

Linuparus White, 1847

PALIN Lin

Linuparus White, 1847, List of the specimens of Crustacea in the collection of the British Museum: 70. Gender masculine. Name placed on the Official List of Generic Names in Zoology in Opinion 519 (published in 1958).

Type Species: by monotypy: *Palinurus trigonus* Von Siebold, 1824.

Synonyms : *Podocratus* Geinitz, 1849, Das Quadersandsteingebirge oder Kreidegebirge in Deutschland:96. Type species, by monotypy: *Podocratus duelmense* Geinitz, 1849; gender masculine.

Thenops Bell, 1858, A monograph of the fossil malacostracous Crustacea of Great Britain, (1):33; type species, by monotypy: *Thenops scyllariformis* Bell, 1858; gender masculine.

Avus Ortmann, 1891, Zoologische Jahrbücher. Systematik, 6: 15,21; type species, by monotypy: *Palinurus trigonus* Von Siebold, 1824; gender masculine.

Eolinuparus Mertin, 1941, Nova Acta Leopoldina, (n.ser... 10(68):215; type species, by original designation: *Thenops carteri* Reed, 1911; gender masculine.

Apart from a great number of fossil species, the genus *Linuparus* has three recent species, all are dealt with here.

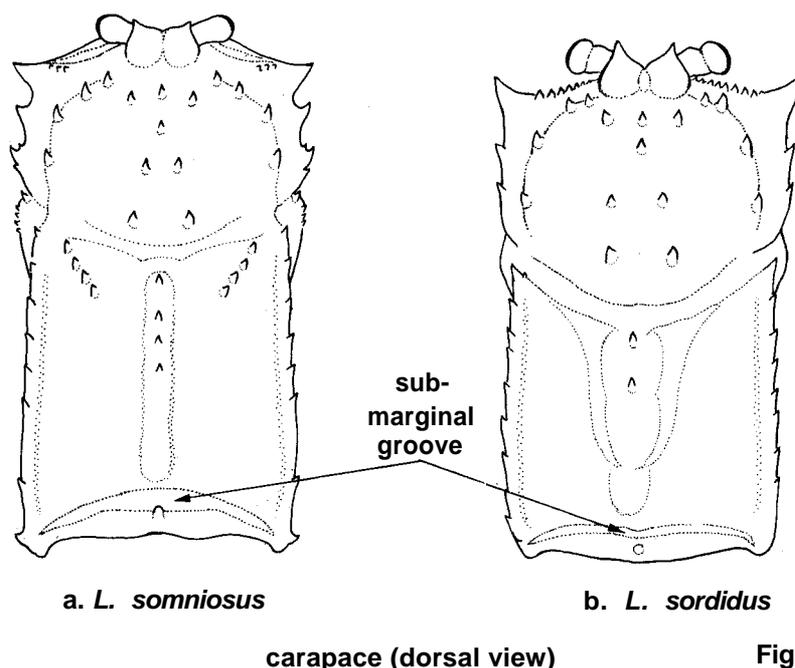
Key to Recent Species (after Berry & George, 1972: 18).

1a. Submarginal posterior groove of carapace much wider medially than laterally (Fig. 209a). Vestigial pleopods present on first abdominal segment of female *L. somniosus* (Fig. 211)

1b. Submarginal posterior groove of carapace as wide medially as laterally (Fig. 209b). No pleopods on first abdominal segment of female

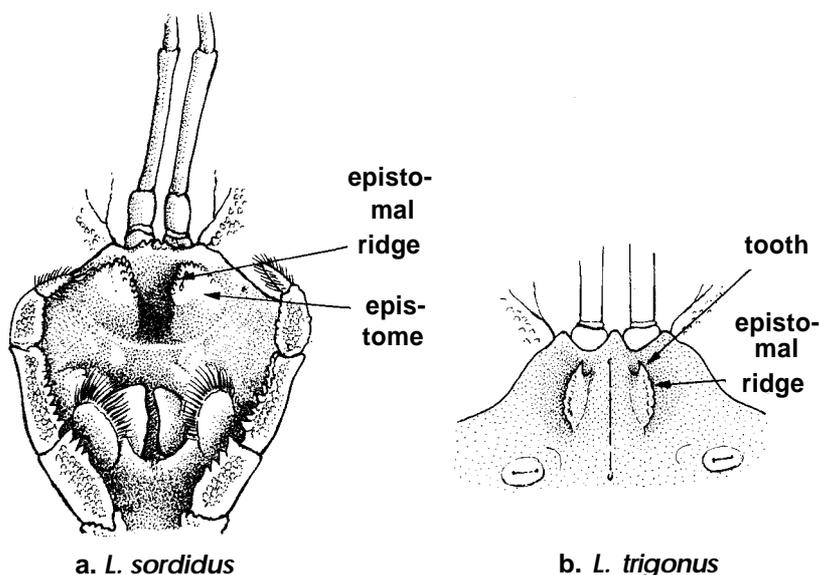
2a. Epistomal ridges coarsely granulated, without an acute well developed anterior tooth (Fig. 210a). Chitinous margin of male genital aperture with toothed median border and entire lateral border *L. sordidus* (Fig. 213)

2b. Epistomal ridges feebly granulated, with an acute well developed anterior tooth (Fig. 210b). Chitinous margin of male genital aperture toothed throughout its length *L. trigonus* (Fig. 215)



carapace (dorsal view)

Fig. 209



anterior part of the body (ventral view)

epistome Fig. 210

Linuparus somniosus Berry & George, 1972

Fig. 211

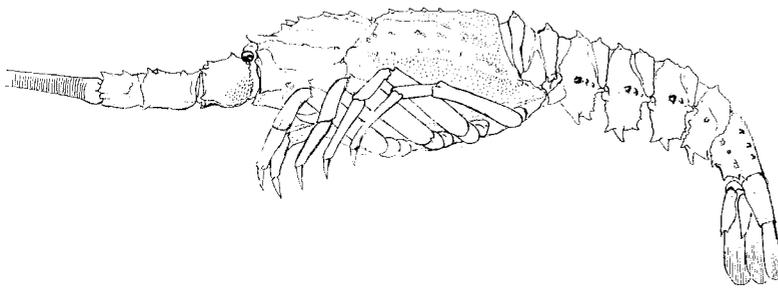
PALIN Lin 1

Linuparus somniosus Berry & George, 1972, *Zoologische Mededelingen*, Leiden, 46:18, text-fig-1, pls 1,2.

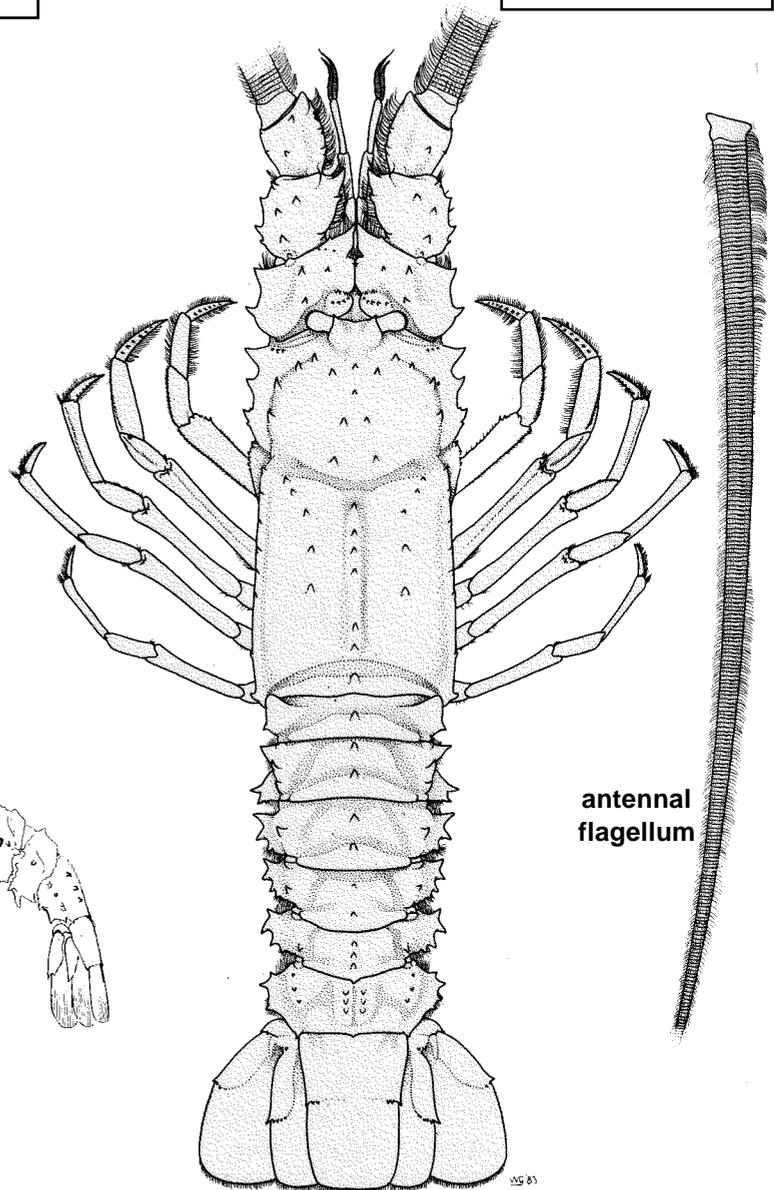
Synonyms: In older literature the species was sometimes incorrectly identified as *L. trigonus*.

FAO Names : **En-** African spear lobster; **Fr -** Langouste javelot d'Afrique; **Sp -** Langosta jabalina africana.

Type : Type locality: "N.E. of Bazaruto Island", Natal, South Africa, 234 m depth. Holotype female in BM, no. 1971: 120; 2 paratypes BM, no. 1971:121; 2 paratypes RMNH, nos D 27137 and D 27138 (all types in alcohol, condition good).



lateral view



dorsal view

antennal
flagellum

Fig. 211

Geographical Distribution : Off the east coast of Africa from Kenya to Natal, South Africa (Fig. 212).

Habitat and Biology : Depth range from 216 to 375; on rough substrate with sand and mud.

Size : Maximum total body length about 35 cm, carapace length 14 cm; average carapace length about 10 cm.

Interest to Fisheries : At present very minor. The species is not fished commercially in most of its range, but according to Ivanov & Krylov (1980:286) it supports a commercial fishery in Tanzanian waters, where, off Zanzibar, catches of over 10 kg/h were taken by bottom trawls. The animals are mostly marketed fresh

Local Names : MOZAMBIQUE: Lagosta lanceira.

Literature : Fischer & Bianchi (eds), 1984:vol. 5; Williams, 1986: 14, fig. 30.

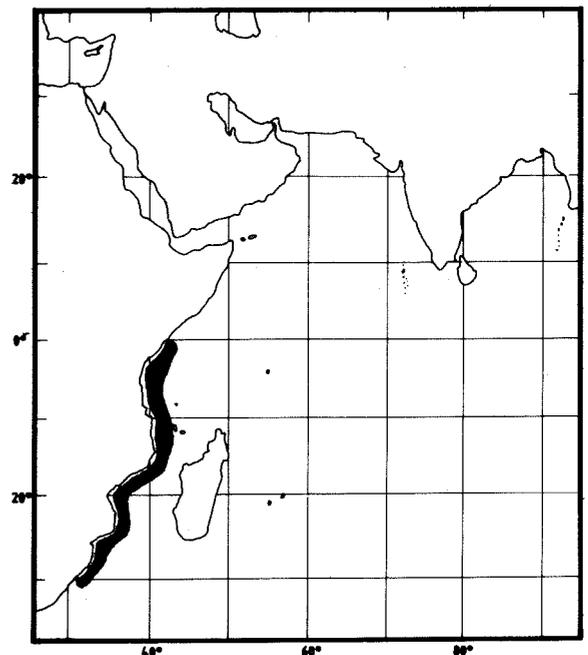


Fig. 212

Linuparus sordidus Bruce, 1965

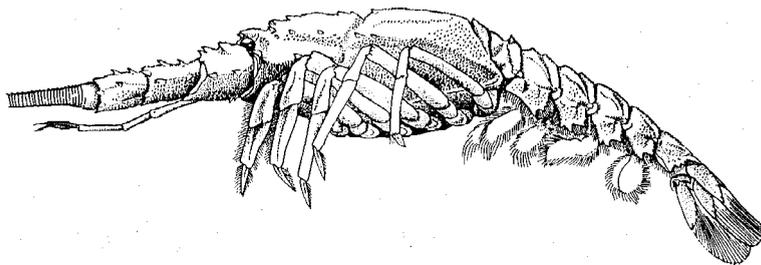
Fig. 213

PALIN Lin 2

Linuparus sordidus Bruce, 1965, *Zoologische Mededelingen*, Leiden, 41(1): 1, text-fig.1, pls. 1,2.

FAO Names : En - Oriental spear lobster

Type : Type locality: "South China Sea, 19° 40.0'N 113° 41.0'E to 19°39.5'N 113°36.0'E, 182-172 fathoms [= 315-333 m], coarse sand". Holotype female in BM, no. 1965.5.21.1 (in alcohol, condition fair); paratype in RMNH, no D 21213 (in alcohol, condition good).



lateral view

Geographical Distribution : Indo-West Pacific region: Taiwan, South China Sea and N.W. Australia (off Port Hedland, Western Australia) (Fig. 214).

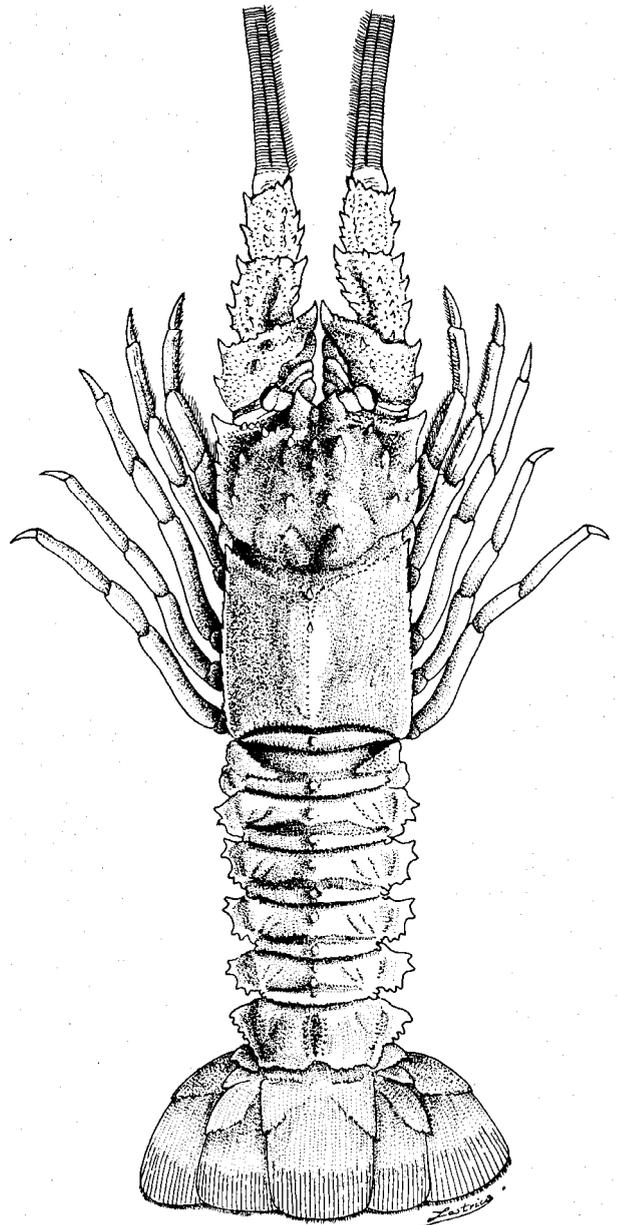
Habitat and Biology : Depth range from 200 to 333 m; bottom mud and limestone rocks.

Size : The total body length (including the antennae) of the holotype is 38 cm, carapace length 7 cm.

Interest to Fisheries : None at present. However, the size of the specimens and the fact that they occur in not very deep water, suggest that, once the right fishing grounds have been found, the species may be commercially exploited, like *L. trigonus*.

Local Names : AUSTRALIA: Spear lobster

Literature : Original description; George, 1983: 16-20; Williams, 1986.15, fig. 32.



dorsal view

Fig. 213

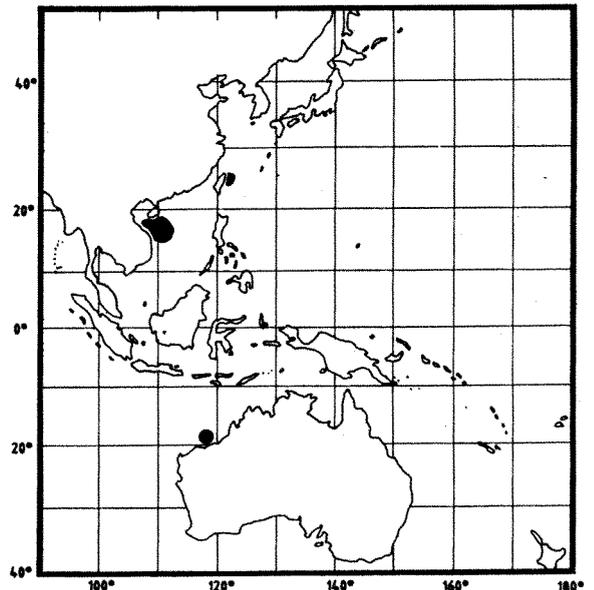


Fig. 214

Linuparus trigonus (Von Siebold, 1824)

Fig. 215

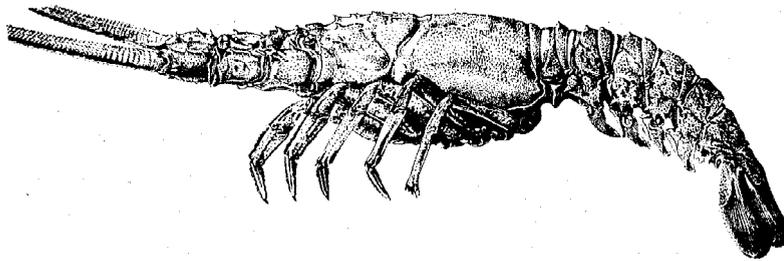
PALIN Lin 3

Palinurus trigonus Von Siebold, 1824, *De Historia Naturalis in Japonia statu*: 15. Name placed on the Official List of Specific names in Zoology, in Opinion 519 (published in 1958).

Synonyms: *Avus trigonus* - Ortmann, 1891

FAO Names : En - Japanese spear lobster.

Type : Type locality: Japan, possibly neighbourhood of Nagasaki; restricted to Omura Bay near Nagasaki, Kyushu, Japan, by Holthuis (1966:265-266). Lectotype in RMNH; no. D 5611 (dry, condition good, paralectotypes in RMNH, BM, USNM).



lateral view

Geographical Distribution: Indo-West Pacific region: Japan, Korea, China, Taiwan, Philippines, eastern and western Australia (Fig. 216).

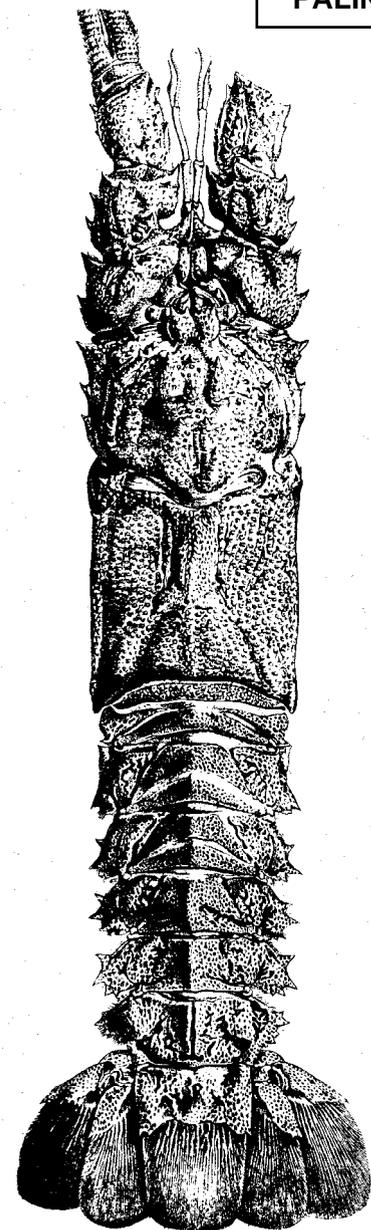
Habitat and Biology : The species has been reported from depths between 30 and 318 m. The substrate on which it is caught is described as sand or mud, sometimes with shells; some older records indicate rocky environments.

Size : Maximum total length 47 cm; carapace length 8 to 18 cm.

Interest to Fisheries : Already H. Burger around 1830, said that the species is scarce in Japan, but when caught, is used as food (Holthuis, 1966:266). Also in Korea and China the species is sold on the markets as food, but is nowhere plentiful. Chang (1964: 11) remarked that it is very scarce in Taiwan and on the markets it is priced cheaper than the other spiny lobsters because of its coarse flesh and thick shell. Motoh & Kuronuma (1980:56) reported that in the Philippines the species "is rarely offered for sale in the market", and that it is caught there by commercial trawlers. George (1983: 17) remarked that in Western Australia, off Port Hedland, *Linuparus trigonus* was trawled with deepwater Engel trawls in 200 m of water "in sufficient quantities to provide occasional excellent meals for the crew and that in Japan this same species IS the basis for a small commercial enterprise". Off Townsville, Queensland, Australia, the species "occurs in densities high enough to support an occasional fishery. The fishery is confined to a small, well-defined area of the continental slope, about 70 km by 20 km, in depths of 200 to 250 m. Here *L. trigonus* is taken mainly by prawn trawlers during their off-season" (T.J. Ward, in press).

local Names : AUSTRALIA: Spear lobster, Champagne lobster, Barking crayfish; JAPAN: Hako-ebi (= box lobster), Ishi-ebi (= stone lobster); PHILIPPINES: Uson (Ilongo).

literature : De Haan, 1841:157-158, pls.39,40; Williams, 1986 :15, figs 31,78 f-g



(from De Haan, 1841)

dorsal view

Fig. 215

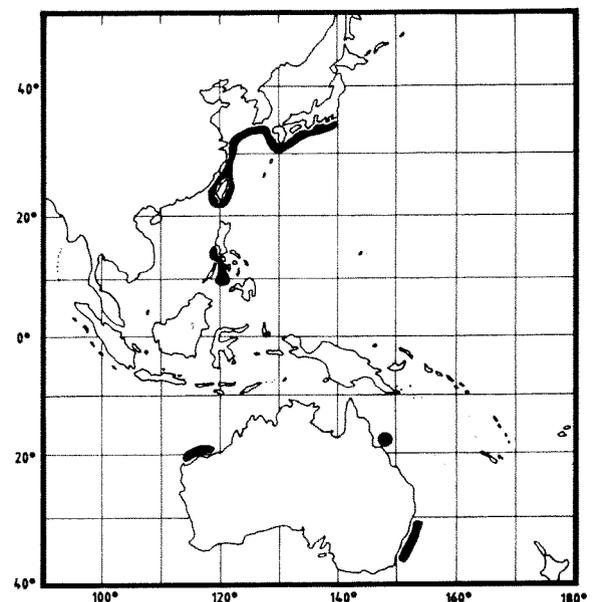


Fig. 216

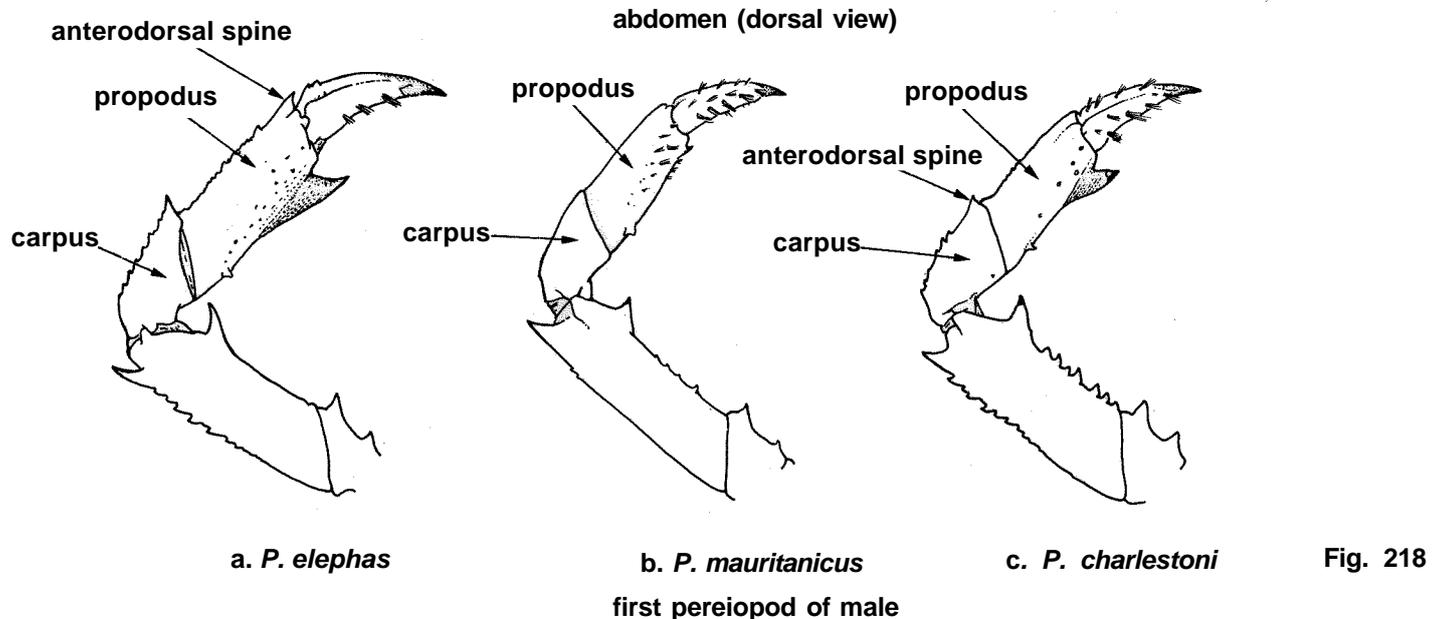
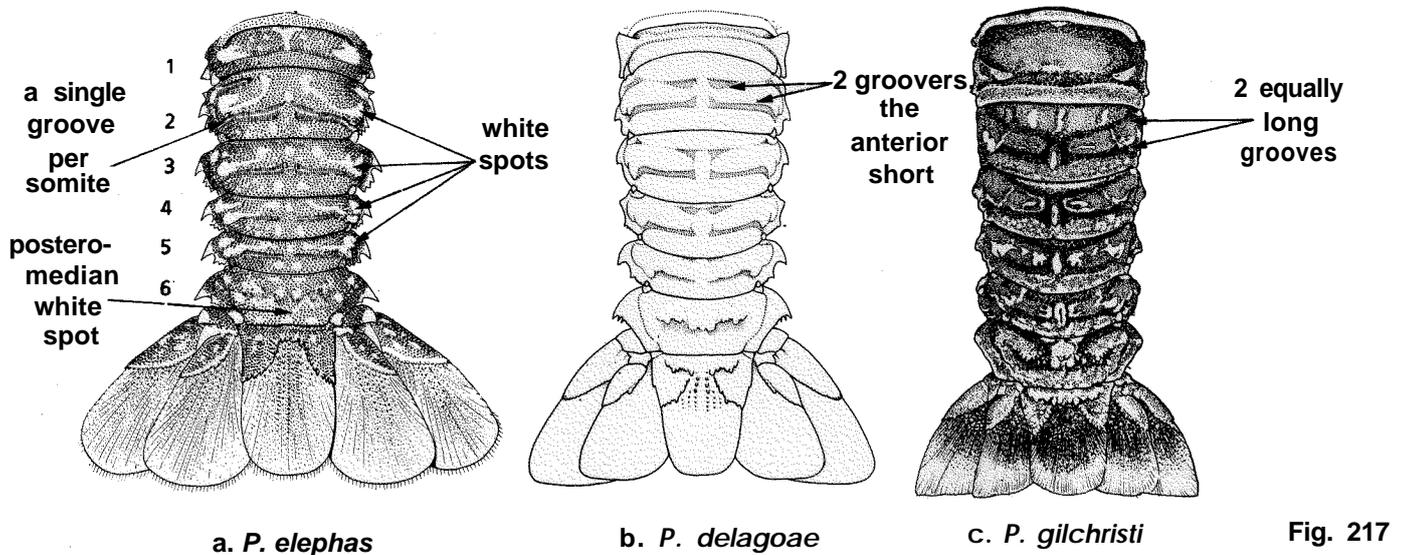
Pallinurus Weber, 1795, *Nomenclator entomologicus*:94. Gender masculine. Name emended under the plenary power of the International Commission on Zoological Nomenclature to *Palinurus*, and placed on the Official List of Generic Names in Zoology, in Opinion 519 (published in 1958).

Type Species: by monotypy: *Astacus elephas* Fabricius, 1787

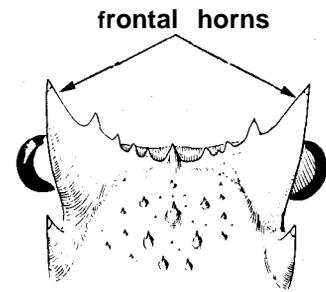
This is the oldest known among the Palinurid genera, and has a restricted distribution: it is found only in the Eastern Atlantic, Mediterranean, and off south east Africa. Five species are known, all of present or potential commercial interest.

Key to Species :

- 1a** North-eastern Atlantic, from S. Norway to the Cape Verde Islands. Abdominal somites with a single distinct transverse groove (Fig. 217a)
- 2a.** Propodus of first pereiopod of male with an anterodorsal spine (Fig. 218a). Colour dark brown or purple; abdominal somites 2 to 5 each with a distinct pair of large white spots, somite 6 with a single posteromedian white spot (Fig. 217a). Legs longitudinally streaked with brown and yellowish. Depth 0 to 70 m .. *P. elephas* (Fig. 224)
- 2b.** Propodus of first pereiopod of male without anterodorsal spine (Fig. 218b). Colour a pink or reddish marbled with white; abdominal somites irregularly marbled. Legs ringed with whitish and pink. Depth 40 to 600 m or more

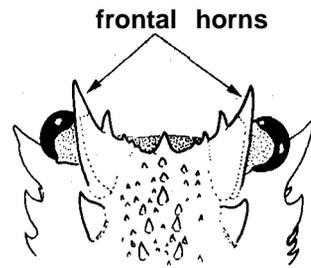


3a. Frontal horns flat, their inner margins forming with the anterior margin of the carapace a shallowly concave arc (Fig. 219a). Carapace in adult males strongly swollen. Carpus of first leg without anterodorsal spine (Fig. 218b). Eastern Atlantic from W. of Ireland to S. Senegal, including the western Mediterranean, depth from 40 to 600 m ... *P. mauritanicus* (Fig. 228)



a. *P. mauritanicus*

3b. Frontal horns with the inner margins and the anterior margin of the carapace forming a V-shaped line (Fig. 219b). Carapace in adult male not swollen. Carpus of first male leg with an anterodorsal spine (Fig. 218c). Cape Verde Islands, 50 to 300 m *P. charlestoni* (Fig. 220)



b. *P. charlestoni*

1b. South and Southeast Africa (False Bay, South Africa, to Mozambique, S.E. Madagascar). Abdominal somites 2 to 5 with two transverse grooves (Fig. 217 b, c)

4a. Anterior groove of abdominal somites 2 to 5 shorter and less distinct than the posterior groove (Fig 217b). Carapace before cervical groove naked. Merus of walking legs cylindrical and naked *P. delagoae* (Fig. 222)

4b. Anterior groove of abdominal somites 2 to 5 very deep and as hairy as the posterior groove (Fig. 217c). Carapace in front of the cervical groove pubescent. Merus of walking legs triangular in transverse section, the flat outer surface pubescent *P. gilchristi* (Fig. 226)

anterior part of carapace (dorsal view)

Fig. 219

Palinurus charlestoni Forest & Postel, 1964

Fig. 220

PALIN Palin 2

Palinurus charlestoni Forest & Postel, 1964, *Bulletin Museum National d'Histoire Naturelle*, Paris, (2)36: 100, 102, figs 2, 5, 7.

FAO Names : **En** - Cape Verde spiny lobster; **Fr** - Langouste de Cap Vert; **Sp** - Langosta de Cabo Verde.

Type : Type locality: "Iles du Cap Vert, groupe nord, de St. Vincent à Sal, entre 180 et 200 m". Holotype male in MP, no. Pa. 331; paratypes in MP, Pa. 84, Pa. 330; RMNH D. 19544. All type material in alcohol, in excellent condition.

Geographical Distribution : So far known only from Cape Verde Islands (Fig. 221).

Habitat and Biology : Depth range from 50 to 300 m, perhaps deeper; on an uneven rocky bottom, sometimes on steep slopes.

Size : Maximum total body length to 50 cm, average length to 40 cm.

Interest to Fisheries : Minor. In 1963 the first attempts were made for a commercial fishery, using lobster pots. In the most productive areas, two lobsters were caught per pot per day. Due to the rough bottom, the loss of pots was rather substantial. Longhurst (1970:277) reported actual landings of 10 to 20 tons.

Literature : Original description. Fischer, Bianchi & Scott (eds), 1981:vol. 5; Williams, 1986: 16, fig. 36.

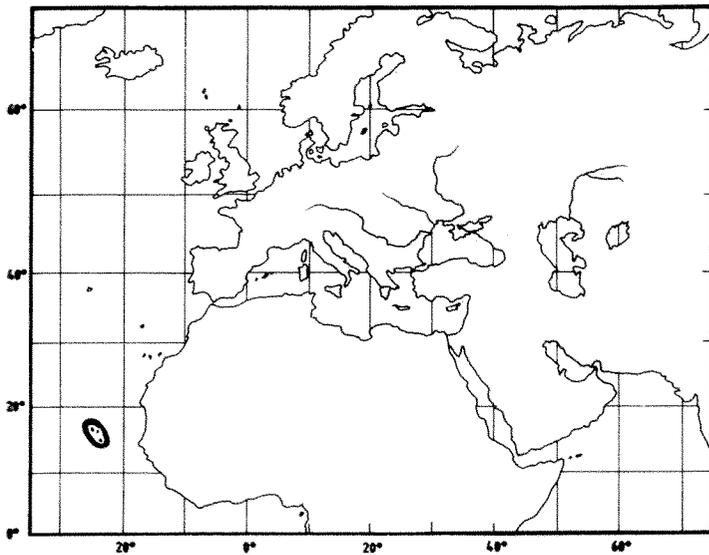


Fig. 221

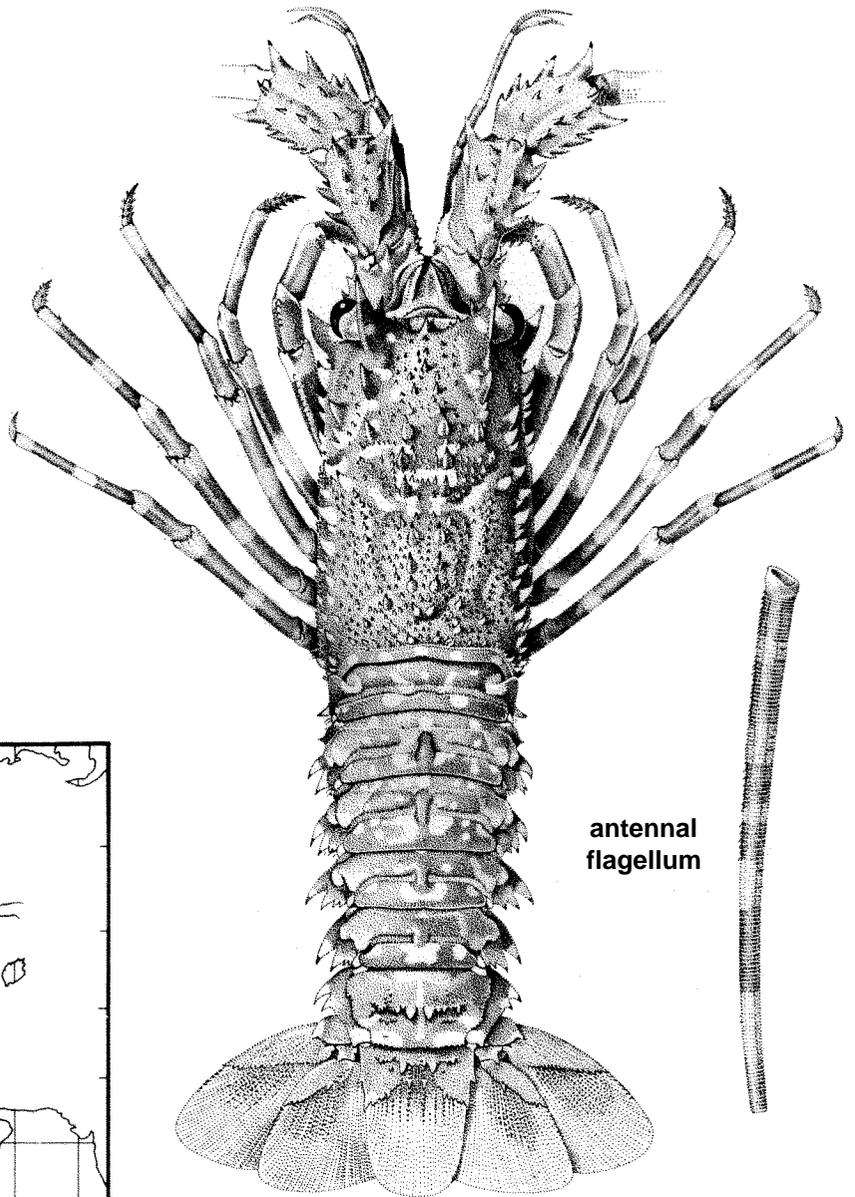


Fig. 220

Palinurus delagoae Barnard, 1926

Fig. 222

PALIN Palin 4

Palinurus gilchristi delagoae Barnard, 1926, *Transactions Royal Society South Africa*, 13: 123, pl. 11.

Synonyms : *Palinurus gilchristi natalensis* Barnard, 1926.

FAO Names : En - Natal spiny lobster; Fr - Langouste du Natal; Sp - Langosta del Natal

Type : Type locality: of *P. gilchristi delagoae*: off Delagoa Bay, S. Mozambique, "25°58'S., 33°5'E., 228 metres, sand and shell"; male type evidently lost, a neotype selected by Berry & Plante, 1973:374; the neotype. locality is: "off Tongaat, Natal, 324 m", South Africa. Neotype male in SAM, no. A 13179 (in alcohol condition good).

Type locality of *P. gilchristi natalensis*: "Natal coast, from off Umkomaas River in the south as far north as off Tugela River and off Delagoa Bay, 100-260 fathoms [=183-480 m];syntypes in SAM.

Geographical Distribution : Indo-West Pacific region: East coast of Africa from 17°S (Mozambique) to 30°S (Natal, South Africa), south east Madagascar (Fig. 223).

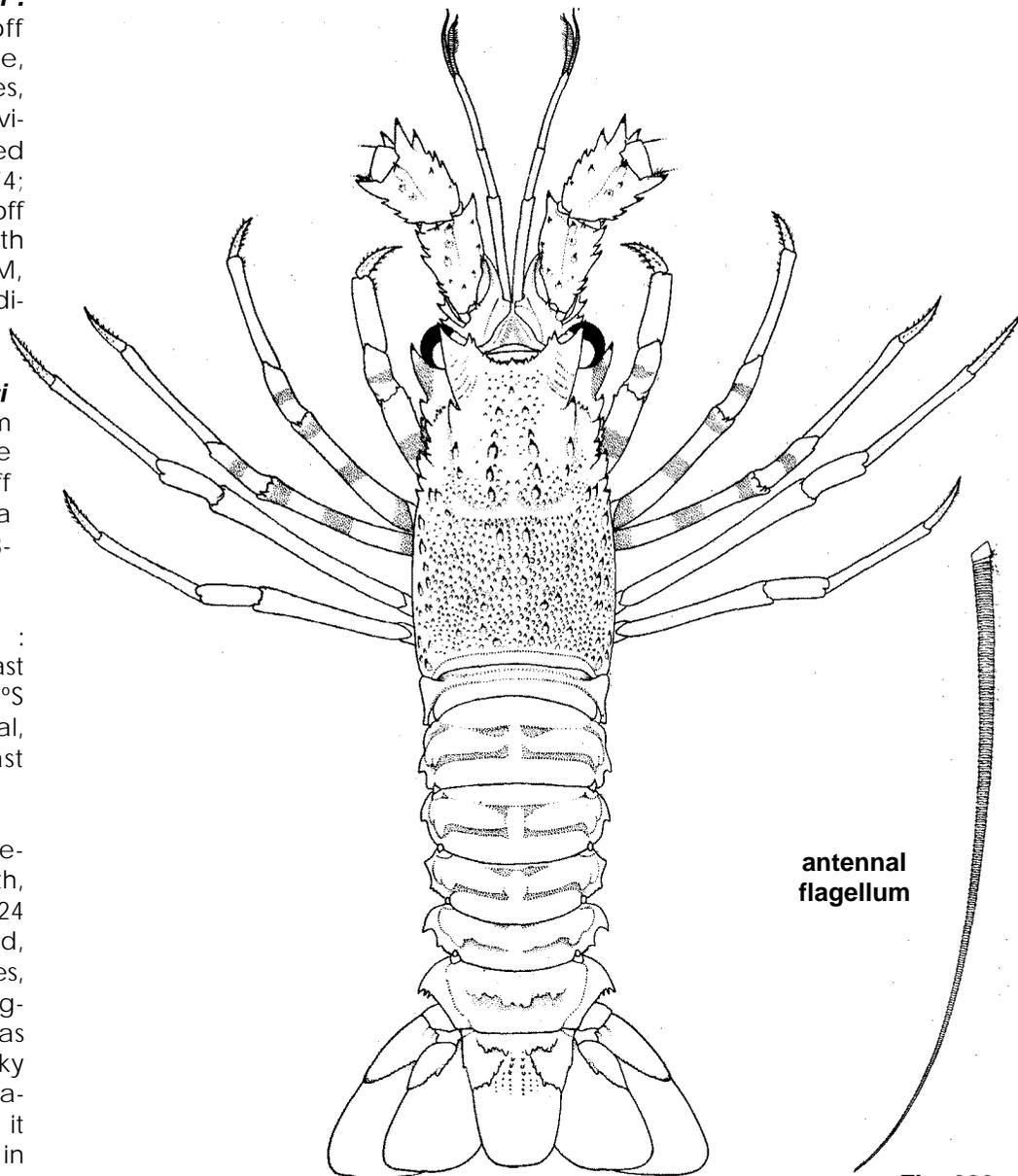
Habitat and Biology : Reported from 0 to 400 m depth, usually between 180 and 324 m. Off South Africa it is found, on muddy or sandy sub-strates, sometimes with coral fragments; off Madagascar it has been reported from a rocky substrate The species is gregarious and seems to migrate; it can sometimes be caught in enormous numbers.

Size : Maximum total body length 35 cm, carapace length to 17 cm; average carapace length about 10 cm.

Interest to Fisheries : Off south east Africa the species is taken by trawlers, while off Madagascar, lobster pots were used during experimental fishing. It is marketed frozen. The annual catch was 89 tons in 1987 and 25 tons in 1988 (FAO Yearbook of Fishery Statistics, 1990).

Local Names: MOZAMBIQUE: Lagosta de profundidae:

Literature : Berry & Plante, 1973:374-7, text-fig.1, pl. 19; Fischer & Bianchi (eds), 1984:vol.5; Williams, 1986: 15, fig. 33



antennal
flagellum

Fig. 222

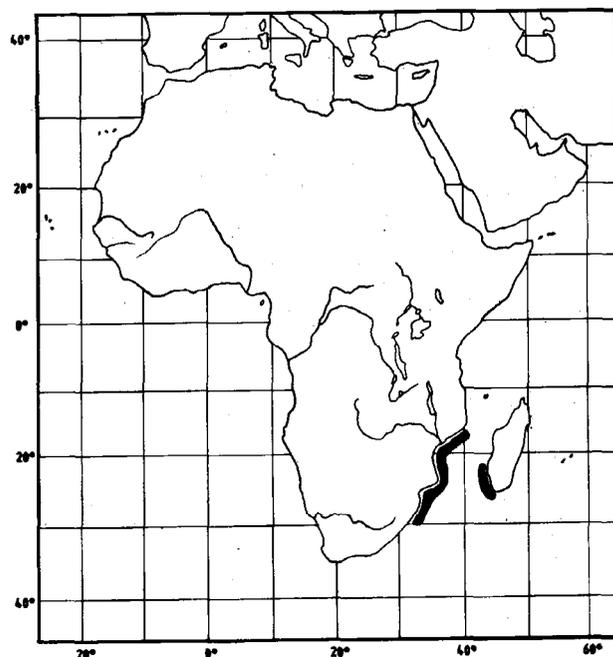


Fig. 223

Palinurus elephas (Fabricius, 1787)

Fig. 224

PALIN Palin 1

Astacus elephas Fabricius, 1787, *Mantissa Insectorum*, 1 :331. Name placed on the Official List of Species Names in Zoology in Opinion 519 (published in 1958).

Synonyms : *Cancer elephas* - Gmelin, 1789; *Cancer locusta* Wulfen, 1791 (not *Cancer locusta* Linnaeus, 1758) (= *Gammarus locusta* (L.)); *Palinurus quadricornis* Fabricius, 1798; *Palinurus vulgaris* Latreille, 1803; *Palinurus locusta* - Olivier, 1811; *Palinurus langusta* Rafinesque, 1814 (nom.nud.); *Pagurus maculatus* Bowdich, 1825 (not *Pagurus maculatus* Risso, 1827 (= *Paguristes eremita* (L., 1767))); *Palinurus marinus* Bate, 1868. “[*Palinurus*] *adriaticus*, Costa” was cited by Carus (1885:487) under *Palinurus* and treated as a good species of that genus. Stephensen (1923:77) treated “*Palinurus adriaticus* Costa” as a synonym of *P. elephas* (which he indicated as *P. vulgaris*). However, there exists no *Palinurus adriaticus* Costa, as Costa never described such a species. He did describe *Palaemon adriaticus* in “Fauna del Regno di Napoli” (Crustacei; Pandalus):7 in 1844-1847. It is clear that with *Palinurus adriaticus* Carus really meant *Palaemon adriaticus* Costa, since he cited textually Costa’s diagnosis for that species. It is interesting that Carus (1885:474) listed *Palaemon adriaticus* Costa under the species incertae of the genus *Palaemon*, again with the same diagnosis.

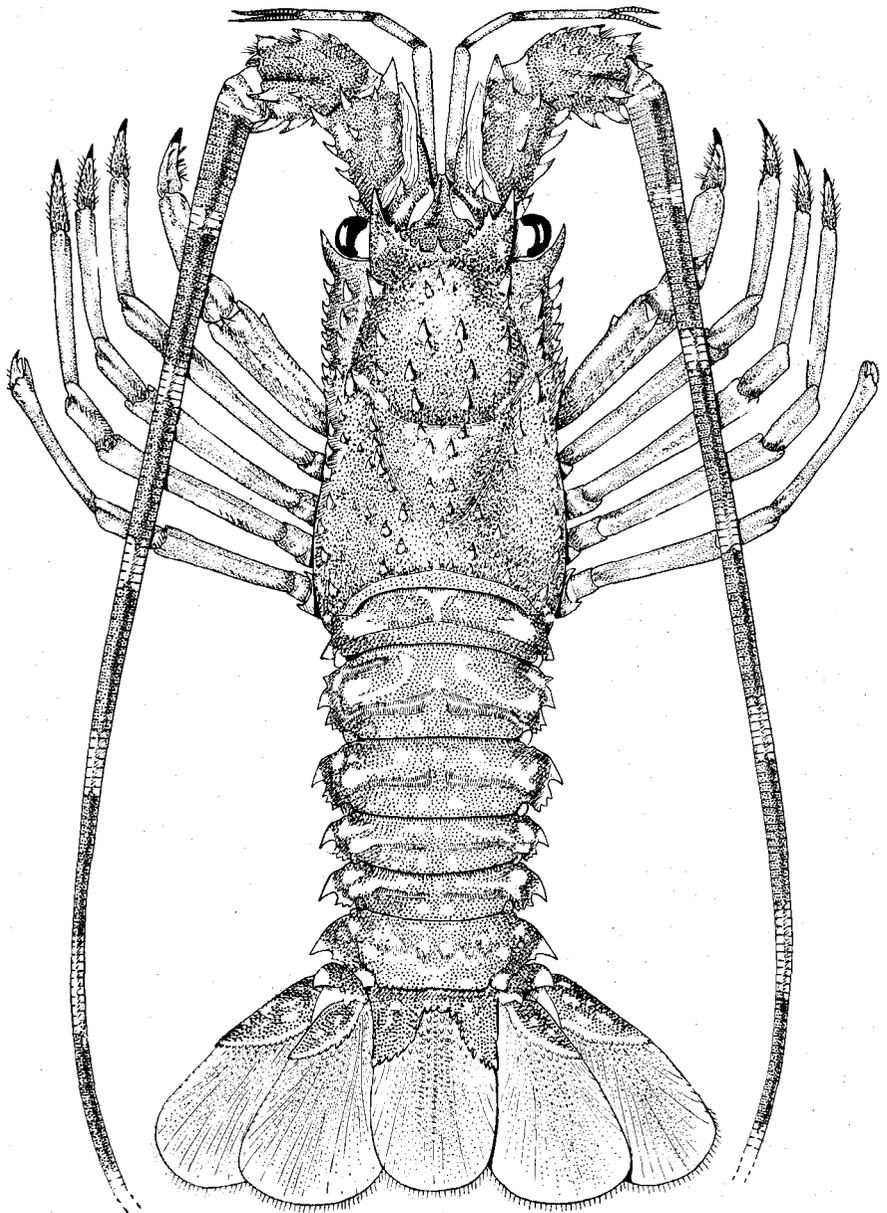


Fig. 224



anterior part of carapace (dorsal view)

FAO Names : **En** - Common spiny lobster; **Fr** - Langouste rouge; **Sp** - Langosta común.

Type : Type. locality of *Astacus elephas* Fabricius, 1787 (and *Palinurus quadricornis* Fabricius, 1798): the original statement of the type locality “Habitat in Americae meridionalis Insulis” is erroneous. As shown in Fabricius’ description of the large supraorbital horns as dentate, and by his reference to Herbst’s (1792:2(2): Pl.29 fig.I), his specimen was the common European spiny lobster (in 1787 Fabricius referred to the then still unpublished figure by Herbst). Herbst gives as the locality of his material: “im Mittelländischen Meer” and elaborates: “In Italien wird er . . . häufig gegessen und auf den Märkten verkauft”. We may therefore correct the type locality to “Italy”. A syntype, originally preserved dry, but recently transferred to alcohol is kept in UZM, condition reasonable. A second dry syntype is in ZMB, no. 19649, condition good; this is the specimen figured by Herbst, 1792.

Type locality of *Cancer locusta* Wulfen: near Rovinj, Yugoslavia. The type was bought at the fish market of Trieste, Italy (for 2 florins) from a fisherman from Rovinj: “Non aliter, quam duorum florenorum pretio hunc mihi Tergestino in foro Cancrum piscator vendidit Rovignensis” (Wulfen, 1791:1314); its present whereabouts unknown.

Type locality of *Palinurus vulgaris* Latreille: "dans l'Océan Asiatique et dans la Méditerranée". Types in MP no longer extant (not located in 1989).

Type locality of *Palinurus marinus* Bate, 1868. The name "marinus" probably is a lapsus for "vulgaris", but if the specific name is considered to be new, the type locality of the species is the south coast of Devon and Cornwall, U.K. "mostly between Bigbury Bay [Devon] toward the east, and the Dodman [Cornwall] toward the west"; whereabouts of type material unknown.

Type locality of *Pagurus maculatus* Bowdich: Madeira. Types probably no longer extant.

Geographical Distribution : Eastern Atlantic, from southwestern Norway to Morocco, also in the Mediterranean, except the extreme eastern and south eastern parts (Fig. 225).

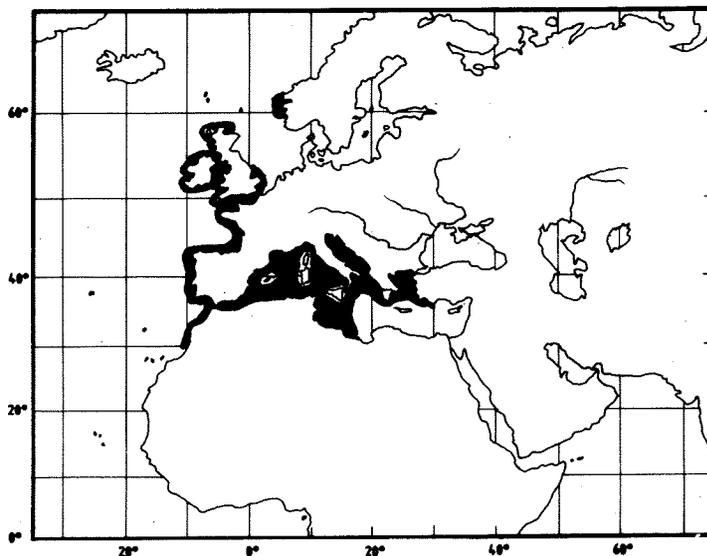


Fig. 225

Habitat and Biology : On rocky bottoms, rarely on sand, in depths from 5 to 160 m, mostly between 10 and 70 m. Oviparous females from September-October to February-March.

Size : Maximum total body length 50 cm, but usually not larger than 40 cm.

Interest to Fisheries : The species is mostly caught with lobster pots, occasionally on hook-and-line and by spearing, rarely with trawls, tangles, or trammel nets. Longhurst (1970:260) reported the catching of this species "by full-time SCUBA divers off southwest England". In the central and western Mediterranean the species is regularly found at fish markets, and in the eastern Atlantic, outside the Mediterranean, it is fished on a minor scale in England, and more intensively in France and Portugal. No catch statistics are known, but probably the catches of *Palinurus* spp. reported in the FAO Yearbook of Fisheries Statistics correspond partly to *P. elephas* and partly to *P. mauritanicus* (4921 tons in 1987 and 7869 tons in 1988).

Local Names : CYPRUS: Astakos; DENMARK: Langust; FRANCE: Langouste, Langouste commune, Langouste européenne; GERMANY: Languste, Europäische languste, Gemeine languste; GREECE: Astakis; ITALY: Aragosta mediterranea (official name), Aragosta, Aligusta, Arigusta; MALTA: Agusta; MONACO: Lengusta; MOROCCO: Azeffane, Bakhouch, Langouste; NETHERLANDS: Langoest, Hoornkreeft; NORWAY: Langust; PORTUGAL: Lagosta; SPAIN: Langosta, Llagosta; SWEDEN: Langust; TUNISIA: Jarradh el bahr, Jrad bharr, Sid; TURKEY: Bocek, Beudic; UK: Spiny lobster, Crawfish, Red crab, Sea crayfish; YUGOSLAVIA: Jastog.

Literature : Rolland, 1881:234 (for regional French names); Palombi & Santarelli, 1961:369-370 (for regional Italian names); Fischer, Bianchi & Scott (eds), 1981 :vol. 5; Fischer, Bauchot & Schneider (eds), 1987:307-308.

Palinurus gilchristi Stebbing, 1900

Fig. 226

PALIN Palin 5

Palinurus gilchristi Stebbing, 1900, South African Marine Fisheries Investigations, 1:31, pl. 1.

FAO Names : **En** - Southern spiny lobster; **Fr** - Langouste du Sud; **Sp** - Langosta del sur.

Type : Type locality: "False Bay", southern Cape Province, South Africa, and "25 miles S.W. 1/4 w. from Cape St. Blaize" near Mosselbaai, Cape Province, South Africa; syntype male in SAM, no. A 970 (in alcohol).