

**NEW RECORDS OF THE SPEAR LOBSTERS
LINUPARUS SOMNIOSUS BERRY & GEORGE, 1972,
AND *L. TRIGONUS* (VON SIEBOLD, 1824) (CRUSTACEA:
DECAPODA: PALINURIDAE) FROM THE STRAITS
OF MALACCA AND VIETNAM RESPECTIVELY**

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ABSTRACT.- The African Spear Lobster, *Linuparus somniosus* Berry & George, 1972 (Crustacea: Decapoda: Palinuridae) is recorded for the first time from the Straits of Malacca on the Sunda Shelf near Thailand. The range of the species, previously known only from eastern Africa, is now substantially extended some 6700 km eastwards. A specimen of the Japanese Spear Lobster, *L. trigonus* (Von Siebold, 1824) obtained from the South China Sea is also the first record of this species from Vietnamese waters.

INTRODUCTION

The teaching collection of the Department of Zoology, National University of Singapore, contains numerous decapod crustacean specimens collected by the now defunct Singapore Regional Fisheries Research Station (reconstituted as the South East Asian Fisheries Development Centre in Singapore) as well as by the late Professor D. S. Johnson. While sorting these specimens for transfer to the university's reference collection, the author came across a jar of lobsters which had been collected in the 1950s from the Straits of Malacca which had been identified as *Linuparus trigonus* by Johnson.

The specimens however, proved to belong to a spear lobster, *Linuparus somniosus* Berry & George, 1972 (Palinuridae) previously known only from east Africa. No *Linuparus* species has also been reported from the Sunda Shelf before. A specimen of *L. trigonus* (Von Siebold, 1824) collected by the NAGA Expedition from Vietnam, a new record for that country, is also reported. The present note serves to document the range extensions of these two species, as well as discuss the variation in some characters for *L. somniosus*.

Specimens are deposited in the Zoological Reference Collection (ZRC), Department of Zoology, National University of Singapore; and the Nationaal Natuurhistorisch Museum [previously Rijksmuseum van Natuurlijke Historie (RMNH)], Leiden, Netherlands. The abbreviation cl is used for carapace length, and all measurements are in millimetres.

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TAXONOMY

Family Palinuridae Latreille, 1802

Genus *Linuparus* White, 1847

Three extant species of *Linuparus* are known, *L. trigonus* (Von Siebold, 1824) (type species), *L. sordidus* Bruce, 1965, and *L. somniosus* Berry & George, 1972. The keys provided by Berry & George (1972) and Holthuis (1991) will serve to distinguish the three species relatively easily.

Linuparus somniosus Berry & George, 1972

(Figs. 1, 2)

Material examined.- Male (cl 131.0 mm) (RMNH), male (cl 139.2 mm), female (cl 130.0 mm) (ZRC 1989.169-170), Straits of Malacca, near southwestern Thailand, coll. Singapore Regional Fisheries Research Station vessel M.F.V. *Manihine*, 17.ii.1956.

Remarks.- Berry & George (1972) described *L. somniosus* from 17 specimens collected off Durban, South Africa. The known range of the species is along the east coast of Africa, from Kenya to South Africa (see Holthuis, 1991: 112). The present *Manihine* specimens thus substantially extend the known range of *L. somniosus* some 6700 km eastwards to the Sunda Shelf, on the eastern edge of the Indian Ocean.

Linuparus somniosus is differentiated from the other two congeners (fide Berry & George, 1972) by the submarginal posterior groove on the dorsal surface of the carapace being at least twice as wide medially than laterally and the females possessing a pair of small pleopods on their first abdominal segment. In *L. somniosus*, the rostral horns may or may not possess median spines (absent or rudimentary in *L. sordidus*), epistomal ridges with several distinct lateral teeth and an acute terminal tooth (without well developed teeth in *L. sordidus*) and the chitinous margin on the male penile process of the fifth pereopod coxa is entire throughout its length (toothed in *L. trigonus*, and toothed medially in *L. sordidus*). Chan (*in litt.*, 3 November 1992) notes that for *L. sordidus* he has examined, "...the medial part of the submarginal posterior groove on the carapace [is] rather wide and only slightly narrower than your *L. somniosus* female [from the Straits of Malacca]". It is possible that the value of this character has been overemphasised and may prove to be less reliable. In any event, the female *L. trigonus* from Vietnam (ZRC 1979.2.7.2) conforms with Berry & George's (1972) concept of the species.

The present specimens from the Straits of Malacca seem to differ from Berry & George's (1972) description and figures of *L. somniosus* in several respects:

1. The postcervical region between the median and lateral ridges are covered with scattered sharp tubercles, with no rows or distinct pattern(s) discernible (vs. with a well defined row of sharp tubercles surface). Berry & George (1972: 19) describes this region as covered with "...several randomly scattered, enlarged, projecting tubercles" but their Plate 1 shows a distinct longitudinal row of tubercles on each region of the holotype female. Subsequent figures of *L. somniosus* (fide Holthuis, 1983, 1991) show similar patterns of tubercles.

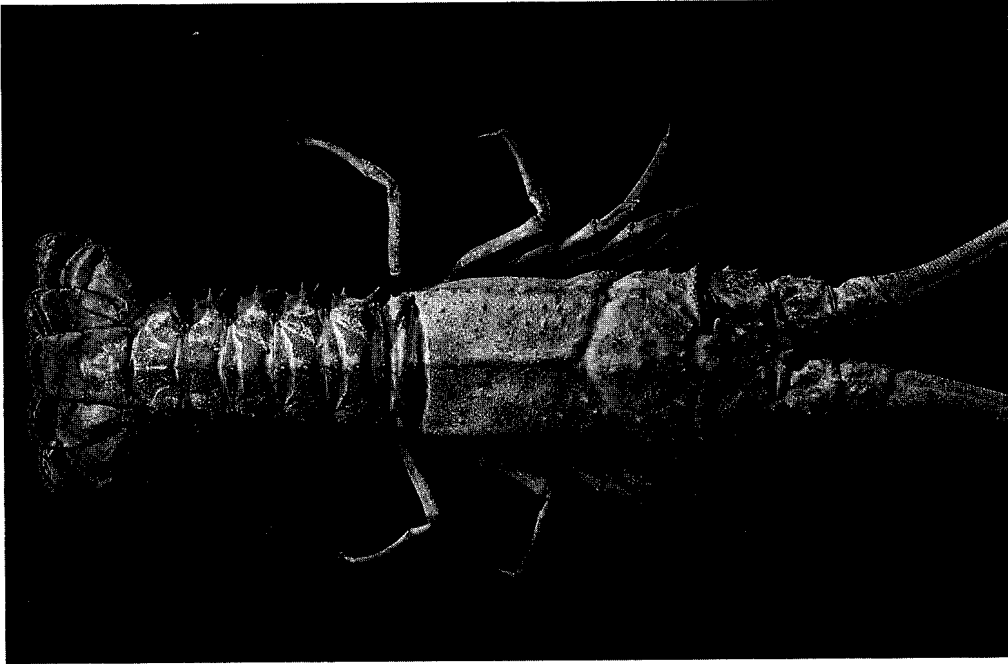


Fig. 1. *Linuparus somniosus* Berry & George, Straits of Malacca, female (cl 130.0 mm) (ZRC 1989.170).

2. The dorsal surface of the distal antennal segment has two prominent sharp spines. This character was not described by Berry & George (1972) but their plates 1 and 2, and subsequent illustrations in Holthuis (1983, 1991) show only one prominent spine on the dorsal surface.

3. The chitinous margin on the penile process of the fifth pereopod coxa is mostly entire or distinctly toothed (vs. completely entire). Berry & George (1972: 21, text fig. 1b, p. 20) described and figured this structure, noting that "... the male genital opening has an entire chitinous border" for one paratype male, and did not cite any variation of this structure for the other paratypes. They also commented that this character can be used to distinguish the species from *L. trigonus* and *L. sordidus*.

4. The female first abdominal pleopod is oval-shaped, the outer margin with rounded edges and no distinct angle discernible, the lateral margins being convex (vs. distinctly triangular in shape, the outer margin with relatively sharp, obtuse, well defined angle, the lateral (outer) margins almost straight, fide Berry & George, 1972: text fig. 1a, p. 20). Berry & George (1972: 21) did not record any variation in this character.

Professor Lipke Holthuis was kind enough to check the specimens of *L. somniosus* in the RMNH and compare them with figures and photographs of the specimens from the Straits of Malacca. The RMNH specimens include four paratypes of *L. somniosus* (RMNH D 27136-27139) from South Africa and two others from Tanzania and Kenya (RMNH D 34950, 29915). Holthuis (*in litt.* 9 October 1992) comments on the four apparent differences observed earlier: 1. "There is considerable variation in the spinules behind the cervical groove. As a rule, two lines can be distinguished, but the pattern often is obscured by missing and additional spinules"; 2. "The spines on the distal segment of the antennal peduncle also are rather variable. Unusually there is one large [spine] in the middle, sometimes with a smaller or larger [spine] in front of it and also there are spines on or near the inner and outer margin (sometimes obscured by hairs). The size of the spines varies"; 3. "I examined one male for the penial process, its chitin rim was crenulated"; and 4. "The first pleopod [of a female] is so thickly covered with long hairs that the outlines are difficult to ascertain. I did not see any clear triangular outline".

The form of the chitinous margin on the penial process seems to vary somewhat in *L. somniosus*, more than what has been recorded. It varies from entire to being toothed laterally, with the median part smooth to crenulate. The number of median spines on the rostral (or frontal) horns varies. In the female example, four median spines are present whereas in both of the males, only two such spines are present. Thus, despite the apparently very disjunct distributions of the African and Sundaic populations, there are no good morphological grounds for recognising them as separate taxa. It seems likely that *L. somniosus* will be found in other parts of the Indian Ocean and Sundaic Southeast Asia in the future.

The three present specimens of *L. somniosus* were obtained as part of surveys conducted by the Singapore Regional Fisheries Research Station vessel M.F.V. *Manihine* in the South China Sea and Straits of Malacca to ascertain the species of potential fishery value in the late 1950s. The specimens had been referred to the late Professor D. S. Johnson who first identified them as *L. trigonus*. As far as is known, Johnson never reported on this species or the Straits of Malacca record. The label with the specimens indicated that they had been obtained at locality "C7/14" on 17 February 1956. Ommanney (1962) published the fishing trials associated with the M.F.V. *Manihine*. Alfred (1969, 1981) also published on the fishes obtained by this research vessel, and provided a detailed list of all the collecting stations in the South China Sea and Straits

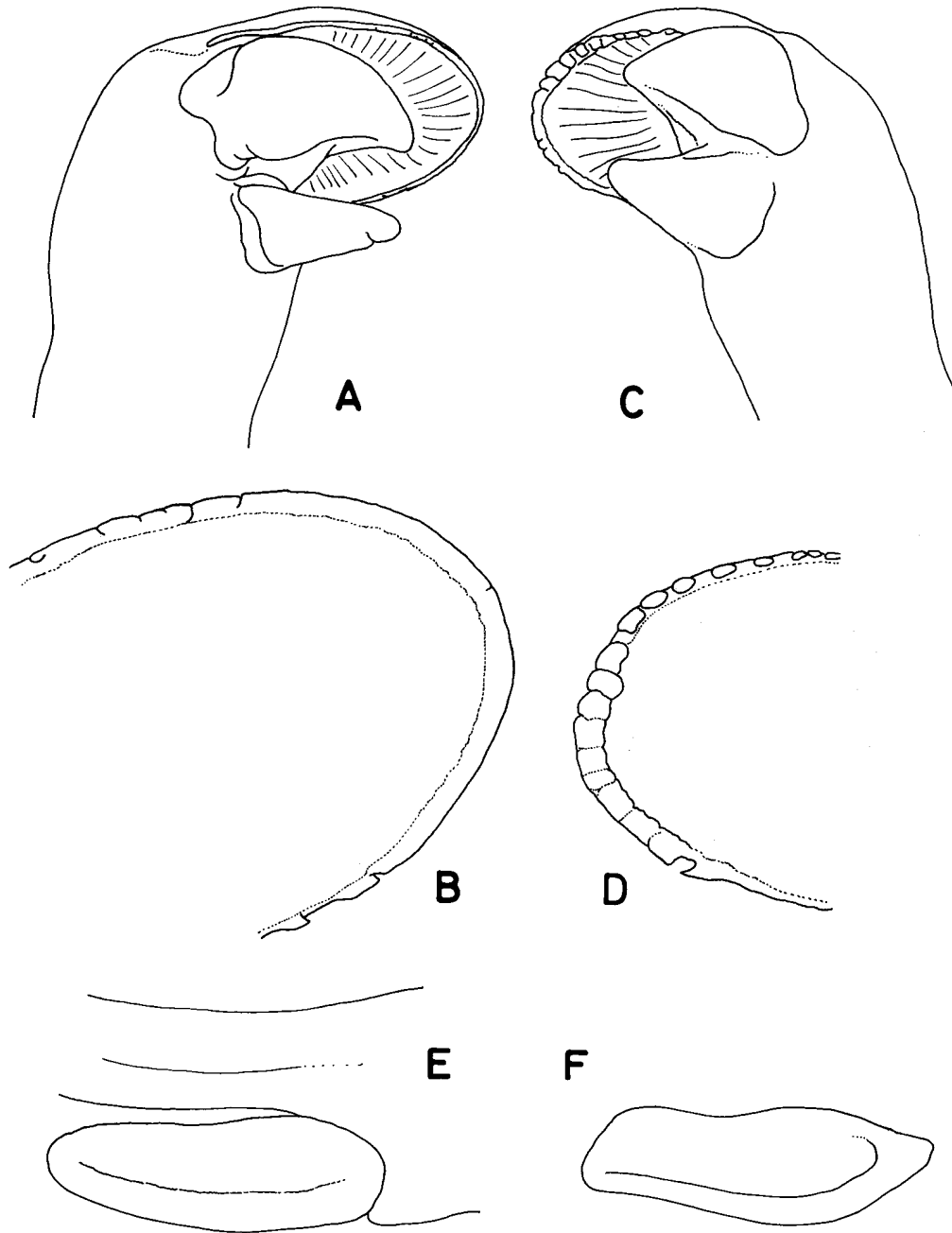


Fig. 2. *Linuparus somniosus* Berry & George, Straits of Malacca; A, B, male (cl 131.0 mm) (RMNH); C, D, male (cl 139.2 mm) (ZRC 1989.169); E, F, female (cl 130.0 mm) (ZRC 1989.170). A, C, male penial processes; B, D, chitinous margins on male penial processes; E, F, left and right female pleopod on first abdominal segment respectively (hairs not drawn).

of Malacca. Locality "C7/14" is cruise 7, site 14, on 17 February 1956, the gear used was an otter trawl and the position was 06°58'00"N 98°09'30"E to 07°04'00"N 98°09'30"E (Fig. 3), at a depth of between 97 to 85 fathoms (Alfred, 1969: 97). Alfred (1969) also noted that during this trawl, the gear was stuck and damaged, suggesting that the substrate was rocky or uneven.

The *Manihine* specimens of *L. somniosus* have been kept in the university's teaching collection until recently. They had been preserved in formalin, and although the carapaces are a bit soft, all three specimens are still in relatively good condition.

Linuparus trigonus (Von Siebold, 1824)

Material examined.- Female (cl 35.2 mm) (ZRC 1979.2.7.2), South China Sea, off Vietnam, coll. NAGA Expedition, 27.ii.1960.

Remarks.- *Linuparus trigonus* has been well characterised by earlier authors (see Holthuis, 1966, 1991; Bruce, 1965; Berry & George, 1972) and there is no need to elaborate on the taxonomy of the species here. Colour photographs distinguishing this species from its closest congener, *L. sordidus*, can be found in Chan & Yu (1989). The present specimen from Vietnam collected by the NAGA Expedition is relatively small, but agrees in almost all aspects with existing descriptions of *L. trigonus*.

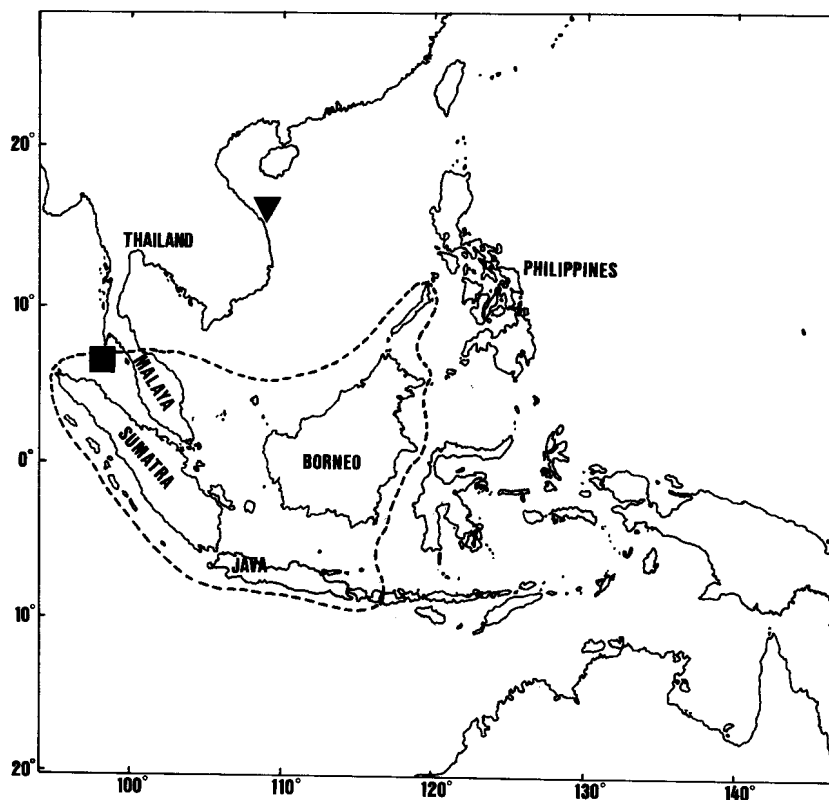


Fig. 3. Map showing collecting sites of *Linuparus somniosus* Berry & George (Straits of Malacca) (square) and *Linuparus trigonus* (Von Siebold) (South China Sea) (triangle).

The data accompanying the present specimen notes that it was collected by NAGAS-4 from station 16, number 60-212, 15°40.0'N 109°28.4'E (see Fig. 3), between 1836 and 1907 hours. The substrate was shell, detritus and sand, the depth was between 60 and 108 fathoms, and the gear used was a beamtrawl. This information agrees with what is generally known for *L. trigonus*, the species being known from depths ranging from 30 to 318 metres, on substrates of gravel (see Holthuis, 1991: 114).

Linuparus trigonus has been recorded from southern Japan, Korea, Taiwan, Philippines, northwestern and eastern Australia (see Holthuis, 1991: 114 for review). The presence of the species in Vietnam is thus, not at all surprising, and the present record extends its range slightly westwards.

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