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The parasitic Crustaceans of fishes from the Brazilian Amazon
 10 - *Acusicola pellowidis* n. sp. (Copepoda : Cyclopidea) from
Pellona castelnaeana (VALENCIENNES)

by

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Abstract

The female of *Acusicola pellowidis* n. sp. (Copepoda : Cyclopidea) is described from the gills of an Amazonian fish, *Pellona castelnaeana* (VALENCIENNES). The new species is distinguished from all others known for the genus by its larger size, longer antennae, sparse pigmentation and by the presence of a Y-shaped reinforcing structure in the dorsal wall of the cephalothorax.

Keywords: parasitism, Crustaceans, fishes, Amazon

Introduction

The genus *Acusicola* (Ergasilidae) was proposed by CRESSEY (1970; in CRESSEY & COLLETTE 1970). Although this genus was rejected by JOHNSON & ROGERS (1972) and by KABATA (1979), it was reinstated and emended by THATCHER (1984). *Acusicola* presently contains the following species: *A. tenax* (ROBERTS 1965) from Texas as type; *A. cunula* CRESSEY, 1970, from Pará, Brazil; *A. tucunarensis* THATCHER, 1984, from Manaus, Amazonas, Brazil and *A. lycengraulidis* THATCHER & BOEGER, 1984, from Manaus, Amazonas, Brazil. A new species of this genus is herein described which represents the fourth known from the Brazilian Amazon.

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Material and Methods

Living ergasilids were collected by severing the gill filaments to which they were attached. They were then killed by immersing the filaments in 70 % alcohol and afterwards removed by dissection. The methods used in their preparation and study were those explained in THATCHER (1981) and in 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 microscope. All measurements are given in micrometers.

Systematic Section

Ergasilidae NORDMANN, 1832

Acusicolinae THATCHER, 1984

Acusicola CRESSEY, 1970

Acusicola pellowidii n. sp.
(Figs. 1 - 13)

- Host: *Pellona castelnaeana* (VALENCIENNES); Clupeidae.
 Site: Gill filaments.
 Locality: Amazon River near Manaus, Amazonas, Brazil.
 Male: Unknown.
 Holotype (female): Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Amazonas, Brazil, No. PA-238-1.
 Paratypes: INPA and Museu de Zoologia da Universidade de São Paulo, São Paulo, S. P., Brazil.
 Etymology: The specific name of the parasite was formed from the generic name of the host fish.

Species diagnosis (based on 18 specimens studied and 10 measured; Tables I and II): Cephalothorax ovoid, tapering anteriorly and posteriorly; internal Y-shaped chitinous ridge for muscle attachment present (Fig. 1). Eyespot diffuse; of cobalt blue granules (Color 68 of SMITHE 1974). Cobalt body pigmentation ventrally located, widely scattered; pigment distribution indicated by dark areas in Figs. 1, 3, 6, 7, 8, 9, 10 and 11.

Antennae (Figs. 2, 3 and 7; Table II). Antennule of five segments (Fig. 7); bearing simple setae; setal formula = 8 - 4 - 4 - 3 - 7; total = 26. Prehensile antenna four-segmented (Fig. 3); second segment elongate, nearly as long as other three segments 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, slightly curved.

Thorax (including genital segment) of five free segments (Fig. 1). Segments 2 - 5 bearing swimming legs; segment 6 with vestigial 5th legs. Genital segment subspherical (Fig. 6).

Abdomen (Fig. 6) three-segmented; third segment about as long as other two combined. Each uropod with one long, one medium and one short seta.

Mouthparts (Fig. 13). Mandible bifid; longer portion with stylet-like bristles: palp serrate posteriorly: maxillule not observed: maxilla with prominent terminal teeth and anterior bristles.

Legs (Figs. 8 - 12; Table III). Leg 1 (Fig. 8); endopod two-segmented, exopod three-segmented: first endopodal segment laterally bristled and with one plumose medial seta; second endopodal segment laterally bristled and with two stout terminal spines and five small plumose setae medially: first exopodal segment with few medial hairs and one small postero-lateral spine; second segment with a single plumose seta medially; third segment with two thin postero-lateral spines and five plumose setae. Leg 2 (Fig. 9) with both rami three-segmented: first endopodal segment sparsely pilose laterally and with one plumose seta medially; second segment with few hairs laterally and two plumose setae medially; third segment with few hairs laterally, a slender terminal spine and four plumose setae medially: first exopodal segment

Table 1: Measurements

Body (less caudal setae)
Cephalothorax
Free thoracic segments
III
IV
V
VI
VII
Abdominal segments
I
II
III
Uropod
Caudal setae
Egg sac

Table 2: Antennal segments

Antenna I (antennule)
Antenna II (prehensile)
Segment 1
2
3
4

Table 3: Relationships

Leg

Table 1: Measurements (μm) of 10 adult females of *Acusicola pellowidii* n. sp.

	Length	Width
Body (less caudal setae)	1,025 - 1,275 (1,126)	300 - 425 (389)
Cephalothorax	575 - 670 (623)	300 - 425 (389)
Free thoracic segments		
III	110 - 140 (119)	250 - 280 (265)
IV	70 - 100 (90)	180 - 210 (198)
V	70 - 90 (77)	120 - 140 (132)
VI	20 - 30 (25)	70 - 85 (77)
VII	80 - 88 (83)	98 - 115 (105)
Abdominal segments		
I	13 - 18 (16)	63 - 68 (65)
II	13 - 18 (15)	63 - 65 (64)
III	30 - 35 (31)	58 - 68 (63)
Uropod	40 - 50 (44)	23 - 28 (26)
Caudal setae	140 - 190 (167)	—
Egg sac	625 - 830 (721)	70 - 80 (73)

Table 2: Antennal measurements (μm) of 10 adult females of *Acusicola pellowidii* n. sp.

	Length	Width
Antenna I (antennule)	160 - 180 (163)	30 - 40 (37)
Antenna II (prehensile)		
Segment 1	150 - 170 (165)	60 - 90 (72)
2	320 - 370 (356)	60 - 90 (72)
3	120 - 180 (165)	30 - 40 (34)
4	50 - 75 (68)	15 - 20 (17)

Table 3: Relationships of spines to setae on the legs of *Acusicola pellowidii* n. sp.

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

with one small postero-lateral spine; second segment with one plumose seta medially; terminal segment with one spinule and six plumose setae. Leg 3 (Fig. 10) with both rami three-segmented: first endopodal segment with one plumose seta medially and few hairs laterally; second segment sparsely pilose laterally and with two plumose setae medially; third segment with few hairs laterally and with one slender spine and four plumose setae; first exopodal segment with one small spine postero-laterally; second segment with one plumose seta medially; terminal segment with six plumose setae. Leg 4 (Fig. 11) with three-segmented endopod and two-segmented exopod: first endopodal segment sparsely pilose laterally and with one plumose seta medially; second segment with few hairs laterally and two plumose setae medially; third segment with few hairs laterally and with one terminal spine and three plumose setae. first exopodal segment pectinate laterally but without spines or setae; terminal segment pectinate laterally and with five plumose setae. Leg 5 (Fig. 12) reduced to two small simple setae.

Egg sac (Fig. 4) elongate, with 30 - 90 small spherical eggs.

Discussion

Of the five species presently known in this genus, *Acusicola pellowidii* n. sp. is the largest (1,025 - 1,275 micrometers). The sizes for the other species are: *A. tenax*, 732 - 834; *A. cunula*, 652; *A. tucunarensis*, 720 - 970; and *A. lycengraulidis*, 800 - 950. Since the new species is larger, all measurements are correspondingly greater, however, the second antennal segment of *A. pellowidii* n. sp. is relatively much longer (320 - 370). The longest second antennal segment among the other species is that of *A. tucunarensis* which reaches a maximum of 300 micrometers. All four of these Amazonian species have a relatively simple antennal latch (Fig. 2). This character serves to distinguish them from *A. tenax* in which the latch is more complex and the claws are sharply curved. *A. pellowidii* n. sp. is also the species with the fewest pigment granules, and the only one with a Y-shaped reinforcement in the dorsal wall of the cephalothorax.

Resumo

A fêmea de *Acusicola pellowidii* n. sp. (Copepoda : Cyclopidea) é descrita das brânquias de um peixe amazônico, *Pellona castelnaeana* (VALENCIENNES). A nova espécie distingue-se das demais espécies conhecidas no gênero pelo seu tamanho maior, suas antenas mais compridas, sua pigmentação esparsa e pela presença de uma estrutura especial em forma de "Y" na parede dorsal do cefalotorax.

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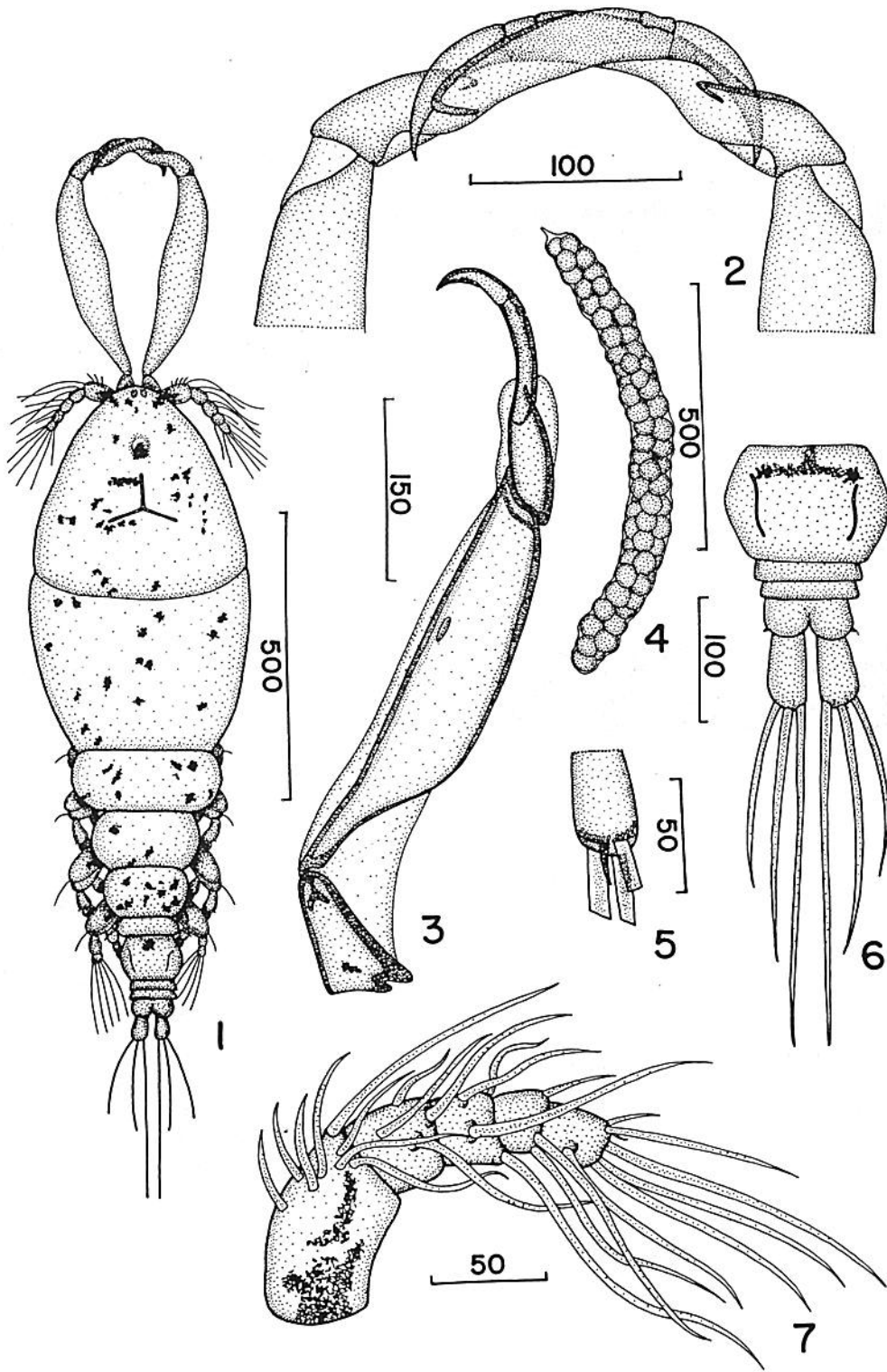


Plate 1:

Acusicola pellowidii n. sp. (female).

Fig. 1: Dorsal view; Fig. 2: Latched antennae; Fig. 3: Antenna; Fig. 4: Egg sac;
 Fig. 5: Uropod, ventral view; Fig. 6: Genital segment, abdomen and uropods;
 Fig. 7: Antennule (scale in μm).



Plate 2:

Acusicola pello.

Fig. 8: Leg 1; F
 Fig. 13: Mouth

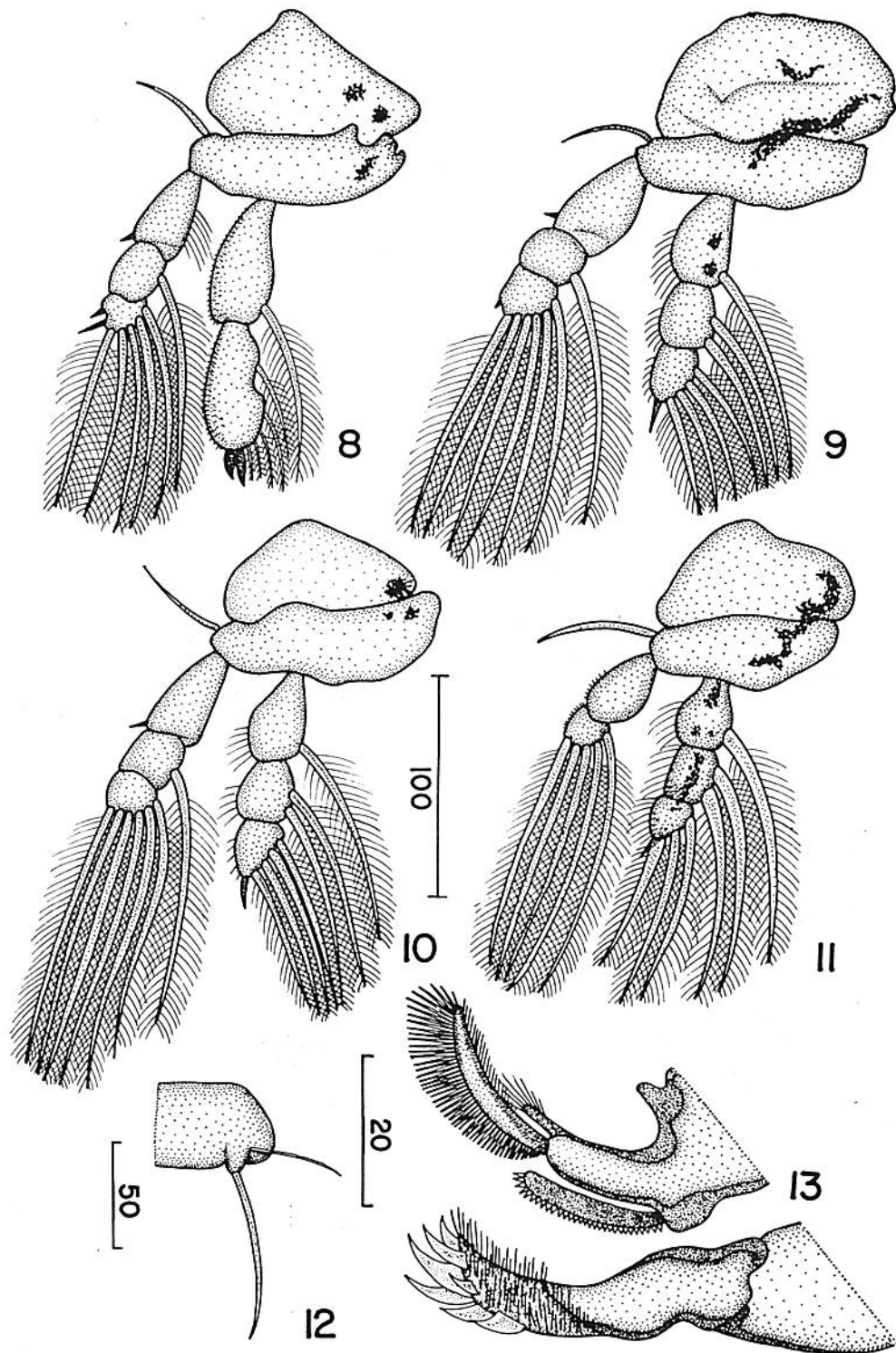


Plate 2:
Acusicola pellationis n. sp. (female).
 Fig. 8: Leg 1; Fig. 9: Leg 2; Fig. 10: Leg 3; Fig. 11: Leg 4; Fig. 12: Leg 5;
 Fig. 13: Mouthparts (scale in μm).