

AMAZONIANA	IX	1	119 – 126	Kiel, Dezember 1984
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The parasitic crustaceans of fishes from the Brazilian Amazon,
 15., *Gamispatulus schizodontis* gen. et sp. nov.
 (Copepoda: Poecilostomatoida: Vaigamidae) from the nasal fossae of
Schizodon fasciatus AGASSIZ

by

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Abstract

The female of *Gamispatulus schizodontis* gen. et sp. nov. (Copepoda: Poecilostomatoida: Vaigamidae) is described from the nasal fossae of an Amazonian fish, *Schizodon fasciatus* AGASSIZ. The new genus differs from the other genera of the family by having a lateral retrostylet with a medial spatulate process, a wide flat rostral projection and a 5-segmented antennule.

Keywords: Nasal parasite, copepods, fishes, Amazon.

The family Vaigamidae was proposed by THATCHER & ROBERTSON (1984) for ergasiloids having lateral retrostylets on the first thoracic segment. They described males and females of two species of *Vaigamus* that had been found in plankton samples. Since then, THATCHER & BOEGER (1984a, 1984b) have described *Gamidactylus* and *Gamispinus* as new genera of this family. The present paper contains the description of the fourth known genus of Vaigamidae.

This study was done as a part of the "Ecology of the Amazonian Floodplain" project which is being conducted under a cooperative agreement between the Brazilian National Institute for Amazonian Research (INPA), Manaus, Brazil, and the Department of Tropical Ecology of the Max-Planck-Institute, West Germany.

0065-6755 / 1984 / 119 / © MPI für Limnologie, AG Tropenökologie, Plön; INPA, Manaus

Materials and Methods

Nasal cavities of fish hosts were opened with scissors and the mucous within was removed with forceps. The mucous was examined under a dissecting microscope and the vaigamids removed with fine needles. The copepods were fixed in AFA (Alcohol-Formalin-Acetic acid) and later stained and cleared in phenol containing acid fuschin stain. Permanent slides were made by passing specimens through balsam-phenol to pure balsam. Dissections were made with the aid of glass needles. Color determinations were made with reference to SMITHE (1975). Drawings were done with a camera lucida and measurements with a measuring ocular. All measurements are expressed in micrometers.

Systematic Section

Poecilostomatoidea KABATA, 1979

Vaigamidae THATCHER & ROBERTSON, 1984

Gamispatulus gen. nov.

Generic diagnosis. Vaigamidae. Female: Cephalothorax bullet-shaped with dorso-lateral retrostylets bearing medial spatulate processes. Antennular region produced anteriorly. Rostrum with tapered ventral extension. Antennule 5-segmented. Antenna 4-segmented; third segment with curved moveable spine distally; fourth segment claw-like with medial pore-like sensillum. Legs: first endopod 2-segmented; first exopod 3-segmented; fourth endopod 2 or 3-segmented; fourth exopod 1 or 2-segmented; all rami of legs 2 and 3 of three segments; leg 5 reduced to one or two setae; sixth leg absent. Male: Unknown. Female parasitic in nasal fossae of fishes; male presumably free-living. Type species: *Gamispatulus schizodontis* sp. nov.

Gamispatulus schizodontis sp. nov.

(Figs. 1 - 11)

Host: *Schizodon fasciatus* AGASSIZ.

Site: Nasal fossae.

Locality: Marchantaria Island, near Manaus, Amazonas, Brazil.

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

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

Male: Unknown.

Etymology: "Gam" is an Amazonian amerind name for a parasitic crustacean and "spatulus" refers to the flattened spatulate appearance of the accessory process on the retrostylet. The specific name is derived from the generic name of the fish host.

Species diagnosis (based on 22 females studied and 10 measured; Tables I and II): Cephalothorax formed of head fused with first two thoracic segments (Fig. 2). Eye prominent, spectrum blue (color 69 of SMITHE 1975). Small blue (color 70) scattered in body (dark areas in Fig. 2). Retrostylets double; lateral projection sharply tapered; dorsal process flat and rounded terminally (Figs. 2 and 10). Rostrum with flattened blunt process ventrally (Fig. 5).

Free thorax 5-segmented (Fig. 2). Pregenital segment wider than long, bearing leg 5, of two simple setae (Fig. 11). Genital segment tapered posteriorly (Fig. 11).

Abdomen (Fig. 11) 3-segmented, with postero-lateral spinules. Uropod (Fig. 11) with one long and one short seta and few postero-lateral spinules.

Antennule (Fig. 6) 5-segmented, bearing simple setae; setal formula = 10 - 3 - 4 - 2 - 8; total = 27. Antenna (Fig. 3) 4-segmented; basal segment with single terminal spine; second segment with spine-like sensillum medially and numerous spinules on opposite side; segment 3 with spine-like sensillum proximally and curved moveable spine distally; segment 4 claw-like, with simple pore-like sensillum medially; ratio of segmental lengths = 1.6 : 2.4 : 1.3 : 1.

Mouthparts (Fig. 4); mandible with bristled tip, palp bristled posteriorly; maxillule not observed; maxilla with anterior spinules.

Legs (Figs. 7 - 9). Basipods of legs 1 - 3 each with single simple seta, laterally; coxa of leg 4 with few lateral spinules; all other setae of legs 1 - 4 pinnate. Leg 1 (Fig. 7), endopod 2-segmented, exopod 3-segmented: first endopodal segment pectinate laterally and with one medial seta; terminal segment antero-laterally pectinate, with 5 medial setae and 2 terminal spines: first exopodal segment pectinate laterally, with few hairs medially and one blunt and one slender spine postero-laterally; second segment pectinate laterally and with one seta medially; terminal segment with two slender lateral spines and 5 medial setae. Leg 2 = Leg 3 (Fig. 8); coxae with two lateral spines; first endopodal segment with few hairs and spinules laterally and one seta medially; second segment with hairs and spinules laterally and two medial setae; terminal segment with hairs laterally, four setae medially and one terminal spine: first exopodal segment with hairs medially, spinules laterally and one long postero-lateral spine; second segment with few postero-lateral spinules and one medial seta; final segment with few lateral spinules and six terminal setae. Leg 4 (Fig. 9); endopod 2-segmented, exopod of one segment; first endopodal segment with few postero-lateral spinules and one medial seta; final segment with 4 terminal setae: exopodal segment with lateral spinules and 4 terminal setae.

Egg sac (Fig. 1) with single row of up to 12 eggs.

Discussion

Three genera have been described previously in the family Vaigamidae, namely: *Vaigamus* THATCHER & ROBERTSON 1984, in which the antenna terminates in a simple claw; *Gamidactylus* THATCHER & BOEGER (1984a) which has two moveable claws at the end of the antenna; and *Gamispinus* THATCHER & BOEGER (1984b) in which the antenna terminates in a fixed spine and two moveable claws. *Gamispatulus* gen. nov. resembles *Gamidactylus* in having two moveable claws but differs from that genus in the following characters: 1) the antennule has 5 segments in the new genus and 6 in *Gamidactylus*; 2) the retrostylet of the new genus has an extra spatulate process; and 3) the new genus has a broad flat rostral projection which is lacking in *Gamidactylus*.

Resumo

A fêmea de *Gamispatulus schizodontis* gen. et sp. nov. (Copepoda: Poecilostomatoida: Vaigamidae) é descrita das fossas nasais de um peixe amazônico, *Schizodon fasciatus* AGASSIZ. O novo gênero distingue-se dos demais gêneros da família por ter um retro-espino lateral que possui uma saliência medial em forma de uma espátula, uma projeção larga e achatada no rostro e uma anténula de cinco segmentos.

References

- SMITHE, F.B. (1975): Naturalist's Color Guide and Supplement.- Amer. Mus. Nat. Hist. New York, N.Y.: 229 pp., Colors 1 - 86.
- THATCHER, V.E. & W.A. BOEGER (1984a): The parasitic crustaceans of fishes from the Brazilian Amazon, 13., *Gamidactylus jaraquensis* gen. et sp. nov. (Copepoda: Poecilostomatoida: Vaigamidae) from the nasal fossae of *Semaprochilodus insignis* (SCHOMBURGK).- Amazoniana 8 (3): 421 - 426.
- THATCHER, V.E. & W.A. BOEGER (1984b): The parasitic crustaceans of fishes from the Brazilian Amazon, 14., *Gamispinus diabolicus* gen. et sp. nov. (Copepoda: Poecilostomatoida: Vaigamidae) from the nasal fossae of *Ageneiosus brevifilis* VALENCIENNES.- Amazoniana 8 (4): 505 - 510.

THATCHER, V. E. & B.A. ROBERTSON (1984): The parasitic crustaceans of fishes from the Brazilian Amazon, 11., Vaigamidae fam. nov. (Copepoda: Poecilostomatoida) with males and females of *Vaigamus retrobarbatus* gen. et sp. nov. and *V. spinicephalus* sp. nov. from plankton.- Canad. J. Zool. 62: 716 - 729.

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Accepted for publication in November 1984

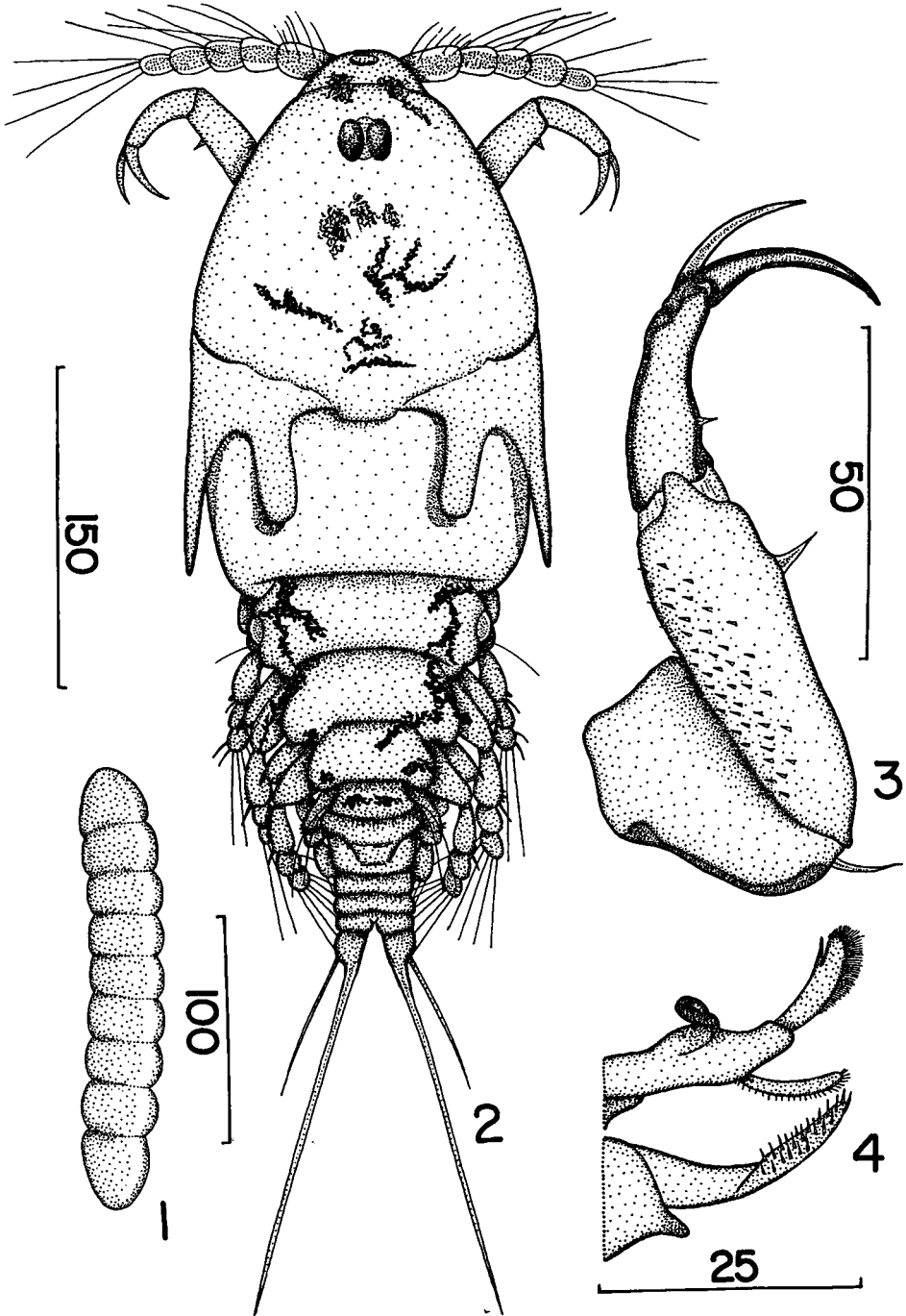
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Table I: Measurements (μm) of 10 adult females of *Gamispatulus schizodontis* gen. et sp. nov.

	Length	Width
Body (less caudal setae)	380 - 470 (425)	140 - 170 (155)
Cephalothorax	205 - 243 (224)	140 - 170 (155)
Free thoracic segments		
III	35 - 52 (42)	110 - 135 (119)
IV	35 - 43 (38)	78 - 100 (89)
V	25 - 40 (32)	60 - 75 (67)
VI	10 - 20 (17)	43 - 53 (49)
VII (genital)	25 - 30 (29)	50 - 55 (53)
Abdominal segments		
I	10 - 13 (12)	37 - 40 (38)
II	10 - 13 (11)	35 - 40 (38)
III	5 - 10 (7)	35 - 40 (37)
Uropod	15 - 20 (18)	13 - 15 (14)
Caudal setae	195 - 205 (195)	—
Retrostylet	90 - 103 (99)	—

Table II: Antennal measurements (μm) of 10 adult females of *Gamispatulus schizodontis* gen. et sp. nov.

	Length	Width
Antennule	83 - 103 (96)	18 - 20 (19)
Antennal segment		
1	33 - 53 (43)	25 - 38 (31)
2	62 - 65 (63)	18 - 20 (19)
3	28 - 40 (35)	10 - 15 (12)
4	23 - 30 (26)	5 - 8 (7)



Figs. 1 - 4:

Gamispatulus schizodontis gen. et sp. nov. (female).

Fig. 1: Egg sac. Fig. 2: Dorsal view of entire specimen. Fig. 3: Antenna. Fig. 4: Mouthparts.

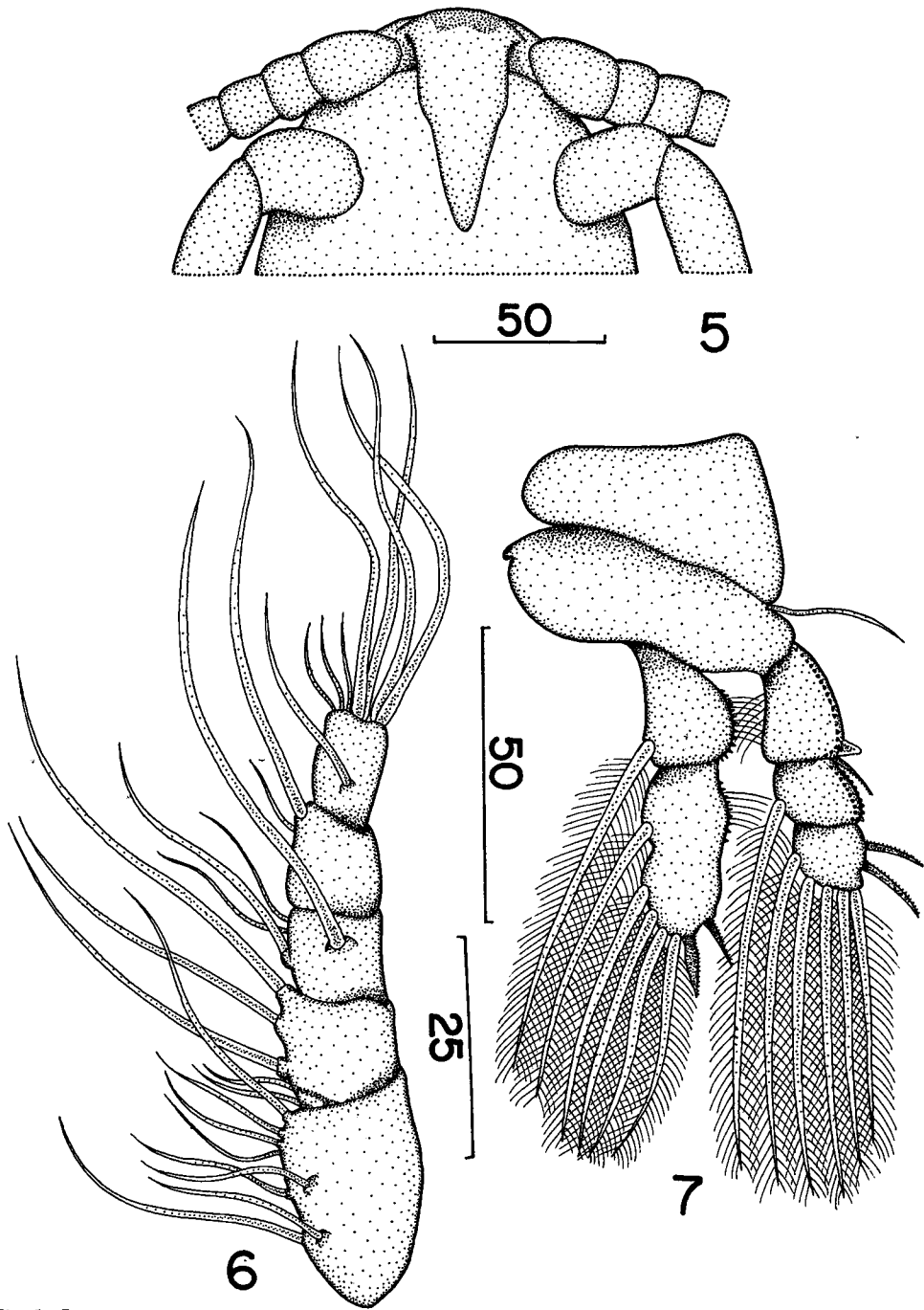


Fig. 5 - 7:
Gamispatulus schizodontis gen. et sp. nov. (female).
 Fig. 5: Rostral projection in ventral view. Fig. 6: Antennule. Fig. 7: Leg 1.

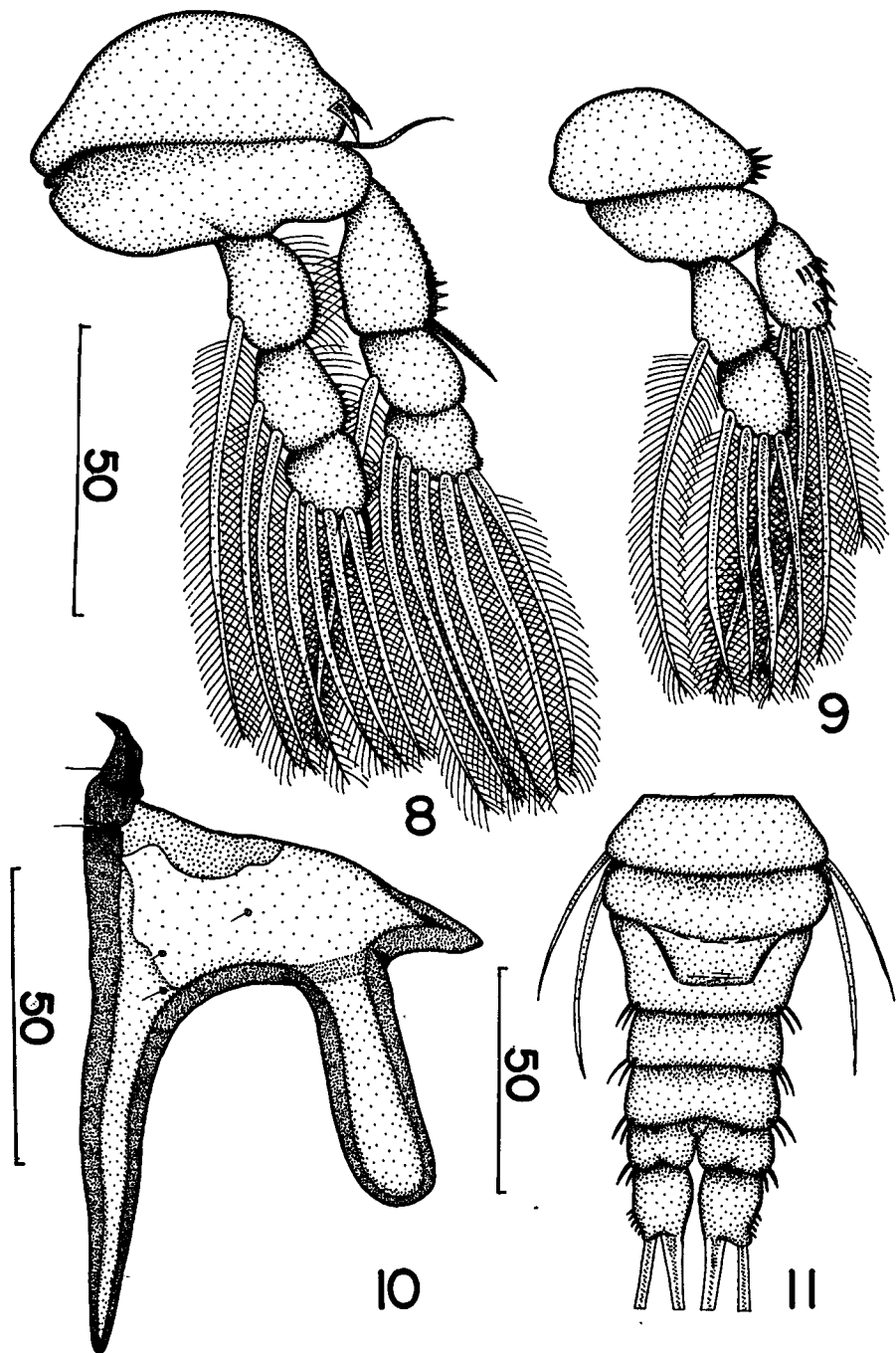


Fig. 8 - 11:

Gamispatulus schizodontis gen. et sp. nov. (female).

Fig. 8: Leg 2 = Leg 3. Fig. 9: Leg 4. Fig. 10: Retrostylelet with spatulate process. Fig. 11: Leg 5, genital segment, abdomen and uropods.