

A NEW SPECIES OF DEEP-WATER PALINURID LOBSTER (CRUSTACEA, DECAPODA, PALINURIDAE) FROM THE EAST COAST OF SOUTHERN AFRICA

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(With 3 figures and 1 table)

[MS. accepted 20 March 1979]

ABSTRACT

Palinustus unicornutus sp. nov. is described. Of the three previously known species it is morphologically most similar to *Palinustus truncatus* A. Milne Edwards (1880) from the Lesser Antilles in that it possesses a distinct median spine or rostrum on the anterior margin of the carapace instead of the submedian arrangements of the other species. *Palinustus mossambicus* Barnard (1926) was originally recorded from only slightly further north on the east coast of southern African (Mozambique), but there appears to be an error in the locality cited.

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INTRODUCTION

The genus *Palinustus* comprises the following three species: *Palinustus truncatus* A. Milne-Edwards (1880) from Carriacou, Lesser Antilles, *Palinustus mossambicus* Barnard (1926) from Mozambique, south-western India and the Sulu Sea and *Palinustus waguensis* Kubo (1963) from Japan. Recently two adult female specimens were obtained from deep water off the east coast of southern Africa and named *Palinustus unicornutus* sp. nov. This alludes to the distinctive median spine or rostrum on the anterior margin of the carapace.

SYSTEMATIC SECTION

Palinustus unicornutus sp. nov.
(Figs 1-2)

Material available

Holotype: SAM-A15880, in the South African Museum, Cape Town. Ovigerous ♀; c.l. 48 mm, t.l. 142 mm. Captured in a lobster pot, September 1976, due east of Boteleur Point, Natal (approximately 26°57'S 32°58'E). Depth 390 m.

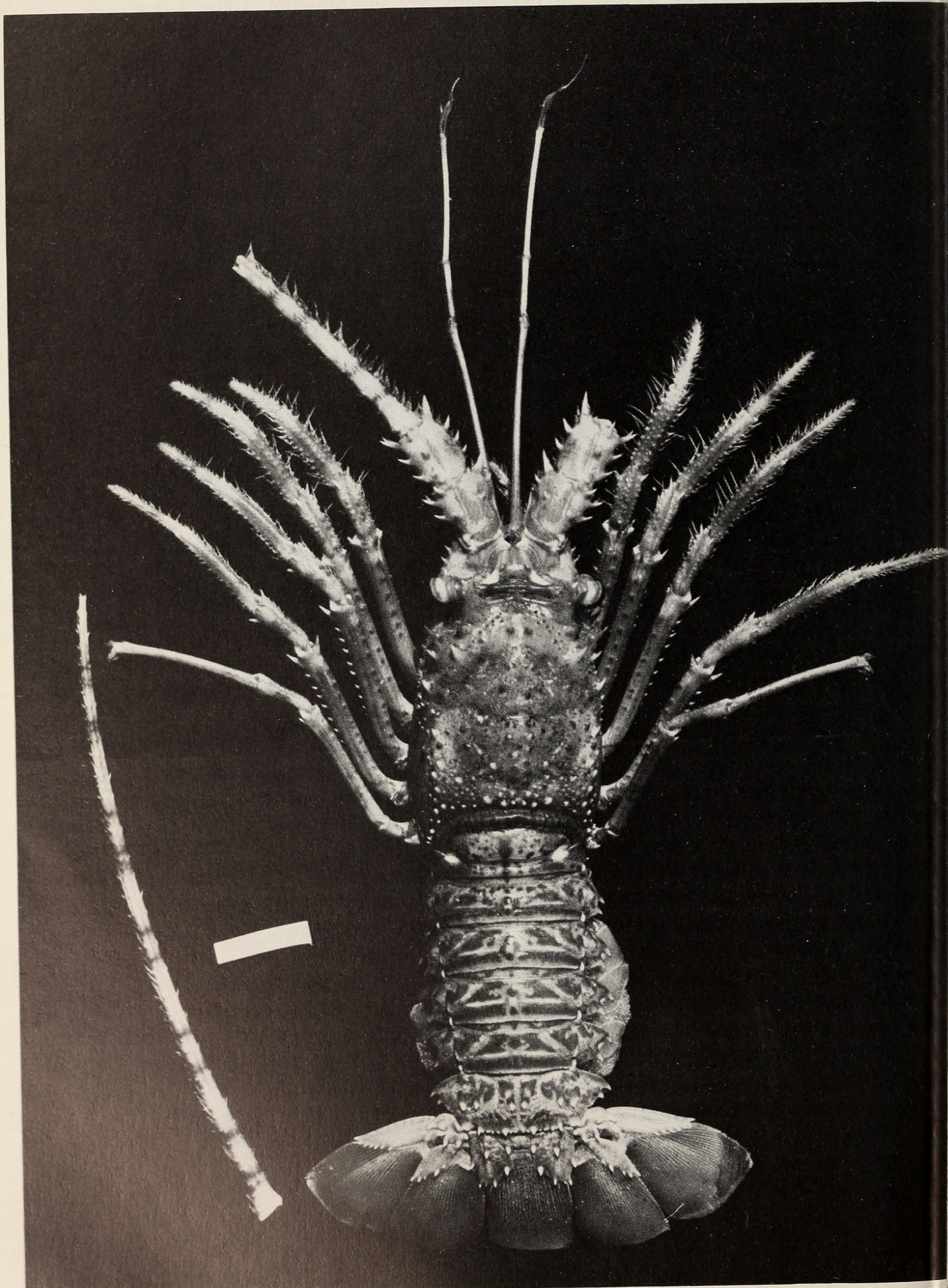


Fig. 1. *Palinustus unicornutus* sp. nov. Dorsal view of holotype. Scale = 20 mm.

Paratype: SAM-A15881, in the South African Museum, Cape Town. 1 ♀; c.l. 44 mm, t.l. 134 mm. Captured in a lobster pot, January 1977 off Park Rynie, Natal (approximately 30°19'S 30°56'E). Depth 305 m.

Other specimens examined

Palinustus truncatus; holotype from Cariacou; Museum of Comparative Zoology, Harvard University. *Palinustus mossambicus*; holotype from Mozambique; South African Museum (SAM-A10684). *Palinustus* sp. incomplete specimen (carapace only) from the Sulu Sea; Western Australian Museum (WAM 1-77).

Description of holotype

The supra-orbital processes are truncate distally with irregularly crenulated margins. The inner margins each bear a single minute spine. Arising from the outer margin is a single, large, forward-directed spine. Behind each process is a row of four spines which extends posteriorly to the cervical groove. The frontal margin of the carapace is distinctly convex and smooth except for a single strong median spine or rostrum. The dorsal precervical carapace bears numerous irregularly scattered spinules and four submedian pairs of larger spines increasing in size and diverging posteriorly. Laterally in the precervical region there is a series of three strong spines round the margin of the orbit. The uppermost of these forms the first in a row of three prominent spines which extends posteriorly along the lateral surface of the carapace. The cervical groove is only distinct laterally. The postcervical dorsal carapace bears numerous scattered spinules and a fine covering of setae. There is a converging series of larger submedian spines which tend to be paired anteriorly and to become smaller and more irregularly arranged posteriorly. The spines on the dorsolateral margins of the postcervical carapace are tuberculate.

The eyes are large with constricted peduncles and reniform corneas.

The first abdominal segment has a rounded lateral process on each side which overlaps the posterior margin of the carapace. There is an uninterrupted transverse groove and an indication of a median carina on the posterior margin. Segments 2-5 have an uninterrupted anterior transverse groove and a posterior groove interrupted medially by a flattened, median carina. The posterior margins of segments 4 and 5 show slight crenulations. The pleura of segments 3-6 each bear two strong spurs, the anterior one being larger and slightly hooked. The sixth segment has a median elevated area with an asymmetrical pair of small posteriorly-directed submedian spines. Towards the anterolateral margins of the segment are elevations with two groups of three small posteriorly-directed spines. The posterior margin of the sixth segment bears numerous minute, irregular spines and four large ones.

The telson is elongate, rectangular and about twice as long as wide. The calcified portion bears two lateral spines and three posteromedial spines, one of which is distinctly smaller than the others. Anteriorly there is a transverse row of four strong posteriorly-directed spines.

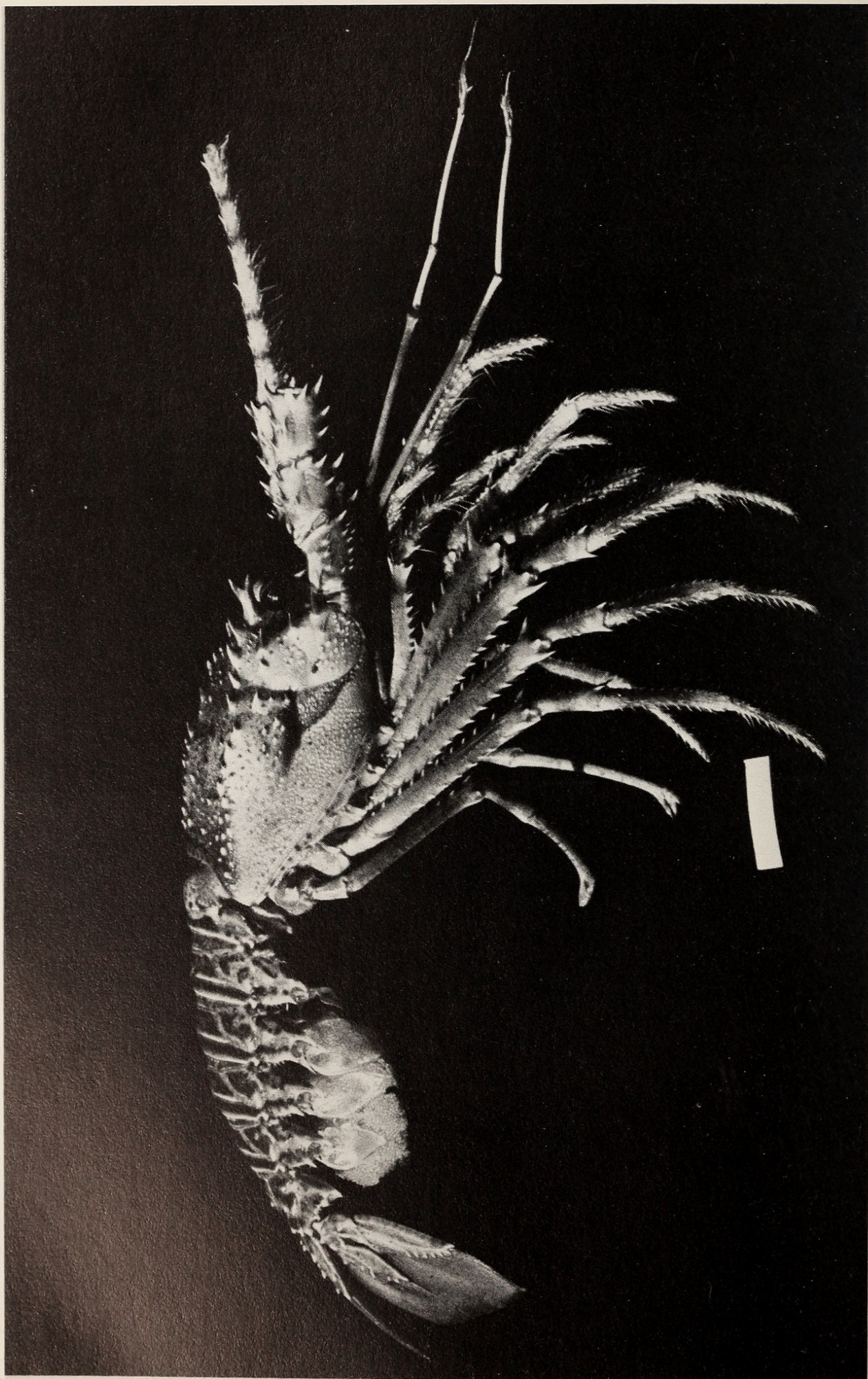


Fig. 2. *Palinustus unicornutus* sp. nov. Lateral view of holotype. Scale = 20 mm.

The antennular plate is smooth with well-developed lateral ridges on which the stridulating organs slide. The antennules are very long and slender, the basal segment being approximately equal to the carapace length, the second $0,25 \times c.l.$ and the third $0,5 \times c.l.$ The flagella are short. The antennal peduncles bear numerous strong, forward-directed spines. The flagella are incomplete but are stout and probably were not longer than about $3 \times$ the carapace length. They are armed with numerous short spines and are strongly setose.

Pereiopods 1–4 and maxilliped 3 all have longitudinal rows of spines and conspicuous, long, stiff setae, particularly distally. The fifth pereiopod is more slender than the others, bears few spines or setae and is chelate.

The anterior three thoracic sterna each bear a pair of submedian spines; the fourth bears a single median spine and the fifth lacks spines. The posterior margin of the fifth segment bears six posteriorly-directed spinules.

The first abdominal segment bears a pair of slender, uniramous pleopods and a pair of minute submedian tubercles. In segments 2–5 the pleopods are biramous; on segment 2 both exopods and endopods are expanded, but the endopods are slightly smaller. In segments 3–5 only the exopods are expanded, the endopods are narrow, setose and modified as egg-carrying appendices. The ventral margins of segments 2–5 are without spines while segment 6 has one low median tubercle, one pair of low submedian tubercles and several other indistinct tubercles.

The eggs are numerous and small (0,55 mm diameter) similar to the genus *Panulirus*.

The overall colour of the carapace is pale pinkish-orange with some spines dark-red. The colour of the abdomen is basically dark-orange on the elevated areas and white in the grooves. The calcified portion of the telson and uropods is pinkish-orange with the spines white. The uncalcified portions are pale pinkish-orange. The legs and antennae have alternating bands of orange and white. The antennules are uniformly pale orange. The yolk of the egg is yellow.

Description of paratype

The frontal margin of the carapace is similar to that of the holotype except that the single, minute spinule on the inner margins of each supra-orbital process is absent. The first pair of submedian postcervical spines is set wider apart than the following pair, whereas in the holotype they are equidistant. In all other respects the paratype closely resembles the holotype.

DISCUSSION

All three species of *Palinustus* described so far are very similar and have been separated largely on the basis of differences in spination on the anterior margin of the carapace and on the epistome (see Table 1 and Fig. 3). *P. unicornutus* is closest to *P. truncatus* in possessing an enlarged median spine on the anterior margin of the carapace and in the similar number and arrange-

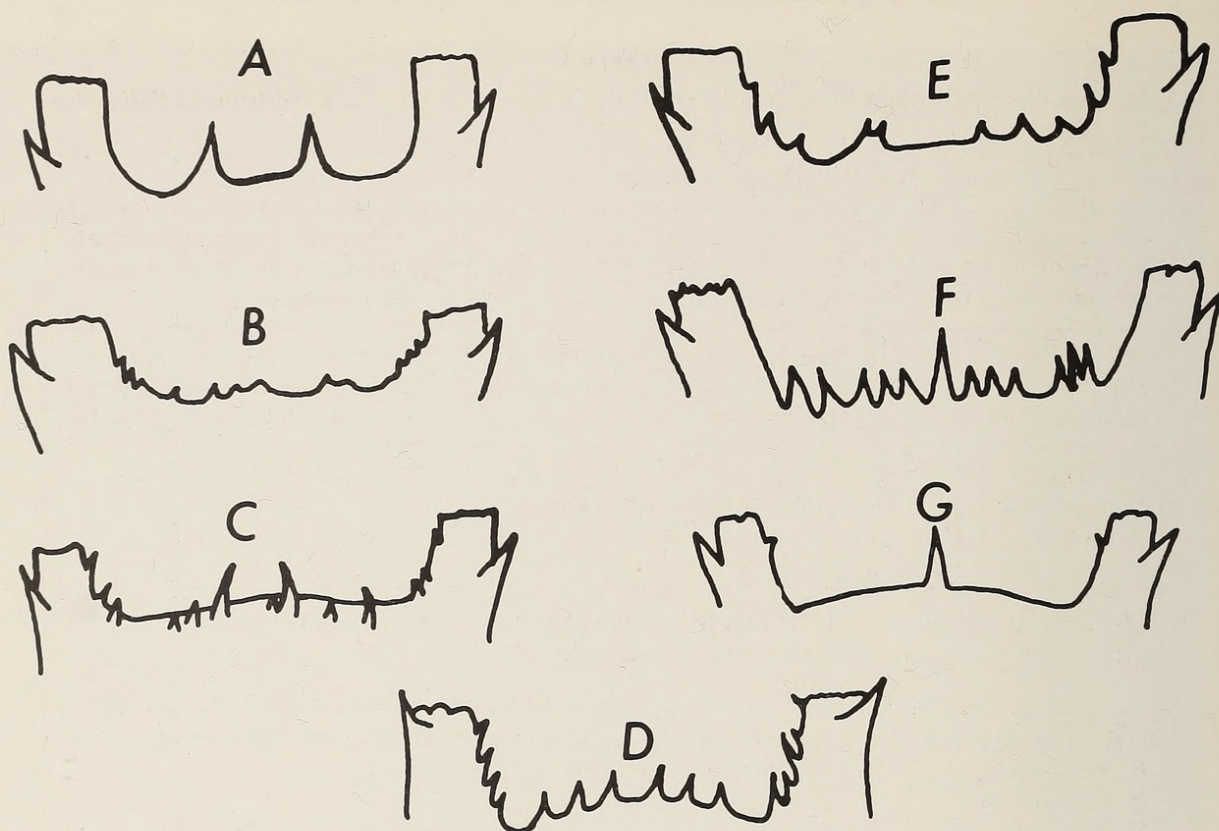


Fig. 3. Sketches of the frontal margins of the carapace of: A. *Palinurus mossambicus* from Mozambique. B. *P. mossambicus* from the Sulu Sea. C. Unidentified Western Australian Museum specimen from the Sulu Sea. D. *P. mossambicus* from south-western India (after George & George 1965). E. *P. waguensis* (after Kubo 1963). F. *P. truncatus* (after Gruvel 1911). G. *P. unicornutus*.

ments of spines or tubercles on the anteromedian edge of the epistome. However, the distinctly convex, smooth anterior margin of the carapace of *P. unicornutus* is in marked contrast to the straight, irregularly spined margin of *P. truncatus*.

Barnard's single juvenile of *P. mossambicus* has a simple arrangement of two submedian spines on a smooth anterior margin of the carapace differing notably from the irregular arrangement of four to five spines present in the specimens assigned to *P. mossambicus* from the Sulu Sea by Holthuis (1946), and the six regularly arranged spines in the specimen assigned to this species from south-western India (George & George 1965). It must be pointed out that the exact locality where Barnard's specimen originated is not known as the position he gives, 25°S 33°10'E (Barnard 1926), is incorrect, being on land.

The present specimens of *P. unicornutus* were taken off the Natal coast during a brief but intensive period of deep-water experimental trap fishing by commercial vessels on rocky substrate.

The specimen in the Western Australian Museum collection which is incomplete, consisting only of the anterior portion of the carapace, was obtained from the Sulu Sea. However, it differs from Holthuis's specimens from the Sulu Sea in having a more distinct pair of enlarged submedian spines on the slightly convex anterior margin of the carapace.

TABLE 1

Differences in spination of the anterior margin of the carapace and of the epistome in *Palinustus*.

	Anterior margin of carapace	Epistome
<i>P. truncatus</i> holotype (Cariacou)	Straight; numerous irregular submedian spines; 1 enlarged median spine.	5 tubercles on anteromedian edge; large spine on anterolateral corners.
Barnard's <i>P. mossambicus</i> (Mozambique)	Straight; smooth except for 1 pair of large submedian spines.	Numerous minute spinules on anteromedian edge, small spine on anterolateral corners.
Holthuis's <i>P. mossambicus</i> (Sulu Sea)	Straight; 4-5 submedian spines of different sizes.	As in Barnard's specimen.
Western Australian Museum specimen (Sulu Sea)	Slightly convex; 1 large submedian pair of spines; 4 other small irregularly arranged submedian spines.	Unknown (specimen damaged).
George & George's <i>P. mossambicus</i> (South-western India)	Convex; 6 submedian spines of approximately equal size.	As in Barnard's specimen.
<i>P. waguensis</i> (Kubo 1963) (Japan)	Straight; bifurcate spine on right side; 2 spines on left side; no median spine.	3 tubercles on anteromedian edge; no spines on anterolateral corners.
<i>P. unicornutus</i> sp. nov. (Natal)	Distinctly convex; smooth; 1 enlarged median spine.	5 (holotype) to 7 (paratype) spines on anteromedian edge; small spines on anterolateral corners.

ACKNOWLEDGEMENTS

I wish to thank Dr R. W. George for his criticism of the manuscript.

The holotype of *Palinustus truncatus* was lent by the Museum of Comparative Zoology, Harvard University, the holotype of *P. mossambicus* by the South African Museum, Cape Town, and the unidentified specimen from the Sulu Sea by the Western Australian Museum.

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