

Anphira xinguensis sp. nov. (Isopoda, Cymothoidae) a gill chamber parasite of an Amazonian serrasalmid fish, *Ossubtus xinguense* JÉGU, 1992

by

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Abstract

Anphira xinguensis sp. nov. (Isopoda, Cymothoidae) is described from the gill chambers of a recently discovered "pacu", *Ossubtus xinguense* JÉGU, 1992 (Serrasalmidae). The parasites and their hosts were collected on the Xingu River in Pará State, Brazil. *Anphira* THATCHER, 1993, is redefined and characterized as having: a cephalon immersed in the first pereonite and rotated downward; flattened, plate-like coxae on all 7 pereonites; rounded "foot-shaped" mandibles without incisors; pleonites produced laterally; elongate uropods and simple lamellar pleopods with a well developed appendix masculinum on pleopod 2 of both sexes. The new species differs from the type, *Anphira branchialis* THATCHER, 1993, in having: females that are usually asymmetrical; mouths directed ventrally or posteriorly; antennae of 7 articles and uropods with rami one and a half to two times the length of the bases.

Keywords: Isopod, cymothoid, gill parasite, Xingu River, Amazon.

Resumo

Anphira xinguensis sp. nov. (Isopoda, Cymothoidae) é descrita da cavidade branquial de um recém descoberto "pacu", *Ossubtus xinguense* JÉGU, 1992 (Serrasalmidae). Os parasitas e os seus hospedeiros foram coletados no Rio Xingu, Estado do Pará, Brasil. *Anphira* THATCHER, 1993, é redefinido e caracterizado por ter: um cefalon que é metido no primeiro pereonito e virado para abaixo; placas coxais achatadas em todos os 7 pereonitos; mandíbulas em forma de pé, que carecem de incisores; urópodos compridos e pleópodos lamelados e simples com o apêndice masculino bem desenvolvido no pleópodo 2 de ambos os sexos. A nova espécie distingue-se da espécie típica, *Anphira branchialis* THATCHER, 1993, por ter: fêmeas que são geralmente assimétricas; bocas direcionadas ventral ou posteriormente; antenas de 7 artículos e urópodos com os ramos de uma e meia até duas vezes mais compridos que os bases dos mesmos.

Fish of the family Serrasalminae are found in the tropical rivers of South America and are commonly called "piranhas" and "pacus". Several genera of cymothoid isopods are known to occur in piranhas. THATCHER (1988) described *Asotana magnifica* from the mouths and in 1993 reported a new genus and species, *Anphira branchialis*, from the gill chambers of piranhas. In the present study, a second species of the latter genus is described from the gill cavities of a recently discovered pacu from the Xingu River. The diagnosis of the genus *Anphira* is herein emended to include both species.

Material and methods

The methods used were the same as those explained in THATCHER & CARVALHO (1988).

Systematic Section

Isopoda
Flabellifera
Cymothoidae
Anphira THATCHER, 1993

Generic diagnosis (modified, after THATCHER, 1993):

Female: Body longer than wide; dorsum of pereon convex, symmetrical or not. Cephalon immersed in pereonite 1, rotated downward, front margin rounded. Pereonite 1 longer and 7 shorter than others; coxae flattened, plate-like, present on all 7 pereonites, produced posteriorly to or beyond anterior margin of subsequent pereonite. Mouthparts: mandibles rounded, foot-shaped, lack incisors. Pleon more or less immersed in pereonite 7; pleonites produced laterally. Pereopods short; 7 longer than others. Uropods long, slender, with pointed subequal rami. Pleopods simple, lamellar; pleotelson not keeled or inflated.

Male: similar to female but smaller; pereon less convex; cephalon projecting anteriorly rather than ventrally.

Type species: *Anphira branchialis* THATCHER, 1993.

Anphira xinguensis sp. nov. (Figs. 1-33)

Host: *Ossubtus xinguense* JÉGU, 1992: (Serrasalminae).

Site: Dorsal part of gill chamber.

Locality: Kaituka Rapids, Xingu River, Pará State, Brazil.

Holotype (♀): Crustacean Collection, Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, AM, Brazil (INPA-CR-646).

Paratypes (12 ♂♂ & 6 ♀♀): Crustacean Collection INPA (INPA-CR-647a-r).

Etymology: The species name is in reference to the Xingu River.

Species diagnosis (based on 12 ♂♂ and 7 ♀♀; measurements in Table 1): Female (Figs. 1-6 & 10): body about two times longer than wide, widest at level of pereonite 6; pereon convex, highest at pereonites 2 or 3; body straw-colored with scattered small black melanophores. Cephalon immersed in pereonite 1, rotated ventrally, frontal margin rounded, mouth pointed ventrally or posteriorly. Antennules and antennae (Figs. 21-22) subequal in length; antennules slightly compressed, of 8 articles; antennae subcylindrical, of 7 articles.

Mouthparts (Figs. 19, 20, 24 & 25): labrum projecting ventrally; mandibles rounded, "foot-shaped", without incisors; maxillules with 3 terminal and 2 subterminal recurved spines; maxillae bilobed, with 1

recurved spine on each lobe; maxillipedal palp without spines.

Pereonites (Figs. 1, 4): first nearly 2 times length of 2-5; 6 shorter than 2-5; 7 about one-half length of 6. Coxae (Figs. 3, 6): large, flat, plate-like, overlapping, present on all 7 pereonites, produced posteriorly beyond posterior margin of pereonite.

Pereopods (Figs. 23, 26-31): 1-3 shorter than 4-7, but with longer dactyls.

Uropods (Figs. 17, 18): long, slender, pointed, rami one and a half to two times length of base, not reaching posterior margin of pleotelson. Pleotelson not keeled or inflated. Male (Figs. 7-9): similar to female but smaller, less convex dorsally; with symmetrical body and proportionally larger eyes; uropods shorter and more rounded (Fig. 18). Appendix masculinum present on pleopod 2 of both sexes but more slender on male (Fig. 15).

Both sexes parasitic in the dorsal regions of the gill chambers of an Amazonian freshwater fish.

Discussion

Anphira xinguensis sp. nov. differs from the type species in a number of ways. The females are frequently more asymmetrical and the coxal plates are shorter and more rounded. Also, the cephalon of the adult female is more rotated, with the mouth pointing straight down or even posteriorly. The new species has antennae composed of 7 articles (not 9) and the rami of the uropods are much more attenuated. The new species appears to be highly host specific. Other "pacus" collected at the same time and place were all negative for cymothoids.

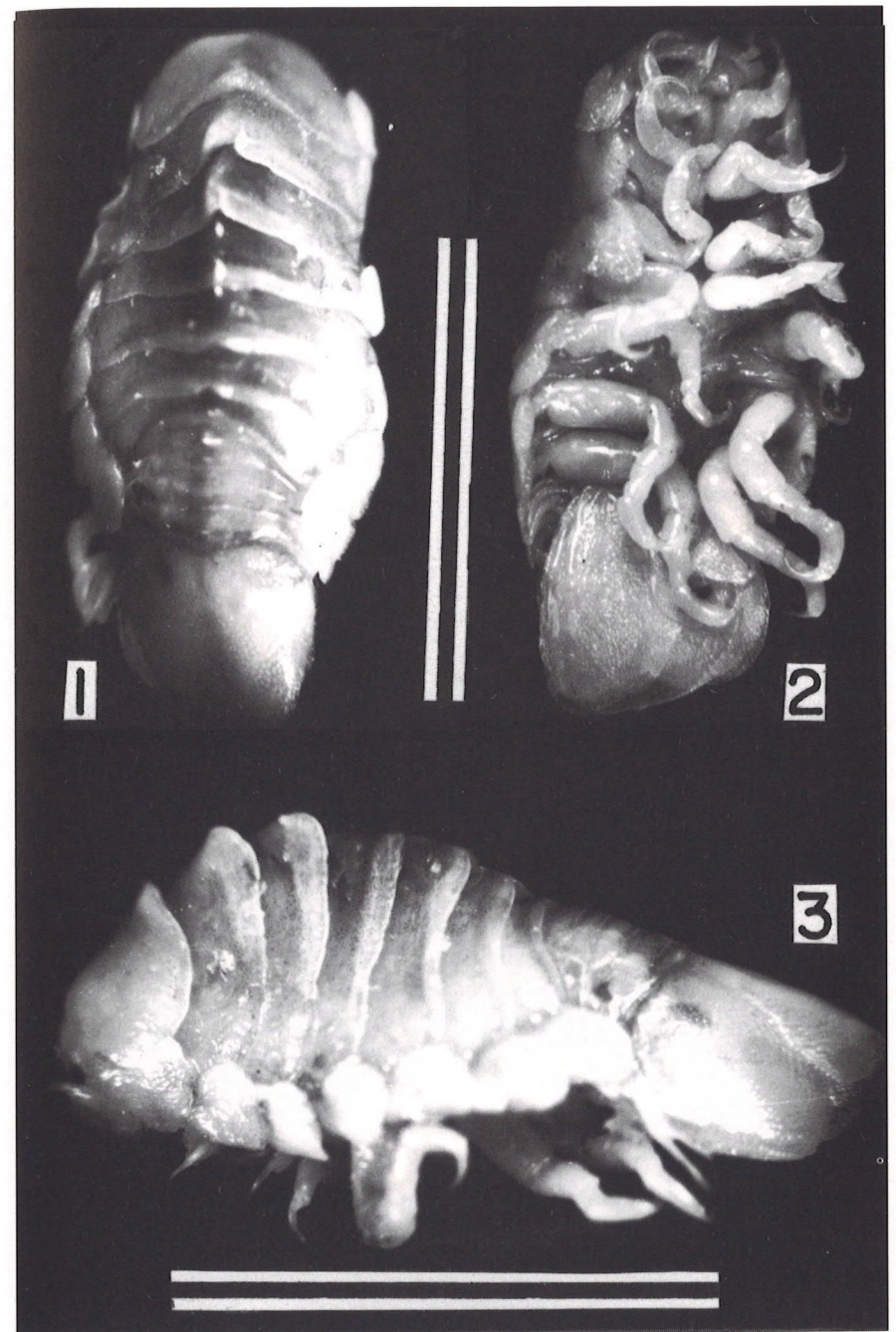
The shape and asymmetry of adult cymothoids relates to the fact that they grow to fit the available space. In the case of the host fish, *Ossubtus xinguense*, when young they have a head like other "pacus" with a mouth that points anteriorly. As they grow, the head gradually rotates until the mouth points straight down, or ventrally (JÉGU, 1992). The rotation of the fish's head downward modifies the shape of the gill chambers and may be related to the fact that the cymothoids also rotate their heads and mouths downward.

References

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Table 1: Measurements (mm) of 12 ♂♂ and 7 ♀♀ of *Anphira xinguensis* sp. nov.

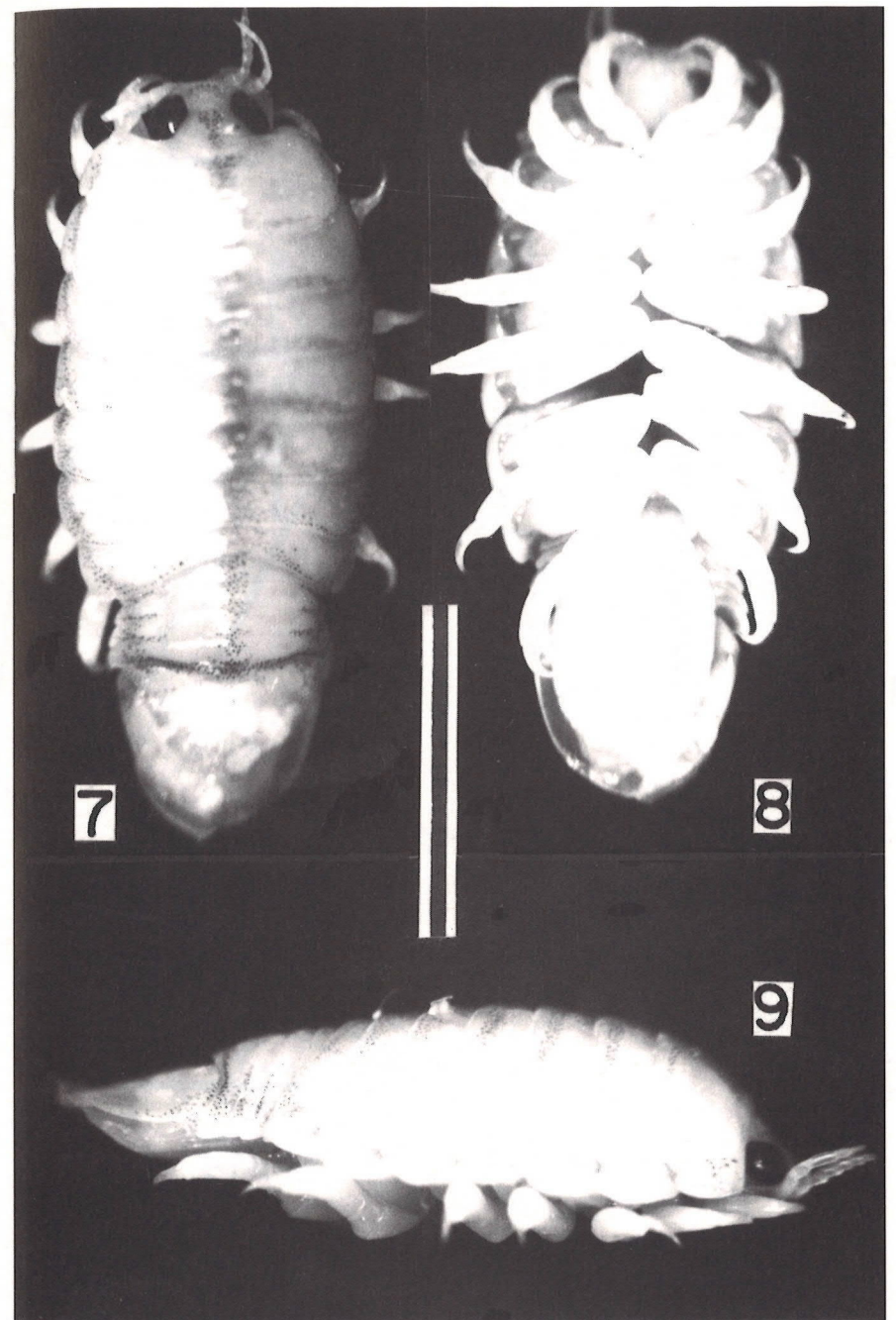
Length	♂♂	Width	Length	♀♀	Width
3.5		2	5		2.5
4		2	5.5		3
4		2	11		6
5		2	14		7
5		2	14		7
5		2	15		7.5
5		2	16		7
5		3			
6		3			
10		4.5			
10.5		4			
12		5			



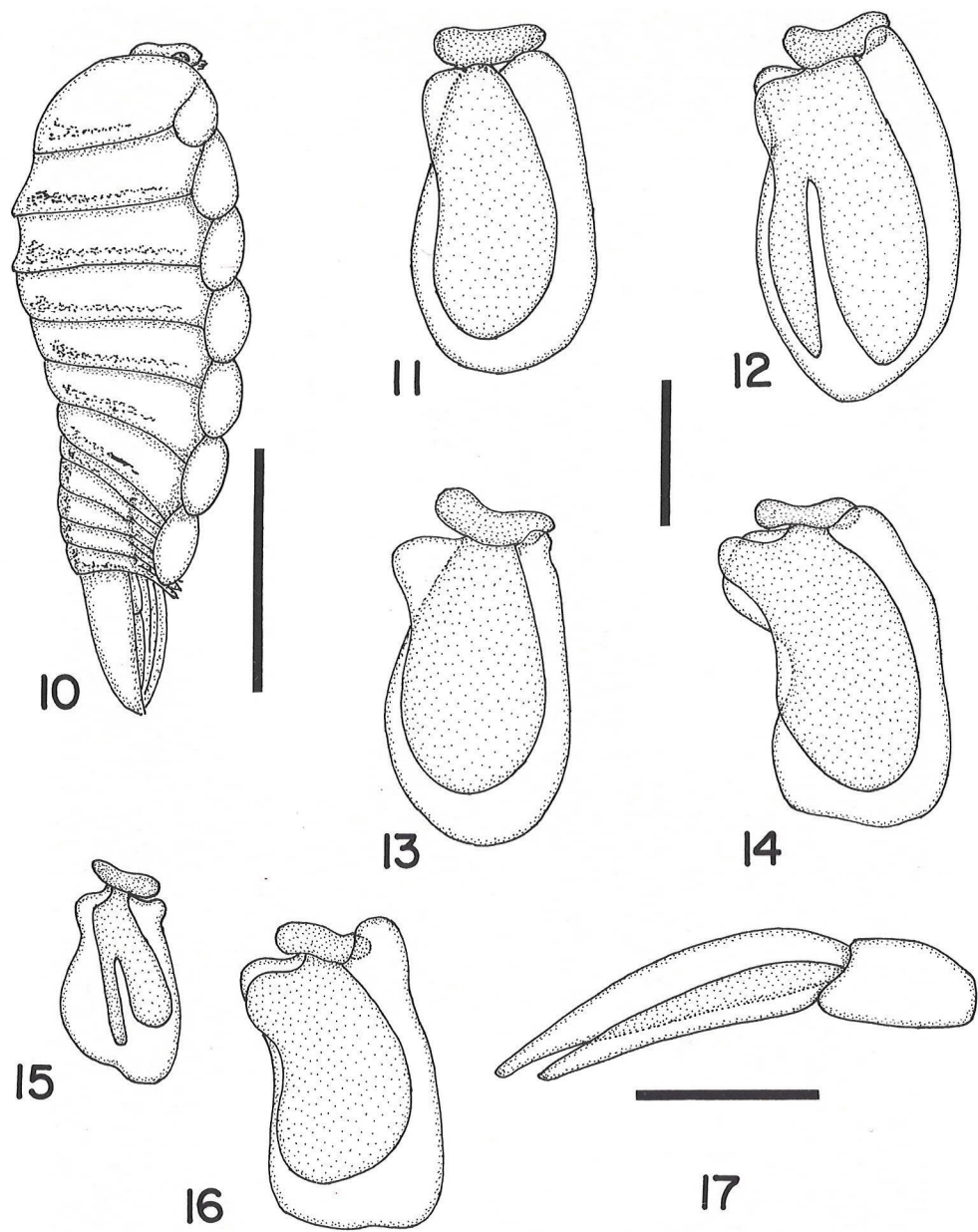
Figs. 1-3: *Anphira xinguensis* sp. nov. (♀). 1: Dorsal view. 2: Ventral view. 3: Lateral view. Scales = 10 mm.



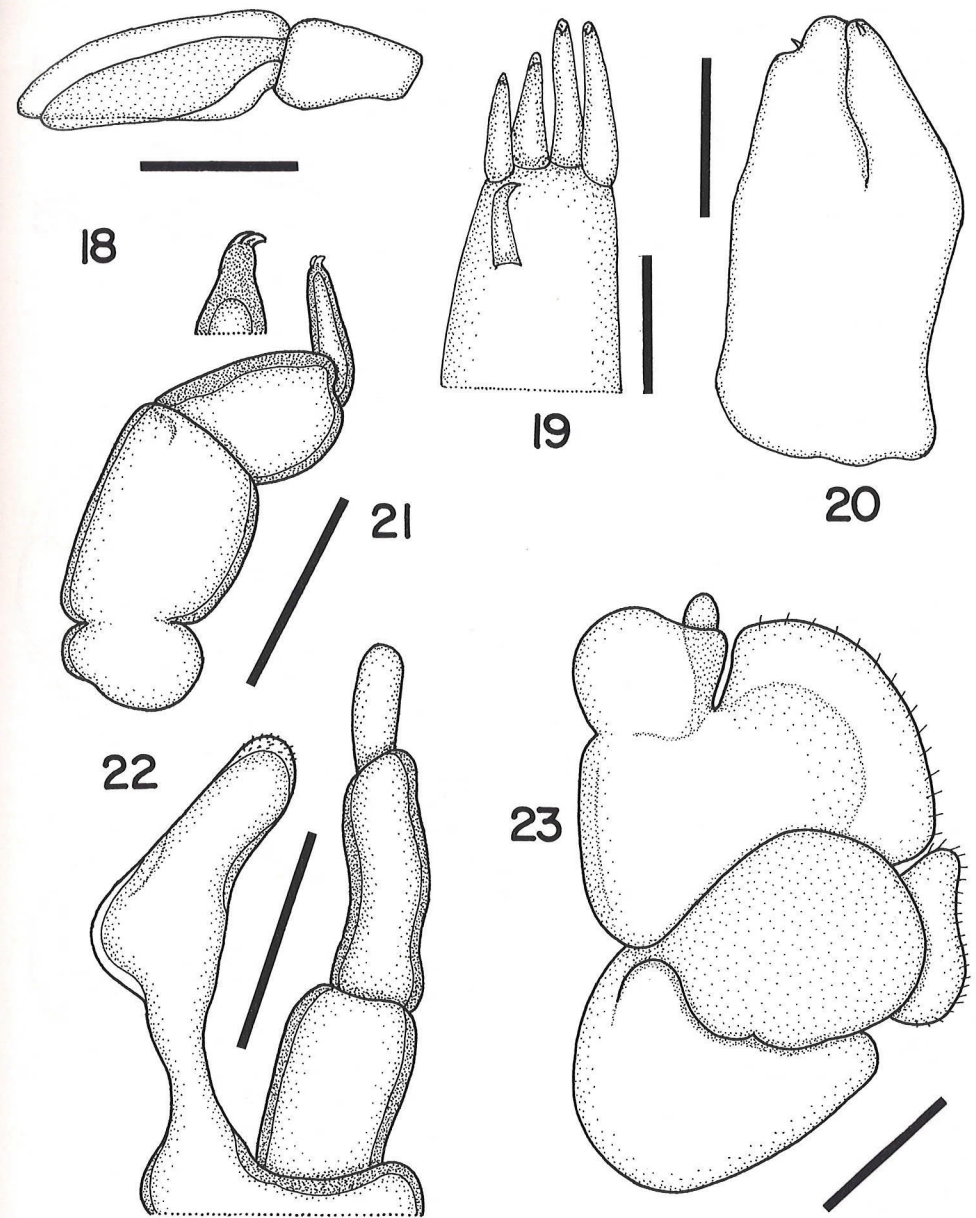
Figs. 4-6:
Amphira xinguensis sp. nov. (♀). 4: Dorsal view. 5: Ventral view. 6: Lateral view. Scale = 5 mm.



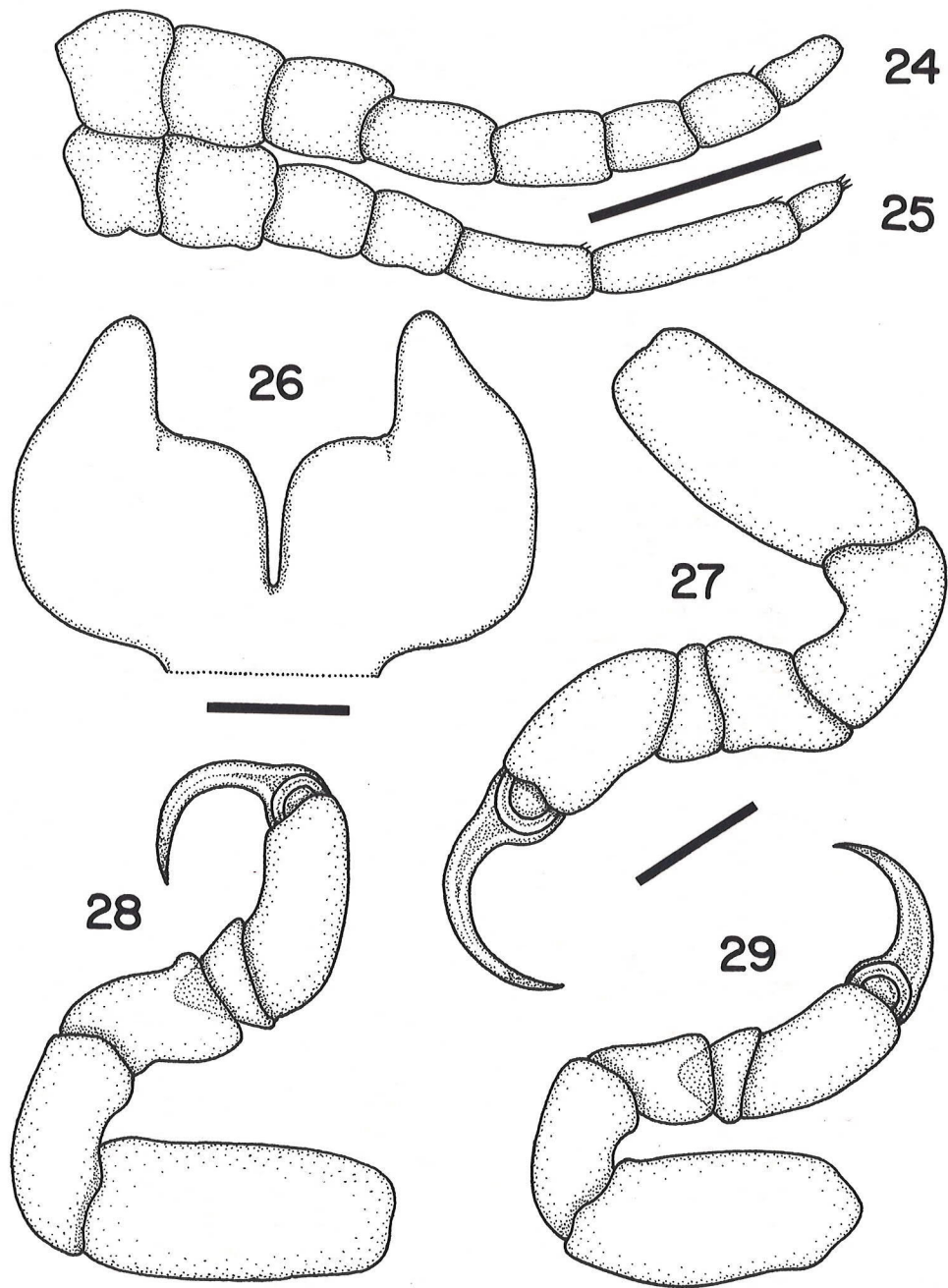
Figs. 7-9:
Amphira xinguensis sp. nov. (♂). 7: Dorsal view. 8: Ventral view. 9: Lateral view. Scale = 5 mm.



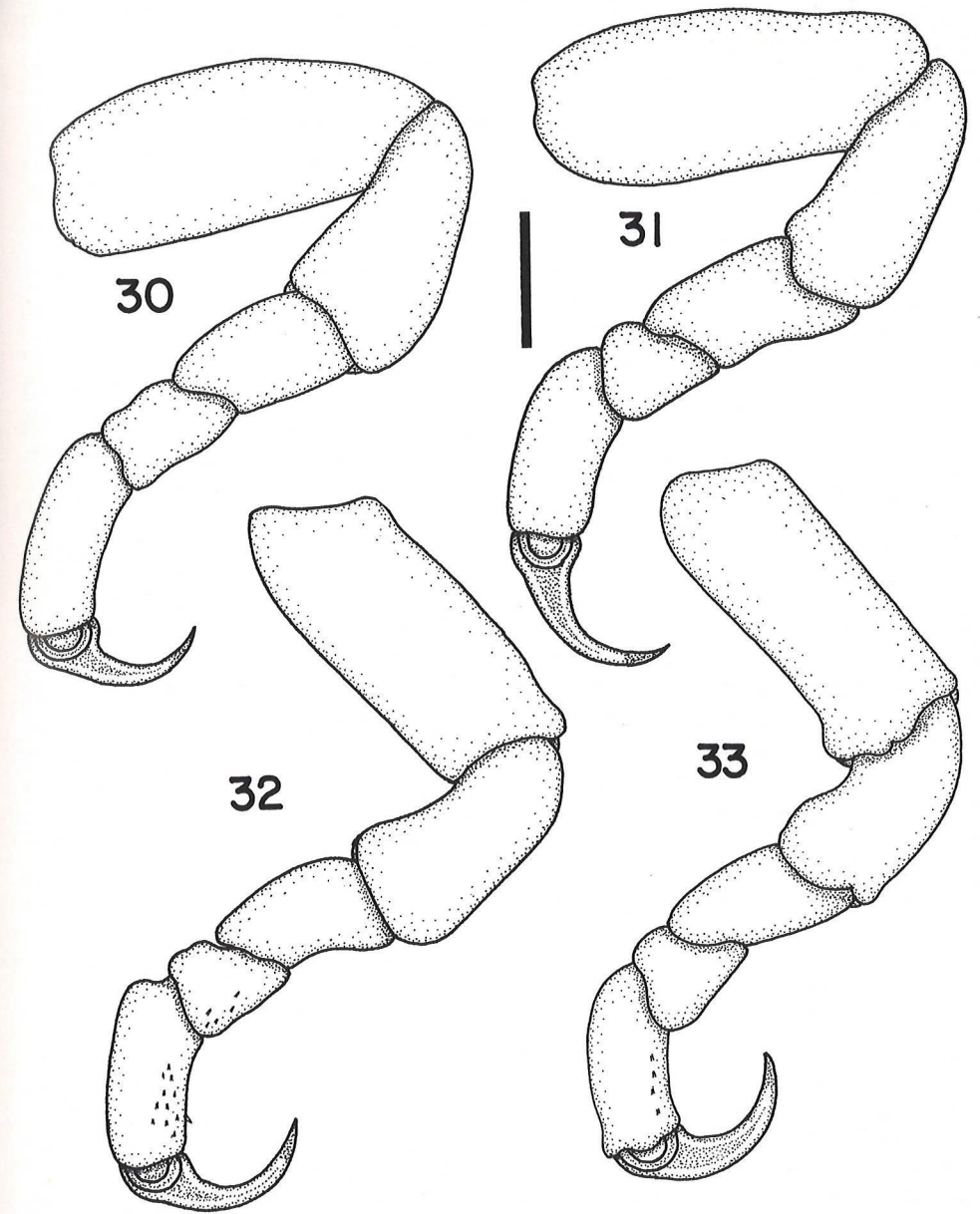
Figs. 10-17:
Anphira xinguensis sp. nov. 10: Lateral view (♀); Scale = 5 mm. 11-14: Pleopods 1-4 (♀); Scale = 2 mm.
 15: Pleopod 2 (♂); Scale = 2 mm. 16: Pleopod 5 (♀); Scale = 2 mm. 17: Uropod (♀); Scale = 1 mm.



Figs. 18-23:
Anphira xinguensis sp. nov. 18: Uropod (♂); Scale = 1 mm. 19: Maxillule (♀); Scale = 100 μm.
 20: Maxilla (♀); Scale = 200 μm. 21: Maxilliped (♂); Scale = 500 μm. 22: Mandible and palp (♀);
 Scale = 500 μm. 23: Maxilliped (♀); Scale = 500 μm.



Figs. 24-29:
Anphira xinguensis sp. nov. (♀). 24: Antennule. 25: Antenna; Scale for both = 500 μ m. 26: Labium;
 Scale = 250 μ m. 27: Pereopod 3. 28: Pereopod 2. 29: Pereopod 1; Scale for pereopods = 1mm.



Figs. 30-33:
Anphira xinguensis sp. nov. (♀). 30: Pereopod 4. 31: Pereopod 5. 32: Pereopod 7. 33: Pereopod 6;
 All to same scale = 1 mm.