

## Potamoid Crabs of Taiwan, with Description of One New Species (Crustacea, Decapoda)

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## Potamoid Crabs of Taiwan, with Description of One New Species (Crustacea, Decapoda)

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This paper describes a new potamoid crab, *Geothelphusa chiui* sp. nov., from Taiwan. Redescriptions of five species of the potamoid crabs from Taiwan are also presented.

So far as known, the following five species of the potamoid crabs have been reported from Taiwan, i. e. *Somanniathelphusa taiwanensis* Bott, *Geothelphusa candidiensis* Bott, *Geothelphusa miyazakii* (Miyake & Chiu), *Candidiopotamon rathbuni* (de Man) and *Nanhaipotamon formosanum* (Parisi) by several workers such as de Man (1914), Parisi (1916), Maki & Tutiya (1923), Balss (1936), Koba (1936), Pretzmann (1963), Miyake & Chiu (1965) and Bott (1967, 1968, 1970).

The present paper contains description of one new species *Geothelphusa chiui* sp. nov. and redescrptions of five species of the potamoid crabs collected by Dr. Ichiro Miyazaki,<sup>1)</sup> Dr. Jui-Kuang Chiu,<sup>2)</sup> Dr. Hsiang-Ping Yu<sup>3)</sup> and the Zoological Laboratory, Kyushu University.

All the materials are preserved in the Zoological Laboratory, Kyushu University, Fukuoka.

Family Parathelphusidae Colosi 1920

Genus *Somanniathelphusa* Bott 1968

*Parathelphusa*: H. Milne-Edwards 1853, p. 213 (part).

*Potamon (Parathelphusa)*: Rathbun 1905, p. 228 (part).

*Parathelphusa*: Alcock 1910, p. 70 (part).

*Parathelphusa*: Balss 1937, p. 144 (part).

*Somanniathelphusa* Bott 1968, p. 407.

*Somanniathelphusa*: Bott 1969, p. 365.

*Somanniathelphusa*: Bott 1970, p. 109.

*Type species. Parathelphusa sinensis* H. Milne-Edwards 1853.

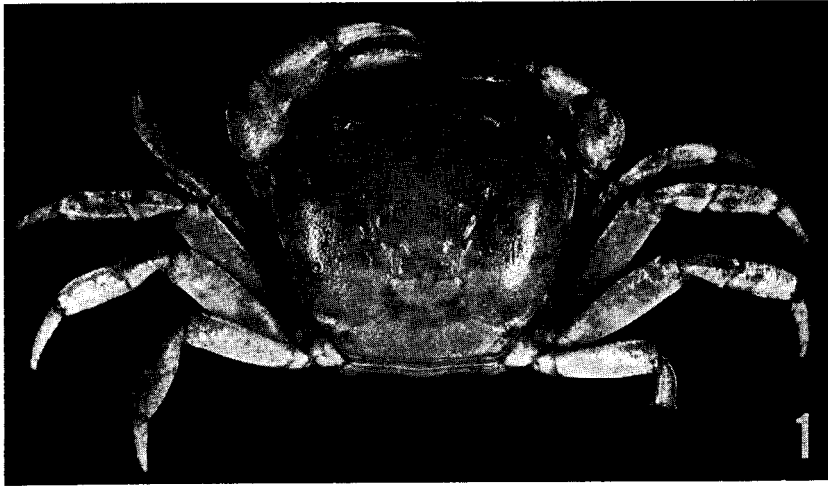
*Distribution.* Burma, Thailand, Malaya, Cambodia, Laos, Vietnam, South China, Taiwan.

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<sup>1)</sup> 宮崎一郎, <sup>2)</sup> 邱瑞光, <sup>3)</sup> 游祥平

***Somanniathelphusa taiwanensis* Bott 1968**

(Fig. 1)

**? *Potamon (Parathelphusaj sinensis***: Parisi 1916, p. 169.***Somanniathelphusa sinensis taiwanensis*** Bott 1968, p. 410, figs. 15, 16, 32.***Somanniathelphusa sinensis taiwanensis***: Bott 1970, p. 113, pl. 21, figs. 48-50; pl. 30, fig. 83.**Material examined.** Meishan,<sup>4</sup> Chiayi Hsien,<sup>5)</sup> 1 ♀, ZLKU 10140, Jan. 1, 1964, J. K. Chiu leg.**Material illustrated.** Dorsal view of female, Meishan, ZLKU 10140.**Fig. 1. *Somanniathelphusa taiwanensis* Bott. Female.**

**Remarks.** According to Bott (1968, 1970), this species has been considered as a subspecies of *Somanniathelphusa sinensis* (H. Milne-Edwards), from which it is distinguished by the shape of the first pleopod (See Bott (1970), p. 262, pl. 30, figs. 81, 83) and the anterolateral teeth, the striae of the postorbital region and the adult size. From these distinct characters, it is thought that this should be known as a distinct species.

**Measurements.** See Table 1.**Distribution.** Taiwan.Family **Potamidae** Ortmann 1896Genus ***Geothelphusa*** Stimpson 1858***Geothelphusa*** Stimpson 1858, p. 100.***Geothelphusa***: Miers 1886, p. 214.***Geothelphusa***: Ortmann 1897, p. 300.<sup>4)</sup> 梅山, <sup>5)</sup> 嘉義縣

*Geothelphusa*: Rathbun 1898, p. 27.  
*Potamon (Geothelphusa)*: Rathbun 1905, p. 200.  
*Potamon (Geothelphusa)*: Alcock 1910, p. 59.  
*Potamon (Geothelphusa)*: Kemp 1913, p. 298.  
*Potamon (Geothelphusa)*: Balss 1937, p. 167.  
*Potamon (Geothelphusa)*: Sakai 1965, p. 174.  
*Geothelphusa*: Bott 1967, p. 211.  
*Geothelphusa*: Bott 1970, p. 154.

**Type species.** *Geothelphusa obtusipes* Stimpson 1858.

**Distribution.** Taiwan, Ryukyu Is., Japan.

*Key to three species of the genus Geothelphusa*

1. The carapace is strongly convex in fore and hind direction. The anterolateral margin of the carapace is smooth. The synovial membrane of the first pleopod is six times as long as broad ..... *G. chiui* sp. nov.
- The carapace is slightly convex in fore and hind direction. The anterolateral margin of the carapace is distinct. The synovial membrane of the first pleopod is three or four times as long as broad ..... 2
2. The species is of small size, its biological minimum being about 18 mm in carapace breadth. The anterolateral margin of the carapace bears finely crenulate striae. The epibranchial region is covered with many tubercles. The synovial membrane of the first pleopod is three times as long as broad ..... *G. candidiensis*
- The species is of median size, its biological minimum being about 32 mm in carapace breadth. The anterolateral margin of the carapace bears indistinctly crenulate striae. The epibranchial region is smooth. The synovial membrane of the first pleopod is four times as long as broad ..... *G. miyazakii*

***Geothelphusa candidiensis* Bott 1967**

(Figs. 2: 6 A, B)

*Geothelphusa dehaani candidiensis* Bott 1967, p. 212, pl. 10, fig. 12.

*Geothelphusa dehaani candidiensis*: Bott 1970, p. 157, pl. 40, figs. 62, 63; pl. 53, fig. 64.

*Geothelphusa candidiensis*: Minei 1973, p. 212, figs. 7; 9 E, F.

*Potamon (Geothelphusa) obtusipes*: Miyake 1963, p. 66, fig. 4.

**Material examined.** Shuangchi,<sup>6)</sup> Taipei Hsien,<sup>7)</sup> 4 ♂, 2 ♀, ZLKUm, 1122, June 22, 1972, H. P. Yu leg.

Wulai,<sup>8)</sup> Taipei Hsien, 2 ♂, 2 ♀, ZLKU 10153, Sept. 9, 1961, J. K. Chiu leg.

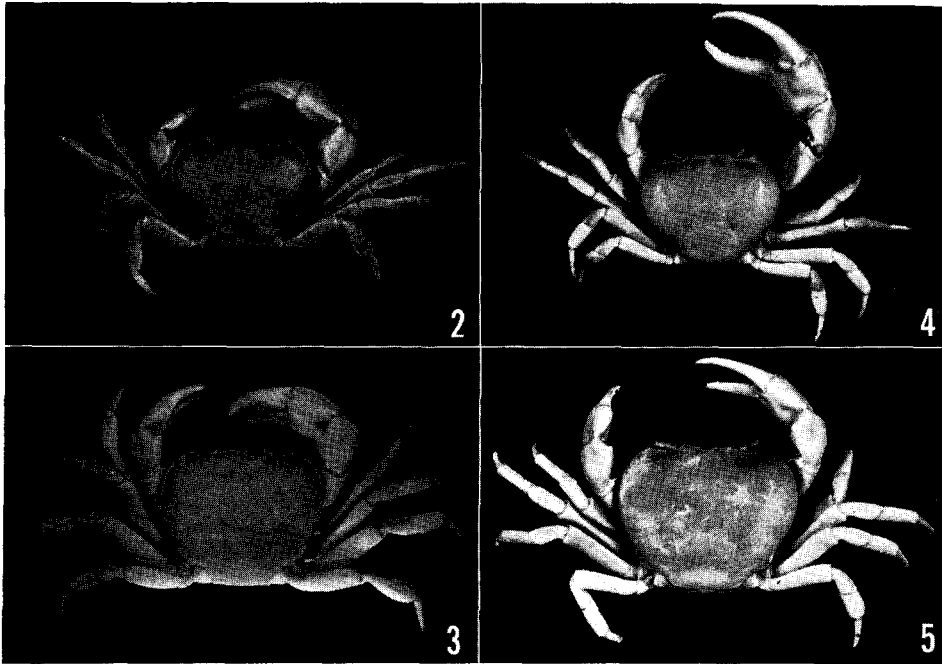
Keelung,<sup>9)</sup> Taipei Hsien, 1 ♂, ZLKUm 1123, June 22, 1972, H. P. Yu leg.

Shenkeng,<sup>10)</sup> Taipei Hsien, 5 ♂, 3 ♀, ZLKU 9646, Mar. 15, 1964, J. K. Chiu leg.

Mutan,<sup>11)</sup> Taipei Hsien, 4 ♀, ZLKUm 1125, Feb. 19, 1973, H. P. Yu leg.

Chiaochi,<sup>12)</sup> Ilan Hsien,<sup>13)</sup> 1 ♀, ZLKUm 1124, Nov. 9, 1973, H. P. Yu leg.

<sup>6)</sup> 雙溪, <sup>7)</sup> 臺北縣, <sup>8)</sup> 烏來, <sup>9)</sup> 基隆, <sup>10)</sup> 深坑, <sup>11)</sup> 牡丹, <sup>12)</sup> 礁溪, <sup>13)</sup> 宜蘭縣



**Figs. 2-5.** Three species of the genus *Geothelphusa*. 2: *Geothelphusa candidiensis* Bott. Male. 3: *Geothelphusa miyazakii* (Miyake & Chiu), Male. 4: *Geothelphusa chiui* sp nov. Holotype. 5: Ditto. Female.

Waiao,<sup>14)</sup> Ilan Hsien, ZLKUm 1126, Mar. 7, 1973, H. P. Yu leg.

Hungtou,<sup>15)</sup> Lan Hsu (Hungtousu),<sup>16)</sup> Taitung Hsien,<sup>17)</sup> 8 ♂, 2 ♀, ZLKU 8851, July 1, 1938, M. Chûjô leg.; 19 ♂, 16 ♀, ZLKUm 1128, T. Shikano leg.

**Material illustrated.** Dorsal view of male and first pleopod, Hungtou, ZLKU 8851.

**Measurements.** See Table 1.

**Remarks.** This species is very allied to *Geothelphusa obtusipes* Stimpson and *Geothelphusa aramotoi* Minei in the general characters, but it is distinguished from them by the shape of the first pleopod (See Minei (1973), p. 210, fig. 4 A, B, G, H; p. 215, fig. 9 E, F).

**Distribution.** Taiwan, Iriomote-jima, Ishigaki-jima.

***Geothelphusa miyazakii* (Miyake & Chiu 1965)**

(Figs. 3; 6 C, D)

**Potamon (*Geothelphusa*) *miyazakii*** Miyake & Chiu 1965, p. 595, pls. 13, 14.

***Geothelphusa miyarakii*:** Minei 1973, p. 214, figs. 8; 9 G, H.

**Material examined.** Shihmen,<sup>18)</sup> Taipei Hsien, 1 ♂ (Holotype, cl. 24.7, cb. 31.0

<sup>14)</sup> 外澳, <sup>15)</sup> 紅頭, <sup>16)</sup> 蘭嶼 (紅頭嶼), <sup>17)</sup> 臺東縣, <sup>18)</sup> 石門

mm ZLKU 10983), 1 ♀ (Allotype, cl. 26.6, cb. 34.2 mm ZLKU 10984) ; 1 ♂, 1 ♀, ZLKU 10985, Jan. 28, 1964, J. K. Chiu leg.

Patoutzu,<sup>19)</sup> Keelung, Taipei Hsien, 6 ♂, 5 ♀, ZLKU 13752, June 22, 1972, H. P. Yu leg.

Shenkeng, Taipei Hsien, 3 ♂, 3 ♀, ZLKU 10137, Oct. 3, 1963, J. K. Chiu leg.  
Shuangchi, Taipei Hsien, 2 ♂, 2 ♀, ZLKU 13747, June 23, 1973, H. P. Yu leg.

**Material illustrated.** Holotype.

**Measurements.** See Table 1.

**Remarks.** This species is very allied to *Geotkelpkusa sakamotoana* (Rathbun) and *Geotkelpkusa dekaani* (White) in the general characters, but it is distinguished from them by the orbital breadth, the depression of the cervical groove, the propodus of the 2nd ambulatory legs and the shape of the first pleopod (Miyake (1965), p. 565-599; Minei (1973), p. 210, fig. 4 C-F).

**Distribution.** Taiwan, Iriomote-jima, Ishigaki-jima.

***Geotkelpkusa ckiui* sp. nov.**

(Figs. 4, 5; 6 E, F)

**Material examined. Holotype.** Nanpu,<sup>20)</sup> Hsinchu Hsien,<sup>21)</sup> ♂, ZLKU 10151, Dec. 3, 1960, J. K. Chiu leg.

**Paratypes.** Nanpu, 1 ♀, same data as holotype.

Kuanhsi,<sup>22)</sup> Hsinchu Hsien, 1 ♂, ZLKU 1130, Dec. 29, 1972, H. P. Yu leg.

Hsin-I,<sup>23)</sup> Nantou Hsien,<sup>24)</sup> 5 ♂, 6 ♀, ZLKU 13751, June 29, 1972, H. P. Yu leg.  
Taiwan, 4 ♂, 2 ♀, ZLKU 10081, Dec. 25, 1964, Hwang leg.

**Material illustrated.** Dorsal view of male and first pleopod; Holotype. Dorsal view of female; same data as holotype.

**Description of holotype.** The carapace is smooth, and strongly convex in a fore and hind direction ; the depth is 0.69 times the length of the carapace. The frontal breadth is 0.29 times the breadth of the carapace, and 0.44 times the distance between the external orbital teeth. The anterolateral margin of the carapace is smooth. The exopod of the third maxilliped reaches the proximal one-sixth of the merus; the merus is 0.85 times as long as broad.

The 7th abdominal segment is 0.78 times as long as broad, and 1.15 times the length of the 6th. The 6th segment is 0.55 times as long as broad. The first pleopod is moderately curved outwards ; the penultimate segment is 6.3 times the length of the ultimate ; the ultimate segment is slender and straight; the synovial membrane is 6.0 times as long as broad.

In the chelipeds the right is smooth and strongly longer than the left. The fingers are widely gapped when closed, with a series of several indistinctly small teeth on the each cutting edge. The palm is 0.63 times as long as broad, 0.46 times the length of the dactylus and 0.34 times the length of the chela. The left cheliped is smooth and slender.

The ambulatory legs are slender, smooth and bear very short hairs. The 2nd ambulatory leg is 1.4 times the breadth of the carapace ; the propodus is 3.6

<sup>19)</sup> 八斗子, <sup>20)</sup> 南埔, <sup>21)</sup> 新竹縣, <sup>22)</sup> 關西, <sup>23)</sup> 信義, <sup>24)</sup> 南投縣

Table 1. Measurements of six species (in mm).

|   | <i>S. taiwanensis</i><br>♀, ZLKU 10140 |      | <i>T. candiensi</i><br>♂, ZLKU 8853 |      | <i>G. miyazakii</i><br>♂, ZLKU 10137 |      | <i>G. chiui</i><br>Holotype |      | <i>C. rathbuni</i><br>♂, ZLKU 10147 |      | <i>T. formosanum</i><br>♂, ZLKU 10145 |      |
|---|--|------|-------------------------------------|------|--------------------------------------|------|-----------------------------|------|-------------------------------------|------|---------------------------------------|------|
| Carapace                                |  |      |                                     |      |                                      |      |                             |      |                                     |      |                                       |      |
| Length of carapace                      | 24.3                                   |      | 15.4                                |      | 23.4                                 |      | 26.7                        |      | 30.3                                |      | 26.0                                  |      |
| Breadth of carapace                     | 29.0                                   |      | 19.6                                |      | 29.4                                 |      | 34.0                        |      | 35.8                                |      | 32.6                                  |      |
| Depth of carapace                       | 14.2                                   |      | 9.2                                 |      | 14.0                                 |      | 18.3                        |      | 16.8                                |      | 18.2                                  |      |
| Frontal breadth                         | 10.2                                   |      | 6.3                                 |      | 9.8                                  |      | 9.8                         |      | 11.6                                |      | 9.0                                   |      |
| Distance between external orbital teeth | 20.0                                   |      | 13.7                                |      | 19.3                                 |      | 22.2                        |      | 26.6                                |      | 22.4                                  |      |
| Abdominal segment                       |  |      |                                     |      |                                      |      |                             |      |                                     |      |                                       |      |
| Length of 7th segment                   | 5.6                                    |      | 3.1                                 |      | 4.8                                  |      | 4.7                         |      | 4.4                                 |      | 5.0                                   |      |
| Breadth of 7th segment                  | 14.0                                   |      | 4.1                                 |      | 5.8                                  |      | 6.0                         |      | 7.9                                 |      | 5.2                                   |      |
| Length of 6th segment                   | 6.1                                    |      | 2.4                                 |      | 3.8                                  |      | 4.1                         |      | 4.6                                 |      | 3.9                                   |      |
| Breadth of 6th segment                  | 18.6                                   |      | 5.0                                 |      | 7.3                                  |      | 7.4                         |      | 8.9                                 |      | 7.2                                   |      |
| Cheliped                                | Right                                  | Left | Right                               | Left | Right                                | Left | Right                       | Left | Right                               | Left | Right                                 | Left |
| Length of palm                          | 6.1                                    | 7.4  | 7.3                                 | 4.1  | 8.4                                  | 6.0  | 11.5                        | 6.1  | 12.1                                | 10.3 | 12.0                                  | 8.0  |
| Breadth of palm                         | 6.4                                    | 9.1  | 9.3                                 | 5.4  | 12.7                                 | 8.1  | 18.4                        | 8.3  | 13.3                                | 11.0 | 14.8                                  | 9.1  |
| Length of dactylus                      | 9.5                                    | 12.1 | 11.1                                | 6.4  | 15.2                                 | 9.6  | 25.0                        | 13.0 | 15.8                                | 14.4 | 19.7                                  | 13.2 |
| Length of chela                         | 16.4                                   | 19.3 | 16.9                                | 11.1 | 22.4                                 | 16.7 | 34.2                        | 19.5 | 28.6                                | 26.4 | 29.8                                  | 22.0 |
| 2nd ambulatory leg                      |  |      |                                     |      |                                      |      |                             |      |                                     |      |                                       |      |
| Length of propodus                      | 7.2                                    | 7.0  | 6.0                                 | 5.8  | 8.0                                  | 8.0  | 9.1                         | 9.2  | 10.6                                | 10.6 | 9.5                                   | 10.2 |
| Breadth of propodus                     | 3.4                                    | 3.5  | 2.6                                 | 2.5  | 3.6                                  | 3.6  | 3.5                         | 3.5  | 5.1                                 | 5.0  | 4.0                                   | 4.0  |
| Length of dactylus                      | 7.5                                    | 7.4  | 7.0                                 | 7.0  | 8.7                                  | 8.8  | 10.1                        | 10.0 | 11.3                                | 11.3 | 11.2                                  | 12.0 |

times as long as broad; the dactylus is slender. The propodus bears two rows of spinules ventrally. The dactylus bears two rows of spinules dorsally and ventrally.



Fig. 6. First pleopods of three species. A, B : *Geothelphusa candidiensis*. C, D : *Geothelphusa miyazakii*. E, F : *Geothelphusa chiui* sp. nov.

**Remarks.** This species is very allied to *Geothelphusa miyazakii* (Miyake & Chiu) and *Geothelphusa candidiensis* Bott, but it is distinguished from them by the following respects.

- (1) The carapace is smooth and strongly convex; the depth is 0.69 times the length of the carapace.
- (2) The first pleopod is moderately curved outwards ; the synovial membrane is 6.0 times as long as broad.
- (3) The ambulatory legs bear very short hairs.

T a b l e 1 .

T a i w a n .

Family **Sinopotamidae** Bott 1970

Genus *Candidiopotamon* Bott 1967

*Candidiopotamon* Bott 1967, p. 210.

*Candidiopotamon*: Bott 1970, p. 189.

**Type species.** *Potamon (Potamon) rathbuni* de Man 1914.

**Distribution.** Taiwan, Okinawa-jima, Kume-jima, Tokuno-shima, Amami-oh-shima.



*Candidiopotamon rathbuni* (de Man 1914)

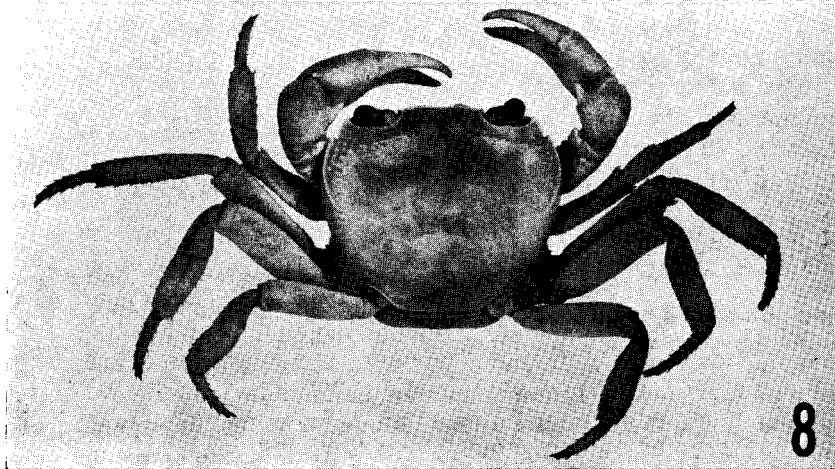
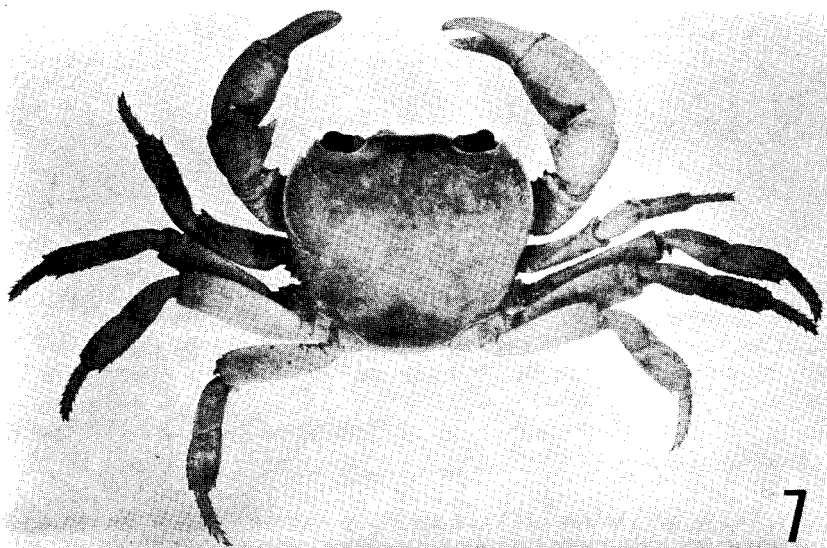
(Figs. 7-9)

*Potamon* (*Potamo* de Man 1914) *phillipsi* B, fig. 4-4d.*Poramon* (*Potamon*) *rathbuni*: Parisi 1916, p. 153.*Poramon* (*Potamon*) *rathbuni*: &*Potamon rathbuni*:

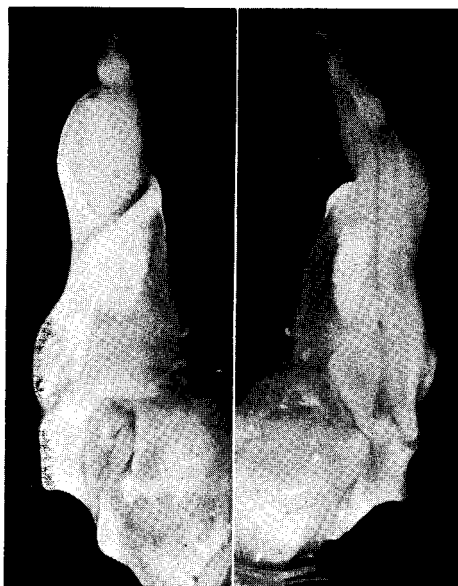
K o b a 1936, p pl. 166, 1.

*Potamon rathbuni*:*rathbuni*:*Candidiopotamon rathbuni*:

B o t t 1937, 089, pl. 40, fig. 74; pl. 55, fig. 75.

*Candidiopotamon rathbuni* (de Man 1914) ♀ Female.

**Material examined.** Chialo,<sup>25)</sup> Hsinchu Hsien, 1 ♂, 1 ♀,  
 Manchou,<sup>26)</sup> Hsien,<sup>27)</sup> g 3 ♂, 1 ♀, YuKU 13745, Feb. 7, 1972, H. P.  
 leg.  
**Material illustrated.** Dorsal view first pleopod; Chialo,



**Fig. 9.** First pleopod of *Candidiopotamon rathbuni*.

**Remarks.** This species is very allied to *Candidiopotamon okinawense* Minei, *Candidiopotamon kumejimense* Minei and *Candidiopotamon amamense* Minei in the general characters, but it is distinguished from them by the shape of the first pleopod (See Minei (1973), p. 224, fig. 15 A-F),

**Measurements.** See Table 1.

**Distribution.** Taiwan.

Family **Isolapotamidae** Bott 1970

Genus *Nanhaipotamon* Bott 1968

*Isolapotamon* (*Nanhaipotamon*) Bott 1968, p. 214.

*Nanhaipotamon* : Bott 1970, p. 195.

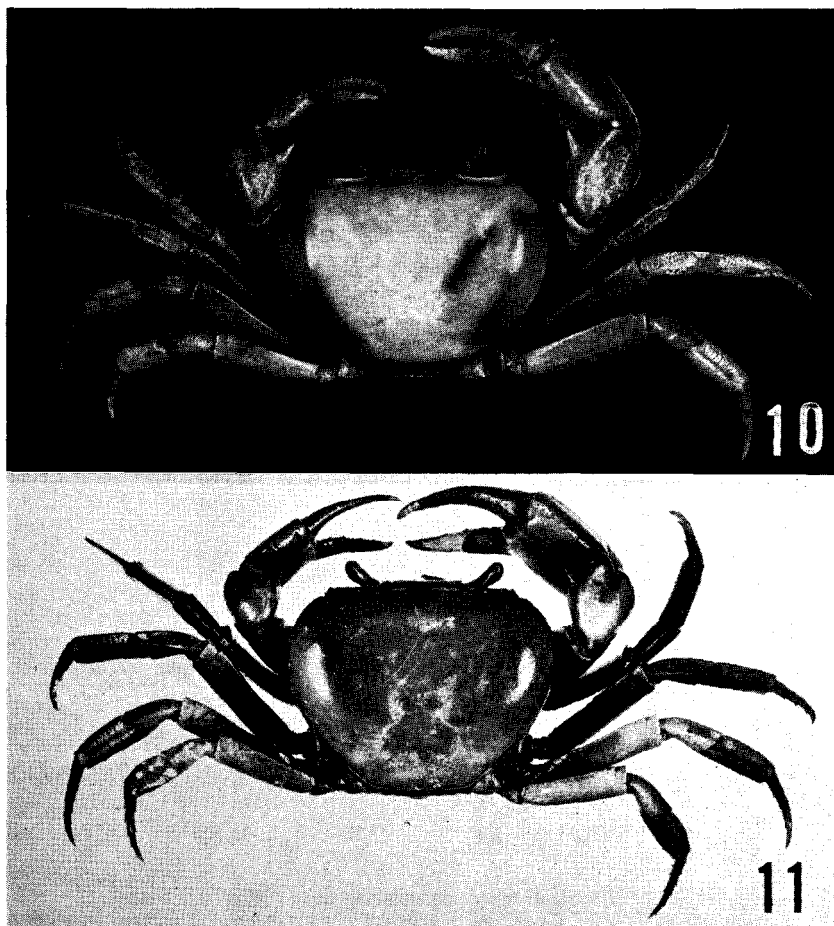
**Type species.** *Potamon* (*Potamon*) *formosanum* Parisi 1916.

**Distribution.** Mindoro Is., Taiwan, Iriomote-jima, Ishigaki-jima, Okinawa-jima.

<sup>25)</sup> 嘉樂, <sup>26)</sup> 滿州, <sup>27)</sup> 屏東縣

***Nanhaipotamon formosanum* (Parisi 1916)**

(Figs. 10-12)

*Potamon (Pofamon) Jormosanum* Parisi 1916, p. 156, pl. 8, fig. 1b; pl. 9, fig. 1.*Geothelphusa Jormosana*: Balss 1937, p. 168, fig. 32.*Isolapotamon (Nanhaipotamon) Jormosanum Jormosanum*: Bott 1968, p. 124, fig. 9.*Nanhaipotamon Jormosanum Jormosanum*: Bott 1970, p. 195, fig. 8.Figs. 10-11. *Nanhaipotamon Jormosanum* (Parisi). 10 : Male, 11 : Female.

**Material examined.** Chungshing Hsintsun,<sup>28)</sup> Nantou Hsien, 1 ♂, Jan. 2, 1964, 1 ♀, Aug. 12, 1961, ZLKU 10145, J. K. Chiu leg.

**Material illustrated.** Dorsal views of male and female, first pleopod; Chungshing Hsintsun, ZLKU 10145.

**Remarks.** This species is very allied to *Nanhaipotamon yaeyamense* Minei and

<sup>28)</sup> 中興新村



Fig. 12. First pleopod of *Nanhaipotamon formosanum*.

*Nanhaipotamon globosum* (Parisi) in the general characters, but it is distinguished from them by the shape of the first pleopod (See Pretzmann (1963), p. 367, pl. 4, fig. 14 ; Bott (1968), p. 122, figs. 9, 10 ; Minei (1973), p. 224, fig. 15 G, H).

**Measurements.** See Table. 1.

**Distribution.** Taiwan.

#### ACKNOWLEDGEMENTS

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