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## **LIMOTHERES, A NEW GENUS OF PINNOTHERID CRAB, COMMENSAL OF THE BIVALVE *LIMA*, FROM THE CARIBBEAN SEA**

by

**L. B. HOLTHUIS**

Rijksmuseum van Natuurlijke Historie, Leiden, Netherlands

With 1 text-figure

During the 1970 Caribbean cruise of R.V. "John Elliott Pillsbury" of the University of Miami, a peculiar Pinnotherid inhabitant of *Lima tenera* Sowerby was collected. Recognized on board as something unusual, it was later found to belong to an undescribed genus and species.

I want to express here my sincere gratitude to Drs. Gilbert L. Voss and Frederick M. Bayer of the Rosenstiel School of Marine and Atmospheric Science, University of Miami, for permitting me to join this "Pillsbury" cruise and for allowing me to study this interesting specimen.

The abbreviations cl. and cb. stand for carapace length and carapace breadth, respectively.

### **Limotheres** new genus

Definition. — The carapace is ill-calcified, but rather firm. It is bluntly quadrangular or hexagonal in outline and shows a striking triangular blunt rostrum. It is about as long as wide, being widest in the posterior third. A high post-frontal ridge extends over the full width of the carapace; before this ridge the surface of the carapace drops abruptly down. Three deep longitudinal grooves cut across the ridge. The surface of the carapace is smooth and even. No regions are defined.

The orbits are small and placed at either side of the base of the rostrum. The eyes are immovable. The antennulae are folded lengthwise. The antennae are very short, the flagellum consists of a few segments only.

The epistome is distinct. The buccal cavity is trapezoid, being much wider

than long, and widest posteriorly. The cavity is completely closed by the third maxillipeds, which are placed almost transversely. The ischium and merus of the third maxilliped are fused. The palp is very much shorter than the merus and consists of three segments, which are placed end to end. The exopod of the third maxilliped is large and consists of two parts, it is slightly longer than the merus. A well developed long epipod is present.

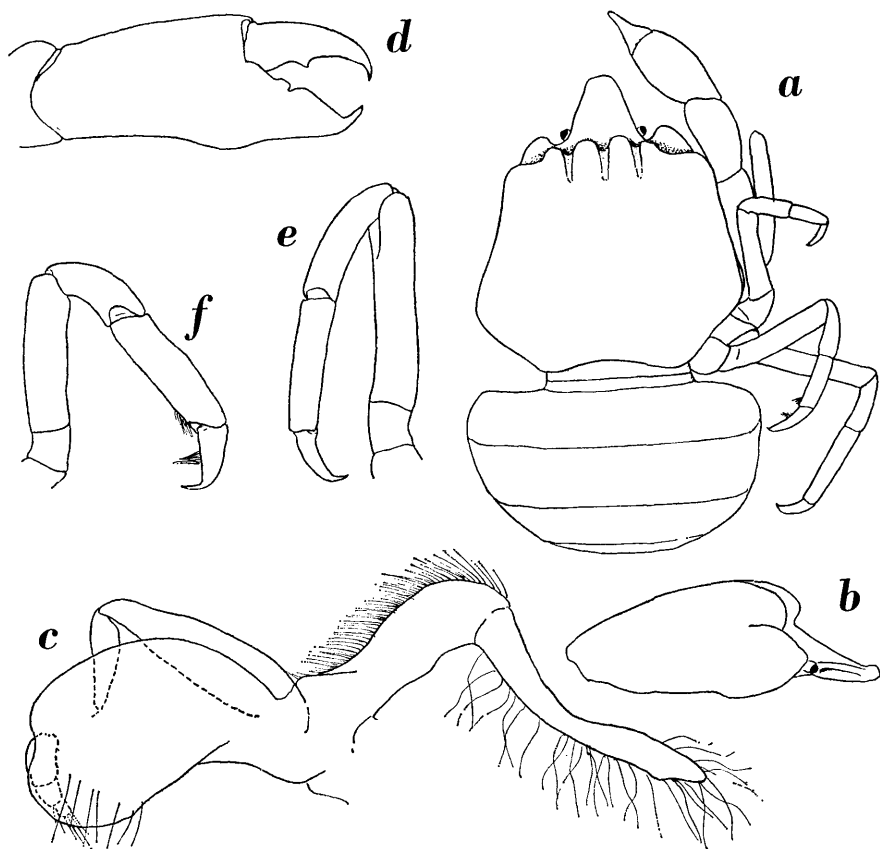


Fig. 1. *Limotheres nasutus* new species, female holotype. a, animal in dorsal view; b, carapace in lateral view; c, third maxilliped; d, chela of first pereiopod; e, second pereiopod; f, fifth pereiopod. a, b,  $\times 7$ ; c,  $\times 30$ ; d-f,  $\times 15$ .

The left and right legs are equal, only the left third pereiopod is slightly longer than the right. The chelipeds are short and far more robust than the legs. The fingers are of equal length. The second, third and fourth legs are very similar, the third being slightly longer than the other two. The fifth legs are shorter and more robust than the second to fourth. The dactylus of these pereiopods is simple.

The abdomen of the adult female is broader than the carapace.

The male is unknown.

Type species. — *Limotheres nasutus* new species.

The new genus belongs in the subfamily Pinnotherinae as shown by the shape of the third maxillipeds. By having a three-segmented palp, which is shorter than the merus, and by having the dactyli of the ambulatory legs simple, the new genus is closest to *Pinnotheres* and *Fabia*. From both these genera it differs in having a well developed triangular rostrum and by the peculiar structure of the carapace.

The type species so far is the only species known of the genus.

### ***Limotheres nasutus* new species**

"A small yellow crab" Staiger & Voss, 1970: 31.

Material. — Pedro Bank, Caribbean Sea south of Jamaica, 17°08'N 77°35'W, 10 m deep, bottom very rough coral with little algae and only a few sponges; 10 foot ottertrawl; 16 July 1970; "John Elliott Pillsbury" Sta. P-1264. — 1 ovigerous female.

Description. — The carapace is about trapezoid or hexagonal, with a distinct rostrum. It is longer than wide with the rostrum, and slightly wider than long without. The rostrum is triangular with a bluntly rounded apex, it measures about  $2/7$  of the length of the carapace. It is slightly longer than it is wide at the base; its basal width being about 4 times the distal width. The upper surface of the rostrum shows a concavity, which is narrowest in the basal part and widens distally. The lower surface is evenly convex, apart from the two basal concavities formed by the antennular sockets. The anterolateral angle of the carapace shows a large rounded, forwards produced lobe, which reaches as far forward as the eyes. Slightly behind the line that connects the outer basal part of these two anterolateral lobes, the carapace rises suddenly and steeply, forming a high, transverse, rounded ridge. This ridge shows a broad, rounded, longitudinal median groove, which is a continuation of the median concavity of the rostrum. At either side of this median groove there is a blunt, but high and very distinct longitudinal ridge. These two submedian ridges merge posteriorly and are confined to the anterior third of the carapace. Outside these ridges there is on either side a deep groove similar to the median groove. These two intermediate grooves also converge posteriorly. The outer part of the postfrontal ridge is sharp and forms a lobe which partly overhangs the anterolateral lobe. The posterior two-thirds of the carapace is rather flat and gradually merges with the lateral surface. The greatest width of the carapace lies slightly before the posterior margin. The lateral margin merges with the posterior under a broadly curved angle. The posterior margin is concave in the middle.

The abdomen in the only specimen at my disposal, an ovigerous female, is very broad, being somewhat broader than the carapace. It is cup-shaped, with all segments distinct.

The eyes are small and immovable. The cornea is narrower than the stalk. The eyes are placed in small orbits at either side of the base of the rostrum, and are visible in dorsal view.

The antennulae are folded lengthwise. The antennae are very short; the flagellum consists of a few segments and reaches slightly beyond the eyes.

The third maxillipeds are placed obliquely, almost transversely and fill the entire buccal cavity. The basis is very small, the ischium and merus are fused to a large segment which is widened distally and broadly rounded there, with the distal margin emarginate. The palp is three-segmented and very much smaller than the merus. The carpus is placed in the middle of the distal margin of the merus, it is about 1.5 times longer than wide and about  $1/4$  as wide as the distal part of the merus. The propodus is narrower than the carpus and about half as long. The dactylus is distinctly shorter and narrower than the propodus, at the end of which it is placed. The exopod is large, being slightly longer than the merus; it is divided into two distinct parts. A large epipod is present, which is longer than the rest of the third maxilliped.

The chelipeds are of equal shape and size. They are much stronger than the ambulatory legs, and reach with the entire chela beyond the rostrum. The palm is somewhat swollen, about 1.5 times as long as wide, and widens from the base distally. The fingers are about as long as the palm is wide distally, they are of equal length and directed forwards, not down. At their base the fingers together are somewhat narrower than the palm, so that the lower margin of the chela shows a slight, but distinct bump at the distal end of the lower margin of the palm. The fingers are both straight, with the tips sharp, strongly curved and crossing; they do not gape. The cutting edge of the fixed finger is straight and heightened in the distal two-thirds, in the proximal third a single blunt tooth is present. The cutting edge of the dactylus bears a small, but distinct triangular sharp tooth at the end of the proximal third. The inner surface of the fingers bears tufts of rather long hairs. The carpus is about half as long as the chela, it is unarmed and narrows at the base. The merus is about as long as the carpus.

The second and fourth pereopods are of about the same length and shape. The dactylus of the second leg is slender, being about three times as long as wide at the base; it is simple with a sharp curved tip; it bears some very short, but no long hairs. The propodus is about twice as long as the dactylus and almost four times as long as wide. The carpus is about as long as the

propodus. The merus is much longer, being 1.5 times as long as the carpus and somewhat more than four times as long as wide. None of the segments is conspicuously hairy; if hairs are present, these are short. The third pereopod is slightly longer than the second or fourth, but is similar in shape. The left third pereopod is a trifle longer than the right. The fifth pereopod is the shortest of all. The dactylus is slightly more than half as long as the propodus, and is about twice as long as it is wide at the base. The tip is very sharp and more strongly curved than in the other legs. A conspicuous tuft of long hairs is placed in the middle of the posterior margin; this tuft is absent in the other legs. The propodus is about 3.5 times as long as wide, it bears a tuft of longish hairs in the distal part of the posterior margin. The carpus is distinctly shorter than the propodus, while the merus is about as long as the propodus, or slightly longer; like the propodus, the merus is about 3.5 times as long as wide. All segments of the fifth leg are wider than those of the second to fourth.

The sternum in this ovigerous female is very wide and concave for the reception of the eggs.

Size. — The ovigerous female has cl. 4.3 mm, cb. 4.2 mm. The eggs are numerous and small and have a diameter of about 0.3 mm.

Colour. — The colour of the living animal was noted to be bright yellow, the eggs being orange.

Host. — The specimen was found living in the mantle cavity of the bivalve mollusk, *Lima tenera* Sowerby.

Remarks. — When collected the specimen was recognized as something unusual and therefore also noted in the narrative of the expedition (Staiger & Voss, 1970: 31).

So far the only Pinnotheridae reported as commensals of *Lima* species are all Indo-West Pacific forms: *Pinnotheres glaberrimus* Bürger, 1895, from "*Lima divaricata* Dujardin", an unidentifiable species, and *Durckheimia caeca* Bürger, 1895, from *Lima squamosa* Lamarck and *L. sowerbyi* Deshayes (see Schmitt, McCain & Davidson, 1973: 9). The genus *Durckheimia* differs greatly from *Limotheres* by the shape of the third maxilliped and that of the carapace.

Type. — The only specimen, the holotype, is deposited in the collection of the National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A., under no. U.S.N.M. 161039.

#### REFERENCES

- SCHMITT, W. L., J. C. MCCAIN & E. S. DAVIDSON, 1973. Decapoda I. Brachyura I. Fam. Pinnotheridae. — *Crustaceorum Catalogus*, 3 : 1-160.  
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