Ranguna* Bott, 1966 (type species *P. rangoonensis*), a synonym of *Potamiscus*. Alcock (1910)

showed the exopod of the third maxilliped of *P. annandalii* as being short, barely reaching the upper edge of the ischium (although he did state that the exopod was longer than the ischium). *Dromothelphusa* however, may be distinguished from *Potamiscus* sensu stricto in having a higher and more domed carapace, longer ambulatory dactyli, and a slender G1 terminal segment with a distinct dorsal fold.

Dromothelphusa phrae (Naiyanetr, 1984)
(figs. 14, 49)

Ranguna phrae Naiyanetr, 1984b: 232; 1987b: 80; 1988b: 11, pl. 8 fig. 4.

Material.— Holotype, ♂ (CUMZ), Ban Haui Rai, Denchai District, Phrae Province, central Thailand, from market by P. Naiyanetr, 18.xi.1984 (55.0 by 42.0 mm). Paratypes: 2 ♂♂ (ZRC 1991.1868, 1869) (larger 52.3 by 41.2 mm), 3 ♂♂ (CUMZ), same data as holotype. Others: 1 ♂, 1 ♀ (RMNH D 41625), 30 ♂♂, 13 ♀♀ (CUMZ), 1 ♀ (ZRC 1991.1870), same data as holotype.

Diagnosis.— Carapace appears squarish, very high, appears inflated; anterolateral region with numerous large, rounded granules; posterolateral region with distinct oblique striae; pterygostomial, suborbital and sub-branchial regions granulose; regions behind epigastric and postorbital cristae granulose; frontal margin sinuous, strongly deflexed downwards; frontal region granulose; anterolateral margin strongly convex, cristate, serrated; epibranchial tooth blunt but distinct; external orbital angle very acutely triangular, outer margin subequal to length of inner margin; supraorbital margin entire; infraorbital margin beaded; epigastric cristae strong, rugose but not sharp, anterior of postorbital cristae; clearly separated from postorbital cristae by narrow groove; postorbital cristae rugose, ends at beginning of cervical groove. Third maxilliped exopod with short flap-like flagellum. Outer surfaces of chelipeds rugose; fingers slightly longer or subequal to length of palm; carpus with very strong inner distal spine and basal granule, upper inner margin with row of sharp granules. Suture between sternal segments 2 and 3 sinuous, with lateral edges slightly concave towards buccal cavity and median part convex towards buccal cavity. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 slightly concave. G1 gently sinuous, terminal segment slender, 0.40 times length of subterminal segment, curved outwards, distinctly hook-shaped, dorsal fold well developed, broad, 0.66 times length of terminal segment, tip rounded, gently curved upwards; distinct collar separating segments. G2 with long distal segment, 0.55 times length of basal segment.

Etymology.— The taxon was named after the Phrae Province where the species occurs, and the species name "*phrae*" is used as a noun in apposition.

Remarks.— The species was diagnosed (size given as 55 by 42 mm) but not figured from specimens collected in Ban Huai Rai, Amphoe Den Chai, Phrae Province (no date or collecor indicated). One male holotype and five male paratypes were listed, without indication of the depository. Naiyanetr (1987b) listed the holotype in the CUMZ as being 55 by 42 mm.

The general physiognomy and features of this species also allies it with *Terrapotamon abbotti* (Rathbun, 1898) from southern Thailand. The basic forms of their G1s

however differ markedly, being much stouter in *Terrapotamon*. The G1 of *D. phrae* also resembles those of *Potamon doisutep* Naiyanetr & Ng, 1990, and *P. doichiangdao* Naiyanetr & Ng, 1990, but in these two aquatic species, the carapace is flatter, and exopod of the third maxilliped has a well developed flagellum.

Larnaudia Bott, 1966

Potamiscus (*Larnaudia*) Bott, 1966: 490 (type species *Thelphusa larnaudii* A. Milne Edwards, 1869, by monotypy).

Remarks.— The definition and taxonomy of this genus has been clarified by Türkay & Naiyanetr (1987) and reviewed by Ng (1992a).

Larnaudia chaiyaphumi Naiyanetr, 1982
(figs. 15, 50)

Larnaudia chaiyaphumi Naiyanetr, 1982: 3; 1987b: 78; 1988b: 7, pl. 4 fig. 3.

Material.— Lectotype, ♂ (CUMZ), Phu Khieo, Chayaphum Province, collected by a game warden, 25.vi.1981 (41.0 by 31.0 mm). Paralectotypes: 2 ♂♂ (ZRC 1991.1871, 1872) (larger 42.4 by 33.4 mm), 1 ♂ (RMNH D 41626), 7 ♂♂, 1 ♀ (CUMZ), same data as holotype.

Diagnosis.— Carapace transverse, flat; anterolateral and posterolateral regions strongly rugose; pterygostomial and suborbital regions granulose; sub-branchial region rugose; frontal region granulose; anterolateral margin gently convex, cristate, serrated with small rounded granules; epibranchial tooth very small, blunt but distinctly separated from external orbital angle; front deflexed downwards; frontal margin sinuous; external orbital angle broadly triangular, outer margin 2 times length of inner margin; supraorbital margin entire; infraorbital margin beaded; epigastric cristae strong, rugose but not sharp, anterior of postorbital cristae; separated from postorbital cristae by narrow groove; postorbital cristae sharp and rugose. Third maxilliped with distinct flagellum which is subequal to width of merus. Outer surfaces of chelipeds rugose; fingers subequal to length of palm; carpus with sharp strong inner distal spine and basal granule. Ambulatory legs highly setose. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 distinctly longer than segment 6; lateral margins of segment 6 slightly convex; lateral margins of segment 7 slightly concave. G1 gently sinuous, terminal segment stout, appears tubular, 0.38 times length of subterminal segment, very gently curving upwards, tip blunt, truncated, collar separating segments indistinct. G2 distal segment 0.42 times length of basal segment.

Etymology.— The species was named after the type locality, Chaiyaphum Province. The name of the province is pronounced as chai-ya-phu-mi, hence the spelling of the species name, and is used as a noun in apposition.

Remarks.— The species was briefly diagnosed (only the G1) from specimens collected (number not specified) from Phu Khieo, Changwat Chaiyaphum on 25 June

1981 (no collector data), with the size of the species given as 42.0 by 34.0 mm. No type specimens were designated or the depository indicated. Naiyanetr (1987b) named a holotype (41 by 31 mm, in the CUMZ) for the species, but this would be the equivalent of a lectotypic designation at best. All the specimens collected up to 1982 would be paralectotypes.

The G1 of *L. chaiyaphumi* differs from its congeners in being proportionately shorter and stouter, the terminal segment being straighter and less distinctly curving upwards. The carapace of *L. chaiyaphumi* is also less rugose than its congeners, the low tubercles and striae confined mainly to the edges of the anterolateral regions.

Thaipotamon gen. nov.

Type species: *Thaipotamon lomkao* spec. nov., designated herein.

Diagnosis.— Carapace transverse, much inflated and swollen vertically and laterally, strongly convex transversely and longitudinally, surfaces very smooth, epigastric and postorbital cristae very distinct, rounded but not sharp, very close to frontal and supraorbital margins, postorbital regions very narrow, frontal margin strongly deflexed downwards, appears narrow from dorsal view; anterolateral margin very low, appearing as a low, rounded ridge, not distinct; epibranchial tooth very small, blunt, not visible from dorsal view; external orbital angle very small, acutely triangular, inner margins sloping gradually to meet supraorbital margin. Exopod of third maxilliped strongly curved, outer margin distinctly convex, with short flagellum, subequal or shorter than half width of merus. Ambulatory legs normal length, dactyli very long. Male abdomen broadly triangular, lateral margins of segments 6 and 7 convex and concave respectively. G1 sinuous, terminal segment with broad, large semicircular dorsal fold which is longer than half length of segment from ventral view. G2 with distinct distal segment, shorter than half length of basal segment.

Etymology.— The genus name is derived from Thailand, in combination with the genus name *Potamon*. The gender is neuter.

Remarks.— The genus *Thaipotamon* gen. nov. is erected mainly for terrestrial species which have a very smooth and egg-like carapace, long ambulatory dactyli and a G1 with a hook-like terminal segment and very high and broad dorsal fold. These features, especially the carapace shape and G1 will easily distinguish *Thaipotamon* from other potamid genera in Thailand. The exopod of the third maxilliped has a well developed flagellum, but this is shorter than most *Potamon*, but far longer than species in *Potamiscus* or *Stoliczia* Bott, 1966 (see Ng, 1988b, 1992b). The distinctly curved third maxilliped exopod and its highly convex outer margin are very diagnostic, and has not been reported for any other known potamid genus. The general form of the carapace most closely approaches that of *Thaiphusa* gen. nov. (see later), which is also a terrestrial genus.

Thaipotamon lomkao spec. nov.
(figs. 16, 51)

Material.— Holotype, ♂ (ZRC 1991.1873), in burrows made in the soil of an orchard and a forest,

Lomkao, Petchaboon Province, leg. Prasert & Prayong, 11.ii.1968 (43.5 by 32.0 mm). Paratypes: 1 ♀ (ZRC 1991.1874), 1 ♂, 1 ♀ (CUMZ), same data as holotype; 4 ♂♂, 5 ♀♀ (CUMZ), 1 ♂, 1 ♀ (RMNH D 42503), Lomkao, Petchaboon, leg. Prasert & Prayong, 9.ii.1968.

Diagnosis.— Carapace transverse, very swollen transversely and longitudinally on all regions, dorsal surfaces smooth; sub-branchial, pterygostomial and suborbital regions smooth; anterolateral margin convex, rounded off transversely and vertically, margin not cristate or distinct, appearing only as a very flattened and rounded ridge; epibranchial tooth very small, knob-like, on lateral side of carapace because of swelling, not visible from dorsal view; frontal margin highly deflexed downwards, frontal region appears very narrow from dorsal view; epigastric and postorbital cristae rounded but very distinct, almost completely confluent, groove separating cristae very faint; postorbital cristae separated from supraorbital cristae by very rugose groove, postorbital region very narrow, not clearly discernible; epigastric cristae level with edges of supraorbital margin. Exopod of third maxilliped with short flagellum which is subequal to half width of merus; exopod reaching well beyond edge of merus, outer margin strongly convex outwards. Outer surfaces of chelipeds rugose, especially along margins; fingers much longer than palm. Ambulatory legs, especially dactylus, long. Suture between sternal segments 2 and 3 straight; segments 3 and 4 fused but separated by distinct broad and shallow groove. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 sinuous, straight along distal part but convex along proximal part. G1 sinuous, terminal segment 0.43 times length of subterminal segment, with very high and broad dorsal fold, fold 0.62 times length of terminal segment (from ventral view); no distinct collar separating terminal and subterminal segments. G2 with distal segment 0.73 times length of basal segment.

Etymology.— The species name is derived from its type locality at Lomkao. It is to be used as noun in apposition.

Remarks.— The present specimens from Petchaboon, although possessing the general facies of *T. siamense* (A. Milne Edwards, 1869), and *T. smitinandi* (Naiyanetr & Türkay, 1984), do not agree in several key aspects. Compared to *T. siamensis* sensu stricto, the carapace of *T. lomkao* spec. nov. is broader, the lateral swelling being more pronounced, the frontal and postorbital regions more narrow, the external orbital angle much lower, smaller and less sharp, and the longer ambulatory dactylus (0.37 against 0.29, length of last dactylus to carapace length) (see Rathbun, 1904: pl. 13 fig. 1). The G1 of *T. siamensis* is not known. Compared to *T. smitinandi* (fide Chuensri, 1974, as *Ranguna siamensis*), *T. lomkao* has a more narrow frontal region, smaller external orbital angle, almost completely confluent epigastric and postorbital cristae, the groove separating them very faint (distinct and deeper in *T. siamensis*), no trace of an epibranchial tooth, longer cheliped fingers, and the lateral margins of the seventh male abdominal segment are distinctly concave (not straight). The G1 of *T. lomkao* differs from that of *T. smitinandi* in being stouter, the terminal segment slightly shorter, gently but distinctly curving upwards (not gently hooked outwards) (fide Chuensri, 1974: fig. 6D).

The condition of the flagellum on the third maxilliped exopod of *T. siamensis* sensu stricto is not known. Bott (1970b) noted that it only had a vestigial flagellum, but Kemp (1923) implied it had a distinct one when he classified this species under *Potamon (Potamon)*. Chuensri (1973, 1974) noted that *T. smitinandi* (as *Potamon siamensis*) from

Chantaburi and Kanchanaburi in Thailand had a flagellum on the third maxilliped exopod. He suggested that Kemp's (1923) specimens is not conspecific with A. Milne Edwards' species, differing in morphological details and distribution. All the CUMZ specimens of *T. smitinandi* have a short flagellum, distinctly less than half the width of the merus.

Thaipotamon dansai spec. nov.
(figs. 17, 52)

Material.— Holotype, ♂ (RMNH D 42346), Ban Na Wa, Dan Sai District, Loei Province, leg. P. Naiyanetr, 9.iv.1987 (48.5 by 34.5 mm). Paratypes: 1 ♂, 1 ♀ (ZRC 1991.1877, 1878), 1 ♂, 1 ♀ (RMNH D 41628), 1 ♂, 6 ♀♀ (CUMZ), same data as holotype.

Diagnosis.— Carapace transverse, very swollen transversely and longitudinally on all regions, dorsal surfaces smooth; branchiostegal surfaces and sub-branchial regions granulose; pterygostomial and suborbital regions almost smooth, distinct granules lining grooves separating pterygostomial, sub-branchial and suborbital regions; anterolateral margin convex, rounded off transversely and vertically, margin indistinct; epibranchial tooth very sharp but small, not visible from dorsal view; frontal margin highly deflexed downwards, frontal region appears very narrow from dorsal view; epigastric cristae very low, indistinct, separated from rounded postorbital cristae by indistinct grooves, otherwise confluent, postorbital cristae separated from supraorbital cristae by deep groove, postorbital region very narrow, almost absent; epigastric cristae almost level with edge of supraorbital margin; cervical grooves not discernible, H-shaped depression shallow. Exopod of third maxilliped with distinct flagellum subequal to width of merus. Outer surfaces of chelipeds rugose, fingers longer than palm. Suture between sternal segments 2 and 3 gently sinuous; segments 3 and 4 fused but separated by distinct broad and distinct groove. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 slightly concave. G1 gently sinuous, terminal segment 0.46 times length of subterminal segment, with high and broad dorsal fold on proximal half, fold 0.53 times length of terminal segment (from ventral view); no distinct collar separating terminal and subterminal segments; distal part of subterminal segment neck-like. G2 with distal segment 0.78 times length of basal segment.

Etymology.— The species is named after the district where it occurs - Amphoe Dan Sai. The species name is used as a noun in apposition.

Remarks.— This species is closest to *T. lomkao*, especially with regards to the more slender G1 terminal segment, but it differs distinctly in that in *T. lomkao*, the tip is directed upwards, while in *T. dansai*, the tip is directed laterally instead. The distal part of the outer margin of G1 of *T. dansai* also has a shallow, broad rectangular cleft, absent in *T. lomkao*. Their carapaces also differ somewhat, the epigastric cristae in *T. dansai* being lower and less distinct.

Thaipotamon siamense (A. Milne Edwards, 1869) (figs. 18A, 19A, 53)

Thelphusa siamensis A. Milne Edwards, 1869: 173, pl. 8 fig. 5.

Material.— Lectotype, male (MP), "Bangkok, Thailand" leg. Larnaudi (43.5 by 33.2 mm). Paralectotype: 1 ♀ (MP) (48.5 by 37.5 mm), same data as lectotype.

Diagnosis.— Carapace transverse, swollen transversely and longitudinally on all regions, dorsal surfaces smooth; anterolateral margin convex, rounded off transversely and vertically, margin indistinct; epibranchial tooth small, not visible from dorsal view; frontal margin strongly deflexed downwards, frontal region appears narrow from dorsal view; epigastric and postorbital cristae rounded but distinct, separated by small, narrow, shallow oblique notch, postorbital region very narrow; epigastric cristae level with edge of supraorbital margin. surfaces of chelipeds slightly rugose to smooth, fingers longer than palm. G1 gently sinuous, relatively slender, terminal segment 0.50 times length of subterminal segment, with high and broad dorsal fold, fold 0.58 times length of terminal segment (from ventral view), slopes gradually towards tip from dorsal view; no distinct collar separating terminal and subterminal segments.

Remarks.— The identity of *T. siamense* sensu stricto is difficult to ascertain. The species was described from material supposedly collected from around Bangkok by Larnaudi, but the number of specimens was never listed. A. Milne Edwards (1869) stated the size of the species as 50 by 35 mm, but in the figure (his pl. 8 fig. 5), a 43 by 33 mm male was featured. The caption for this feature reads as "*Thelphusa Siamensis* (nov. spec.), individu male provenant de Siam, de grandeur naturelle". Rathbun (1904: 306) recorded one male (43.5 by 33.2 mm) and one female (48.5 by 37.5 mm) in the Paris Museum by Larnaudi. She noted that the male abdomen was broken. Bott (1970b: 171, pl. 49 fig. 41) however, cited a holotype female of this species in the Paris Museum measuring 48 by 36 mm. This Paris Museum specimen should be regarded as a lectotype instead, as both of Larnaudi's specimens have syntypic status.

Thaipotamon siamense has a very distinctive G1, and has the longest terminal segment (relative to the subterminal segment) of all known *Thaipotamon* species. The dorsal fold also extends all the way to the tip (from dorsal view), a feature shared only with *T. smitinandi*.

A male specimen (43.0 by 32.0 mm) from Ratchaburi Province (USNM 94414, "Rajburi, Siam" (= Ratchaburi Province), leg. Boonsong, no date) identified to *T. siamense* is probably not that species. Although the G1 terminal segment of this specimen (fig. 53) has a low dorsal fold and relatively long distal part, similar to that of the type of *T. siamense*, the overall length of the terminal segment in the USNM specimen is proportionately shorter (0.40 against 0.50 times length of subterminal segment), and the shape of the dorsal fold is somewhat different. A restudy of the USNM specimen will probably show that it represents an undescribed taxon.

Thaipotamon smitinandi (Naiyanetr & Türkay, 1984) (figs. 18C, 19C)

Ranguna (Demanietta) siamensis; Chuensri, 1974: 35, fig. 6D (nec A. Milne Edwards, 1869).

Ranguna smitinandi Naiyanetr & Türkay, 1984: 230.
Ranguna smithinandi; Naiyanetr, 1988b: 10 (part).

Material.— Holotype, ♂ (Kasetsart University Museum), Pong Nam Ron, Chanthaburi Province, leg. Professor Dr Tem Smitinand, xi.1956 (43.3 by 31.6 mm).

Diagnosis.— Carapace transverse, very swollen transversely and longitudinally on all regions, dorsal surfaces smooth; sub-branchial, pterygostomial and suborbital regions smooth; anterolateral margin convex, rounded off transversely and vertically, margin indistinct; epibranchial tooth indistinct, not visible from dorsal view; frontal margin highly deflexed downwards, frontal region appears very narrow from dorsal view; epigastric and postorbital cristae rounded but distinct, separated by small and narrow notch, otherwise confluent, postorbital cristae separated from supraorbital cristae by rugose groove, postorbital region very narrow, almost absent; epigastric cristae almost level with edge of supraorbital margin. Exopod of third maxilliped with distinct flagellum. Outer surfaces of chelipeds rugose, fingers longer than palm. G1 gently sinuous, terminal segment 0.45 times length of subterminal segment, with high and broad dorsal fold, fold 0.78 times length of terminal segment (from ventral view), from dorsal view, fold gradually slopes down all the to the tip; no distinct collar separating terminal and subterminal segments.

Remarks.— Only one specimen of this species is known. It was originally identified as *Ranguna siamensis* (nec A. Milne Edwards, 1869) by Chuensri (1973, 1974). Naiyanetr & Türkay (1984) later referred Chuensri's (1974) specimen to a new species, fixing Chuensri's specimen as the holotype. The specimen was stated as being deposited in the Kasetsart University Museum (KUMF 2-001). Although Chuensri (1974: 35) did not state its collector, he did note (under *Ranguna chantaburiensis*, as a subspecies of *Ranguna tenasserimensis* (de Man, 1898)) (p. 35) that one Mr T. Smitinand had collected specimens from Pong Nam Ron in November 1956.

The single type specimen was examined by the second author and later returned to Dr C. Chuensri (KUMF). The specimen is now lost (Chuensri, pers. comm. to second author). A neotype should be designated once fresh specimens can be obtained from the type locality, Pong Nam Ron. Chuensri (1974: 36) noted that the species "... lived in holes at the edges of the dry forest".

The affinities of *T. smitinandi* are with *T. varoonphornae*, and both are very similar. The differences between these two species are discussed under the next species.

Thaipotamon varoonphornae spec. nov.
(figs. 20, 54)

Ranguna smithinandi; Naiyanetr, 1988b: 10 (part), pl. 8 fig. 5 (nec Naiyanetr & Türkay, 1984).

Material.— Holotype, ♂ (RMNH D 42351), Sa Kaeo District, Prachin Buri Province, leg. Varoonphorn, ix.1981 (43.5 by 32.2 mm). Paratypes: 1 ♂ (ZRC 1991.1876), 1 ♂, 1 ♀ (RMNH D 41627), 11 ♂♂, 2 ♀♀ (CUMZ), same data as holotype.

Diagnosis.— Carapace transverse, very swollen transversely and longitudinally on all regions, dorsal surfaces smooth; sub-branchial, pterygostomial and suborbital

regions mildly granulose; anterolateral margin convex, rounded off transversely and vertically, margin indistinct; epibranchial tooth very small, low, not visible from dorsal view; frontal margin highly deflexed downwards, frontal region appears very narrow from dorsal view; epigastric cristae slightly rugose, separated from postorbital cristae by small but distinct groove, postorbital cristae rounded but distinct, separated by small and narrow notch, otherwise confluent, postorbital cristae separated from supraorbital cristae by deep groove, postorbital region very narrow, almost absent; epigastric cristae almost level with edge of supraorbital margin; cervical grooves narrow, shallow but visible. Exopod of third maxilliped with flagellum distinctly shorter than width of merus. Outer surfaces of chelipeds smooth to slightly rugose, fingers longer than palm. Suture between sternal segments 2 and 3 convex towards buccal cavity; segments 3 and 4 fused but separated by distinct broad and distinct groove. Male abdomen reaches imaginary line joining posterior edges of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 convex; lateral margins of segment 7 concave. G1 gently sinuous, terminal segment 0.39 times length of subterminal segment, with high and broad dorsal fold on proximal half, fold 0.57 times length of terminal segment (from ventral view); no distinct collar separating terminal and subterminal segments. G2 with distal segment 0.76 times length of basal segment.

Etymology.— The species is named after its collector, Ms Varoonphorn.

Remarks.— The present specimens differ from *T. smitinandi* mainly in the form of the G1 terminal segment. Compared to *T. smitinandi*, the terminal segment of *T. varoonphornae* is stouter and more cylindrical, with the tip distinctly rounder (against sharp), and the dorsal fold is shorter (0.57 against 0.78, relative to the length of the terminal segment). From the dorsal view, the fold on the terminal segment in *T. smitinandi* tapers down all the way to the tip, whereas in *T. varoonphornae*, it stops abruptly midway along the segment. The distal part of the outer margin of the subterminal segment of *T. smitinandi* has a distinct broad rectangular cleft, absent on *T. varoonphornae*.

The type locality of *T. varoonphornae*, Amphoe Sa Kaeo, is a site some 80 km north of Pong Nam Ron, the type locality of *T. smitinandi*.

Kanpotamon gen. nov.

Type species: *Kanpotamon duangkhaei* spec. nov., designated herein.

Diagnosis.— Carapace distinctly transverse, flat; anterolateral margin distinctly cristate; frontal margin slightly posterior of imaginary line connecting tip of external orbital angles. Third maxilliped with flagellum which is longer than width of merus. Ambulatory legs very long. Male abdomen reaches imaginary longitudinal line joining anterior edges of cheliped bases. G1 with bulbous structure on proximal part of outer margin, groove for G2 clearly visible from ventral view; distal part of subterminal segment neck-like.

Etymology.— The genus is named after the shortened name of the type province, Kanchanaburi, Kan, in combination with the genus name *Potamon*. The gender is neuter.

Remarks.— The carapace features of this genus are closest to *Tiwaripotamon* Bott, 1970, especially with regards to the very transverse and flat carapace and long ambulatory legs. The G1 terminal segment also has the groove for the G2 on the ventral surface. The shape of the G1 terminal segment however, is very different, being closer to that of species of *Demanietta* Bott, 1966 sensu stricto. None of the *Demanietta* species however, have a ventral G2 groove on the terminal segment. There is also a very distinct bulbous structure on the outer surface, present in neither *Demanietta* or *Tiwaripotamon*. The genus *Tiwaripotamon* is a heterogenous group, and several members have been or should be transferred out (see Türkay & Naiyanetr, 1987; Ng, 1992a) to other taxa.

Kanpotamon duangkhaei spec. nov.
(figs. 21, 55)

Ranguna duangkhaei Naiyanetr, 1985b: no page number (nomen nudum).

Material.— Holotype, ♂ (ZRC), Soi Yok District, Kanchanaburi Province, leg. Suraphon Duangkhae, 13.x.1983 (49.8 by 35.5 mm).

Diagnosis.— Carapace distinctly transverse, flat, dorsal surfaces smooth; subbranchial and and suborbital regions rugose to granulose; pterygostomial region smooth; frontal region slightly rugose; anterolateral margin strongly convex, distinctly cristate, strongly but unevenly serrated; epibranchial tooth small but sharp, distinctly separated from external orbital angle by clear notch; posterolateral margins slightly convex, distinctly converging; front very gently sinuous, deflexed downwards; frontal margin sinuous, slightly posterior of imaginary line connecting tip of external orbital angles; external orbital angle triangular, somewhat truncate, outer margin uneven but not serrate, 2 times length of inner margin; epigastric cristae rugose, low, separated from postorbital cristae by small but distinct notch; postorbital cristae sharp, rugose, curving anteriorly to meet epibranchial tooth; cervical groove very shallow, indistinct; H-shaped depression distinct. Third maxilliped with flagellum which is longer than width of merus. Outer surfaces of chelipeds rugose to granulose; fingers longer than length of palm, upper margins of dactylus granulose; carpus with sharp strong inner distal spine and sharp basal granule, inner dorsal surfaces granulose. Ambulatory legs very long, upper margins of merus distinctly cristate, serrated. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining anterior edges of cheliped bases; segment 7 subequal in length to segment 6; lateral margins of segment 6 sinuous, lateral margins of segment 7 slightly concave. G1 terminal segment curved, 0.48 times length of subterminal segment, tip sharp, with bulbous structure on proximal part of outer margin, groove for G2 clearly visible from ventral view; collar separating segments indistinct; distal part of subterminal segment neck-like. G2 distal segment 0.64 times length of basal segment.

Etymology.— The species is named after Mr Suraphon Duangkhae, who collected the only specimen.

Remarks.— The paper which first used the name *"duangkhaei"* (Naiyanetr, 1985b) only mentioned the species in passing without any description or figure. The name is

thus a nomen nudum. The species is validated here with the necessary descriptions and figures.

Thaiphusa gen. nov.

Type species: *Demanietta sirikit* Naiyanetr, 1992, designated herein.

Diagnosis.— Carapace transverse, distinctly swollen transversely and longitudinally on all regions which are smooth, poorly defined; frontal and postorbital regions narrow; anterolateral margin convex, almost smooth, cristae very low, flattened, indistinct; epibranchial tooth blunt, small; epigastric cristae not distinctly separated from postorbital cristae. Exopod of third maxilliped straight, with distinct flagellum, about half to two thirds width of merus. Ambulatory dactyli long. G1 slender, terminal segment longer than half length of subterminal segment, with low and broad dorsal fold, distinctly longer than half length of terminal segment; distal half of subterminal segment very slender, neck-like.

Etymology.— The genus is named after Thailand, in combination with the genus name *Thelphusa*. The colour pattern of the designated type species, *T. sirikit*, is very distinctive and duplicates the colours (red, white and blue) and pattern on the Thai flag. It thus seems appropriate that the new genus be named after Thailand. The gender of the genus is feminine.

Remarks.— The genus *Demanietta* was established by Bott (1966) as a subgenus of *Ranguna* Bott, 1966, and was mainly characterised by a slender G1 with a neck-like subterminal segment, and a long tapering terminal segment which has a well developed dorsal fold. With the synonymy of *Ranguna* Bott, 1966, with *Potamiscus* Alcock, 1909 (see earlier), the system of classification used by Bott (1970b) for the Indo-Chinese potamids (i.e. one genus *Ranguna*, with two subgenera - *Ranguna* sensu stricto and *Demanietta*) becomes uncertain. The genus *Ranguna* as conceived by Bott (1966, 1970b) is now regarded as a heterogenous assemblage, composed of several discrete genera (see Ng, 1988b, 1990, 1992a, b; present paper). The genus *Demanietta* is one of these groups, although the genus as understood here differs somewhat from that of Bott (1970b).

The type species of *Demanietta*, *Potamon* (*Potamon*) *manii* Rathbun, 1904, forms a distinct group of species which have completely aquatic habits, a flat carapace, the lateral regions being distinctly rugose or granulose, the anterolateral margin distinctly serrated or granulated, cristate, the epigastric and postorbital cristae separated by distinct deep notch, the epigastric cristae being distinctly anterior of the postorbital cristae, and the epibranchial tooth is distinct, although it may be blunt and low. To this group would belong *D. manii* (Rathbun, 1904), *D. merguensis* Bott, 1966, *D. smalleyi* Bott, 1966 (all described or recognised as subspecies of *D. tenasserimensis*), and *Ranguna tritrungensis* Naiyanetr, 1986 (see Remarks for *Demanietta tritrungensis* later). These species differ from typical *Potamon* in having distinctly broader, flatter carapaces and more obtusely triangular external orbital angles.

The other group of *Demanietta* species includes *Potamon* (*Potamonautes*) *tenasserimense* de Man, 1898, *Demanietta sirikit* Naiyanetr, 1992, and probably *Ranguna chantaburiensis* Chuensri, 1973 (see next paragraph). These are land crabs, with a very

inflated rounded carapace, the epigastric and postorbital cristae almost confluent, rounded but strong, reaching the anterolateral margin, the epibranchial tooth small and rounded, the frontal and postorbital regions narrow, the third maxilliped exopod with a long flagellum, and the G1 subterminal segment has a neck-like distal part, the terminal segment being slender and with a broad, low upper fold. These differences are such that a new genus should be established for these taxa, here named *Thaiphusa* gen. nov.

Ranguna (*Demanietta*) *tenasserimensis chantaburiensis* was described (as a subspecies) from one male and two females from Pong Nam Ron, Chantaburi Province (Chuensri, 1973). The second author examined the type male (35.8 by 27.6 mm), and a figure of its G1 is appended (figs. 18B, 19B). The type specimens, supposedly deposited in the Kasetsart University Museum (under numbers KUMF 2-003, 2004, fide Chuensri, 1974), are now lost (Chuensri, pers. comm. to second author). The carapace and G1 features of this species strongly suggest that it be classified in *Thaiphusa* as defined at present.

Thaiphusa sirikit (Naiyanetr, 1992)
(figs. 22, 56)

Ranguna tenasserimensis; Naiyanetr, 1985b: no page number; 1986b: 19, 102-108, figs.; 1988b: 11, pl. 1 fig. 2, pl. 8 fig. 7 (nec de Man, 1898).
Demanietta sirikit Naiyanetr, 1992a: 113, pl. 1, fig. 1.

Material.— Holotype, ♂ (RMNH D 38758), Ban Nam Chon, Sai Yok District, Kanchanaburi Province, leg. P. Naiyanetr, 27.v.1985 (48.0 by 33.0 mm). Paratypes: 2 ♂♂, 1 ♀ (SMF), same data as holotype; 1 ♂, leg. S. Duangkhae, 13.x.1983; 6 ♂♂, 5 ♀♀ (CUMZ), leg. P. Naiyanetr, 21-22.xii.1985; 2 ♂♂, 5 ♀♀ (CUMZ), leg. P. Naiyanetr, 2.viii.1986; 13 ♂♂, 6 ♀♀ (CUMZ), 1 ♂ (ZRC 1991.1880) (46.5 by 32.0 mm), leg. P. Naiyanetr, 27-28.xi.1987. All specimens from Ban Nam Chon, Sai Yok District, Kanchanaburi Province.

Diagnosis.— Carapace transverse, very swollen transversely and longitudinally on all regions, regions poorly defined, dorsal surfaces smooth; pterygostomial and suborbital regions smooth, pterygostomial regions with numerous small, rounded, flattened granules; frontal and postorbital regions narrow; anterolateral margin convex, almost smooth, cristae very low, flattened, indistinct; epibranchial tooth blunt, not discernible from outer edge of postorbital cristae; frontal margin deflexed downwards; epigastric cristae slightly anterior of and confluent with postorbital cristae, not distinctly separated from each other; epigastric and postorbital cristae very distinct, edge rounded, latter confluent with epibranchial tooth and anterolateral margin. Exopod of third maxilliped with distinct flagellum, about half to two thirds width of merus; exopod with weak and low inner distal tooth. Outer surfaces of chelipeds smooth to gently rugose; fingers much longer than palm; in large males, fingers of larger chela strongly gaping. Ambulatory legs, especially dactylus, long. Suture between sternal segments 2 and 3 gently convex towards buccal cavity. Male abdomen reaches imaginary line joining anterior edges of cheliped bases; segment 7 longer than segment 6; lateral margins of segment 6 gently convex; lateral margins of segment 7 almost straight. G1 sinuous, slender, terminal segment long, 0.63 times length of subterminal segment, low and broad dorsal fold, fold 0.74 times length of

terminal segment, tip gently directed upwards; no distinct collar separating terminal and subterminal segments; distal half of subterminal segment very slender, appears neck-like. G2 with distal segment 0.67 times length of basal segment.

Remarks.— This species had been referred to *Ranguna tenasserimensis* (de Man, 1898) by Naiyanetr (1985b, 1986b, 1988b) but was recently identified as a new species by Naiyanetr (1992a). The present remarks here are intended to augment the description in Naiyanetr (1992a), provide comparisons with its most closely allied species, *T. tenasserimensis* (de Man, 1898). The G1, G2 and third maxilliped of the poorly known *T. tenasserimensis* is also figured.

There are one male and one female topotypic specimens of *Potamon* (*Potamonautes*) *tenasserimense* de Man, 1898, from Thagata, Mt. Mooleyit (Tenasserim, Burma) in the ZRC (labelled as cotypes), and these were compared with *T. sirikit*. The specimens of *T. tenasserimensis* agree well with the descriptions and figures by de Man (1898: 47-54, pl. 6 fig. 11) and there is no doubt as regards their conspecificity. The G1 is figured here (fig. 57).

Comparisons of *T. sirikit* with the topotypic material of *T. tenasserimensis* sensu stricto reveal the following differences - the branchial regions of *T. sirikit* are more swollen and bulges more distinctly anterior, the epigastric and postorbital cristae are stronger and more developed, the G1 terminal segment is longer and more setose (0.67 against 0.48, ratio of terminal to subterminal segment), the G1 subterminal segment has the broad proximal part gradually narrowing towards the very slender and neck-like distal part, the distal part being slightly longer or subequal in length to the proximal part (in *T. tenasserimensis*, the narrowing of the broad proximal part of the subterminal segment towards the slender, neck-like distal part is more abrupt, the junction between the two segments forming a distinct L-shaped cleft, and the distal part is only about 0.53 times the length of the proximal part).

Thaiphusa sirikit is a terrestrial species, digging deep burrows in the forest floor. The species is known locally as "Pu Pa" or land crab. The colour patterns of the species are very striking, the median part of the carapace being dark blue, the branchial regions and lateral parts of the carapace white and the ambulatory legs bright red. Excellent colour photographs of this species can be found in Naiyanetr (1986b, 1992b).

Demanietta Bott, 1966

Ranguna (*Demanietta*) Bott, 1966: 99 (type species: *Potamon* (*Potamon*) *manii* Rathbun, 1904, by original designation).

Demanietta tritrungensis (Naiyanetr, 1986) (figs. 23, 58)

Ranguna tritrungensis Naiyanetr, 1986a: 11-1, fig. 1; 1987b: 80; 1988b: 8, pl. 5 fig. 5.

Material.— Holotype, ♂ (CUMZ), Tham Tharn Lod Waterfall, Bo Phloi District, Kanchanaburi Province, leg. P. Naiyanetr, 21.v.1977 (42.0 by 30.0 mm). Paratype: 1 ♂ (ZRC 1991.1857) (37.7 by 28.0 mm), same data as holotype. Others: 1 ♂, 1 ♀ (RMNH D 41622), 4 ♂♂, 4 ♀♀ (CUMZ), 1 ♀ (ZRC 1991.1858), same data as holotype.

Diagnosis.— Carapace distinctly broader than long, flat; epigastric and anterolateral regions rugose; frontal region gently rugose; anterolateral margin strongly convex, cristate, gently serrated by small blunt granules; epibranchial tooth low but discernible; external orbital angle very broadly triangular, outer margin about 3 times length of inner margin; frontal margin deflexed downwards, very sinuous; epigastric cristae distinct but not sharp, rugose, separated by distinct Y-shaped groove; epigastric cristae slightly anterior of postorbital cristae, separated by distinct groove. Third maxilliped with flagellum longer than width of merus. Outer surfaces of chelipeds strongly rugose, fingers longer than palm; carpus with strong, sharp inner distal spine, with sharp basal granule. Meri of ambulatory legs gently serrated, second pair longest. Suture between sternal segments 2 and 3 straight. Male abdomen triangular, segment 7 longer than segment 6, reaching imaginary line connecting anterior edges of cheliped bases, lateral margins almost straight or gently concave, lateral margins of segment 6 convex. G1 gently sinuous, terminal segment slender, sinuous, 0.57 times length of subterminal segment, tip distinctly curves upwards, dorsal fold very broad, high, 0.57 times length of terminal segment, tip sharp; distal part of subterminal segment narrow, neck-like, collar separating segments indistinct. G2 distal segment 0.57 times length of basal segment.

Remarks.— This species was diagnosed and figured in the original publication. The type series was specified as two specimens only, the male holotype and a male paratype, from Amphoe Si Sawat, Kanchanaburi Province on 21 May 1977 (Naiyanetr, 1986a). No depository was cited, although the size of the species was specified as 42 by 30 mm. The actual district should be Amphoe Bo Phloi, not Si Sawat. Which of the two type specimens was figured was not indicated. Naiyanetr (1987b) later stated the holotype (42 by 30 mm) to be in the CUMZ.

As already discussed earlier (see Remarks for genus *Thaiphusa* gen. nov.), *Ranguna tritrungense* should be referred to *Demanietta* sensu stricto instead.

Family **Gecarcinucidae** Rathbun, 1904
Phricotelphusa Alcock, 1909

Phricotelphusa Alcock, 1909: 377 (type species: *Telphusa callianira* de Man, 1887, by original designation).

Phricotelphusa ranongi Naiyanetr, 1982
(figs. 24, 59)

Phricotelphusa ranongi Naiyanetr, 1982: 3; 1988b: 10, pl. 7 fig. 3; Ng, 1986c: 273, fig. 2J-K; 1988b: 85.
Thricotelphusa ranongi; Naiyanetr, 1987b: 78.

Material.— Lectotype, ♂ (15.0 by 13.0 mm) (CUMZ), Boonyaban Waterfall, Muang Ranong District, Ranong Province, leg. P. Naiyanetr, 24.i.1981 (15.0 by 13.0 mm). Paralectotypes: 4 ♂♂, 3 ♀♀ (CUMZ), same data as lectotype. Others: 1 ♂, 1 ♀ (ZRC 1985.4388-4389) (♂ 18.3 by 14.9 mm), Bun Ya Barn Waterfall, Muang Ranong District, Ranong Province, leg. P.K.L. Ng & H.P. Ng, xii.1984; 6 ♂♂, 11 ♀♀ (ZRC 1985.1965-1981), 1 ♂, 1 ♀, (MZB), Bun Ya Barn Waterfall, Muang Ranong District, Ranong Province, leg. P.K.L. Ng & H.P. Ng, xii.1984; 8 ♂♂, 8 ♀♀, (ZRC 1985.4390-4405), Houw Waterfall, near Ranong town, Ranong Province, leg. P.K.L. Ng & H.P. Ng, xii.1984; 3 ♂♂, 1 ♀, (ZRC 1984.4408-4411), Su Wan Kiri Waterfall, Ranong Province, leg. P.K.L. Ng & H.P. Ng, xii.1984.

Diagnosis.— Carapace appears squarish, dorsal surfaces smooth; posterolateral region lined with weak oblique striae; anterolateral, pterygostomial, suborbital and sub-branchial regions smooth; front sharply deflexed downwards, edge of deflexion forming ridge-like structure, frontal margin appears entire from dorsal view; frontal region covered with numerous very small granules; anterolateral margin gently convex, smooth, slightly cristate, not clearly separated from posterolateral margin; epibranchial tooth low but distinct; external orbital angle broadly triangular, outer margin about 3 times length of inner margin; epigastric and postorbital cristae sharp, distinct; epigastric cristae low but sharp, separated from postorbital cristae by distinct oblique groove; postorbital cristae low, sharp, stops at beginning of cervical groove. Third maxilliped exopod extends beyond edge of merus, no flagellum present; merus with very faint medial ischial sulcus. Outer surfaces of chelipeds smooth; carpus with blunt inner distal spine. No suture between sternal segments 2 and 3. Male abdomen T-shaped, reaching imaginary line joining anterior edges of cheliped bases; segment 6 and 7 subequal in length; lateral margins of segment 6 almost straight; lateral margins of segment 7 gently concave. G1 gently sinuous, terminal segment cone-shaped, distal part covered with numerous very small scale-like spines, 0.31 times length of subterminal segment, tip truncate. G2 distal segment 0.42 times length of basal segment.

Etymology.— The name of the species, "*ranongi*", although named after the province and town of Ranong, is also referrable to a name of a well known person, and is to be used in that context.

Remarks.— Only the G1 of *Phricotelphusa ranongi* was diagnosed in Naiyanetr (1982), but the description is valid. The specimens (number not stated) originated from Boonyaban (= Bun Ya Barn) Waterfall, Changwat Ranong on 24 January 1981. No type designations were made or depository indicated. The species size was stated as 15.0 by 12.0 mm. Ng (1986c) partly redescribed the species, figuring its G1 for the first time. Naiyanetr (1987b) designated a holotype (15 by 13 mm, in the CUMZ), but this would make it a lectotypic designation at best as all the type specimens are syntypes.

Thaksinthelphusa gen. nov.

Type species: *Phricotelphusa yongchindaratae* Naiyanetr, 1988, designated herein.

Diagnosis.— Carapace much broader than long; anterolateral margin strongly convex; external orbital angle broadly triangular, outer margin almost 4 times length of inner margin; epigastric and postorbital cristae sharp, distinct; epigastric cristae distinctly anterior of, and confluent with, postorbital cristae. Third maxilliped ischium with undiscernible median sulcus. No visible suture between sternal segments 2 and 3. Male abdomen T-shaped, reaching imaginary line joining anterior edges of cheliped bases. G1 terminal segment 0.42 times length of subterminal segment. G2 distal segment 0.77 times length of basal segment.

Etymology.— The genus name is derived from the Thai word "thaksin" for south, in combination with the genus name *Thelphusa*, alluding to the southern Thai distribution of the type species. The gender is feminine.

Remarks.— The new genus is allied to *Phricotelphusa* but differs markedly in sev-

eral aspects, viz. the distinctly rectangular shape of the carapace, form of the epigastric and postorbital cristae (both are fused and confluent), undiscernible third maxilliped ischial median sulcus, and proportionately much longer G1 terminal segment and G2 distal segment. In all known *Phricotelphusa* species, the carapace is distinctly squarish, the epigastric and postorbital cristae are not fused and confluent, the third maxilliped ischial sulcus are shallow but visible, and the G1 terminal and G2 distal segments proportionately shorter.

Thaksinthelphusa yongchindaratae (Naiyanetr, 1988)
(figs. 25, 60)

Phricotelphusa yongchindaratae Naiyanetr, 1988a: 199; 1988b: 10, pl. 7 fig. 5; Ng, 1988b: 85.

Material.— Lectotype, ♂ (RMNH D 41629), Bang Phrik Waterfall, Takua Pa District, Phangnga Province, leg. Kalayanee Yongchindarat, 11.ix.1987 (17.7 by 13.2 mm). Paralectotypes: 1 ♂, 2 ♀♀ (ZRC 1991.1882, 1884), 7 ♂♂, 2 ♀♀ (CUMZ), same data as lectotype.

Diagnosis.— Carapace distinctly transverse, much broader than long, dorsal surfaces smooth; posterolateral region lined with oblique striae; pterygostomial, suborbital and sub-branchial regions smooth; frontal margin straight; anterolateral margin strongly convex, epibranchial tooth distinct; external orbital angle broadly triangular, outer margin almost 4 times length of inner margin; epigastric and postorbital cristae sharp, distinct; epigastric cristae distinctly anterior of and confluent with postorbital cristae. Third maxilliped exopod extends beyond edge of merus, no flagellum present; ischium with no discernible medial sulcus. Outer surfaces of chelipeds smooth; carpus with blunt inner distal spine. No suture between sternal segments 2 and 3. Male abdomen T-shaped, reaching imaginary line joining anterior edges of cheliped bases; segment 6 and 7 subequal in length; lateral margins of segment 6 slightly convex; lateral margins of segment 7 concave. G1 gently sinuous, almost straight, terminal segment cone-shaped, distal part covered with numerous very small scale-like spines, 0.42 times length of subterminal segment, tip appears truncate. G2 distal segment 0.77 times length of basal segment.

Etymology.— The species is named after its collector, Ms Kalayanee Yongchindarat.

Remarks.— The species was described very briefly (carapace only, without figures. The type locality was printed incorrectly as being "... Forest Park Ngao Waterfall, Amphoe Muang, Changwat Ranong, Thailand" (Naiyanetr, 1988a: 200). It should be corrected to read "Bang Phrik Waterfall, Amphoe Takua Pa, Changwat Phangnga". No type specimens were designated. All the specimens from this area examined up to 1988 would thus be syntypes.

Family **Parathelphusidae**
Somanniathelphusa Bott, 1968

Somanniathelphusa Bott, 1968: 407 (type species: *Parathelphusa sinensis* H. Milne Edwards, 1853, by original designation)

Remarks.— The genus *Somanniathelphusa* s. lato contains some 15 described species at the moment (Ng, 1988b), but will easily double in number in the coming years. Ng & Dudgeon (1992) described two species from Hong Kong and China, two others are being described here, whereas nine new species are currently being described by the second author. Several more new species are being described by the second author and Dai Ai Yun from China. The genus *Somanniathelphusa* is so diverse that it should be eventually divided into four separate genera (second author, in prep.).

For the seven species treated here, two, *S. maehongsonensis* Naiyanetr, 1987, and *S. bangkokensis* Naiyanetr, 1982, have well developed and sharp postorbital cristae which reach the anterolateral margins, and belong to one distinct group. They are also large species. The other five species, *S. fangensis* Naiyanetr, 1987, *S. denchaii* Naiyanetr, 1984, *S. nani* Naiyanetr, 1984, *S. phetchaburi* spec. nov., and *S. chiangmai* spec. nov., have weak postorbital cristae which do not extend beyond the beginning of the cervical grooves, which in some species, may be undiscernible.

Somanniathelphusa bangkokensis Naiyanetr, 1982
(figs. 26, 61)

Somanniathelphusa bangkokensis Naiyanetr, 1982: 3; 1987b: 76; 1988b: 3, pl. 2 fig. 1; Ng, 1988b: 105.

Material.— Lectotype, ♂ (CUMZ), Lat Phrao, Ket Huai Khwang, Bangkok Metropolis, leg. Punya, 20.xi.1972 (58.0 by 45.0 mm). Paralectotypes: 1 ♂, 2 ♀♀ (CUMZ), same data as lectotype. Others: 1 ♂, 1 ♀ (ZRC 1984.7707-7708), Uttaradit, ca. 100°06'N, 17°37'E, leg. P. Naiyanetr, 24.vii.1982; 4 ♂♂, 3 ♀♀ (ZRC 1989.2159-2165), 1 ♂, 1 ♀ (Bogor Museum), pond in Chulalongkorn University, Bangkok, Thailand, leg. P.K.L. Ng, 3.xii.1988.

Diagnosis.— Carapace transverse, surfaces smooth, inflated, epigastric cristae sharp, slightly anterior of postorbital cristae, separated by deep groove; epigastric and postorbital cristae disjunct, separated by shallow groove; postorbital cristae sharp, sinuous, curving to meet base of third epibranchial tooth; cervical groove distinct, broad, shallow; frontal margin sinuous, median part gently bending upwards. Third maxilliped with flagellum longer than width of merus. Chelipeds of male greatly asymmetrical, fingers longer than palm, fingers of larger chela strongly gaping in larger males; carpus with strong, sharp inner distal spine. Ambulatory merus with sharp subterminal spine. Suture between sternal segments 2 and 3 deeply concave towards buccal cavity. Male abdomen T-shaped, segment 6 equal in length to seventh segment, lateral margins of segment 7 straight or gently concave; lateral margins of segment 6 strongly concave, segment 7 reaching imaginary line connecting anterior edges of cheliped bases. G1 not sinuous, distal part straight, distalmost part slightly twisted, appears almost like a separate terminal segment; part of tip appears hooked downwards. G2 distal segment 0.11 times length of basal segment.

Etymology.— The species is named after the city of Bangkok, where the species seems to have its centre of distribution.

Remarks.— Only the G1 of this new species was diagnosed in Naiyanetr (1982), but the description makes the name valid. The species size was indicated as 58.0 by 45.0 mm, and the specimens (number not specified) were from Lat Phrao, Ket Huai Khwang, Bangkok Metropolis, collected on 20 November 1972. No type designations

were made or depository indicated. All the specimens from this locality are thus syntypes. Naiyanetr (1987b) identified a holotype (65 by 44 mm, in the CUMZ) for the species, but this is a lectotypic designation at best.

The present species is similar to *S. germaini* (Rathbun, 1902), but differs markedly in the form of the G1. In *S. germaini*, the slender distal part of the G1 is proportionately shorter, the tip is blunted (against a hook-like fold in *S. bangkokensis*) and the basal segment is more slender and less dilated.

Somanniathelphusa bangkokensis has a striking deep purple colour when they reach full adult sizes, although smaller individuals tend to be a dull brown. They are common in most bodies of slow-moving or stagnant waters, ponds etc. They have been introduced to the northwestern part of Thailand, in the Chiangmai area, by workers.

Somanniathelphusa maehongsonensis Naiyanetr, 1987
(figs. 27, 62)

Somanniathelphusa maehongsonensis Naiyanetr, 1978a: 84 (nomen nudum); 1978b: 4 (nomen nudum); 1978c: 28 (nomen nudum); 1980a: 50 (nomen nudum); 1987b: 75; 1988b: 4, pl. 2 fig. 3; Ng, 1988b: 105.

Material.— Holotype, ♂ (CUMZ), Khun Yuam District, Mae Hong Son Province, leg. police-officer, 28.x.1975 (23.0 by 19.0 mm). Paralectotypes: 2 ♂♂, 1 ♀ (ZRC 1991.1885) (largest ♂ 18.2 by 15.8 mm), 6 ♂♂, 7 ♀♀ (CUMZ), 2 ♂♂, 2 ♀♀ (SMF), same data as holotype; 1 ♂ (CUMZ), Muang Mae Hong Son District, Mae Hong Son Province, leg. school teacher, 23.ix.1974.

Diagnosis.— Carapace smooth, inflated; epigastric cristae sharp, separated by Y-shaped groove, anterior of postorbital cristae; postorbital cristae sharp, becoming indistinct as it approaches epibranchial teeth; separated from epigastric cristae by shallow, groove; cervical grooves broad and shallow; frontal margin sinuous. Third maxilliped with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 not complete, stopping just before edges, gently convex towards buccal cavity. Male abdomen T-shaped; segment 7 longer than length of segment 6; lateral margins of segment 6 concave, appears constricted; lateral margins of segment 7 convex. G1 sinuous, distinctly curving outwards, distal part slender, bent outwards sharply, appearing almost like a distinct terminal segment, almost straight except for laterally bent tip. G2 with very short distal segment, 0.18 times length of basal segment.

Etymology.— The species is named after the province in which it occurs, Changwat Mae Hong Son.

Remarks.— The original citation (Naiyanetr, 1978a) does not constitute a valid publication of the name used for this crab as neither a description nor figures were provided. Only the origin and date of collection of the new species was cited. The first valid use of the name "*maehongsongensis*" is in a catalogue by Naiyanetr (1987b) who described the G1 of the species. He also designated a holotype specimen (23 by 19 mm) in the CUMZ. As Naiyanetr (1987b) referred to his earlier publication (1978a), all his other material up to 1978 are thus paratypes.

Somanniathelphusa maehongsonensis is one of the smaller species in its groups of species (see remarks for genus), and its G1 is very different from all its congeners. The

distal part of the G1 is straight, and it is bent obliquely from the basal segment with a twist, so much so that a fold is formed, giving the appearance of a separate terminal segment being present. In *Somanniathelphusa* and its allies, the terminal and subterminal segments are normally not differentiated.

Somanniathelphusa fangensis Naiyanetr, 1987
(figs. 28, 63)

Somanniathelphusa fangensis Naiyanetr, 1978a: 84 (nomen nudum); 1978b: 4 (nomen nudum); 1978c: 28 (nomen nudum); 1980a: 50 (nomen nudum); 1987b: 75; 1988b: 4, pl. 2 fig. 7; Ng, 1988b: 105.

Material.— Holotype, ♂ (CUMZ), Fang District, Chiangmai Province, leg. Boonkiat, 10.v.1974 (32.0 by 25.0 mm). Paratypes: 18 ♂♂, 11 ♀♀ (CUMZ), same data as holotype. Others: 1 ♂, 1 ♀ (ZRC 1984.7711-7712) (♂ 28.3 by 21.8 mm), 17 ♂♂, 19 ♀♀ (CUMZ), Lampang Province, ca. 99°36'N, 18°17'E, leg. P. Naiyanetr, 28.vii.1984.

Diagnosis.— Carapace smooth, inflated; epigastric cristae not sharp but distinct, separated by Y-shaped groove, anterior of postorbital cristae; postorbital cristae very low, indistinct, not visible as it approaches epibranchial teeth; separated from epigastric by very shallow, faint groove; cervical grooves broad and shallow; frontal margin straight, median part bent slightly upwards. Third maxilliped with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 not complete, stopping just before edges, gently convex towards buccal cavity. Male abdomen T-shaped; segments 6 and 7 subequal in length; lateral margins of segment 6 very strongly concave, highly constricted, appears neck-like. G1 distal half almost straight, sharply curving outwards, tip sharp, margins lined with numerous backward pointing hair-like spines. G2 with very short distal segment.

Etymology.— The species is named after the district of Fang, where the species occurs.

Remarks.— The original citation (Naiyanetr, 1978a) does not constitute a valid publication of the name "*fangensis*" as neither a description nor figures were provided. Only the origin and date of collection of the new species was cited. The first valid use of the name "*fangensis*" is by Naiyanetr (1987b) who described the G1 of the species. A holotype for the species (32 by 25 mm, in the CUMZ) was also designated. As Naiyanetr (1987b) referred to his earlier publication (1978a), all his other material up to 1978 are thus paratypes.

Somanniathelphusa denchaii Naiyanetr, 1984
(figs. 29, 64)

Somanniathelphusa denchaii Naiyanetr, 1984c: 14; 1987b: 76; Ng, 1988b: 105.
Somnniathelphusa denchaii; Naiyanetr, 1988b: 4, pl. 2 fig. 4.

Material.— Lectotype, ♂ (CUMZ), Den Chai District, Phrae Province, collected by a farmer, 31.viii.1983 (44.0 by 35.0 mm). Paralectotypes: 5 ♂♂, 5 ♀♀ (CUMZ), same data as lectotype. Others: 1 ♂, 1 ♀ (ZRC 1984.7709-7710) (36.9 by 29.2 mm), Amphoe Den Chai, Phrae Province, ca. 99°12'N, 18°09'E, leg. P. Naiyanetr, 17.ix.1983.

Diagnosis.— Carapace smooth, inflated; epigastric cristae not sharp but distinct, separated by Y-shaped groove, anterior of postorbital cristae; postorbital cristae very low, indistinct, not visible near epibranchial teeth; separated from epigastric by very shallow, faint groove; cervical grooves broad and shallow; frontal margin straight, median part bent slightly upwards. Third maxilliped with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 not complete, stopping just before edges, gently convex towards buccal cavity. Male abdomen T-shaped; segment 7 slightly longer than segment 6; lateral margins of segment 6 strongly concave, highly constricted, appears neck-like. G1 sinuous, distal half distinctly curving outwards, tip sharp, sharply bent inwards, outer margin of basal part deeply incised, appears bilobed. G2 with very short distal segment, 0.10 times length of basal segment.

Etymology.— The species name is derived from the district the species occurs in, Amphoe Den Chai. The spelling is derived from the pronounciation of the district name "den-chai-i", and is used as a noun in apposition.

Remarks.— The species was diagnosed on the basis of its G1, and the dimensions (44.0 by 35.0 mm) specified. It was stated that the material was collected from Amphoe Den Chai, Changwat Phrae on 31 August 1983, but the number of specimens examined was not indicated. Neither was a holotype (44.0 by 35.0 mm, in the CUMZ) designated. All the specimens from this site are thus syntypes. Naiyanetr (1987b) named a holotype but as all the original material are syntypes, this would be only equivalent to a lectotype designation.

The G1 of *S. denchaii* is very characteristic, and is the only *Somanniathelphusa* species which has a distinct cleft on the outer margin of the dilated basal segment, giving it a "bilobed" appearance.

Somanniathelphusa nani Naiyanetr, 1984
(figs. 30, 65)

Somanniathelphusa nani Naiyanetr, 1984c: 14; 1987b: 77; 1988b: 5, pl. 2 fig. 8; Ng, 1988b: 105; Naiyanetr & Takeda, 1989: 116, fig. IV-11-1-3.

Material.— Lectotype, ♂ (CUMZ), Muang Nan District, Nan Province, leg. P. Naiyanetr, 24.iv.1983 (39.0 by 32.0 mm). Paralectotypes: 27 ♂♂, 67 ♀♀ (CUMZ), same data as lectotype. Others: 1 ♂, 1 ♀ (ZRC 1984.7715-7716) (♂ 31.9 by 25.1 mm), Muang Nan District, Nan Province, ca. 100°46'N, 18°46'E, leg. P. Naiyanetr, 23.xi.1983.

Diagnosis.— Carapace smooth, inflated; epigastric cristae not very sharp but distinct, separated by Y-shaped groove, anterior of postorbital cristae; postorbital cristae very low, indistinct, not visible as it approaches epibranchial teeth; separated from epigastric cristae by very shallow, faint groove; cervical grooves broad and shallow; frontal margin straight, median part bent slightly upwards. Third maxilliped with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 complete, almost straight. Male abdomen T-shaped; segment 7 longer than segment 6; lateral margins of segment 7 slightly concave; lateral margins of segment

6 strongly concave, highly constricted, appears neck-like. G1 distal segment distinctly recurved outwards and upwards with a slight twist; distal part strongly curved, distal part hooked. G2 with short flagellum, 0.12 times length of basal segment.

Etymology.— The species is named after a famous person in the area from whom the Province derives its name.

Remarks.— The species was diagnosed on the basis of its G1, and the size was given as 39.0 by 32.0 mm. It was stated that the material was collected from Amphoe Muang Nan, Changwat Nan on 24 April 1983, but the number of specimens examined was not indicated. Neither was a holotype designated. All the specimens from this locality are thus syntypes. The designation of a holotype by Naiyanetr (1987b) (39.0 by 32.0 mm, in CUMZ) is thus equivalent to naming a lectotype specimen.

Somanniathelphusa phetchaburi spec. nov.
(figs. 31, 66)

Somanniathelphusa sinensis dugasti; Bott, 1968: 409 (part); 1970a: 339 (part); 1970b: 112 (part) (nec Rathbun, 1902).

Somanniathelphusa dugasti; Naiyanetr, 1975: 23 (part); 1978b: 6 (part), fig. 5; 1978c: 27 (part); 1980a: 50 (part); 1980b: 25 (part); 1988b: 4 (part), pl. 2 fig. 3; Ng, 1988b: 105 (part); Naiyanetr & Takeda, 1989: 115 (part) (nec Rathbun, 1902).

Material.— Holotype, ♂ (ZRC 1991.1886), 2.3 km from Phetchaburi town (99°56'N, 13°06'E), Muang Phetchaburi District, Phetchaburi Province, leg. P.K.L. Ng, xii.1984 (33.8 by 26.5 mm). Paratypes: 1 ♀ (ZRC 1991.1887) (18.6 by 14.5 mm), same data as holotype; 1 ♂ (CUMZ), Muang Phetchaburi District, leg. Somboon, 26.xi.1973; 1 ♀ (CUMZ), Tha Yang District, Phetchaburi Province, leg. Suwat, no date; 6 ♂♂ (CUMZ), Ban Lat Province, Phetchaburi Province, leg. Pranom, 4.x.1979; 1 ♀ (CUMZ), Ban Laem District, Phetchaburi Province, leg. Manee, 8.x.1979. Others: 1 ♀ (USNM), Phetchaburi, leg. Seto Laboratory, vii.1964.

Diagnosis.— Carapace very smooth, inflated, highly convex transversely and longitudinally; epigastric cristae sharp, separated by shallow Y-shaped groove; postorbital cristae very weak, not discernible in larger specimens; postorbital region appearing almost smooth; cervical grooves indistinct, H-shaped depression very shallow; frontal margin gently sinuous; anterolateral margin convex, epibranchial teeth small; posterolateral margin convex, distinctly converging towards posterior margin of carapace. Third maxilliped exopod with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 incomplete, straight. Male abdomen T-shaped; segment 7 distinctly shorter than segment 6; lateral margins of segment 7 slightly concave; lateral margins of segment 6 strongly concave, proximal part much more narrow than distal part, highly constricted, appears neck-like. G1 distal segment straight along initial half, distinctly recurved, hook-like towards latter half, tip bent downwards. G2 with short flagellum, 0.10 times length of basal segment.

Etymology.— The species is named after the province it occurs in, Changwat Phetchaburi. The name is to be used as a noun in apposition.

Remarks.— This species had been identified with *Potamon* (*Parathelphusa*) *dugasti* Rathbun, 1902, from Laos by Bott (1968, 1970b) and Naiyanetr (1975, 1978b, c, 1980b,

1988b). The present specimens from various parts of central and southern Thailand appear to be different from Rathbun's species, especially with regards to the carapace morphology. The epigastric and postorbital cristae of *S. phetchaburi* are also much weaker and less well developed compared to those of *S. dugasti* sensu stricto and gives the animal a generally rounder, smoother appearance. The G1 of *S. phetchaburi* differs from that of *S. dugasti* in having the distal part distinctly longer, more sharply bent, the tip being longer, more distinctly tapered and sharper.

The postorbital cristae of this species are extremely weak, and in adult specimens, they are hardly discernible at all. In smaller specimens, the postorbital cristae appear, at best, as a indistinct, low, rounded ridge. The present species is similar to *P. chiangmai* (see remarks for next species).

The live colour of *S. phetchaburi* is beige to a pale dirty brown. The species occurs in stagnant pools of water in open areas with thick vegetation, including rice fields.

Somanniathelphusa chiangmai spec. nov.
(figs. 32, 67)

Somanniathelphusa sinensis dugasti; Bott, 1968: 409 (part); 1970a: 339 (part); 1970b: 112 (part) (nec Rathbun, 1902).

Somanniathelphusa dugasti; Naiyanetr, 1975: 23 (part); 1978b: 6 (part), fig. 5; 1978c: 27 (part); 1980a: 50 (part); 1980b: 25 (part); 1988b: 4 (part), pl. 2 fig. 3; Ng, 1988b: 105 (part); Naiyanetr & Takeda, 1989: 115 (part) (nec Rathbun, 1902).

Material examined.— Holotype, ♂ (RMNH D 42347), Buagcrok village, near Sonkampaeng, Muang Chiangmai District, Chiangmai Province, leg. by P.K.L. Ng, 29.xii.1991 (44.0 by 33.3 mm). Paratypes: 2 ♂♂, 5 ♀♀ (ZRC), 1 ♂, 1 ♀ (RMNH D 42028), Buagcrok village, near Sonkampaeng, Muang Chiangmai District; 8 ♂♂, 28 ♀♀ (ZRC), Sanpathong District; 10 ♂♂, 3 ♀♀ (ZRC), Handong District; 12 ♂♂, 5 ♀♀ (ZRC), Handong District; 12 ♂♂, 8 ♀♀ (ZRC), Mae Sa Village, Muang Chiangmai District. All localities in Chiangmai Province, leg. P.K.L. Ng, 28-29.xii.1991.

Diagnosis.— Carapace smooth, inflated, distinctly convex transversely and longitudinally; epigastric cristae sharp, separated by shallow Y-shaped groove; postorbital cristae rugose, low, but discernible, becoming indistinct on reaching beginning of cervical groove; cervical grooves indistinct, H-shaped depression shallow; frontal margin gently sinuous; anterolateral margin distinctly convex, epibranchial teeth small, directed forwards; posterolateral margin convex, distinctly converging towards posterior margin of carapace. Third maxilliped exopod with flagellum longer than width of merus. Chelipeds strongly asymmetrical in larger males; carpus with strong, sharp inner distal spine. Suture between sternal segments 2 and 3 incomplete, sinuous. Male abdomen T-shaped; segment 7 subequal in length to segment 6; lateral margins of segment 7 slightly concave; lateral margins of segment 6 strongly concave, proximal part more narrow than distal part, highly constricted, appears neck-like. G1 distal segment straight along initial half, distinctly recurved, hook-like and slightly twisted towards latter half, tip bent downwards and inwards; proximal part dilated, appears quadrate. G2 with short flagellum, 0.04 times length of rectangular basal segment.

Etymology.— The species name is derived from the Province in which it occurs, Changwat Chiangmai. The name is to be used as a noun in apposition.

Remarks.— *Somanniathelphusa chiangmai* spec. nov. is the most common parathelphusid in the Chiangmai area. The G1 of *S. chiangmai* is very similar to that of *S. phetchaburi*, but the distal part of *S. chiangmai* is more hooked and the tip is longer and sharper. The basal part of the G1 of *S. chiangmai* is also broader and more dilated. The carapace of both species are quite different. The postorbital cristae of *S. chiangmai* is rugose and low but distinct, whereas in *P. phetchaburi*, the postorbital cristae are very weak, and not easily discernible. In larger specimens of *S. chiangmai*, the postorbital cristae is so low and indistinct that the postorbital region appears almost completely smooth.

The colour of *S. chiangmai* changes as the animals increase in size, for both sexes. Smaller specimens up to 40 mm in carapace width are dull to dark brown whereas they become dark purple when they reach larger sizes. In this respect, *S. chiangmai* and *S. phetchaburi* also differ. *Somanniathelphusa phetchaburi* is beige in colour, and even larger specimens do not assume a purple coloration.

Somanniathelphusa chiangmai is common in ricefields as well as all areas with stagnant water. Large numbers are caught for food, and are sold live in the market. Caked in mud and kept cool, they are able to survive out of water for several days.

Heterothelphusa Ng & Lim, 1986

Heterothelphusa Ng & Lim, 1986: 97 (type species *Heterothelphusa insolita* Ng & Lim, 1986, by monotypy).

Heterothelphusa beauvoisi (Rathbun, 1902)
(figs. 33, 68)

Potamon (Parathelphusa) beauvoisi Rathbun, 1902: 185; 1905: 253, fig. 65, pl. 12 fig. 14.
Siamthelphusa phimaiensis Naiyanetr, 1978a: 84 (nomen nudum); 1978c: 29 (nomen nudum); 1980a: 50 (nomen nudum); Ng, 1988b: 102.
Siamthelphusa beauvaisi; Naiyanetr, 1988b: 6, pl. 3 fig. 6.
Siamthelphusa beauvoisi; Ng, 1988b: 102; Naiyanetr & Ng, 1990a: 235.

Material.— 1 ♂, 1 ♀ (ZRC 1991.1888) (♂ 17.2 by 14.3 mm), Saigham, Phimai District, Nakhon Ratchasima Province, leg. P. Naiyanetr, 29.xi.1974 (original types of "*Siamthelphusa phimaiensis*" nomen nudum).

Diagnosis.— Carapace squarish, surfaces smooth, flat; epigastric cristae sharp, separated by deep, narrow groove; postorbital cristae sharp, distinctly posterior of epigastric cristae, reaching bases of last epibranchial teeth; cervical grooves shallow, broad; H-shaped depression deep; frontal margin gently sinuous to almost straight; anterolateral margin shorter than posterolateral margin; epibranchial teeth well developed, sharp, first to third progressively larger, first two teeth two directly forwards, last tooth directed obliquely outwards; posterolateral margin almost straight to gently convex, gently converging towards posterior margin of carapace. Third maxilliped with flagellum longer than width of merus. Chelipeds strongly asymmetrical in adult males. Ambulatory legs slender, merus with distinct, sharp, subdistal dorsal spine. Suture between sternal segments 2 and 3 incomplete, deep, forming

distinct transverse furrow, gently convex towards buccal cavity. Male abdomen broadly T-shaped; segment 7 longer than segment 6; lateral margins of segment 7 almost straight, tip rounded; lateral margins of segment 6 straight, parallel. G1 stout, strongly curved inwards towards centre of sternum, distalmost part lined with numerous small, short, sharp spines. G2 with very short distal segment, 0.20 times length of elongate basal segment.

Remarks.— The original citation (Naiyanetr, 1978a) does not consitute a valid publication of the name "*Siamthelphusa phimaiensis*" as neither a description nor figures were provided. Only the origin of the new species was cited. No depository was indicated. The name is a nomen nudum and no attempt has been made to validate it here as it is our belief that what has been called *S. phimaiensis* is in fact conspecific with the poorly known *Potamon* (*Parathelphusa*) *beauvoisi* Rathbun (see also Naiyanetr & Ng, 1990a: 235). The types of *Potamon beauvoisi* had been examined by the second author and there are no substantial differences between *S. beauvoisi* and "*S. phimaiensis*".

The G1s of the *Potamon beauvoisi* species is very distinctive, being bent inwards, towards the sternum. All other *Siamthelphusa* species have straight G1s or are directed outwards. The G2 of *H. beauvoisi*, like that of the type species, *H. insolita*, also has a proportionately longer basal segment compared to members of the genus *Siamthelphusa*. The G1 and G2 of *P. beauvoisi* thus necessitate its classification in the genus *Heterothelphusa* Ng & Lim, 1986 (see Ng & Lim, 1986).

Rathbun (1905) changed the spelling of the species name from *P. beauvoisi* to *P. beauvaisi* noting that "Beauvoisi par erreur" (p. 253). This change in spelling is not valid as Rathbun (1902), in naming the species had clearly noted that it was named after M. Beauvois.

General remarks

The freshwater crab diversity fauna of Thailand is very high, and despite the many studies which have been done, the fauna is still poorly known. Including the new taxa described in the present paper, 63 species are known at present (38 Potamidae, seven Gecarcinucidae and 18 Parathelphusidae) (table 1) from Thailand.

Table 1. List of known Thai freshwater crab species

POTAMIDAE ORTMANN, 1896

Potamon Savigny, 1816
- *Potamon alcockianum* Kemp, 1923
- *Potamon smithianum* Kemp, 1923
- *Potamon phuluangense* (Bott, 1970)
- *Potamon yotdomense* (Naiyanetr, 1984)
- *Potamon boonyaratae* (Naiyanetr, 1987)
- *Potamon doisutep* Naiyanetr & Ng, 1990
- *Potamon doichiangdao* Naiyanetr & Ng, 1990
- *Potamon inornatum* Rathbun, 1904
- *Potamon kanchanaburiense* Naiyanetr, 1992
- *Potamon maesotense* Naiyanetr, 1992
- *Potamon phuphanense* Naiyanetr, 1992
- *Potamon erawanense* Naiyanetr, 1992

Potamon maehongsonense Naiyanetr, 1992
Potamon lipkei spec. nov.
Potamon nan spec. nov.
Potamon namlang spec. nov.
Potamon jarujini spec. nov.
Potamon maesariang spec. nov.
Potamon ubon spec. nov.
Potamon somchaii spec. nov.

Thaipotamon gen. nov.
Thaipotamon siamense (A Milne Edwards, 1869)
Thaipotamon smitinandi (Naiyanetr & Türkay, 1984)
Thaipotamon lomkao spec. nov.
Thaipotamon dansai spec. nov.
Thaipotamon varoonphornae spec. nov.

Kanpotamon gen. nov.
Kanpotamon duangkhaei spec. nov.

Demanietta Bott, 1966
Demanietta manii (Rathbun, 1904)
Demanietta smalleyi (Bott, 1966)
Demanietta tritrungensis (Naiyanetr, 1986)

Thaiphusa gen. nov
Thaiphusa chantaburiense (Chuensri, 1973)
Thaiphusa sirikit Naiyanetr, 1992

Dromothelphusa Naiyanetr, 1992
Dromothelphusa phrae (Naiyanetr, 1984)

Larnaudia Bott, 1966
Larnaudia larnaudii (A. Milne Edwards, 1869)
Larnaudia beusekomae (Bott, 1970)
Larnaudia chaiyaphumi Naiyanetr, 1982

Stoliczia Bott, 1966
Stoliczia panhai Ng & Naiyanetr, 1986
Stoliczia ekavibhathai Ng & Naiyanetr, 1986

Phaibulamon Ng, 1992
Phaibulamon stilipes Ng, 1992

GECARCINUCIDAE RATHBUN, 1904

Phricotelphusa Alcock, 1909
Phricotelphusa limula (Hilgendorf, 1882)
Phricotelphusa aedes (Kemp, 1923)
Phricotelphusa ranongi Naiyanetr, 1982
Phricotelphusa yongchindaratae Naiyanetr, 1988
Phricotelphusa deharvengi Ng,1988
Phricotelphusa sirindhorn Naiyanetr, 1988

Thaksinthelphusa gen. nov.
Thaksinthelphusa yongchindaratae (Naiyanetr, 1988)

PARATHELPHUSIDAE ALCOCK, 1910

Somanniathelphusa Bott, 1968
Somanniathelphusa dugasti (Rathbun, 1902)
Somanniathelphusa germaini (Rathbun, 1902)
Somanniathelphusa sexpunctata (Lanchester, 1906)
= *Somanniathelphusa juliae* Bott, 1968
Somanniathelphusa brandti Bott, 1968
Somanniathelphusa bangkokensis Naiyanetr, 1982
Somanniathelphusa denchaii Naiyanetr, 1984
Somanniathelphusa nani Naiyanetr, 1984
Somanniathelphusa maehongsonensis Naiyanetr, 1987
Somanniathelphusa fangensis Naiyanetr, 1987
Somanniathelphusa phetchaburi spec. nov.
Somanniathelphusa chiangmai spec. nov.

Heterothelphusa Ng & Lim, 1986
Heterothelphusa beauvoisi (Rathbun, 1902)

Mekhongthelphusa Naiyanetr, 1985
Mekhongthelphusa tetragona (Rathbun, 1902)

Siamthelphusa Bott, 1968
Siamthelphusa improvisa (Lanchester, 1901)
= *Siamthelphusa improvisa tweediei* Bott, 1968
Siamthelphusa paviei (de Man, 1898)
Siamthelphusa faxoni (Rathbun, 1902)
Siamthelphusa holthuisi Naiyanetr & Ng, 1991

Salangathelphusa Bott, 1968
Salangathelphusa brevicarinata (Hilgendorf, 1882)
= *Parathelphusa salangensis* Ortmann, 1896
= *Parathelphusa anophrys* Kemp, 1923

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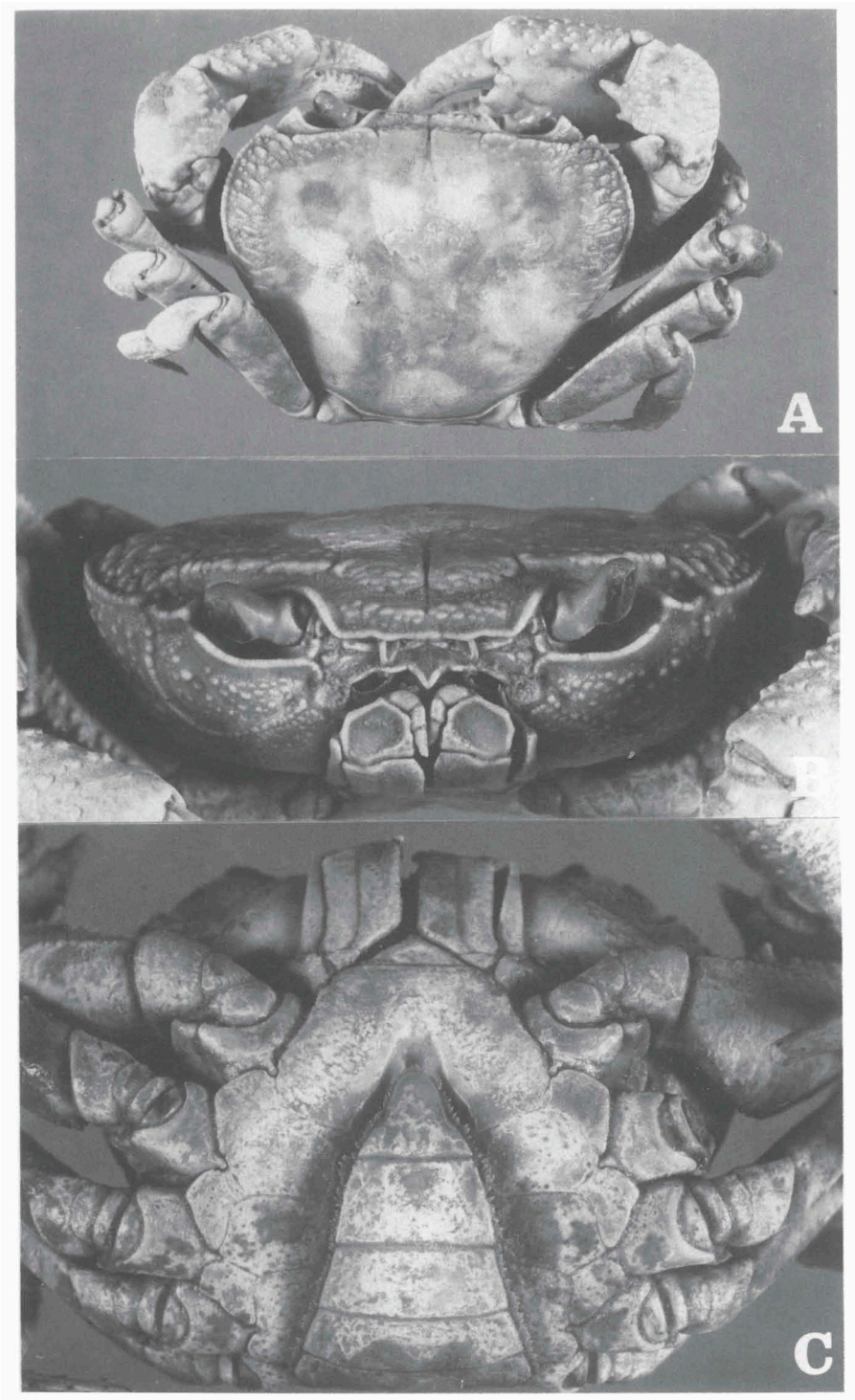

Fig. 1. *Potamon kanchanaburiense* Naiyanetr, 1992, holotype, ♂ (62.4 by 47.7 mm) (RMNH D 42352). A, dorsal view; B, frontal view; C, ventral view.

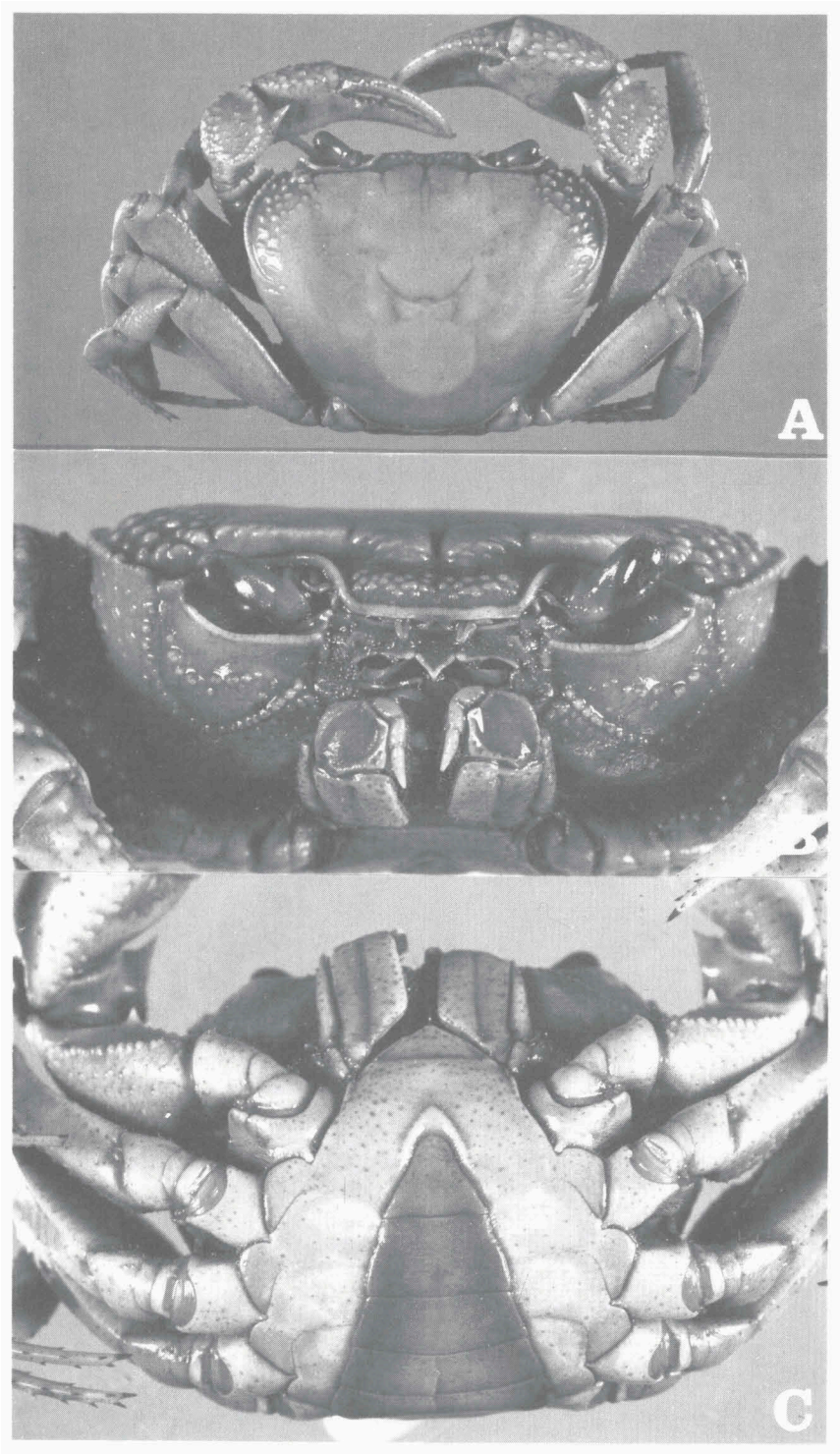

Fig. 2. *Potamon maesotense* Naiyanetr, 1992, holotype, ♂ (46.4 by 35.3 mm) (ZRC 1991.1836). A, dorsal view; B, frontal view; C, ventral view.

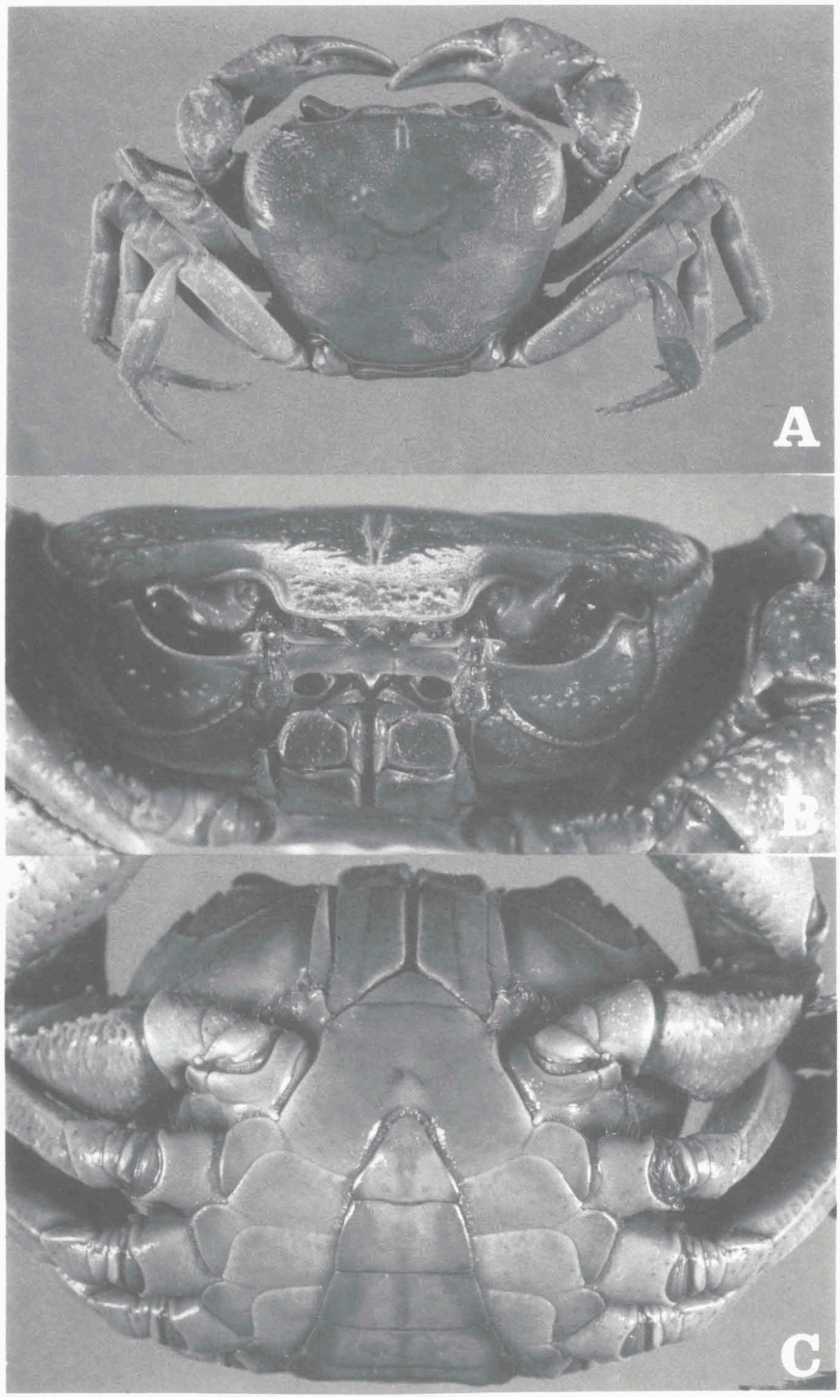

Fig. 3. *Potamon boonyaratae* (Naiyanetr, 1987), paratype, ♂ (46.1 by 37.2 mm) (ZRC 1991.1859). A, dorsal view; B, frontal view; C, ventral view.

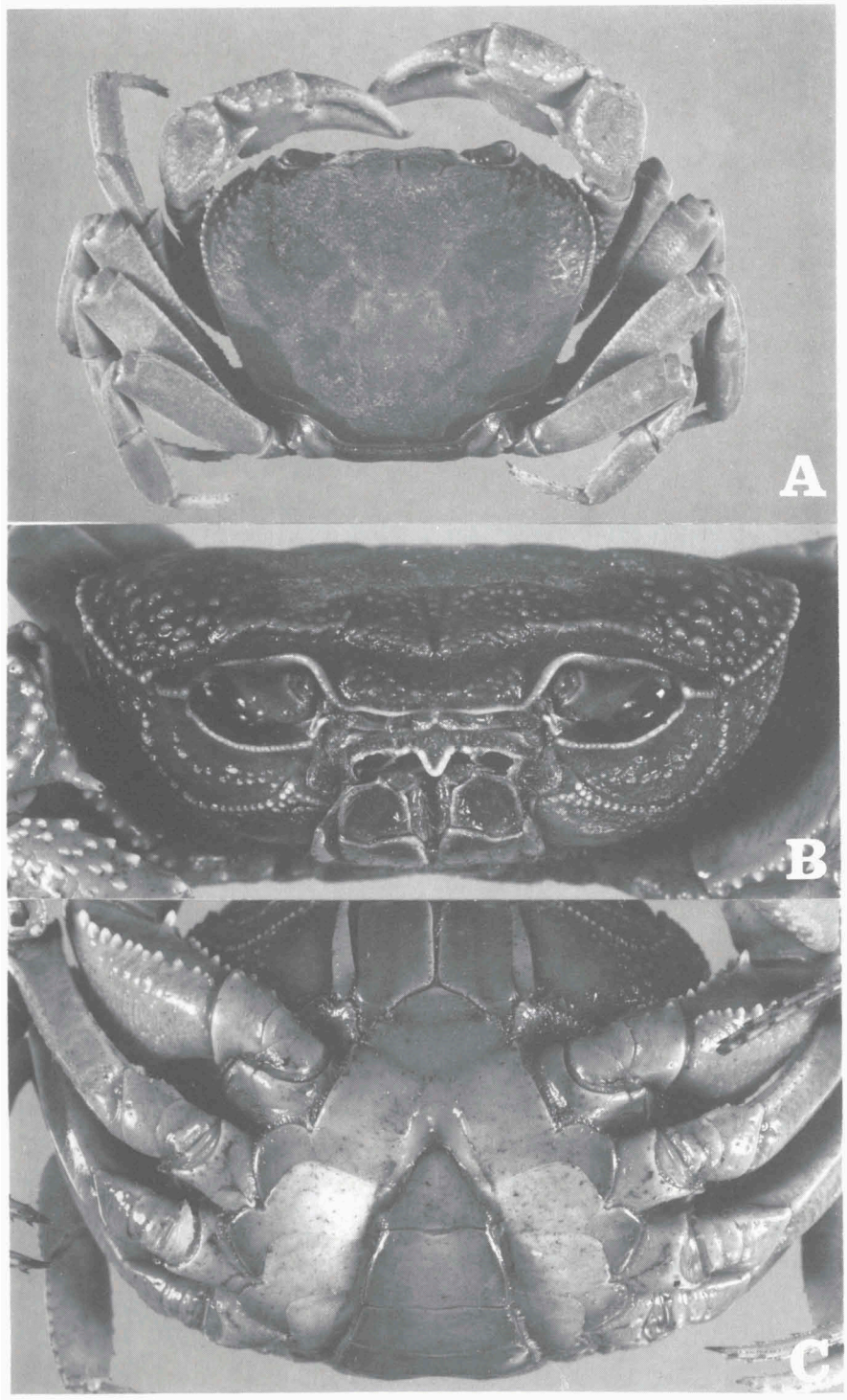

Fig. 4. *Potamon jarujini* spec. nov., holotype, ♂ (50.0 by 38.5 mm) (RMNH D 42344). A, dorsal view; B, frontal view; C, ventral view.

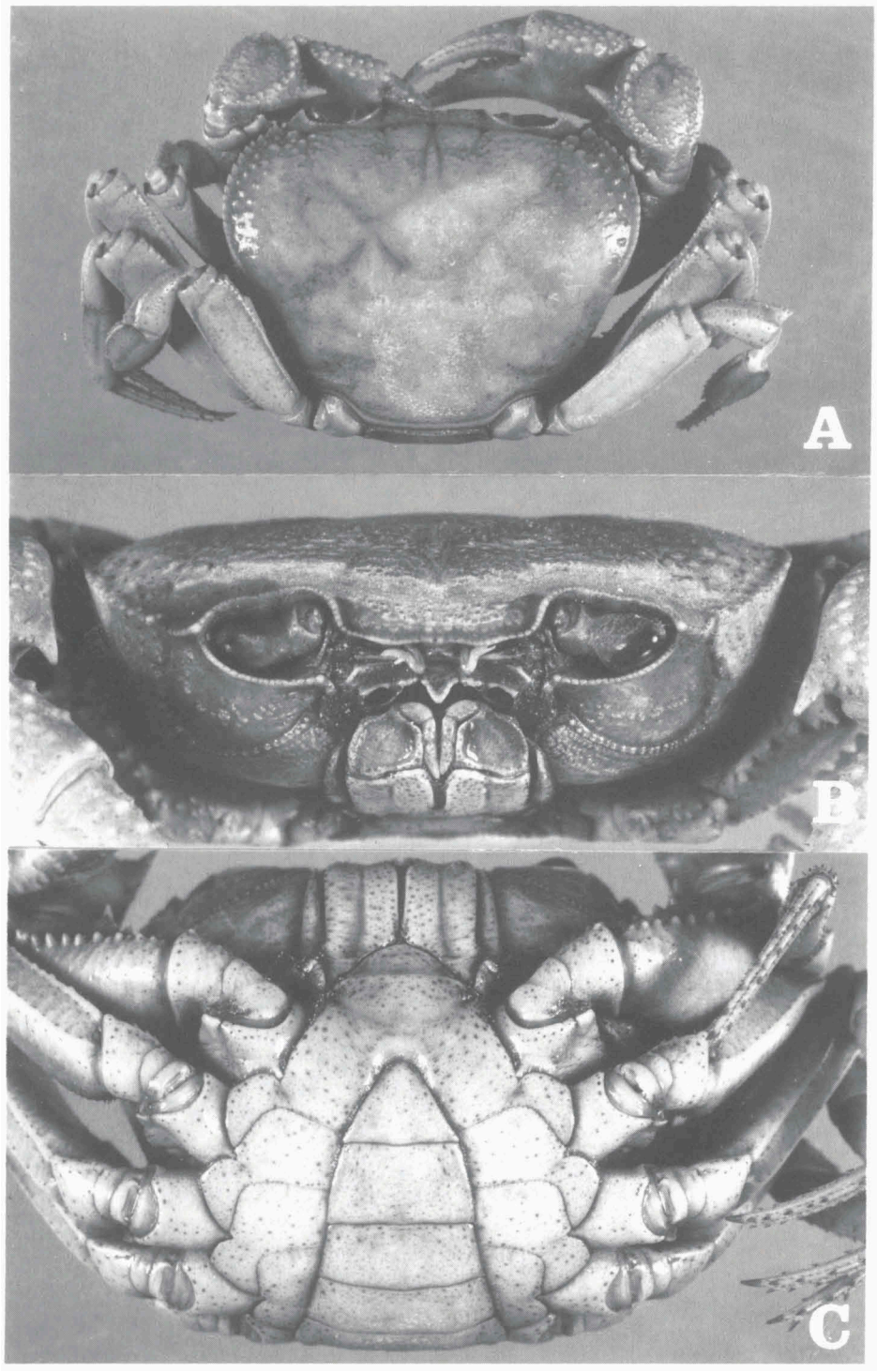

Fig. 5. *Potamon maesariang* spec. nov., holotype, ♂ (47.0 by 36.0 mm) (RMNH D 42343). A, dorsal view; B, frontal view; C, ventral view.

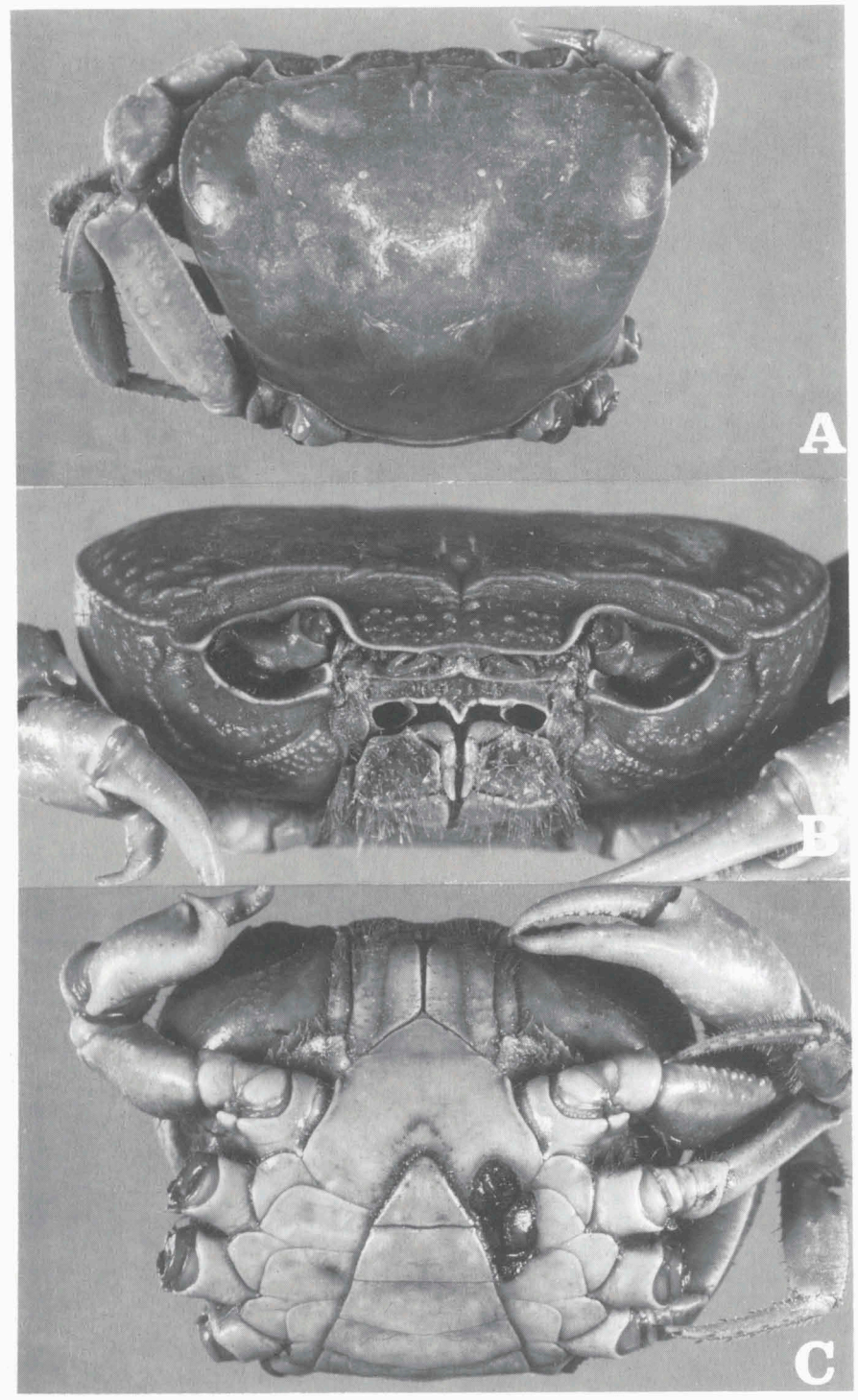

Fig. 6. *Potamon ubon* spec. nov., holotype, ♂ (49.0 by 39.0 mm) (RMNH D 42349). A, dorsal view; B, frontal view; C, ventral view.

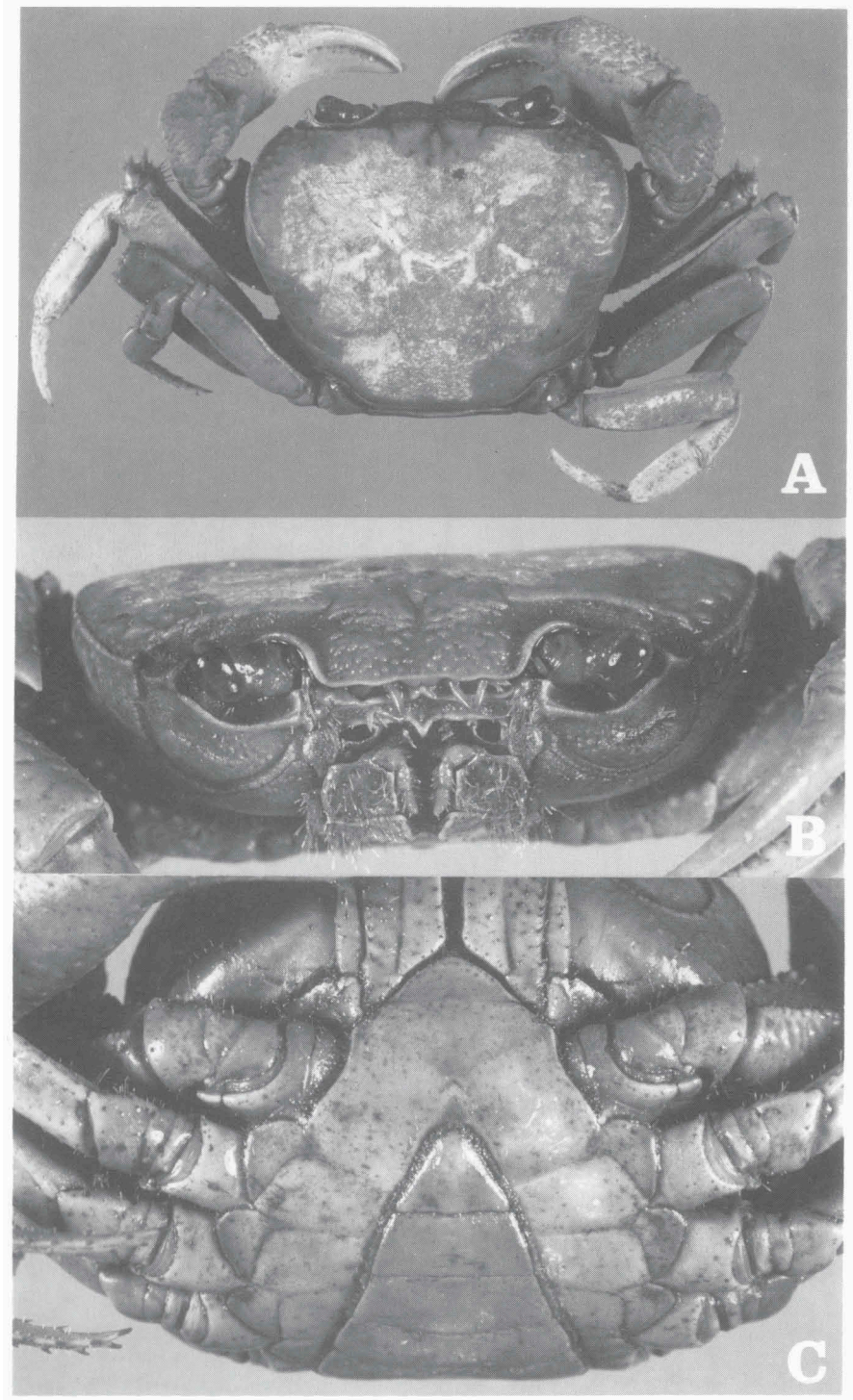

Fig. 7. *Potamon somchaii* spec. nov., holotype, ♂ (46.8 by 37.5 mm) (RMNH D 42350). A, dorsal view; B, frontal view; C, ventral view.

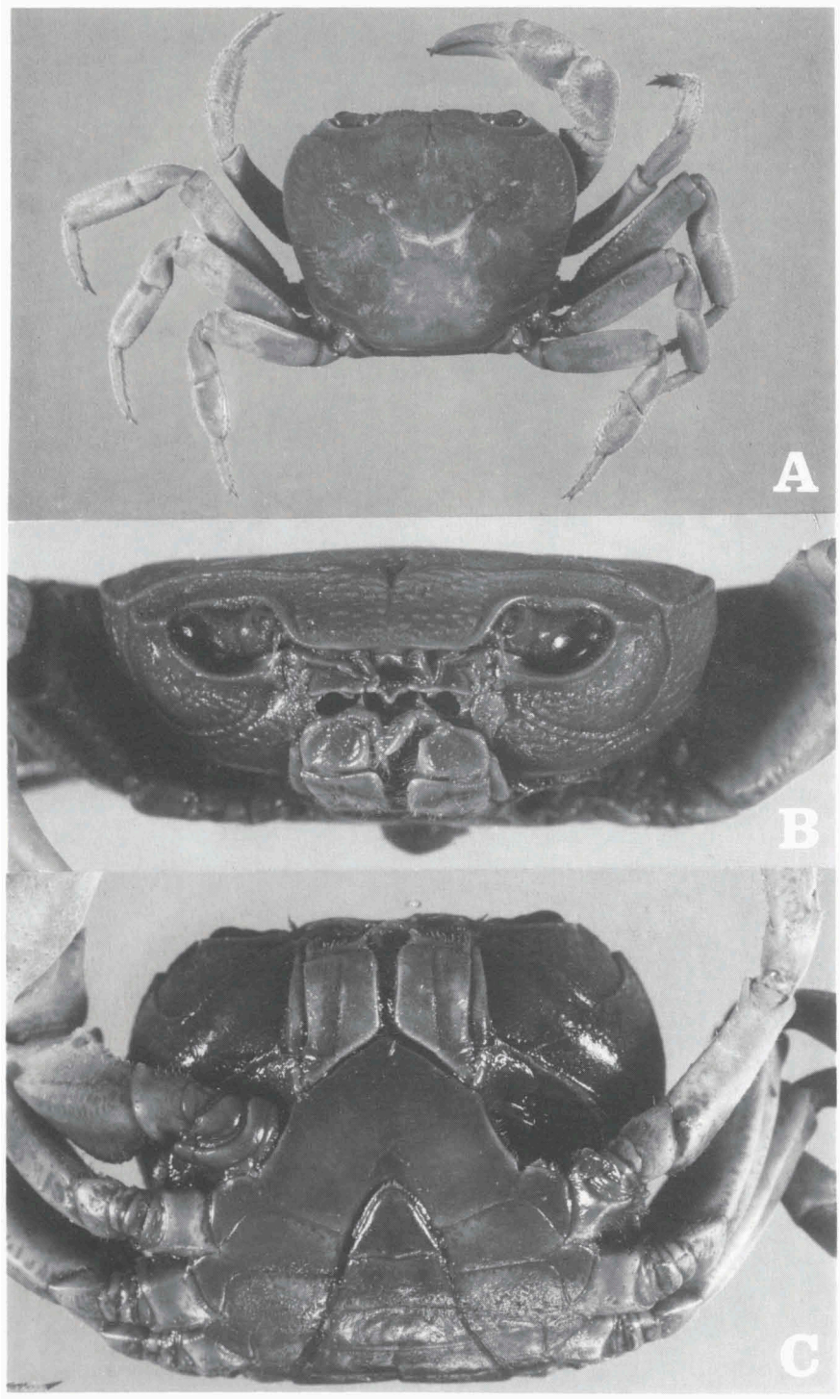

Fig. 8. *Potamon phuphanense* Naiyanetr, 1992, holotype, ♂ (32.6 by 26.5 mm) (ZRC 1991.1839). A, dorsal view; B, frontal view; C, ventral view.

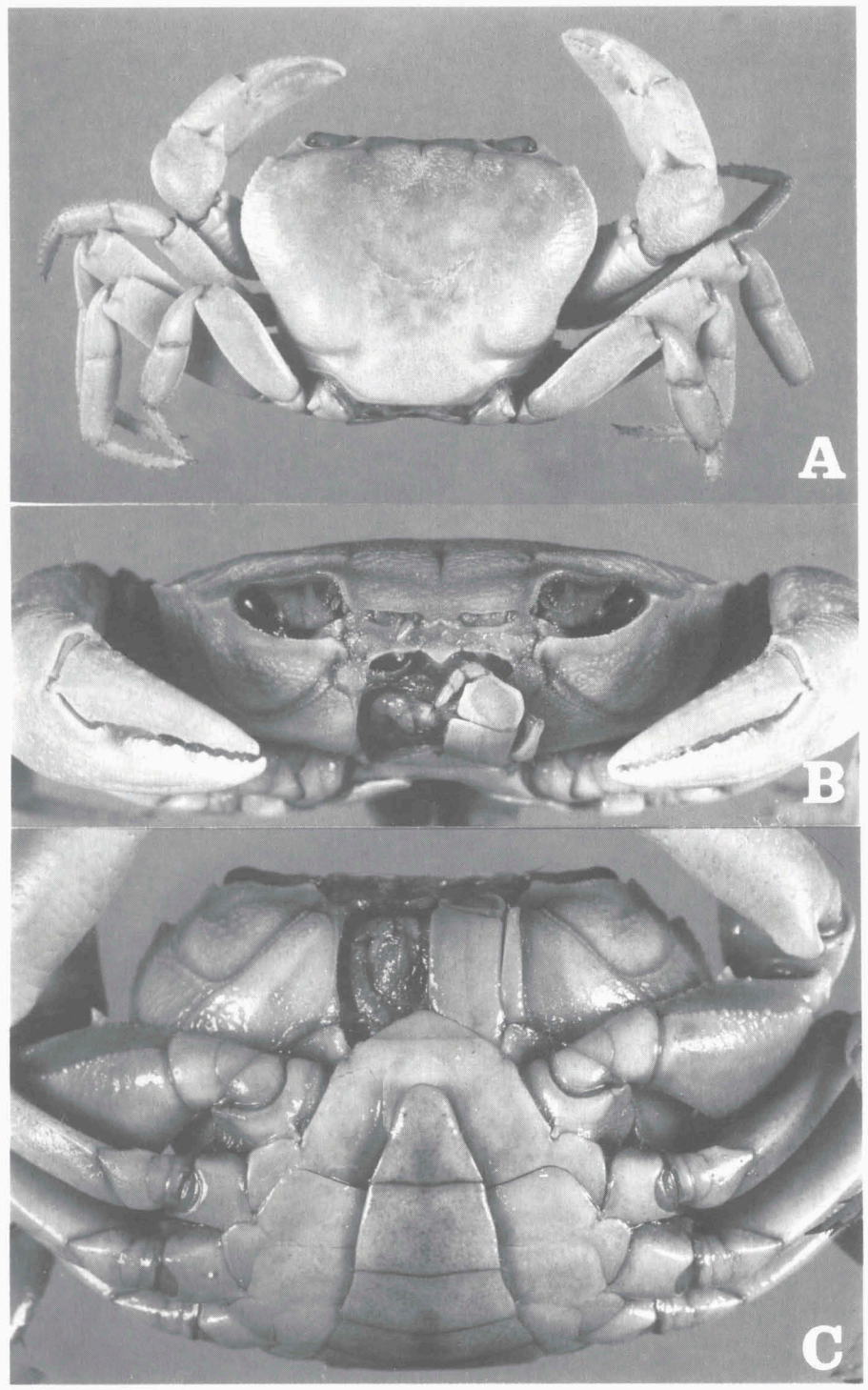

Fig. 9. *Potamon erawanense* Naiyanetr, 1992, holotype, ♂ (34.0 by 25.3 mm) (ZRC 1991.1843). A, dorsal view; B, frontal view; C, ventral view.

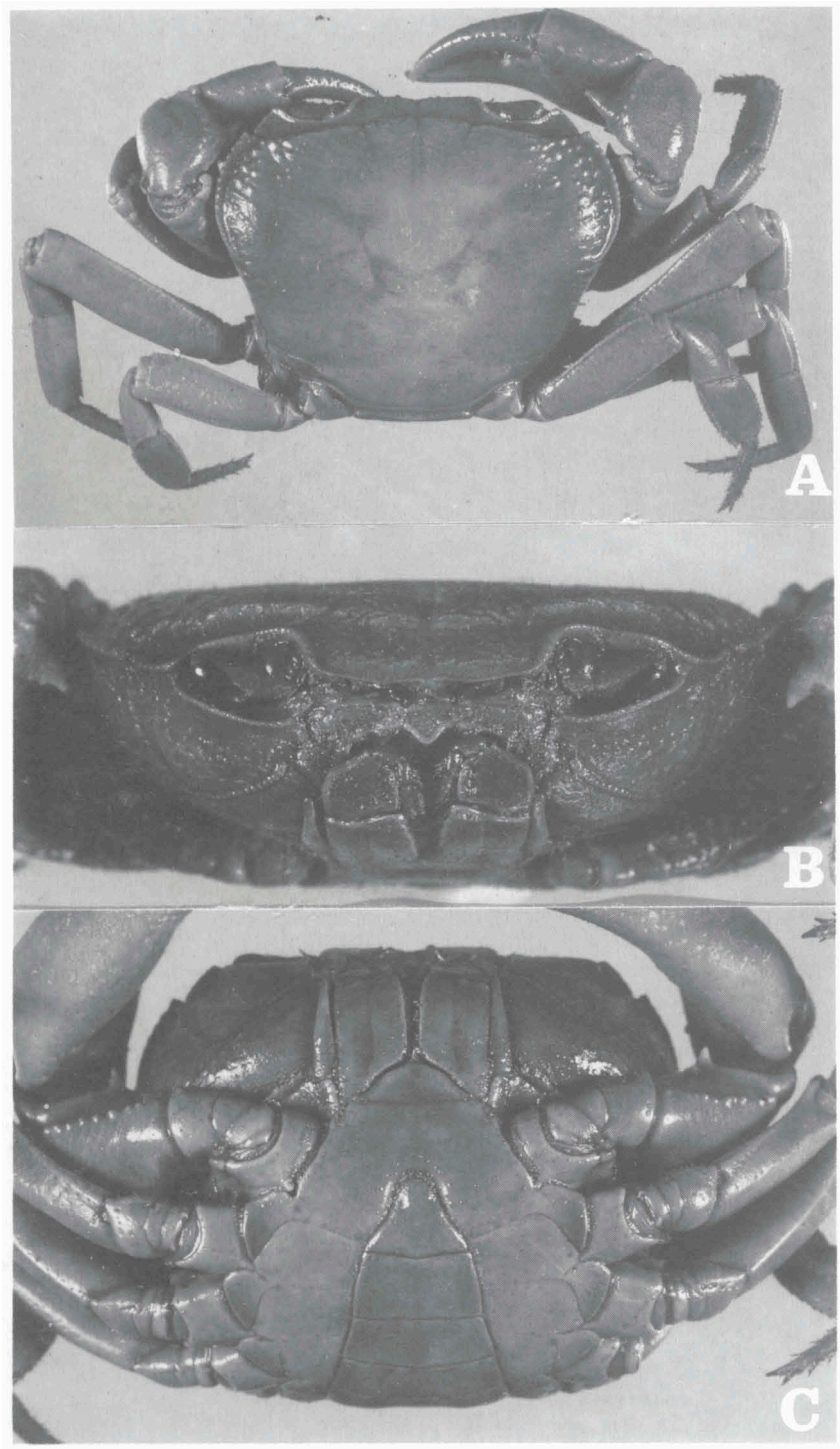

Fig. 10. *Potamon maehongsonense* Naiyanetr, 1992, holotype, ♂ (39.0 by 30.2 mm) (ZRC 1991.1847). A, dorsal view; B, frontal view; C, ventral view.

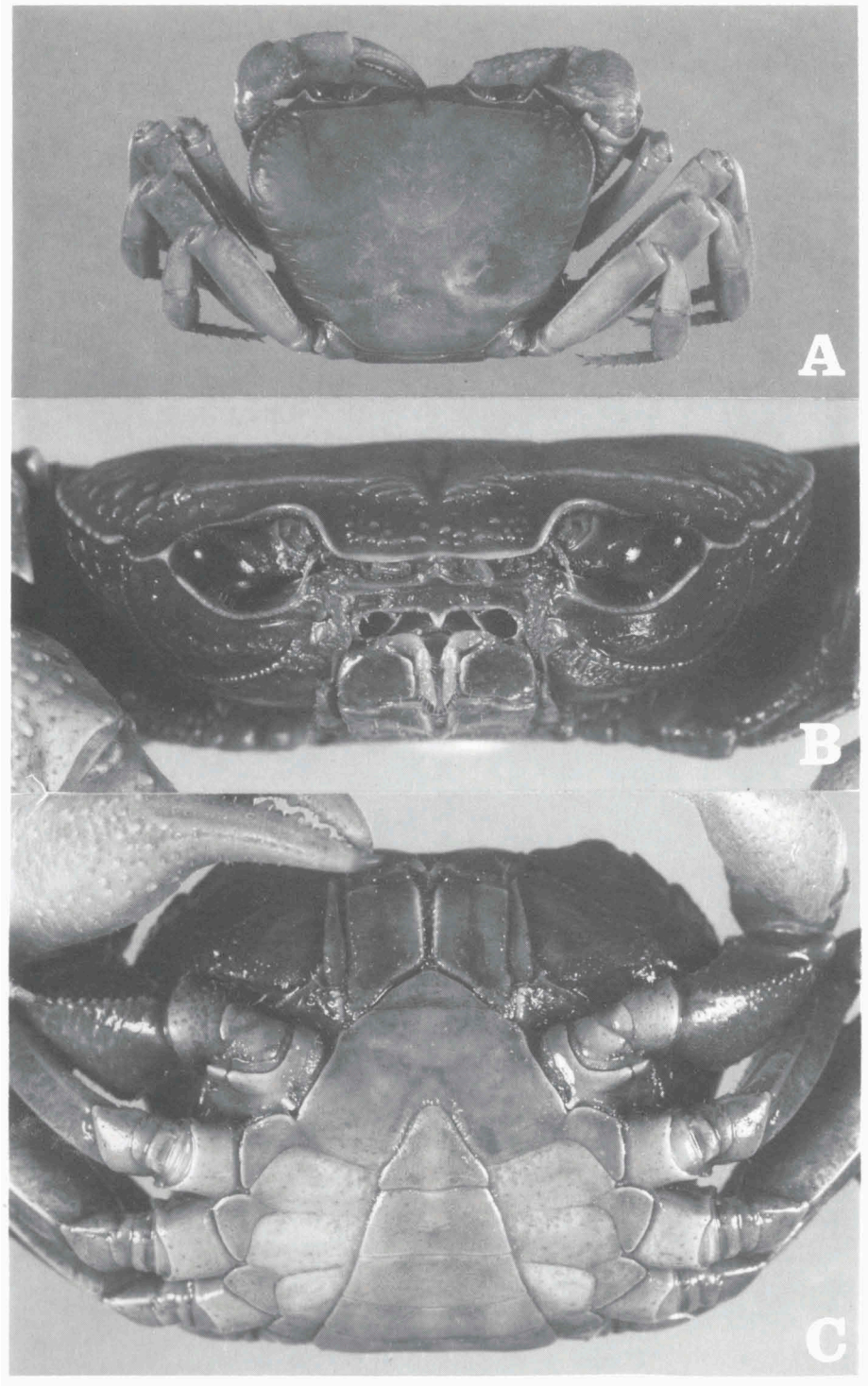

Fig. 11. *Potamon yotdomense* (Naiyanetr, 1984), paratype, ♂ (42.8 by 32.9 mm) (ZRC 1991.1850). A, dorsal view; B, frontal view; C, ventral view.

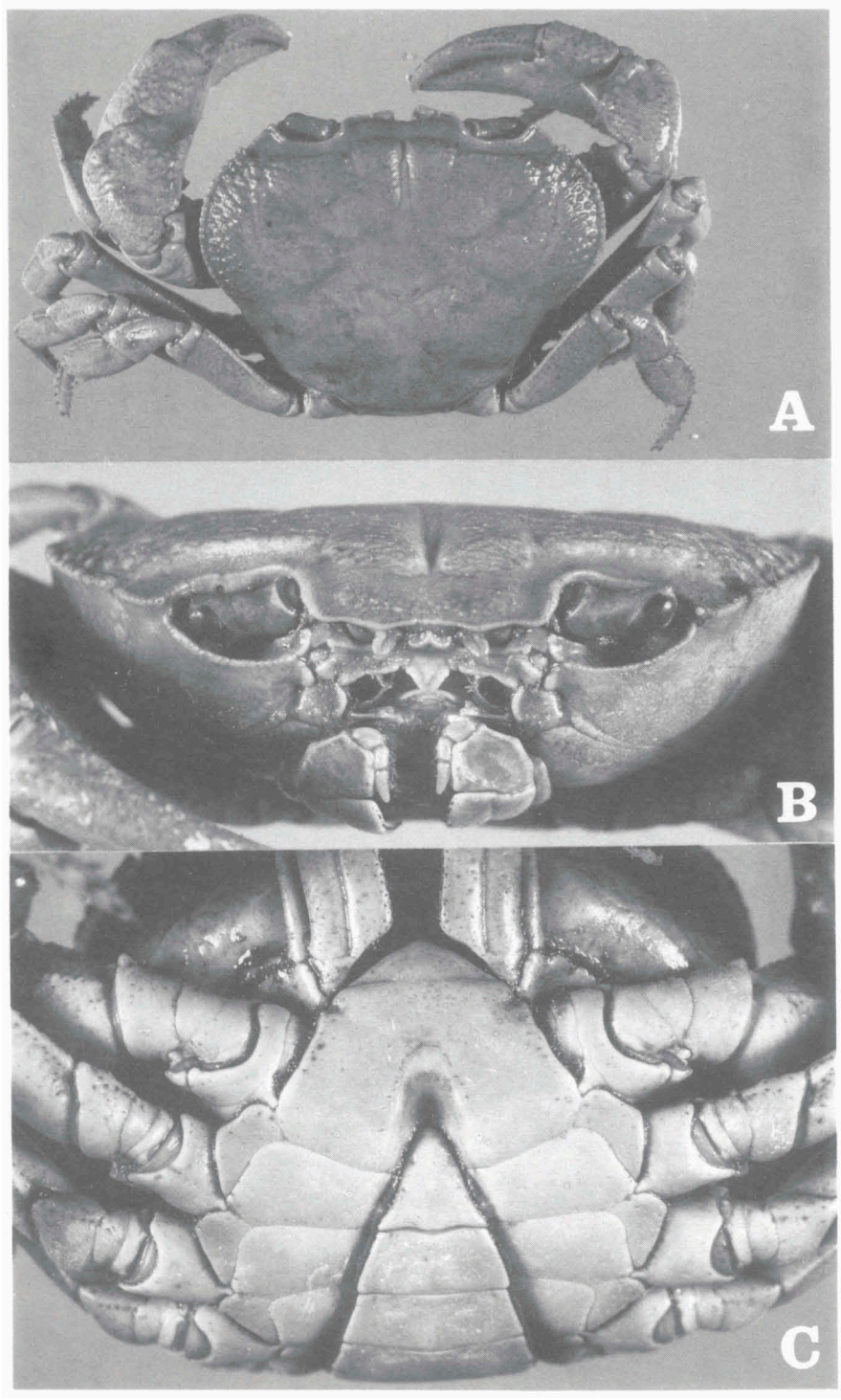

Fig. 12. *Potamon lipkei* spec. nov., holotype, ♂ (56.8 by 42.8 mm) (RMNH D 42353). A, dorsal view; B, frontal view; C, ventral view.

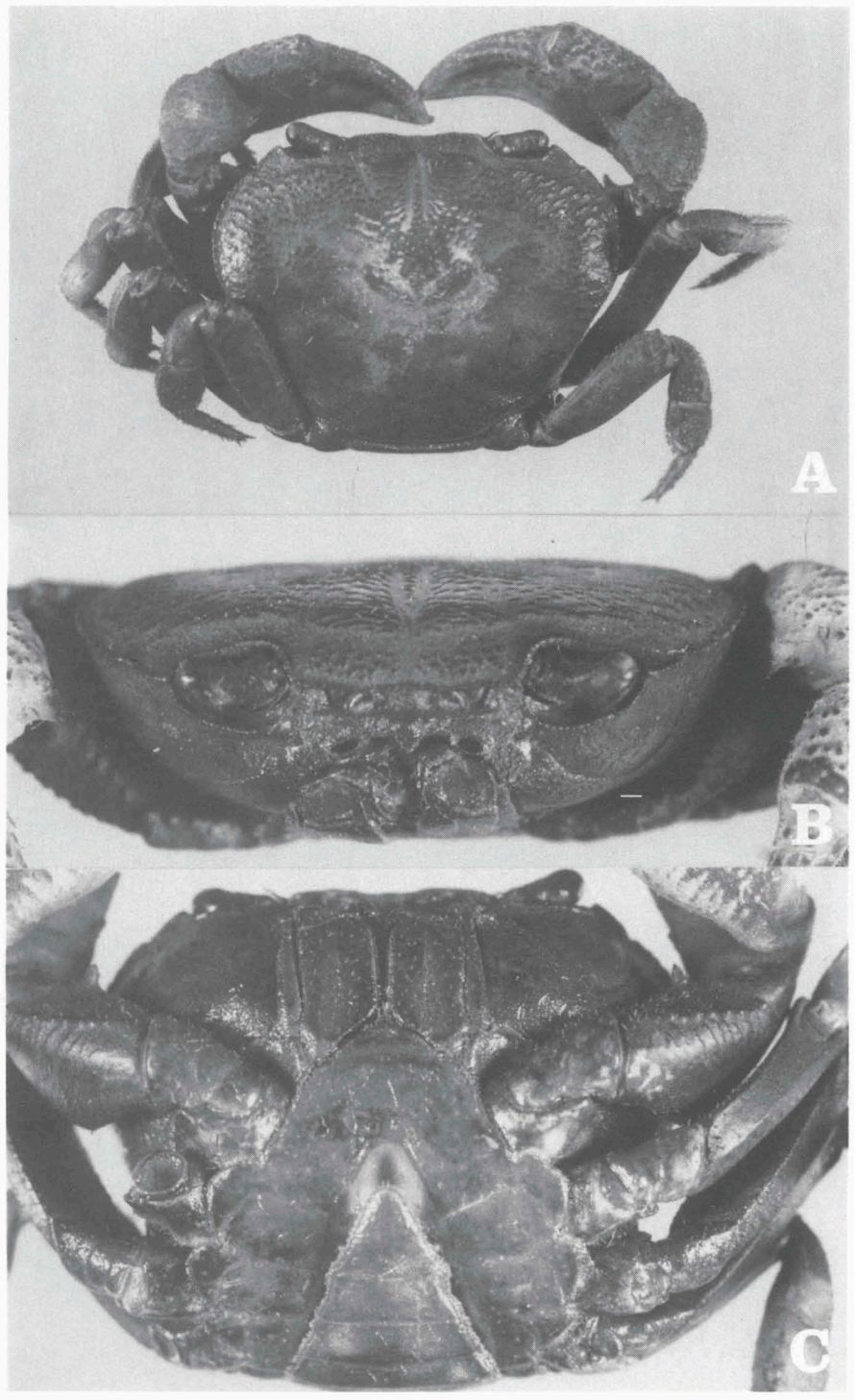

Fig. 13. *Potamon nan* spec. nov., holotype, ♂ (35.6 by 27.2 mm) (RMNH D 42345). A, dorsal view; B, frontal view; C, ventral view.

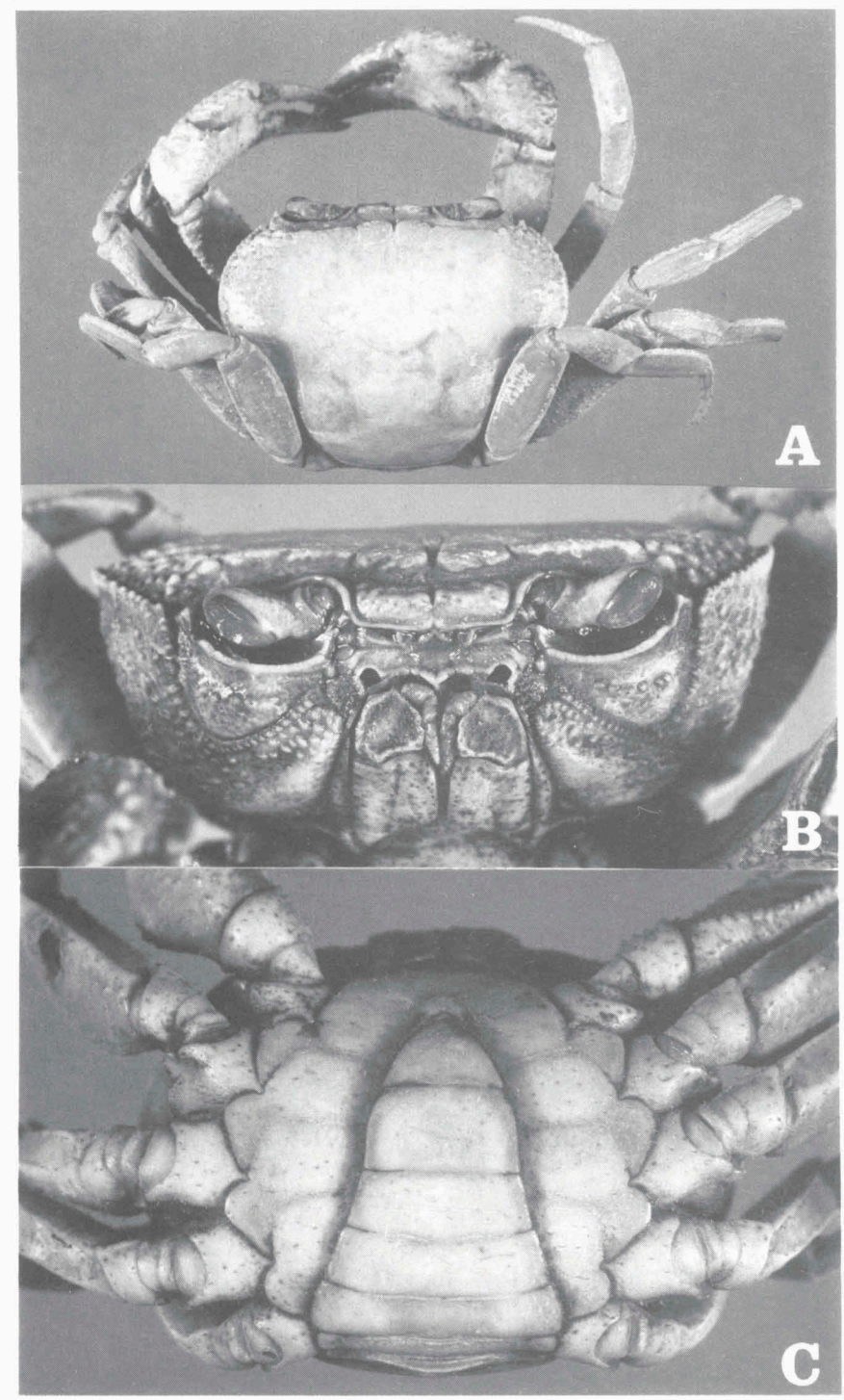

Fig. 14. *Dromothelphusa phrae* (Naiyanetr, 1984), paratype, ♂ (52.3 by 41.2 mm) (ZRC 1991.1868). A, dorsal view; B, frontal view; C, ventral view.

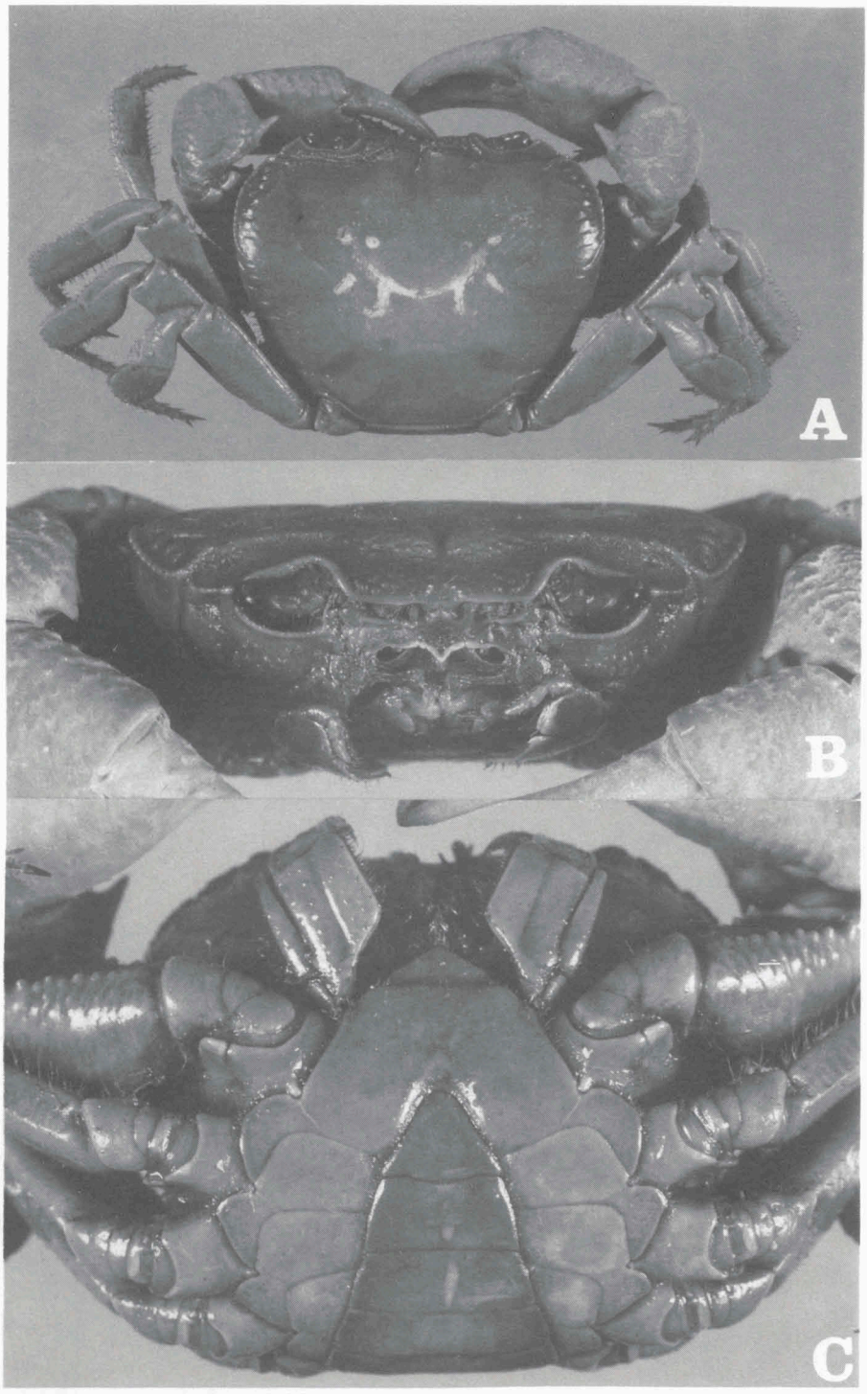

Fig. 15. *Larnaudia chaiyaphumi* Naiyanetr, 1982, paralectotype, ♂ (42.4 by 33.4 mm) (ZRC 1991.1871). A, dorsal view; B, frontal view; C, ventral view.

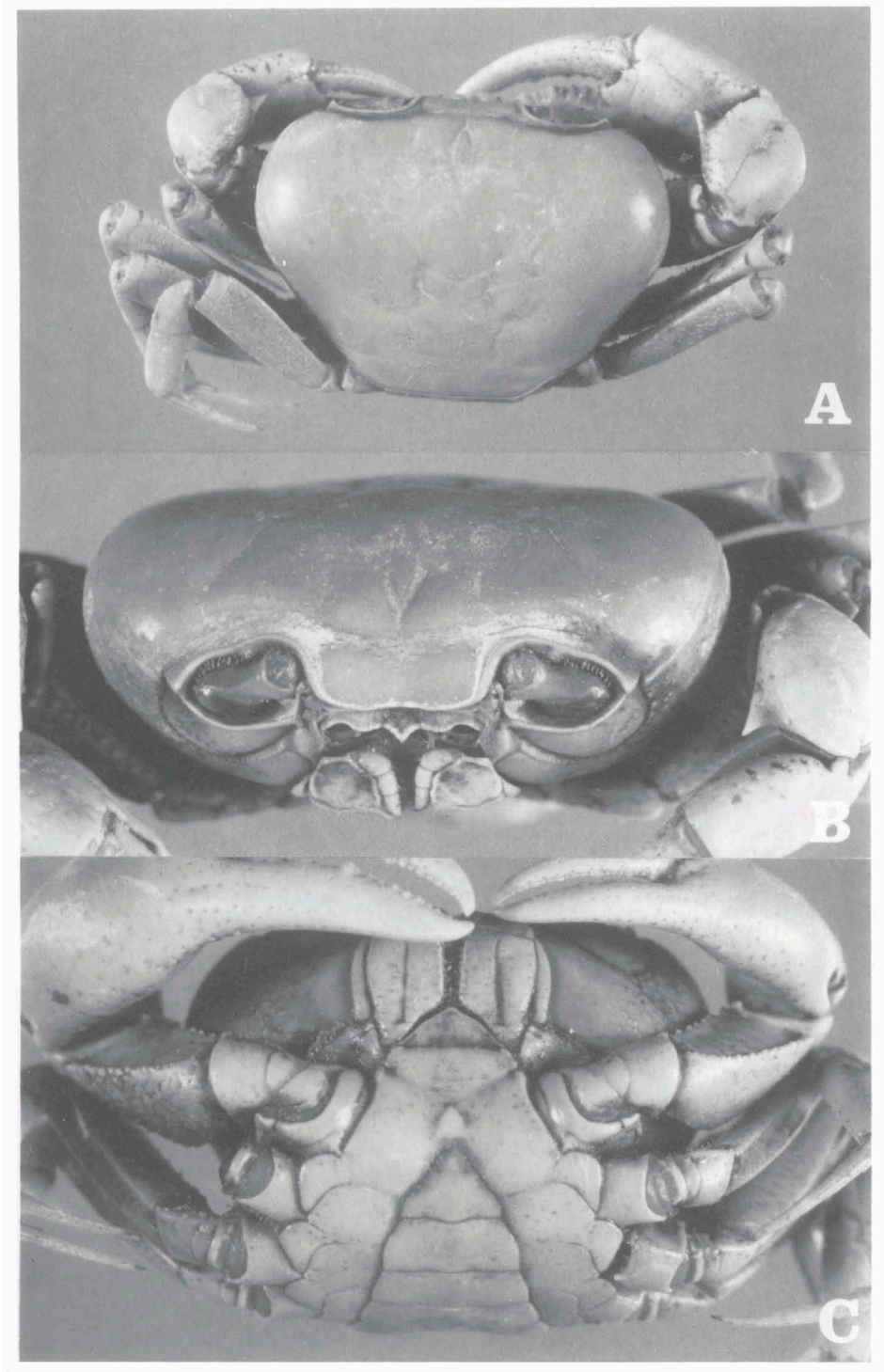

Fig. 16. *Thaipotamon lomkao* spec. nov., holotype, ♂ (43.5 by 32.0 mm) (ZRC 1991.1873). A, dorsal view; B, frontal view; C, ventral view.

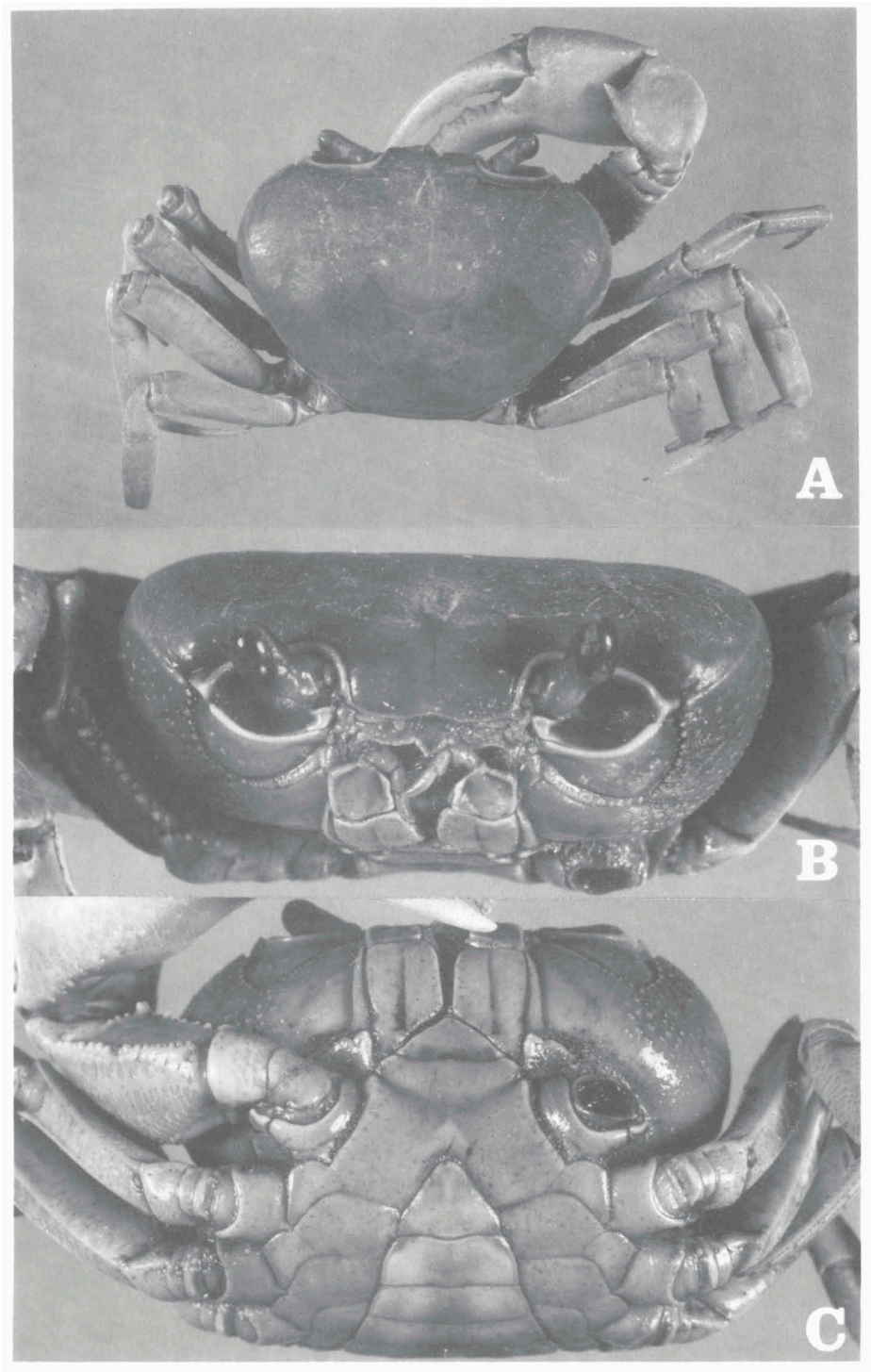

Fig. 17. *Thaipotamon dansai* spec. nov., holotype, ♂ (48.5 by 34.5 mm) (RMNH D 42346). A, dorsal view; B, frontal view; C, ventral view.

Fig. 18. Right male pleopods, ventral views. A, *Thaipotamon siamense* (A. Milne Edwards, 1869), lectotype, ♂ (43.5 by 33.2 mm) (MP); B, *Thaiphusa chantaburiense* (Chuensri, 1973), holotype, ♂ (35.8 by 27.6 mm) (KUMF); C, *Thaipotamon smitinandi* (Naiyanetr & Türkay, 1984), holotype, ♂ (43.3 by 31.6 mm) (KUMF).

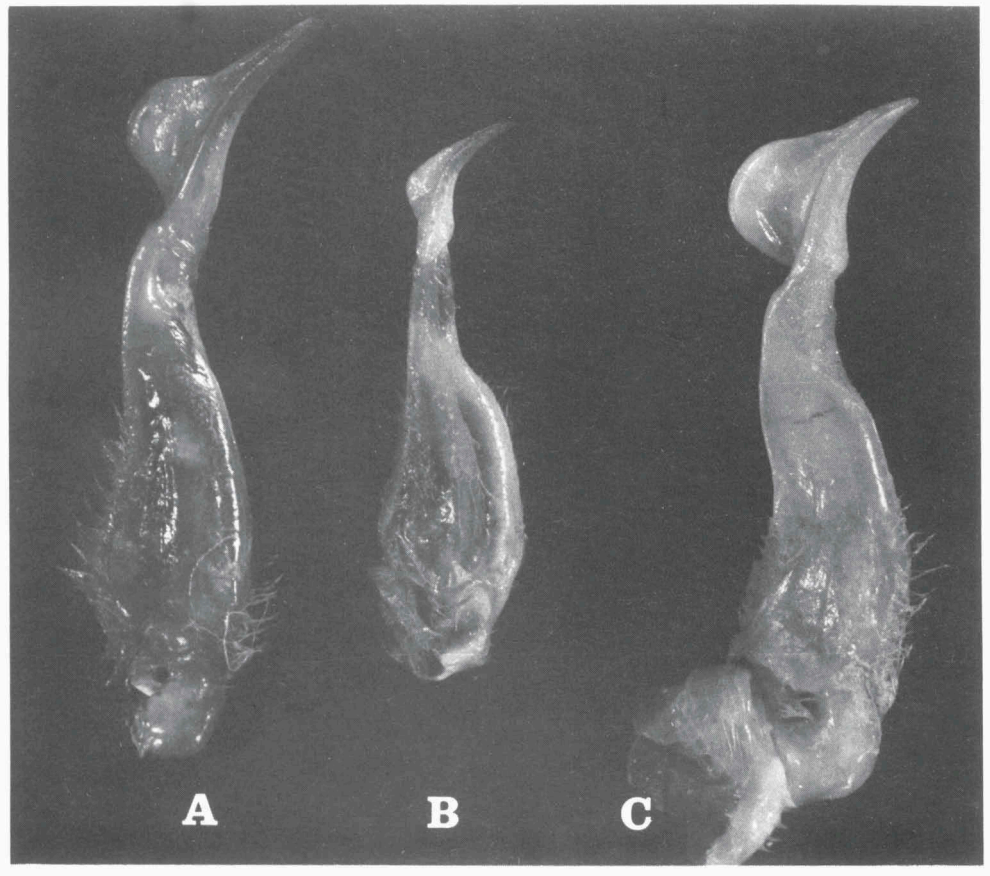

Fig. 19. Right male pleopods, dorsal views. A, *Thaipotamon siamense* (A. Milne Edwards, 1869), lectotype, ♂ (43.5 by 33.2 mm) (MP); B, *Thaiphusa chantaburiense* (Chuensri, 1973), holotype, ♂ (35.8 by 27.6 mm) (KUMF); C, *Thaipotamon smitinandi* (Naiyanetr & Türkay, 1984), holotype, ♂ (43.3 by 31.6 mm) (KUMF).

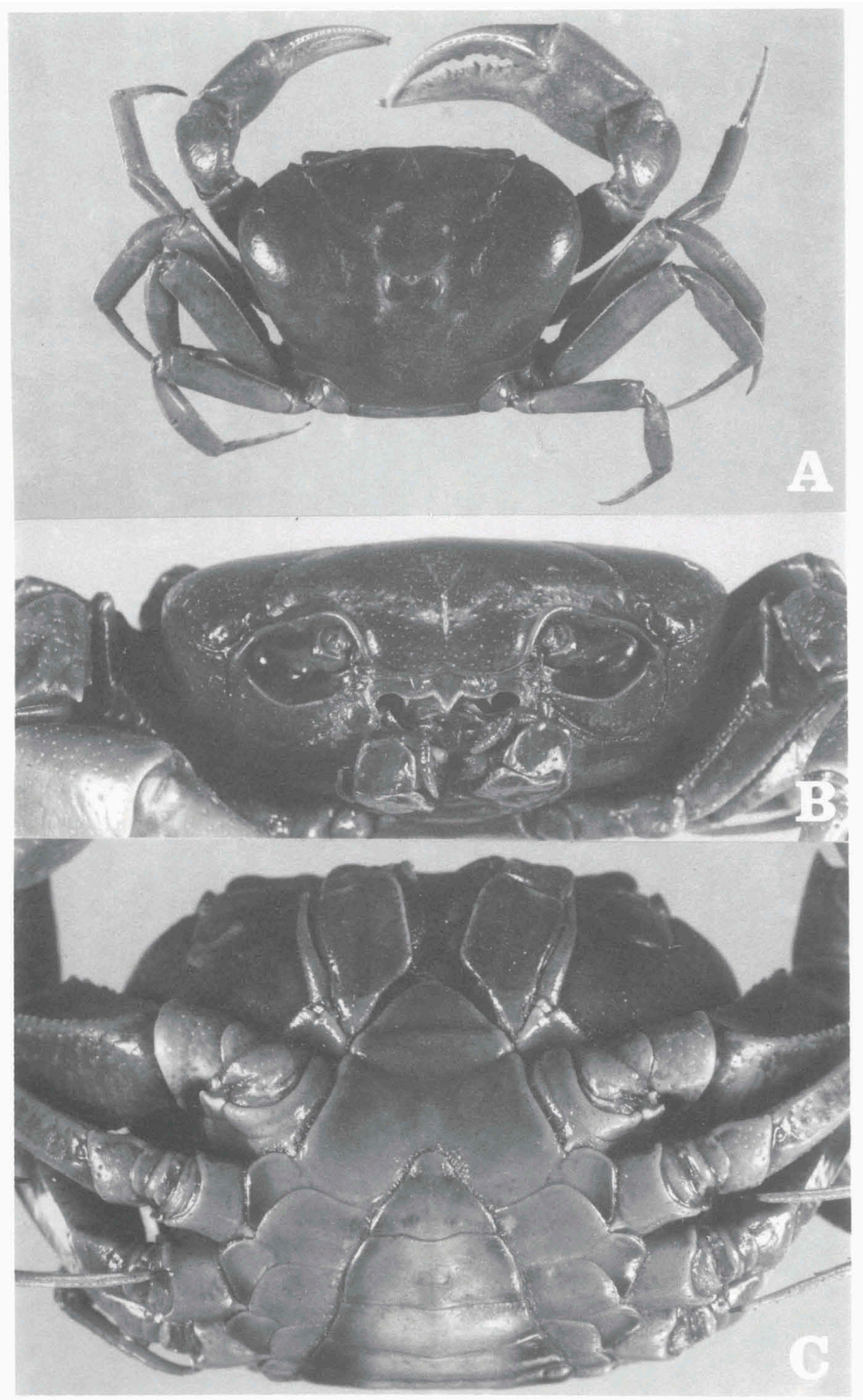

Fig. 20. *Thaipotamon varoonphornae* spec. nov., holotype, ♂ (43.5 by 32.2 mm) (RMNH D 42351). A, dorsal view; B, frontal view; C, ventral view.

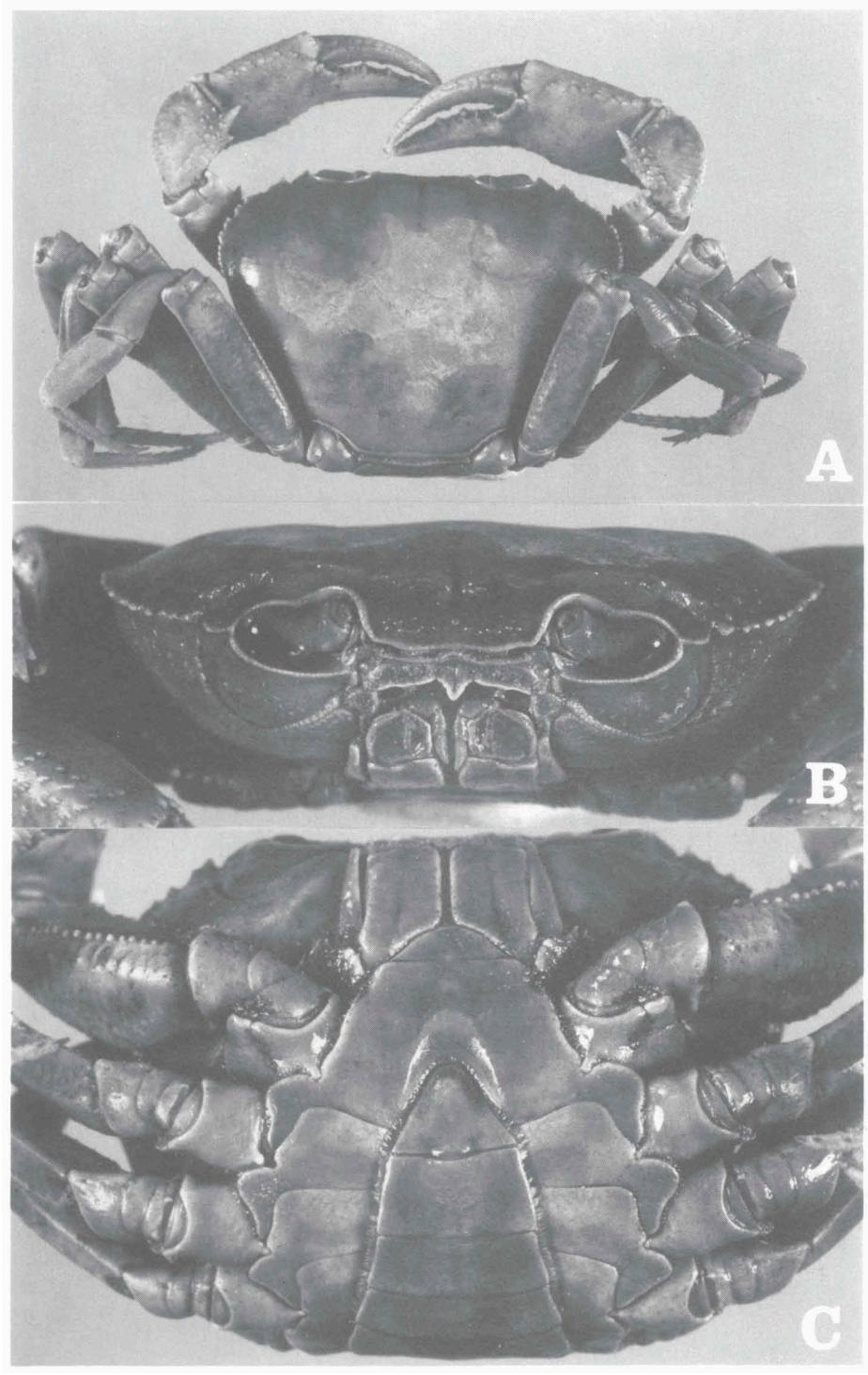

Fig. 21. *Kanpotamon duangkhaei* spec. nov., holotype, ♂ (49.8 by 35.5 mm) (CUMZ). A, dorsal view; B, frontal view; C, ventral view.

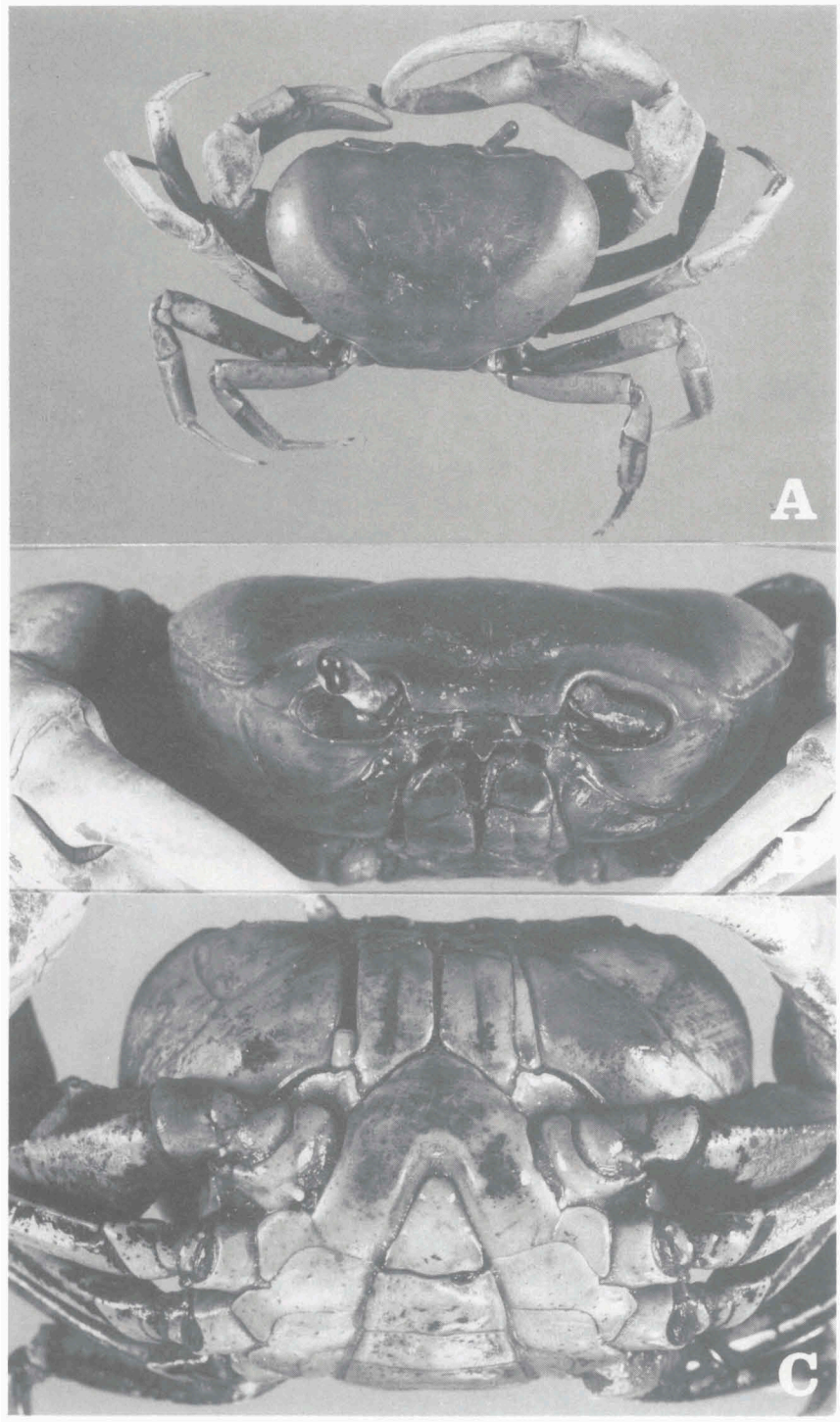

Fig. 22. *Thaiphusa sirikit* (Naiyanetr, 1992), paratype, ♂ (46.5 by 32.0 mm) (ZRC 1991.1880). A, dorsal view; B, frontal view; C, ventral view.

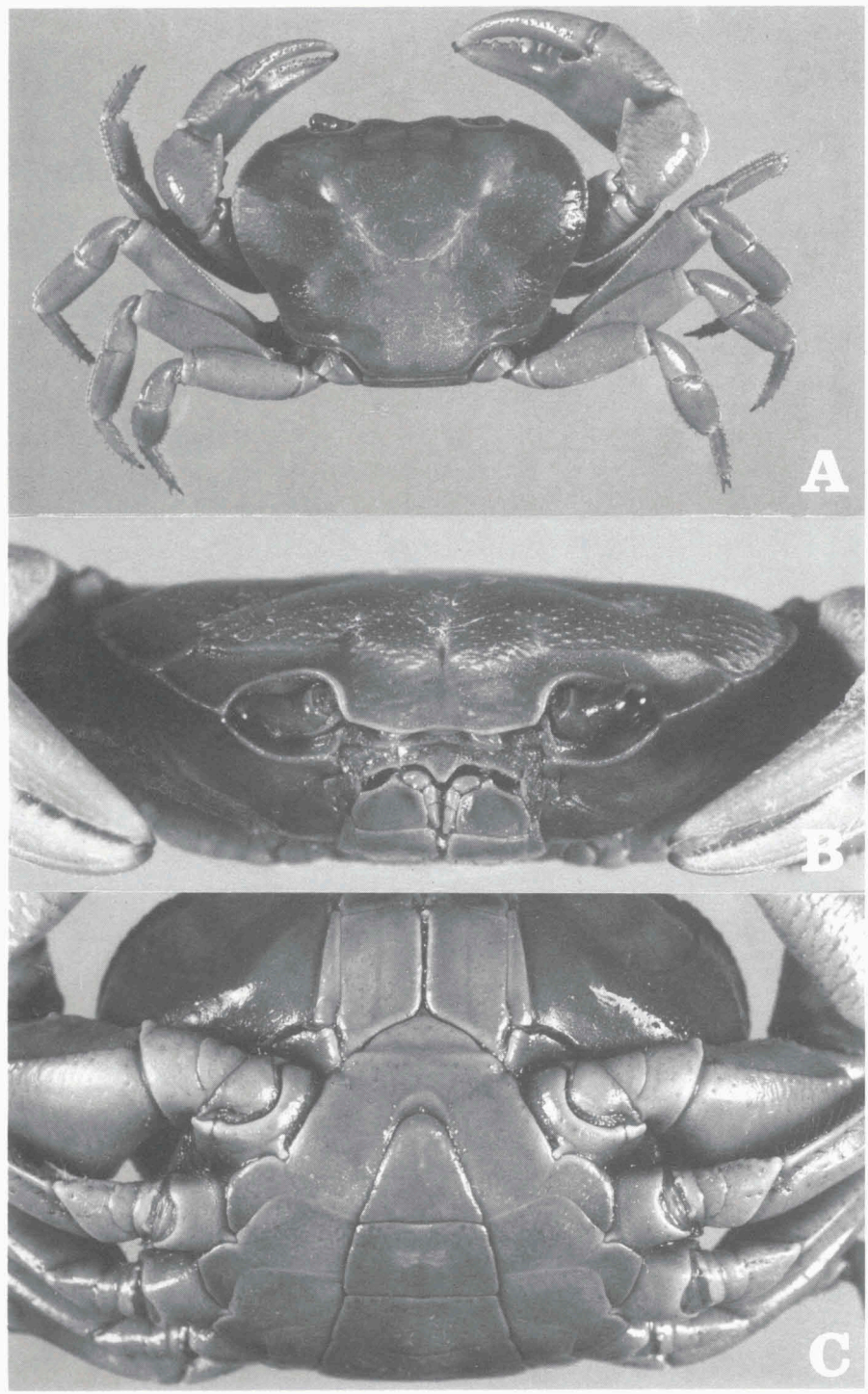

Fig. 23. *Demanietta tritrungensis* (Naiyanetr, 1986), paratype, ♂ (37.7 by 28.0 mm) (ZRC 1991.1857). A, dorsal view; B, frontal view; C, ventral view.

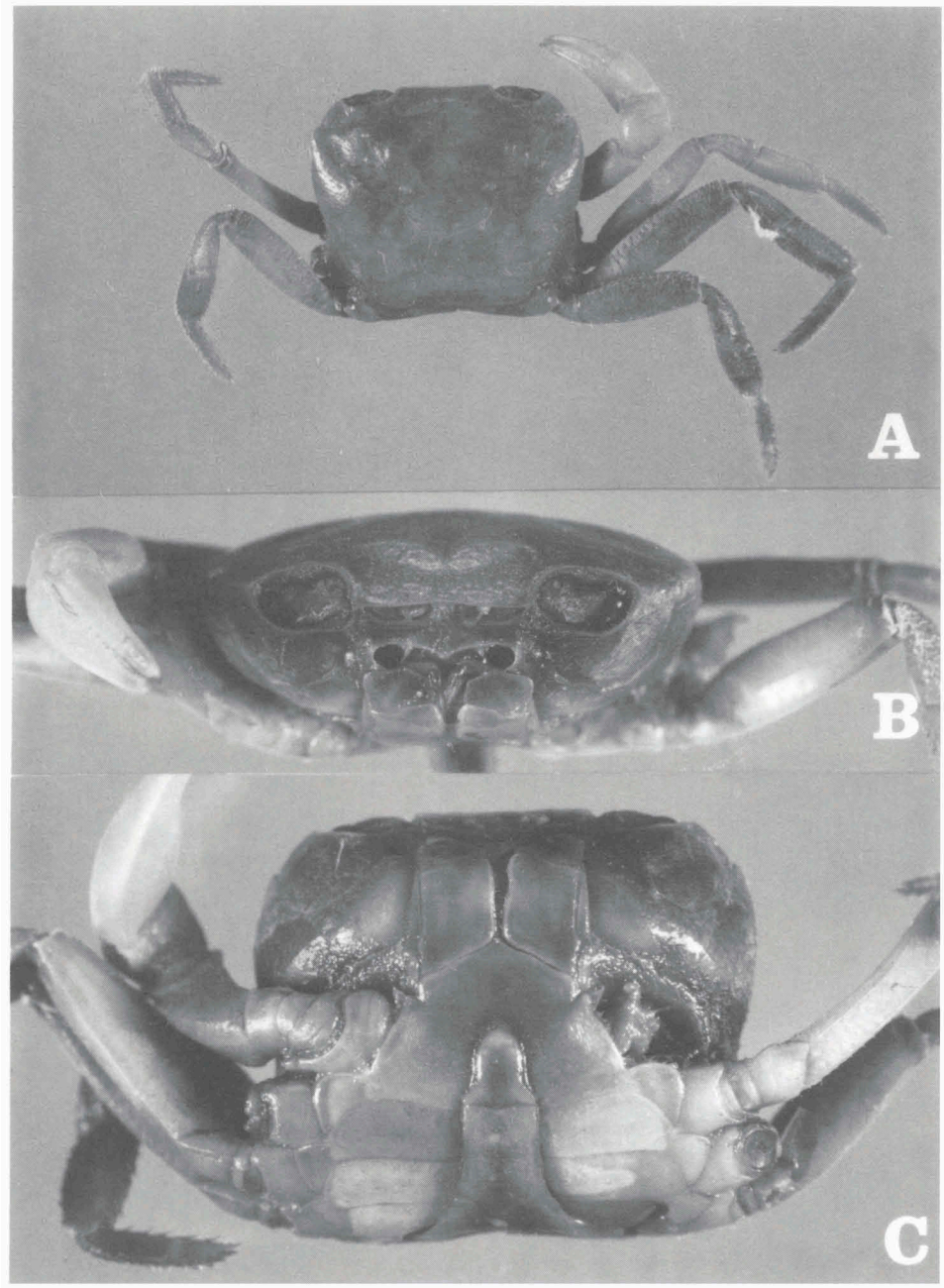

Fig. 24. *Phricotelphusa ranongi* Naiyanetr, 1982, ♂, (18.3 by 14.9 mm) (ZRC 1985.4388). A, dorsal view; B, frontal view; C, ventral view.

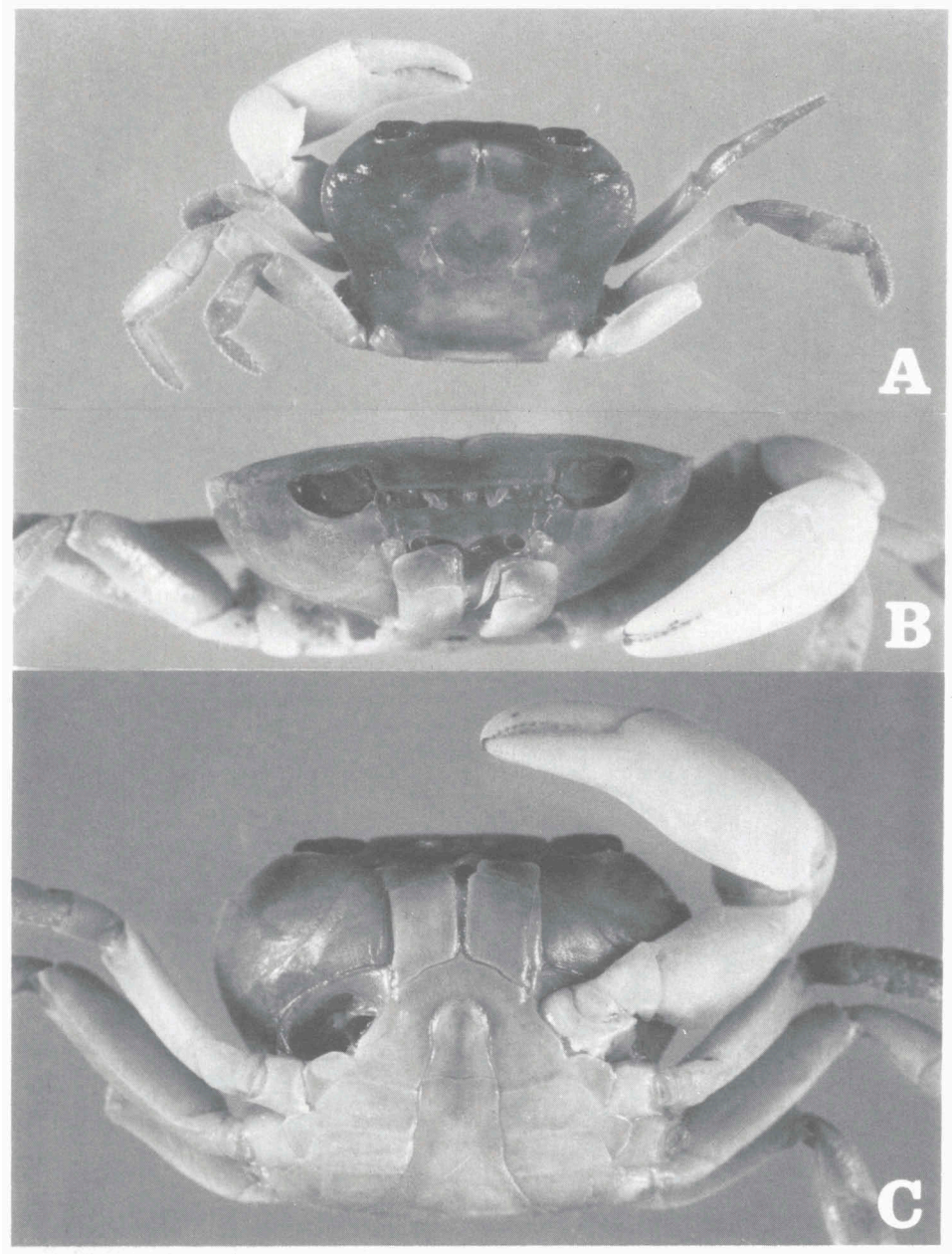

Fig. 25. *Thaksinthelphusa yongchindaratae* (Naiyanetr, 1988), lectotype, ♂ (17.7 by 13.2 mm) (RMNH D 41629). A, dorsal view; B, frontal view; C, ventral view.

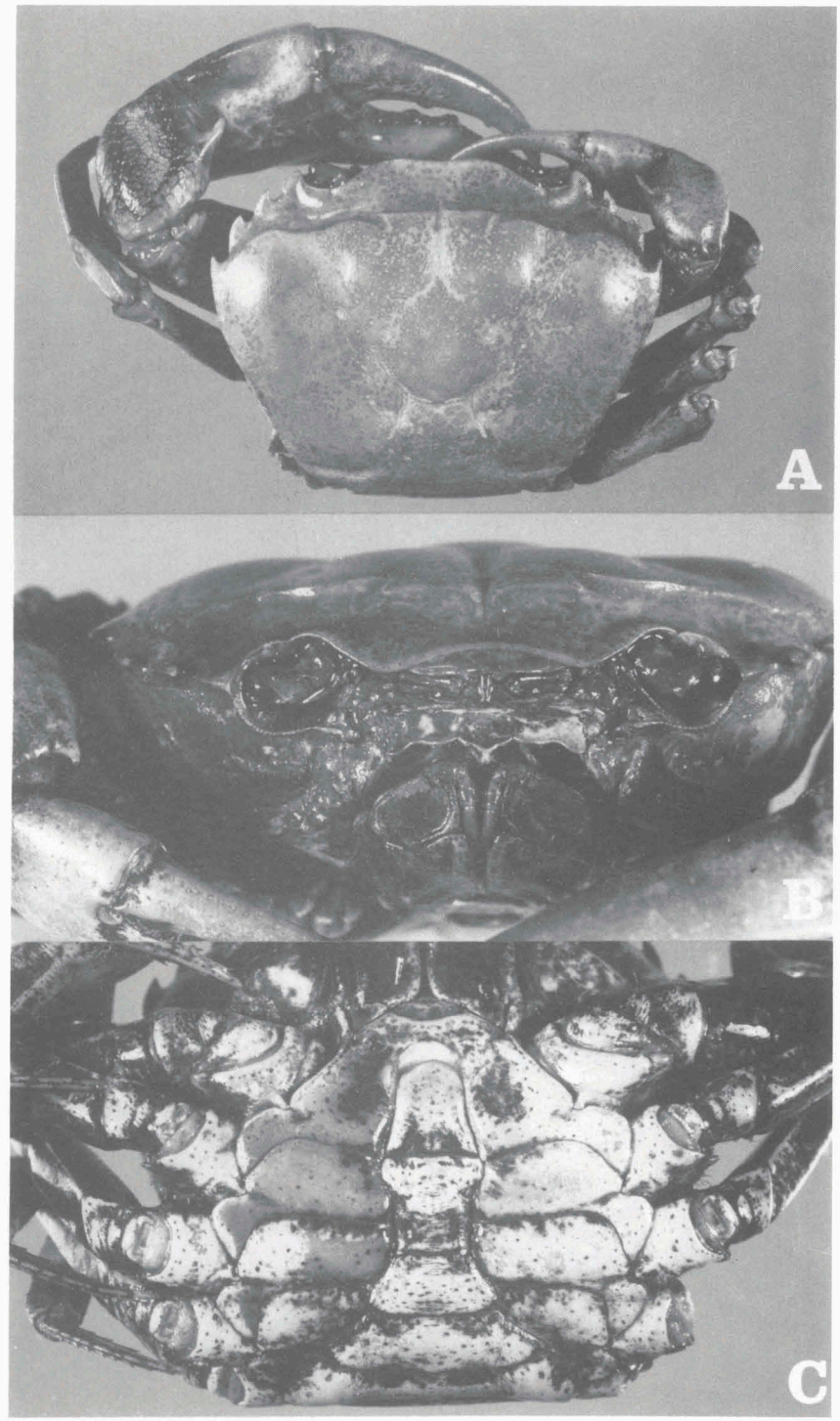

Fig. 26. *Somanniathelphusa bangkokensis* Naiyanetr, 1982, ♂, (50.7 by 41.1 mm) (ZRC 1984.7707). A, dorsal view; B, frontal view; C, ventral view.

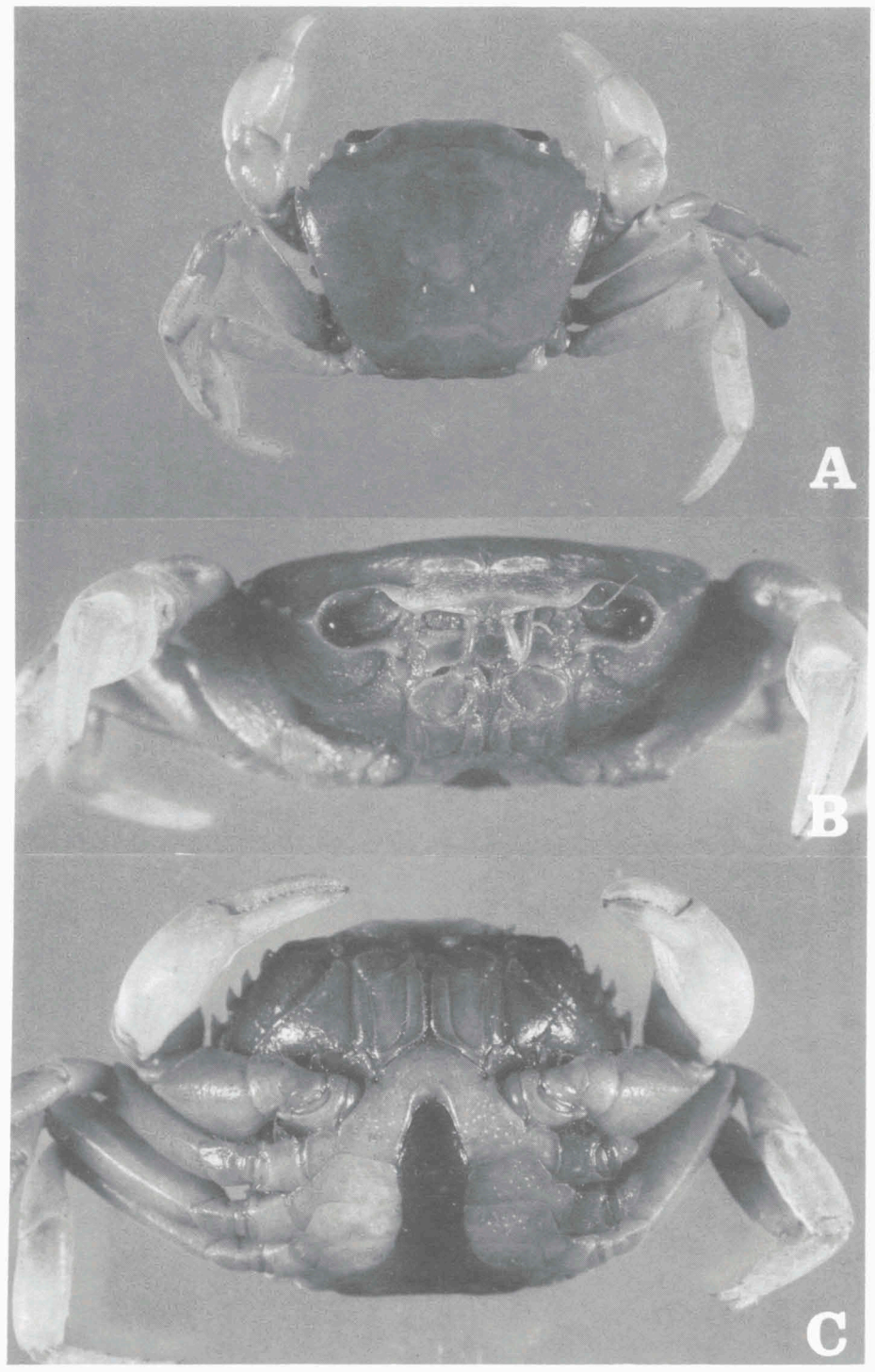

Fig. 27. *Somanniathelphusa maehongsonensis* Naiyanetr, 1987, paralectotype, ♂ (18.2 by 15.8 mm) (ZRC 1991.1885). A, dorsal view; B, frontal view; C, ventral view.

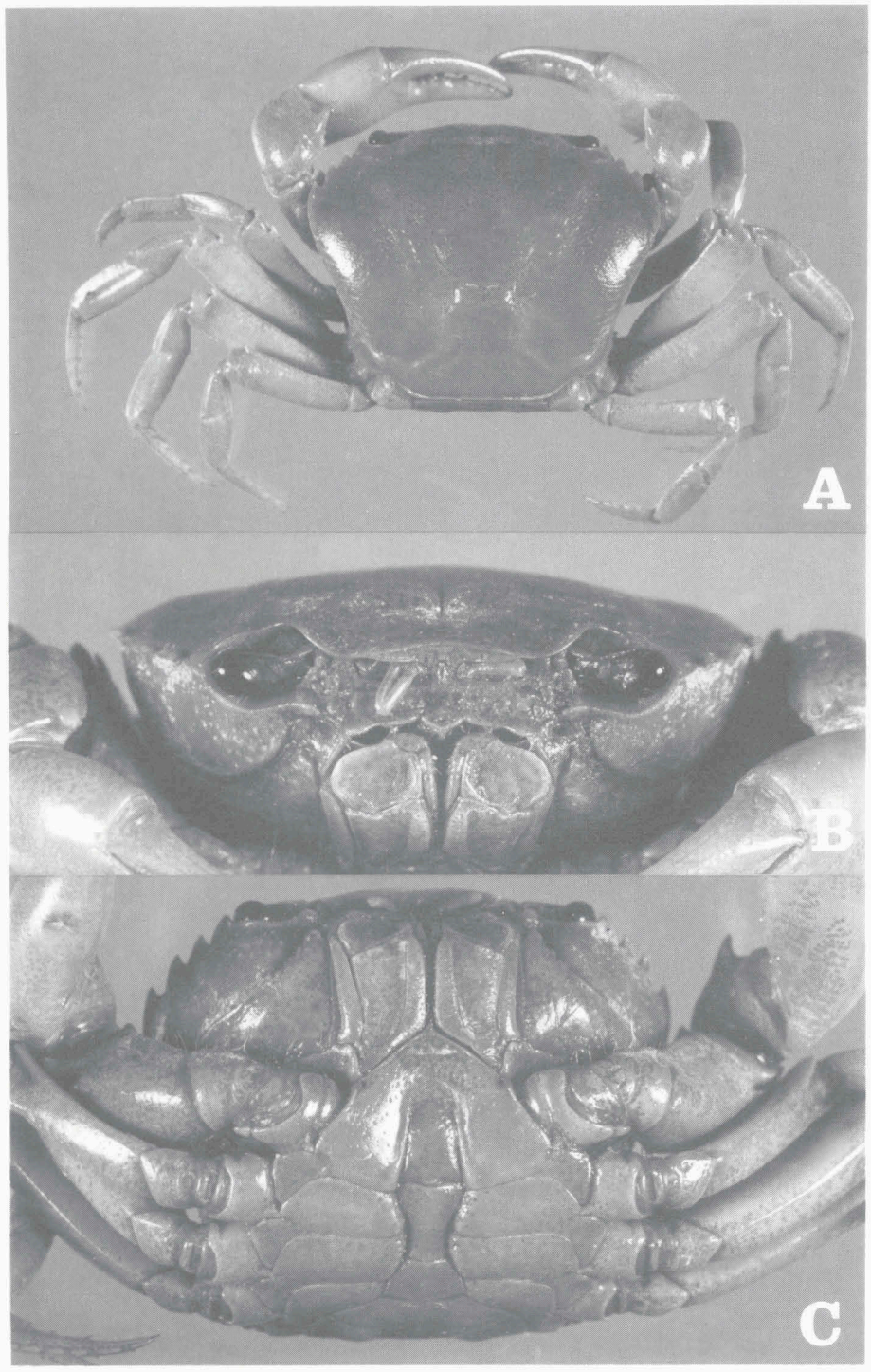

Fig. 28. *Somanniathelphusa fangensis* Naiyanetr, 1987, ♂, (28.3 by 21.8 mm) (ZRC 1984.7711). A, dorsal view; B, frontal view; C, ventral view.

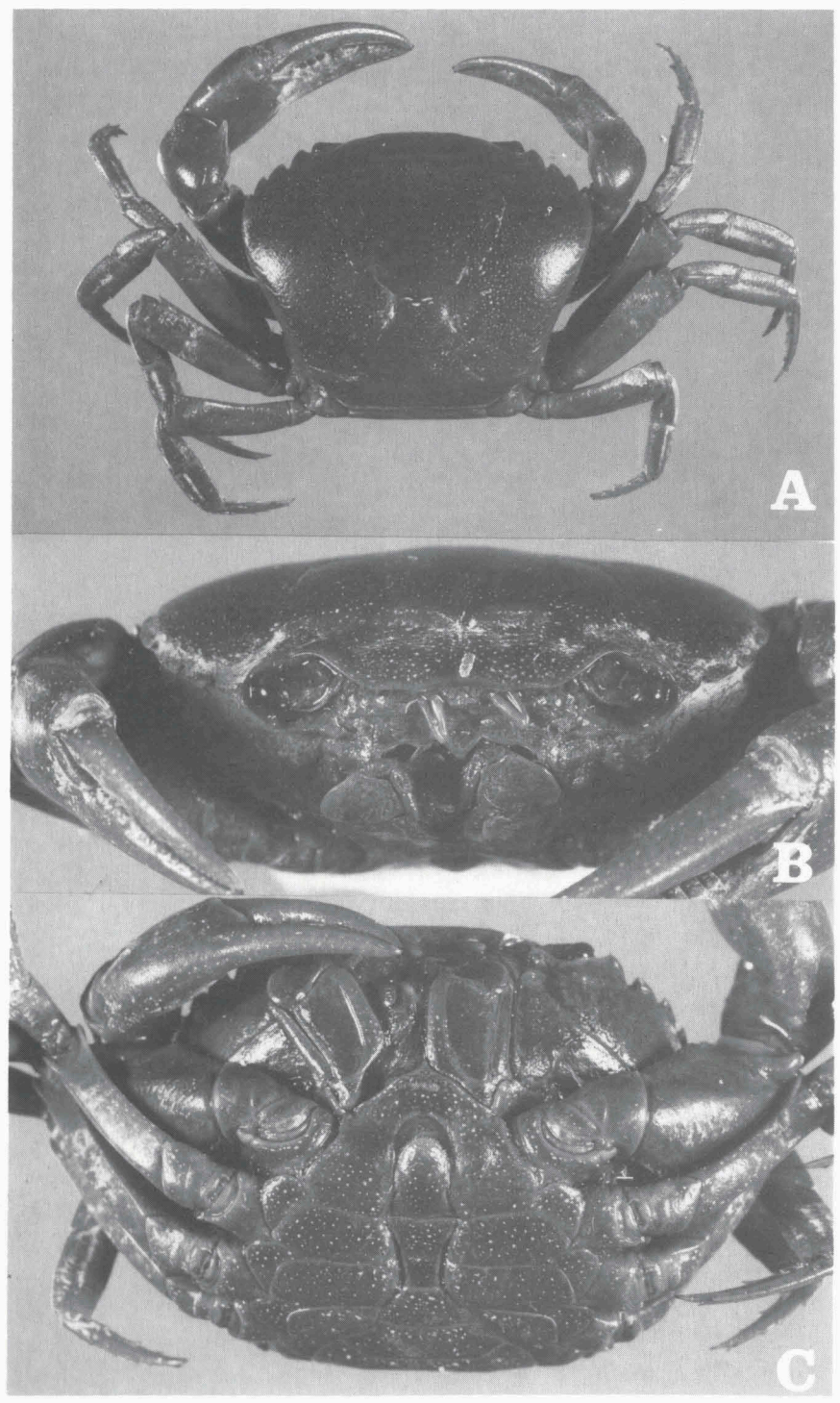

Fig. 29. *Somanniathelphusa denchaii* Naiyanetr, 1984, ♂, (36.9 by 29.2 mm) (ZRC 1984.7709). A, dorsal view; B, frontal view; C, ventral view.

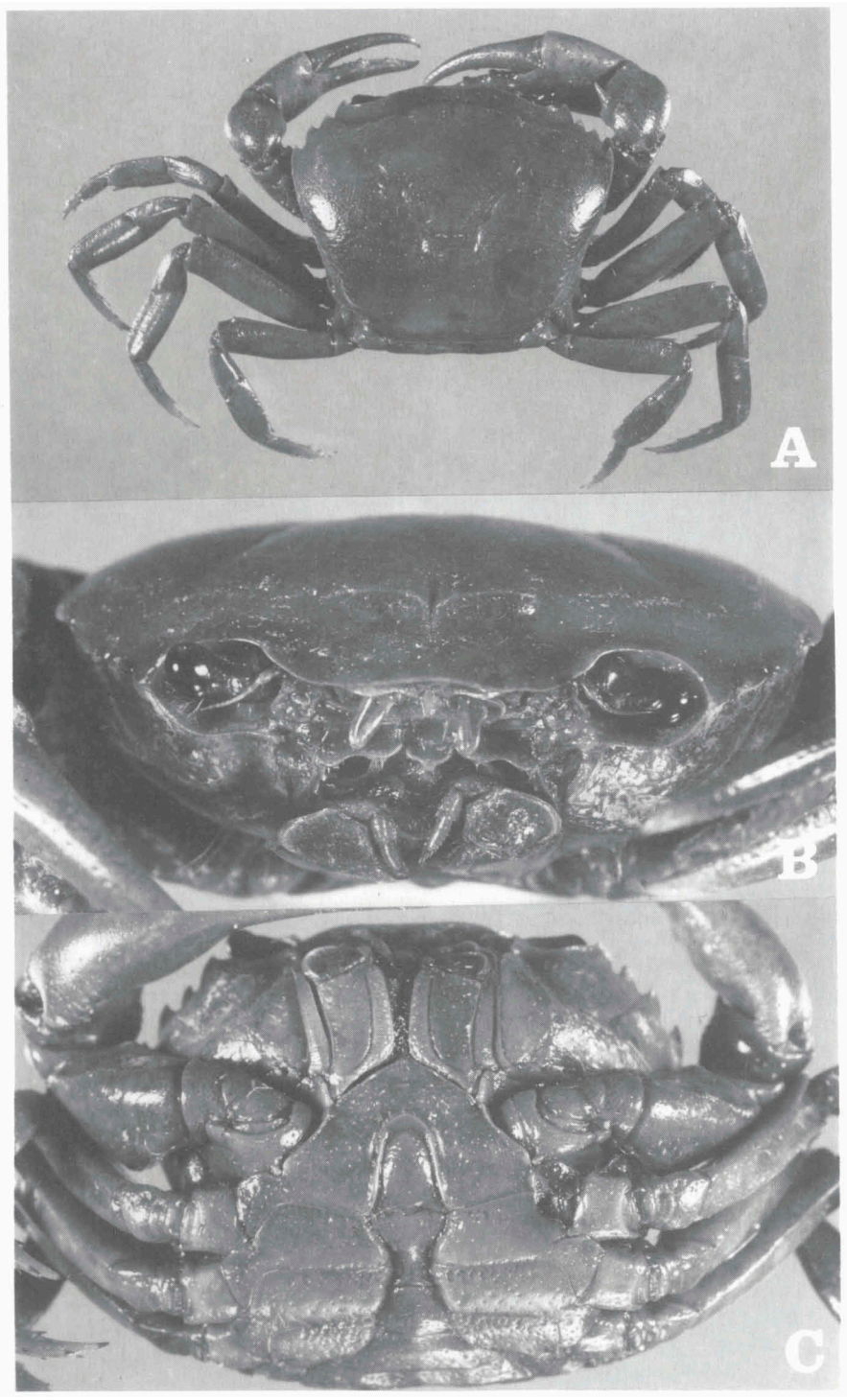

Fig. 30. *Somanniathelphusa nani* Naiyanetr, 1984, ♂, (31.9 by 25.1 mm) (ZRC 1984.7715). A, dorsal view; B, frontal view; C, ventral view.

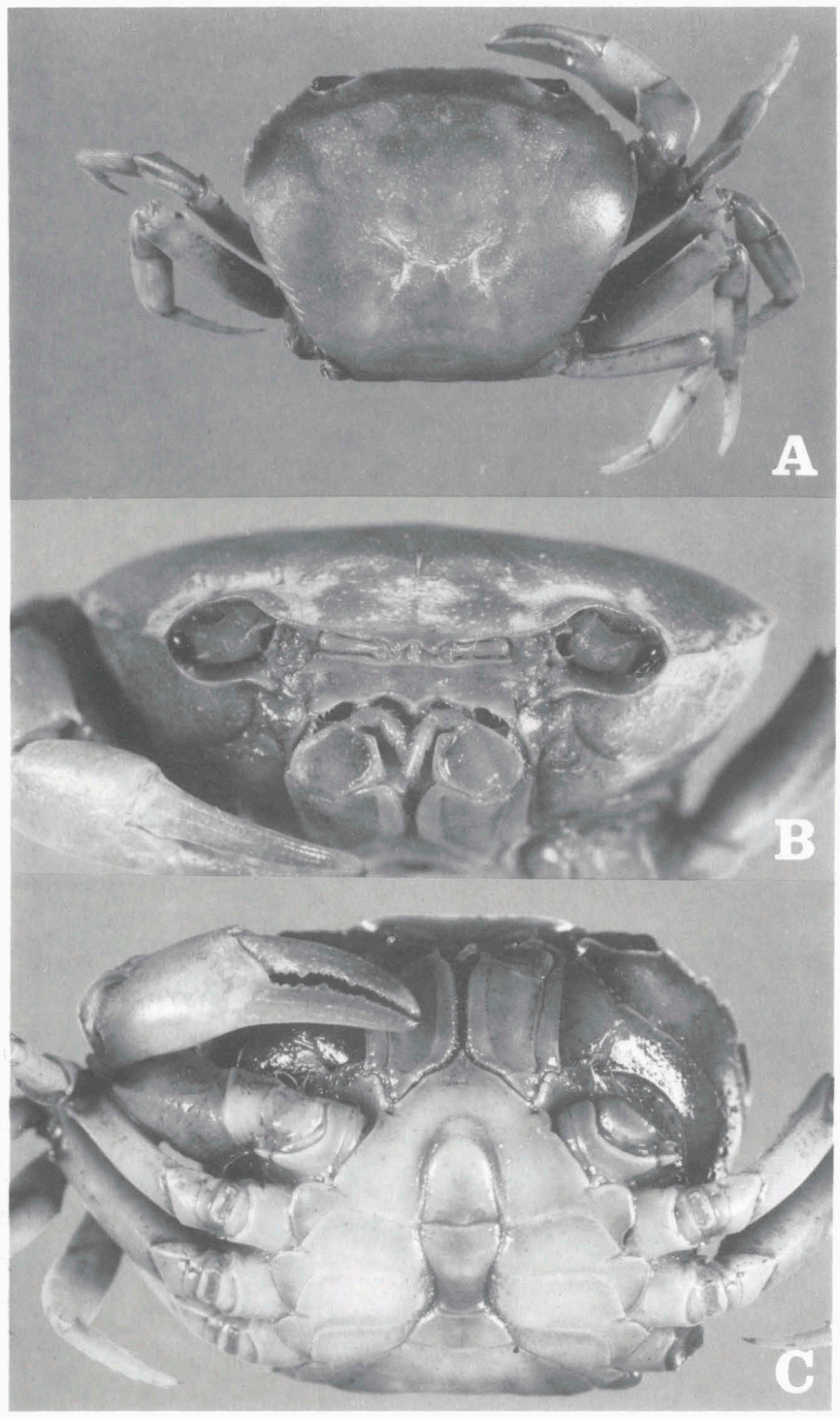

Fig. 31. *Somanniathelphusa phetchaburi* spec. nov., holotype, ♂ (33.8 by 26.5 mm) (ZRC 1991.1886). A, dorsal view; B, frontal view; C, ventral view.

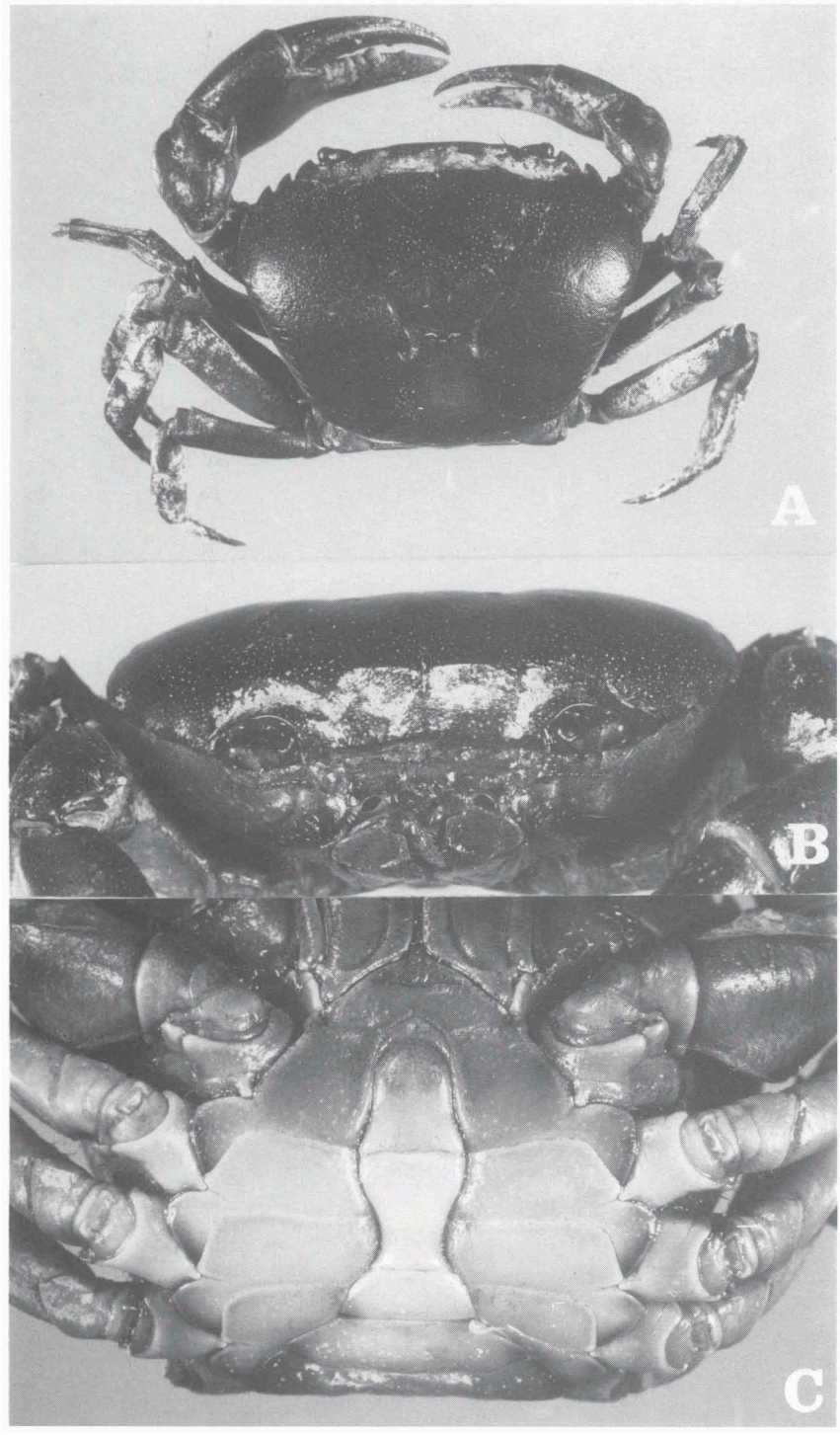

Fig. 32. *Somanniathelphusa chiangmai* spec. nov., holotype, ♂ (44.0 by 33.3 mm) (RMNH D 42347). A, dorsal view; B, frontal view; C, ventral view.

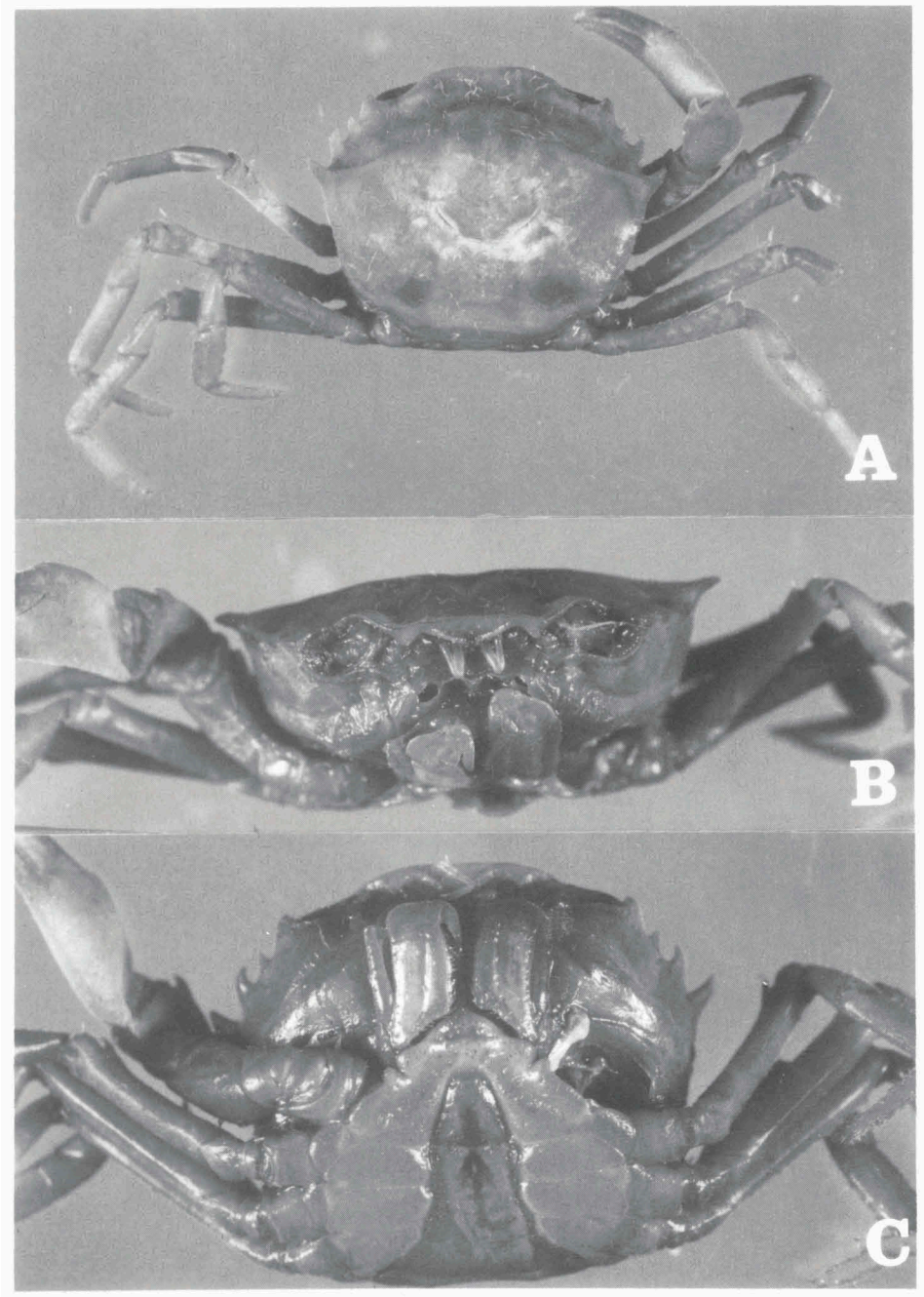

Fig. 33. *Heterothelphusa beauvoisi* (Rathbun, 1902), ♂, (17.2 by 14.3 mm) (ZRC 1991.1888). A, dorsal view; B, frontal view; C, ventral view.

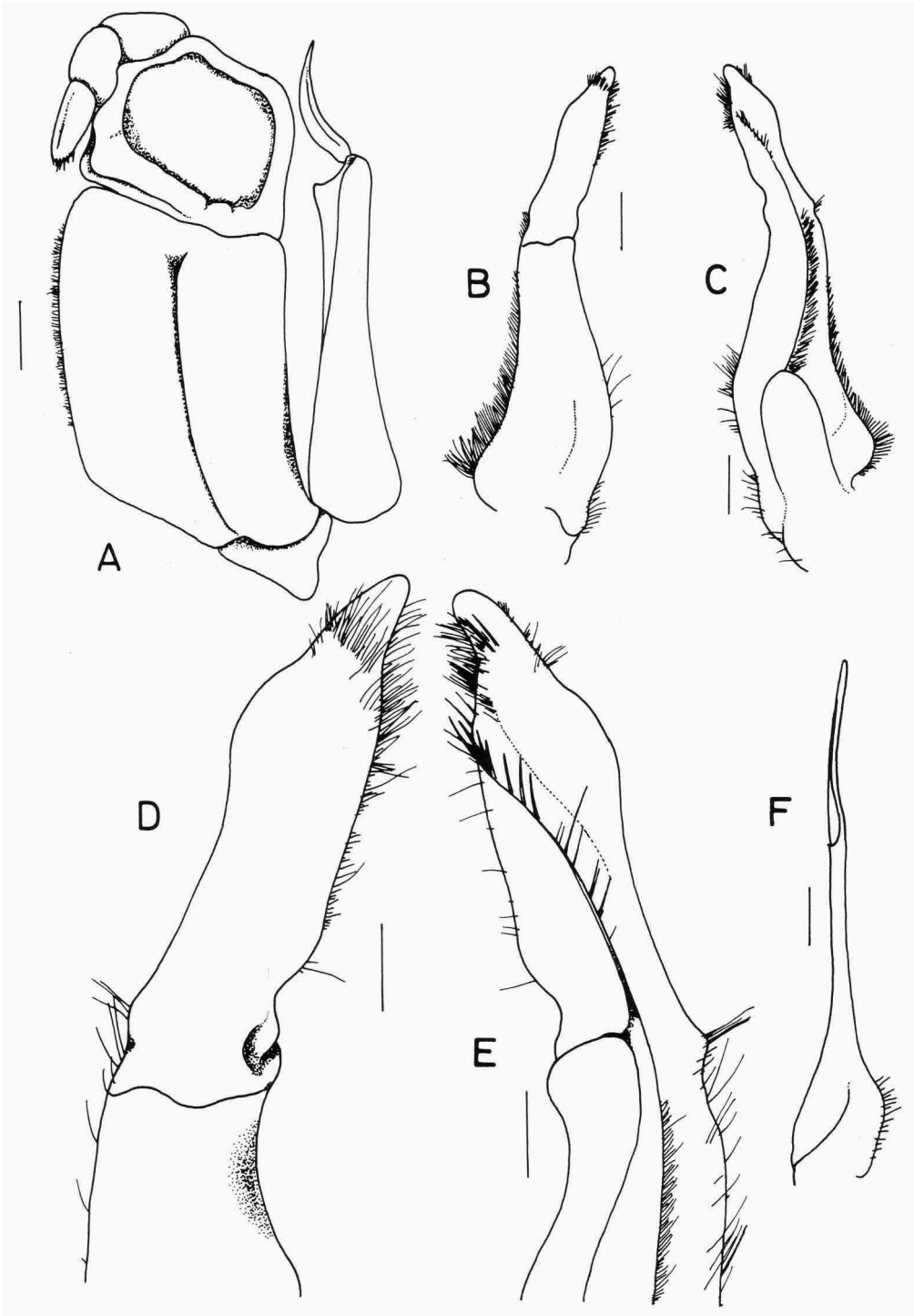

Fig. 34. *Potamon kanchanaburiense* Naiyanetr, 1992, holotype, ♂ (62.4 by 47.7 mm) (RMNH D 42352). A, left third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral view; D, E, G1 terminal segment. Scales: A-C, F, 2.0 mm; D, E, 1.0 mm.

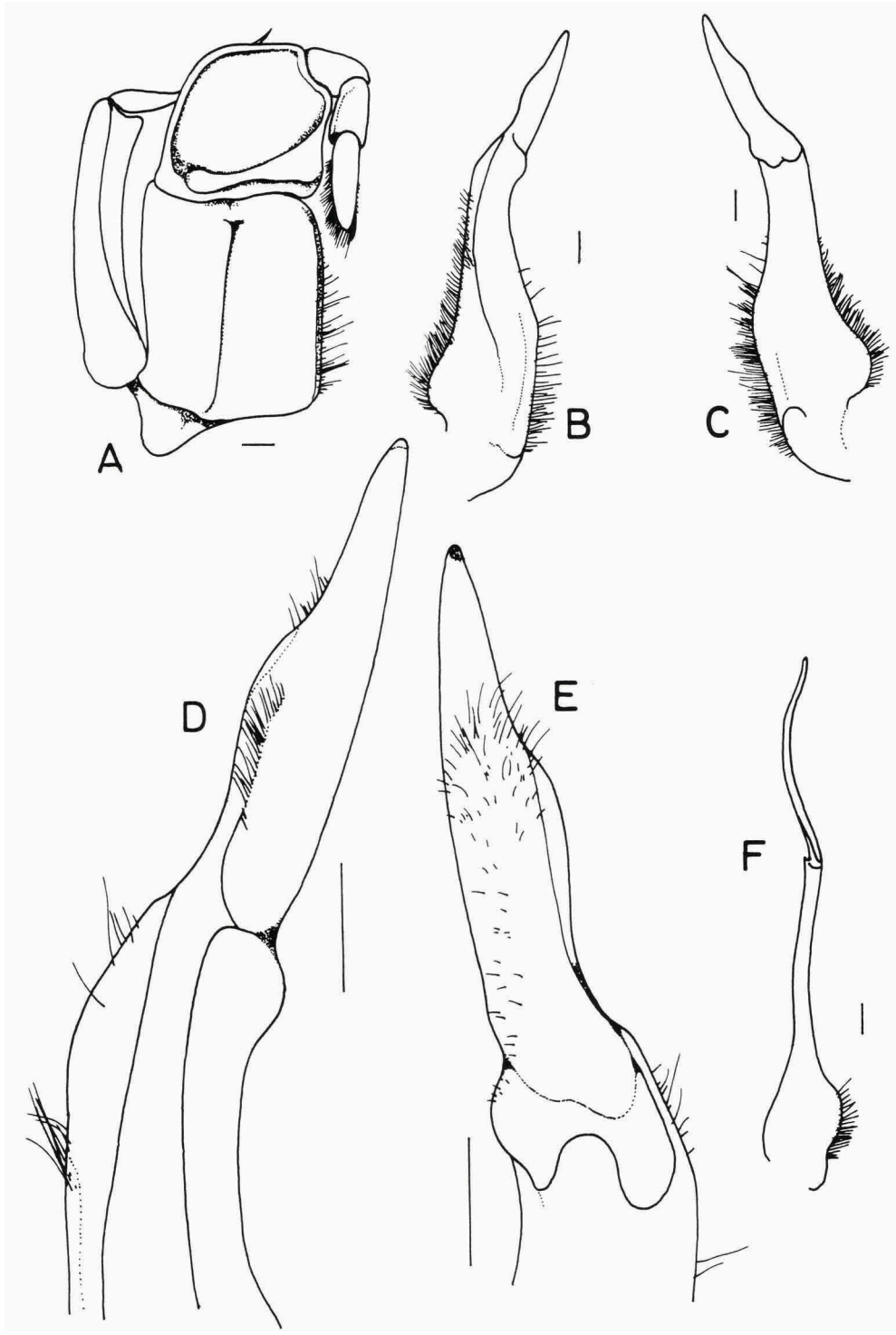

Fig. 35. *Potamon maesotense* Naiyanetr, 1992, holotype, ♂ (46.4 by 35.3 mm) (ZRC 1991.1836). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: 1.0 mm.

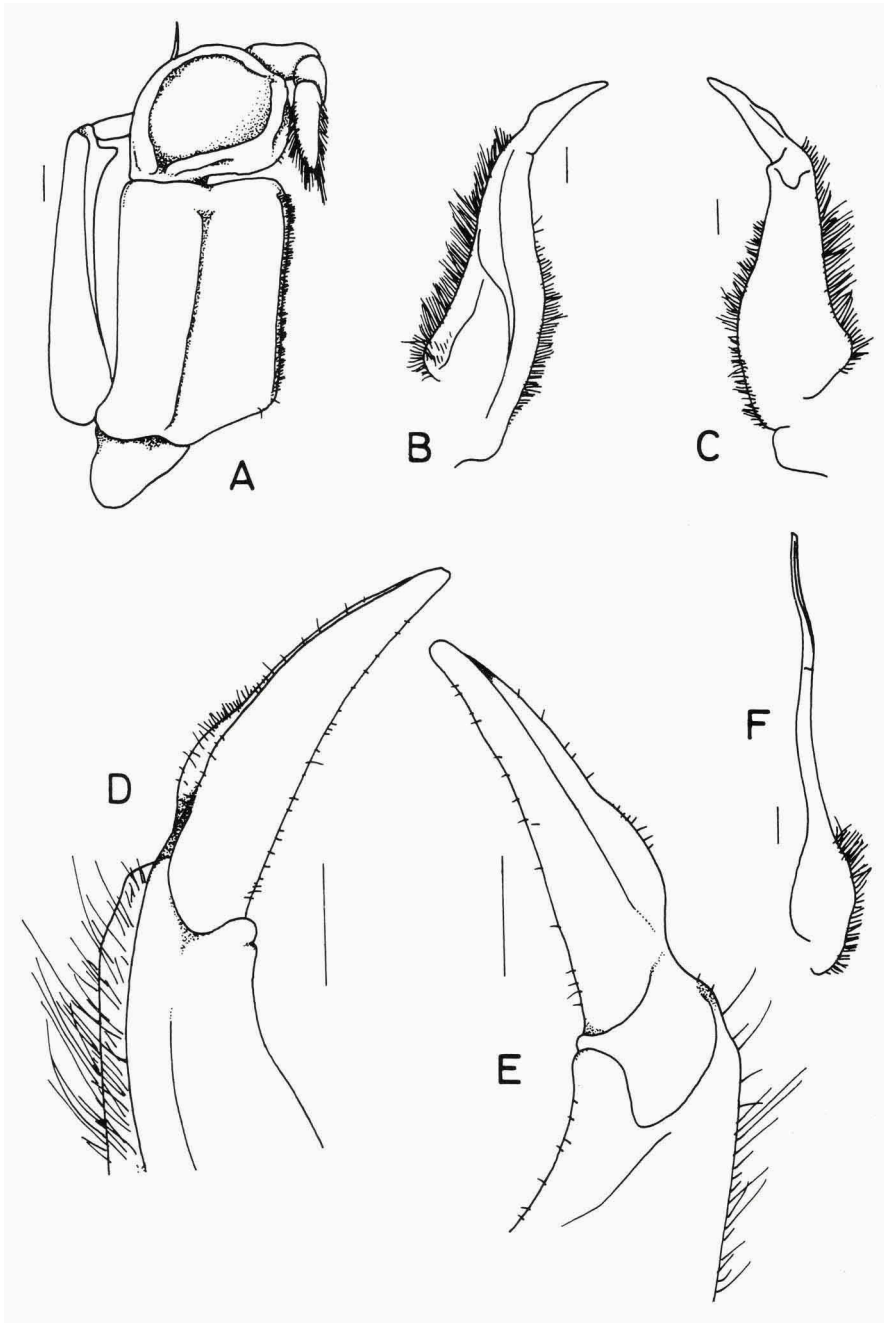

Fig. 36. *Potamon boonyaratae* (Naiyanetr, 1987), paratype, ♂ (46.1 by 37.2 mm) (ZRC 1991.1859). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: 1.0 mm.

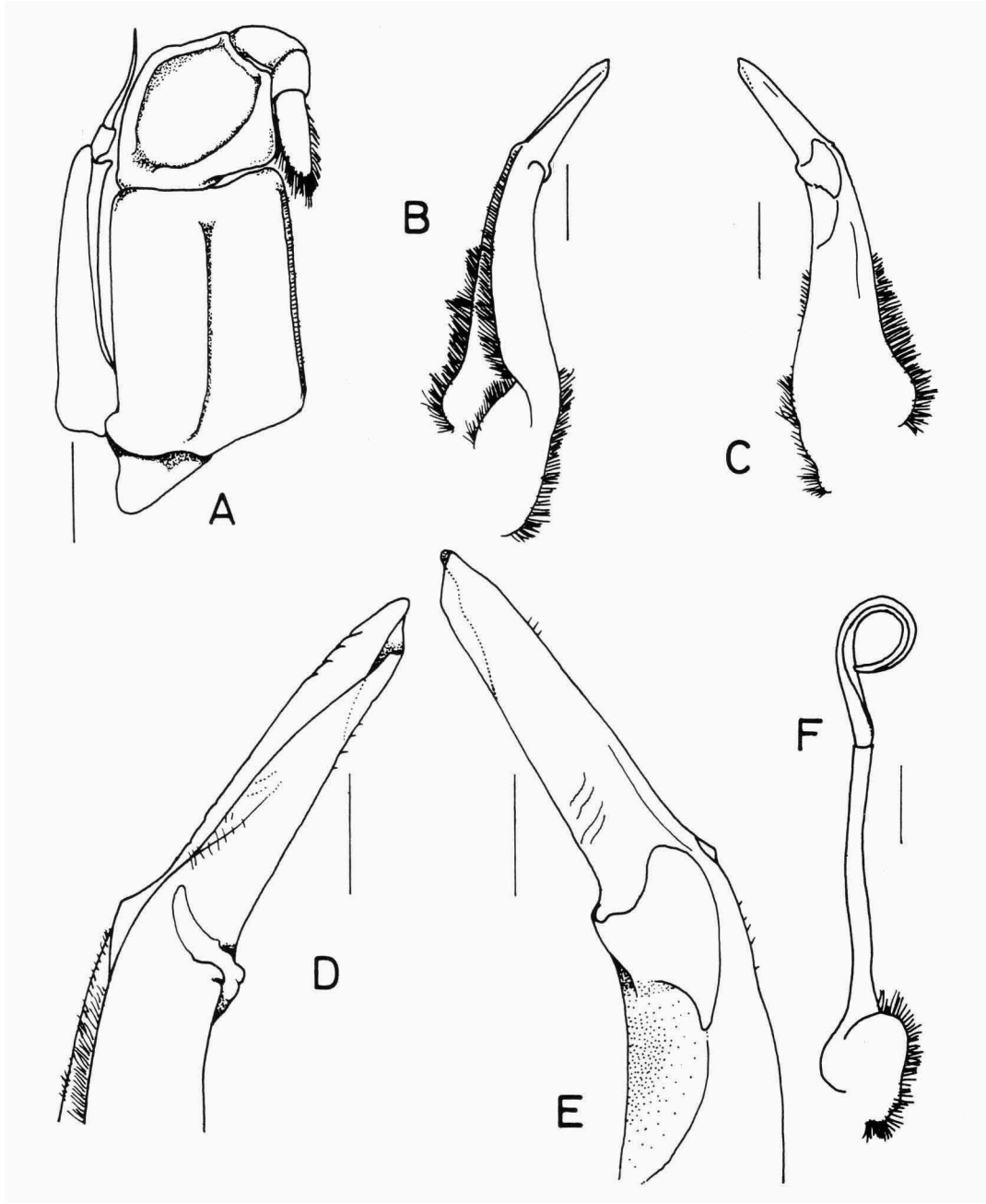

Fig. 37. *Potamon namlang* spec. nov., holotype, ♂ (44.5 by 35.0 mm) (MP). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: 2.0 mm.

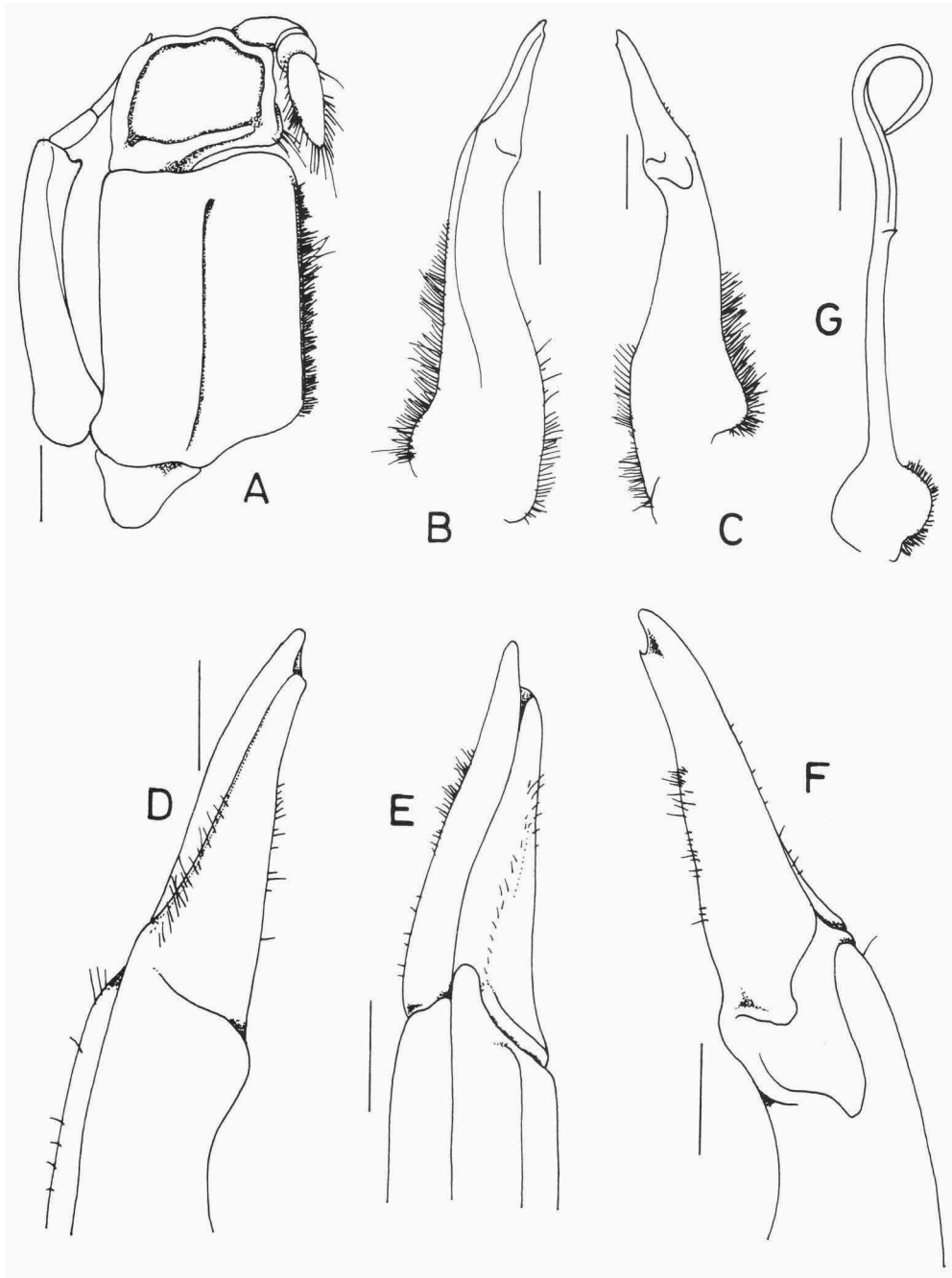

Fig. 38. *Potamon jarujini* spec. nov., holotype, ♂ (50.0 by 38.5 mm) (RMNH D 42344). A, right third maxilliped; B-F, left G1; G, left G2. B, D, ventral view; E, dorsomarginal view; C, F, dorsal view; D-F, G1 terminal segment. Scales: A-C, G, 2.0 mm; D-F, 1.0 mm.

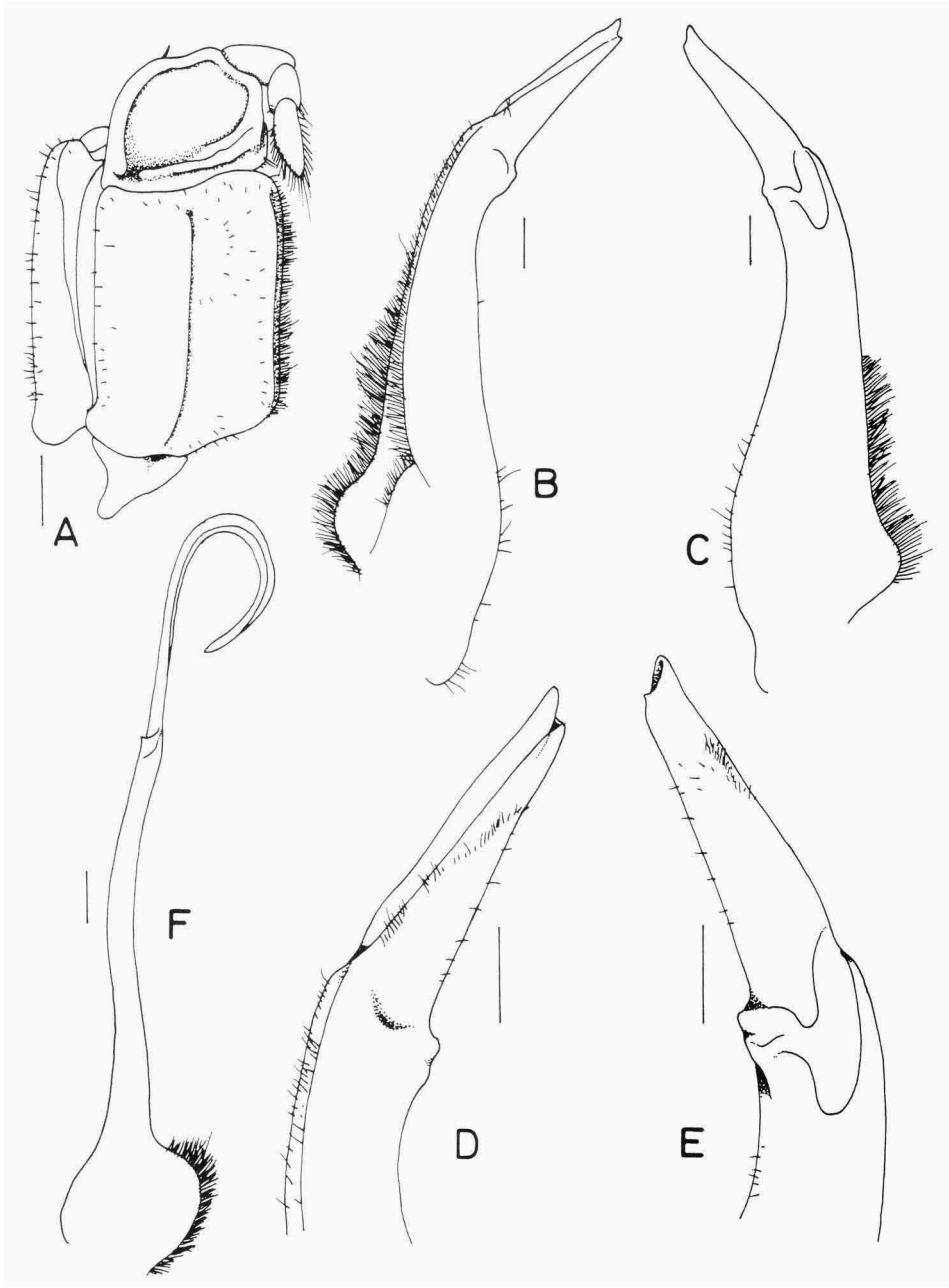

Fig. 39. *Potamon maesarians* spec. nov., holotype, ♂ (47.0 by 36.0 mm) (RMNH D 42343). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; G1 terminal segment. Scales: A, 2.0 mm, B-F, 1.0 mm.

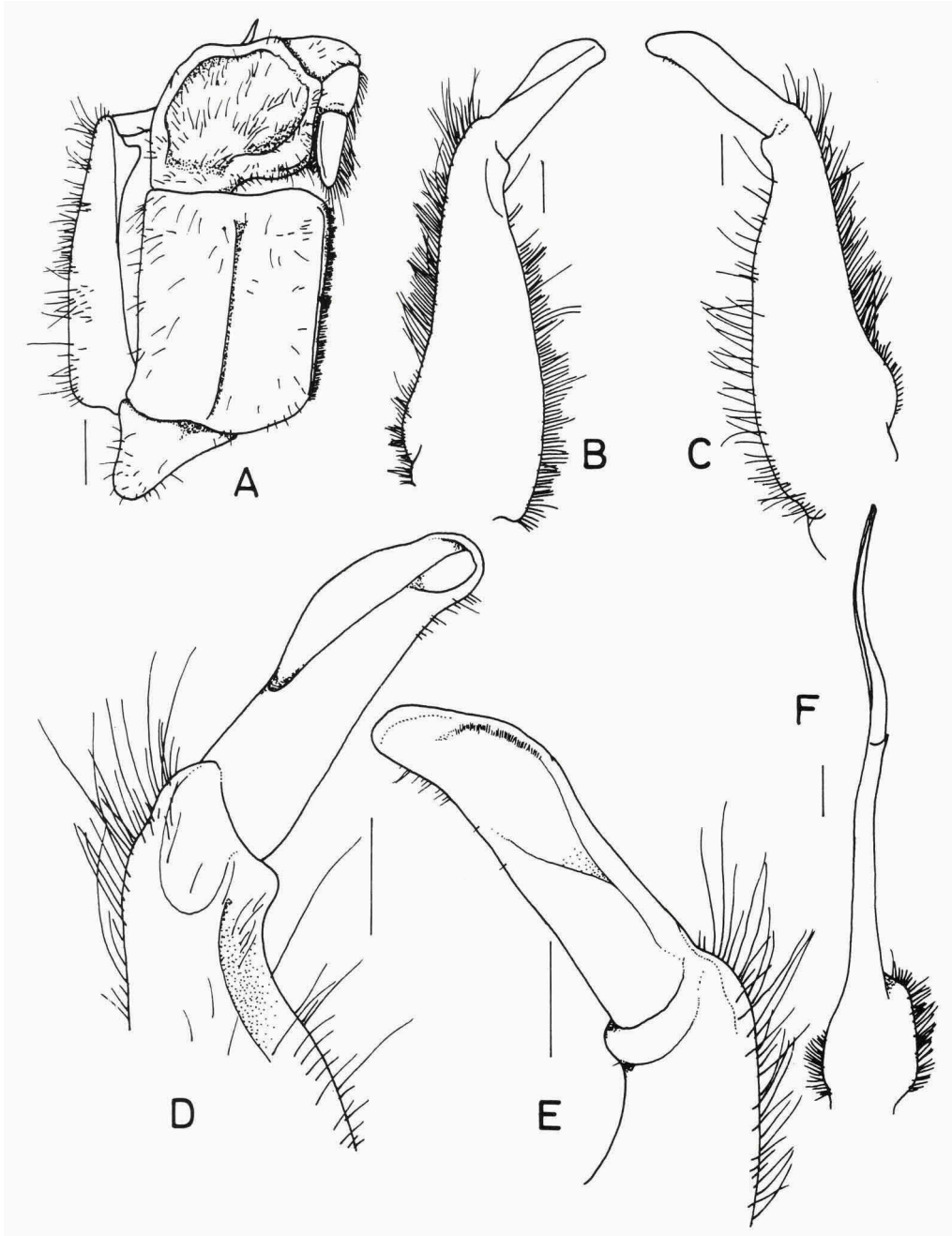

Fig. 40. *Potamon ubon* spec. nov., holotype, ♂ (49.0 by 39.0 mm) (RMNH D 42349). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A, 2.0 mm; B-F, 1.0 mm.

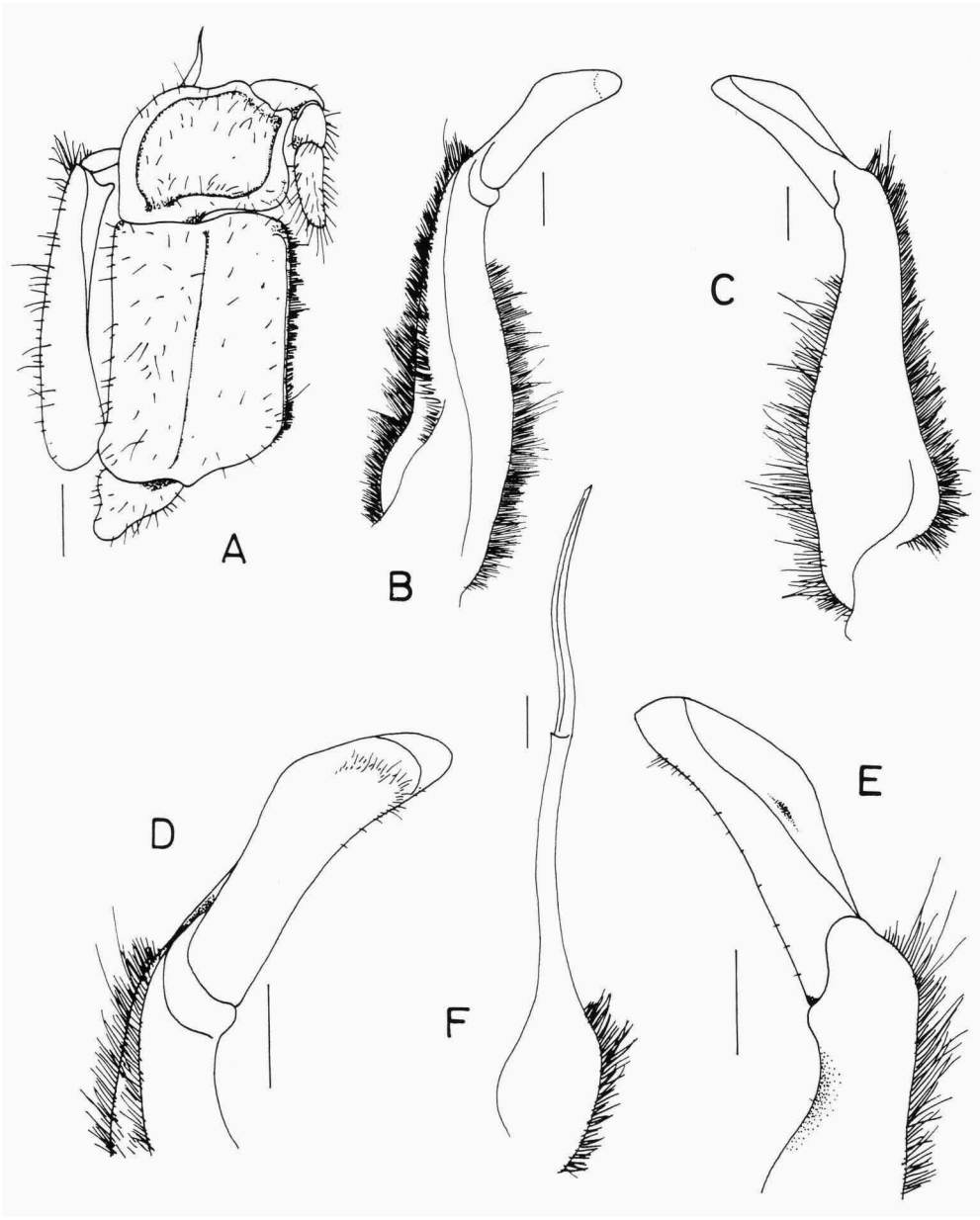

Fig. 41. *Potamon somchaii* spec. nov., holotype, ♂ (46.8 by 37.5 mm) (RMNH D 42350). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A, 2.0 mm; B-F, 1.0 mm.

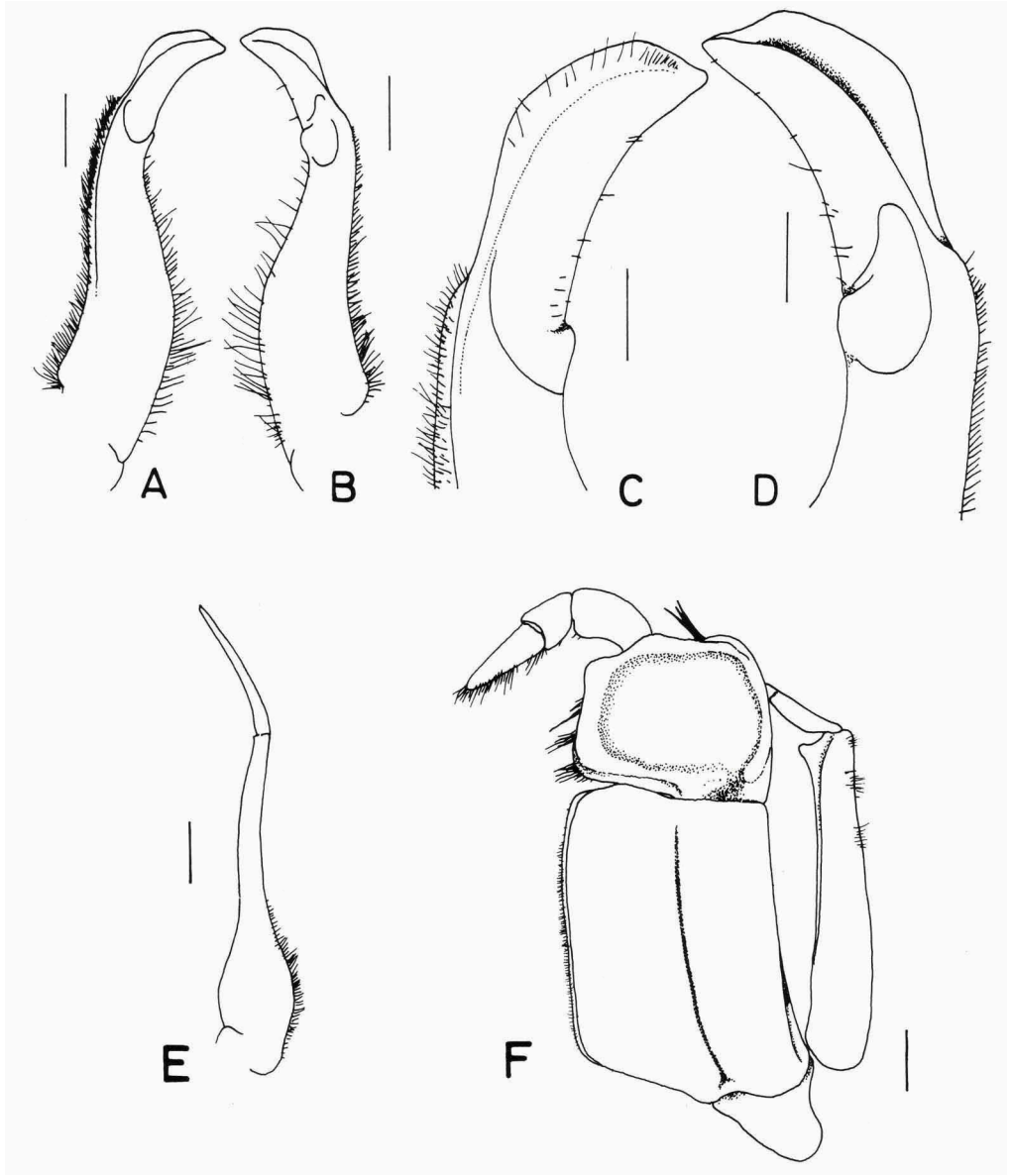

Fig. 42. *Potamon palustre* Rathbun, 1904, holotype, ♂ (28.0 by 22.5 mm) (MP-B 5265), "Montagnes Siam de Laos", leg. Harmand, 1877. A-D, left G1; E, left G2; F, left third maxilliped. A, C, ventral view; B, D, dorsal view; C, D, G1 terminal segment. A, B, E, F, 1.0 mm; C, D, 0.5 mm.

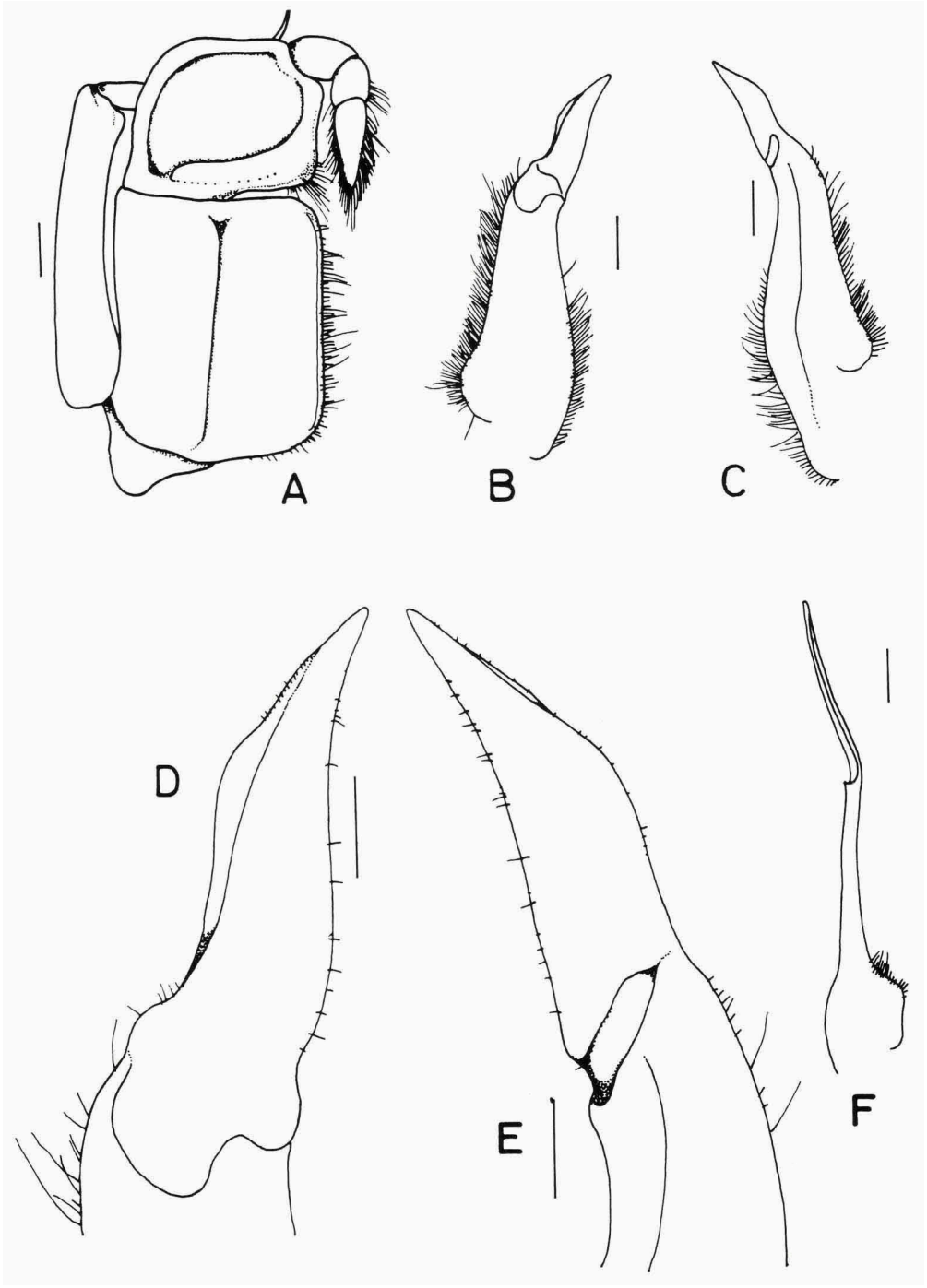

Fig. 43. *Potamon phuphanense* Naiyanetr, 1992, holotype, ♂ (32.6 by 26.5 mm) (ZRC 1991.1839). A, right third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral view; D, E, G1 terminal segment. Scales: 1.0 mm.

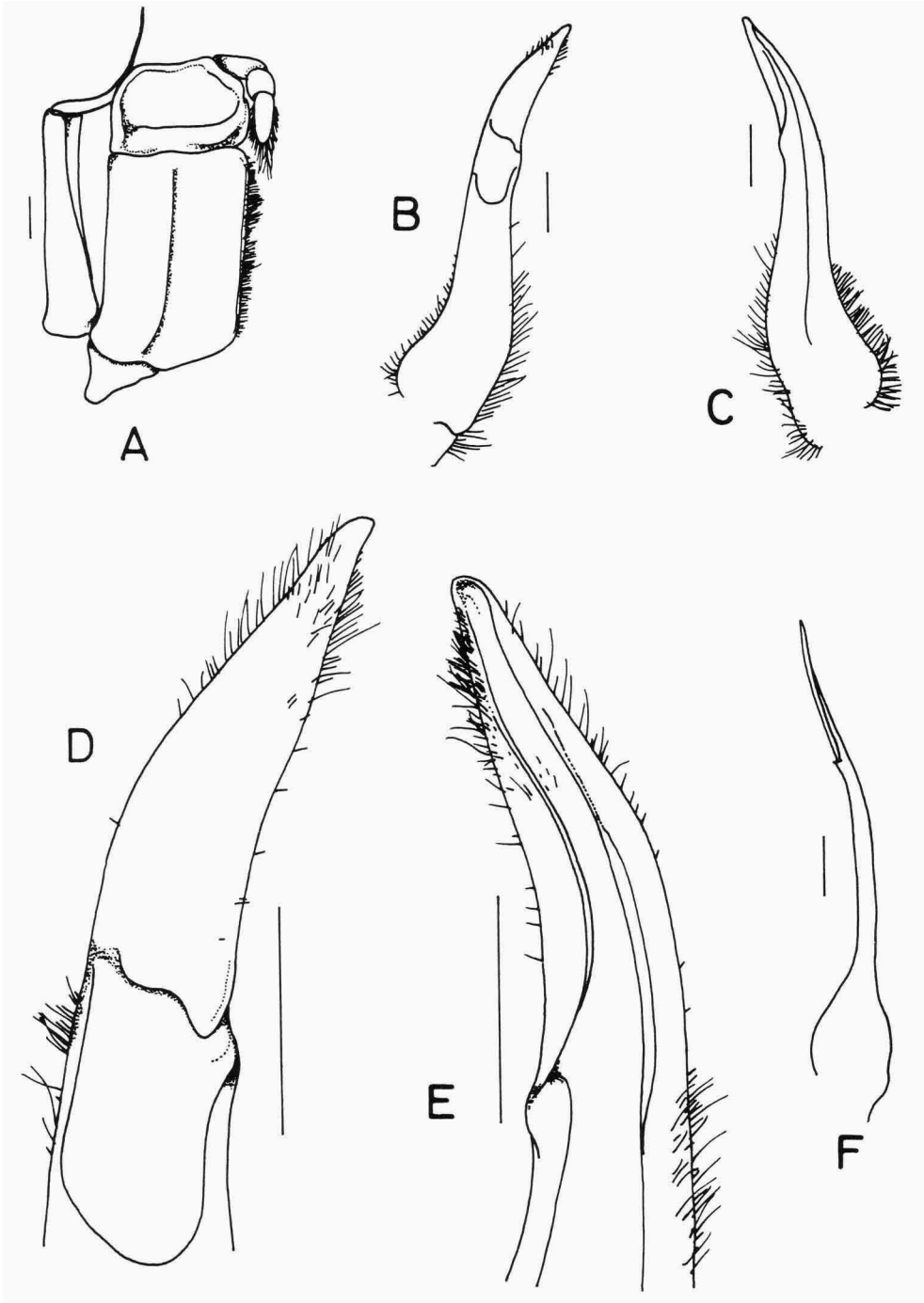

Fig. 44. *Potamon erawanense* Naiyanetr, 1992, holotype, ♂ (34.0 by 25.3 mm) (ZRC 1991.1843). A, right third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral view; D, E, G1 terminal segment. Scales: 1.0 mm.

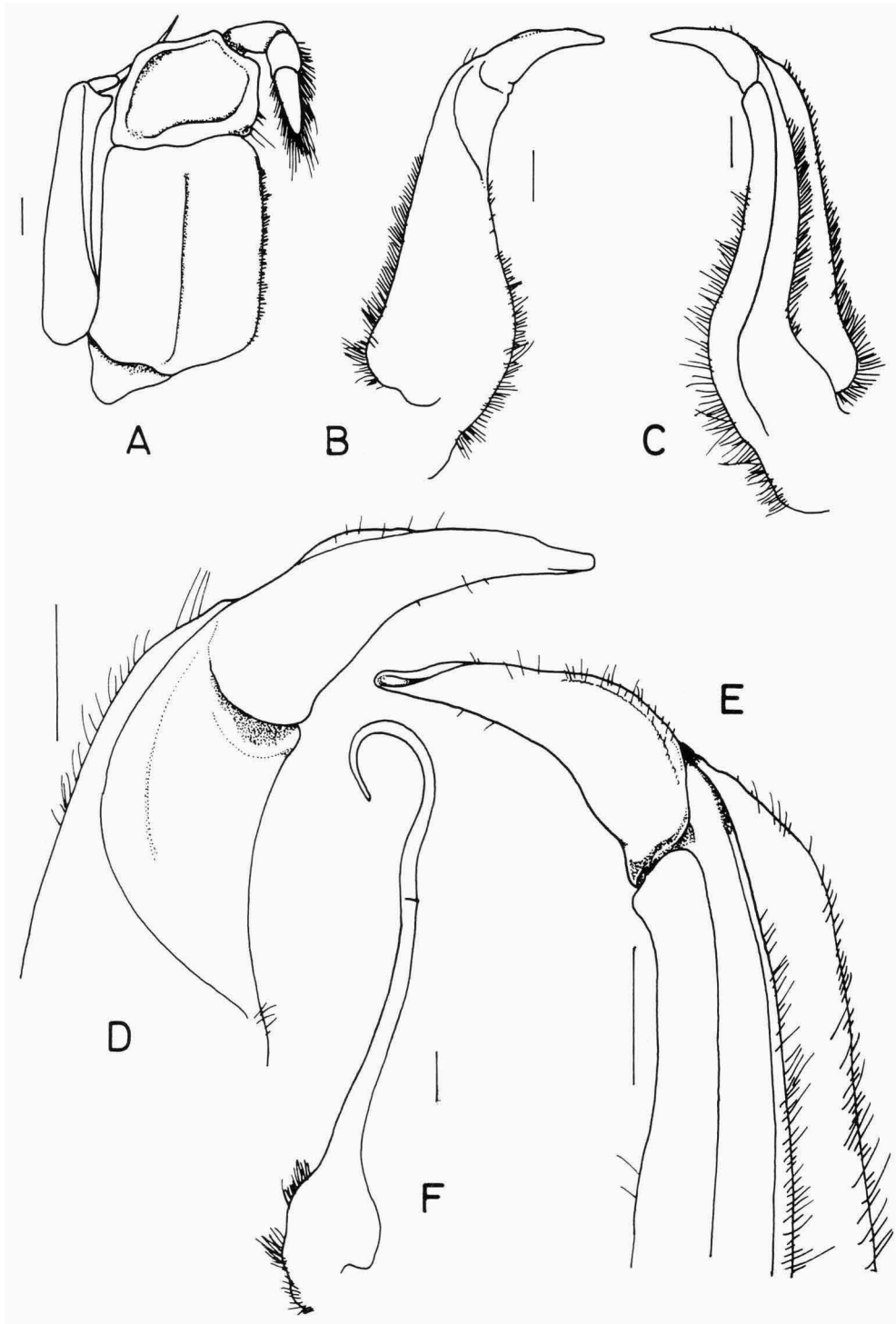

Fig. 45. *Potamon maehongsonense* Naiyanetr, 1992, holotype, ♂ (39.0 by 30.2 mm) (ZRC 1991.1847). A, right third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral; D, E, G1 terminal segment. Scales: 1.0 mm.

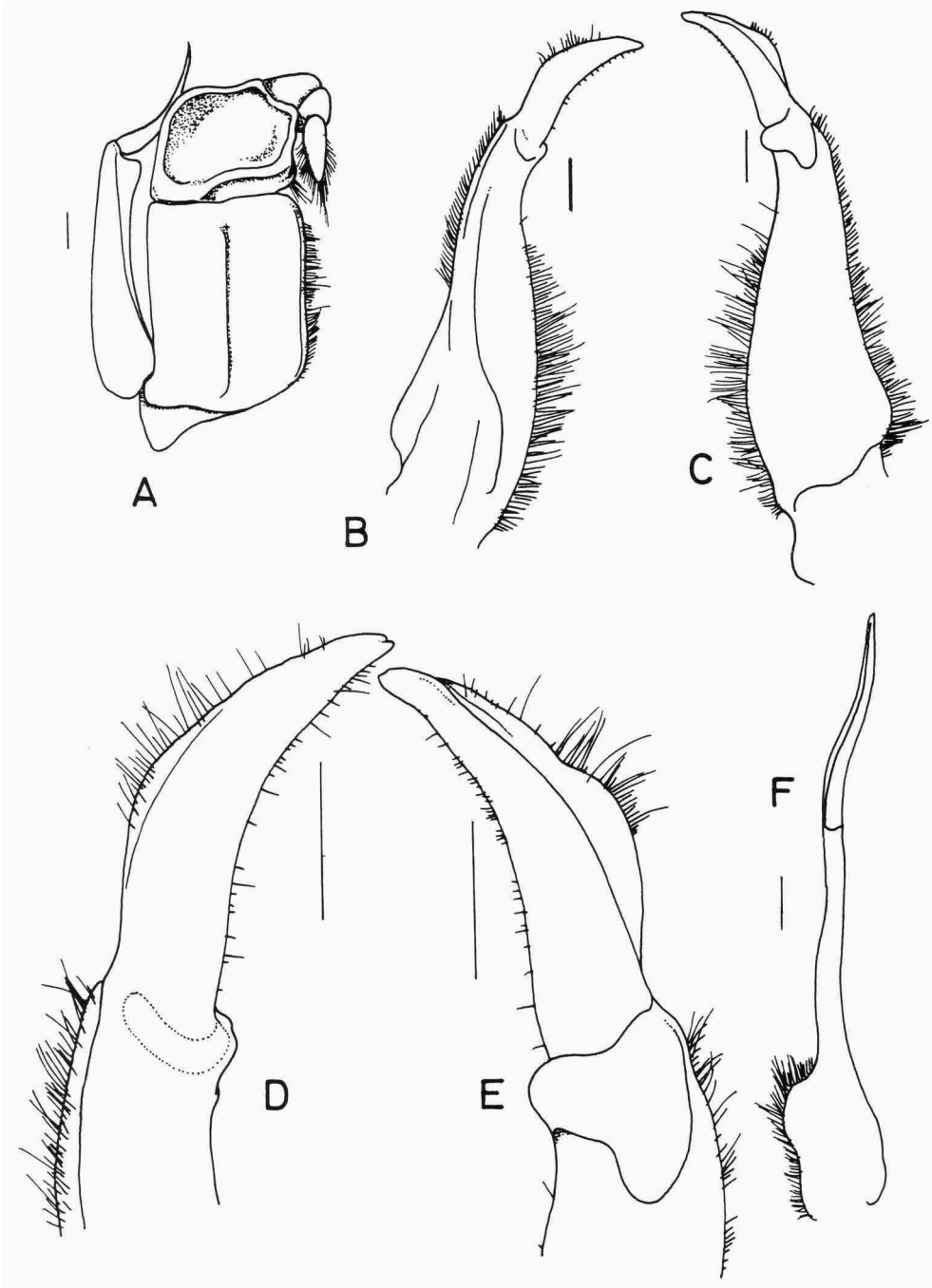

Fig. 46. *Potamon yotdomense* (Naiyanetr, 1984), paratype, ♂ (42.8 by 32.9 mm) (ZRC 1991.1850). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: 1.0 mm.

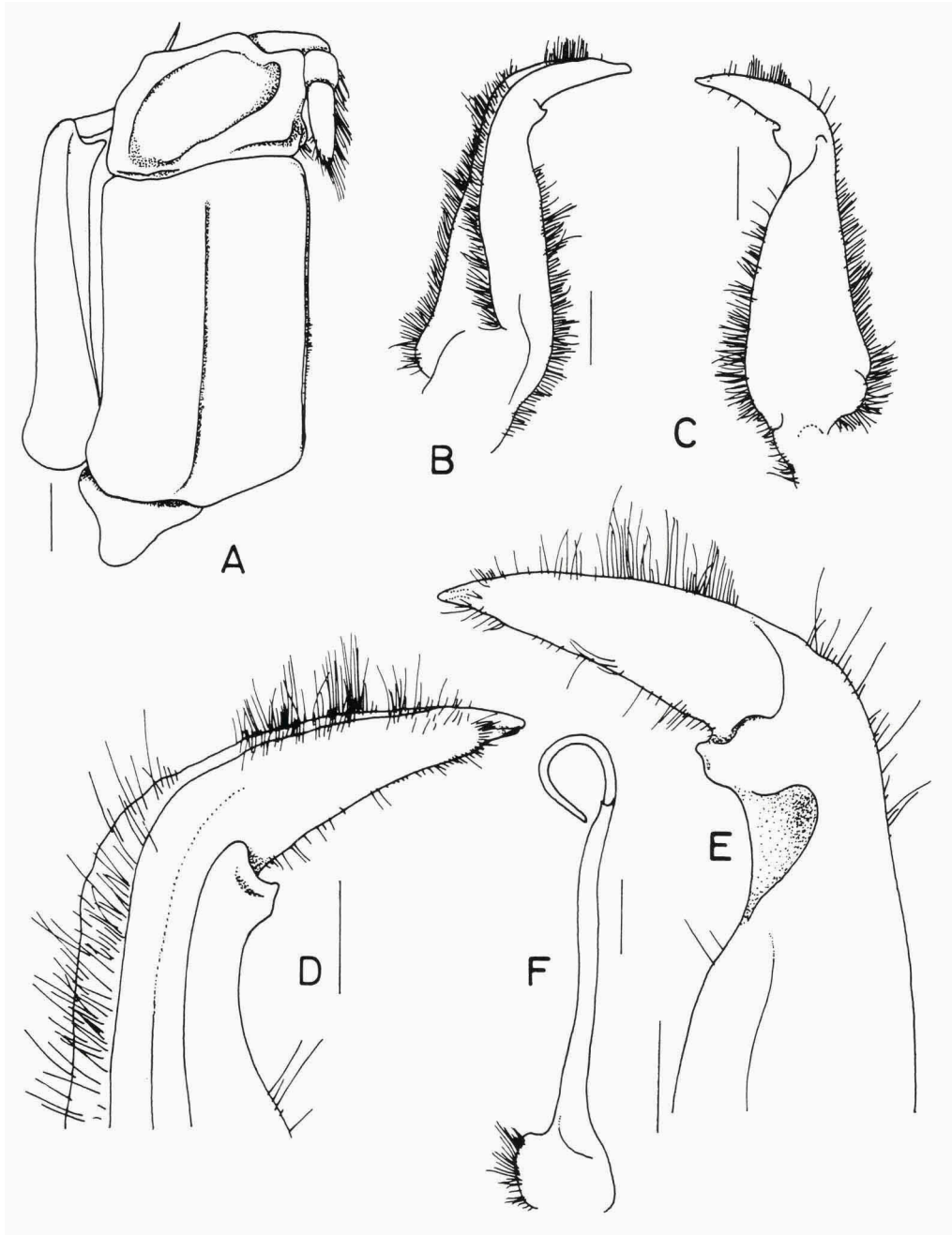

Fig. 47. *Potamon lipkei* spec. nov., holotype, ♂ (56.8 by 42.8 mm) (RMNH D 42353). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A-C, F, 2.0 mm; D, E, 1.0 mm.

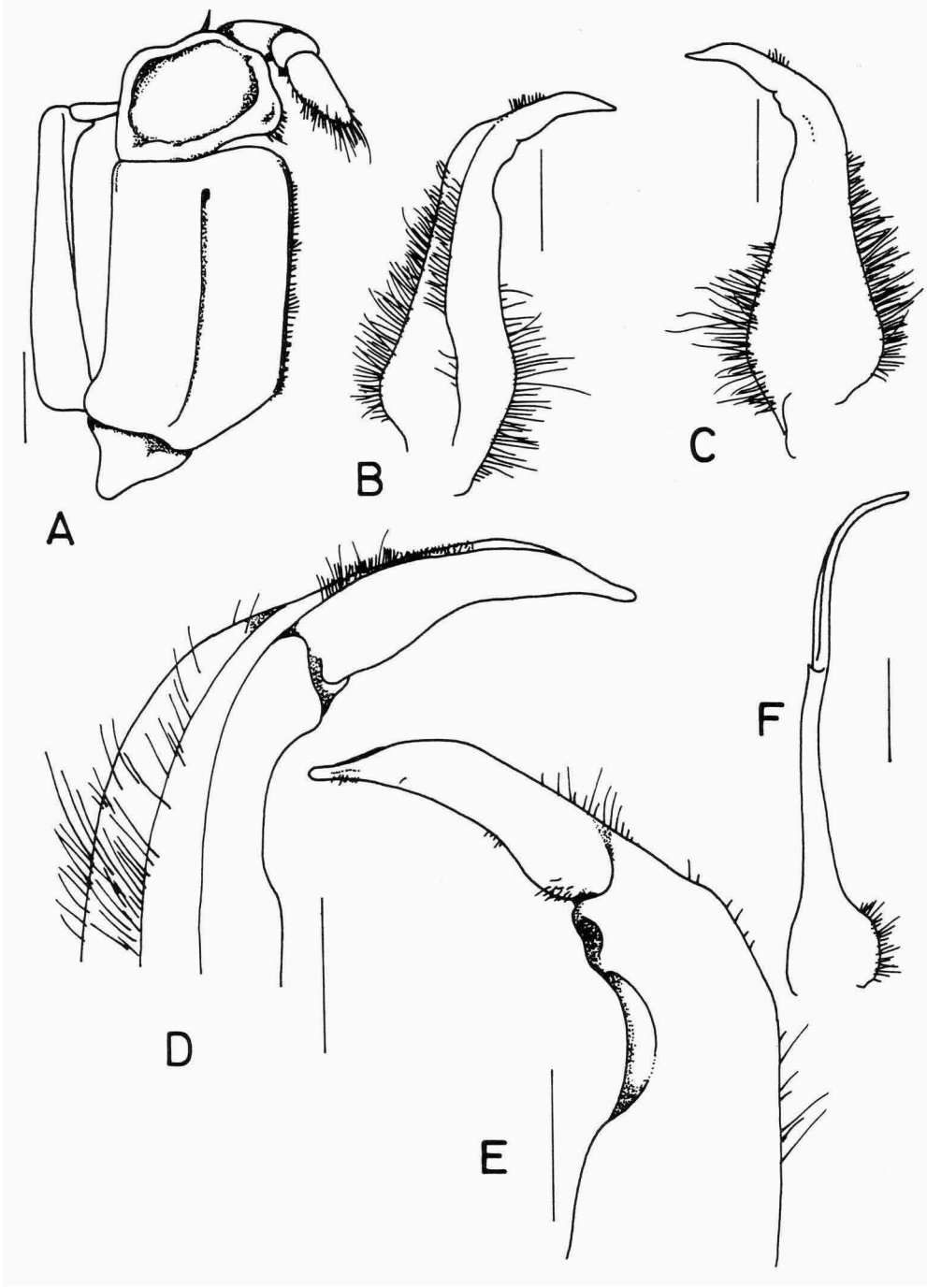

Fig. 48. *Potamon nan* spec. nov., holotype, ♂ (35.6 by 27.2 mm) (RMNH D 42345). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. A-C, F, 2.0 mm; D, E, 1.0 mm.

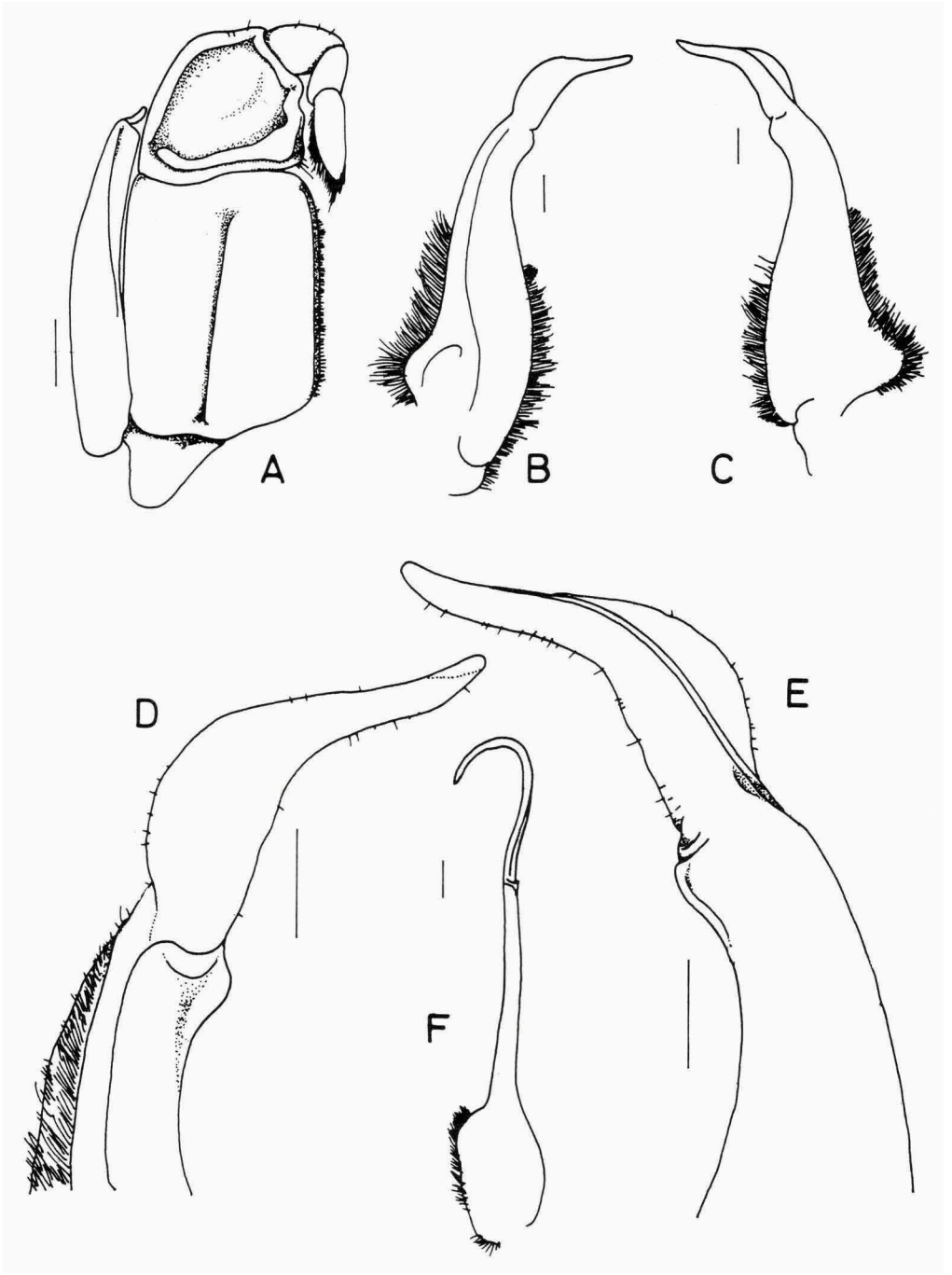

Fig. 49. *Dromothelphusa phrae* (Naiyanetr, 1984), paratype, ♂ (52.3 by 41.2 mm) (ZRC 1991.1868). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A, 2.0 mm; B, C, F, 1.0 mm; D, E, 0.5 mm.

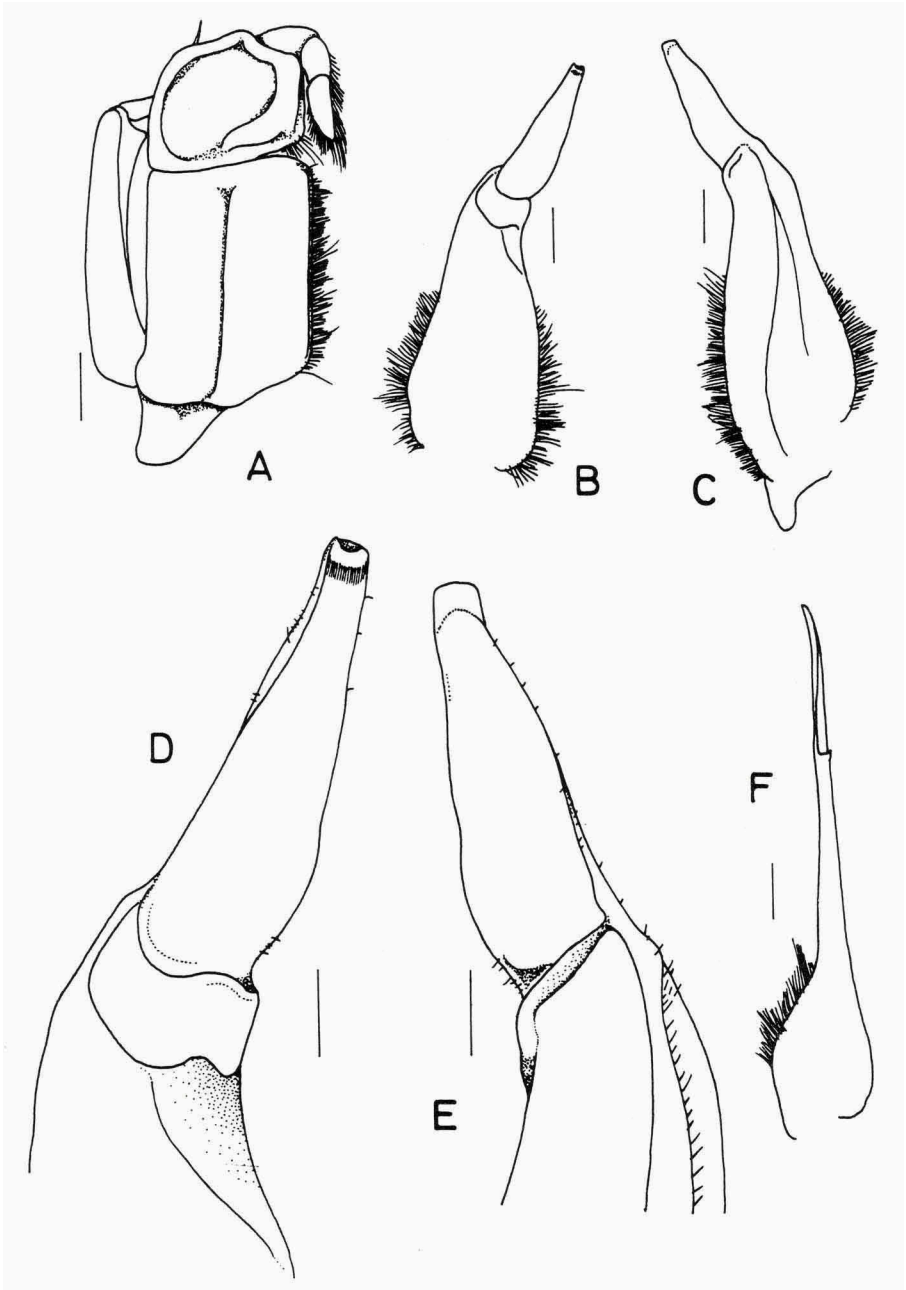

Fig. 50. *Larnaudia chaiyaphumi* Naiyanetr, 1982, paralectotype, ♂ (42.4 by 33.4 mm) (ZRC 1991.1871). A, right third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral; D, E, G1 terminal segment. Scales: A, 2.0 mm; B, C, F, 1.0 mm; D, E, 0.5 mm.

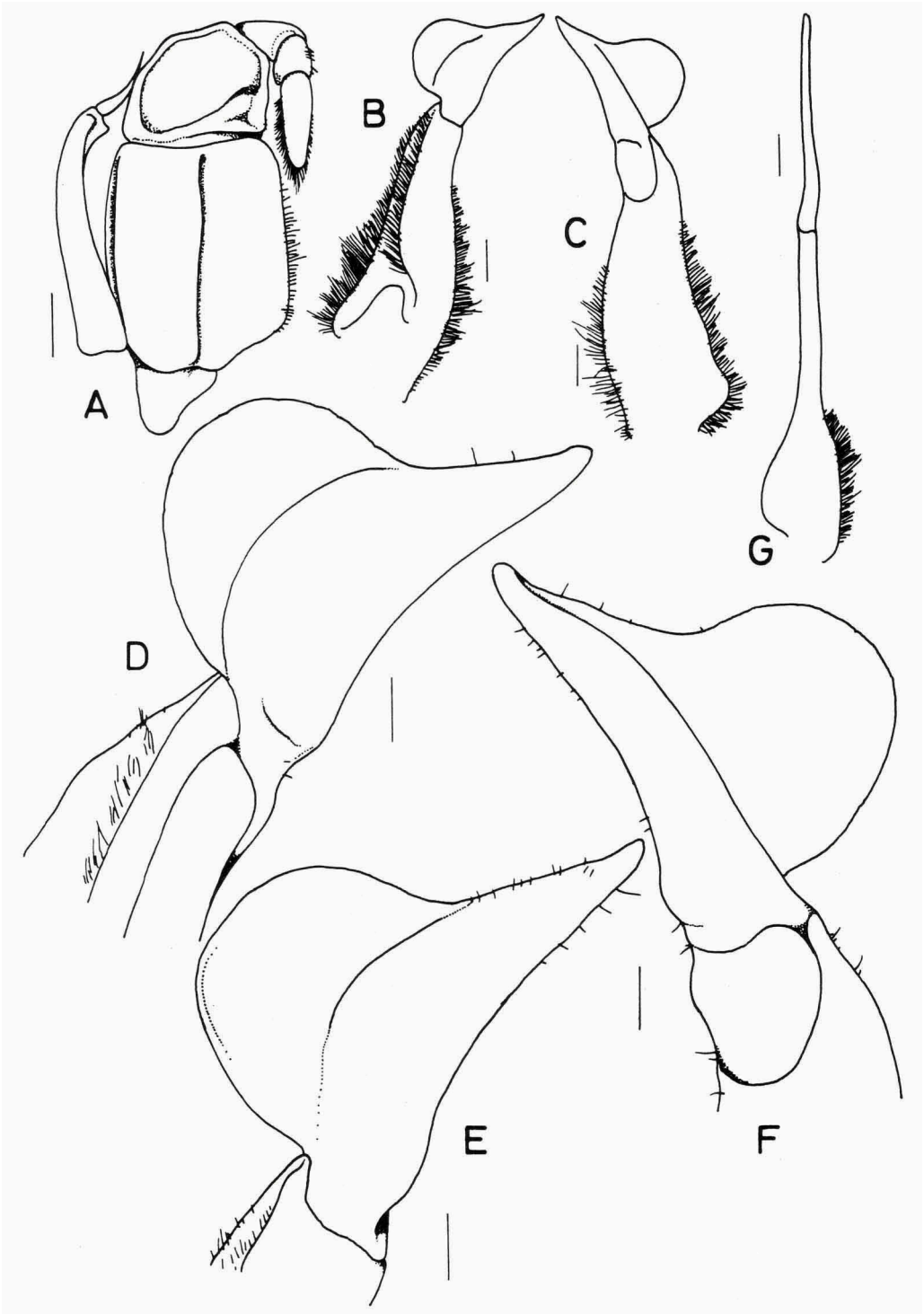

Fig. 51. *Thaipotamon lomkao* spec. nov., holotype, ♂ (43.5 by 32.0 mm) (ZRC 1991.1873). A, right third maxilliped; B-F, left G1; G, left G2. B, D, E, ventral view; C, F, dorsal view; D, E, F, G1 terminal segment; D, E drawn at different orientations. Scales: A, 2.0 mm; B, C, G, 1.0 mm; D-F, 0.5 mm.

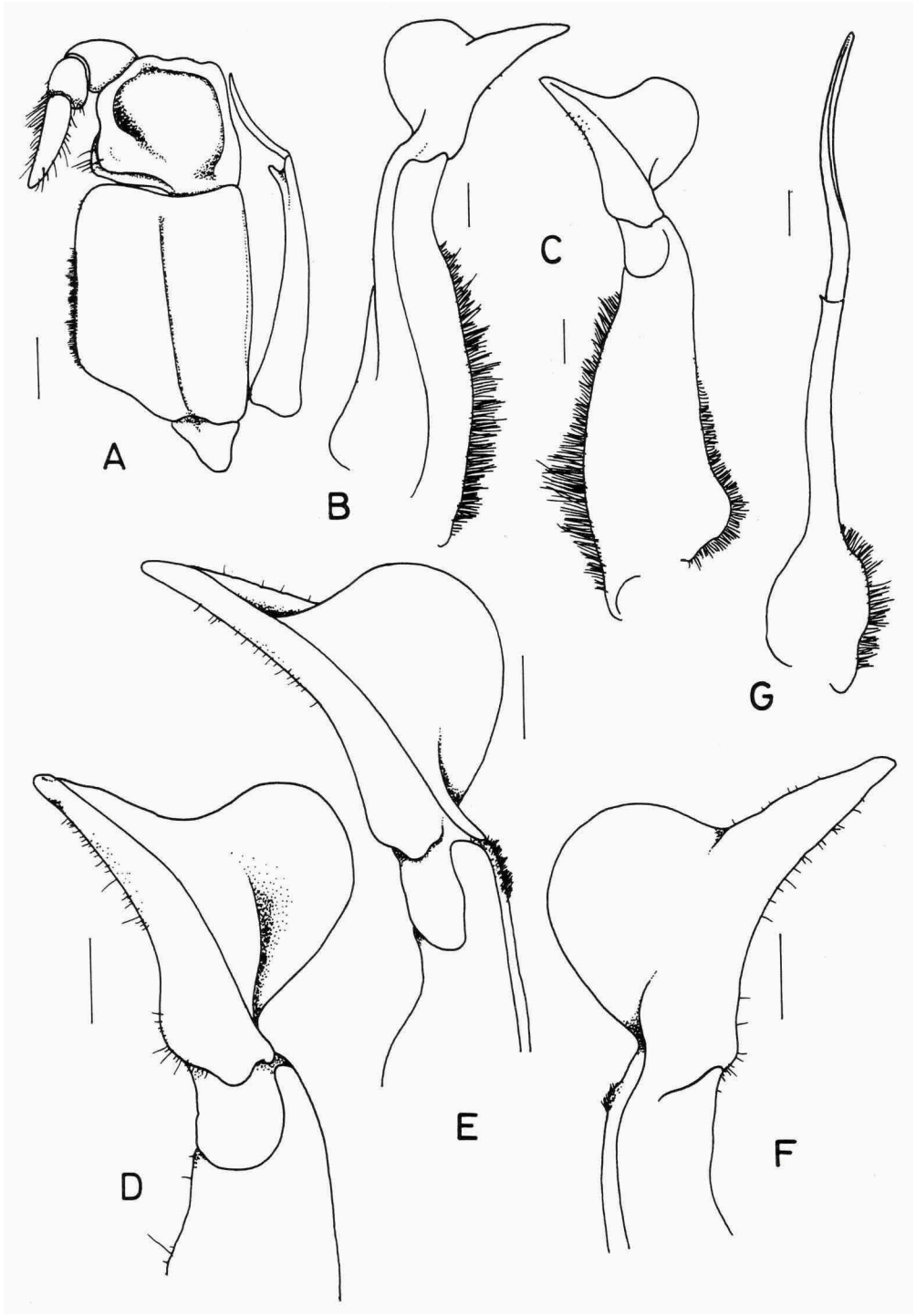

Fig. 52. *Thaipotamon dansai* spec. nov., holotype, ♂ (48.5 by 34.5 mm) (RMNH D 42346). A, right maxilliped; B-F, left G1; G, left G2. B, D, E, ventral view; C, F, dorsal view; D, E, G1 terminal segment; D, E, F, drawn at different orientations. Scales: A, 2.0 mm; B-G, 1.0 mm.

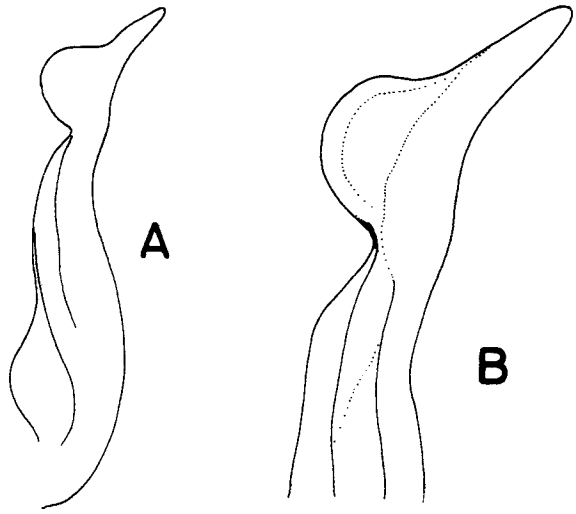

Fig. 53. *Thaipotamon* spec., ♂, left G1 (43.0 by 32.0 mm) (USNM 94414) (copied from photographs). A, ventral view; B, terminal segment.

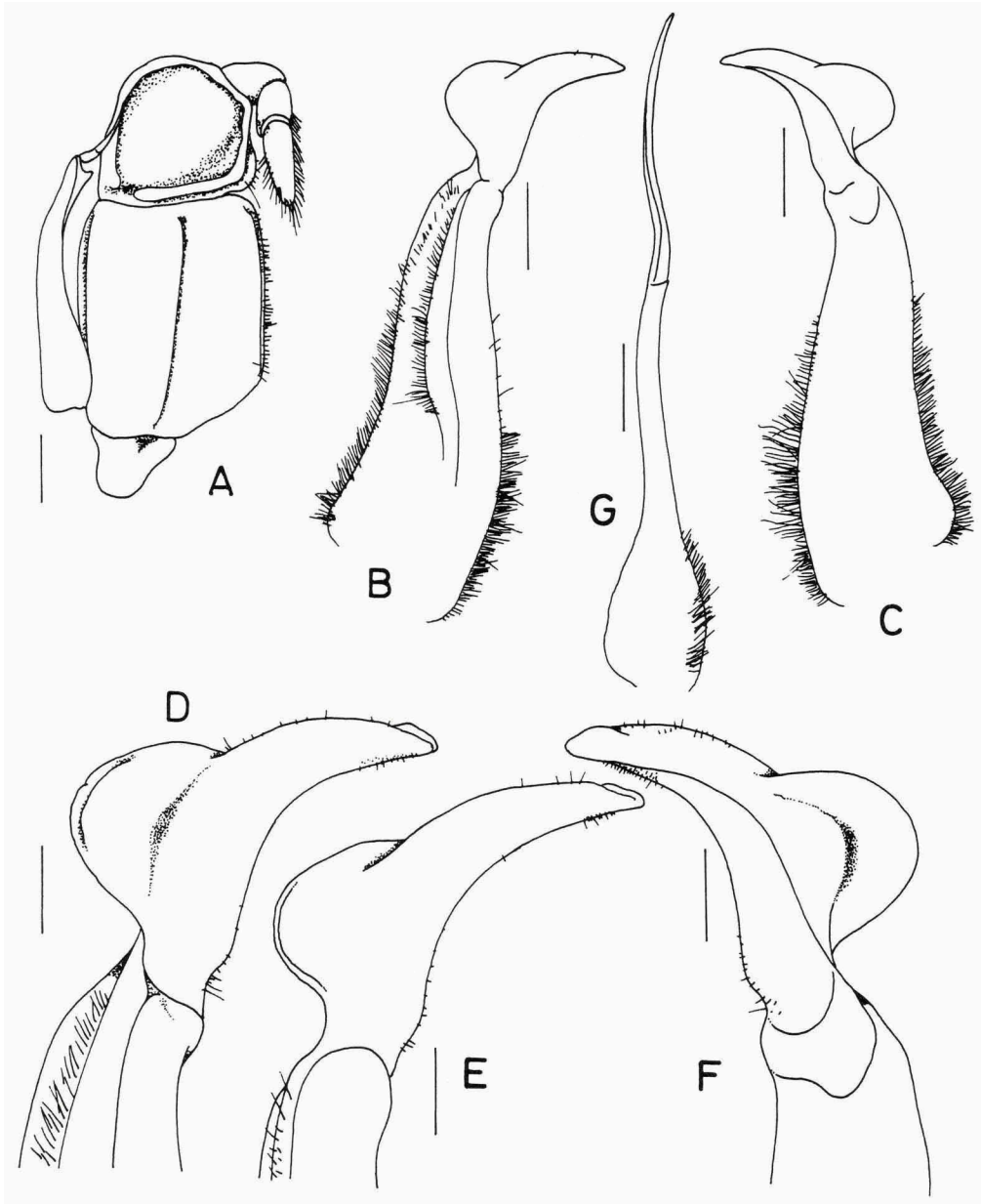

Fig. 54. *Thaipotamon varoonphornae* spec. nov., holotype, ♂ (43.5 by 32.2 mm) (RMNH D 42351). A, left third maxilliped; B-F, left G1; G, left G2. B, F, ventral view; C, D, E, dorsal view; D, E, F, G1 terminal segment; D, E drawn at different orientations. Scales: A-C, G, 2.0 mm; D-F, 1.0 mm.

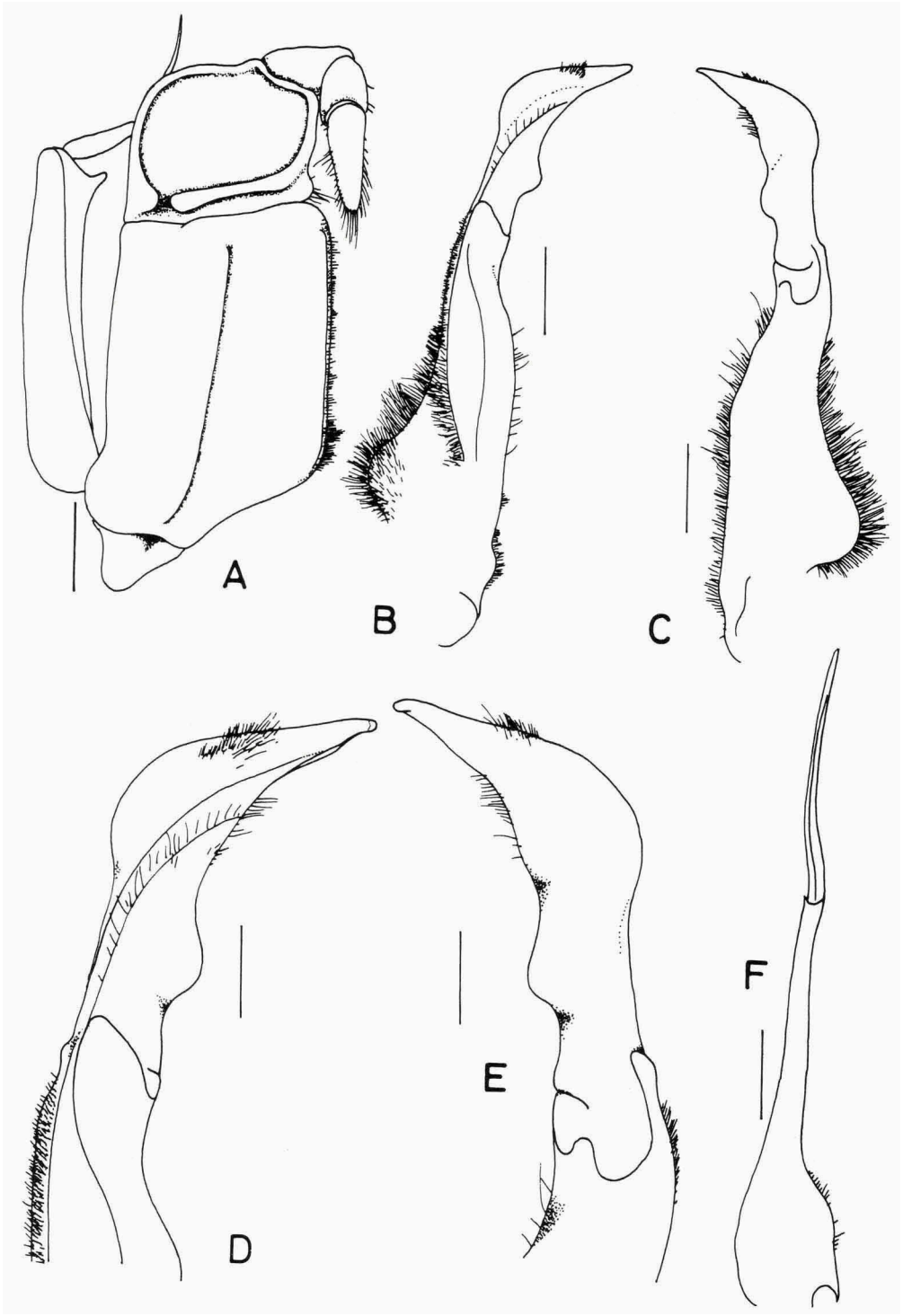

Fig. 55. *Kanpotamon duangkhaei* spec. nov., holotype, ♂ (49.8 by 35.5 mm) (CUMZ). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A-C, F, 2.0 mm; D, E, 1.0 mm.

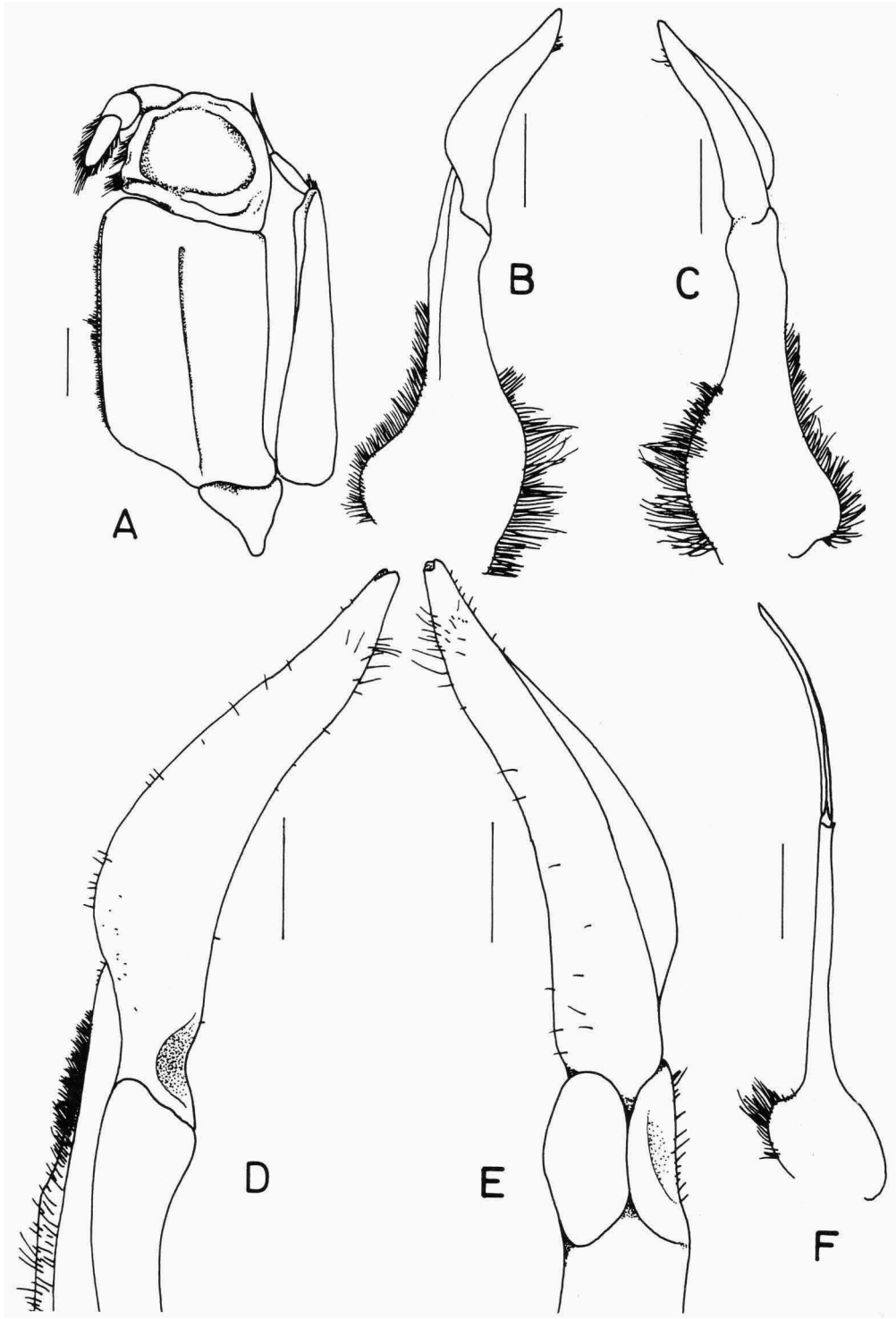

Fig. 56. *Thaiphusa sirikit* (Naiyanetr, 1992), paratype, ♂ (46.5 by 32.0 mm) (ZRC 1991.1880). A, left third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A-C, F, 2.0 mm; D, E, 1.0 mm.

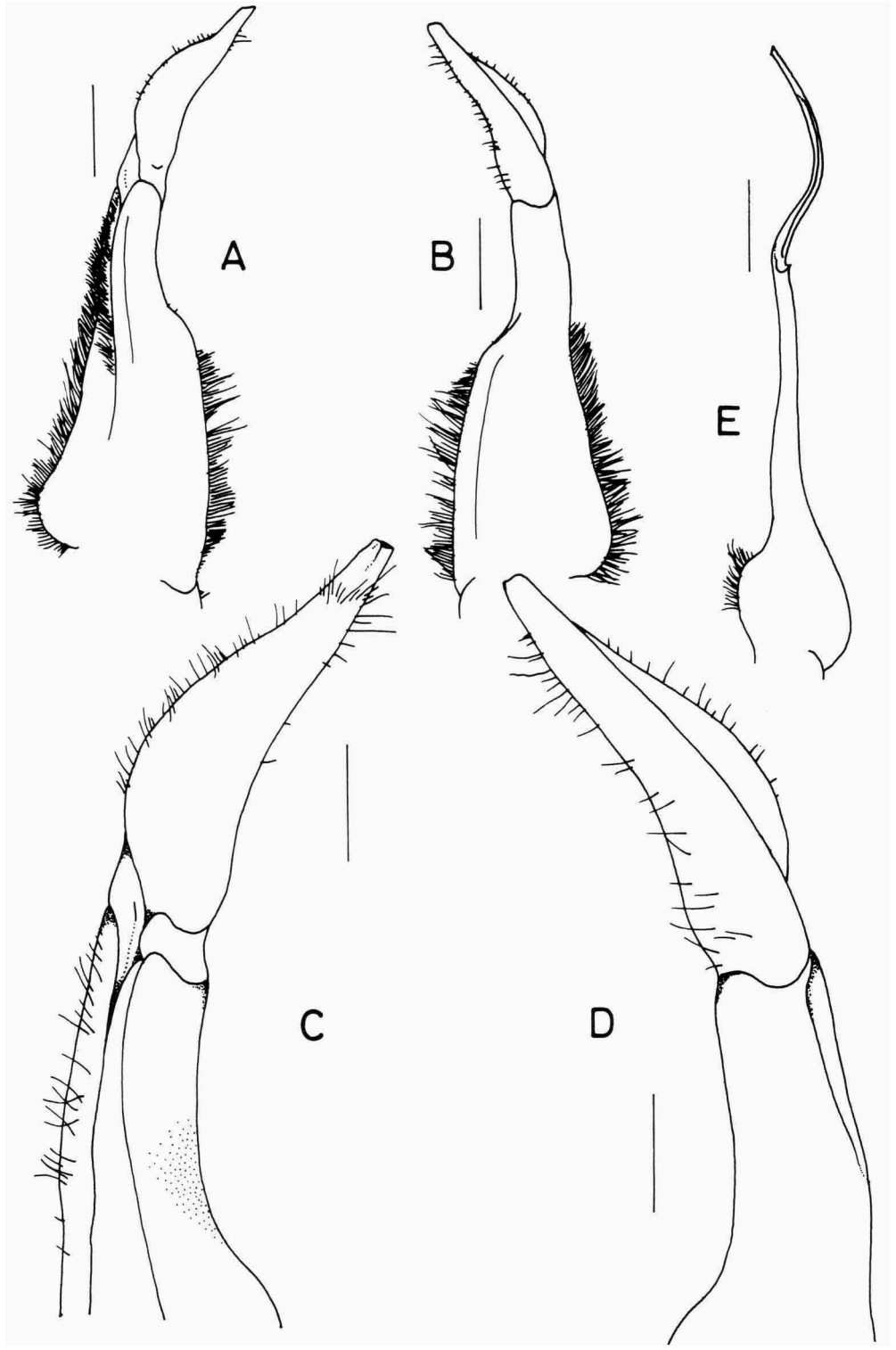

Fig. 57. *Thaiphusa tenasserimensis* (de Man, 1898), topotype, ♂ (30.7 by 21.9 mm) (ZRC 1965.12.7.99-100), Mount Moolevit, Burma, leg. Fea, 1894. A-D, left G1; E, left G2. A, C, ventral view; B, D, dorsal view; C, D, G1 terminal segment. Scales: 1.0 mm.

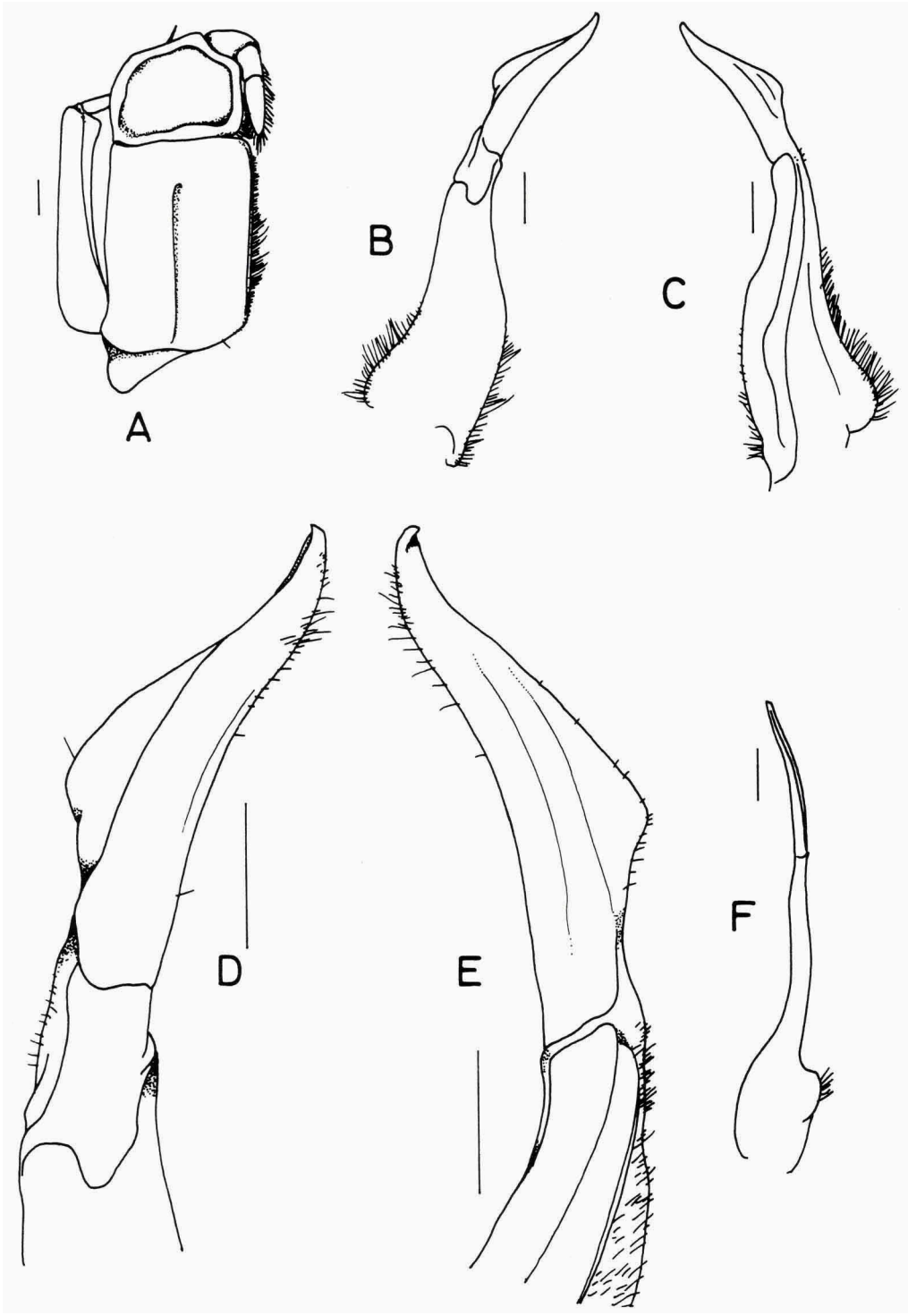

Fig. 58. *Demanietta tritrungensis* (Naiyanetr, 1986), paratype, ♂ (37.7 by 28.0 mm) (ZRC 1991.1857). A, right third maxilliped; B-E, right G1; F, right G2. B, D, dorsal view; C, E, ventral view; D, E, G1 terminal segment. Scales: 1.0 mm.

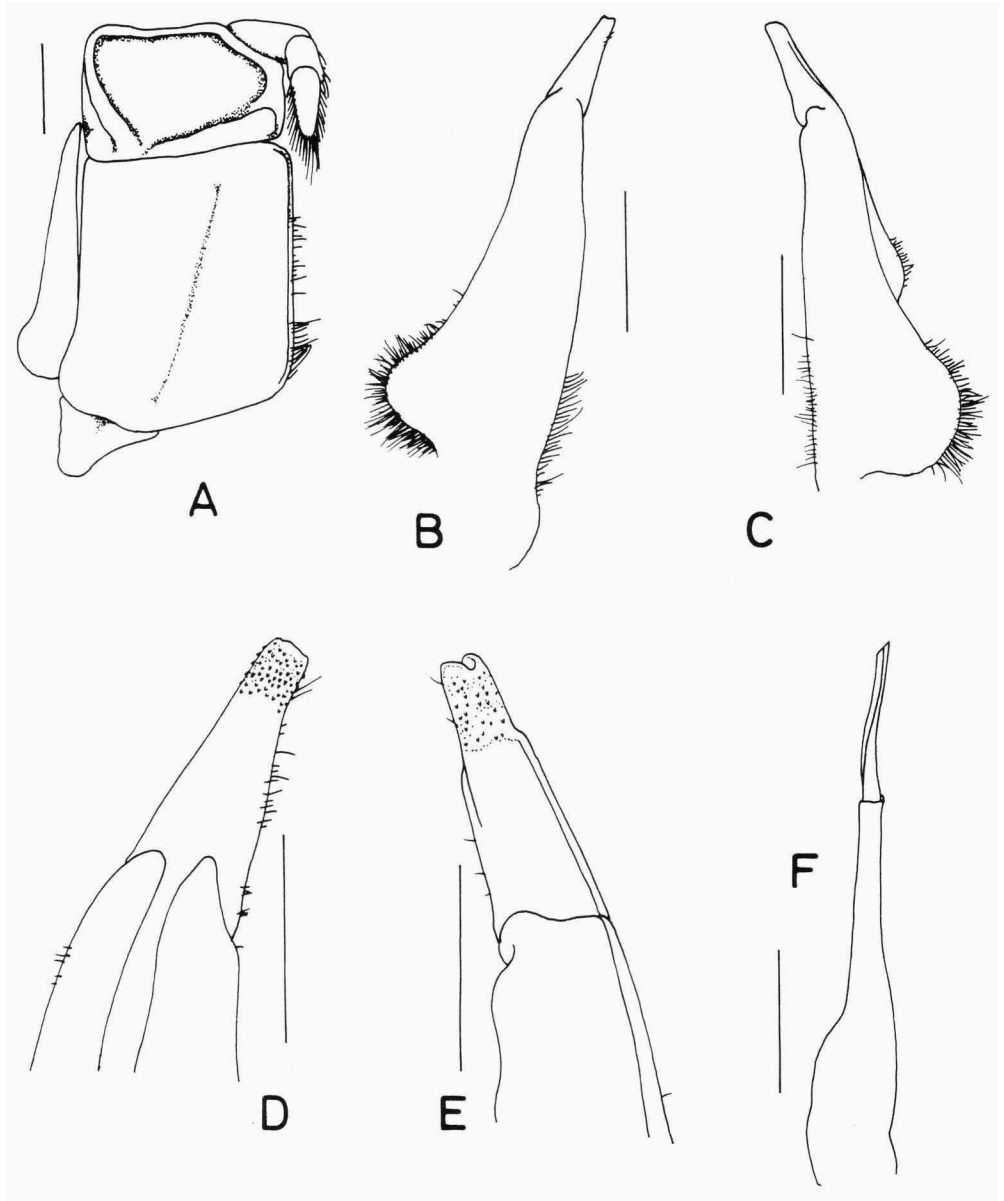

Fig. 59. *Phricotelphusa ranongi* Naiyanetr, 1982, ♂, (18.3 by 14.9 mm) (ZRC 1985.4388). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A-C, F, 1.0 mm; D, E, 0.5 mm.

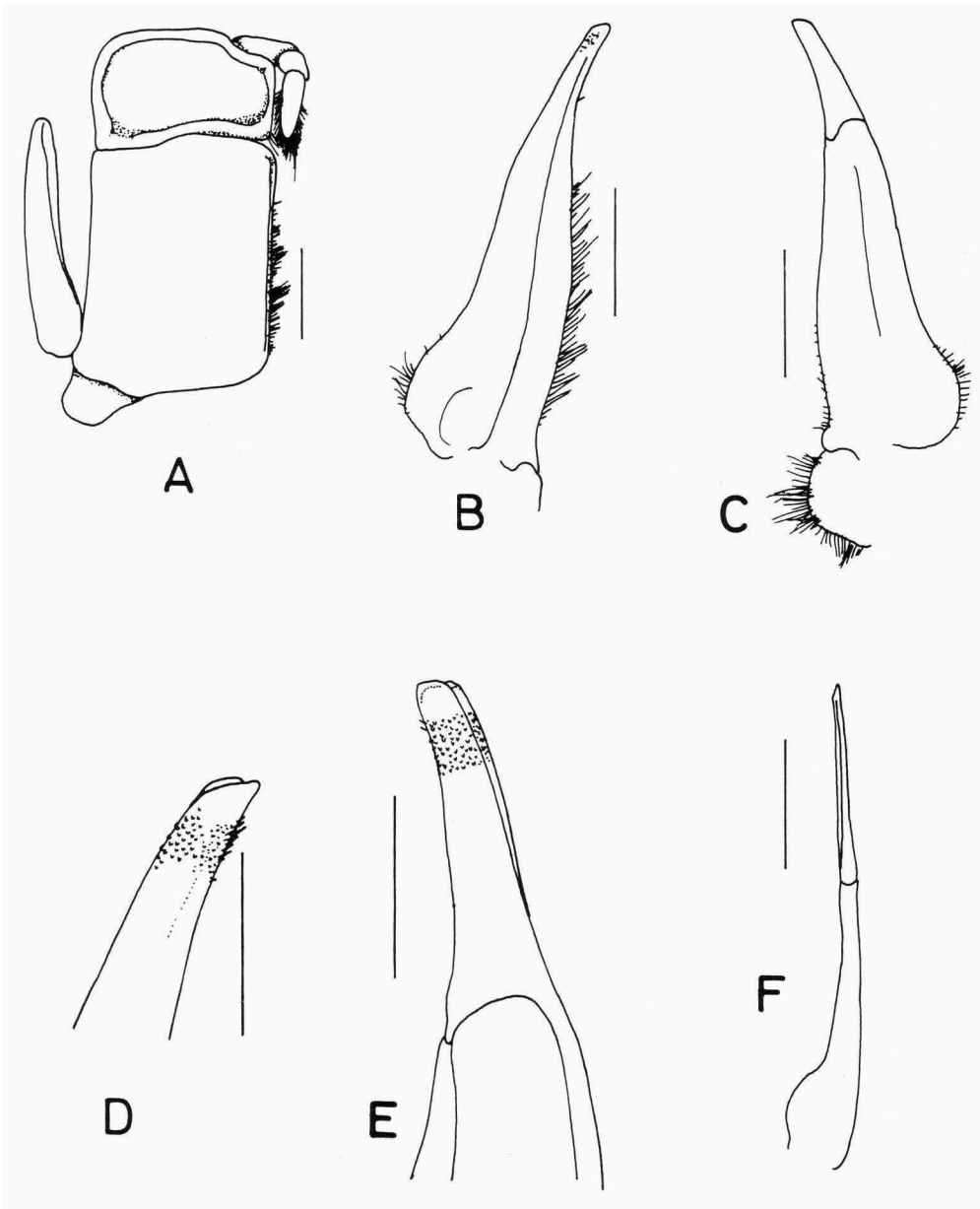

Fig. 60. *Thaksinthelphusa yongchindaratae* (Naiyanetr, 1988), lectotype, ♂ (17.7 by 13.2 mm) (RMNH D 41629). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view; D, E, G1 terminal segment. Scales: A-C, F, 1.0 mm; D, E, 0.5 mm.

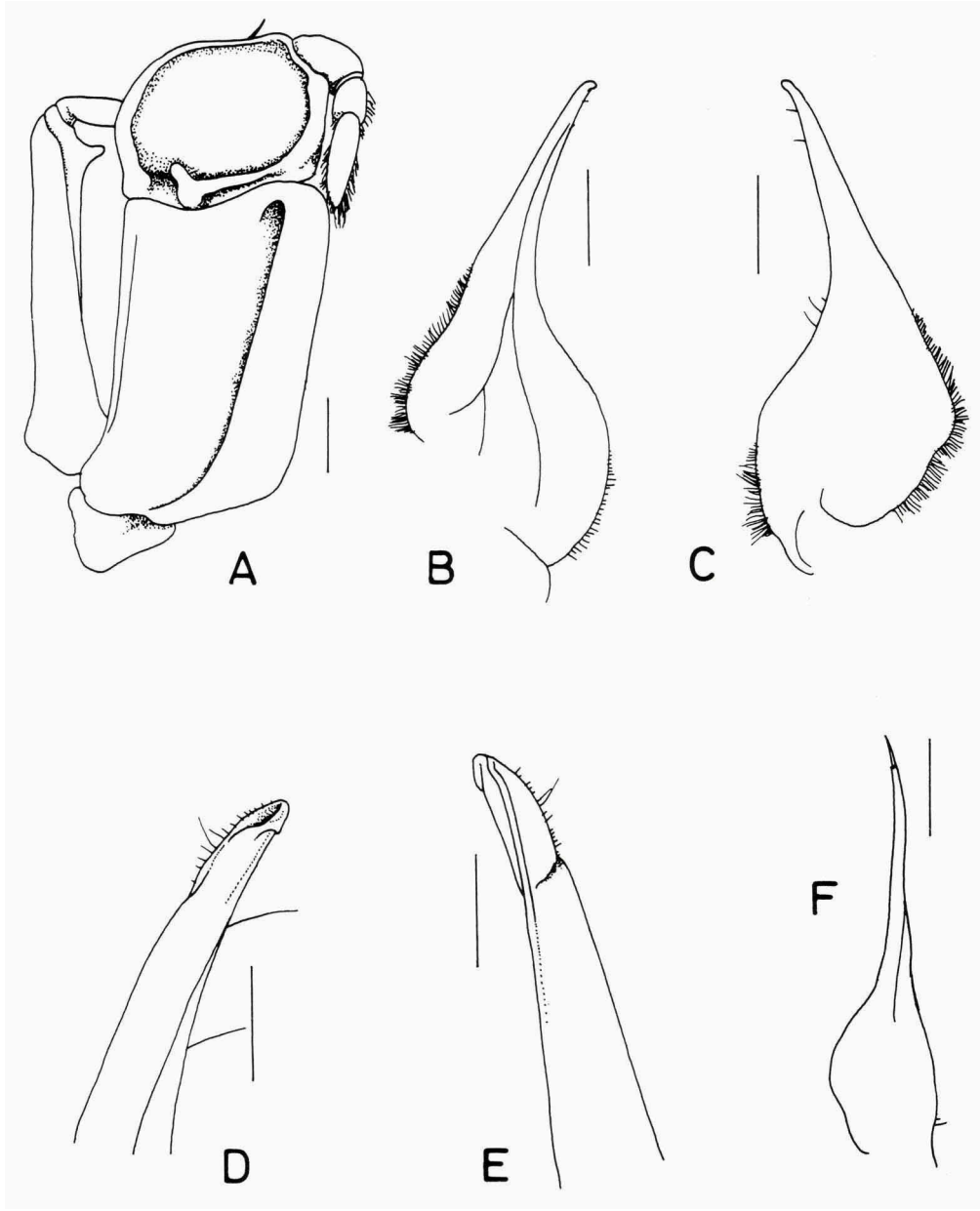

Fig. 61. *Somanniathelphusa bangkokensis* Naiyanetr, 1982, ♂ (50.7 by 41.1 mm) (ZRC 1984.7707). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view. Scales: A-C, F, 2.0 mm; D, E, 0.5 mm.

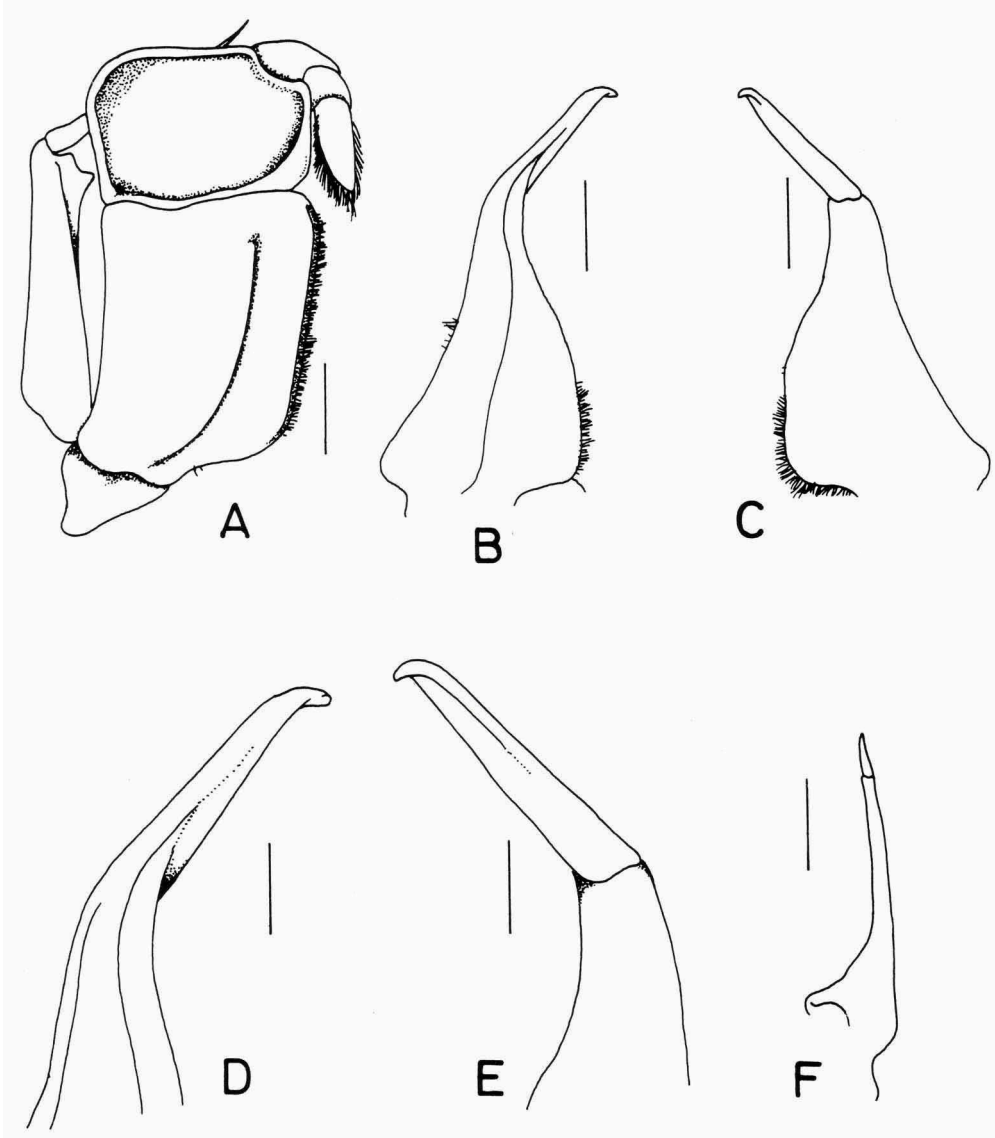

Fig. 62. *Somanniathelphusa maehongsonensis* Naiyanetr, 1987, paralectotype, ♂ (18.2 by 15.8 mm) (ZRC 1991.1885). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view. Scales: A-C, F, 1.0 mm; D, E, 0.5 mm.

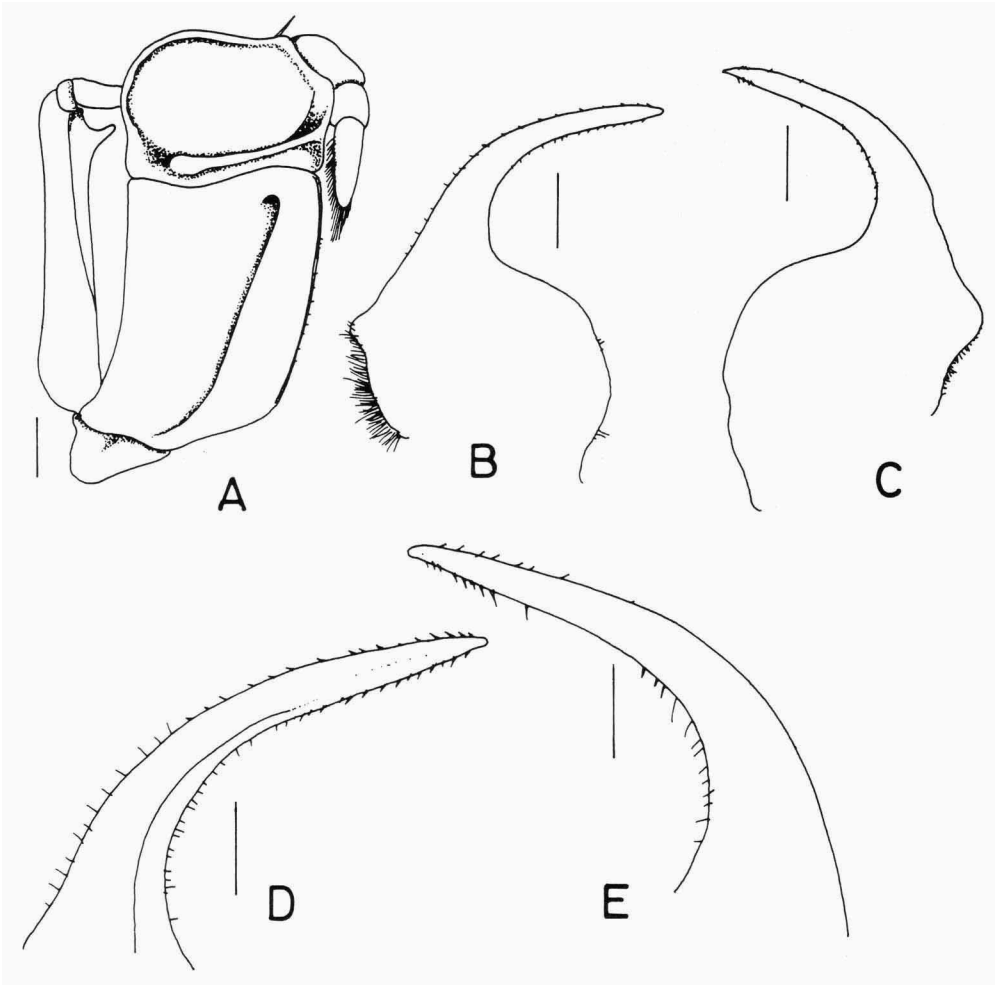

Fig. 63. *Somanniathelphusa fangensis* Naiyanetr, 1987, ♂ (28.3 by 21.8 mm) (ZRC 1984.7711). A, right third maxilliped; B-E, left G1. B, D, ventral view; C, E, dorsal view. Scales: A-C, 1.0 mm; D, E, 0.5 mm.

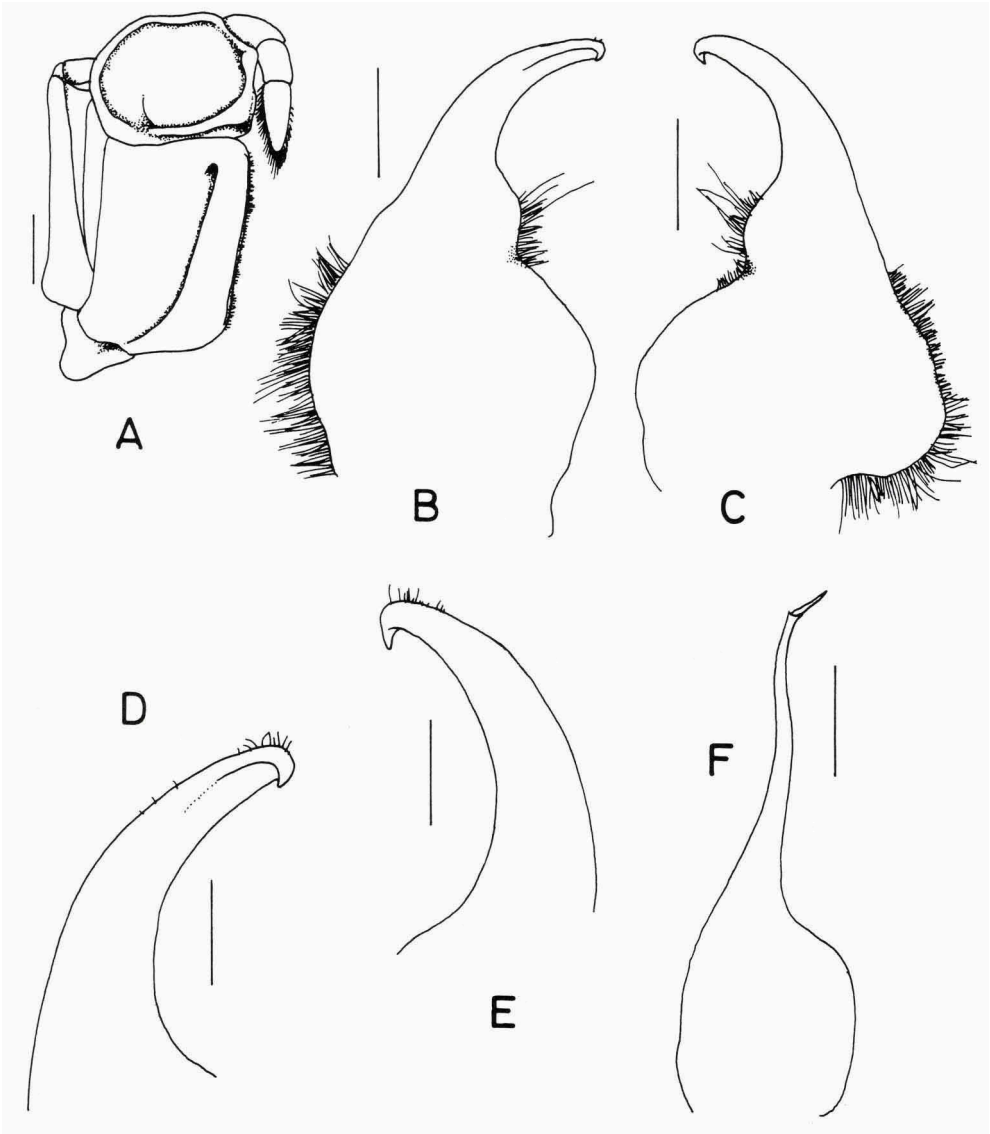

Fig. 64. *Somanniathelphusa denchaii* Naiyanetr, 1984, ♂ (36.9 by 29.2 mm) (ZRC 1984.7709). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view. Scales: A, 2.0 mm; B, C, F, 10.0 mm; D, E, 0.5 mm.

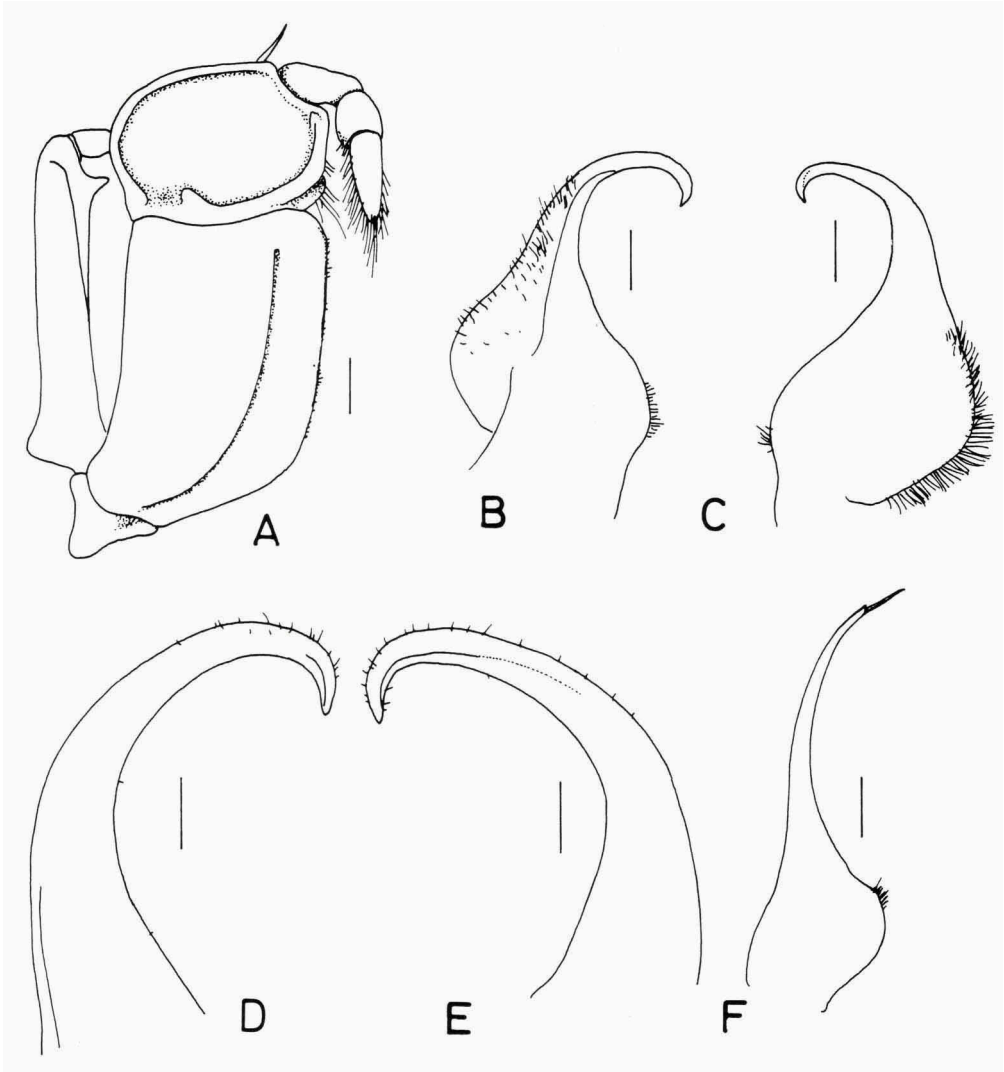

Fig. 65. *Somanniathelphusa nani* Naiyanetr, 1984, ♂ (31.9 by 25.1 mm) (ZRC 1984.7715). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view. Scales: A-C, F, 1.0 mm; D, E, 0.5 mm.

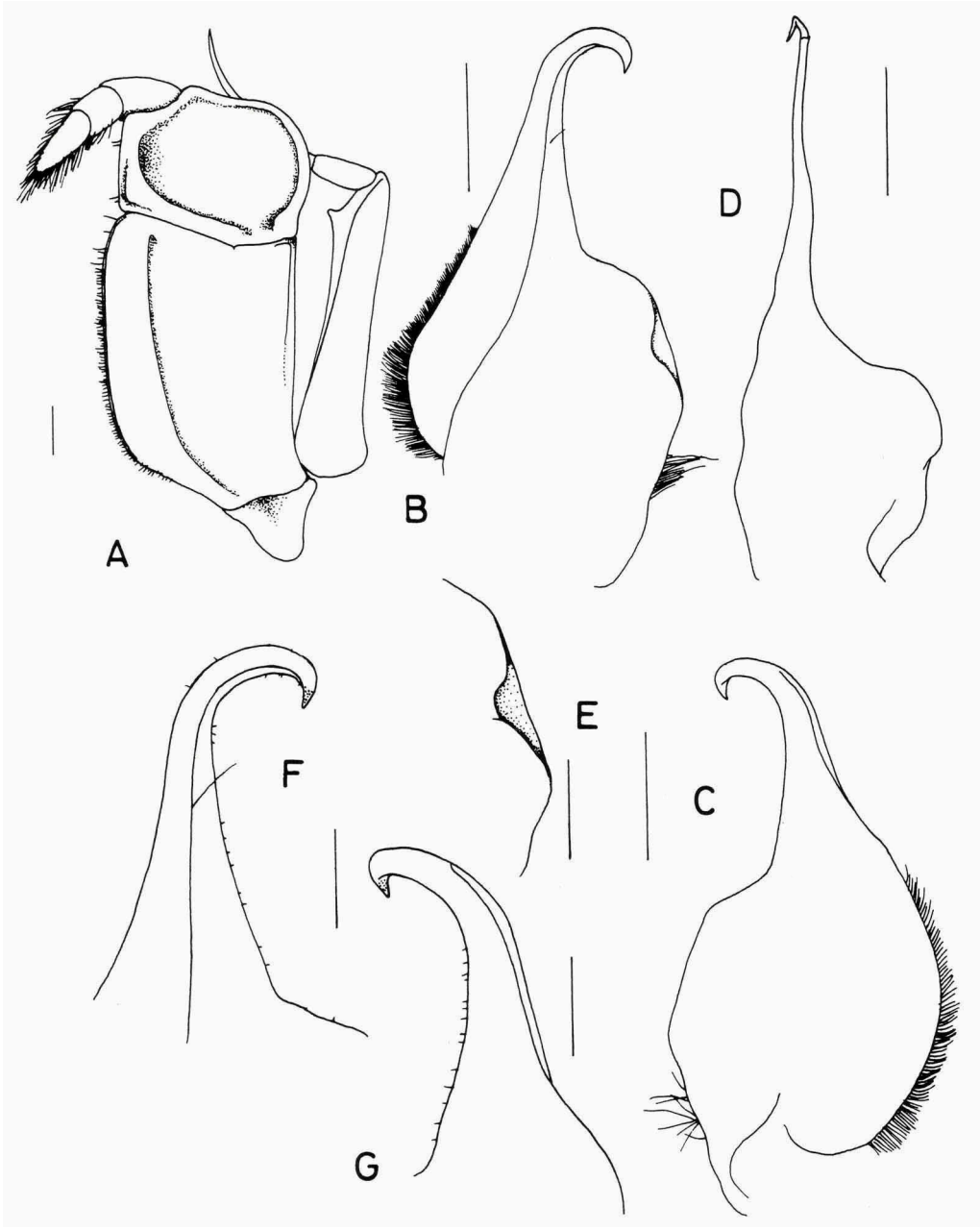

Fig. 66. *Somanniathelphusa phetchaburi* spec. nov., holotype, ♂ (33.8 by 26.5 mm) (ZRC 1991.1886). A, right third maxilliped; B-C, F, G, left G1; D, left G2. B, F, ventral view; C, G, dorsal view. Scales: A-D, 1.0 mm; E-G, 0.5 mm.

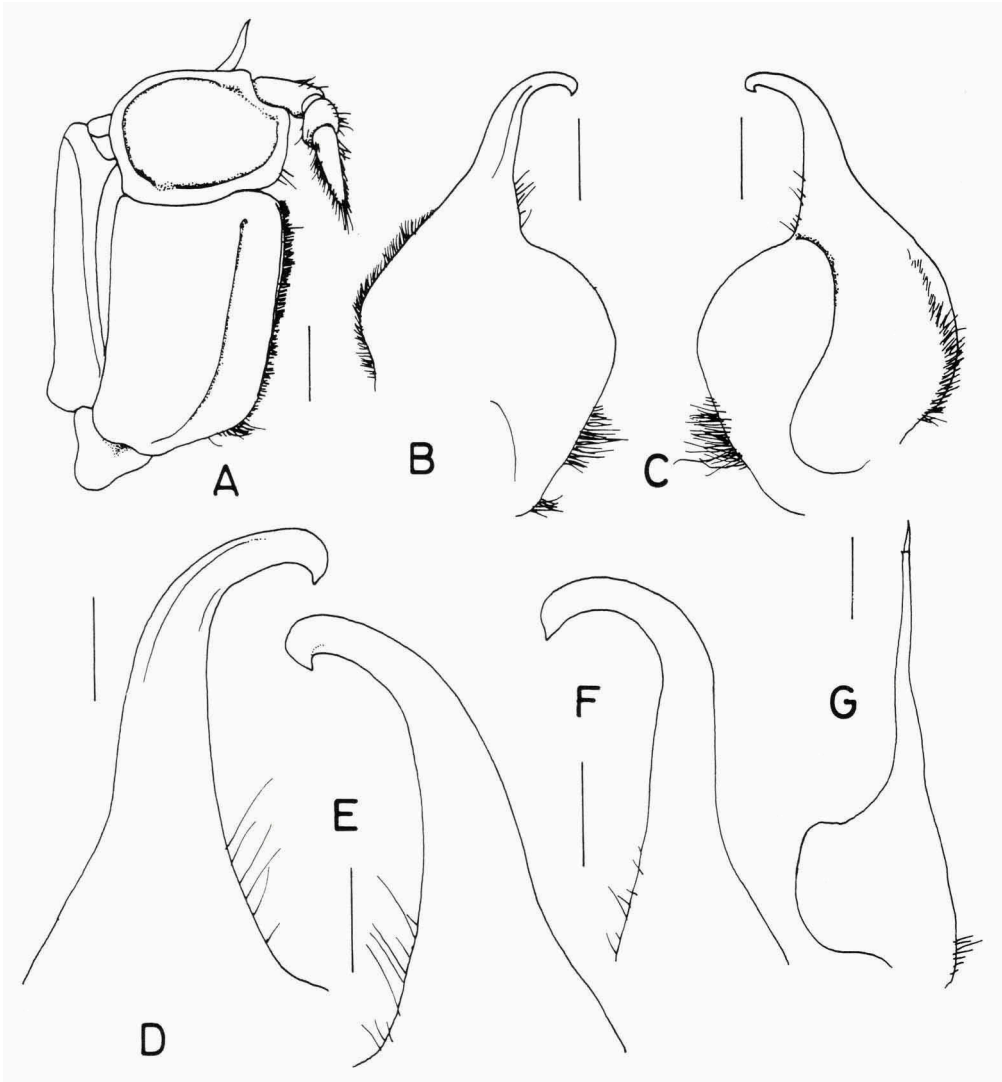

Fig. 67. *Somanniathelphusa chiangmai* spec. nov., holotype, ♂ (44.0 by 33.3 mm) (RMNH D 42347). A, right third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view. Scales: A, 2.0 mm; B, C, G, 1.0 mm; D-F, 0.5 mm.

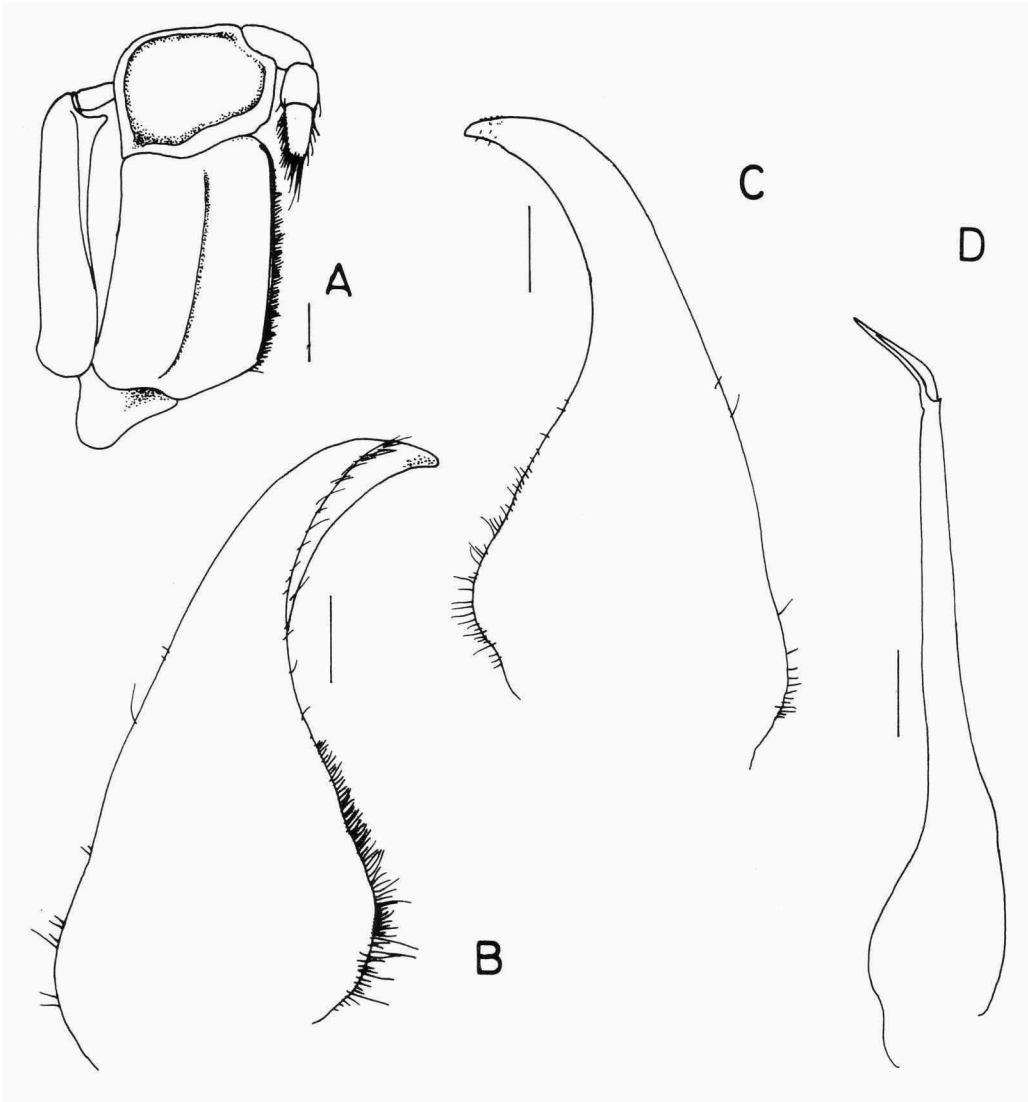

Fig. 68. *Heterothelphusa beauvoisi* (Rathbun, 1902), ♂ (17.2 by 14.3 mm) (ZRC 1991.1888). A, right third maxilliped; B, C, right G1; D, right G2. B, ventral; C, dorsal view. Scales: 2.0 mm.