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Article · October 1983

DOI: 10.1590/1809-439219831356943

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THE PARASITIC CRUSTACEANS OF FISHES FROM
THE BRAZILIAN AMAZON

8 **ACUSICOLA LYCENGRAULIDIS** N. SP. (COPEPODA: CYCLOPIDEA)
FROM **LYCENGRAULIS GROSSIDENS** CUVIER

VERNON E. THATCHER
WALTER A. BOEGER

ABSTRACT

The female of **Acusicola lycengraulidis** n. sp. (Copepoda: Cyclopidea) is described from the gills of an Amazonian fish, **Lycengraulis grossidens** Cuvier. The new species differs from the other three known for the genus in having an inflated cephalothorax which incorporates the first leg bearing segment. The new species therefore has only five free thoracic segments instead of six. Also, **A. lycengraulidis** n. sp. has a more slender second segment on the first endopod and a curved and pointed terminal segment on the fourth endopod.

The genus **Acusicola** (Ergasilidae) was proposed by Cressey (1970, in Cressey & Collette, 1970) to include **Ergasilus tenax** Roberts, 1965, from a Texas crappie, as type, and **A. cunula** Cressey, 1970, from an Amazonian needlefish. Although Johnson and Rogers (1972) and Kabata (1979) rejected the genus and left both these species in **Ergasilus**, Thatcher (1984) recognized and emended **Acusicola** and included a third species, **A. tucunarense** Thatcher, 1984. The latter author also proposed the subfamily Acusicolinae which he defined as those ergasilids having a 5-segmented antennule and a 4-segmented latching antenna having a grooved third segment for reception of the opposite claw. Present studies indi-

cate that **Acusicola** will prove to be an important Neotropical genus. An additional new species of this genus is herein described and it represents the third known from the Brazilian Amazon.

MATERIALS AND METHODS

Living ergasilids were collected by severing the gill filaments to which they were attached. They were killed by immersion in 70% alcohol and afterwards removed from the filaments by dissection. The methods used in their preparation and study were those explained in Thatcher (1981) and Thatcher & Robertson (1982). Color determinations were made with reference to Smithe (1974). Drawings were made with the aid of a camera lucida and measurements with an ocular micrometer. All measurements are given in microns.

SYSTEMATIC SECTION

ERGASILIDAE NORDMANN, 1832
ACUSICOLINAE THATCHER, 1984
ACUSICOLA CRESSEY, 1970

Acusicola lycengraulidis n. sp.
(Figs. 1-11)

Host: **Lycengraulis grossidens** Cuvier.
Site: Gill Filaments.
Locality: Tocantins River, Pará, Brazil.

Instituto Nacional de Pesquisas da Amazônia, Manaus

Male: Unknown.

Holotype (female): Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Amazonas, Brazil.

Paratypes: INPA and Museu de Zoologia da Universidade de São Paulo, São Paulo, S.P., Brazil.

Etymology: The species name was derived from the generic name of the host fish.

Species diagnosis (33 specimens studied; 10 measured): Measurements in Tables I & II. Cephalothorax inflated, rounded anteriorly (Fig. 1).

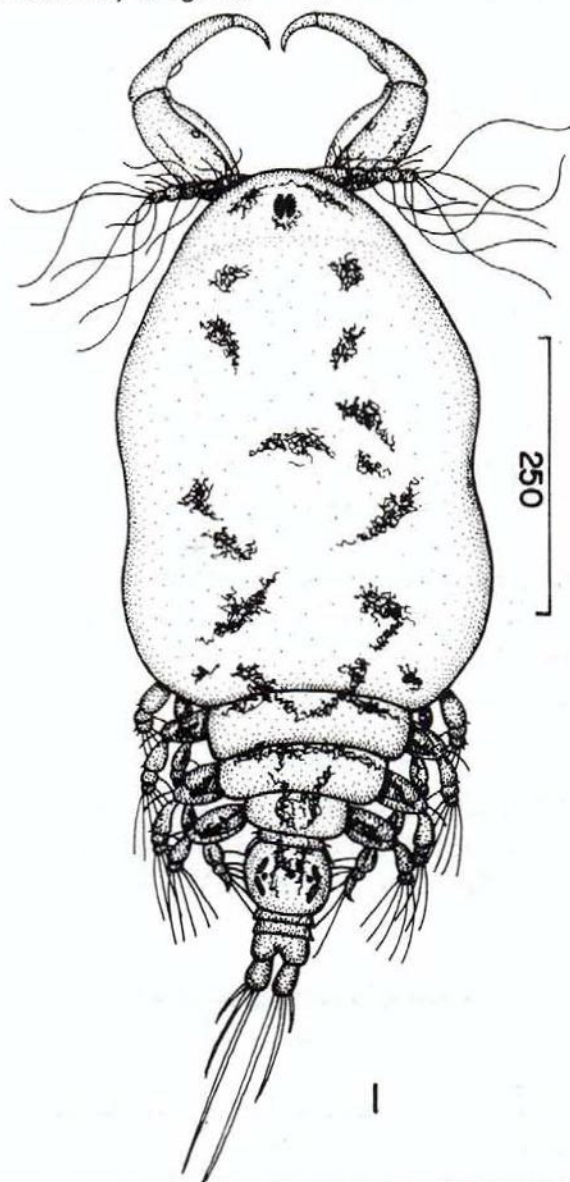


Fig. 1. *Acusicola lycengraulidis* n. sp. (female) dorsal view.

Eyespot prominent, smalt blue in color (Color 70 of Smithe, 1974). Campanula (Color 71) pigmentation scattered ventrally from eyespot to genital segment. Dark areas in Figs. 1, 3, 5, 7, 8, & 9 indicate pigment distribution.

Thorax (Fig. 1) of five free segments; legs 2–5 on free segments. Genital segment subrectangular (Fig. 3).

Abdomen (Fig. 3) of three segments. Uropod longer than wide, with long, medium and short setae.

Egg sac (Fig. 6) elongate; contains 50–150 small eggs.

Mouthparts (Fig. 11): mandible bifid, with bristles on posterior margin; palp bristled anteriorly. First maxilla reduced; bearing two small setae. Second maxilla conical; bearing fine bristles. First antenna (Fig. 5) 5-segmented; first segment larger than others. Setal formula = 10–2–3–2–6; setal total = 23. Second antenna (Fig. 2) 4-segmented; second segment slightly longer than segments 3 & 4 combined. Third segment with prominent groove about midway on its length which serves to receive the fourth segment (claw) of opposite antenna when these are latched. Claw small, with medial indentation.

Legs (Figs. 7–10; Table III); Leg 1 (Fig. 7) with 2-segmented endopod and 3-segmented exopod; endopod somewhat longer than exopod. Endopod pectinate laterally; first segment with one simple medial seta; terminal segment with three simple medial setae and two stout terminal spines. Exopod with a single lateral spine on first segment; second segment pectinate laterally and with a single plumose seta medially; third segment with two spines laterally and four plumose setae terminally. Legs 2 & 3 (Fig. 8) closely similar; all rami of three segments; first endopodal segment pilose laterally and with a single medial plumose seta; second segment pectinate laterally and with two medial plumose setae; third segment pectinate laterally, tapering to a

TABLE I

Measurements (um) of 10 Adult Females of *Acusicola lycengraulidis* n. sp.

	Length	Width
Body (less caudal setae)	800-950(885)	275-400(358)
Cephalothorax	525-600(553)	275-400(358)
Free Thoracic Segments		
III	50-81(63)	138-223(196)
IV	48-70(62)	115-180(143)
V	40-73(54)	93-113(101)
VII (genital)	53-85(76)	73-93(84)
Abdominal Segments		
I	10-15(12)	40-58(51)
II	8-15(12)	43-53(50)
III	23-30(26)	45-50(48)
Uropod	33-48(38)	18-23(22)
Eggs Sac	575-700(632)	100-125(116)
Caudal Setae	150-200(181)	— — —

TABLE II

Antennal Measurements (um) of 10 Adult Females of *Acusicola lycengraulidis* n. sp.

	Length	Width
Antenna I (antennule)	98-120(111)	20-28(25)
Antenna II (prehensile)		
Segment 1	63-98(75)	40-53(47)
2	120-190(163)	40-80(63)
3	80-120(103)	20-30(26)
4	43-53 (49)	13-15(14)

TABLE III

Relationships of Spines to Setae on the Legs of *Acusicola lycengraulidis* n. sp.

	Exopod	Endopod
Leg 1	I-0, 0-1, II-4	0-1, II-3
2	I-0, 0-1, 0-6	0-1, 0-2, I-4
3	I-0, 0-1, 0-6	0-1, 0-2, I-4
4	0-0, 0-5	0-1, 0-2, 0-3

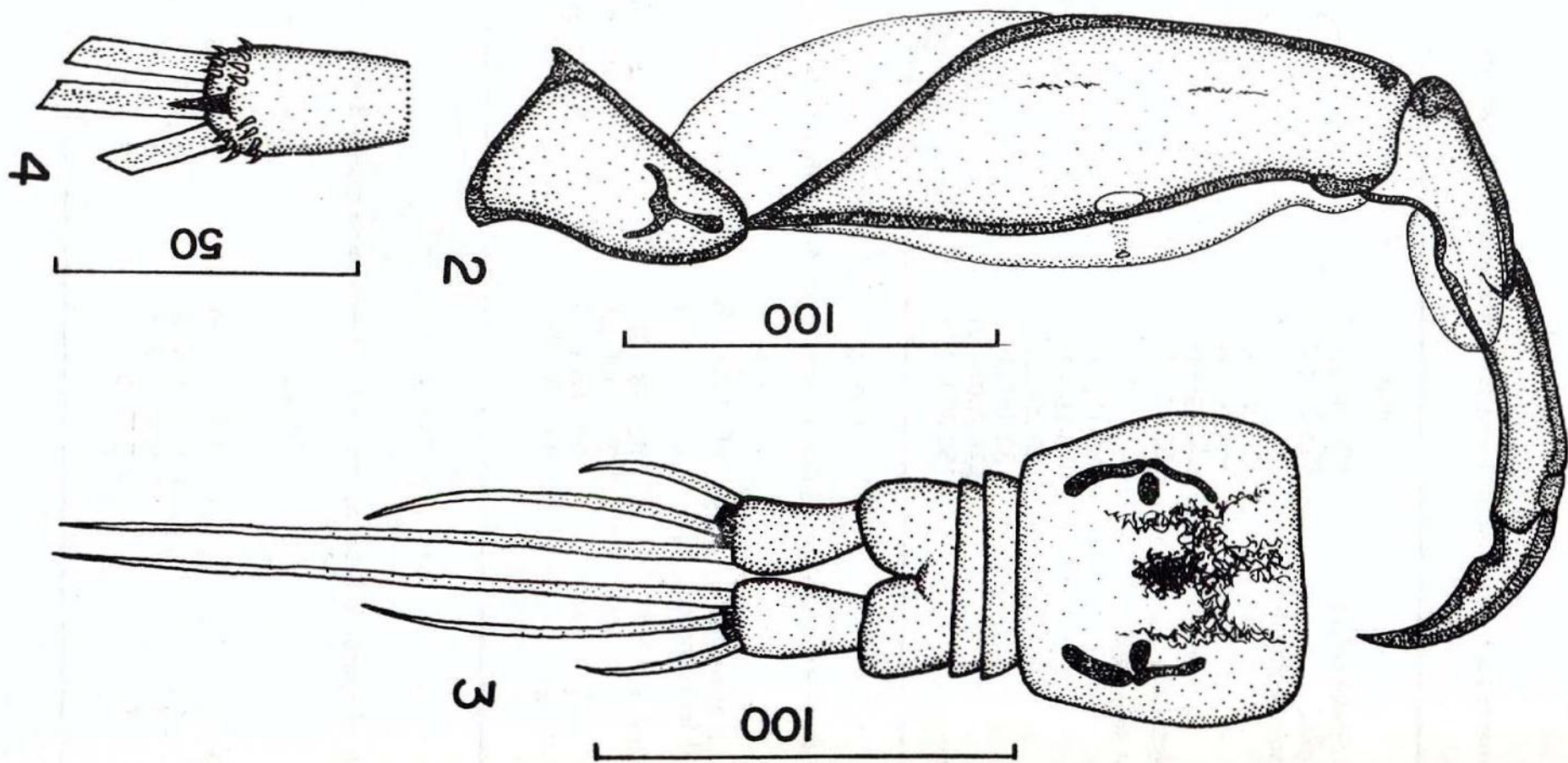


Fig. 2. *A. lycengraulidis* n. sp., antenna. - Fig. 3. Genital segment, abdomen and uropods. - Fig. 4. Uropod, ventral aspect.

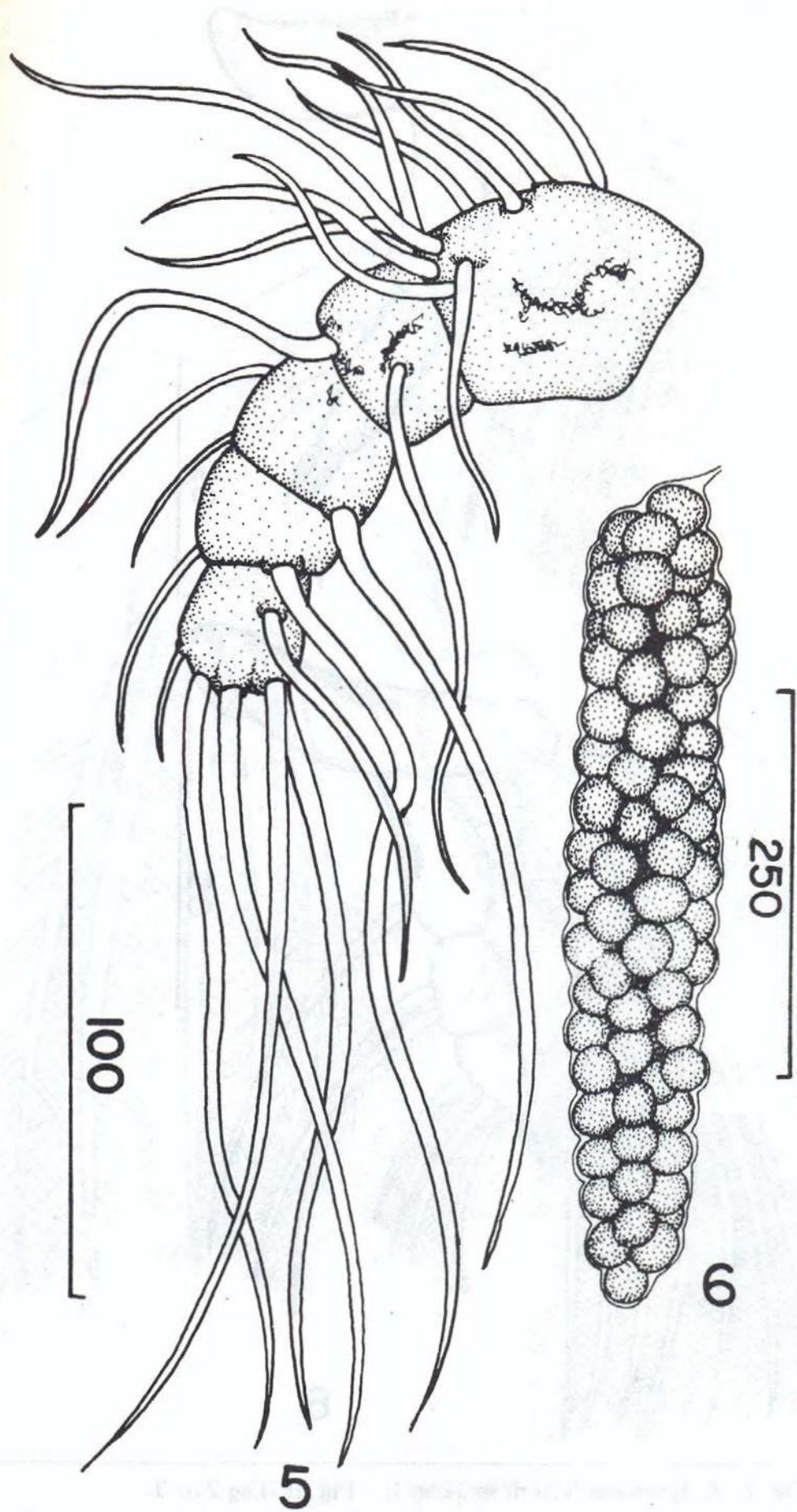


Fig. 5. *A. lycengraulidis* n. sp., antennule. Fig. 6. Egg sac.

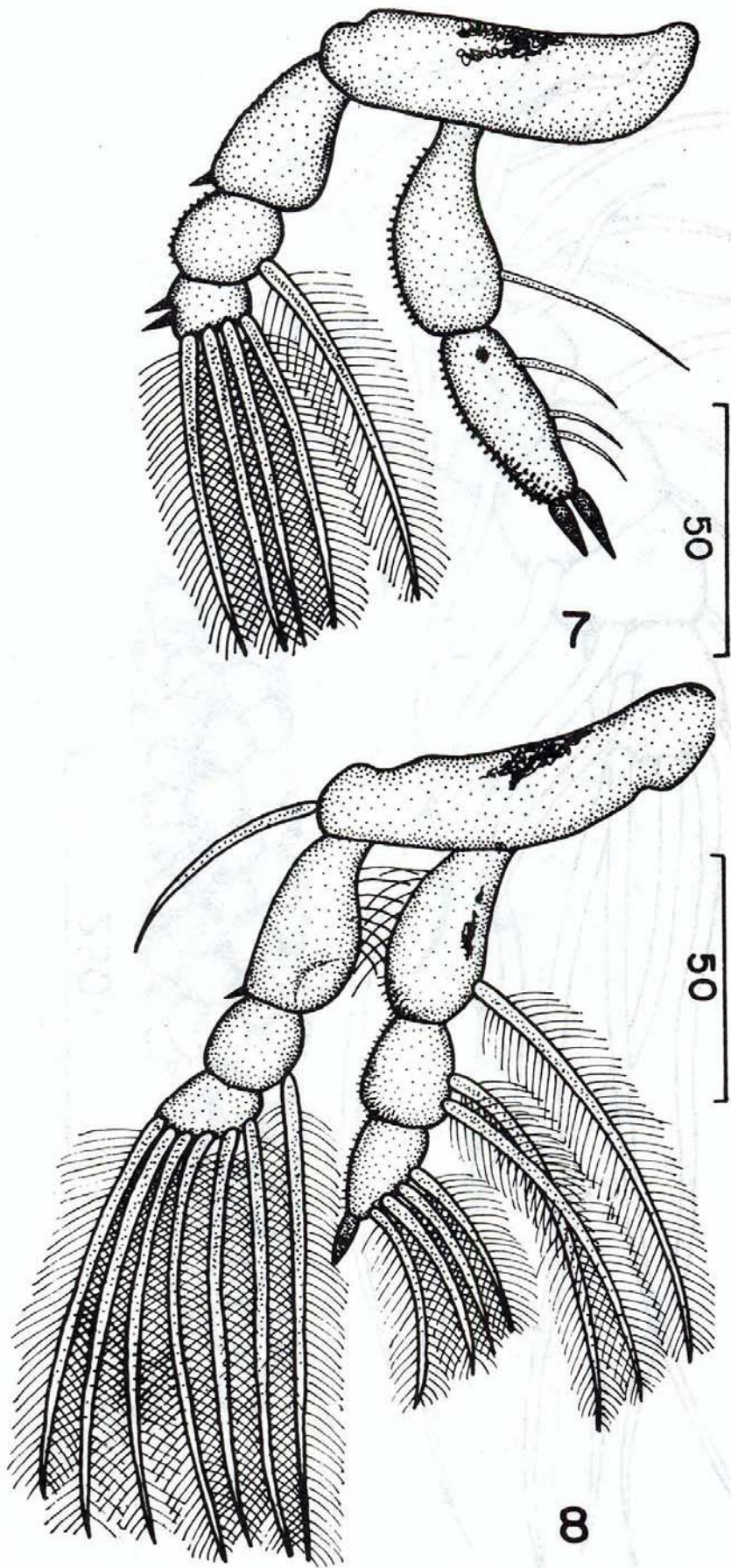


Fig. 7. *A. lycengraulidis* n. sp., Leg 1. Fig. 8. Leg 2 or 3.

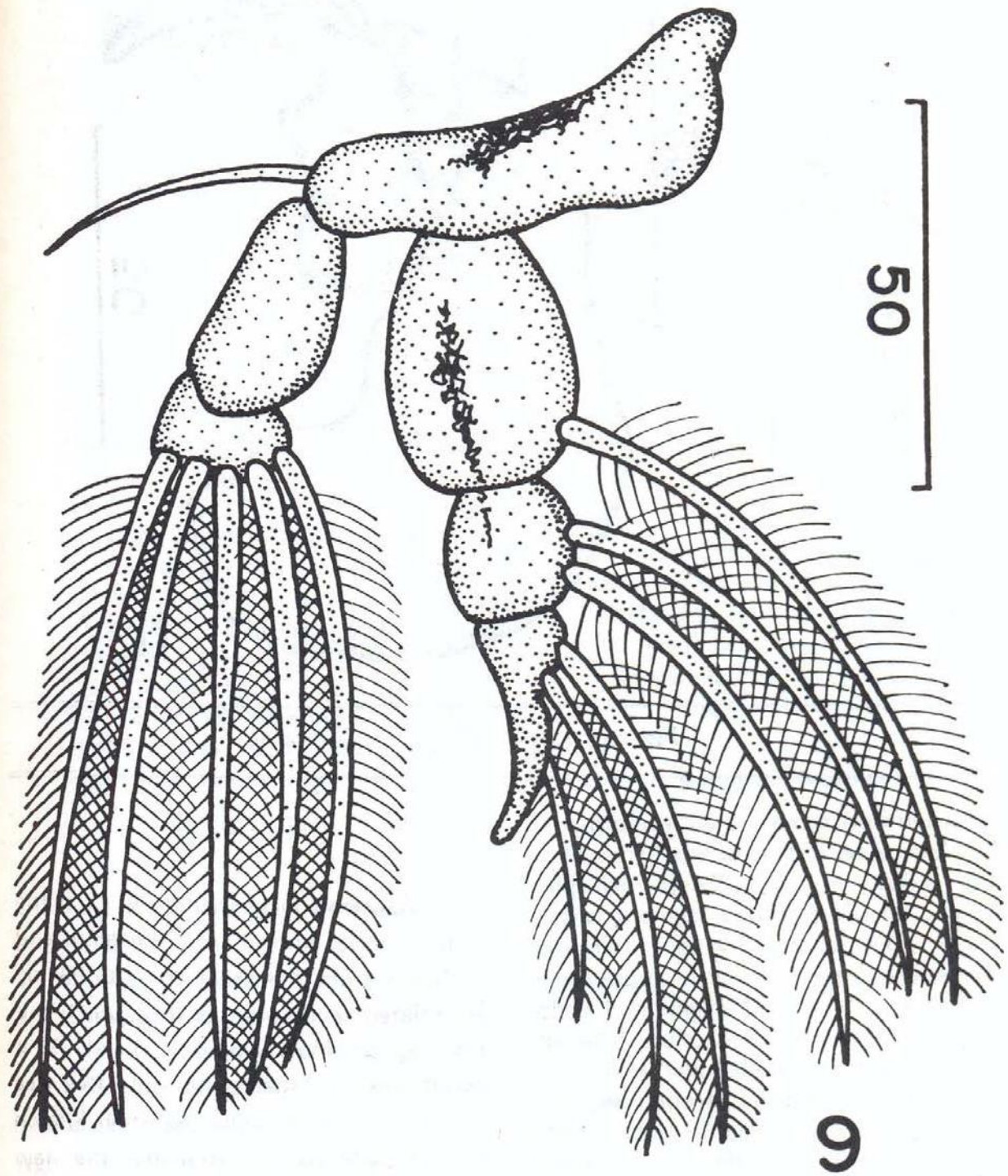


Fig. 9. *A. lycengraulidis* n. sp., Leg 4.

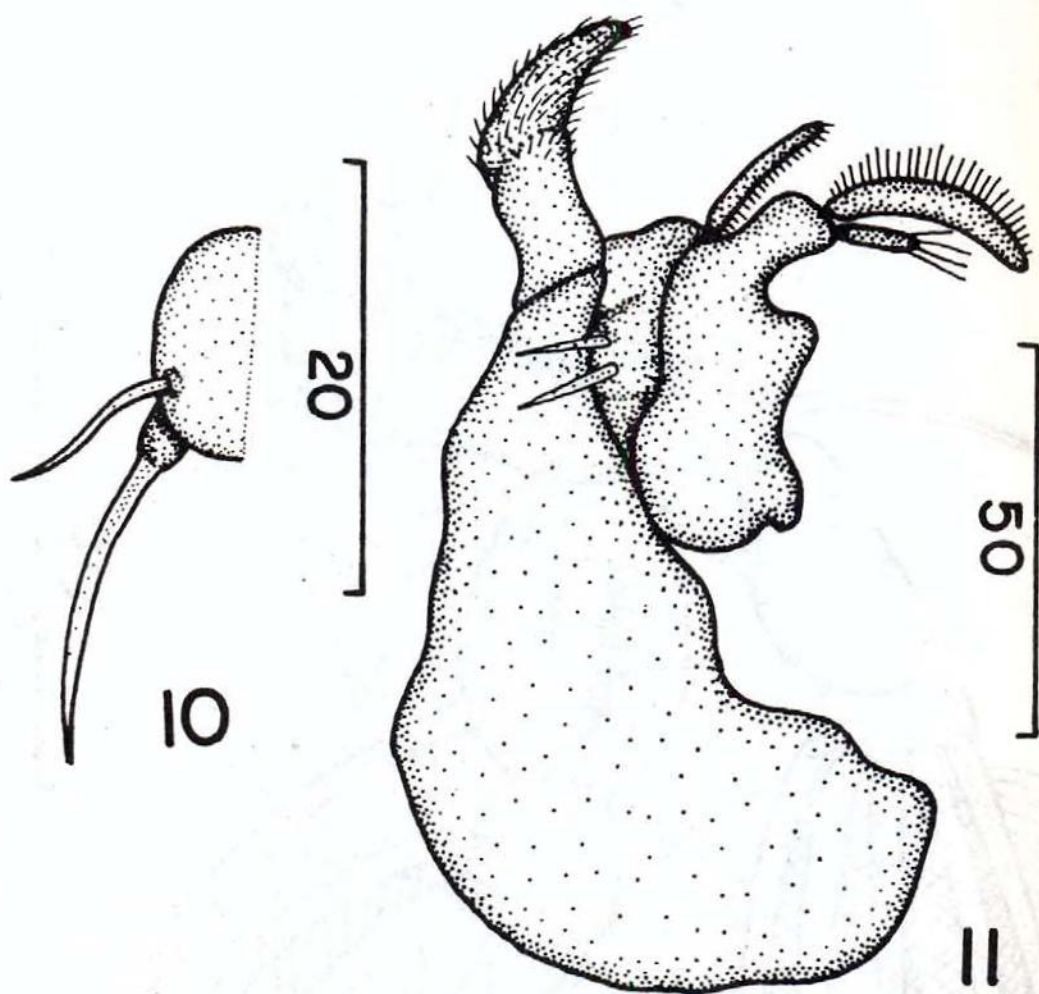


Fig. 10. Leg 5 Fig. 11. Mouthparts.

stout terminal spine and with four medial plumose setae. First exopodal segment pilose medially and with a single small spine postero-laterally; second segment with a single plumose seta medially; terminal segment with six terminal plumose setae. Leg 4 (Fig. 9) with 3-segmented endopod and 2-segmented exopod. First endopodal segment swollen and with single plumose seta medially; second segment with two plumose medial setae; third segment curved, tapering to a point and with three medial plumose setae. First exopodal segment without spines or setae; second segment with five terminal plumose setae. Leg 5 (Fig. 10) of two simple setae the more posterior one being the larger.

DISCUSSION

Acusicola lycengraulidis n. sp. is the fourth species known from the genus and it differs from the other three in having an inflated cephalothorax into which the first leg bearing segment is fused. As a result, the new species has only five free thoracic segments while the other known species have six. Additionally, the new species is the only one of the four which has the second segment of the first endopod more slender than the first and a curved, pointed terminal segment on the fourth endopod.

Resumo

A fêmea de *Acusicola lycengraulidis* n. sp. (Copepoda: Cyclopidea) é descrita das brânquias de um peixe amazônico, *Lycengraulis grossidens* Cuvier. A nova espécie distingue-se das outras três deste gênero por ter um cefalotorax inflado, o qual incorpora o primeiro segmento que leva pernas. Portanto, a nova espécie somente tem cinco segmentos torácicos livres, e não seis. *A. lycengraulidis* n. sp. também tem o segmento terminal do primeiro endopódito mais fino e o terceiro segmento do quarto endopódito curvado e apontado.

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(Aceito para publicação em 11/11/83)