

Habitat and Biology : Depth range from 0 to 35 m. but usually not deeper than 25 m; in deep crevices in rocks, among boulders, etc. The animals are nocturnal.

Size : The carapace length varies from 3 to 19 cm (males) and 2 to 15 cm (females), the total body length from 7 to 39 cm (males) and 5 to 38 cm (females). Ovigerous females with carapace length 5 to 10 cm have been reported. In some areas the population consists of animals much smaller than in other areas.

Interest to Fisheries : The species is fished for throughout its range. In St. Helena it is reported to be of commercial importance. In the Cape Verde Islands it is the most abundant coastal lobster, and it might support a more intensive fishery. In Brazil it is fished and marketed in the states where it occurs, as well as at Fernando do Noronha and Atol das Rocas.

The species is caught with lobster traps, by diving and by hand (at night with torches in shallow water). In Brazil it is often taken together with *Panulirus argus* or *P. laevicauda*.

Local Names : BRAZIL: Lagosta pintada, Lagosta encarnadinha, iagosta roxa, Lagostinho, Potiquiquiya; CAPE VERDE ISLANDS: Lagosta vermelha; FRANCE: Langouste brune des Iles du Cap Vert; ST HELENA: Long legs.

Literature : Fischer, Bianchi & Scott (eds), 1981 :vol. 5; Williams, 1986:20, fig. 47

Panulirus gracilis Streets, 1871

Fig. 263

PALIN Panul 13

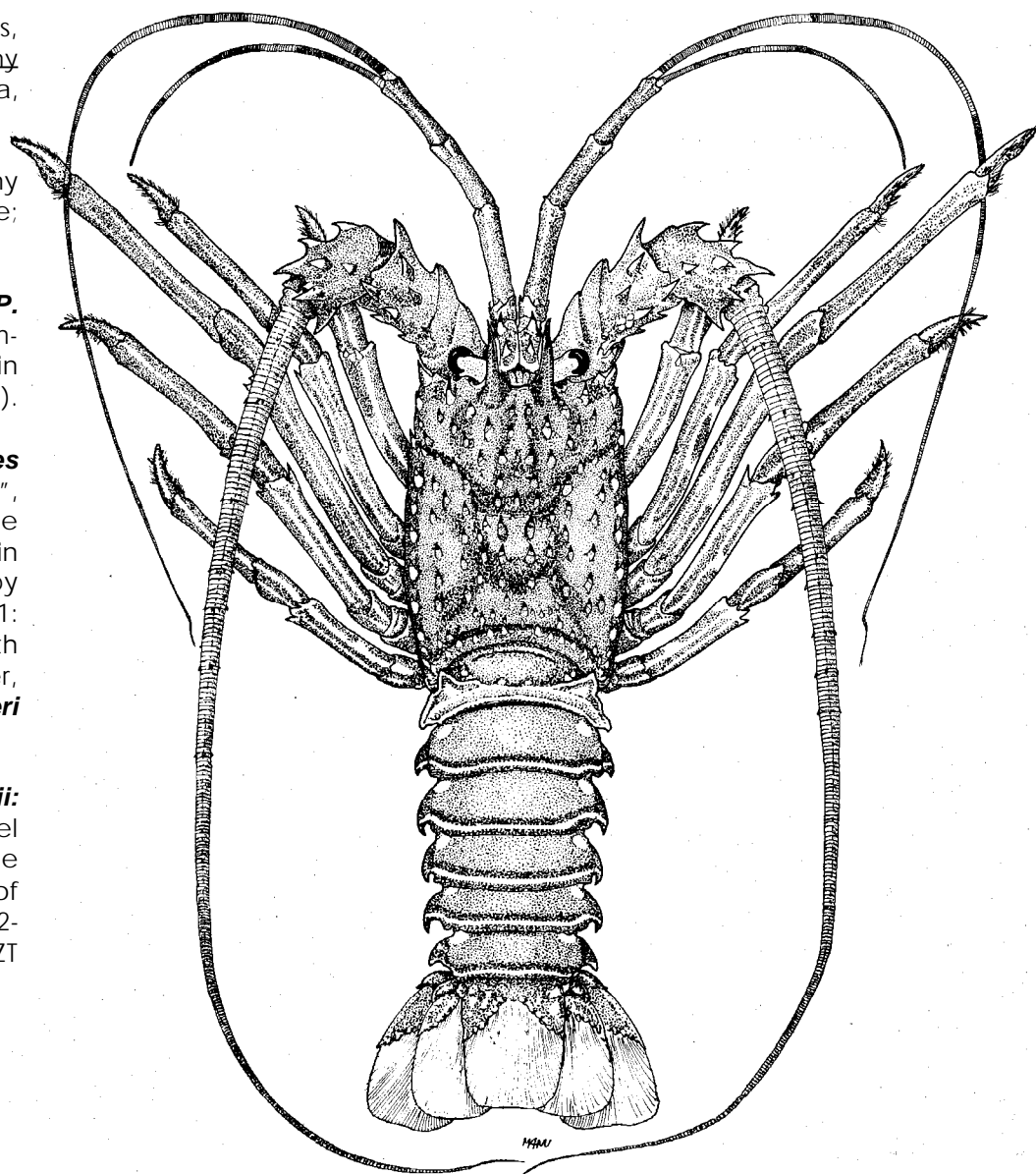
Panulirus gracilis Streets, 1871, *Proceedings Academy Natural Sciences*, Philadelphia, 1871: 225, pl 2, fig. 2.

FAO Names: En - Greenspiny lobster; Fr - Langouste verte; Sp - Langosta barbona.

Type : Type locality of *P. gracilis*: "Gulf of Tehuan-tepec, Mexico". Holotype in ANSP (not located in 1989).

Type locality of *P. brevipes* and *P. paessleri*: "Mazatlan", Mexico. The male syntype specimen from this locality in ZMH, no. 8074, is chosen by Holthuis & Villalobos (1961: 265) as the lectotype of both *Palinurus brevipes* Pfeffer, 1881 and *Palinurus paessleri* Pfeffer, 1897.

Type locality of *P. martensii*: "sulle coste Pacifiche del Darien" (= region of Golfo de San Miguel, Pacific coast of Panama; see E. Festa, 1909: 12-53, map). Syntypes in MZT no.Cr. 1185.



(combined after Holthuis & Villalobos, 1961, and Holthuis & Loesch, 1967)

Fig. 263

Geographical Distribution : Eastern Pacific from Baja California (Mexico) to Paita (Peru), and the Galapagos Islands (Fig. 264).

Habitat and Biology : Inhabits shallow coastal waters (0 to 18 m); among rocks and in cracks and crevices. The animals are nocturnal.

Size : Maximum total body length 32 cm (males) and 30 cm (females); carapace length 1 to 13 cm (males), and 1 to 12 cm (females).

Interest to Fisheries : The species is fished for commercially throughout its range and is sold in local markets. It is taken with trammel nets, by hand or with lobster pots.

Local Names : ECUADOR: Langosta Verde; Blue lobster, Langosta azul (Galapagos Islands); MEXICO: Langosta Verde, Langosta güera, Langosta de playa, Langosta caribe; PANAMA: Langosta barbona; PERU : Langosta Verde.

Literature : Holthuis & Villalobos, 1961:252, figs; Holthuis & Loesch, 1967:220, pl. 9; Williams, 1986:24, figs 56,80 e-f.

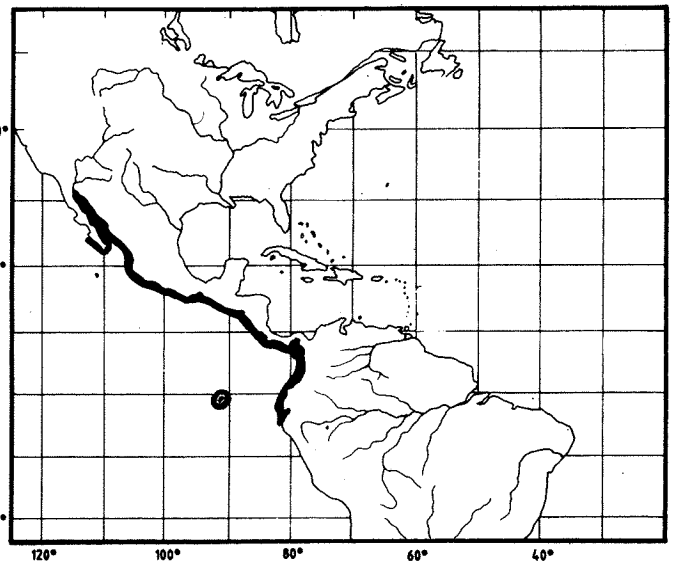


Fig. 264

Panulirus guttatus (Latreille, 1804)

Fig. 26

PALIN Panul 2

Panulirus guttatus Latreille, 1804, Annales Muséum Histoire Naturelle, Paris, 3:392.

Synonyms: ***Palinurus (Senex) guttatus*** - Pfeffer, 1881.

FAO Names : **En** - Spotted spiny lobster; **Fr** - Langouste tachetée; **Sp** - Langosta moteada.

Type : Type locality: "dans les mers des Grandes-Indes". Through the lectotype selection by Holthuis (1959: 126) the type locality is restricted to Suriname. Whereabouts of lectotype unknown. In MP are two dry specimens of this species (nos. Pa 440 and Pa 441) in a reasonable condition, labelled "Antilles", which may be syntypes.

Geographical Distribution : Western Atlantic: Bermuda, Bahamas, South Florida, Belize, Panama, Caribbean Arc from Cuba to Trinidad, Curaçao, Bonaire, Los Roques, Suriname. (Fig. 266).

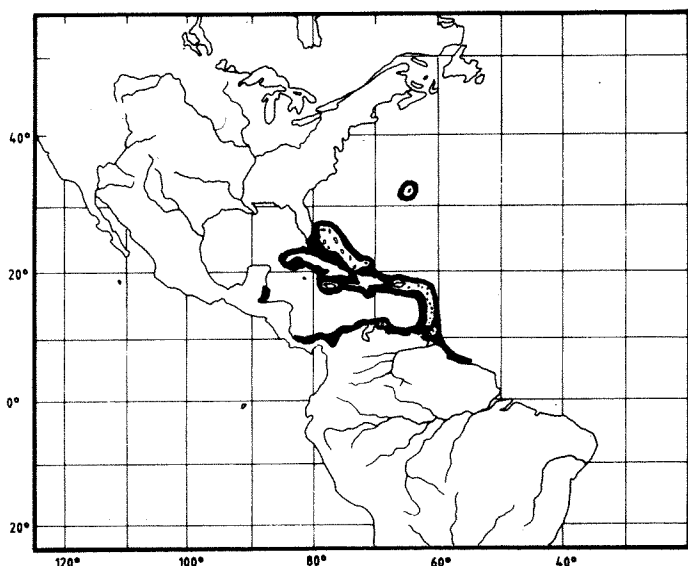


Fig. 266

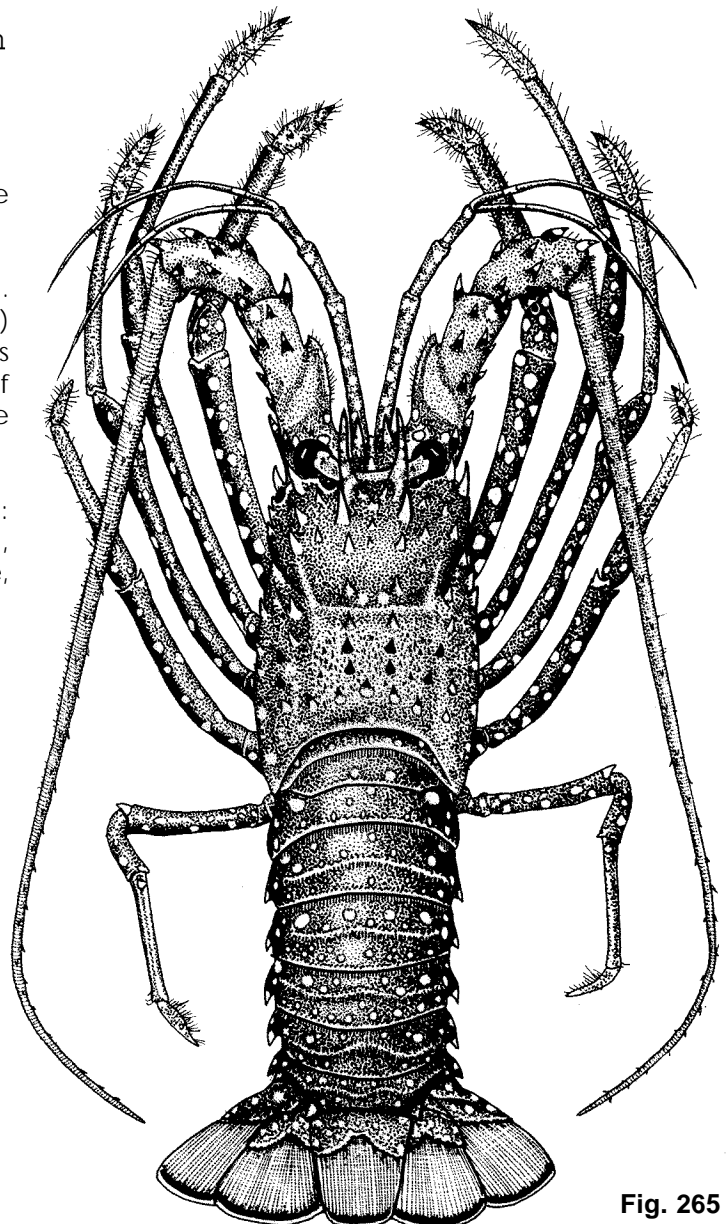


Fig. 265

Habitat and Biology : A shallow water species, inhabiting rocky areas, mainly in crevices.

Size : Maximum total body length about 20 cm, commonly to 15 cm

Interest to Fisheries : The species is taken throughout its range, but rather incidentally; there is no special fishery for it. It is taken by hand or speared and occasionally caught in traps, mostly those set for other species. Marketed fresh and mostly used for local consumption.

Local Names : BERMUDA: Guinea chick lobster, Star lobster, Spotted spiny lobster; CUBA: Langosta manchada, Langosta Verde; MARTINIQUE: Homard bissie, Homard brésilien; NETHERLANDS ANTILLES: Kreef spanjo, Kreef indjan (Curaçao, Papiamentu language), Spanish lobster (St. Martin), Sand lobster (St. Eustatius); USA: Spotted lobster, Guinea lobster, Rock lobster, Spotted crawfish, Spotted spiny lobster.

Literature : Fischer (ed), 1978:vol. 6; Williams, 1986: 19, figs 43,78o,79a.

Panulirus homarus (Linnaeus, 1758)

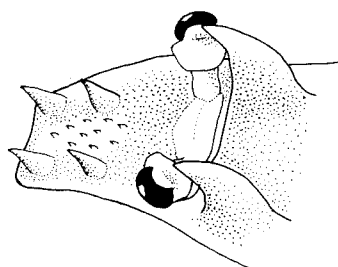
Fig. 267

PALIN Panul 6

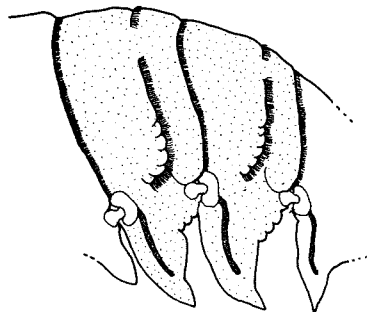
Cancer homarus Linnaeus, 1758, *Systema Naturae*, (ed. 10)1 :633.

Synonyms: *Astacus homarus* - Fabricius, 1775; *Palinurus homarus* - Fabricius, 1798; *Palinurus dasypus* H. Milne Edwards, 1837; ? *Palinurus spinosus* H. Milne Edwards, 1837; *Palinurus burgeri* De Haan, 1841; *Palinurus (Senex) burgeri* - Pfeffer, 1881; *Senex dasypus* - Ortmann, 1891; *Panulirus dasypus* - Henderson, 1893; *Panulirus burgeri* - Ortmann, 1897; *Panulirus burgeri megasculpta* Pesta, 19 15; *Panulirus homarus rubellus* Berry, 1974.

FAO Names : **En** - Scalloped spiny lobster; **Fr** - Langouste festonnee ; **Sp** - Langosta festoneada.



antennular plate



abdominal somites
(lateral view)

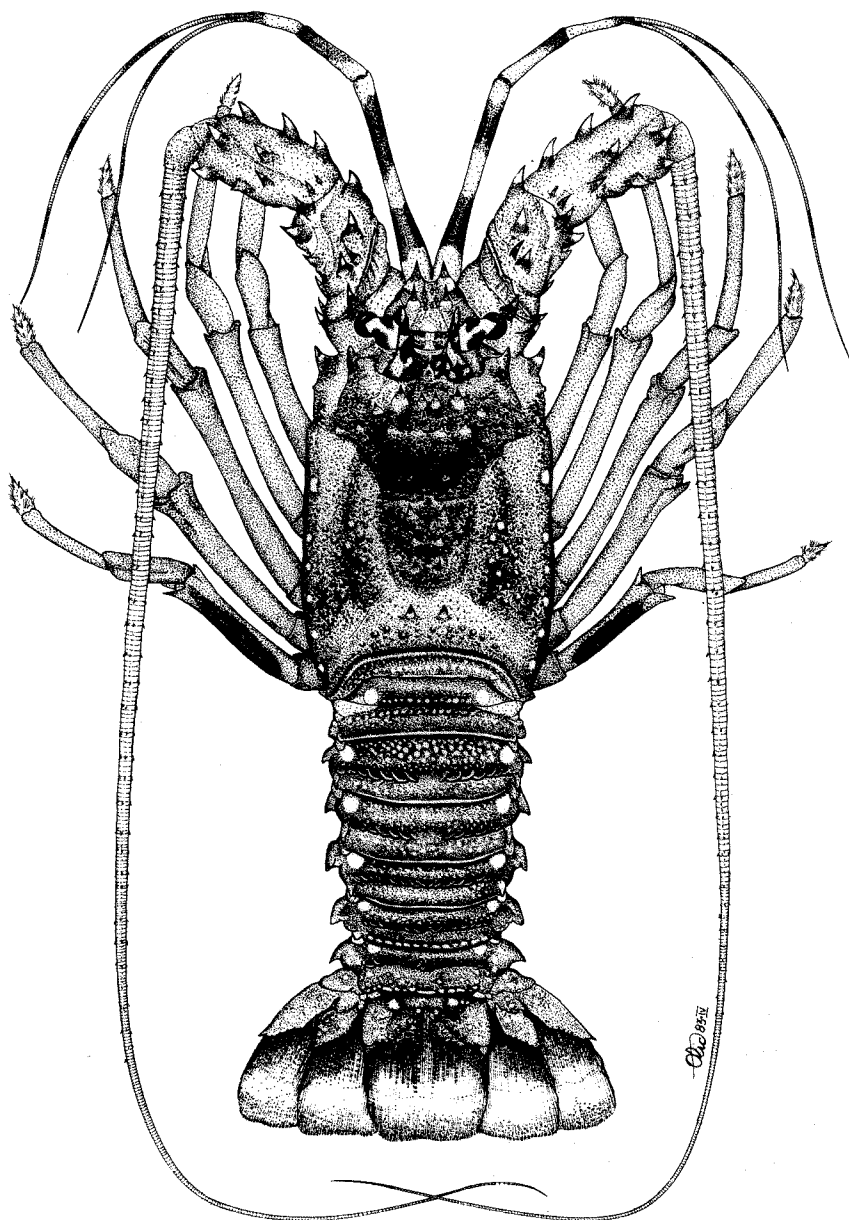


Fig. 267

Type : Type locality of *Cancer homarus*: "Habitat in Mari Asiatico". Lectotype is the specimen figured by Rumphius (1705, Amboinsche Rariteitkamer: pl. I fig. A). The figure was drawn in Holland, as Rumphius had not provided an illustration himself. As noted in Rumphius' book (1705:3) the figure was prepared after a specimen in the collection of Henricus d'Acquet, then burgomaster of Delft. The specimen is now lost, but d'Acquet's collection of water colours of this material is still extant and held by the Koninklijk Instituut voor de Tropen (Royal Institute for the Tropics, formerly Colonial Institute) in Amsterdam. The figure of the lectotype of *Cancer homarus* has the following legend "9: Augusti 1698: Astacus Maximus Ambonensis egregie coloratus". The type locality of *Cancer homarus* thus definitely is Amboina, Moluccas, Indonesia.

Type locality of *Palinurus dasyopus*: "Habite les mers de l'Inde". Type material in MP, no longer extant (not located in 1989).

Type locality of *Palinurus burgeri*: Japan, probably Nagasaki area. Holotype male in RMNH, no. D 21129.

Type locality of *Panulirus burgeri megasculpta*: "Gischin (= Kischin) an der Südküste Arabiens" (= Qishn, South Yemen), 5 male, 2 female syntypes in NMW.

Type locality of *Panulirus homarus rubellus*: South Africa (Natal and Zululand), s. Mozambique and S.E. Madagascar. Syntypes in SAM, in RMNH, no. D 29843 (in alcohol, condition good), and in BM, no. 1928.12.1.326 and 1925.8.18.86-87 (in alcohol, condition fair)

Geographical Distribution : Indo-West Pacific region: East Africa to Japan, Indonesia, Australia, New Caledonia and probably the Marquesas Archipelago (Fig. 268). The nominotypical form (*Panulirus h. homarus*) is found throughout the range of the species; *P. homarus megasculpta* is only known from the northern Arabian Sea (Socotra, south coast of Arabia, perhaps west coast of India); *P. h. rubellus* inhabits S.E. Africa (Mozambique to Natal) and S.E. Madagascar.

Habitat and Biology : Inhabits shallow waters between 1 and 90 m depth, mostly between 1 and 5 m; among rocks, often in the surf zone, sometimes in somewhat turbid water. The species is gregarious and nocturnal.

Size : Maximum total body length 31 cm, carapace length 12 cm. Average total body length 20 to 25 cm.

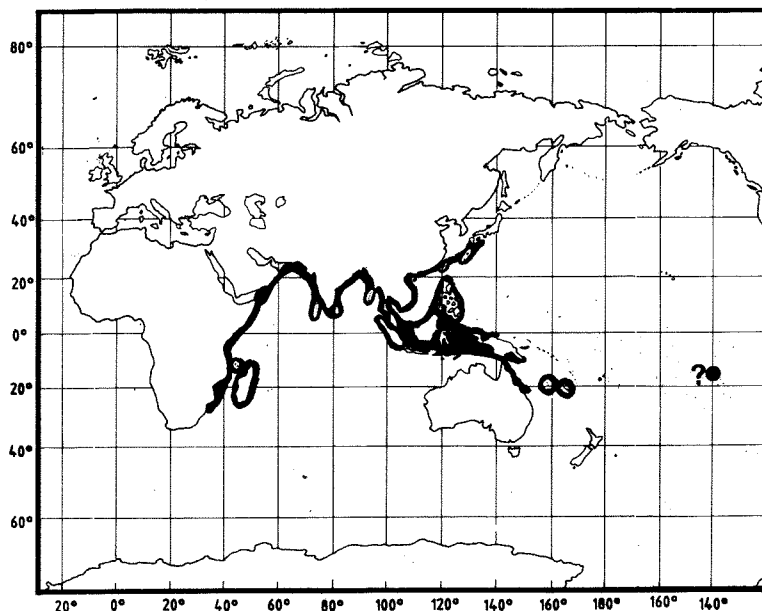


Fig. 268

Interest to Fisheries : In South Africa, until 1965 the exploitation of this species was "restricted to the efforts of Bantu children in the intertidal zone, and of divers in somewhat deeper waters" (Heydorn, 1969: 1). In 1969, a company was formed for the exploitation of the species on a commercial basis. Although off the S.E. African coast (Natal) *P. homarus* is the most frequent of the *Panulirus* species, on the East African coast (Zanzibar, Kenya) it belongs to the less common lobsters. In S.E. Africa it is caught with baited lines, baited nets and traps. Off Somalia, the annual catch is about 120 tons. It is the most important contributing species to the lobster fishery off the Indian S.W. and s. coast (Kerala and Tamil Nadu), it is caught there with anchor hooks, traps and gill nets, and supports a lucrative freezing industry (Jones, 1967:1339). Gruvel (1911:33,34) remarked that the species (evidently ssp. *rubellus*) "se prête . . . à une exploitation industrielle intéressante" in S.E. Madagascar. In the Philippines the species "is abundantly caught by gill nets particularly after heavy rains" (Motoh, 1980:50,51). In Taiwan the species is common in the markets from spring to autumn (Chang, 1964:6, fig. 4; 1965:36,37). Also in Thailand the species is offered for sale in markets especially in the southern area. However, the fishery is mostly local, and the animals are marketed fresh or cooked, in some areas there is a minor export of frozen tails. In most places the species is caught by hand, with traps, gill nets, cast nets, baited lines etc. In Thailand, mounted specimens often in fancy glass cases, are sold to tourists (e.g. in Rayong).

Local Names : INDONESIA: Udang karang; JAPAN: Kebuka ise-ebi, Samehada ise-ebi; MOZAMBIQUE: Lagosta escamosa; PHILIPPINES: Banagan (also used for other species of the genus); THAILAND: Kung mangkon (also used for other species of the genus).

Literature : Fischer & Bianchi (eds), 1984:vol. 5; Williams, 1986:17, figs 38,78j.

Remarks: A possible synonym of *Panulirus homarus* is *Palinurus spinosus* H. Milne Edwards, 1837. That species was described as having 4 teeth on the antennular plate, a transverse groove on each abdominal somite as *P. guttatus*, 3 or 4 denticles on the posterior margin of the abdominal pleura, the abdomen with numerous small specks and no distinct lines or spots on the legs. The morphological characters would fit *P. homarus*, *P. interruptus* and *P. regius*, but the colour characters are most like those of *P. homarus*. For the time being *P. spinosus* is therefore regarded here as a probable synonym of the present species. The type material in MP is no longer extant (in 1989).

Panulirus inflatus (Bouvier, 1895)

Fig. 269

PALIN Panul 14

Palinurus inflatus Bouvier, 1895, Bulletin Museum Histoire Naturelle, Paris, 1:8.

Synonyms: *Palinurus digueti* Gruvel, 1911; a manuscript name cited by Gruvel, 1911, in the synonymy of *P. inflatus* of which name it is an objective synonym.

FAO Names : En - Blue spiny lobster; Fr - Langouste bleue; Sp - Langosta azul.

Type : Type locality of *P. inflatus* and *P. digueti*: "Basse Californie" (= Baja California, Mexico). Type specimens in MP, no. Pa 412 (27 cm long), Pa 446 (23 cm) both dry in rather good condition and labelled *P. digueti*.

Geographical Distribution : Eastern Pacific region: west coast of Mexico from Baja California to Puerto Angel (Oaxaca) (Fig. '270); a record from San Diego, California, USA, needs verification.

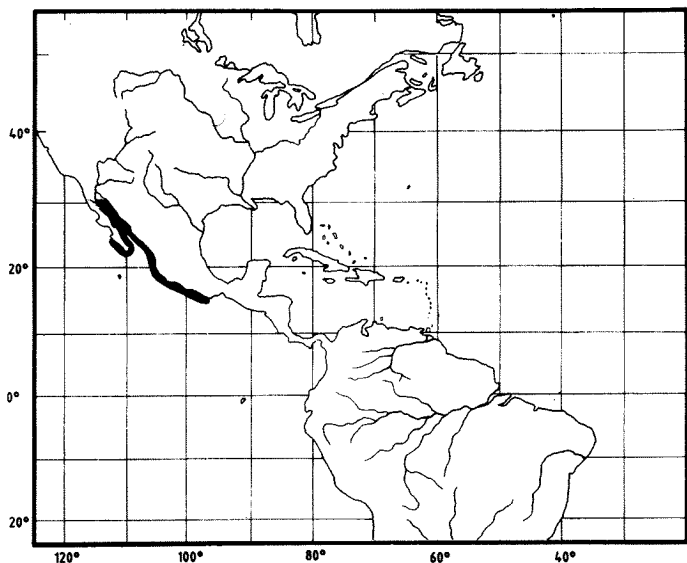


Fig 270

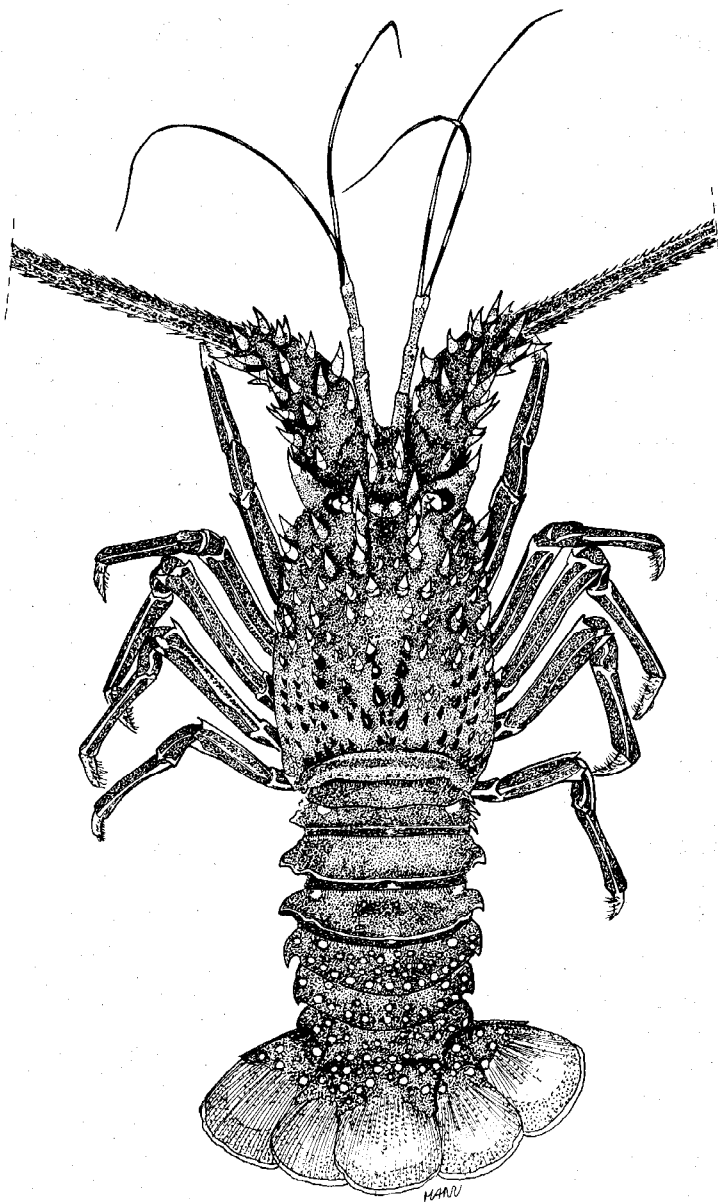


Fig. 269

Habitat and Biology : Sublittoral to 30 m deep; on rocky, rarely gravelly bottom.

Size : Maximum carapace length 15.5 cm, but usually not more than 12 cm; the corresponding total body lengths are respectively 38 and 30 cm

Interest to Fisheries : The species is of interest to fishery throughout its range, although mostly used for local consumption. It is caught by hand and with gill nets, and sold fresh or frozen.

Local Names : MEXICO: Langosta azul, Langosta caribe, Langosta cabezona, Langosta de roca, Langosta prieta; USA: Pinto lobster, Blue spiny lobster.

Literature : Holthuis & Villalobos, 1961:251-276; Williams, 1986:22, figs 53,80a-b.

Panulirus interruptus (Randall, 1840)

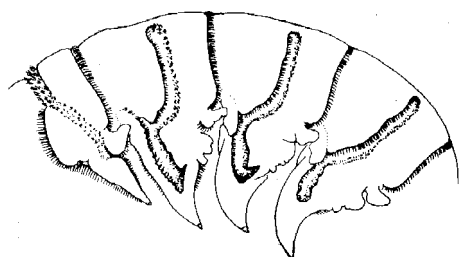
Fig. 271

PALIN Panul 15

Palinurus interruptus Randall, 1840, *Journal Academy Natural Sciences, Philadelphia*, 8: 137

FAO Names : **En** - California Spiny lobster; **Fr** - Langouste mexicaine; **Sp** - Langosta mexicana.

Type : Type locality: "from Upper California, where it is used as food by, the natives". T. Nuttall, who collected the type material visited Monterey, Santa Barbara, San Pedro and San Diego in California (March - May 1836); he was most active in Santa Barbara and San Diego, and one of these two localities in all probability is the true type locality. Two dry syntypes in ANSP, No. 4188 (condition poor to reasonable).

**abdominal somites (lateral view)**

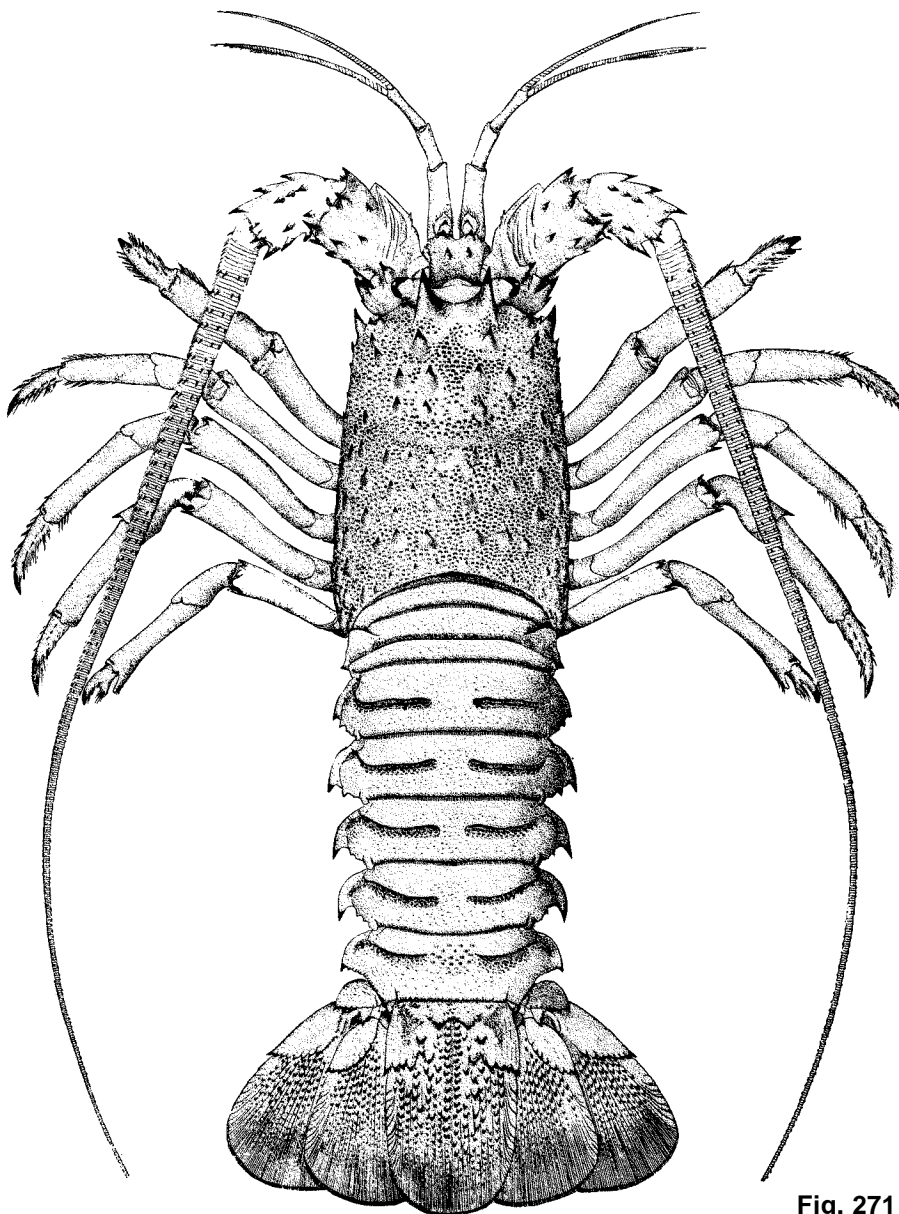
(from Williams, 1986)

Geographical Distribution : Eastern Pacific region: California, USA (from San Luis Obispo Bay southwards; there is a doubtful record from Monterey), to Baja California, Mexico (entire west coast); the species is also reported from the Gulf of California (Fig. 272).

Habitat and Biology : From the littoral zone (tide pools) to depths of about 65 m, being more frequent in the deeper waters; on rocky substrates. The species is nocturnal; spawning takes place from May to August.

Size : The maximum total body length reported is 60 cm, usually it does not exceed 30 cm. The legal size limit is a carapace length of 3.25 inch (= 8 cm), corresponding to a total length of about 20 cm

Interest to Fisheries : *Panulirus interruptus* is the economically most important lobster of the American west coast. In California it is taken almost exclusively with traps, also trammel nets are used, and occasionally they are obtained by trawling. The species is also taken by diving by sports fishermen; according to Frey (1971) "the sport catch may equal 50% of the commercial catch". The total catches in 1976 were about 135 tons. The major fishing area is the west coast of Baja California.



(from Rathbun, 1884)

Fig. 271

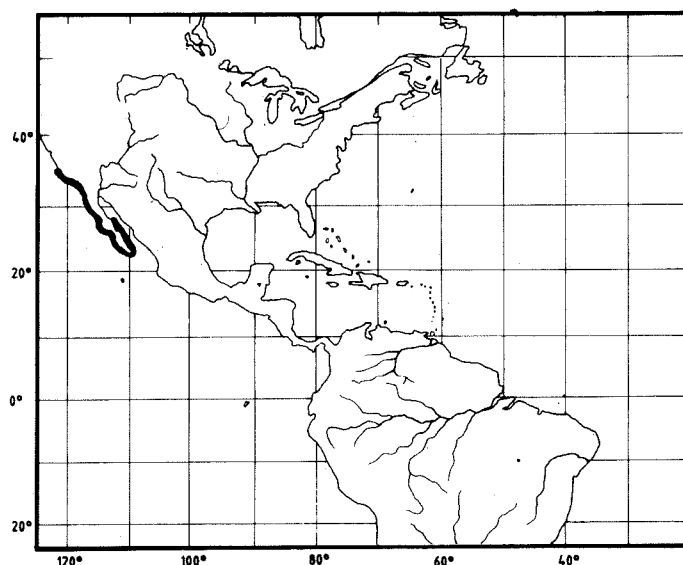


Fig. 272

The demand for the lobster in California "is so great that imports from Mexico average about twice the California catch" (Frey, 1971); of course the imported lobsters do not all need to be *P. interruptus*. Protective measures as to season, size, bag limit, etc. are at present in force. Sold fresh, cooked and frozen. Best known as gourmet food, sometimes used as bait.

Local Names : MEXICO: Langosta colorada, Langosta roja; USA: California lobster, California marine crayfish, California spiny lobster, Red lobster.

Literature : Mitchell et al., 1969:121-131; Frey, 1971:19; Williams, 1986:21, figs 49, 79 h-i.

Panulirus japonicus (Von Siebold, 1824)

Fig. 273

PALIN Panul 16

Palinurus japonicus Von Siebold, 1824, *De Historiae naturalis in Japonia statu*: 15. Name placed on the Official List of Specific Names in Zoology in Opinion 507 (published in 1958).

Synonyms: *Senex japonicus* - Ortmann, 1891; *Puer pellucidus* Ortmann, 1891; *Puerulus pellucidus* - Calman, 1909.

FAO Names : **En** - Japanese spiny lobster; **Fr** - Langouste japonaise; **Sp** - Langosta japonesa.

Type : Type locality of *Palinurus japonicus*: "Japonia", Japan, probably near Nagasaki. Lectotype in RMNH, no. 60, selected by George & Holthuis, 1965: 10, in alcohol condition excellent; paralectotypes in BM, MP, RMNH, USNM.

Type locality of *Puer pellucidus*: "Japan, Kochi, 15-20 Faden" (= Kochi, Shikoku Island, Japan, 27-37 m). Two syntypes in MZS, preserved in alcohol, condition poor.



abdominal somites (lateral view)

(from George, & Holthuis, 1965)

Geographical Distribution : Western Pacific: Japan (south of 38°30'N to Ryukyu islands), Korea, East China Sea, China, Xiamen (= Amoy), Taiwan (Fig. 274).

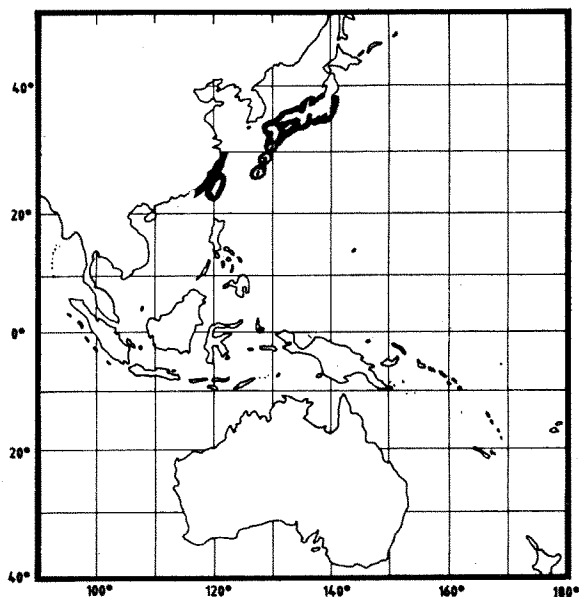


Fig. 274

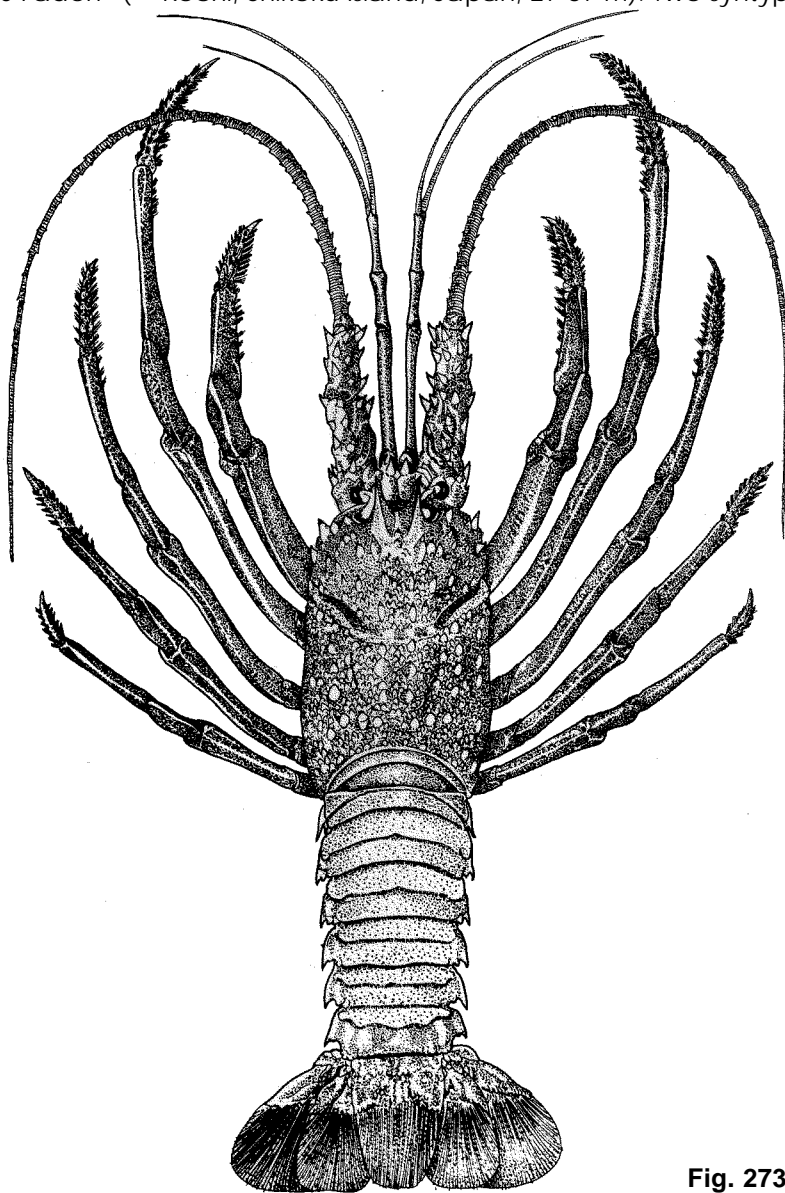


Fig. 273

(after George & Holthuis, 1965)