

On Some Freshwater Crabs (Crustacea: Brachyura: Potamidae, Parathelphusidae and Grapsidae) from Peninsular Malaysia

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Abstract Ten species of freshwater crabs from Peninsular Malaysia are reported upon from two collections made by Japanese parties in 1985 and 1987. They are 4 species of the genus *Johora* (Potamidae), 1 species of the genus *Irmengardia*, 3 species of the genus *Parathelphusa* and 1 species of the genus *Somaniathelphusa* (Parathelphusidae), and 1 species of the genus *Geosesarma* (Grapsidae). Of them, *Johora hoiseni* and *Parathelphusa malaysiana* are described as new to science.

In 1985, with the support of the Institute of Medical Research (Kuala Lumpur, Malaysia), Dr. K. KAWASHIMA and his colleagues of the School of Medical Health Sciences, Kyushu University (Fukuoka, Japan) collected freshwater crabs from various parts of Peninsular Malaysia in their studies of the lung fluke, *Paragonimus* (see KAWASHIMA, 1987). The specimens were treated in a note by TAKEDA (1987).

Two years later, the second author had a good chance to investigate the distribution of freshwater crabs in Peninsular Malaysia as a leading member of the research project entitled "Studies of the fauna of warm temperate forests in Southeast Asia, with special reference to animal speciation" under the financial support of the Monbusho International Scientific Research Program of the Japanese Government.

In view of the recent developments and changes in freshwater crab systematics, a revised look at the material collected by Dr. KAWASHIMA was deemed necessary, especially in view of the importance of host-parasite associations. All the material of two collections from Peninsular Malaysia were thus consolidated for this study.

The freshwater crabs (Potamidae, Parathelphusidae, Gecarcinucidae and Grapsidae [*partim*]) of Peninsular Malaysia were most recently revised by NG (1988). The present paper attempts to clarify the taxonomy of the various species collected during the 1985 and 1987 studies. All are members of the families Potamidae, Parathelphusidae and Grapsidae, and referred to 11 species including three new species

of the genera *Johora* and *Stoliczia* (Potamidae) and *Parathelphusa* (Parathelphusidae).

In the present paper two new species are described under the names of *Johora hoiseni* and *Parathelphusa malaysiana*. One new potamid species from Baling, Kedah reported by TAKEDA (1987: 93, fig. VIII-1-B) as *Stoliczia* (*Stoliczia*) *tweediei* (nec *Potamon tweediei* ROUX, 1934) is not treated here. BOTT (1966; 1970), in synonymising *Potamon cognata* ROUX, 1936, with *Potamon tweediei* ROUX, 1934, had reported *S. tweediei* from this locality. NG (1988) showed that both of ROUX's species were distinct taxa, and tentatively referred the Baling specimens to *S. cognata* with doubt. The specimens from Baling have recently been reexamined, and now it is apparent that they represent an undescribed species (see NG, in press a).

The abbreviations G1 and G2 are used for the male first and second pleopods respectively. All measurements are of the carapace width and length respectively. The terminology used here essentially follows that adopted by NG (1988). The specimens are deposited in the National Science Museum, Tokyo (NSMT), the School of Medical Health Sciences, Kyushu University, Fukuoka (KU), the Zoological Reference Collection, Department of Zoology, National University of Singapore (ZRC), and the Institute of Medical Research, Kuala Lumpur (IMR).

Family Potamidae

Genus *Johora* BOTT, 1966

Remarks. The genus *Johora* (type species: *Potamon* (*Potamon*) *johorensis* ROUX, 1936) was first established by BOTT (1966) as a subgenus of *Stoliczia* BOTT, 1966. NG (1987) elevated *Johora* to a full genus, distinguishing it from *Stoliczia* primarily by its possession of a distinct flagellum on the exopod of the third maxilliped. NG (1988) recognised ten species in the genus *Johora*. Another species, the northernmost known, was subsequently described from Pulau Redang in the northeastern state of Terengganu (NG, 1990 b).

NG (1987; 1988) has recognised four subspecies of *J. johorensis* (ROUX, 1936)—*J. j. johorensis* s. str., *J. j. gapensis* (BOTT, 1966), *J. j. intermedia* (NG, 1986) and *J. j. murphyi* (NG, 1986). The four can be separated by the degree of pubescence on the carapace, form of the G1, and partly by their distributions. Considering the distinctiveness of the G1 structure of the nominate subspecies compared to those of the other three subspecies, it might be better to regard *J. johorensis* s. str. as a distinct species. The present collections also show that the distributions of *J. j. intermedia* and *J. j. gapensis* are often very close, although both have yet to be found together. As such, the recognition of both as separate species seems preferable. With only *J. j. murphyi* remaining, and its exact relationship with the other three taxa now uncertain, it was felt that it too should be tentatively elevated to the status of a full species.

Johora intermedia (NG, 1986), stat. nov.

(Fig. 1 A-E)

Stoliczia johorensis johorensis — TAKEDA, 1987: 91, fig. VII-1-A.

Material. Sungei Lalang, Selangor, 1 ♂ (IMR), 1 ♂ (NSMT-Cr 11237), 1 ♀ (KU), leg. K. KAWASHIMA *et al.*, 26. vii. 1985. — Sungei Gumut, Peretak, Selangor, 1 ♀ (NSMT-Cr 11171), leg. M. TAKEDA & S. SHOKITA, 18. vii. 1987. — Sungei Rangkap

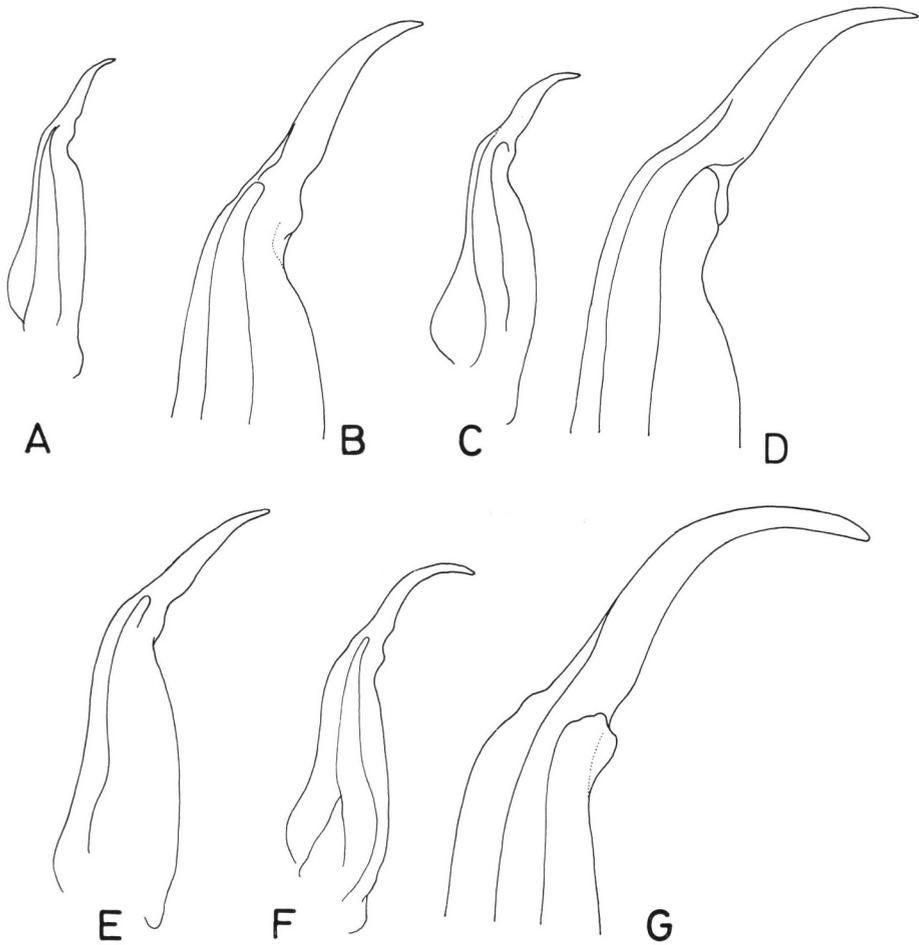


Fig. 1. Left Gls (denuded) of *Johora intermedia* (A-E) and *J. gapensis* (F, G). A, B, 15.0 by 12.3 mm (NSMT-Cr 11180), Sungei Sum H. S. Bukit Tinggi, Pahang; C, D, 17.4 by 14.1 mm (NSMT-Cr 11178), Sungei Rangkap Batu, Selangor; E, 12.2 by 9.6 mm (NSMT-Cr 11186), Fraser's Hill, Pahang. F, G, 16.5 by 13.4 mm (NSMT-Cr 11172), Ulu Teranum, Teras, Pahang.

Batu, Selangor, 2 ♂♂ (larger 17.4 by 14.1 mm), 2 ♀♀ (NSMT-Cr 11178), leg. M. TAKEDA & S. SHOKITA, 18. vii. 1987. — Sungei Sum H. S. Bukit Tinggi, Pahang, 7 ♂♂ (largest 15.0 by 12.3 mm), 1 ♀, 3 juvs. (NSMT-Cr 11180), leg. M. TAKEDA & S. SHOKITA, 19. vii. 1987. — Fraser's Hill, Pahang, 1 ♂ (12.2 by 9.6 mm), 1 ♀ (NSMT-Cr 11186), leg. M. TAKEDA & S. SHOKITA, 19. vii. 1987. — Sungei. Sum, Pahang, 4 ♀♀ (largest 14.3 by 11.2 mm), 2 ♀♀ (larger 16.9 by 13.4 mm), 2 juvs. (NSMT-Cr 11177), leg. M. TAKEDA & S. SHOKITA, 28. vii. 1987.

Remarks. NG (1987) noted that the G1 terminal segment of this species appears to be subject to some minor variation, especially in the length of the distal part and the degree of bending. No specimens, however, possess a G1 terminal segment as long or as curved as that of *J. gapensis*.

This is the most wide ranging member of the genus, occurring from northwestern Johor to northern Pahang along the Main Range of mountains. Whether the "variations" observed in the G1s of the various populations represent specific or subspecific differences cannot be determined at the moment.

***Johora gapensis* (BOTT, 1966), stat. nov.**

(Fig. 1 F, G)

Material. Ulu Teranum, Teras, Pahang, 2 ♂♂, 1 juv. (NSMT-Cr 11172) and 4 ♂♂, 4 ♀♀ (NSMT-Cr 11174), leg. M. TAKEDA & S. SHOKITA, 19. vii. 1987.

Remarks. The similarity of this species to *J. intermedia* is quite significant, and the form of the G1 provides the only reliable means of positive identification. In *J. gapensis*, the G1 terminal segment is strongly curved and very long, and the distal part of the outer margin of the subterminal segment (below the collar) is not indented by any broad shallow cleft, the collar being gradually confluent with the rest of the margin.

We have continued to recognize it as distinct from *J. intermedia* because we have yet to encounter the specimens which have G1s intermediate between those of *J. gapensis* and *J. intermedia*. Males of *J. intermedia* less than 10.0 mm carapace width have poorly developed G1s, whereas similar sized *J. gapensis* already possess strongly hooked G1 terminal segments (see also NG, 1987). Contrary to earlier beliefs (see NG, 1987) that *J. gapensis* might be a progenetic species, larger specimens, distinctly larger than the type series, have now been found. Males of *J. gapensis* (16.5 mm carapace width) smaller than males of *J. intermedia* (17.4 mm carapace width) have distinctly longer G1 terminal segments. This reinforces the view that the differences observed in the length of the G1 terminal segment are not associated with growth. The two species have yet to be found together.

The present specimens extend the range of *J. gapensis* slightly. It was previously only known from and near the "Gap" of the Main Range of mountains (see NG, 1987; 1988).

Johora tahanensis (BOTT, 1966)

Stoliczia johorensis tahanensis — TAKEDA, 1987: 92, pl. X (center).

Material. Sungei Wa, Taman Negara National Park, Pahang, 1 ♂ (NSMT-Cr 11240), leg. K. KAWASHIMA *et al.*, 26. vii. 1985. — Same locality and collectors, 4 ♂♂, 3 ♀♀ (IMR), 7. viii. 1985. — Same locality and collectors, 3 ♂♂, 4 ♀♀ (IMR), 1 ♂, 1 ♀ (NSMT-Cr 11241), 1 ♂, 1 ♀ (KU), 8. viii. 1985. — Tributary of Sungei Selangor, south of Fraser's Hill, Selangor, 2 ♂♂, 1 ♀, 2 juvs. (NSMT-Cr 11183), leg. M. TAKEDA & S. SHOKITA, 20. vii. 1987. — Sungei Gumut, Peretak, Selangor, 1 ♂, 4 ♀♀ (NSMT-Cr 11170), leg. M. TAKEDA & S. SHOKITA, 18. vii. 1987. — Sungei. Sum, Pahang, 1 ♂ (28.9 by 25.0 mm), (NSMT-Cr 11176), leg. M. TAKEDA & S. SHOKITA, 28. vii. 1987. — Fraser's Hill, Pahang, 1 ♂ (32.7 by 27.6 mm), 1 ♀ (NSMT-Cr 11185), leg. M. TAKEDA and S. SHOKITA, 19. vii. 1987. — Ulu Teranum, Teras, Pahang, 1 ♀, 1 juv. (NSMT-Cr 11173), 1 ♀ (NSMT-Cr 11175), 1 ♂, 1 ♀ (NSMT-Cr 11184), leg. M. TAKEDA & S. SHOKITA, 19. vii. 1987.

Remarks. *Johora tahanensis* was first described as a subspecies of *Stoliczia (Johora) johorensis* by BOTT (1966) on the basis of specimens from Kuala Tahan (Pahang) and Sungei Galas (Kelantan). BOTT designated the largest Kuala Tahan male as holotype. BOTT, however, did not indicate the source of the G1 he figured (BOTT, 1966: Fig. 32; 1970: Pl. 40 fig. 57). NG (1987; 1988) regarded BOTT's taxon as a full species and transferred it to the genus *Johora* instead. In his redescription, he commented that the G1 was variable, especially with regards to the G1 terminal segment. A reappraisal of these differences, together with fresh material from Pahang, Selangor and Kelantan, however, suggests that the Kelantan specimens should be referred to a separate species, *Johora hoiseni* n. sp., instead (see next species).

BOTT's figure and photograph of the G1 of *J. tahanensis* cannot be from the specimens from Kuala Tahan and type locality. We have numerous specimens from Kuala Tahan and the G1 terminal segment in these specimens is always proportionately shorter (less than 0.5 times length of the subterminal segment) and gently curved outwards. This is in contrast to the G1s of the Kelantan males, the G1 terminal segment being proportionately longer (more than 0.5 times length of subterminal segment), straight and distinctly "sabre-like". The figures of the G1 by BOTT agree with those of the Kelantan specimens very well. As BOTT had specimens from both Kelantan and Pahang, he apparently figured the carapace of the Kuala Tahan holotype but the G1 of a Kelantan male! He had previously done something similar for *Johora johorensis* (see NG, 1987). The species listed as *Johora tahanensis* by NG (1988) must also be regarded as heterogenous as it was based on males from both Kelantan and Pahang. His figures 18 A, B, D and E are referable to *J. hoiseni*, whilst the figures 18 C and F belong to *J. tahanensis* s. str.

The external features of *J. tahanensis* and *J. hoiseni* are very similar and the two can be separated effectively only by the form of their G1s. *Johora tahanensis* is also clearly a larger species than *J. hoiseni*. Specimens of *J. tahanensis* less than 2.5 cm

carapace width are clearly still young; the males still possessing slender, equal chelipeds, with the chelae not swollen; and the abdomina of the females are oval, not covering the entire sternal surface, with the pleopods simple and not very setose. Specimens of *J. hoiseni* of similar size, however, are already fully mature, the chelipeds of the males stout, the chelae inflated; and the female abdomen is round, covering the entire sternal surface, with the pleopods strongly setose.

The range of *J. tahanensis* is now extended to eastern Pahang, on or near the Main Range. The specimens from Kuala Tahan, Fraser's Hill and eastern Pahang do not differ significantly. It can be expected that more collections will fill the present gap in distribution between the Kuala Tahan and Fraser's Hill localities for *J. tahanensis*.

***Johora hoiseni* n. sp.**

(Figs. 2, 3)

Material. Holotype: Stream entering Sungei Galas, Kelantan, near Gua Madir, Taman Negara National Park, Pahang (4°40'N, 101°53'E), ♂ (25.1 by 21.1 mm) (ZRC 1984.6673), leg. M. W. F. TWEEDIE, viii. 1939. Paratypes: Same data as holotype, 57 ♂♂, 17 ♀♀ (ZRC 1984.6674–6755). — Near Kampung Jeki, Kelantan, 1 ♂ (NSMT-Cr 11187), leg. M. TAKEDA & S. SHOKITA, 26. vii. 1987. — Lakit, Kelantan, 7 ♂♂ (largest 23.8 by 19.7 mm), 7 ♀♀ (NSMT-Cr 11182), leg. M. TAKEDA & S. SHOKITA, 27. vii. 1987. Others: Same data as paratypes from Lakit, Kelantan, 1 juv. (NSMT); Sungei Nenegiri, Kelantan, 1 ♀ (?) (IMR), leg. K. KAWASHIMA *et al.*, no record of date.

Diagnosis. Carapace squarish, flat, regions well defined, cervical grooves broad and deep, H-shaped central depression deep; dorsal surface covered with scattered very short hairs. Frontal region covered with small, flattened granules; anterolateral regions gently rugose; posterolateral regions covered with distinct oblique striae; suborbital region covered with small rounded granules; pterygostomial and subbranchial regions strongly rugose. Epigastric cristae distinct, rugose, not sharp, distinctly anterior of and separated from postorbital cristae; postorbital cristae sharp, confluent with anterolateral margin at epibranchial tooth. Frontal margin gently sinuous; external orbital angle triangular, outer margin beaded, about 3 times length of inner margin; epibranchial tooth distinct; anterolateral margin gently convex, strongly cristate, appears gently serrated, not distinctly separated from posterolateral margin. Outer surfaces of third maxilliped covered with numerous short stiff hairs; ischial groove median; merus subquadrate; exopod with long flagellum. Outer surfaces of chelipeds gently rugose; fingers of palm longer than or subequal to palm; carpus with strong inner distal spine; inner margins of merus with short stiff hairs. Second pair of ambulatory legs longest; lower margins of merus, propodus and dactylus densely lined with short stiff hairs. Sternite 3 with short stiff hairs; suture between sternites 2 and 3 gently concave towards buccal cavity. Male abdomen triangular,

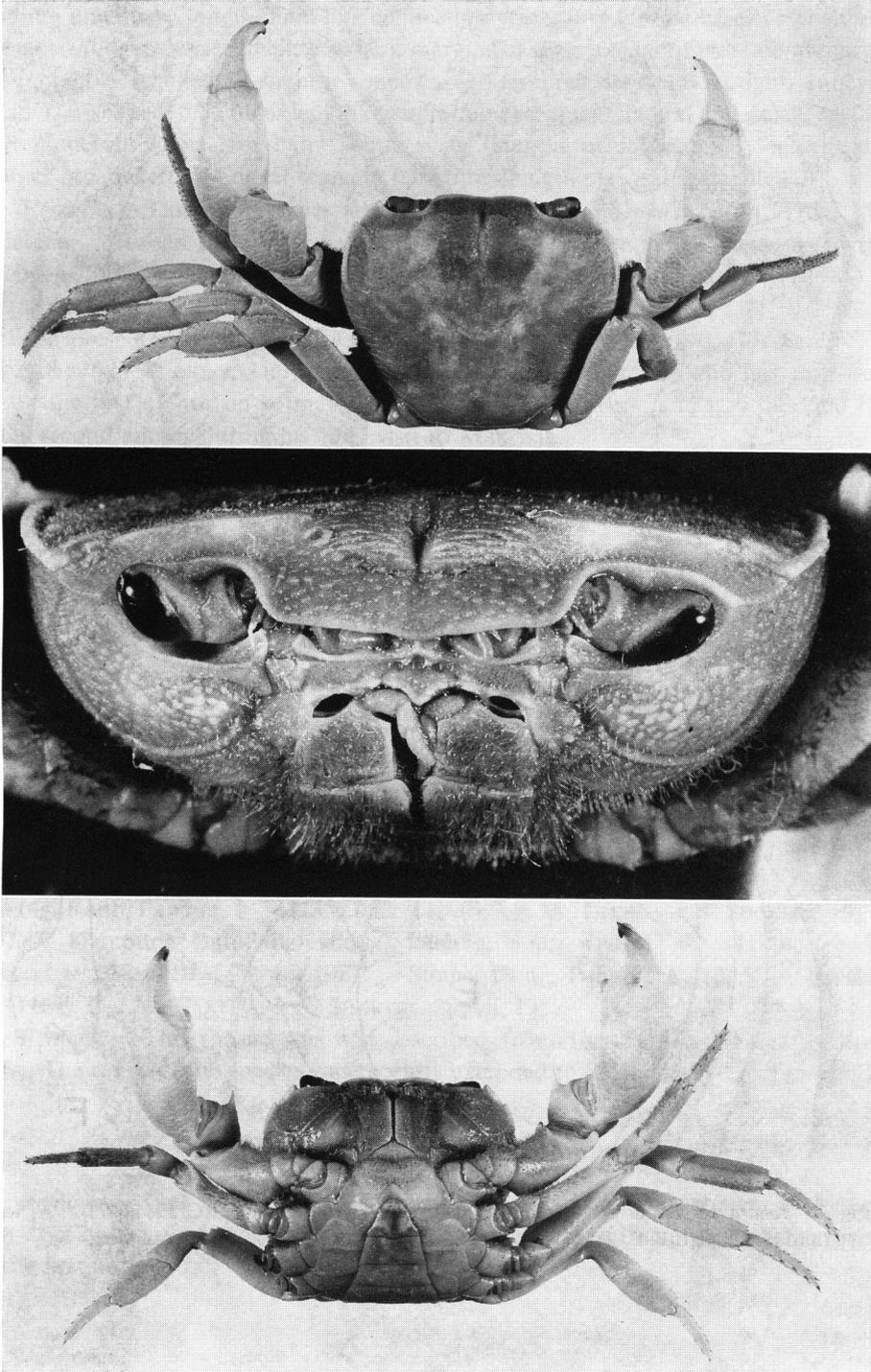


Fig. 2. *Johora hoiseni* n. sp. Holotype male, 25.1 by 21.0 mm (ZRC 1984.6673).

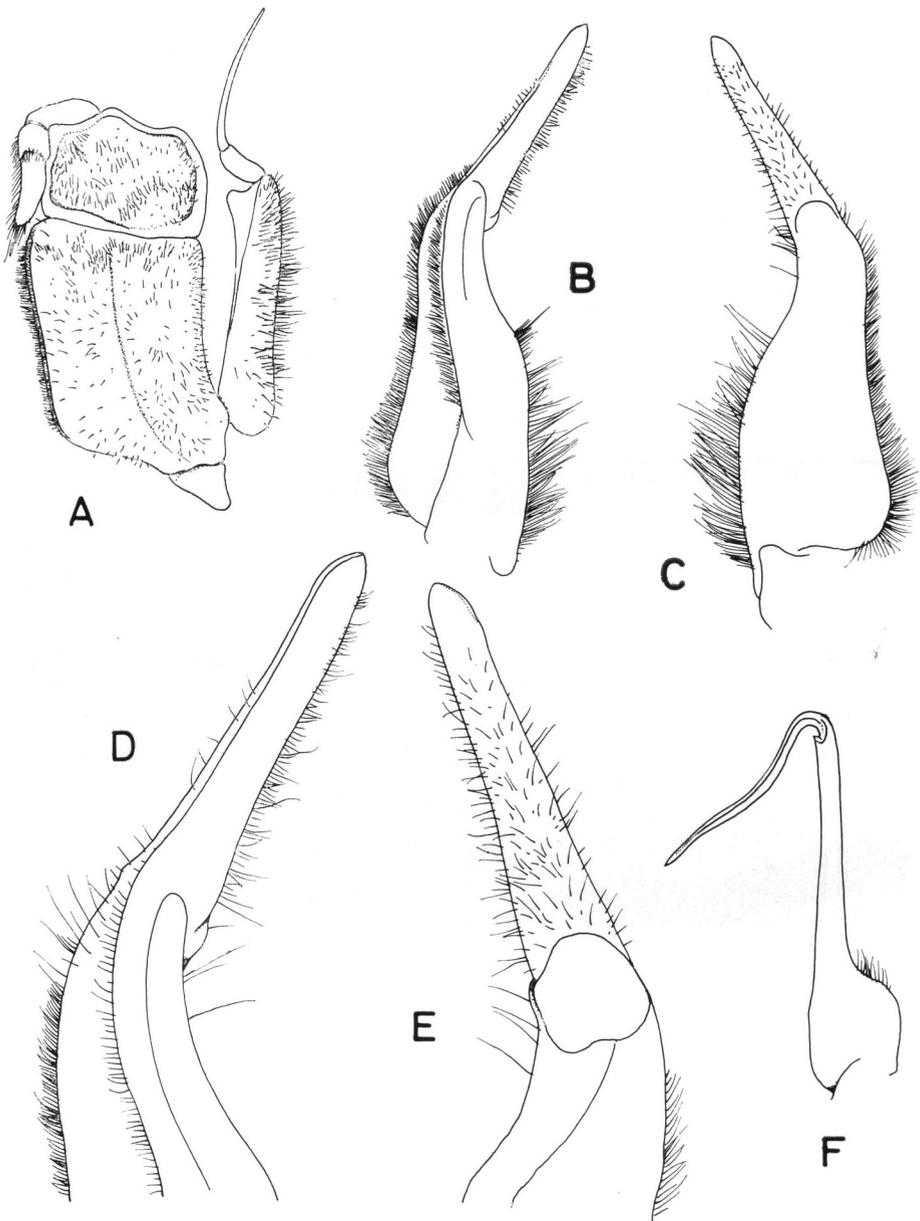


Fig. 3. *Johora hoiseni* n. sp. Holotype male, 25.1 by 21.0 mm (ZRC 1984.6673). A, left third maxilliped; B-E, left G1; F, left G2. B, D, ventral view; C, E, dorsal view.

reaching imaginary longitudinal line connecting posterior edges of bases of chelipeds; segment 7 longer than segment 6; lateral margins of segment 7 concave; lateral margins of segment 6 straight or slightly concave. G1 terminal segment straight, subcylindrical, rod-shaped, 0.55 times length of subterminal segment, lateral and dorsal surfaces with numerous short stiff hairs; outer distal margin of subterminal segment with distinct broad cleft. G2 distal segment 0.67 times length of basal segment.

Remarks. This new species is closely allied to *J. tahanensis* BOTT, 1966. The differences between the two have already been discussed under *J. tahanensis*. The specimens from Sungei Galas examined by BOTT (1966; 1970) and NG (1987; 1988) are conspecific with those recently collected from Kelantan.

The present new species is named in honour of Prof. YONG Hoi Sen of the Department of Zoology, University of Malaya, Kuala Lumpur, who has generously helped the first author on so many occasions over the years, and was the kind host to the second author during his 1987 visit to Malaysia.

Family Parathelphusidae

Genus *Irmengardia* BOTT, 1969

Remarks. NG & TAN (1991) provides an updated key for the three known Malaysian species. A fourth species was recently described from Batam Island, in the Riau Archipelago, Indonesia (NG, in press b).

Irmengardia pilosimana (Roux, 1936)

Irmengardia pilosimana — TAKEDA, 1987: 94, pl. X (top).

Material. Sungei Wa, Taman Negara National Park, Pahang, 1 ♂ (IMR), 1 ♂, 1 ♀ (NSMT-Cr 11238), 1 ♂ (KU), leg. K. KAWASHIMA *et al.*, 8. viii. 1985. — Sungei Bintang, Raub, Pahang, 1 ♂ (NSMT-Cr 11190), leg. M. TAKEDA & S. SHOKITA, 19. vii. 1987. — Kampung Batu, Beluabang, Pahang, 3 ♀♀ (NSMT-Cr 11189), leg. M. TAKEDA & S. SHOKITA, 28. vii. 1987. — Sungei Dong, Pahang, 4 ♂♂, 5 ♀♀ (NSMT-Cr 11181), leg. M. TAKEDA & S. SHOKITA, 28. vii. 1987.

Remarks. This species was first described from the Taman Negara National Park. The range of the species was recently extended to Selangor (NG & TAN, 1991).

Genus *Parathelphusa* H. MILNE EDWARDS, 1853

Remarks. This is one of the largest Southeast Asian freshwater crab genera, with over 20 described species (see NG, 1988; in press b), and is currently being revised by the first author.

***Parathelphusa maculata* DE MAN, 1879**

Parathelphusa incerta — TAKEDA, 1987: 95, pls. IV, V (top).

Material. Kuala Pilah, Negri Sembilan, 2 ♂♂, 1 ♀ (IMR), 1 ♂, 1 ♀ (NSMT-11242), 1 ♂, 1 ♀ (KU), leg. K. KAWASHIMA *et al.*, vii. 1985. — Sungei Lalang, Selangor, 1 ♂, 1 ♀ (IMR), 1 ♂, 1 ♀ (NSMT-Cr 11246), leg. K. KAWASHIMA *et al.*, 26. vii. 1985. — Sungei Rangkap Batu, Selangor, 1 ♂ (NSMT-Cr 11179), leg. M. TAKEDA & S. SHOKITA, leg., 18. vii. 1987. — Ringlet falls, Cameron Highlands, 1 ♀ (NSMT-Cr 11188), leg. M. TAKEDA & S. SHOKITA, 21. vii. 1987.

Remarks. The taxonomy of this well known species has been discussed in detail by NG (1990 c). BOTT (1970) incorrectly synonymised this species with *P. tridentata* H. MILNE EDWARDS, 1834, and used the name *P. incerta* (LANCHESTER, 1900) for the Malaysian specimens, an action which was followed by several authors (see TAKEDA, 1987).

***Parathelphusa maindroni* (RATHBUN, 1902)**

Material. Sungei Rangkap Batu, Selangor, 1 ♂ (NSMT-Cr 11245), leg. M. TAKEDA & S. SHOKITA, 18. vii. 1987.

Remarks. This species was described from Bengkalis, Sumatra. The species was incorrectly synonymised with *P. tridentata* by BOTT (1970). The types have since been reexamined and the species was recognised as distinct, also occurring on the Sumatran mainland and Peninsular Malaysia (NG, 1990 a; in press c). This species appears to be closely associated with peat swamp forests and highly acidic blackwaters. In Peninsular Malaysia, it has been recorded from Johor and Selangor (NG, in press c).

***Parathelphusa malaysiana* n. sp.**

(Figs. 4, 5)

Parathelphusa aff. *tridentata* — TAKEDA, 1987: 96, pl. IX (top, bottom left).

Material. Holotype: Sungei Wa, Taman Negara National Park, Pahang, ♂ (35.0 by 27.9 mm) (NSMT-Cr 11248), leg. K. KAWASHIMA *et al.*, 8. viii. 1985. Paratype: Same data as holotype, 1 ♀ (NSMT-Cr 11249). Other: Same data as holotype, 1 carapace only (NSMT).

Diagnosis. Carapace broader than long, cervical grooves broad and shallow, H-shaped central depression distinct; dorsal surface smooth, gently convex transversely, with numerous dark spots on a lighter background. Posterolateral regions with strong oblique striae. Epigastric and postorbital cristae confluent, sharp, sloping posteriorly; postorbital cristae becoming weak after beginning of cervical groove, stopping opposite approximately just before base of first epibranchial tooth. Frontal margin gently sinuous, appears faintly trilobed; external orbital angle acutely trian-

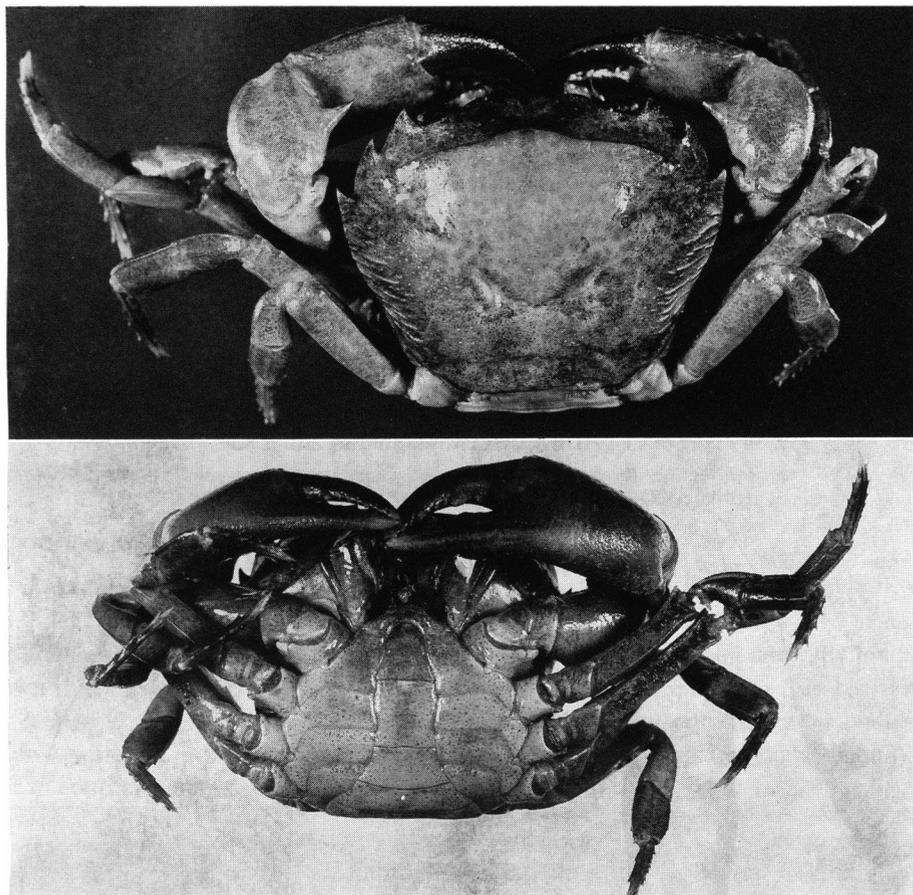


Fig. 4. *Parathelphusa malaysiana* n. sp. Holotype male, 35.0 by 27.9 mm (NSMT-Cr 11248).

gular, outer margin about 2 times length of inner margin; first epibranchial tooth directed forwards, second epibranchial tooth directed obliquely outwards; postero-lateral margins distinctly converging. Third maxilliped exopod with well developed flagellum. Outer surfaces of chelipeds smooth; fingers subequal to palm, dark-colored but not pigmented black; carpus with strong inner distal spine. Second pair of ambulatory legs longest; merus with distinct subdistal dorsal spine. Suture between sternites 2 and 3 concave towards buccal cavity. Male abdomen distinctly T-shaped, reaching beyond imaginary longitudinal line connecting anterior edges of bases of chelipeds; segment 7 shorter than segment 6; lateral margins of segment 7 slightly concave; lateral margins of segment 6 sinuous. Outer margin of G1 terminal segment gently sinuous, tip rounded, open. G2 distal segment 0.77 times length of basal segment.

Remarks. NG (1990 d) queried the identity of the crab figured by KAWASHIMA

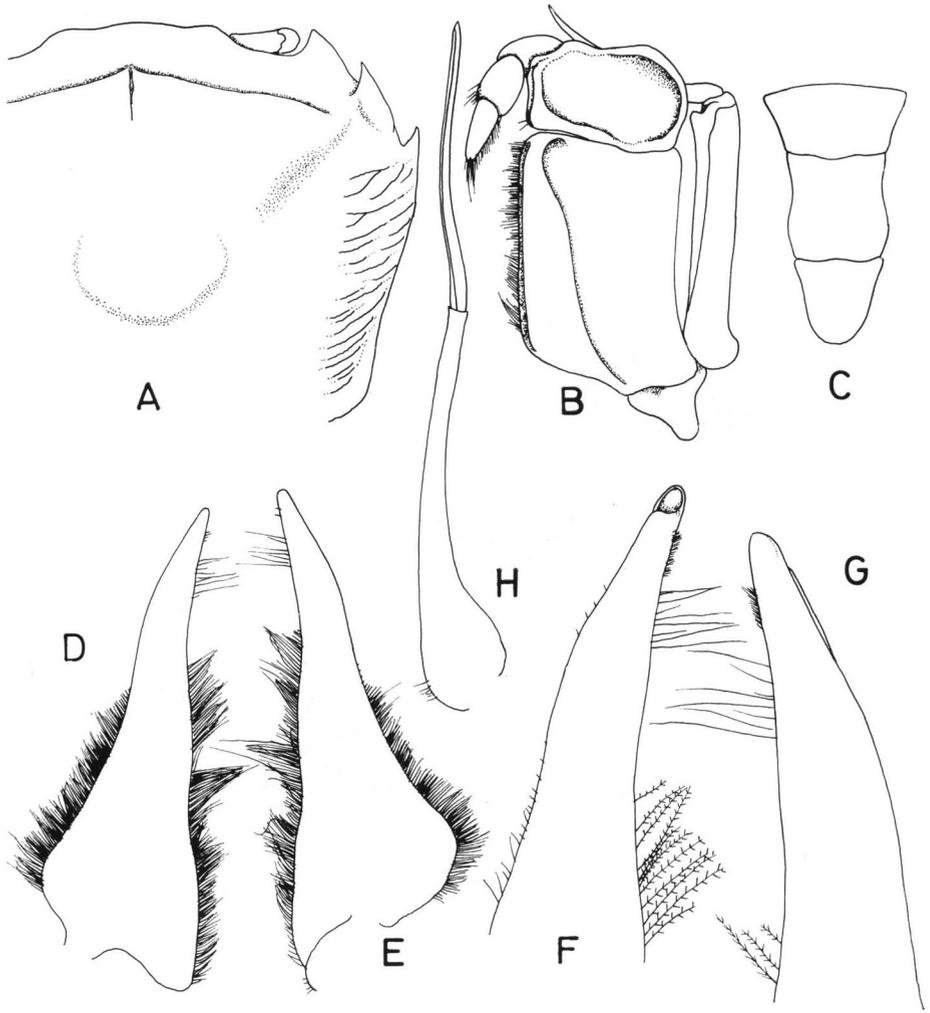


Fig. 5. *Parathelphusa malaysiana* n. sp. Holotype male, 35.0 by 27.9 mm (NSMT-Cr 11248). A, right side of carapace; B, left third maxilliped; C, distal three segments of male abdomen; D-G, left G1; H, left G2. D, F, ventral view; E, G, dorsal view.

(1987) and TAKEDA (1987) from Sungei Wa, Taman Negara National Park, Pahang, commenting that it was so different from all known *Parathelphusa* species that it was probably an undescribed taxon. A reexamination of the present specimens confirms that the Sungei Wa specimens represent an undescribed species.

The Sungei Wa specimens belong to the same group of species as *P. maindroni* (RATHBUN, 1902), *P. oxgona* NOBILI, 1903, and *P. reticulata* NG, 1990 (see NG, 1990 a; in press c). Although we have only available one good male, one female and one carapace, the observed differences are quite significant. The postorbital crista stops

just before the bases of the first epibranchial teeth, a condition not known for the other congeners, and is the most striking feature of this species. The frontal margin is also vaguely trilobed, with the median part convex. In other *Parathelphusa*, the median part of the frontal margin is concave. The male abdomen is also proportionately much broader compared to males of *P. maindroni*, *P. oxygona* and *P. reticulata* of similar or even larger sizes. The outer margin of the G1 is almost straight, without a distinct proximal cleft, as in the allied species, but the tip is blunted, the opening being distinct. In *P. maindroni* and *P. reticulata*, the tip is sharply tapering and appears sharp. In *P. oxygona*, the tip is rounded.

The new species is named after the country of its origin, Malaysia. The name is used as a noun in apposition.

Genus *Somanniathelphusa* BOTT, 1968

Somanniathelphusa sexpunctata (LANCHESTER, 1906)

Somanniathelphusa juliae — TAKEDA, 1987: 98, fig. VIII-1-B.

Material. Baling, Kedah, 3 ♂♂, 3 ♀♀ (IMR), 1 ♂, 1 ♀ (NSMT-Cr 11243), 1 ♂ (KU), leg. K. KAWASHIMA *et al.*, 29. vii. 1985.

Remarks. BOTT (1968) described this species as *S. juliae*, but later studies have shown that this name is a junior subjective synonym of *S. sexpunctata* (see NG, 1988; NG & NG, 1987). The species is common in padi fields and other stagnant bodies of shallow water in northwestern Peninsular Malaysia (including Langkawi Island), as well as southern and eastern Thailand.

Family Grapsidae

Genus *Geosesarma* DE MAN, 1892

Remarks. This is the only genus of wholly freshwater grapsid crabs, and the taxonomy of the group is still unsatisfactory (see NG, 1988).

Geosesarma peraccae (NOBILI, 1903)

Geosesarma peraccae — TAKEDA, 1987: 99, fig. VIII-1-C.

Material. Sungei Lalang, Selangor, 1 ♂, 1 ♀ (IMR), 1 ♂, 1 ♀ (NSMT-Cr 11244), leg. K. KAWASHIMA *et al.*, 26. vii. 1985.

Remarks. The external features and GIs of the present specimens agree very well with what has been described for the species (see NG, 1988). This is the most northerly record for the species.

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