

SUBFAMILY **SCYLLARINAE** Latreille, 1825

**Scyllarides** Latreille, 1825, *Familles naturelles du Règne Animal* :278.

The subfamily Scyllarinae is monotypic, i.e., it contains only the type genus **Scyllarus**; so far no other genera of Scyllarinae have been described.

**Scyllarus** Fabricius 1775

**SCYL Scylr**

**Scyllarus** Fabricius 1775, *Systema Entomologiae*:413. Gender masculine. Name placed on the Official List of Generic Names in Zoology by the International Commission on Zoological Nomenclature in their Opinion 519 (published in 1958).

**Type Species:** by monotypy: **Cancer arctus** Linnaeus, 1758.

**Synonyms:** **Syllarus** Rafinesque, 1815, *Analyse de la Nature*:98. Substitute name for **Scyllarus** Fabricius, 1775. Gender masculine.

**Chrysoma** Risso, 1827, *Histoire naturelle de l'Europe méridionale*, 5:88. Type species, by monotypy: **Chrysoma mediterraneum** Risso, 1827 (a junior subjective synonym of **Cancer arctus** L., 1758). Gender neuter.

**Arctus** De Haan, 1849, in P.F. von Siebold, *Fauna Japonica, Crustacea* (6,7):xx, 238. Type species, by absolute tautonymy: **Cancer arctus** L., 1758. Gender masculine.

**Arctus** Dana, 1852, *Proceedings Academy Natural Sciences Philadelphia*, 6: 14. Type species by monotypy (and absolute tautonymy): **Arctus ursus** Dana, 1852, (= a replacement name for **Cancer arctus** L., 1758). Gender masculine.

**Nisto** Sarato, 1885, *Moniteur des étrangers de Nice*, 9 (216):3. Type species, by present selection: **Nisto laevis** Sarato, 1885 (a junior subjective synonym of **Cancer arctus** L., 1758). Gender masculine.

**Yalomus** Rafinesque in Holthuis, 1985, *Zoologische Mededelingen, Leiden*, 59(13):141. Type species, by monotypy: **Yalomus depressus** Rafinesque in Holthuis, 1985 (a junior subjective synonym of **Cancer arctus** L., 1758). Gender masculine.

More than 40 species are known in this genus, they are listed below. Most species are small and of no economic value. A few (only 7 are known to me) have been reported from fish markets, but even those can only be considered as accidental bycatch of other species. Hence, a key to species is not presented here, but short diagnoses are provided for the 7 species reported from fish markets as an aid for their recognition.

**List of Species\* :**

- S. aesopius** Holthuis, 1960 - Philippines
- S. amabilis** Holthuis, 1963 - Western Australia
- S. americanus** (S.I. Smith, 1869) Syn: **Arctus americanus** S.I. Smith, 1869; **Scyllarus gundlachi** (Von Martens, 1872) - West Central Atlantic
- S. aoteanus** Powell, 1949 - New Zealand
- S. arctus** (Linnaeus, 1758) Syn: see p. 217 - East Central Atlantic
  - S. aureus** Holthuis, 1963 - Indo-West Pacific
  - S. aurora** Holthuis, 1982 - Indo-West Pacific
  - S. batei** Holthuis, 1946 Syn: see p. 219 - Indo-West Pacific
  - S. bertholdii** Paulson, 1875 Syn: see p. 221 - Indo-West Pacific
  - S. bicuspidatus** (De Man, 1905) Syn: **Arctus bicuspidatus** De Man, 1905 - Indo-West Pacific
  - S. brevicornis** Holthuis, 1946 Syn: see p. 222 - Japan, China
- S. caparti** Holthuis, 1952 - West Africa
- S. chacei** Holthuis, 1960 - West Central Atlantic
- S. crenatus** (Whitelegge, 1900) Syn: **Arctus crenatus** Whitelegge, 1900 - Eastern Australia
- S. cultrifer** (Ortmann, 1897), Syn: subs. **S.c. meridionalis** Holthuis, 1960 - Indo-West Pacific
- S. delfini** (Bouvier, 1909) Syn: **Arctus delfini** Bouvier, 1909 - Juan Fernandez, Chile
- S. demani** Holthuis, 1946 - Indo-West Pacific
- S. depressus** (S.I. Smith, 1881) Syn: **Arctus depressus** S.I. Smith, 1881; **S. nearctus** Holthuis, 1960 - West Central Atlantic
- S. dubius** Holthuis, 1963 - Australia
- S. faxoni** Bouvier, 1917 - West Central Atlantic

\* This list is still tentative, more new species will be described in the near future.

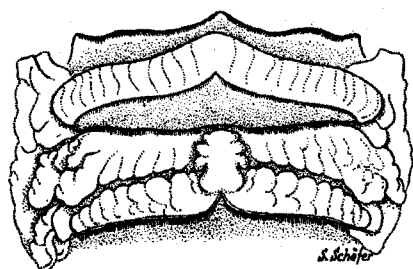
- S. gibberosus* (De Man, 1905) Syn: *S. sordidus* Nobili, 1905 (not Stimpson, 1860); *Arctus gibberosus* De Man, 1905; *Arctus nobilii* De Man, 1905; *Scyllarus paulsoni* Nobili, 1906; *Scyllarus nitidus* Nobili, 1906; *Scyllarus nobilii* - Nobili, 1906 - Indo-West Pacific
- S. kitanoviriosus* Harada, 1962 - Japan, Korea
- S. lewinsohni* Holthuis, 1967 - Red Sea
- S. longidactylus* Harada, 1962 - Japan
- S. martensii* Pfeffer, 1881 Syn.: see p. 223 - Indo-West Pacific
- S. mawsoni* (Bage, 1938) Syn: *Arctus mawsoni* Bage, 1938 - Australia
- S. modestus* Holthuis, 1960 - Hawaiian Islands
- S. ornatu*s Holthuis, 1960 - Indo-West Pacific
- S. paradoxus* Miers, 1881 Syn: *S. (Arctus) arctus paradoxus* (Miers, 1881) - West Africa
- S. planorbis* Holthuis, 1969 - Caribbean Sea
- S. posteli* Forest, 1963 - East Central Atlantic
- S. pumilus* Nobili, 1905 Syn: *S. thiriouxi* Bouvier, 1914 - Red Sea, Western Indian Ocean
- S. pygmaeus* (Bate, 1888) Syn.: see p. 224 - East Central Atlantic
- S. rubens* (Alcock & Anderson, 1894) Syn: *Arctus rubens* Alcock & Anderson, 1894 - Western Indian Ocean
- S. rugosus* H. Milne Edwards, 1837 Syn.: see p. 225 - Indo-West Pacific
- S. sordidus* (Stimpson, 1860) Syn: *Arctus sordidus* Stimpson, 1860 - Indo-West Pacific
- S. subarctus* Crosnier, 1970 - West Africa
- S. timidus* Holthuis, 1960 - Indo-West Pacific
- S. umbilicatus* Holthuis, 1977 - Eastern Australia
- S. vitiensis* (Dana, 1852) Syn: *Arctus vitiensis* Dana, 1852 - Indo-West Pacific

***Scyllarus arctus* (Linnaeus, 1758)**

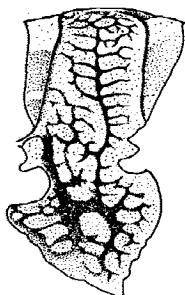
*Cancer arctus* Linnaeus, 1758, *Systema Naturae*, (ed. 10) 1:633. Name placed on the Official List of Specific Names in Zoology, in Opinion 519 (published in 1958).

Fig. 413

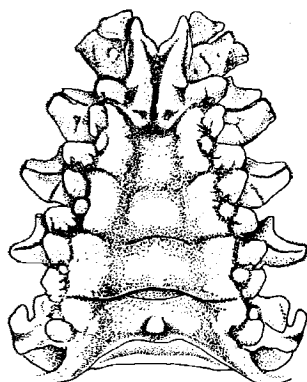
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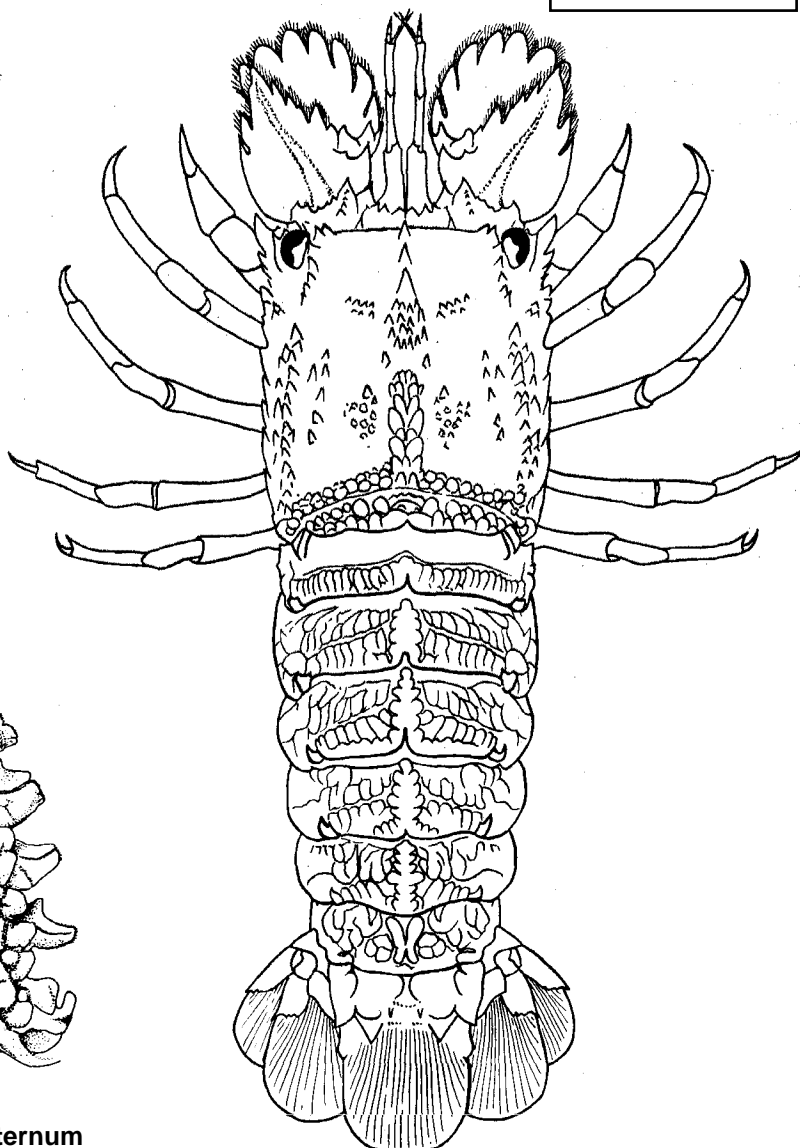
first and second abdominal somites  
(dorsal view)



second abdominal somite  
(lateral view)



thoracic sternum  
(ventral view)



dorsal view

Fig. 413

**Synonyms:** *Astacus arctus* - Pennant, 1777; *Cancer (Astacus) ursus minor* Herbst, 1793; *Scyllarus tridentatus* Leach, 1814; *Scyllarus cicada* Risso, 1816; *Chrysoma mediterraneum* Risso, 1827; *Phyllosoma sarniense* Lukis, 1835; *Phyllosoma parthenopaeum* Costa, 1840; *Arctus arctus* - De Haan, 1849; *Phyllosoma mediterraneum* - Hope, 1851; *Arctus ursus* Dana, 1852; *Nisto laevis* Sarato, 1885; *Nisto asper* Sarato, 1885; *Arctus crenulatus* Bouvier, 1905; *Scyllarus (Arctus) crenulatus* - Bouvier, 1915; *Scyllarus arctus lutea* Risso MS in Holthuis, 1977; *Yalomus depressus* Rafinesque MS in Holthuis, 1985.

**FAO Names :** **En** - Small European locust lobster; **Fr** - Petite cigale; **Sp** - Santiaguíño.

**Type :** Type locality of *Cancer Arctus* and *Arctus ursus* (the latter is a replacement name for the former): "Habitat in M [ari]. Europae, Asiae, Africae, Americae". As lectotype of the species is now selected the specimen figured by Barrelier (1714:131, fig. 1288 II) as "Squilla Ursa minor altera remipes", the only specimen of the present species cited by Linnaeus (1758). Barrelier's specimen was collected and figured by him during his travels in "Galliam, Hispaniam et Italiam", no exact locality is given, but the type locality may be arbitrarily restricted to Ostia, the port of Rome, as in the second page of Barrelier's biography in the introduction to his 1714 book, it is said that in Ostia he figured marine insects (= Crustacea): "Portum Ostiensem ... Plantas investigandi causâ perlustravit, Marinasque plurimas, Insecta simul & Conchylia depinxit". On p. xxvi of the chapter "Index Iconum Barrelieri" of his book, all the Crustacea, Mollusca and Echinodermata that he figured are listed as "Insecta marina". The lectotype is almost certainly no longer extant, but the figure is so exact that there cannot be any doubt as to the identity of the specimen.

Type locality of *Cancer (Astacus) ursus minor*: "Man findet diesen Krebs im Mittelländischem Meere". Type material in ZMB, no longer extant.

Type locality of *Scyllarus tridentatus*: "Its habitat is unknown". The specimen was observed by Leach "in the collection of William Comyns, Esq. of Mount Pleasant, near Dawlish, Devonshire" and thus may have come from the south coast of England. Whereabouts of the type material unknown.

Type locality of *Scyllarus cicada*: "Environs de Nice", "dans les rochers du litoral". Depository of type material unknown.

Type locality of *Chrysoma mediterraneum*: "dans nos mers [= seas near Nice, dépt. Alpes Maritimes, S. France]. Depository of types unknown.

Type locality of *Phyllosoma sarniense*: "on the Coast of Guernsey", Channel Islands, Great Britain. Depository of type unknown.

Type locality of *Phyllosoma parthenopaeum*: "Trovato a galleggiare nella marina di Capri", near Naples, Italy. Depository of larval holotype unknown.

Type locality of both *Nisto laevis* and *Nisto asper*: "Les deux Nisto ont été découverts . dans les eaux de Saint-Jean, près de Nice", dépt. Alpes Maritimes, S. France. Depository of syntypes of either species unknown.

Type locality of *Arctus crenulatus*: "Porto-Santo (Madère)", later (Bouvier, 1905:2) given more detailed as "de la baie de Porto-Santo . . . par 100 mètres de profondeur". Holotype in MOM.

Type locality of *Scyllarus arctus lutea*: Nice, S. France. Depository of type unknown.

Type locality of *Yalomus depressus*: "in the Sicilian Seas", Italy. Types lost.

**Diagnostic Features:** Carapace with 3 distinct acute teeth in the median line before the cervical groove (the gastric, pregastric and rostral teeth). Region between the postrostral and branchial carinae with only a few tubercles, and with extensive smooth areas. Abdomen without a sharp median ridge, but each of somites 2 to 5 with an elongate lobulate figure in the middle. The exposed part of somites 2 to 5 with an arborescent arrangement of very narrow grooves. Somite 1 with a complete transverse groove, behind which there are numerous short longitudinal grooves that are rather irregular in shape, may divide and sometimes are interconnected by transverse grooves; this posterior half of somite 1 of equal length throughout its width, not longer in the middle than at the sides. The smooth anterior half of abdominal somites 2 to 6 (i.e., the part of the somite that disappears under the previous somite when the abdomen is fully stretched) without any indication of grooves or rows of hairs. Fourth segment of antenna with a single oblique median carina. Outer margin of the segment with 2 teeth, the inner margin with 3 or 4 (not including the apical tooth). Thoracic sternum anteriorly V-shapedly incised in the middle. A blunt and low median tubercle on the last thoracic sternite; this tubercle somewhat flattened posteriorly, not conical as in *S. pygmaeus*. Dactyli of legs without fringes of hair. Colour: reddish brown with a dark brown pubescence. A dark brown, not sharply delimited spot in the central part of abdominal somite 1. Segments of the pereopods with a dark blue band each.

**Geographical Distribution** : Eastern Atlantic region from the south coast of the British Islands to the Azores, Madeira and the Canary Islands, as well as the entire Mediterranean (Fig. 414)

**Habitat and Biology** : Depth range from 4 to 50 m; on rocky or muddy substrates, and also in *Posidonia* prairies. Ovipigerous females from February to April.

**Size** : Total body length usually between 5 and 10 cm, maximum body length about 16 cm.

**Interest to Fisheries** : Minor. The species is edible and used as food, but there is no special fishery for it, being usually taken as a by-catch in other fisheries. It has been taken with gill nets, trawls, dredges, traps and seines. It is also taken by hand by divers, who at places seem to have decimated the populations, especially after the introduction of Scuba gear. The animals are offered for sale at local markets, usually fresh. The relatively small size and the fact that it is never abundant make the species economically not very attractive.

**Local Names** : FRANCE: Petite cigale, Cigale de mer, Petit Scyllare, Chambre (Provence); GERMANY: Kleiner Barenkrebs, Grillenkrebs; GREECE: Astakoudaki; ISRAEL: Kapavit dubit; ITALY: Cicala di mare, Magnosella; PORTUGAL: Lagosta da pedra, Lameiro; SPAIN: Santiaguño, Toribio, Cigala; Bujias, Llagosta lluisa, Xuius (Cataluña); Cigarra (Andalucía); TUNISIA: Chkal, Ziz il bahr, Cigale blanche, Petite cigale de mer; UK: Broad lobster; YUGOSLAVIA: Zezavac.

**Literature** : Palombi & Santarelli, 1961:372 (local names); Fischer, Bianchi & Scott (eds), 1981 :Vol. 5; Fischer, Bauchot & Schneider (eds), 1987:317-318.

**Remarks**: The name "*Phyllosoma sarniense*" is not mentioned in Lukis' (1835:459-464) article, the editor even put in this article on p. 462 a bracketed remark "Will Mr Lukis please to take an early opportunity of adding a specific epithet". The name is provided in the index to the volume (8) of *The Magazine of Natural History* in which Lukis' article appeared; on p. 685 of the index is cited "*Phyllosoma sarniense* Lukis, and other species, 461".

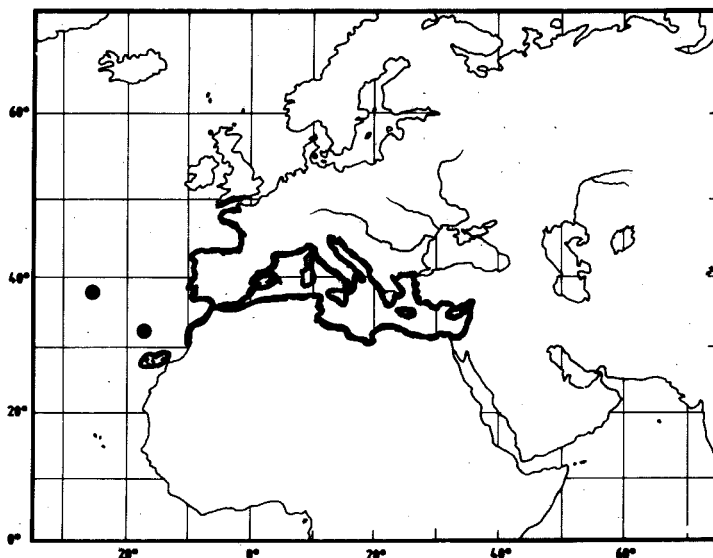


Fig. 414

*Scyllarus batei* Holthuis, 1946

Fig. 415

SCYL Scylr 3

*Scyllarus batei* Holthuis, 1946, *Temminckia. Leiden*, 7:94.

**Synonyms**: *Arctus orientalis* Bate, 1888 (not *Scyllarus orientalis* Lund, 1793); *Scyllarus orientalis* - De Man, 1916; *Scyllarus batei arabicus* Holthuis, 1960.

**FAO Names** : **En** - Soft locust lobster; **Fr** - Cigale douce; **Sp** - Cigarra blanducha.

**Type** : Type locality of *Arctus orientalis* and *S. batei* (the latter name being a replacement name for the former): "Challenger" "Station 209, between Bohol and Zebu [= Cebu], ... lat. 10°14'N., long. 123°54'E.; depth, 95 fathoms [= 174 m]; bottom, blue mud". Two syntypes in BM.

Type locality of *S. batei arabicus*: "Gulf of Aden (13°16' - 13°16'36"N 46°20'24" - 46°14'E, depth 220 m, "John Murray" Expedition Sta. 194". Holotype in BM, no. 88.22, in alcohol, condition good.

**Diagnostic Features** : Carapace with 2 distinct teeth in the median line before the cervical groove (the gastric and pregastric teeth), the rostral tooth is absent. The region between the postrostral and branchial carinae with only very few tubercles and extensive smooth areas. Abdomen with a distinct Sharp median carina on somites 1 to 5, all these ridges of approximately the same height. Somite 1 with the transverse groove interrupted in the middle by the median carina; behind the groove there are no longitudinal grooves, but a transverse row of tubercles. The exposed part of somites 2 to 5 without an arborescent pattern, but with a wide transverse groove (interrupted in the middle) behind which there is a transverse row of tubercles, and before which there are some tubercles and wide short side grooves. The fourth segment of the antenna has a single, distinct oblique median carina; the Upper surface has no additional carina or tubercles. The outer margin of the segment has 2 to 4 larger, the inner margin 4 to 7 smaller teeth (not including the apical tooth). The thoracic sternum with the anterior median end gutter-like sunken, not incised in the middle. No median tubercles on the sternites. Dactyli of legs 3 to 5 with dorsal fringes of hair. Colour: body pale brown with the ridges and tubercles pale purple or reddish. First abdominal somite brick red in the anteromedian area (see Chan & Yu, 1986, pls 4,9A,B).

**Geographical Distribution** : Indo-West Pacific region: Gulf of Aden and East Africa to the South China Sea, Taiwan, the Philippines and Indonesia. It is possible that the western form is a separate subspecies *S.b. arabicus* (Fig. 416).

**Habitat and Biology** : Depth range from 160 to 484 m, usually between 170 and 210 m; on sandy and muddy substrates.

**Size** : Maximum total body length about 7 cm, carapace length to 3 cm (males 1.4 to 2.9 cm; females 1.5 to 3.3 cm; ovigerous females 2.3 to 3.1 cm).

**Interest to Fisheries** : Sometimes taken by trawlers in small quantities (George, 1969:433), the species is not considered to be of potential commercial interest. Chan & Yu (1986: 149) reported the species, from local fish markets in Taiwan; the animals were caught with "baby shrimp trawls"

**Literature** : Fischer & Bianchi (eds), 1984:vol 5; Chan & Yu, 1986: 155, pl. 4fig. A-C, pl 9 fig. A,B.



Fig. 415

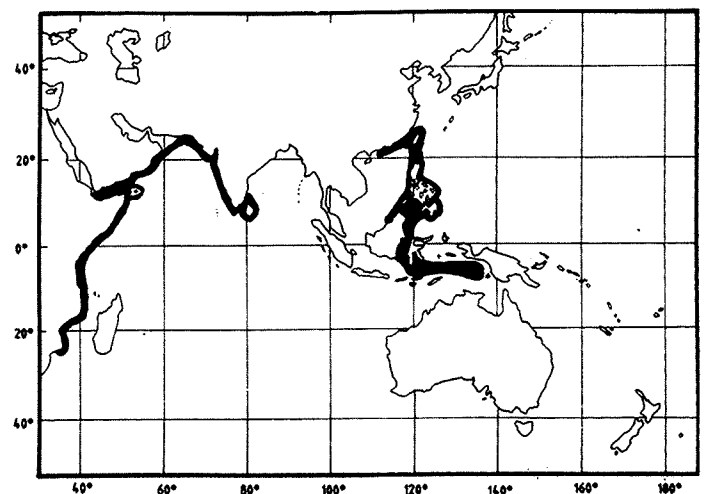


Fig. 416

*Scyllarus bertholdii* Paulson, 1875

Fig. 417

SCYL Scylr 4

*Scyllarus bertholdii* Paulson, 1875, *Izledovaniya Rakoobraznykh Krasnogo Morya*:97.

**Synonyms:** *Scyllarus haanii* Berthold, 1845 (not *S. haanii* De Haan, 1841); *Scyllarus sinensis* White, 1847 (nomen nudum).

**FAO Names :** En - Two-spot locust lobster.

**Type :** Type locality of *S. bertholdii* and *S. haanii* Berthold (the former being a replacement name for the latter): China. Lectotype female RMNH, no. 5518, dry, condition rather poor. A possible paralectotype in SMF, under no. 7 MG 233. The specimen, a dry female labelled "Mare Indicum", is the only specimen of this species from the collection of the Göttingen Museum now on permanent loan in the Senckenberg Museum. It was not labelled as being a type.

Type locality of *S. sinensis*: "China". Syntypes in BM.

**Diagnostic Features :** The teeth in the median line of the carapace low and obscure: the rostral tooth is usually reduced to a mere tubercle, the pregastric tooth is distinct, but low, the gastric tooth is absent; the cardiac tooth (behind the cervical groove) is replaced by 2 low blunt and flattened submedian tubercles. The region between the post-rostral and branchial carinae shows few tubercles and rather large smooth areas. Abdomen without median carina, the median area of the somites is low and flat. The exposed part of the abdominal somites shows an arborescent pattern of narrow grooves. Somite 1 has a complete transverse groove behind which there are numerous parallel oblique grooves, which in the middle of the segment form a triangular figure. Fourth segment of the antenna with a single straight and obliquely directed median carina; no additional carinae or tubercles on the dorsal surface. Outer margin of the segment with two distinct Sharp teeth, inner margin with a large single Sharp tooth (apical tooth of segment not included). Thoracic sternum with the anterior margin straight and transverse, with a very narrow median incision. The anterior margin forms a broad ridge behind which there is a sunken triangular area. No median tubercles on the sternites. Dactylus of pereopods 1, 2, 4 and 5 without hairy fringes. Colour: the body is reddish brown. Most conspicuous and characteristic are two large dark spots on the first abdominal somite, one on each side slightly above the base of the pleuron. The legs are pale with a few dark bands (see Chan & Yu, 1986, pls. 2, 8B).

**Geographical Distribution :** Indo-West Pacific region: S. China, Hong Kong, Taiwan, South China Sea, Gulf of Thailand, Philippines, Indonesia, W. and N. Australia (Fig. 418).

**Habitat and Biology:** Reported from depths between 15 and 150 m, but most common between 40 and 75 m. Found on a soft substrate (mud, sandy mud, muddy Sand, Sand, coralline algae, etc.).

**Size :** Maximum total body length 4.2 cm (males), 5.8 cm (females). Carapace length 0.4 to 1.5 cm (males), 0.5 to 2 cm (females, including ovigerous ones)

**Interest to Fisheries :** The species is caught by trawlers (with "baby shrimp trawls") as a by-catch and SO may reach fish markets, e.g. in Taiwan (see Chan & Yu, 1986:149). It is not known whether the animals are sold as food.

**Literature :** Chan & Yu, 1986: 152, pl. 2 Fig A-C, pl 8 fig. B.

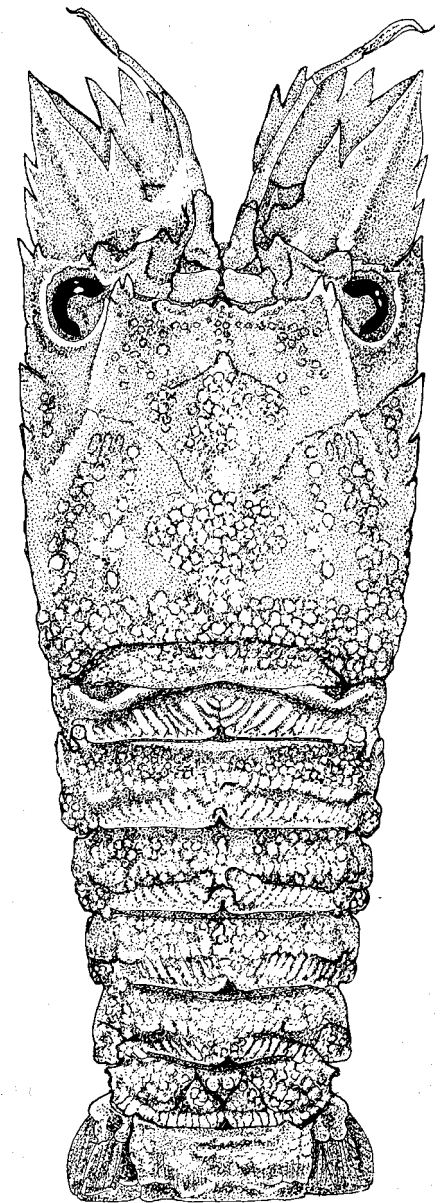


Fig. 417

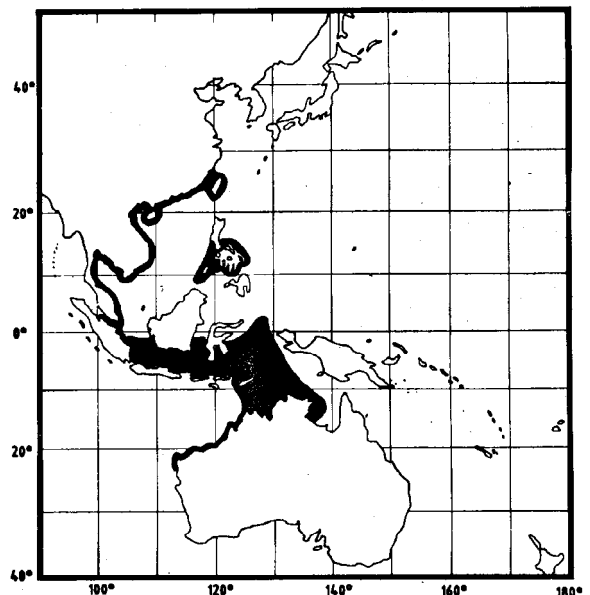


Fig. 418

*Scyllarus brevicornis* Holthuis, 1946

Fig. 419

SCYL Scylr 5

*Scyllarus brevicornis* Holthuis, 1946, Temminckia, Leiden, 7:92.

**Synonyms** : *Arctus rugosus* Yokoya, 1933 (not *Scyllarus rugosus* H. Milne Edwards, 1837).

**FAO Names** : En - Blue-back locust lobster.

**Type** : Type locality: "southern Bungo Strait [between Shikoku and Kyushu Islands, Japan], 110 m deep". Holo-type male in Fishery Institute, College of Agriculture, Tokyo University, Tokyo, Japan (dried and in poor condition). As *S. brevicornis* is a new name for *A. rugosus*, the type locality is the same for both.

**Diagnostic Features** : Carapace with 2 distinct teeth in the median line before the cervical groove (the gastric and rostral teeth), the pregastric tooth is absent. The region between the postrostral and branchial carinae with only a few tubercles and extensive smooth areas. Abdominal somites 2 to 5 with distinct elevated median longitudinal carina; the carina of the third somite is distinctly higher than that of the other somites. The exposed part of the somites without arborescent pattern, but with a wide transverse groove over the middle; behind this groove a transverse ridge extends along the posterior margin of the somite; before the groove there are tubercles and some wide side grooves. Somite 1 dorsally smooth with only an indication of a transverse groove in the extreme lateral part. Posterior margin of somites 5 and 6 not tuberculate. Fourth segment of antenna with the median oblique carina distinct but not quite straight; a row of tubercles is present on the outer half of the Upper surface of the segment, tubercles are also present in the basal part of the median carina. The outer margin of the fourth segment has 3 or 4 teeth, the distal largest, the inner margin with 4 or 5 teeth, the basal of which is largest (the apical tooth not included in these counts). The thoracic sternum is widely U-shapedly incised anteriorly; the last 4 sternites show an inconspicuous median tubercle. A dorsal fringe of hairs is present on the dactyli of pereopods 3 to 5. Colour: dark brown above, tubercles slightly paler, sometimes with whitish areas in the branchial region and along the central part of the cervical groove. A dark blue spot in the median part of the first abdominal somite (see Chan & Yu, 1986, pl. 5,9 fig. C,D).

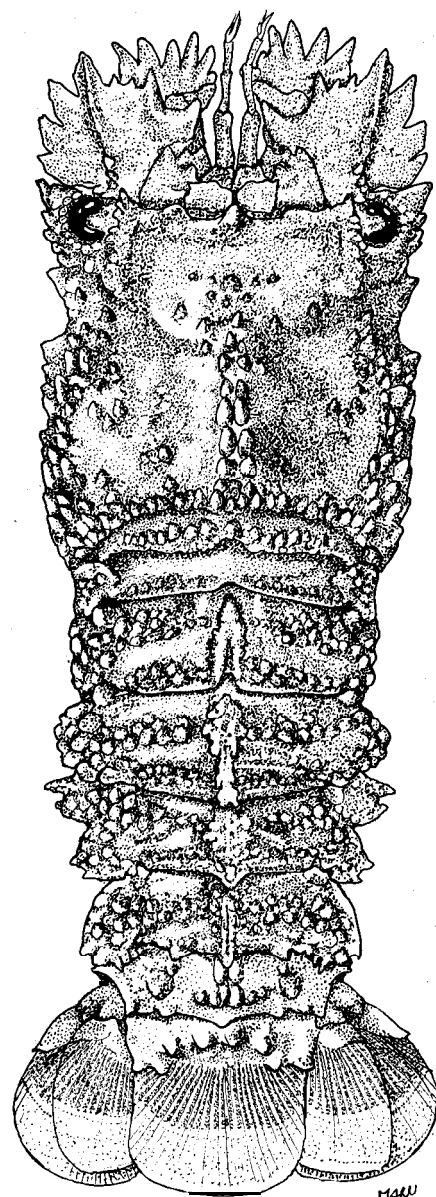
**Geographical Distribution** : East China Sea (west of the Tokara Islands), Japan (Tosa Bay, Bungo Strait), Taiwan (Fig. 420).

**Habitat and Biology** : Depth range from 60 to 150 m; substrates: sand or mud.

**Size** : Total body length 4 to 5.5 cm. Carapace length of 1.3 to 1.8 cm; in ovigerous females 1.6 to 1.8 cm.

**Interest to Fisheries** : None so far as known. The specimens enter trawls by accident and then are found at fish markets, more likely as trash than as saleable products. Chan & Yu (1986:149) reported the species from local fish markets in Taiwan, these specimens were taken by "baby" shrimp trawlers.

**Literature** : Chan & Yu, 1986:156, pl. 5 fig. A-D, pl. 9 fig. C,D.



(after Chan & Yu, 1986)

Fig. 419

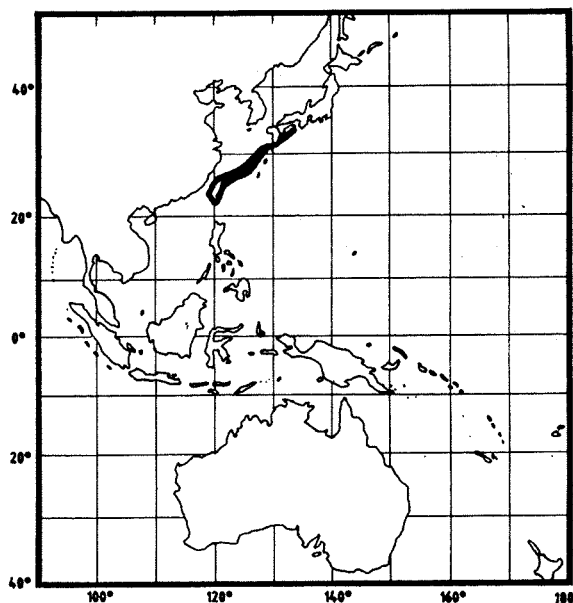


Fig. 420

*Scyllarus martensii*, Pfeffer, 1881, Verhandlungen naturwissenschaftlichen Vereins Hamburg-Altona, (2)5:48.

**FAO Names** : En - Striated locust lobster.

**Type** : Type locality: not mentioned in the original description. The two female syntypes are in the collection of ZMH under no. K 7955 and are labelled "Amur Mus Godeffroy". The locality indication evidently is incorrect as the mouth of the Amur River lies far to the north of the northern limit of the range of *S. martensii*. The Museum Godeffroy was founded around 1860 as the private collection of Johann Cesar VI Godeffroy, the director of the shipping company J.C. Godeffroy & Sohn in Hamburg. The ships of this company visited East and South Asia, Australia, and the Central and Eastern Pacific. Their captains were asked to collect for the Museum and brought important collections home for that purpose; also private persons were sent out by Godeffroy to collect. When in 1879 the firm Godeffroy collapsed, most of the zoological collections were acquired by the Hamburg Museum. The types of *S. martensii* were most likely collected in S.E. Asia, but nothing definite can be said in this respect.

**Diagnostic Features**: Carapace with two distinct teeth in the median line before the cervical groove (the gastric and pregastric teeth), the rostral tooth is absent, and replaced by an inconspicuous tubercle. The region between the postrostral and branchial carinae shows many tubercles, especially in the posterior half of the carapace. The abdomen has a conspicuously elevated longitudinal median carina on somites 2 to 5, that of somite 2 shows as an inverted V-shaped ridge when looked at dorsally. The carina of somite 3 is somewhat higher than the others. Somite 1 shows a complete transverse groove behind which there are about 16 straight, parallel longitudinal unbranched grooves, which are quite characteristic for the species. The other somites show a somewhat arborescent pattern on the exposed part. The fourth segment of the antenna has, apart from the distinct and sharp oblique median carina, an additional short curved carina formed by a row of tubercles; this additional carina is on the outer half of the segment. The outer margin of the segment has 3 to 5 (mostly 3) distinct teeth (apical tooth not included), the inner margin has 5 to 9 teeth, the basal of which is largest. The anterior margin of the thoracic sternum is very shallowly concave, narrowly incised in the middle and with a small tubercle either side of that

incision. Sternites 2 to 4 show a faint median tubercle each. The pereopods show no hairy fringes on the dactyli. Colour: the body is yellowish or reddish brown, somewhat irregularly marbled. A darker brown transverse band may be present on the third abdominal somite. The legs show a darker band on some of the segments (see Chan & Yu, 1986, pls. 3, 8C, D).

**Geographical Distribution** : Indo-West Pacific region from East Africa (Zanzibar, Mozambique) and the western Indian Ocean to Japan, Vietnam, Thailand, Malaysia, Singapore, Taiwan, the Philippines, Indonesia, N.W., N. and N.E. Australia and New Caledonia (Fig. 422).

**Habitat and Biology** : The species has been found in depths between 6 and 79 m, mostly between 10 and 50 m. The substrate that it inhabits is soft and smooth, consisting of sand and/or mud, sometimes with shells, pumice, foraminiferans or bryozoans.

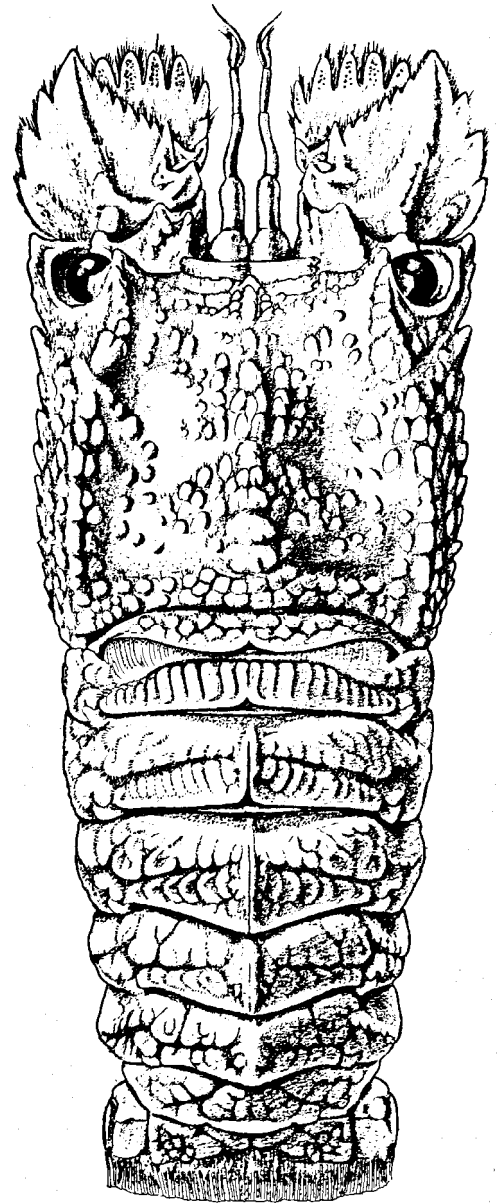


Fig. 421

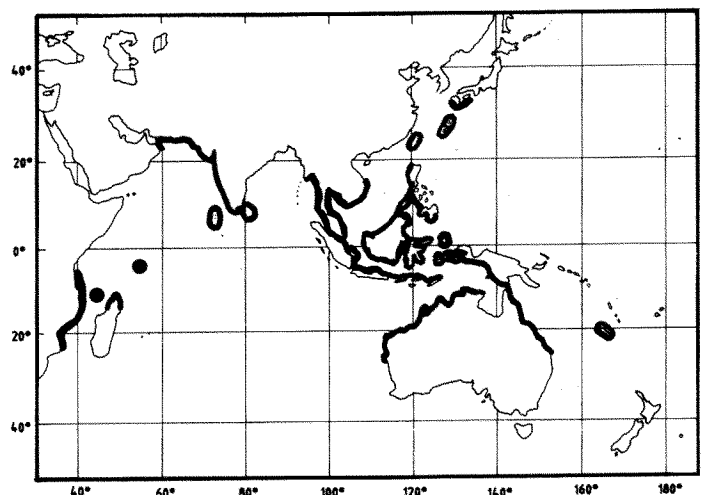


Fig. 422



**Size :** The total body length in this species is 2 to 4 cm (males), 2 to 6 cm (females), 2.5 to 4 cm (ovigerous females); the respective carapace lengths being 0.4 to 1.3 cm (males), 0.7 to 2 cm (females), 0.5 to 1.5 cm (ovigerous females).

**Interest to Fisheries :** None. The species is too small to be of any commercial interest and is not found in great quantities. It is sometimes caught accidentally by trawlers fishing for other species; in this way the specimens may reach the fish markets. So far as is known the specimens are not sold per se. Chan & Yu (1986: 149) report the species from fish markets in Taiwan being caught there by "baby" shrimp trawlers.

**Literature :** Chan & Yu, 1986:153, pl. 3 figs A-C, pl. 8 figs C,D.

***Scyllarus pygmaeus* (Bate, 1888)**

**Fig. 423**

**SCYL Scylr 2**

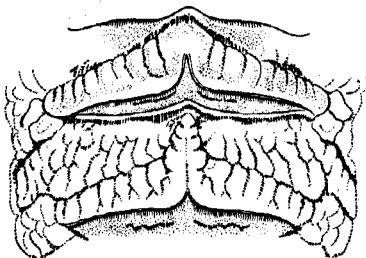
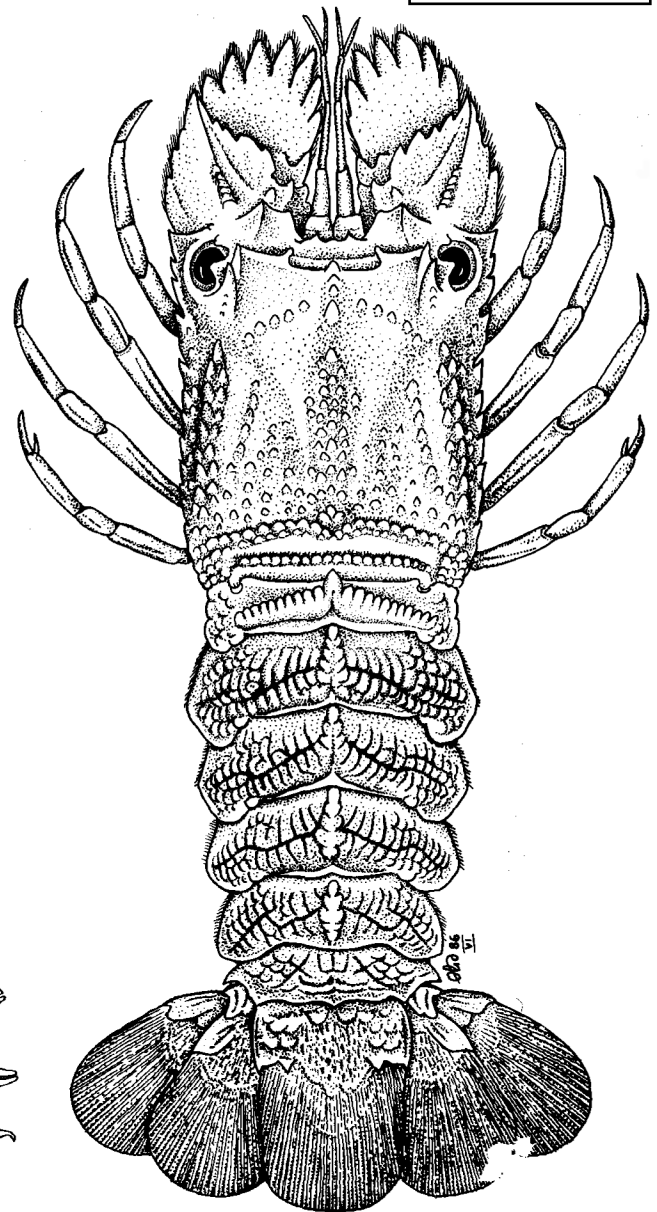
***Arctus pygmaeus*** Bate, 1888, *Report Voyage Challenger*, Zool 24:73, pl 10 fig. 4.

**Synonyms:** *Arctus immaturus* Bate, 1888; *Scyllarus immaturus* - Bouvier, 1912.

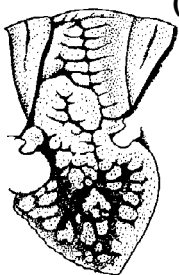
**FAO Names :** **En** - Pygmy locust lobster; **Fr** - Cigale naine; **Sp** Cigarra enana.

**Type :** Type locality of *Arctus pygmaeus*: "off Gomera, one of the Canary Islands, ... lat. 28°N., long. 16°5'W.; depth 78 fathoms [ = 143 m]; bottom, volcanic Sand". Ovigerous female holotype in BM.

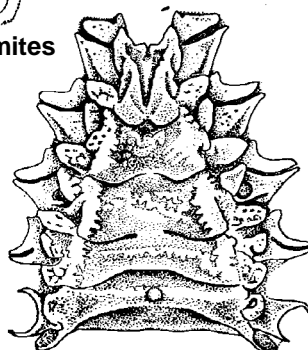
Type locality of *Arctus immaturus*: "dredged off Cape Verde [Sénégal], but neither station nor depth are recorded". Leatype in BM.



**first and second abdominal somites  
(dorsal view)**



**second abdominal somite  
(lateral view)**



**thoracic sternum  
(ventral view)**

**dorsal view**

**Fig. 423**

**Diagnostic Features:** Carapace with three distinct acute teeth in the median line before the cervical groove (the gastric, pregastric and rostral teeth). Region between the postrostral and branchial carinae with only few tubercles and with extensive smooth areas. Abdomen without a sharp elevated median longitudinal carina, but each of abdominal somites 2 to 5 with an elongate lobulate figure in the middle. The exposed part of abdominal somites 2 to 5 with an arborescent arrangement of very narrow grooves. Somite 1 with a complete transverse groove, behind which there are numerous short longitudinal grooves that may be rather irregular in shape and sometimes are interconnected by transverse grooves; this posterior part of somite 1 is longer in the middle than laterally. The smooth anterior half of abdominal somites 2 to 6 (i.e., the part that disappears under the tergum of the previous somite when the abdomen is fully stretched) on either side with a short transverse groove in which hairs are implanted. Fourth segment of antenna with a single oblique median carina. Outer margin of the segment with 2, the inner margin with 3 or 4 teeth (not

including the apical tooth). Thoracic sternum anteriorly U-shapedly incised in the middle. A blunt and low but conical tubercle on the last thoracic sternite. Dactyli of legs without fringes of hair. Colour: pale brownish or pinkish with patches of darker hairs. Two dark spots on the dorsal surface of the first abdominal somite in the submedian region.

**Geographical Distribution** : The entire Mediterranean (but not yet reported from the North African coast east of Morocco), and Atlantic islands (Madeira, Canary Islands, Cape Verde Islands) (Fig. 424).

**Habitat and Biology** : Depth range from 5 to 100 m. Ovigerous females in June and August.

**Size** : Maximum total length 5.5 cm, usually not more than 4 cm. Carapace length to 1 cm (males) and 1.15 cm (females).

**Interest to Fisheries** : Probably nil. The report in Fiches FAO d'Identification, Méditerranée et Mer Noire, vol. 1:319, that the species is fished for in Sardinia with trammel nets and lobster pots and is regularly present at the markets, where it is sold fresh, needs to be considered with much reserve. It is possible that this information is based, not on *S. pygmaeus*, but on *S. arctus*.

The small size of *S. pygmaeus* does not make it an attractive fisheries object. In N.E. Spain, the fishermen, when they got *S. pygmaeus* in their nets, threw it back in the sea, in the conviction that these were juvenile *Scyllarus arctus*, which needed still some time to grow up to acceptable size.

**Literature** : Fischer, Bauchot & Schneider (eds), 1987:3 19.

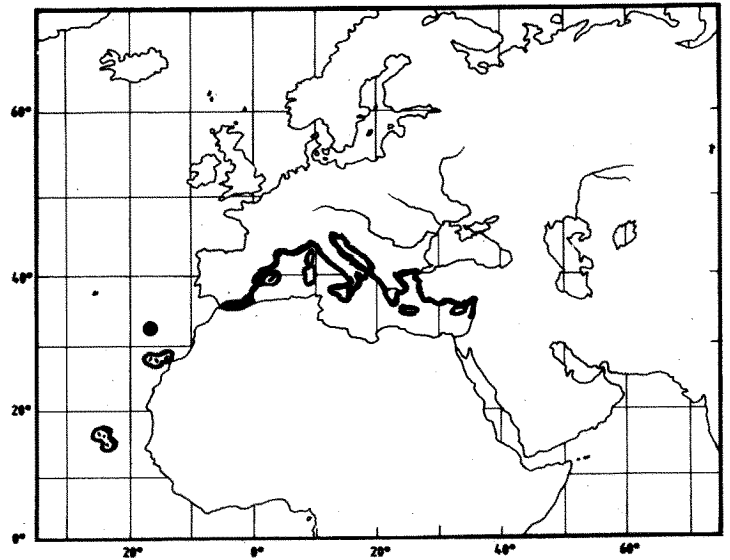


Fig. 424

*Scyllarus rugosus* H. Milne Edwards, 1837

Fig. 425

SCYL Scylr 7

*Scyllarus rugosus* H. Milne Edwards, 1837, *Histoire naturelle des Crustacés*, 2:283.

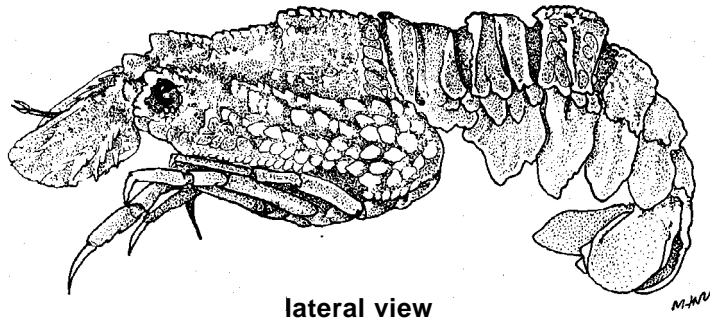
**Synonyms**: *Arctus tuberculatus* Bate, 1888; *Scyllarus tuberculatus* - Nobili, 1903

**FAO Names** : En - Hunchback locust lobster.

**Type** : Type locality of *Scyllarus rugosus*: "Habite la cote de Pondichéry" (= Pondicherry, S.E. India, 11°59'N 79°50'E). Holotype in MP, no longer extant.

Type locality of *Arctus tuberculatus*: "Challenger" "Station 190, between New Guinea and Australia ... lat. 8°56'S., long. 136°5'E.; depth, 49 fathoms [ = 90 ml; bottom, green mud". Syntypes in BM.

**Diagnostic Features** : The carapace has the median teeth before the cervical groove blunt and inconspicuous: the rostral tooth is reduced to a tubercle, the pregastric tooth is replaced by a double row of 1 or 2 tubercles and a few inconspicuous median tubercles. The gastric tooth is the most conspicuous, it is broad and blunt and bears a double row of tubercles. The surface of the carapace is very uneven and the tubercles are high. Between the postrostral and branchial carinae there are a few tubercles and many smooth areas. The abdomen shows a distinct median longitudinal carina on somites 2 to 5, that of somite 3 is by far the highest, and (like the one of somite 4) bears numerous tubercles laterally. Somite 1 is quite smooth, and has the transverse groove only slightly noticeable in the extreme lateral parts. The exposed part of the following somites shows no arborescent pattern, but in each somite there is a wide transverse groove there. In somite 2, both before and behind this groove there is a perfectly smooth broad ridge, a character in which the species differs from most others. In the following somites these ridges are tuberculate.



lateral view

In somites 4 to 6 the posterior margin is tuberculate. The fourth antennal segment has a sharp and high oblique median carina. Outside the carina the upper surface of the segment shows a row of tubercles. The outer margin of the segment bears 4 or 5 teeth (apical tooth of the segment not included), the inner margin has 5 to 7 teeth of irregular size. The anterior margin of the thoracic sternum is deeply U-shapedly incised. Each of the thoracic sternites bears a rounded median tubercle. The dactyli of pereopods 3 to 5 show two short fringes of hair each. Colour: the dorsal surface of the body is greyish or purplish brown with darker spots. The distal segment of the antenna is often lighter. The first abdominal somite shows dorsally often a dark blue colour (see Chan & Yu, 1986, pls 1, 8A, 10C).

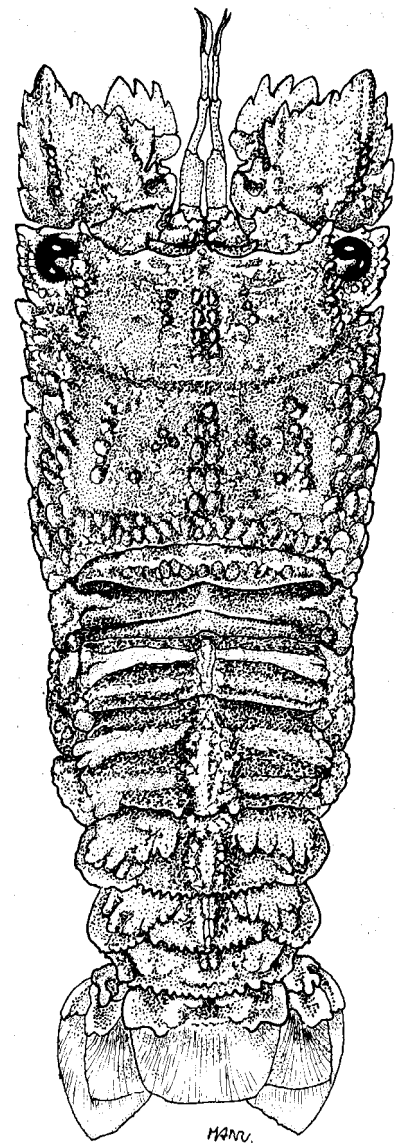
**Geographical Distribution** : Indo-West Pacific region from Red Sea, East Africa and Madagascar to Japan, Taiwan, the Philippines, Indonesia and N.E. Australia (Fig. 426).

**Habitat and Biology** : Inhabits depths from 20 to 60 m, rarely reported from 100 or 200 m. Bottom usually sand and mud, sometimes with coral, shelly grit or rubble.

**Size** : Total body lengths reported are 2.5 to 6 cm (males), 2.5 to 6 cm (females), 3 to 6 cm (ovigerous females) and carapace lengths of 0.8 to 2.1 cm (males), 0.8 to 2.2 cm (females), 1 to 2.2 cm (ovigerous females).

**Interest to Fisheries** : Like the other Indo-West Pacific species of the genus, *S. rugosus* is hardly of any commercial importance, if at all. It is taken accidentally by trawlers fishing for other species and so get to the fish markets. Chan & Yu (1986:149) reported it from fish markets in Taiwan, brought in by "baby" shrimp trawlers, but Chang (1965) does not list any *Scyllarus* among the "Edible Crustacea of Taiwan".

**Literature** : Chan & Yu, 1986: 150-152, pl. 1 figs A-E, pl. 8 fig. A, pl. 9 fig. C.



dorsal view

(after Chan &amp; Yu, 1986)

Fig. 425

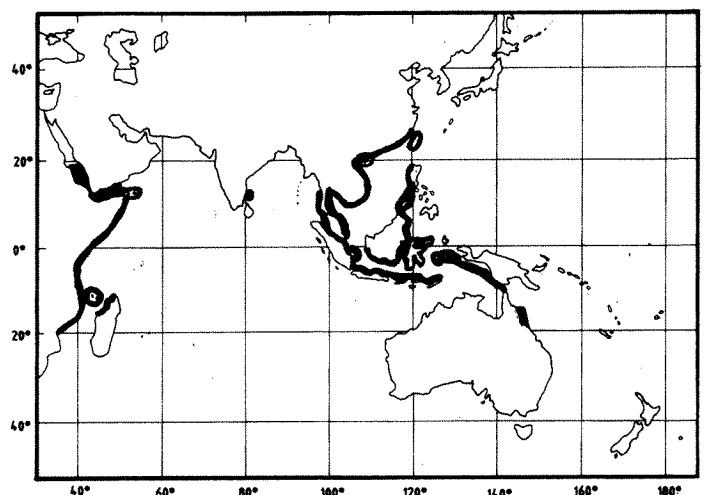


Fig. 426

SUBFAMILY **THENINAE** Holthuis, 1985

**Theninae** Holthuis, 1985, Zoologische Verhandelingen, Leiden, 2 18: 10,12

The subfamily is monotypic, the genus **Thenus** Leach, 1815, is its type and only genus.

**Thenus** Leach, 1815

**SCYL Then**

**Thenus** Leach, 1815, Transactions of the Linnean Society, London, 11:335, 338. Gender masculine. Name placed on the Official List of Generic Names in Zoology by the International Commission on Zoological Nomenclature in Opinion 519 (published in 1958).

**Type Species:** by monotypy: **Thenus indicus** Leach, 1815 (= junior subjective synonym of **Scyllarus orientalis** Lund, 1793).

**Synonyms:** **Sagaritis** Billberg, 1820, Enumeratio Insectorum in Museo Gust.Joh.Billberg:134. Type species by monotypy **Scyllarus orientalis** Lund, 1793. Gender feminine.

**Scyllibacus** Desjardins, 1831, Proceedings of the Committee of Science and Correspondence of the Zoological Society of London, 1(4):46. Type species by monotypy: **Scyllibacus orientalis** Desjardins, 1831. Gender masculine. If **Scyllibacus orientalis** Desjardins is a new combination of **Scyllarus orientalis** Lund, 1793, **Scyllibacus** falls as a junior objective synonym of **Thenus** Leach, 1815; if it is a new species, **Scyllibacus** is a nomen nudum.

At present only a single species is recognized within the genus **Thenus**, but recent studies, indicate the possibility that more than one species may have been confused under the name **Thenus orientalis**.

**Thenus orientalis** (Lund, 1793)

Fig. 427

**SCYL Then 1**

**Scyllarus orientalis** Lund, 1793, K.Danske Videnskabers Selskab Skrifter, (n.ser.)2(2):22. Name placed on the Official List of Specific Names in Zoology, in Opinion 519 (published in 1958).

**Synonyms:** **Thenus indicus** Leach, 1815; **Sagaritis orientalis** - Billberg, 1820; **Scyllibacus orientalis** - Desjardins, 1831.

**FAO Names :** **En** - Flathead lobster; **Fr** - Cigale raquette; **Sp** - Cigarra chata.

**Type :** Type locality of **S. orientalis**: "Fra Ostindien og China". Lund's material consisted of a specimen from Tranquebar, India, and one from China, so that both are syntypes; also a syntype is the specimen figured on pl. 2 fig. D in Rumphius' (1705) Amboinsche Rariteitkamer, this specimen not necessarily comes from Amboina, as the figure was made in Holland after a specimen of unknown locality and subsequently added to Rumphius' manuscript, it most likely originated from Indonesia. One of Lund's two specimens is in UZM, it is preserved in alcohol, its condition is reasonable; the second specimen is lost. The third syntype specimen formed part of the collection of Henricus d'Acquet, burgomaster of Delft, The Netherlands, this collection was sold publicly in 1708, the fate of the specimen of **Thenus** is unknown.

Type locality of **Thenus indicus**: "Habitat in mari Indico". Holotype in BM, no. 107 a 54, dry, condition fair (it is not fully certain that this is the holotype).

**Geographical Distribution** : Indo-West Pacific region: from the east coast of Africa (southern Red Sea to Natal) to China, southern Japan, the Philippines and tropical Australia (Western Australia to Queensland) (Fig. 428).

**Habitat and Biology** : Depth range from 8 to 70 m (exceptionally in 100 m), usually between 10 and 50 m; on soft substrate: sand or mud, or a mixture of the two, sometimes with shells or gravel.

**Size** : Maximum total body length about 25 cm; maximum carapace length about 8 cm.

**Interest to Fisheries** : The species often appears as a bycatch in the nets of trawlers and is edible. It is also reportedly taken by divers although there is no specialized fishery for it. Specimens caught in the sixties in the southern Red Sea by Israeli trawlers were frozen and sold in Israel. Experimental fishing undertaken in 1975 to 1976' off the coast of East Africa (Kenya to Mozambique) and elsewhere in the Western Indian Ocean was not promising for this species (up to 30 specimens per hour). Longhurst (1970:1286) mentioned that it is "caught in the Gulf of Thailand, and on a small scale off Malaysia and Singapore". In Queensland, the shrimp fishery lands *Thenus* as a bycatch where it ranks above *Ibacus* as a food item (Grant, 1978:685). It is also offered for sale in Sydney markets. In Taiwan, this species is found in markets year-round but is most abundant from March to August, and is marketed together with *Ibacus ciliatus* and *I. novemdentatus* (Chang, 1965:47) In the Philippines it is priced lower than spiny lobsters (Motoh & Kuronuma, 1980:58). Davidson (1977: 141) remarked of this species: "The meat of the slipper lobster is not quite up to the standard of good prawns or spiny lobsters, but is nonetheless well worth eating". Marketed locally either fresh or frozen.

**Local Names** : AUSTRALIA: Bay lobster (official name), Moreton Bay bug, Bug, Gulf lobster, Northern bay lobster, Shovel-nosed lobster; BURMA: Kyauk-pa-zun; HONG KONG: Pei pa ha; INDONESIA: Udang pasir; JAPAN: Uchiwa-ebi-modoki; KAMPUCHEA: Bangkang pak; MALAYSIA: Udang lobok; MAURITIUS: Homard sans cornes; MOZAMBIQUE: Cava-cava triangular; PAKISTAN: Kikat (Sindhi), Kikka (Baluchistan); PHILIPPINES: Pitik-pitik, Bay lobster, Cupapa, Sand crayfish, Sand lobster, Shovel-nosed lobster, Slipper lobster; SINGAPORE: Common flapjack lobster; TANZANIA: Kamba; THAILAND: Kung kradan, Kung hin.

**Literature** : Fischer & Bianchi (eds), 1984:vol. 5; Williams, 1986: 26, figs 61 (fig 61 and 62 have been interchanged), 80 g.

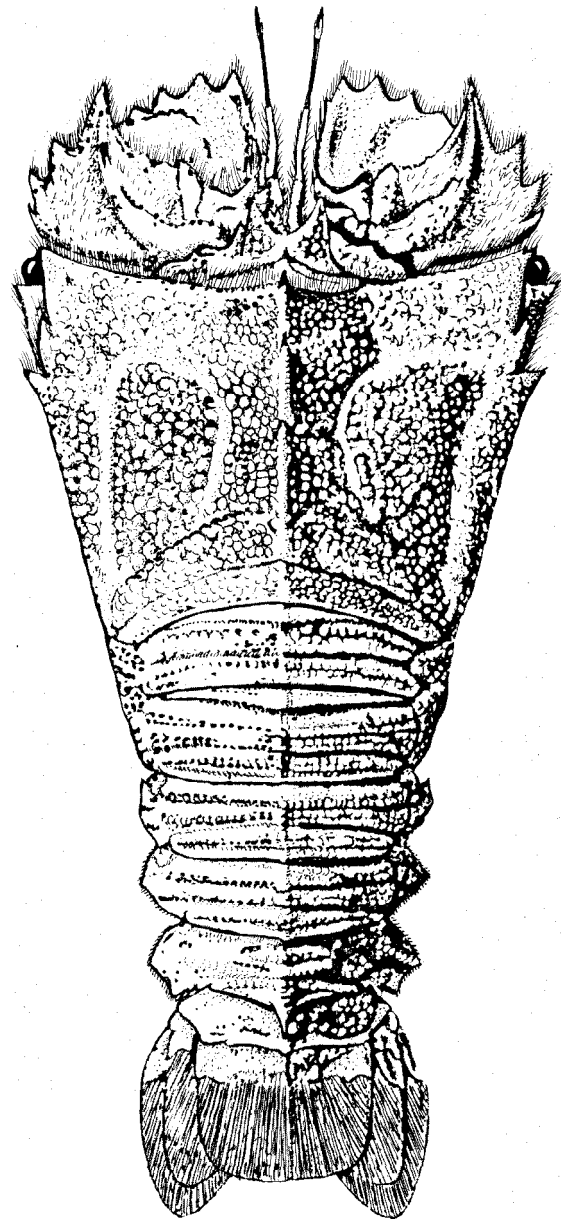


Fig.427

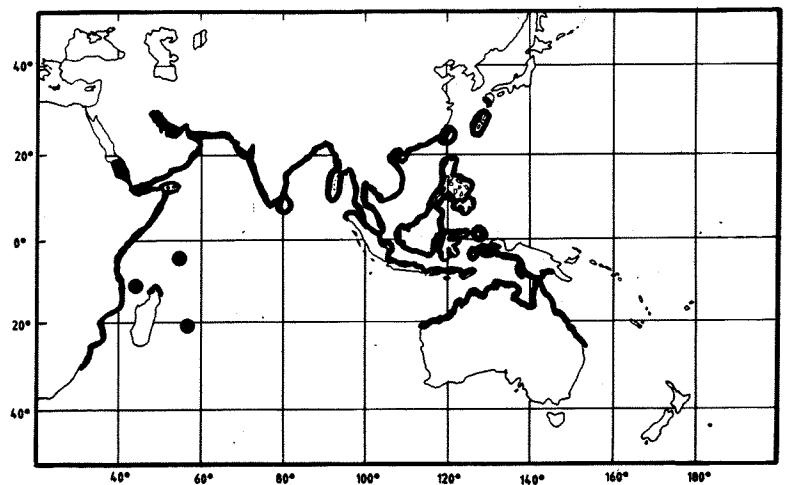


Fig. 428