

## Research on the coast of Somalia. Portunidae (Crustacea Brachyura)

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From 1970 to 1997, 482 Portunidae were collected from various intertidal environments along the southern Somalian coast and, to a lesser extent, from Kenya and the Mascarene Islands. The material belongs to 39 species of which 13 are new for the Somalian coast, 5 for the East African coast and 2 for the western Indian Ocean: *Charybdis hawaiiensis* Edmondson 1954 previously known only for Hawaii and *Carupella banlaensis* Tien 1969 only known for the Tonkin Gulf.

KEY WORDS: Portunidae, Somalia, Kenya, Mascarene, Crustacea, Decapoda, systematics, East Africa.

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## INTRODUCTION

Since 1970, the coast of southern Somalia has been extensively studied by the Centro di Studio per la Faunistica ed Ecologia Tropicali of CNR, Florence, Italy. During 10 expeditions between 1970 and 1986, about 10,000 decapods were collected, 439 of which were Portunidae. Two preliminary notes on this family (together with Atelecyclidae) were published years ago (VANNINI 1976, 1983) but an extensive list of the various species has never been published. In the meantime, other decapod families from the same area have been studied: Dromiidae, Porcellanidae, Galatheidae, Diogenidae, Paguridae and Coenobitidae (LEWINSOHN 1979a, 1979b, 1981a, 1981b, 1982); Grapsidae and Ocypodidae (VANNINI & VALMORI 1981a); Gecarcinidae (VANNINI & VALMORI 1981b); Trapeziidae (GALIL & LEWINSOHN 1983, GALIL 1988, GALIL & CLARK 1988, GALIL & VANNINI 1990), Xanthidae, Carpiliidae and Menippidae (GALIL & VANNINI 1990). The Alpheidae collection was published by BANNER & BANNER (1983) within their study on the Indo-Pacific Alpheidae. Before these studies, only a few specimens of crabs from Somalia were investigated by WEDENISSOW (1894), PARISI (1938), VATOVA (1943) and by GUINOT (1964) who dealt with Portunidae.

From 1988, the activity of the CNR Research Centre began to focus on areas other than Somalia, such as Kenya and the Mascarene Islands, where some Portunidae were also collected.

A guide for the study of the Portunidae of Madagascar was published by CROSNIER (1962) and much of our present work has been based on it. STEPHENSON'S checklist (1972a) has also been employed as the most recent and reliable Indo-West-Pacific Portunidae list and reference work.

The aim of this paper is to provide a list of Portunidae species from Somalia, and a guide for identification of the East African members of this family.

## MATERIAL AND METHODS

Most of the material has been collected in southern Somalia, particularly in the area of Sar Uanle in the lower Giuba, a semi-exposed rocky coast 20 km south of Chisimaio, in Bender Mtoni, a mangrove swamp close to Chisimaio, and at Gesira, 20 km south Mogadishu. In the last locality, animals were collected from both the ocean side and the mangrove creek. Other specimens came from Kenya, mostly from the mangrove creeks of Mtuapa (near Mombassa), Twiga and Mida Creek (near Malindi), and from Mauritius and Rodriguez (Mascarene Islands). In the following text, the term "East African coast" indicates the African coast, from Somalia to Natal.

The measurements are expressed in mm: width  $\times$  length. For each species, the size of the largest specimen in our samples is given. The collector's name, if omitted, is M. Vannini. The material is deposited in the Museo di Storia Naturale, Sezione di Zoologia "La Specola" of the University of Florence, Italy (MF).

Ecological notes by the collectors are given (with no author reference) together with those deduced from the literature (with the author in brackets). Colour is indicated only

when recorded in live or freshly killed animals. In some cases a colour indication by other authors is given.

In constructing the keys, we have adapted CROSNIER'S (1962) and STEPHENSON'S keys (1972a) to the Somalian species (Fig. 1).

SYSTEMATICS

Family Portunidae Rafinesque 1815

- 1 Eyestalks enormously long ..... Podophthalminae
- Eyestalks normal ..... 2
- 2 Broad carapace, transversely elliptical and convex both in length and width. Antennal flagellum in contact with the orbital space ..... Catoptrinae
- Carapace not very broad or convex in only one direction..... 3
- 3 Long chelipeds and legs; chelipeds longer than any of the ambulatory legs. Carapace relatively broad. Fifth legs with flat dactyl..... Portuninae
- Short chelipeds and legs. Carapace relatively narrow. Fifth legs with hook-shaped dactyl ..... Caphyrinae

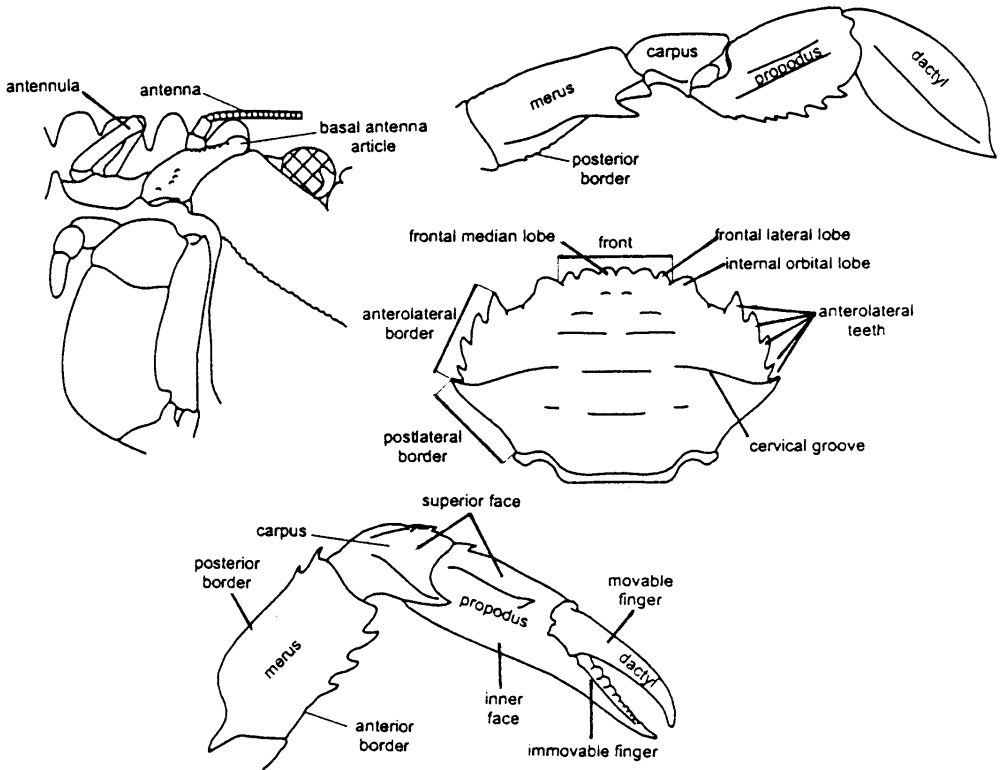


Fig. 1. — Schematic drawings of various body parts of a portunid crab with the terminology used in the text, from above carapace, orbital region, cheliped and fifth leg (redrawn from CROSNIER 1962).

## Subfamily Podophthalminae Dana 1851

Genus *Podophthalmus* Lamarck 1801***Podophthalmus vigil*** (Weber 1795) (Fig. 68)

*Portunus vigil* WEBER 1795: 93.

*Podophthalmus vigil* STEPHENSON & CAMPBELL 1960: 115, figs 1L, 2O, pl. 5, fig. 1, pl. 5O; CROSNIER 1962: 146, pl. 13, fig. 1; STEPHENSON 1972b: 153, fig. 8; HEATH 1973: 13; DAI & YANG 1991: 261, pl. 32 (5), fig. 141; APEL & SPIRIDONOV 1998: 169, fig. 8.

*Material examined.* Kenya, Mida Creek, Sita, X.1990, 1 ♀ (MF 889); III.1997, (S. Cannicci!), 1 ♂ (MF 882).

*Remarks.* This is the only recorded *Podophthalmus* species for the East African coast. One of this specimens was found dead near mangroves.

*Colour.* Pale yellow-brown (CROSNIER 1962).

*Ecology.* On sandy mud, up to 70 m depth (STEPHENSON 1972a).

*Distribution.* Red Sea, Tanzania, Madagascar, Arabian Gulf, Philippines, Hawaii, Samoa, Tahiti, Japan, Australia.

*Size* 49.2 × 22.5.

Subfamily Catoptrinae Borradaile 1903  
(sensu SAKAI 1939)

1	Anterolateral margin of the carapace with 7 teeth, the sixth the largest ... <i>Carupa</i>	
—	Anterolateral margin entire or with at most 6 teeth .....	2
2	Anterolateral margin entire .....	<i>Libystes</i>
—	Anterolateral margin with 6 teeth .....	<i>Catoptrus</i>

Genus *Carupa* Dana 1851***Carupa tenuipes*** Dana 1851 (Figs 2, 6, 69)

*Carupa tenuipes* DANA 1851: 129; 1852a: 279. LEENE 1940: 165-168, figs 1-2. STEPHENSON & CAMPBELL 1960: 88, pl. 2, fig. 1. CROSNIER 1962: 19, 23, figs 16-23. HEATH 1973: 3, fig. 1b. SAKAI 1976: 325, pl. 110, fig. 3. YANG et al. 1979: 78, fig. 2. DAI & YANG 1991: 199-200, fig. 106, pl. 24 (3). APEL & SPIRIDONOV 1998: 172, fig. 4, pl. 1.

*Material examined.* Somalia, Gesira, XI-XII.1976, 1 juv., 1 ♂ (MF 810), 1980 (G. Chelazzi!), 1 ♂ (MF 825); X.1981, 1 juv., 1 ♂ (MF 856).

*Remarks.* It is the only known species belonging to this genus. In one of the examined specimens, the fifth anterolateral tooth appears rudimental on the left and it is completely absent on the right.

*Colour.* The carapace is pale yellow with two brown spots in the anterior central area. The chelipeds are darker than the carapace and the tips of the fingers are brown. The limbs, from the second to the fifth, are violet. According to CROSNIER (1962), it is very pale uniform yellow.

*Ecology.* It lives exclusively on the exposed reef. STEPHENSON (1972a) and DAI & YANG (1991) report the species to a depth of 80 m, from coral reefs.

*Distribution.* Seychelles, Tanzania, and from Madagascar to Hawaii, including the Arabian Gulf, Japan, China, Australia, New Guinea, Melanesia, Tuamotu, Marshall Islands and Marianas Islands, Timor (DAI & YANG 1991). First record for Somalia.

*Size* 17.0 × 11.8.

### Genus *Libystes* A. Milne Edwards 1867

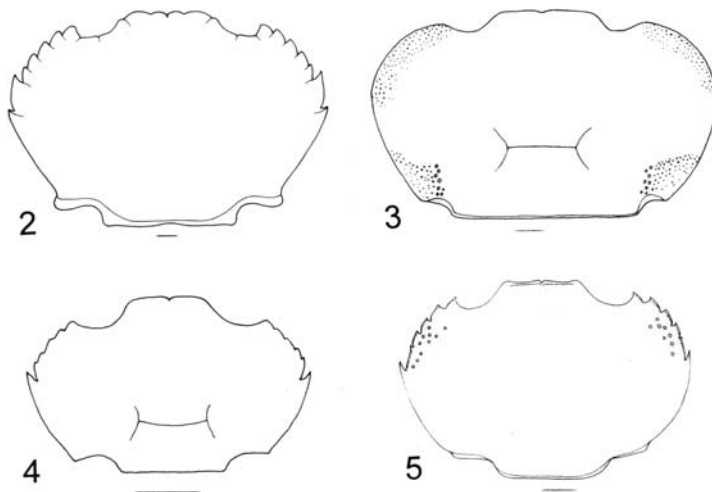
#### *Libystes nitidus* A. Milne Edwards 1867 (Figs 3, 7, 90)

*Libystes nitidus* A. MILNE EDWARDS 1867: 285; 1868: 83, pl. 20, figs 5-7. BARNARD 1954: 99, fig. 2a-c. CROSNIER 1962: 14, 148, figs 5-10. SERÈNE 1966: 990, figs 1-6.

*Libystes villosus* RATHBUN 1924: 127; EDMONDSON 1954: 226, fig. 4c-d; MIYAKE & TAKEDA 1970: 33, fig. 3.

*Material examined.* Somalia, Sar Uanle, XI-XII.1976, 1 ♂, 1 ♀ (MF 857); Gesira, X.1986, 1 ♀ (MF 875).

*Remarks.* Following STEPHENSON (1972a) and SERÈNE (1966), we have considered *L. villosus* to be a synonym of *L. nitidus*.



Figs 2-5. — Carapace of: *Carupa tenuipes* (Fig. 2), *Libystes nitidus* (Fig. 3), *Catoptrus nitidus* (Fig. 4), *Catoptrus rathbunae* (Fig. 5). Unless specified, otherwise scale bars = 1 mm.

*Colour.* Unknown.

*Ecology.* Mangrove, under rocks, in the mud; sheltered pools. Intertidal to 200 m (STEPHENSON 1972a).

*Distribution.* Sudanese Red Sea, Persian Gulf, Djibouti, Zanzibar, Madagascar, Philippines, Sumatra, Samoa, Wake Islands and Hawaii. First record for Somalia.

*Size* 12.0 × 7.5.

### Genus *Catoptrus* A. Milne Edwards 1870

- 1 Male first pleopod with sharp tip. No granules behind frontal lobes .....  
 ..... *Catoptrus nitidus*  
 — Male first pleopod with bifurcate tip. Two rows of granules parallel to the frontal  
 lobes ..... *Catoptrus rathbunae*

### *Catoptrus nitidus* A. Milne Edwards 1870 (Figs 4, 8, 91)

*Catoptrus nitidus* A. MILNE EDWARDS 1870: 82; TESCH 1918: 179, pl. 9, figs 4, 4a-d; CHEN 1975: 159-160, fig. 2, pl. I (3); SAKAI 1976: 324, pl. 110, fig. 1; DAI & YANG 1991: 197-198, fig. 105 (1), pl. 24 (1).

*Goniocaphyra truncatifrons* DE MAN 1887: 339, pl. 14, fig. 1.

(?) *Catoptrus nitidus* EDMONDSON 1954: 224, fig. 2e-g.

*Libystes truncatifrons* CROSNIER 1962: 16, figs 11-15.

*Material examined.* Somalia, Gesira, XI-XII.1976, 1 ♂ (MF 821).

*Remarks.* The examined specimen corresponds perfectly to the descriptions and illustrations of CROSNIER (1962), CHEN (1975) and SAKAI (1976).

*Colour.* Pink, with brown fingertips (CROSNIER 1962).

*Ecology.* Intertidal zone, under dead corals. Sandy and stony bottoms or coral reefs, about 10 m deep (DAI & YANG 1991); intertidal (in dead coral) to 145 m (STEPHENSON 1972a).

*Distribution.* Widespread tropical Indo-West-Pacific, from Madagascar to Hawaii, including Japan and Australia (STEPHENSON 1972a). China, Samoa, Fiji, Indonesia, Sri Lanka, Mauritius, Amirante Islands (DAI & YANG 1991). First record for East African coast.

*Size* 4.3 × 2.6.

### *Catoptrus rathbunae* Serène 1966 (Figs 5, 9, 70)

*Catoptrus nitidus* RATHBUN 1911: 239.

*Catoptrus rathbunae* SERÈNE 1966: 993, 997, figs 7-8, pl. 1.

*Material examined.* Somalia, Gesira, X.1981, 1 juv., 2 ♂, 2 ♀ (MF 861).

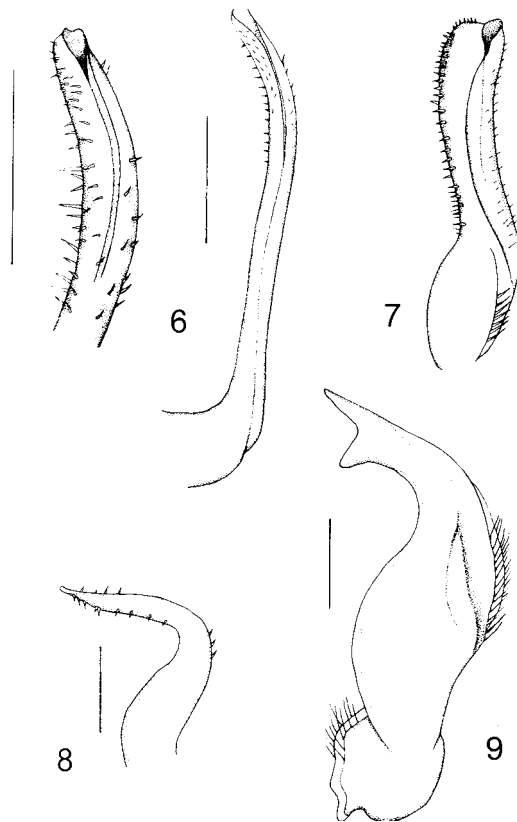
*Remarks.* Our specimens correspond with the description of RATHBUN (1911) and the illustrations of SERÈNE (1966). A constant characteristic in our specimens is the presence of two barely separate rows of large granules running parallel and just behind the frontal lobes. This feature does not appear in SERÈNE'S (1966) photographs and is poorly described by RATHBUN (1911). Following STEPHENSON (1976) the bifurcate tip of the male first pleopod is the most easily recognised feature.

*Colour.* Uniform and pale pink. Tip of the chelipeds dark. Limbs, from the second to the fifth, paler than the rest of the body.

*Ecology.* Reef.

*Distribution.* Indian Ocean, Amirante Islands, Madagascar, Vietnam (STEPHENSON 1972a, 1976). First record for the East African coast.

*Size* 7.9 × 5.1.



Figs 6-9. — First male pleopod of: *Carupa tenuipes* (dorsal view) (Fig. 6), *Libystes nitidus* (dorso-lateral view) (Fig. 7), *Catoptrus nitidus* (dorsal view) (Fig. 8), *Catoptrus rathbunae* (dorsal view) (Fig. 9). Unless specified, otherwise scale bars = 1 mm.

## Subfamily Caphyrinae Paul'son 1875

- |   |   |                                  |   |
|---|---|----------------------------------|---|
| 1 | Fifth leg dactylus paddle-shaped .....  | <i>Lissocarcinus orbicularis</i> |   |
| — | Fifth leg dactylus claw-shaped .....  |                                  | 2 |
| 2 | Front strongly rounded, except for a small median notch. Four anterolateral teeth ..... | <i>Caphyra rotundifrons</i>      |   |
| — | Front provided with teeth. Five anterolateral teeth (fourth sometimes rudimental) ..... | <i>Caphyra laevis</i>            |   |

Genus *Lissocarcinus* Adams & White 1849*Lissocarcinus orbicularis* Dana 1852 (Figs 10, 71)

*Lissocarcinus orbicularis* DANA 1852a: 288, pl. 18, fig. 1a-e; BARNARD 1950: 145, fig. 28g; FOURMANOIR 1954: 10, fig. 10; STEPHENSON & CAMPBELL 1960: 95, pl. 3, fig. 2; STEPHENSON 1961: 101, figs 1D, 3A; CROSNIER 1962: 25, figs 26-27, 31; HEATH 1973: 13, fig. 2; SPIRIDONOV 1999: 66.

*Material examined.* Kenya, Gazi, XI.1991, 2 ♂, 1 ♀ within holothurians (MF 888); Mombassa, 5.XII.1992 (M. Borri!), 2 ♀ with eggs within holothurians (MF 879).

*Remarks.* This species is a well known holothurian commensal. Among the nine species of this genus, three are known to live within holothurians, one on a sea urchin, one on a salp and four seem to conduct a free life (STEPHENSON 1972a).

*Colour.* Dark brown mottled on pale creamy background.

*Ecology.* In holothurians. Reported also as a sea anemone commensal (MOOSLEITNER 1985).

*Distribution.* East coast of South Africa, Tanzania, Seychelles, Sri Lanka, Japan, Australia, Fiji, Hawaii. First record for Kenya.

*Size* 9.8 × 11.0.

Genus *Caphyra* Guérin 1832*Caphyra laevis* (A. Milne Edwards 1873) (Figs 12, 73)

*Goniosoma laeve* A. MILNE EDWARDS 1869: 152.

*Caphyra laevis* A. MILNE EDWARDS 1873: 173-174, pl. 4, fig. 2a-c. STEPHENSON & CAMPBELL 1960: 97, 100, figs 1G, 2I, 3D-G, 3J, pl. 3, fig. 3, pl. 5I. CROSNIER 1962: 2, fig. 43bis a-b; 1975: 759, fig. 5I. DAI & YANG 1991: 201-202, fig. 107 (2), pl. 24 (5).

*Material examined.* Somalia, Gesira, X.1981, 2 ♀ (MF 860).

*Remarks.* The shape of the frontal lobes is quite variable (cf. STEPHENSON & CAMPBELL 1960 and CROSNIER 1962).

*Colour.* Similar to *C. rotundifrons*.



*Ecology.* Among corals. From 1 to 10 m depth, on the alcyonian *Xenia* Lamarck 1816 (STEPHENSON 1972a).

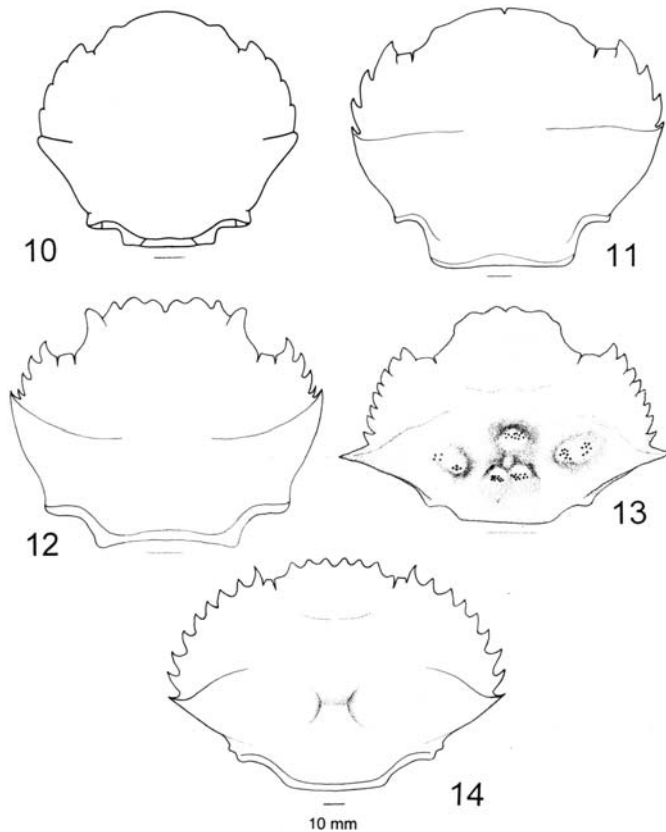
*Distribution.* From Madagascar and Ambon to China, Australia, Fiji, New Caledonia. First record for the East African coast.

Size 8 × 5.8.

***Caphyra rotundifrons*** (A. Milne Edwards 1869) (Figs 11, 15, 72)

*Camptonyx rotundifrons* A. MILNE EDWARDS 1869: 156, pl. 7, figs 11-12.

*Caphyra rotundifrons* STEPHENSON & CAMPBELL 1960: 97, 101, figs 1H, 2J, 3A-C, 3K, pl. 3, fig. 4, pl. 5J; CROSNIER 1962: 30, fig. 39, pl. 1 (2); SAKAI 1976: 326-327, text-fig. 177; VANNINI 1976: 121; DAI & YANG 1991: 202, pl. 24 (6).



Figs 10-14. — Carapace of: *Lissocarcinus orbicularis* (Fig. 10), *Caphyra rotundifrons* (Fig. 11), *Caphyra laevis* (Fig. 12), *Carupella banlaensis* (Fig. 13), *Scylla serrata* (Fig. 14). Unless specified, otherwise scale bars = 1 mm.

*Material examined.* Somalia, Sar Uanle, X.1972, 1 ♀ (MF 809), XI.1973, 1 ♂ (MF 808). Gesira, 1980 (G. Chelazzi!), 1 ♂ (MF 822), X.1981, 2 ♀ (MF 855).

*Remarks.* CROSNIER (1962) describes the cheliped merus as showing three spines and two tubercles on its anterior margin while the 2-5 walking legs show feathery hairs on the anterior margin of all the articles, except for the dactyl. In our specimens there are more than two tubercles on the anterior border of the cheliped merus and the anterior margin of the dactyl is covered by feathery bristles.

*Colour.* Bright green with darker longitudinal stripes. In alcohol, it assumed a pink colour.

*Ecology.* Exposed tide-pools. Among *Chlorodesmis* (CROSNIER 1962). According to GRIFFIN (1969), it lives in coral lagoons.

*Distribution.* Madagascar, Mauritius, Australia, Marianas Islands, Fiji, Samoa, Tuamotu, Tahiti, Bora Bora (New Caledonia). STEPHENSON (1972a) reports this species for Tanzania, but this was not confirmed by HEATH (1973).

*Size* 14.7 × 11.7.

Subfamily Portuninae Rafinesque 1815  
(sensu STEPHENSON & CAMPBELL 1960)

1	Five or fewer anterolateral teeth .....	2
—	Six or seven anterolateral teeth .....	<i>Charybdis</i>
—	Nine anterolateral teeth .....	4
2	Tips of chelipeds pointed .....	<i>Thalamita</i>
—	Tips of chelipeds spoon-shaped .....	3
3	Four frontal lobes. Three or four anterolateral teeth ....	<i>Thalamitoides quadridens</i>
—	Two frontal lobes. Five anterolateral teeth (the fourth rudimental) .....	<i>Thalamita stephensoni</i>
4	Carapace roughly as broad as long. Basal antennal joint narrow .....	<i>Carupella banlaensis</i>
—	Carapace evidently broader than long. Basal antennal joint broad .....	5
5	Propodus of chelipeds with ridges and granules .....	<i>Portunus</i>
—	Propodus of chelipeds smooth and inflated .....	<i>Scylla serrata</i>

Genus *Carupella* Lenz 1914

*Carupella banlaensis* Tien 1969 (Figs 13, 74)

*Carupella banlaensis* TIEN 1969: 505, fig. 2.

*Material examined.* Somalia, Bender Mtoni, XI-XII.1976, 1 juv. (MF 807).

*Remarks.* The shape of the carapace with the fourth anterolateral tooth prominent and projecting outwards, distinguishes this species from *C. natalensis* Lenz 1914, the other *Carupella* species known for the Western Indian Ocean.

*Colour.* Whitish, after long preservation in alcohol.

*Ecology.* Mangrove swamps, under dead tree-trunks. Littoral muddy bottoms (TIEN 1969).

*Distribution.* Previously known only from the Tonkin Gulf.

*Size* 7.2 × 4.8.

Genus *Scylla* de Haan 1833

*Scylla serrata* (Forskål 1775) (Figs 14, 16, 75)

*Cancer serratus* FORSKÅL 1775: 90.

*Scylla serrata* BARNARD 1950: 160, fig. 31b-c; CROSNIER 1962: 72, figs 128-129; HEATH 1973: 14; SAKAI 1976: 335-336, pl. 115; VANNINI 1976: 122; DAI & YANG 1991: 209, fig. 111 (1), pl. 25 (5); APEL & SPIRIDONOV 1998: 312.

*Material examined.* Somalia, Gesira, X.1972, 1 ♂, 1 ♀ (MF 836); XI-XII.1976, 5 juv., 5 ♂, 4 ♀ (1 with eggs) (MF 837); X.1981, 3 ♂ (MF 854).

*Remarks.* It is easily recognised and correspond perfectly with previous descriptions.

*Colour.* Uneven brown-greenish.

*Ecology.* Seldom found in semi-exposed zones; common in mangroves and estuaries, muddy bottoms, often in deep dens. Intertidal to 7 m, it penetrates into estuaries deeper than other Portunidae (STEPHENSON 1972a).

*Distribution.* From East Africa to Tahiti, including South Africa, Arabian Gulf, India, China, Japan, Indonesia, Philippines, Australia, New Zealand. New Guinea, New Caledonia, Fiji and Hawaii. It seems to be excluded from the Red Sea.

*Size* 165 × 115.

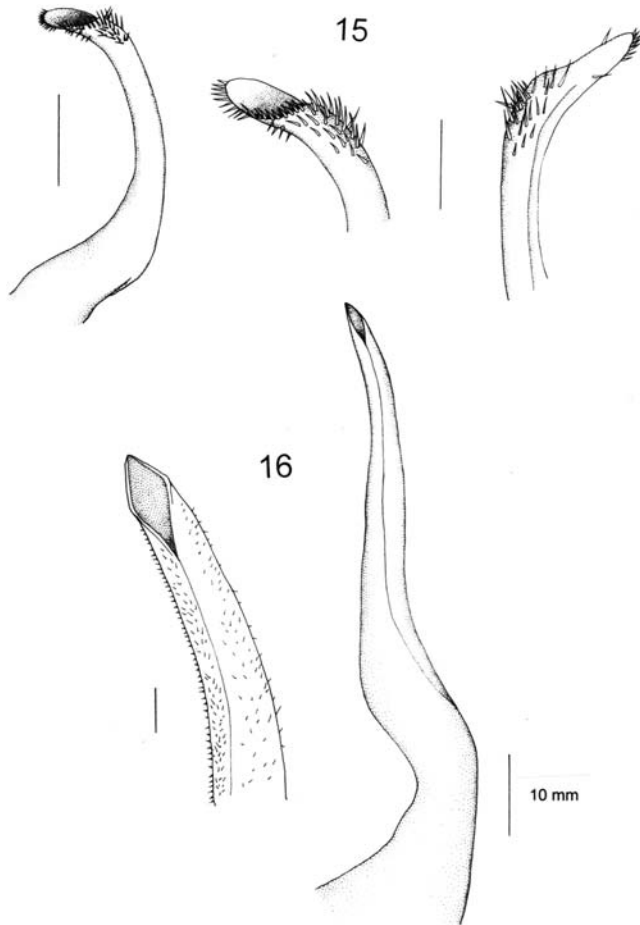
Genus *Portunus* Weber 1795

- 1 Posterolateral borders of the carapace with a spine at their junctions ..... *Portunus iranijae*
- Posterolateral borders of the carapace without spines ..... **2**
- 2 Three large red spots on the carapace ..... *Portunus sanguinolentus*
- No spots on the carapace or only two pale spots ..... **3**
- 3 Last anterolateral tooth stout and long ..... *Portunus pelagicus*
- Last anterolateral tooth only slightly more marked than the others ..... **4**
- 4 Merus of the third maxilliped with regularly rounded outer anterior corner ..... **5**
- Merus of the third maxilliped with a strong extension on the outer anterior corner **6**
- 5 In live animals, two pale spots, outlined in brown, on the posterior carapace. Male first pleopod sinuous. Absence of granulation on the lower face of the merus of the chelipeds..... *Portunus convexus*

- No pale spots on the posterior area of the carapace. Male first pleopod smoothly curved. Presence of microscopical granulation on the lower face of the merus of the chelipeds ..... *Portunus pubescens*
- 6 Carapace with main granular patches separated by microscopically granular areas. Lateral edges of the sixth abdominal segment strongly convex with medial swelling ..... *Portunus orbitosinus*
- Carapace granules almost covering entire surface. Sixth abdominal segment slightly convex ..... *Portunus granulatus*

***Portunus convexus*** de Haan 1833 (Figs 19, 24, 77)

*Portunus convexus* DE HAAN 1833-1850: 9; CROSNIER 1962: 47, figs 60, 64-66, 69-70, pl. 2, fig. 2; GUINOT 1964: 10; VANNINI 1976: 122; APEL & SPIRIDONOV 1998: 284, figs 96, 108.



Figs 15-16. — First male pleopod of: *Caphyra rotundifrons* (dorsal and dorso-apical view) (Fig. 15), *Scylla serrata* (dorsal view and dorso-apical view) (Fig. 16). Unless specified, otherwise scale bars = 1 mm.

*Material examined.* Somalia, Sar Uanle, VIII.1975, 1 juv., 3 ♂ (MF 812); XI-XII.1976, 5 juv., 5 ♂ (MF 814); Gesira, XI-XII.1976, 5 juv., 10 ♂ (MF 813); X.1981, 3 juv., 2 ♂ (MF 853).

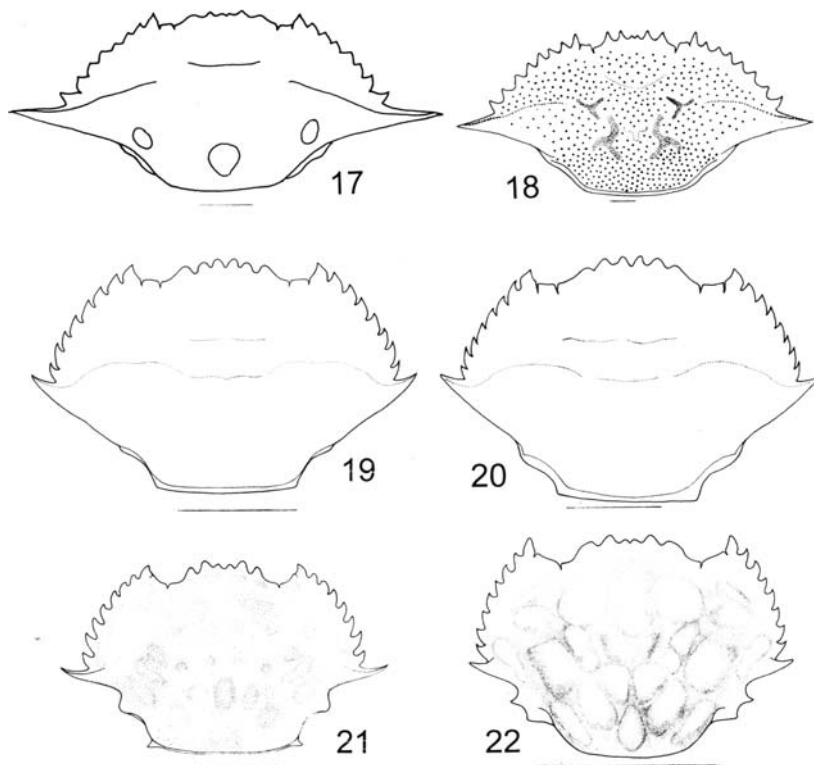
*Remarks.* The lateral frontal lobes of our specimens are slightly larger than the median ones. The two subcircular zones on the posterior edge of the carapace are not easily visible in young and in preserved specimens since the outline fades and only two hairless areas remain.

*Colour.* From pale beige to dark brownish-red. Carapace patches paler, brown circled. Tip of the chelipeds pale.

*Ecology.* On sandy or rocky pools, on sea grasses, under stones and in crevices. Very common in semi-exposed areas; absent in sheltered areas, mangrove and reef. STEPHENSON (1976) reports the species from 0 to 20 m.

*Distribution.* Eritrea, Somalia, Madagascar, Mauritius, Seychelles, Arabian Gulf, Sri Lanka, Indonesia, Moluccas.

Size 31.7 × 20.



Figs 17-22. — Carapace of: *Portunus sanguinolentus* (Fig. 17), *Portunus pelagicus* (Fig. 18), *Portunus convexus* (Fig. 19), *Portunus pubescens* (Fig. 20), *Portunus orbitosinus* (Fig. 21), *Portunus granulatus* (Fig. 22). Unless specified, otherwise scale bars = 10 mm.

***Portunus granulatus*** (H. Milne Edwards 1834) (Figs 22, 25, 78)

*Lupa granulata* H. MILNE EDWARDS 1834: 454.

*Portunus granulatus* STEPHENSON & CAMPBELL 1959: 108, figs 2I, 3I, pl. 3, fig. 1, pls 4J, 5J; CROSNIER 1962: 57, figs 89, 92, 94a-b; STEPHENSON & REES 1967a: 25, fig. 5; HEATH 1973: 13, fig. 4a, c; STEPHENSON 1975: 183-188, figs 1B, E, H-I, 2B, D; SAKAI 1976: 348, pl. 120, fig. 2, text-fig. 187a-b; VANNINI 1976: 125; APEL & SPIRIDONOV 1998: 286, figs 97, 109.

*Material examined.* Somalia, South Somalia, 1937, (Bigi!), 1 ♂, 1 ♀ (MF 815); Bender Mtoni, XI-XII.1976, 1 juv. (MF 816); Sar Uanle, XI-XII.1976, 3 juv., 1 ♂ (MF 817); Gesira, X.1981, 1 ♂, 1 ♀ (MF 852); X.1986, 3 ♂, 3 ♀ (1 with eggs) (MF 2484). Kenya, Twiga, XI.1991, 1 ♂ (MF 887).

*Remarks.* Very similar to *P. orbitosinus*, from which it is distinguished by the following characters: (1) carapace uniformly granulate, without smooth zones between the granule clusters, (2) sixth male abdominal segment with lesser convex sides and without median swelling, (3) first male pleopod stout, with widely flared tip.

*Colour.* Pale, with darker lined dots.

*Ecology.* Semi-protected or protected sandy areas. In coral reefs (DAI & YANG 1991), dredged from 9 to 12 m (STEPHENSON 1972a).

*Distribution.* From Red Sea, Tanzania, Mauritius, Seychelles, to Nicobare Islands to the Philippines, China, Japan, Australia, Melanesia, Marianas Islands, Marshall Islands, Tahiti, Hawaii, Samoa and Fiji.

*Size* 20.5 × 14.6.

***Portunus iranjae*** Crosnier 1962 (Fig. 79)

*Portunus iranjae* CROSNIER 1962: 61, figs 107, 110-111, 115, 118-119, pl. 4 (2); STEPHENSON & REES 1967a: 30; DAI & YANG 1991: 216-217, fig. 115, pl. 26 (4); SPIRIDONOV 1999: 79.

*Material examined.* Kenya, Gazi, VIII.1998, (S. Cannicci!), 1 ♂ (MF 2489).

*Remarks.* It is characterised by the spines at the junctions of the posterior and posterolateral borders of the carapace, the triangular lateral frontal teeth and by the small denticules at the apex of the first male pleopods.

*Colour.* Whitish with marbled brownish dots on the carapace. Legs with transversal brownish bands.

*Ecology.* Semi-protected sandy beach. Intertidal, coral sand (STEPHENSON 1972a, DAI & YANG 1991).

*Distribution.* Madagascar, Philippines, Xisha Islands (China), Moluccas, Tuamotu and Society Islands. First record for the East African coast.

*Size* 24.5 × 12.1.

***Portunus orbitosinus*** Rathbun 1911 (Fig. 21)

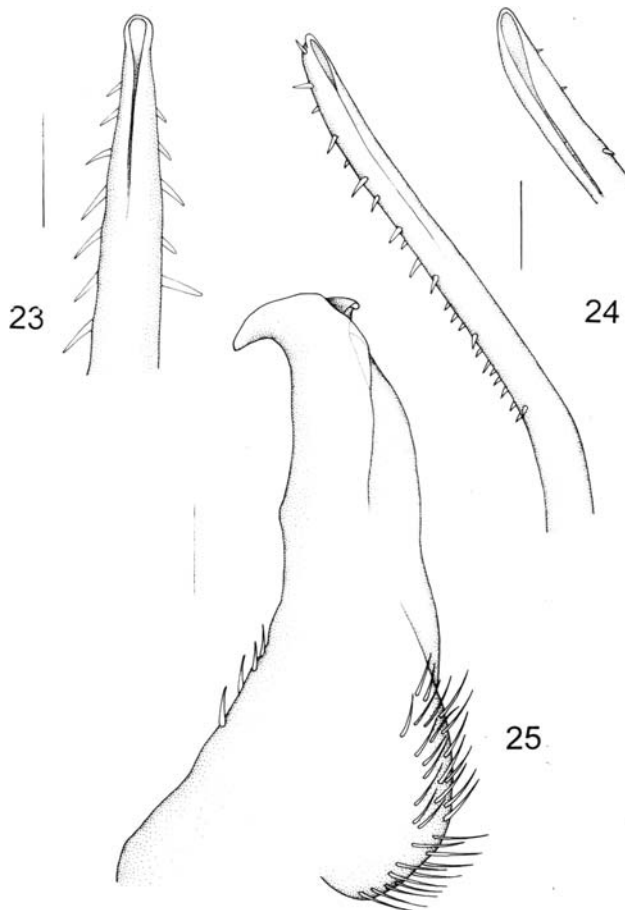
*Portunus (Achelous) orbitosinus* RATHBUN 1911: 205, pl. 15, fig. 11.

*Portunus orbitosinus* STEPHENSON & CAMPBELL 1959: 113, figs 2L, 3L, pl. 3, fig. 4, pls 4L, 5L; CROSNIER 1962: 55, figs 88, 90-91, 93; STEPHENSON & REES 1967a: 31, fig. 6; SAKAI 1976: 349, text-fig. 188a-b; APEL & SPIRIDONOV 1998: 299, figs 110-111, 115; SPIRIDONOV 1999: 80.

*Material examined.* Somalia, Gesira, X.1981, 1 ♀ (MF 859).

*Remarks.* According to the descriptions of STEPHENSON & CAMPBELL (1959), this species presents scaly lines on the lower face of the claw propodus, not reported in CROSNIER (1962).

*Colour.* Variable from pink to yellow. Bright red granules and ribs on the upper face of the claw merus (CROSNIER 1962).



Figs 23-25. — First male pleopod of: *Portunus pelagicus* (dorsal view and dorso-apical view) (Fig. 23), *Portunus convexus* (ventral and ventro-apical view) (Fig. 24), *Portunus granulatus* (dorsal view) (Fig. 25). Unless specified, otherwise scale bars = 1 mm.

*Ecology.* Found in the stomach of a shark. On sandy or muddy bottoms up to 75 m depth (CROSNIER 1962, STEPHENSON 1972a). GRIFFIN (1969) reports the species from coral lagoon floors.

*Distribution.* Tanzania, Madagascar, Mauritius, from the Seychelles to Japan and the Philippines, Thailand, Indonesia, Australia, Marshall Islands. Collected for the first time in Somalia.

*Size* 41.1 × 26.5.

***Portunus pelagicus*** (L. 1758) (Figs 18, 23, 76)

*Cancer pelagicus* LINNAEUS 1758: 626.

*Lupa pelagica* FOURMANOIR 1954: 7, fig. 7.

*Portunus pelagicus* STEPHENSON & CAMPBELL 1959: 96-98, figs 2A, 3A, pls 1 (fig. 1), 4A, 5A; CROSNIER 1962: 43-44, figs 58, 61, 67; STEPHENSON & REES 1967a: 34, figs 12c-d, 17b; HEATH 1973: 13, fig. 4b; SAKAI 1976: 339, pl. 118; DAI & YANG 1991: 212-213, fig. 112, pl. 25 (7); APEL & SPIRIDONOV 1998: 300, pls 10-11.

*Material examined.* Somalia, Gesira, XI-XII.1976, 3 ♂, 1 ♀ (MF 811), X.1981, 2 ♂ (besides a complete intact moult) (MF 851). Kenya, Mida Creek, XI.1991, 1 ♂ (MF 890); Mtu-apa (Mombassa), XI-XII.1993 (M. Borri & C. Volpi!), 2 ♂, 2 ♀ (1 with eggs) (MF 881); Gazi, VII.1997, 1 ♂ (MF 898).

*Remarks.* It is easily distinguished from the other East African *Portunus* species, by the large last anterolateral tooth.

*Colour.* See Fig. 76.

*Ecology.* Fished at night with hand-held lamps, in low tide, in mangrove swamps. It is very abundant in the coastal waters (from 3 to 12 m) on muddy and sandy bottoms (CROSNIER 1962). Found also at 30 m depth (SAKAI 1976).

*Distribution.* A very common species, widespread in the Indo-Pacific, but collected for the first time in Somalia. It is reported in the Mediterranean Sea, which it entered from the Suez Canal (FOX 1924).

*Size* 131.6 × 61.6.

***Portunus pubescens*** (Dana 1852) (Figs 20, 92)

*Lupa pubescens* DANA 1852a: 274, pl. 16, fig. 9.

*Portunus pubescens* RATHBUN 1906: 870, pl. 14, fig. 1; EDMONDSON 1954: 234, figs 12d-f, 13b; STEPHENSON & CAMPBELL 1959: 99, figs 2C, 3C, pl. 1, fig. 3, pls 4C, 5C; SAKAI 1976: 340, pl. 119, fig. 1; DAI & YANG 1991: 215, fig. 114 (1), pl. 26 (2).

*Material examined.* Somalia, Sar Uanle, XI.1971, 1 ♀ (in fragments) (MF 818), X.1972, 4 juv. (MF 820); Gesira, XI-XII.1976, 1 juv. (MF 819), 1 ♂, X.1986 (MF 876).



*Remarks.* Very similar to *P. convexus*, from which it can be distinguished by the absence of the two pale patches on the carapace and by the first male pleopod being gradually bent, while the pleopod of *P. convexus* is sinuous.

*Colour.* Brown, with most of the posterior area and the frontal region paler. Claw fingers dark (SAKAI 1976).

*Ecology.* Semi-protected tide-pools.

*Distribution.* Mozambique, India, China, Philippines, Hawaii, Japan, Australia. First record for Somalia.

*Size* 40.5 × 25.

### ***Portunus sanguinolentus*** (Herbst 1783) (Fig. 17)

*Cancer sanguinolentus* HERBST 1782-1804: 161, pl. 8, figs 56-57.

*Lupa sanguinolenta* FOURMANOIR 1954: 7, fig. 6.

*Portunus sanguinolentus* CROSNIER 1962: 45, figs 59, 62-63, 68; GUINOT 1964: 10; STEPHENSON & REES 1967a: 45, fig. 12a-b; DAI & YANG 1991: 213, pl. 25 (8), fig. 113 (1); APEL & SPIRIDONOV 1998: 306, pl. 12.

*Material examined.* Kenya, Twiga, 9.XI.1991, 1 ♂ (MF 886).

*Colour.* Easily recognisable by the three red spots on the carapace.

*Ecology.* Also observed in Mida Creek mangrove swamps, Kenya, but not collected. Fished by local fishermen.

*Distribution.* East Africa to Japan and Australia.

*Size* 78.3 × 34.1.

### Genus ***Charybdis*** de Haan 1833

- |   |   |                       |   |
|---|---|-----------------------|---|
| 1 | Seven anterolateral teeth, the second and the fourth very small .....   | <i>C. obtusifrons</i> |   |
| — | Six anterolateral teeth .....   |                       | 2 |
| 2 | Second anterolateral tooth distinctively smaller than the first .....   |                       | 3 |
| — | First and second anterolateral teeth equal or subequal .....  |                       | 4 |
| 3 | Frontal lobes wide and not triangular .....   | <i>C. hawaiiensis</i> |   |
| — | Frontal lobes acute, the lateral one nearly pointed .....   | <i>C. orientalis</i>  |   |
| 4 | Edges of anterolateral teeth visibly serrulated. Carapace with only epibranchial lines .....  | <i>C. smithii</i>     |   |
| — | Margin of the anterolateral teeth smooth. Presence of ridges on the carapace in addition to the epibranchial ones .....   |                       | 5 |
| 5 | Carapace strongly pubescent. Presence of frontal and metagastric ridges. Basal article of the second antennae with a ridge formed by large separated granules.... |                       |   |
|   | .....   | <i>C. helleri</i>     |   |

- Carapace from pubescent to nearly hairless. Lack of frontal and metagastric ridges. Basal antennal joint with a continuous (microscopically granulated) ridge  
 ..... *C. annulata*

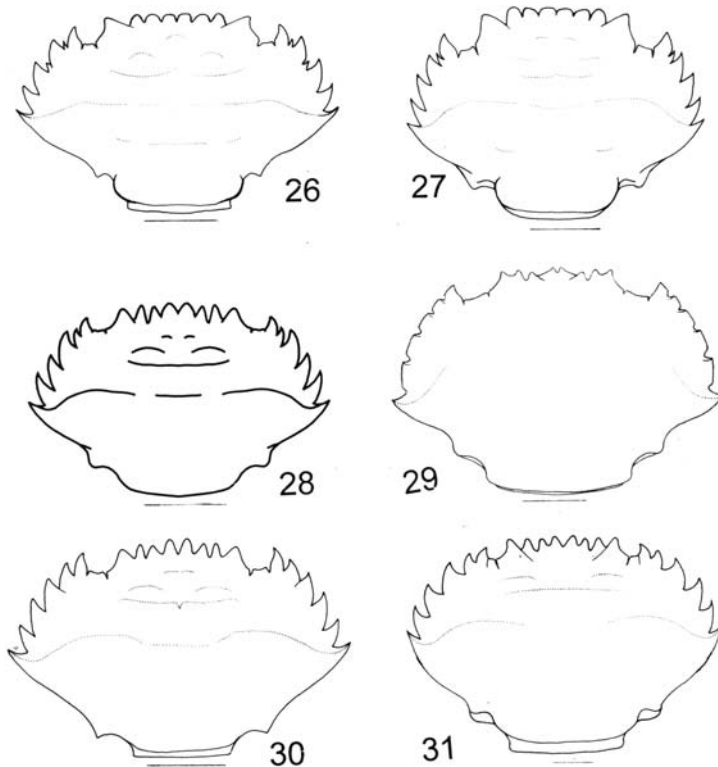
***Charybdis annulata*** (Fabricius 1798) (Figs 31, 36, 94)

*Portunus annulatus* FABRICIUS 1798: 364.

*Charybdis annulata* BARNARD 1950: 169, fig. 32h; CROSNIER 1962: 78, figs 136-139, pl. 5, fig. 2; HEATH 1973: 3; SAKAI 1976: 356, text-fig. 192; VANNINI 1976: 121; DAI & YANG 1991: 230, pl. 28 (2), fig. 124 (1); WEE & NG 1995: 17, fig. 6A-H; APEL & SPIRIDONOV 1998: 187, figs 10-11, 16.

*Material examined.* Somalia, Sar Uanle, X.1972, 1 juv. (MF 802); XI-XII.1976, 1 ♀ (MF 804); Gesira, IX-X.1979, 1 ♂, 2 ♀ (MF 805); Gesira X.1986, 4 ♂ (MF 870).

*Remarks.* CROSNIER (1962) described *C. annulata* with both carapace and chelipeds pubescent. In our samples, the pubescence is present in small specimens while large ones are glabrous. The sixth segment of the male abdomen also differs somewhat from CROSNIER's description. In small specimens, the second antero-lateral



Figs 26-31. — Carapace of: *Charybdis obtusifrons* (Fig. 26), *Charybdis hawaiiensis* (Fig. 27), *Charybdis orientalis* (Fig. 28), *Charybdis smithii* (Fig. 29), *Charybdis helleri* (Fig. 30), *Charybdis annulata* (Fig. 31). Unless specified, otherwise scale bars = 10 mm.

tooth is reduced to an accessory tooth of the first one (see CROSNIER 1962: 79, fig. 136) while in large specimens it reaches the same size as the first.

*Colour.* Pale yellow. Movable finger of the chelipeds with two large transversal brown stripes, the immovable finger with one large stripe (CROSNIER 1962). Dark rings on the legs (HEATH 1973).

*Ecology.* Exposed tide-pools and from the reef, among corals. Rocky coast, near low tide mark (DAI & YANG 1991) and up to 50 m depth (STEPHENSON 1972a).

*Distribution.* Tanzania, South Africa, Arabian Gulf, Pakistan, India, Sri Lanka, China, Formosa, Taiwan, Indonesia, Malaysia, Thailand, Japan, Tahiti.

*Size* 80 × 55.4.

***Charybdis hawaiiensis*** Edmondson 1954 (Figs 27, 33, 81)

*Charybdis hawaiiensis* EDMONDSON 1954: 249, figs 24a-c, 25a-d.

*Material examined.* Somalia, Gesira, IX-X.1979, 1 juv., 2 ♂ (MF 862); X.1981, 3 ♂ (MF 863).

*Remarks.* The comparison between the above specimens and the *C. hawaiiensis* specimen kindly made available by the Bernice P. Bishop Museum of Honolulu, did not reveal any difference.

*Colour.* Brown in the central and upper part of the carapace, externally yellowish. Granulated stripes, carapace margins, frontal lobes, spines and hairless areas red-violet. Fingers of the chelipeds dark with pale tips.

*Ecology.* Reef, among and under coral heads.

*Distribution.* Previously only known from Hawaii.

*Size* 43.7 × 31.1.

***Charybdis hellerii*** (A. Milne Edwards 1867) (Figs 30, 35, 93)

*Goniosoma hellerii* A. MILNE EDWARDS 1867: 282.

*Charybdis hellerii* EDMONDSON 1954: 247, fig. 32a-f; STEPHENSON et al. 1957: 497, figs 1A, 2I, 3J, pl. 1, fig. 4, pls 4C, 5B; CROSNIER 1962: 77-78, figs 133-135, pl. 5 (1); GUINOT 1964: 10; HEATH 1973: 4; VANNINI 1976: 122; DAI & YANG 1991: 233-234, pl. 28 (6), fig. 126 (1); WEE & NG 1995: 32, fig. 14A-G; APEL & SPIRIDONOV 1998: 194, figs 13-15, 17; SPIRIDONOV 1999: 68.

*Material examined.* Somalia, Sar Uanle, X.1972, 3 ♂ (MF 801); Merka, X.1986, 1 ♀ (MF 871).

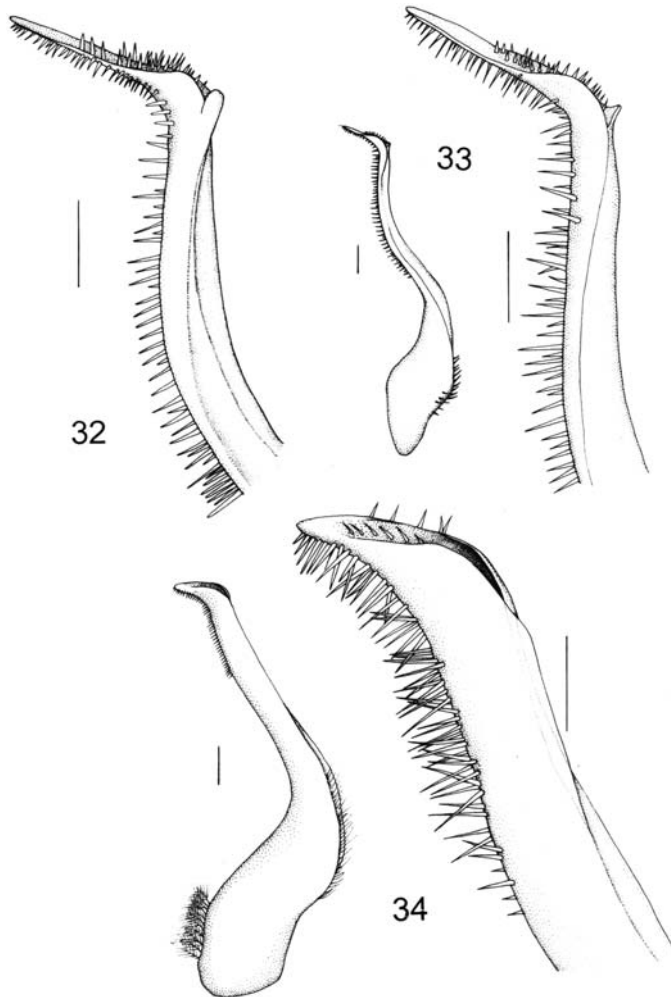
*Remarks.* The large spine on the posterior edge of the fifth leg carpus distinguishes *C. hellerii* from similar species, in which the spine is lacking or much reduced. Small specimens are hairy while large ones are glabrous.

*Colour.* Carapace marbled red; distal half of the fingers black (CROSNIER 1962).

*Ecology.* Intertidal, under rocks and stones, among alive corals. Collected at 38 m depth (STEPHENSON 1972a).

*Distribution.* Widespread in the whole Indo-Pacific area. Migrated to the Mediterranean through the Suez Canal (STEINITZ 1929).

*Size* 58 × 38.6.



Figs 32-34. — First male pleopod of: *Charybdis obtusifrons* (dorsal view) (Fig. 32), *Charybdis hawaiiensis* (dorsal view) (Fig. 33), *Charybdis smithii* (dorsal view and dorso-apical view) (Fig. 34). Unless specified, otherwise scale bars = 1 mm.

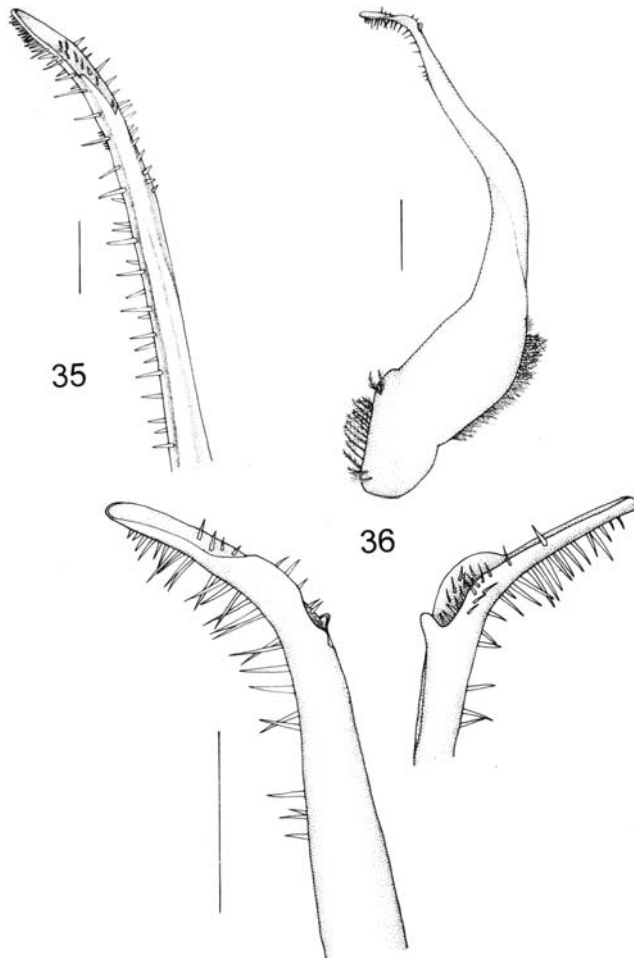
***Charybdis obtusifrons*** Leene 1936 (Figs 26, 32, 80)

*Charybdis obtusifrons* LEENE 1936: 124, figs 11-12; CROSNIER 1962: 84, figs 146, 146bis a-c, pl. 6, fig. 2; GRIFFIN 1969: 352, pl. 44; SAKAI 1976: 365, pl. 129, fig. 1; VANNINI 1976: 122; DAI & YANG 1991: 240-241, pl. 29 (6), fig. 131 (1); WEE & NG 1995: 57, fig. 28A-E.

*Material examined.* Somalia, Sar Uanle, X.1972, 1 ♂ (MF 806); Gesira, X.1981, 1 ♂, 1 ♀ (MF 850).

*Remarks.* It corresponds well with the description by CROSNIER (1962).

*Colour.* Grey in the hairy areas, bright orange in hairless ones. Fingers of the chelipeds with a pale transverse strip.



Figs 35-36. — First male pleopod of: *Charybdis helleri* (dorsal and ventral view) (Fig. 35), *Charybdis annulata* (dorsal view) (Fig. 36). Unless specified, otherwise scale bars = 1 mm.

*Ecology.* From the reef, under corals. Intertidal, on muddy bottoms (CROSNIER 1962).

*Distribution.* Red Sea, Somalia, Madagascar, India, China, Malaysia, Japan, Melanesia, Australia.

*Size* 44.4 × 28.5.

***Charybdis orientalis*** Dana 1852 (Figs 28, 82)

*Charybdis orientalis* DANA 1852a: 285, pl. 17, fig. 10; LEENE 1938: 68, figs 32-34; STEPHENSON et al. 1957: 502, figs 2B, 3B, pl. 3, fig. 1, pl. 4G; GUINOT 1964: 10; WEE & NG 1995: 45, fig. 22A-I; APEL & SPIRIDONOV 1998: 206, figs 24, 29; SPIRIDONOV 1999: 68.

*Material examined.* Somalia, Gesira, X.1986, 1 ♀ with eggs (MF 872).

*Remarks.* As pointed out by CROSNIER (1962), this species is quite similar to *C. annulata*, but can be easily distinguished by the second anterolateral tooth markedly smaller than the first.

*Colour.* Brown, quite uniform (from SAKAI 1976).

*Ecology.* Sheltered pools, under stones. Intertidal, under stones (STEPHENSON 1972a).

*Distribution.* East Africa, from the Red Sea to Japan, Australia.

*Size* 36.8 × 21.9.

***Charybdis smithii*** MacLeay 1838 (Figs 29, 34, 83)

*Charybdis smithii* MACLEAY 1838: 61.

*Charybdis edwardsi* LEENE & BUITENDIJK 1949: 296, figs 3, 4c.

*Charybdis smithii* BARNARD 1950: 163-164, 818, fig. 37j; STEPHENSON & REES 1967b: 285; CROSNIER & THOMASSIN 1974: 1109, fig. 7; APEL & SPIRIDONOV 1998: 217, fig. 36.

*Material examined.* Somalia, Gesira, X.1981, 1 ♂, 4 ♀ (MF 858). Kenya, Sita, XI.1995 (R. Rorandelli!), 1 ♂ (MF 885).

*Remarks.* On the cardiac and mesobranchial regions of the carapace there are scattered granules.

*Colour.* Brown, not uniform.

*Ecology.* Found in the stomach of a tuna fish. Muddy bottoms between 70-368 m (STEPHENSON & REES 1967b); often swimming on the water surface, far from the coast (STEPHENSON 1972a).

*Distribution.* First record for Somalia. Widespread in a large area of the Indian Ocean (STEPHENSON & REES 1967b).

*Size* 53.3 × 37.2.

Genus *Thalamita* Latreille 1829

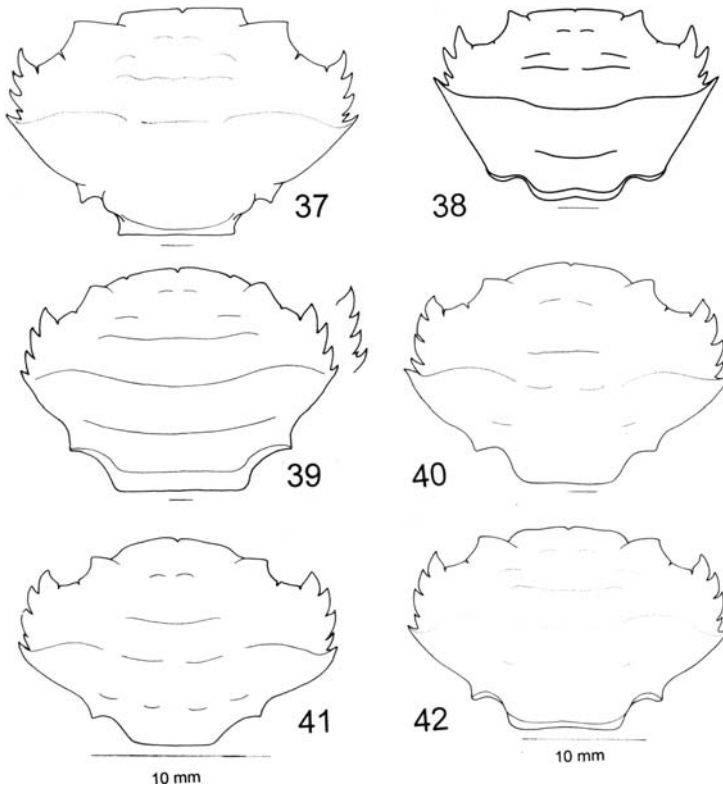
1	Tips of chelipeds spoon-shaped .....	<i>Thalamita stephensoni</i>	
—	Tips of chelipeds normally pointed .....		2
2	Two frontal lobes .....		3
—	Four frontal lobes .....		10
—	Six frontal lobes .....		13
3	Claw propodus massive, fully covered by spines and granules .....	<i>Thalamita pilumnoides</i>	
—	Claw propodus not as above .....		4
4	Frontal lobes forming a convex line .....		5
—	Frontal lobes forming a nearly straight line .....		7
5	Presence of corrugation on the carapace. Male first pleopod regularly bent for nearly all its length .....	<i>Thalamita crosnieri</i>	
—	Absence of corrugations on the carapace. Male first pleopod distally hook-shaped		6
6	Front with a median notch feebly developed and frontal lobes smoothly curved. Long and scattered hairs on the carapace. Sixth abdominal segment converging gradually.....	<i>Thalamita chaptali</i>	
—	Front with a median notch developed and frontal lobes angle curved. Short and thick hairs on carapace. Sixth abdominal segment converging only distally .....	<i>Thalamita parvidens</i>	
7	Internal orbital lobes convex and markedly smaller than the frontal lobes. Male first pleopod laterally twisted (Fig. 47) .....	<i>Thalamita poissoni</i>	
—	Internal orbital lobes straight and as long as the frontal lobes. Male first pleopod hook-shaped (Fig. 55) .....		8
8	Basal antennal joint with a smooth ridge .....	<i>Thalamita integra</i>	
—	Basal antennal joint with a ridge formed by evidently separated granules .....		9
9	Presence of lateral mesobranchial ridges on carapace. Tip of the first male pleopod not bilobed.....	<i>Thalamita gloriensis</i>	
—	Absence of lateral mesobranchial ridges on carapace. Tip of the first male pleopod bilobed .....	<i>Thalamita admete</i>	
10	Carapace absolutely hairless and without granules. Presence of epibranchial lines only.....	<i>Thalamita bouvieri</i>	
—	Carapace pubescent, with granules or corrugations. Presence of other ridges, besides the epibranchial lines .....		11
11	Absence of corrugations on the carapace .....	<i>Thalamita demani</i>	
—	Presence of corrugations on the carapace .....		12
12	Ventral area hairless. Frontal median lobes forming a convex line. Male first pleopod distally swollen.....	<i>Thalamita crosnieri</i>	
—	Ventral area strongly pubescent. Frontal median lobes straight. Male first pleopod with a subdistal swelling .....	<i>Thalamita cooperi</i>	
13	Fourth anterolateral teeth of normal size .....		14
—	Fourth anterolateral teeth smaller than the others .....		15
14	Propodus of chelipeds smooth and hairless. Male first pleopod straight .....	<i>Thalamita crenata</i>	
—	Propodus of chelipeds granulate and pubescent. Male first pleopod distally curved .....	<i>Thalamita foresti</i>	
15	Fronto-lateral lobes triangular. Presence of cardiac and mesobranchial ridges. Fourth anterolateral teeth smaller than the others, but always well visible .....	<i>Thalamita picta</i>	
—	Fronto-lateral lobes broad and rounded. Absence of the cardiac and mesobranchial ridges. Fourth anterolateral teeth very small. Mesogastric line extending to the second anterolateral teeth.....	<i>Thalamita prymna</i>	

***Thalamita admete*** (Herbst 1803) (Figs 50, 56, 85)

*Cancer admete* HERBST 1803: 40, pl. 57, fig. 1.

*Thalamita admete* BARNARD 1950: 176, fig. 33c; STEPHENSON & HUDSON 1957: 320, 324-326, figs 2I, 3I, pl. 1, fig.1, pls 7A, 10A; CROSNIER 1962: 96-97, figs 154, 157, 162-164, 168; STEPHENSON & REES 1967a: 56, fig. 20; HEATH 1973: 14, figs 9a, 11b, d; SAKAI 1976: 377, pl. 130, fig. 2; VANNINI 1976: 123; DAI & YANG 1991: 256, pl. 31 (6), fig. 139 (1); WEE & NG 1995: 59, fig. 29A-F; APEL & SPIRIDONOV 1998: 228, figs 42, 47; SPIRIDONOV 1999: 70.

*Material examined.* Somalia, Sar Uanle, X.1972, 1 ♂, 1 ♀ (MF 781); XI-XII.1976, 3 juv., 1 ♂ (MF 783); Bender Mtoni, XI-XII.1976, 1 ♀ (with eggs) (MF 788); Gesira, XI-XII.1976, 1 juv., 5 ♂, 2 ♀ (1 with eggs) (MF 782); IX-X.1979, 6 ♂, 7 ♀ (3 with eggs) (MF 832); X.1981, 1 juv., 1 ♀ (MF 849), X.1986, 1 ♂ (MF 844). Mascarene Islands (Mauritius), Bellemare, VII.1989, 1 ♂



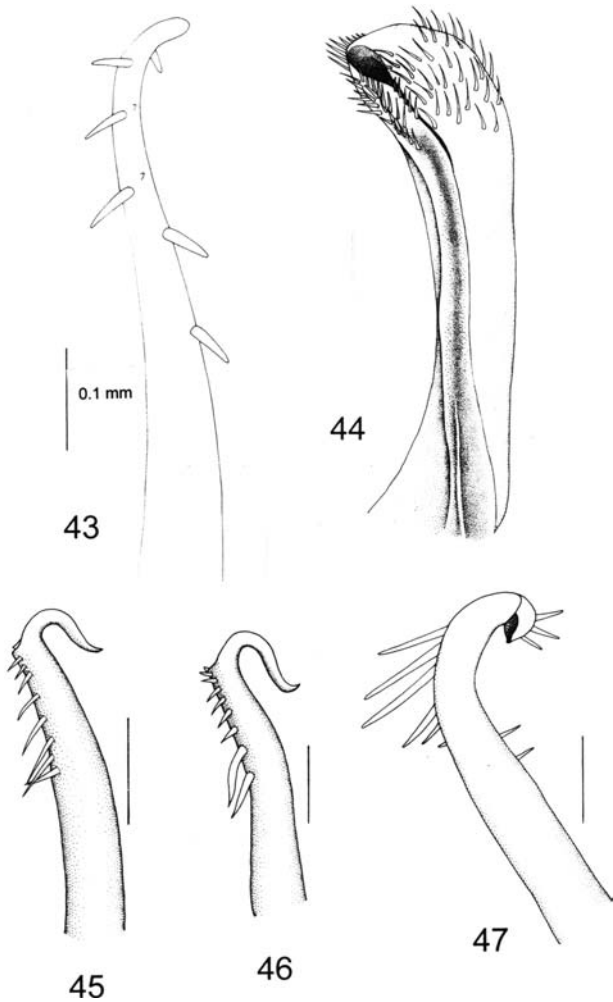
Figs 37-42. — Carapace of: *Thalamita stephensoni* (Fig. 37), *Thalamita pilumnoides* (Fig. 38), *Thalamita crosnieri* (Fig. 39), *Thalamita chaptali* (Fig. 40), *Thalamita parvidens* (Fig. 41), *Thalamita poissoni* (Fig. 42). Unless specified, otherwise scale bars = 1 mm.



(MF 865); (Rodriguez) Pointe Cotton, VII.1989, 1 ♂, 2 ♀ (1 with eggs) (MF 864); VII.1989, 6 ♂, 7 ♀ (2 with eggs) (MF 866).

*Remarks.* The cardiac line is always present, the five anterolateral teeth and the first male pleopod are typical for this species. In our specimens, the fourth anterolateral tooth can be reduced but never absent as seen by HEATH (1973). In small specimens, the mesobranchial ridge is missing.

*Colour.* Pale brownish with irregular patches. Green claws with brown subdistal band on the fingers.



Figs 43-47. — First male pleopod of: *Thalamita stephensoni* (dorsal view) (Fig. 43), *Thalamita crosnieri* (dorsal view) (Fig. 44), *Thalamita chaptali* (dorso-lateral view) (Fig. 45), *Thalamita parvidens* (dorso-lateral view) (Fig. 46), *Thalamita poissoni* (dorsal view) (Fig. 47). Unless specified, otherwise scale bars = 1 mm.

*Ecology.* Semi-exposed or exposed tide-pools, under stones or on sea grass, occasionally on coral debris or in mangroves.

*Distribution.* A widespread Indo-Pacific species, from Red Sea and East African coast up to Japan, Australia and Hawaii.

*Size* 30 × 18.1.

***Thalamita bouvieri*** Nobili 1906 (Figs 51, 102)

*Thalamita bouvieri* NOBILI 1906: 262, 1907: 384, pl. 2, fig. 2; CROSNIER 1962: 119, figs 201-204, pl. 10, fig. 2; HEATH 1973: 14, fig. 13a; SAKAI 1976: 376, pl. 133, fig. 4, text-fig. 200; SERÈNE 1977: 66, figs 34-36.

*Thalamita inhacae* BARNARD 1950: 179, fig. 33g; STEPHENSON & HUDSON 1957: 337, figs 2L, 3L, pl. 3, fig. 2, pls 7H, 10E.

*Material examined.* Somalia, Gesira, X.1979, 1 ♀ (MF 829).

*Remarks.* It is easily distinguished by the presence of epibranchial lines only on the carapace. The ridge of the basal joint of the antennae of our specimen is finely granulate and not smooth as observed by CROSNIER (1962).

*Colour.* Pale brownish. Legs 2-5 with dark brown annulations. Tips of fingers brown (CROSNIER 1962).

*Ecology.* Intertidal, on corals. In bottoms covered with bivalves at 40 m depth (STEPHENSON 1972a). In sandy bottoms, in the intertidal zone, at 55 m depth (CROSNIER 1962).

*Distribution.* Tanzania, South Africa, Madagascar, Seychelles, Australia, Amirante Islands, Gilbert Islands, Samoa, Marshall Islands, Tuamotu. First record for Somalia.

*Size* 12.5 × 8.4.

***Thalamita chaptali*** (Audoin in Savigny 1826) (Figs 40, 45, 98)

*Portunus chaptali* AUDOIN in SAVIGNY 1826: 83, pl. 4, fig. 1.

*Thalamita chaptali* STEPHENSON & HUDSON 1957: 327, figs 2F, 3F, pl. 1, fig. 3, pls 7C, 10B; CROSNIER 1962: 111, figs 184, 189, 191; DAI & YANG 1991: 258, pl. 32 (3), fig. 104A (2); WEE & NG 1995: 67, fig. 33A-F.

*Material examined.* Somalia, Sar Uanle, XI-XII.1976, 1 juv. (MF 799); Gesira, XI-XII.1976, 3 juv., 1 ♂, 1 ♀ (MF 798); X.1981, 3 juv., 4 ♂, 5 ♀ (MF 842); X.1986, 1 ♂ (MF 902). Kenya, Sita, 1 ♂ (MF 900).

*Remarks.* Two ribs on the outer side of the propodus of the chelipeds.

*Colour.* Uniform pale brownish. Fingers with subdistal brown band.

*Ecology.* Exposed and semi-exposed tide-pools; on sea grass.

*Distribution.* From the Red Sea and Madagascar to Australia and New Caledonia, Solomon Islands and Tahiti. First record for Somalia.

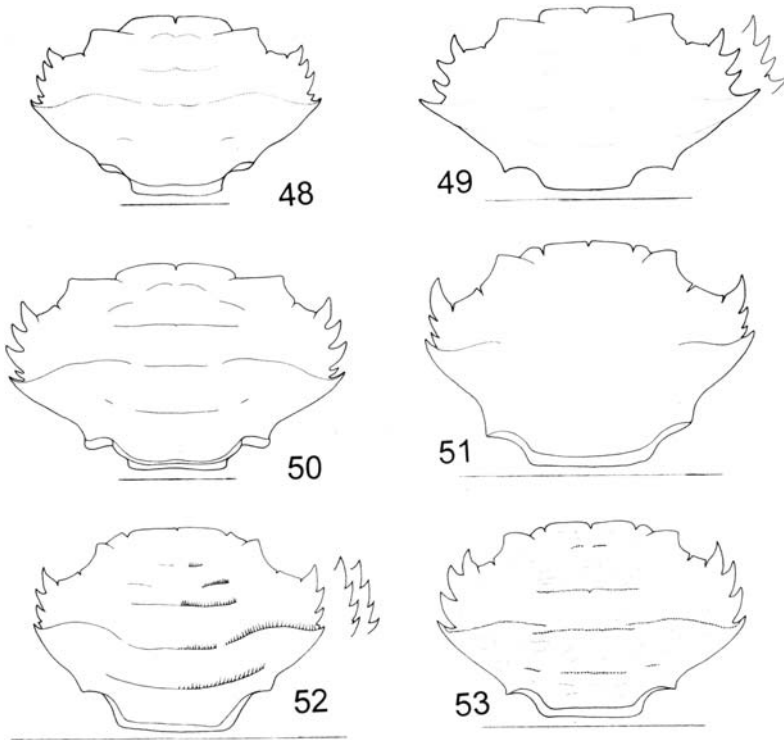
*Size* 14.4 × 10.

***Thalamita cooperi* Borradaile 1903 (Figs 53, 58, 86)**

*Thalamita cooperi* BORRADAILE 1903: 206, fig. 37; STEPHENSON & HUDSON 1957: 331, pl. 1, fig. 4, pl. 10, fig. C; CROSNIER & THOMASSIN 1974: 1112, fig. 8b-d; VANNINI 1983: 808, figs 2E, 3D, 4E, 7D, 8C, F, 9D, G, 10D, F, G; SPIRIDONOV 1999: 72.

*Thalamita corrugata* STEPHENSON & REES 1961: 421, fig. 1A, C, E, F, fig. 2A-C; STEPHENSON & REES 1967a: 65, fig. 23; STEPHENSON 1972b: 144; DAI & YANG 1991: 252-253, fig. 137B.

*Material examined.* Somalia, Gesira, X.1979, 1 juv., 3 ♂, 2 ♀ (1 with eggs) (MF 830); X.1981, 2 juv. 1 ♂, 5 ♀ (3 with eggs) (MF 839).



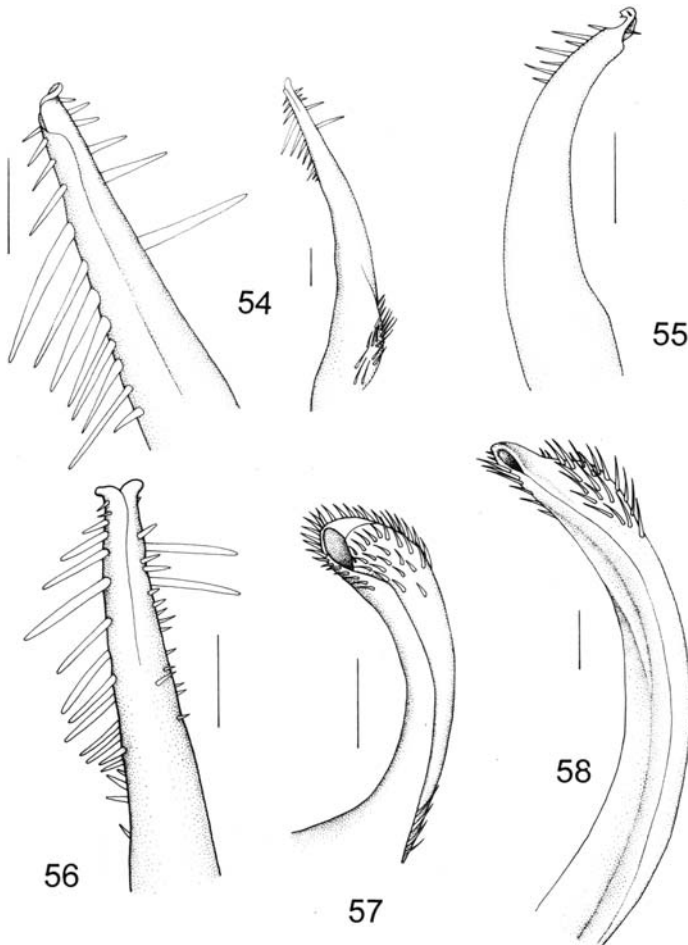
Figs 48-53. — Carapace of: *Thalamita integra* (Fig. 48), *Thalamita gloriensis* (Fig. 49), *Thalamita admete* (Fig. 50), *Thalamita bouvieri* (Fig. 51), *Thalamita demani* (Fig. 52), *Thalamita cooperi* (Fig. 53). Unless specified, otherwise scale bars = 10 mm.

*Remarks.* Front nearly straight compared with similar species such as *T. cronieri*, *T. woodmasoni* and *T. demani*, where the median frontal lobes always project beyond the internal orbital ones (see VANNINI 1983).

*Colour.* Orange-yellow; darker in the centre and paler at the borders of the carapace. Tips of the fingers brown.

*Ecology.* Semi-exposed tide-pools. Under dead corals blocks. A specimen has been found on a live *Acropora variabilis* (Klunziger 1879).

*Distribution.* Kenya, Philippines, Society Islands, Tuamotu, Gilbert Islands, Australia. First record for Somalia.



Figs 54-58. — First male pleopod of: *Thalamita integra* (dorsal view) (Fig. 54), *Thalamita gloriensis* (dorsal view) (Fig. 55), *Thalamita admete* (dorsal and dorso-apical view) (Fig. 56), *Thalamita demani* (dorsal view) (Fig. 57), *Thalamita cooperi* (dorsal view) (Fig. 58). Unless specified, otherwise scale bars = 1 mm.

Size 13.7 × 8.7.

***Thalamita crenata*** (H. Milne Edwards 1834) (Figs 59, 64, 87)

*Portunus crenatus* H. MILNE EDWARDS 1834: 461.

*Thalamita crenata* BARNARD 1950: 172, figs 27a, 33a; STEPHENSON & HUDSON 1957: 332, figs 2Q, 3Q, pl. 2, fig. 3, pls 7F, 9C; CROSNIER 1962: 130, figs 220, 226-227, 232-233; HEATH 1973: 15, figs 6a, 8a, 9b, 12a; SAKAI 1976: 369, pl. 132, fig. 1; VANNINI 1976: 123; DAI & YANG 1991: 246, pl. 30 (3), fig. 134 (1); WEE & NG 1995: 69, figs 34A-B, 35A-B, 36A-H; SPIRIDONOV 1999: 72.

*Material examined.* Somalia, Lac Badana, X.1971, 3 ♀ (MF 769); Abo Migiurtinia, X.1973 (M.L. Azzaroli!), 1 ♀ (MF 771); Sar Uanle, X.1972, 2 ♂, 1 ♀ (MF 835); XI-XII.1976, 1 ♀ (MF 772); Bender Mtoni, X.1971, 1 juv., 5 ♂, 3 ♀ (MF 776); VIII.1975, 1 ♂, 2 ♀ (with eggs) (MF 773); XI-XII.1976, 6 juv., 10 ♂, 5 ♀ (3 with eggs) (MF 770); Gesira, VIII.1975, 1 juv. (MF 774); XI-XII.1976, 5 juv., 4 ♂, 2 ♀ (MF 762), X.1981, 1 ♂, 4 ♀ (1 with eggs) (MF 830). Kenya, Mida Creek, 19.X.1990, 5 juv., 6 ♂, 4 ♀ (MF 891), 2 ♀ (1 with eggs) (MF 895); XI.1997, 3 ♂ (MF 2488); Mtuapa (Mombassa), XI-XII.1993 (M. Borri & C. Volpi!), 1 ♂, 4 ♀ (2 with eggs) (MF 880); Gazi, VII.1997, 1 ♀ (MF 896). Mascarene Islands (Rodriguez), Pointe Corail, VII.1989, 1 ♀ (MF 873); 9.VII.1989, 3 ♂ (MF 883).

*Remarks.* The hairy area of the carapace varies from just near the anterolateral teeth to most of the anterior half of the carapace. In several specimens, the cervical groove is not continuous. The hand is markedly swollen and smooth.

*Colour.* Carapace dark green to brown-orange, not uniform. Tips of the chelipeds dark brown.

*Ecology.* Very common in protected areas and mangrove swamps, under dead tree trunks or in excavated burrows. Also quite common in rocky tide-pools.

*Distribution.* Widespread in the whole Indo-pacific area. From East African coast (from Red Sea to Durban) to Japan, Australia, Hawaii, Tuamotu.

Size 61.1 × 40.6.

***Thalamita crosnieri*** Vannini 1983 (Figs 39, 44, 97)

*Thalamita crosnieri* VANNINI 1983: 805, figs 2A-B, 3A, 4A-B, 7A, 8A, D, 9A, E, 10A, E.

*Thalamita wood-masoni* BARNARD 1950: 177, fig. 33d-f.

*Thalamita woodmasoni* STEPHENSON 1972b: 152; HEATH 1973: 17, figs 7, 12g; VANNINI 1976: 123.

*Thalamita* cf. *woodmasoni* CROSNIER 1962: 121, figs 205-206.

*Material examined.* Somalia, Sar Uanle, X.1972, 1 juv., 1 ♂, 8 ♀ (1 with eggs) (MF 792); VI.1973, 1 juv., 1 ♂ (MF 834); VII.1975, 1 juv., 1 ♀ (with eggs) (MF 791); XI-XII.1976, 8 juv., 18 ♂, 24 ♀ (12 with eggs) (MF 793); Gesira, XI-XII.1976, 2 juv., 3 ♂, 2 ♀ (with eggs) (MF 790); IX-X.1979, 2 ♂, 1 ♀ (with eggs) (MF 831); X.1981, 2 juv., 2 ♂, 3 ♀ (MF 846); X.1986, 1 ♀ (MF 904); Merka, X.1986, 1 juv. (MF 2485).

*Remarks.* A variable species. The fourth anterolateral tooth can be more or less reduced or even completely absent; the depth of the notch separating the median frontal lobes from the lateral ones is variable and is occasionally absent, the specimens appearing as bilobed.

*Colour.* Carapace faded pink. Tip of the fingers dark.

*Ecology.* In sandy or stony pools, on or among the roots of sea grass, under stones and in crevices. Very common and quite ubiquitous in the exposed and semi-exposed zones; absent from the protected zones and mangrove swamps as well as from exposed reefs.

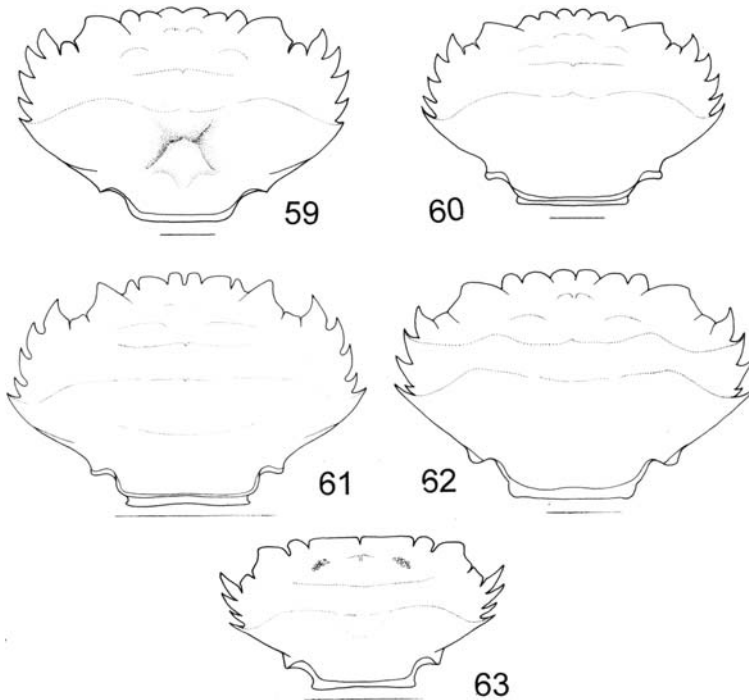
*Distribution.* East African coast, Madagascar, Andaman Islands, India, Sri Lanka, Mauritius.

*Size* 16.8 × 11.4.

***Thalamita demani*** Nobili 1905 (Figs 52, 57, 103)

*Thalamita demani* NOBILI 1905: 402; 1906: 209. CROSNIER 1962: 123, figs 200, 208-209. STEPHENSON & REES 1967a: 74. HEATH 1973: 15, fig. 13b. SAKAI 1976: 375, text-fig. 199. VANNINI 1983: 811, figs 2D, 3C, 4D, 7C, 8B, E, 9C, F, 10C.

*Thalamita trilineata* STEPHENSON & HUDSON 1957: 359, figs 2E, 3E, pl. 6, fig. 4, pl. 8, fig. S, pl. 10, fig. L.



Figs 59-63. — Carapace of: *Thalamita crenata* (Fig. 59), *Thalamita foresti* (Fig. 60), *Thalamita picta* (Fig. 61), *Thalamita prymna* (Fig. 62), *Thalamitooides quadridens* (Fig. 63). Unless specified, otherwise scale bars = 10 mm.

*Material examined.* Somalia, Bender Mtoni, XI.1976, 2 ♂, 1 ♀ (MF 796); Sar Uanle, XI-XII.1976, 1 ♀ (MF 797).

*Remarks.* See VANNINI (1983) for characters that distinguish the species from *T. cooperi* and *T. crosnieri*.

*Colour.* Pale beige. Dark transversal bands on legs 2-5.

*Ecology.* Tide pools, exposed and semi-exposed areas.

*Distribution.* Red Sea, Somalia, Tanzania, Madagascar, Mauritius, Philippines, China, Japan, Australia.

*Size* 9 × 6.2.

***Thalamita foresti* Crosnier 1962 (Figs 60, 65, 88)**

*Thalamita foresti* CROSNIER 1962: 132, figs 221-223, 229-231, pl. 13, fig. 1; STEPHENSON & REES 1967a: 74, figs 25f, 26d; HEATH 1973: 15, figs 6b, 8b, 12b; STEPHENSON 1975: 192, figs 3E-F, 4B, 5B; VANNINI 1976: 123; APEL & SPIRIDONOV 1998: 240, fig. 55.

*Material examined.* Somalia, Sar Uanle, XI.1971, 1 ♀ (MF 766); X.1972, 1 ♀ (MF 765); VIII.1975, 1 ♂ (MF 764); Gesira, XI-XII.1976, 1 juv., 3 ♂, 1 ♀ (MF 768); IX-X.1979, 1 juv., 2 ♂, 1 ♀ (MF 763); X.1981, 2 juv., 4 ♂, 5 ♀ (2 with eggs) (MF 775); X.1986, 4 juv., 5 ♂, 2 ♀ (1 with eggs) (MF 867); Mogadishu, IX-X.1979, 1 ♂ (MF 767). Kenya, Twiga, XI.1991, 1 ♂, 1 ♀ (MF 892); Gazi, VII.1997, 1 ♂ (MF 897).

*Remarks.* The first male gonopod, with the tip U-shaped, permits its easy distinction from *T. danae*, the latter species being very similar in other characters.

*Colour.* Pale green, not uniform. Legs 2-5 with alternate dark and pale green strips.

*Ecology.* Very common in rocky tide-pools, in exposed areas. Absent from protected areas and mangrove swamps. Possibly it is ecologically vicarious for *T. crenata*, since it is of the same size and as common as that species.

*Distribution.* East African coast, Madagascar, Thailand, Hong Kong, Philippines, Mergui Archipelago, Indonesia.

*Size* 55.6 × 33.9.

***Thalamita gloriensis* Crosnier 1962 (Figs 49, 55, 84)**

*Thalamita gloriensis* CROSNIER 1962: 98, figs 155-156bis d, 159-160, 165-167, 169; HEATH 1973: 15, fig. 11a, c; PEYROT-CLAUSADE & SERÈNE 1976: 1354, pl. IVE.

*Material examined.* Somalia, Sar Uanle, VI.1973, 1 ♂ (MF 833); Gesira, XI-XII.1976, 2 juv., 4 ♂, 1 ♀ (MF 789); 1980 (G. Chelazzi!), 1 juv., 1 ♀ (MF 823); X.1981, 1 ♀ (MF 848); X.1986, 1 ♂, 1 ♀ (MF 877), 2 ♀ (ovigerous) (MF 843).

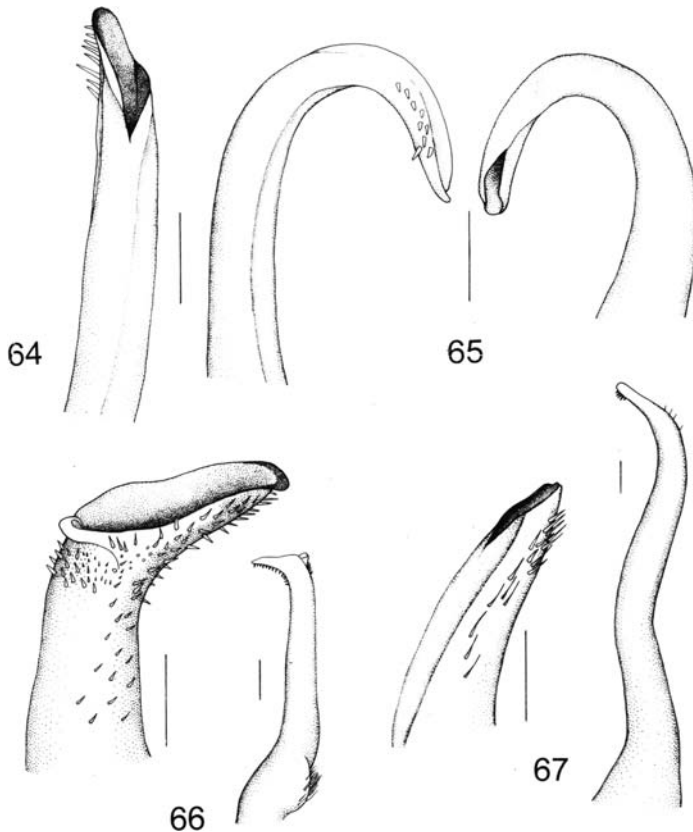
*Remarks.* The lines of granules on the protogastric region are barely marked. However, the presence of lateral mesobranchial lines and the shape of the first male pleopod make this species easily identifiable.

*Colour.* Marbled brown with scattered whitish spots. Legs 2-5, with dark annulations. Fingers with subdistal brown band. According to CROSNIER (1962), faded yellow.

*Ecology.* Reef and exposed tide-pools, under dead trunks in mangrove swamps.

*Distribution.* Tanzania, Glorious Islands, Madagascar, Melanesia, Marianas Islands, Marshall Islands, Hawaii, Tuamotu. First record for Somalia.

*Size* 16.1 × 10.



Figs 64-67. — First male pleopod of: *Thalamita crenata* (dorsal view) (Fig. 64), *Thalamita foresti* (dorso-frontal and ventral view) (Fig. 65), *Thalamita picta* (dorsal view) (Fig. 66), *Thalamita prymna* (dorsal and ventro-apical view) (Fig. 67). Unless specified, otherwise scale bars = 1 mm.



***Thalamita integra* Dana 1852 (Figs 48, 54, 101)**

*Thalamita integra* DANA 1852b: 85; BARNARD 1950: 177; EDMONDSON 1954: 253, figs 27a-e, 28a; STEPHENSON & HUDSON 1957: 339, figs 2H, 3H; pl. 3, fig. 3, pls 7I, 10F; CROSNIER 1962: 103, figs 156, 161, 170; HEATH 1973: 16, fig. 10a, c, e; SAKAI 1976: 377, text-fig. 201; DAI & YANG 1991: 255, pl. 31 (5), fig. 138 (2); WEE & NG 1995: 84, fig. 44A-C.

*Material examined.* Somalia, Gesira, XI-XII.1976, 3 juv., 7 ♂, 5 ♀ (MF 780); X.1986, 1 ♂, 1 ♀ with eggs (MF 869), 1 ♀ (MF 2483); Bender Mtoni, XI-XII.1976, 1 juv. (MF 787). Kenya, Mida Creek, Sita, X.1990, 4 ♂, 3 ♀, 1 juv. (MF 2487); Twiga, XI.1991, 1 ♂ (MF 2486). Mascarene Islands (Rodriguez): Point Corail, VII.1989, 1 ♂ (MF 883).

*Remarks.* The first male pleopod is sufficient to distinguish this species from *T. admete*, from which it can also be distinguished by the presence of a smooth ridge (which can be granular or with small spines in small specimens) on the basal joint of the antennae, the absence of the protogastric and cardiac ridges and the completely hairless carapace.

*Colour.* Uniform pale yellow. Half-distal part of the fingers of the chelipeds dark (CROSNIER 1962).

*Ecology.* Common in muddy pools bordering mangrove swamps. Rare on sea-grass, in semi-exposed tide-pools. Both CROSNIER (1962) and STEPHENSON (1972a) report the species under dead corals at 8 m depth.

*Distribution.* From Tanzania and South Africa to Hawaii, including Madagascar, Australia and Japan. First record for Somalia.

*Size* 26.4 × 17.2.

***Thalamita parvidens* (Rathbun 1907) (Figs 41, 46, 99)**

*Thalamonyx parvidens* RATHBUN 1907: 62, pl. 5, fig. 2.

*Thalamita parvidens* STEPHENSON 1961: 122, figs 2F, 4B, pl. 4, fig.1, pls 4K, 5H; CROSNIER 1962: 113, figs 182, 185-187, 190, pl. IX, fig. 2; STEPHENSON & REES 1967a: 82, fig. 30a-c; SAKAI 1976: 380, text-fig. 204a-b; SERÈNE 1977: 64, figs 32-33.

*Material examined.* Somalia, Gesira, XI-XII.1976, 4 juv., 1 ♂, 1 ♀ (MF 800). Kenya, Mida Creek, Dabaso, X.1990, 1 ♂ (MF 893).

*Remarks.* Quite similar to *T. chaptali*. According to STEPHENSON (1972b) in *T. chaptali* the male first pleopod has the majority of subdistal spines on the concave side, while *T. parvidens* bear them on the convex side. However, such a difference was not evident in our specimens. The differences we could observe were (1) the frontal notch more marked in *T. parvidens*; (2) the long scattered bristles on the anterior half of the carapace in *T. chaptali*; and shorter, thicker bristles covering the whole carapace in *T. parvidens*, (3) the sides of the penultimate segment (7th segment) of the male abdomen in *T. chaptali* are straight while in *T. parvidens* they appear concave.

*Colour.* Dark pink. Tips of the chelipeds brown. (CROSNIER 1962).

*Ecology.* Semi-exposed tide-pools, on sea grass. Together with the sea anemone *Stoichactis haddoni* (Saville-Kent 1893) (STEPHENSON 1972a). Collected at a depth of 40-50 m by CROSNIER (1984).

*Distribution.* Madagascar, Seychelles, India and Malaysia, Philippines, Carolinas, Japan, Australia. First record for the East African coast.

*Size* 17.4 × 11.8.

***Thalamita picta* Stimpson 1858 (Figs 61, 66, 89)**

*Thalamita picta* STIMPSON 1858: 39, BARNARD 1950: 175; STEPHENSON & HUDSON 1957: 344, figs 2A, 3A; pl. 4, fig. 2, pls 8K, 10I; CROSNIER 1962: 138, figs 237-240, pl. 12, fig. 2; HEATH 1973: 16, figs 6e, 9d, 12d; SAKAI 1976: 373, pl. 131, fig. 2; DAI & YANG 1991: 250, pl. 30 (8), fig. 136 (1); WEE & NG 1995: 94, fig. 50A-F; SPIRIDONOV 1999: 73.

*Material examined.* Somalia, Sar Uanle, XI-XII.1976, 1 juv. (MF 786); Gesira, XI-XII.1976, 3 ♂, 4 ♀ (3 with eggs) (MF 785); X.1981, 7 juv., 3 ♂, 3 ♀ (2 with eggs) (MF 803); X.1986, 1 ♀ (MF 903). Kenya, Twiga, XI.1991, 1 ♀ (sacculinized), (MF 899); Watamu, XI.1995, 1 ♂ (MF 901).

*Remarks.* In our specimens, the granules described by CROSNIER (1962) on the upper part of the inner surface of the claw propodus form a real line. Some of our specimens have only four denticles on the posterior border of the fifth propodus, whereas both STEPHENSON & HUDSON (1957) and CROSNIER (1962) observed from five to nine.

*Colour.* Marbled green and brown with dark red spots.

*Ecology.* Reef and exposed tide-pools, under corals.

*Distribution.* From the Red Sea to Mozambique and to Tuamotu and Hawaii, Australia and Japan. Collected in Somalia for the first time.

*Size* 22.5 × 14.8.

***Thalamita pilumnoides* Borradaile 1903 (Figs 38, 96)**

*Thalamita pilumnoides* BORRADAILE 1903: 207, figs 38, 38a; CROSNIER 1962: 150, figs 253-256; STEPHENSON & REES 1967a: 87, fig. 32.

*Material examined.* Somalia, Gesira X.1981, 2 ♀ (1 with eggs) (MF 878).

*Remarks.* The spiny claws are typical for this species and very evident.

*Colour.* Pale yellow irregularly marbled (CROSNIER 1962).

*Ecology.* Reef, from corals.

*Distribution.* Maldives, Lakshadweep, Madagascar, Marianas Islands, Tuamotu, Society Islands. First record for the East African coast.

*Size* 6.9 × 4.5.

***Thalamita poissonii*** (Savigny 1817) (Figs 42, 47, 100)

*Portunus poissonii* SAVIGNY 1817: 84, pl. 4, figs 3-5.

*Thalamita poissonii* CROSNIER 1962: 116, figs 183, 188, 192, pl. X, fig. 1; GUINOT 1964: 10; HEATH 1973: 16, figs 6c, 9c, 10b, d, 12c; SAKAI 1976: 379, text-fig. 203; SERÈNE 1977: 63, figs 28-29; APEL & SPIRIDONOV 1998: 253, figs 73-75.

*Material examined.* Somalia, Gesira, XI-XII.1976, 1 ♂ (MF 779). Kenya, Mida Creek, Dabaso, 7.X.1990, 2 ♂, 1 ♀ (MF 894).

*Remarks.* The tip of the first male pleopod dorsally curved with subdistal spines, the shape of the frontal and orbital lobes and the lines of granules on the carapace allow one to distinguish this species from other species with a four-lobed front. In the descriptions given by CROSNIER (1962) and HEATH (1973), the posterior border of the fifth propodus bears seven denticules or less; in our specimen they are eight, four of which big.

*Colour.* Dark red carapace. Legs, from the second to the fifth, dark yellow. Tips of the chelipeds brown (CROSNIER 1962).

*Ecology.* On sea grass, in semi-exposed tide-pools.

*Distribution.* From Suez to Tanzania, Madagascar, Arabian Gulf, Sri Lanka, Japan, Marshall Islands, Lakshadweep Islands. Also reported from the Mediterranean Sea (HOLTHUIS & GOTTLIEB 1958).

*Size* 19.7 × 12.6.

***Thalamita prymna*** (Herbst 1803) (Figs 62, 67, 104)

*Cancer prymna* HERBST 1782-1804: 41, pl. 57, fig. 2.

*Thalamita prymna* STEPHENSON & HUDSON 1957: 346, figs 2R, 3R, pl. 4, fig. 3, pls 8L, 9E; CROSNIER 1962: 136, figs 234-236; HEATH 1973: 16, figs 6d, 9e, 12e; SAKAI 1976: 372, pl. 131, fig. 2; DAI & YANG 1991: 249, pl. 30 (7), fig. 135 (3); WEE & NG 1995: 96, figs 51A-C, 52A-C, 53A-C, 54A-D, 55A-B, 56A-C, 57A-J; APEL & SPIRIDONOV 1998: 257, figs 76, 85; SPIRIDONOV 1999: 74.

*Material examined.* Somalia, Gesira, XI-XII.1976, 1 ♂ (MF 777); Sar Uanle, XI-XII.1976, 1 ♂ (MF 778). Mascarene Islands (Rodriguez), Pointe Cotton, VII.1989, 1 ♀ with eggs (MF 874).

*Remarks.* Although STEPHENSON & HUDSON (1957) described from three to five spines on the basal article of the second antennae, our specimens only show two, one of which particularly large (big as one of the anterolateral teeth), with several tubercles on its upper border, similarly to what observed by WEE & NG (1995).

*Colour.* Marbled, dark red and dark green. Frontal lobes, tips of the anterolateral teeth, tips of the spines and of the chelipeds black.

*Ecology.* Semi-exposed or exposed tide-pools and reef.

*Distribution.* Zanzibar, South Africa, Madagascar, from the Red Sea to Samoa, Japan and Australia. Collected for the first time in Somalia.

*Size* 49.8 × 33.2.

***Thalamita stephensoni*** Crosnier 1962 (Figs 37, 43, 95)

*Thalamita stephensoni* CROSNIER 1962: 140, figs 241-248; TIEN 1970: 987-988, fig. 1: 3, 8, 13, fig. 2: 1, 4; STEPHENSON 1972b: 152; VANNINI 1976: 124, fig. 2; DAI & YANG 1991: 257-258, pl. 32 (2), fig. 140A (1); SPIRIDONOV 1999: 75.

*Material examined.* Somalia, Sar Uanle VIII.1973, 1 ♂ (MF 794); Gesira, X.1981, 1 ♂ (MF 847); X.1986, 3 ♂, 1 ♀ with eggs (MF 868).

*Remarks.* The only known species of *Thalamita* with the tips of the chelipeds spoon-shaped. Our specimens have 6 spines on the fifth propodus instead of 4, and 3 setae on both sides of the first male pleopod instead of 4, as observed by CROSNIER (1962).

*Colour.* Pale yellow. Carapace with paler brown stripes. Legs, from the second to the fifth, with brown rings. Fingers of the chelipeds with subdistal brown bands (CROSNIER 1962).

*Ecology.* Among coral detritus.

*Distribution.* Somalia, Kenya, Madagascar, China, Malaysia, Philippines, New Georgia, Marianas Islands, Melanesia, Samoa, New Guinea, Hawaii.

*Size* 13.1 × 8.3.

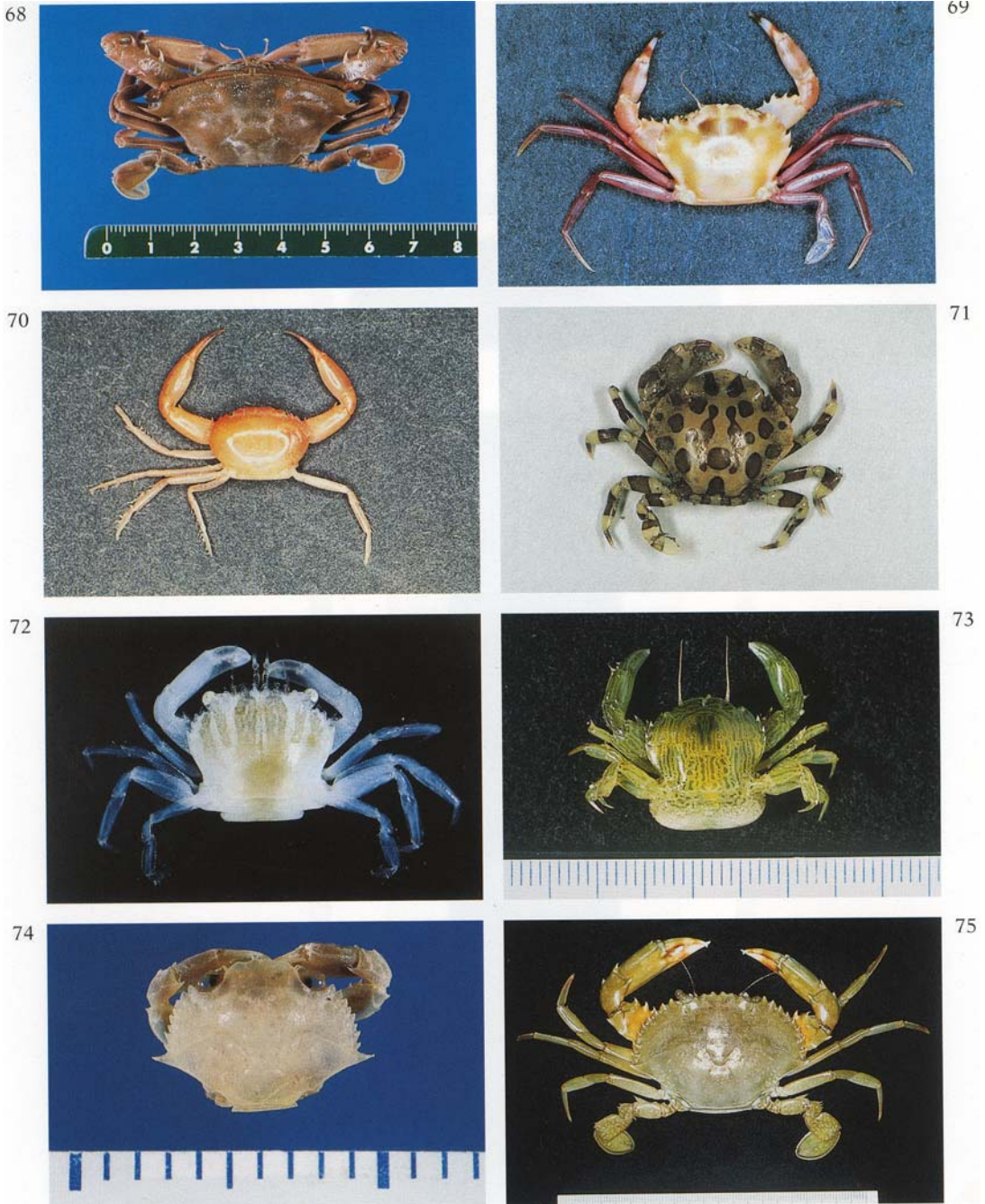
Genus ***Thalamitoides*** A. Milne Edwards 1869

***Thalamitoides quadridens*** A. Milne Edwards 1869 (Figs 63, 105)

*Thalamitoides quadridens* A. MILNE EDWARDS 1869: 147, pl. 6, figs 8-15; CROSNIER 1962: 144, figs 249-251; STEPHENSON & REES 1967a: 101, fig. 37; GRIFFIN 1969: 352; SAKAI 1976: 381, pl. 134, fig. 3.

*Material examined.* Somalia, Gesira, IX-X.1979, 2 juv., 1 ♀ (MF 827).

*Remarks.* The merus of the cheliped bears only one distal spine on the posterior border and four spines on the anterior one. Four spines (five in one specimen) on the claw carpus. Besides *T. quadridens* the other species belonging to this genus is *T. tridens*, not collected in Somalia. The number of anterolateral teeth allows an easy distinction of the two species.



Figs 68-75. — *Podophtalmus vigil*, ♂ (Fig. 68), *Carupa tenuipes*, ♂ (Fig. 69), *Catoptrus rathbunae*, ♂ (Fig. 70), *Lissocarcinus orbicularis*, ♀ (Fig. 71), *Caphyra laevis*, ♀ (Fig. 72), *Caphyra rotundifrons*, ♂ (Fig. 73), *Carupella banlaensis*, juv. (Fig. 74), *Scylla serrata*, ♂ (Fig. 75).



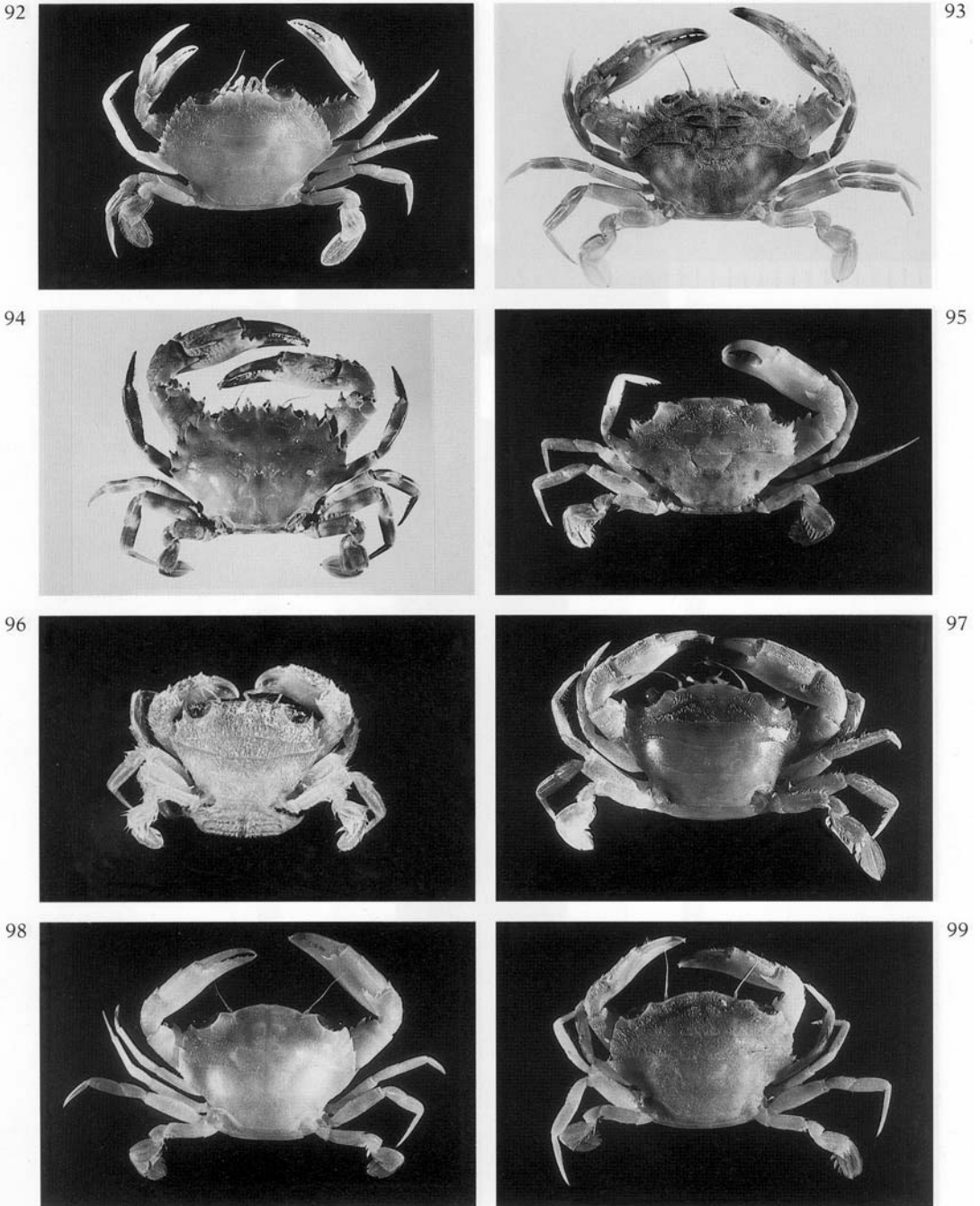


Figs 76-83. — *Portunus pelagicus*, ♂ (Fig. 76), *Portunus convexus*, ♂ (Fig. 77), *Portunus granulatus*, ♂ (Fig. 78), *Portunus iranjan*, ♂ (Fig. 79), *Charybdis obtusifrons*, ♂ (Fig. 80), *Charybdis hawaiiensis*, ♂ (Fig. 81), *Charybdis orientalis*, ♀ (Fig. 82), *Charybdis smithii*, ♂ (Fig. 83).



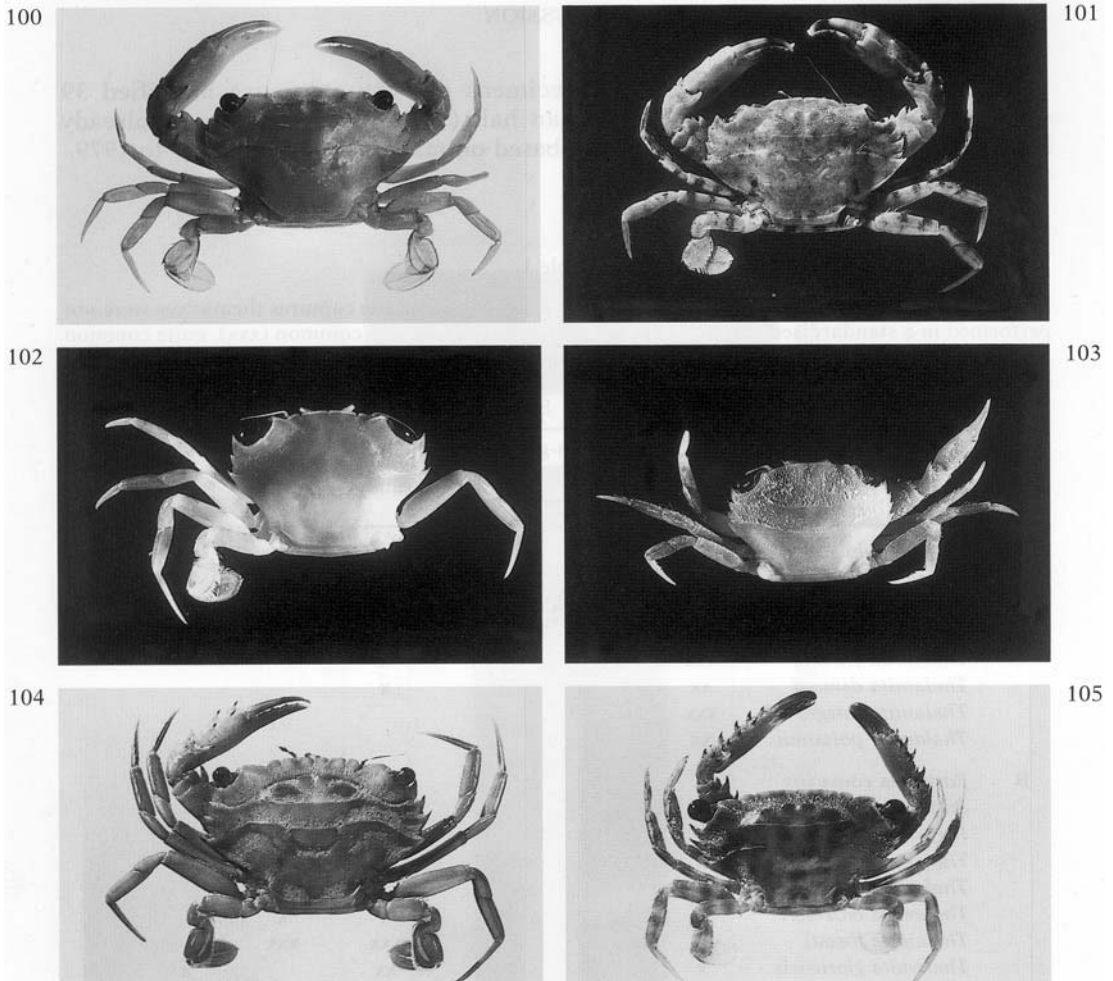
Figs 84-91. — *Thalamita gloriensis*, ♀ (Fig. 84), *Thalamita admete*, ♂ (Fig. 85), *Thalamita cooperi*, ♀ (Fig. 86), *Thalamita crenata*, ♂ (Fig. 87), *Thalamita foresti*, ♂ (Fig. 88), *Thalamita picta*, ♀ (Fig. 89), *Libystes nitidus*, ♂ (Fig. 90), *Catoptrus nitidus*, ♂ (Fig. 91).





Figs 92-99. — *Portunus pubescens*, juv. (Fig. 92), *Charybdis helleri*, ♂ (Fig. 93), *Charybdis annulata*, ♂ (Fig. 94), *Thalamita stephensoni*, ♂ (Fig. 95), *Thalamita pilumnoides*, ♀ (Fig. 96), *Thalamita crosnieri*, ♂ (Fig. 97), *Thalamita chaptali*, ♂ (Fig. 98), *Thalamita parvidens*, ♀ (Fig. 99).





Figs 100-105. — *Thalamita poissoni*, ♂ (Fig. 100), *Thalamita integra*, ♂ (Fig. 101), *Thalamita bouvieri*, ♀ (Fig. 102), *Thalamita demani*, ♂, (Fig. 103), *Thalamita prymna*, ♂ (Fig. 104), *Thalamitoides quadridens*, ♀ (Fig. 105).

*Colour.* After preservation in alcohol, the specimens are marbled brown, with spines and tips of the chelipeds dark brown.

*Ecology.* Among corals.

*Distribution.* Red Sea, Tanzania, Madagascar, Amboina, Philippines, Marshall Islands, Fiji, Samoa, Hawaii, Australia. Collected for the first time in Somalia.

*Size* 24.4 × 13.2.

## DISCUSSION

In a collection comprising 482 specimens of Portunidae, we identified 39 species belonging to 12 genera. Less than half (12) of the species were already known for Somalia (VANNINI 1976, 1983), based on material collected prior to 1979.

Table 1.

Since the capture effort was not the same in all environments and the captures themselves were not performed in a standardised way, the data are presented only as very common (xxx), quite common (xx) and less common (x) species. Species represented by less than two individuals were not included.

Group	Species	Sheltered pools, mangroves	Semi- or fully-exposed pools			Reef	Pelagic
			Sea-grass and angiosperm prairies	mostly sandy	mostly rocky		
A	<i>Podopthalmus vigil</i>	x					
	<i>Lybistes nitidus</i>	x					
	<i>Portunus pelagicus</i>	xxx					
	<i>Scylla serrata</i>	xxx					
	<i>Thalamita crenata</i>	xxx		x			
	<i>Thalamita demani</i>	xx		x			
	<i>Thalamita integra</i>	xxx					
	<i>Thalamita poissonii</i>	xx					
B	<i>Portunus convexus</i>		xxx				
	<i>Portunus granulatus</i>	x		xxx			
	<i>Portunus pubescens</i>			xxx			
	<i>Thalamita admete</i>	x	xx	x	x		
	<i>Thalamita chaptali</i>		xx	xx			
	<i>Thalamita crosnieri</i>		xxx	x	x		
	<i>Thalamita foresti</i>			xxx	xxx		
	<i>Thalamita gloriensis</i>	x		xx		x	
	<i>Thalamita parvidens</i>		xx	x	x		
<i>Thalamita stephensoni</i>			xxx				
C	<i>Caphyra rotundifrons</i>				xx		
	<i>Charybdis annulata</i>				xxx	x	
	<i>Charybdis helleri</i>				xx		
	<i>Thalamita cooperi</i>				xx	xx	
	<i>Thalamita picta</i>				x	xxx	
	<i>Thalamita prymna</i>				x	x	
D	<i>Caphyra laevis</i>					x	
	<i>Carupa tenuipes</i>					xx	
	<i>Catopterus rathbunae</i>					xx	
	<i>Charybdis hawaiiensis</i>					xxx	
	<i>Charybdis obtusifrons</i>					x	
	<i>Thalamita pilumnoides</i>					x	
	<i>Thalamitoides quadridens</i>					x	
E	<i>Charybdis smithii</i>						xx

Five more species were known from the East African coast (Tanzania, Mozambique or Natal).

Our study records four species previously unknown from the East African coast, (*Catoptrus rathbunae*, *Caphyra laevis*, *Thalamita pilumnoides* and *Thalamita parvidens*), and two species previously unknown from the western Indian Ocean: *Carupella banlaensis*, known from the type series (TIEN 1969), from the Tonkin Gulf, and *Charybdis hawaiiensis*, known only from Hawaii. The first is a quite mimetic species and the possibility exists that further investigation will reveal its presence in other parts of the Indian Ocean.

The case of *Charybdis hawaiiensis* is more difficult to explain. It is a big crab (in Hawaii it can reach 72 mm in width, in Somalia 44 mm) and remarkable due to its bright colour. It is quite common in the Somalian reef and extremely common in Hawaii, where it is sold at the fish market. The discontinuity of distribution between Hawaii and Somalia can hardly be attributed to a gap in our knowledge. Indeed if present in the areas sampled this species should have appeared in the old collection of A. Alcock (India and adjacent islands), M. Ward (Mauritius), K.H. Barnard and T.R.R. Stebbing (South Africa), or in the recent collections of T. Sakai (Japan), A. Crosnier (Madagascar), J.R. Heath (Tanzania), A.Y. Dai & S.L. Yang (China), W. Stephenson (Bay of Nhatrang, South China Sea), D.P.C. Wee & P.K.L. Ng (Peninsular Malaysia and Singapore) and M. Apel & V.A. Spiridonov (Arabian Gulf). Therefore, we have to admit that two similar forms live in isolation at the antipodes of the Indo-Pacific area only. A molecular approach can clarify whether these forms are distinct species or not.

An ecological classification can be attempted, at least for the commonest species (Table 1). The habitats have been divided into sheltered muddy environments (with and without mangroves), intertidal pools, reef and pelagic. Within the intertidal pools, we have distinguished the species living on rocky pools (usually along very exposed shores), those inhabiting sandy pools (usually corresponding to lower energy shores) and those mostly recorded among the sea-grass and

Table 2.

East African *Thalamita* species grouped according to the number of anterolateral teeth and frontal lobes.

Number of anterolateral teeth	Number of frontal lobes		
	2	4	6
4 (3rd reduced)	<i>T. pilumnoides</i>	<i>T. bouvieri</i>	
4 (equal or subequal)		<i>T. cooperi</i>	
	<i>T. gloriensis</i>	<i>T. crosnieri</i>	
5 (4th reduced)	<i>T. admete</i>		
	<i>T. chaptali</i>		
	<i>T. integra</i>		
	<i>T. stephensoni</i>		
	<i>T. parvidens</i>		<i>T. picta</i>
5 (equal or subequal)	<i>T. poissoni</i>	<i>T. demani</i>	<i>T. prymna</i>
			<i>T. crenata</i>
			<i>T. foresti</i>

angiosperm prairies bordering many intertidal pools. Species have then been grouped in five classes: (A) species typical for mangroves and very sheltered environments; (B) quite opportunistic species, living on intertidal semi- or exposed pools; (C) species living on very exposed shores and reef; (D) species only found on reef, among corals; (E) pelagic species.

A simplified approach to the identification of the East African *Thalamita* species is presented, based on the number of anterolateral teeth and frontal lobes (Table 2).

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