

## Two new Neotropical genera of the spider family Zodariidae (Araneae)

by Rudy JOCQUÉ & Léon BAERT

### Summary

Two new genera, entirely based on new species, are described: *Epicratinus* from the Amazon Basin and *Colima* from Mexico. The first genus contains *E. amazonicus* (type species, ♂♀), *E. pugionifer* (♂♀) and *E. takutu* (♂♀), the second one *C. colima* (type species, ♂♀) and *C. manzanillo* (♂♀). *Epicratinus* is characterized by the strongly procurved posterior eye row, the fused median and lateral posterior spinnerets in the female and the absence of posterior spinnerets in the male. *Colima* has a very high clypeus and peculiar male palps with a concave tegulum. Both genera have developed corkscrew shaped copulatory ducts. According to the phylogenetic analysis, based on the extended matrix provided in the *Tenedos-Ishania* revision, the genera appear to be sister groups.

**Key words:** Amazonia, Mexico, phylogeny, spinnerets

### Introduction

In a revision of the genera *Tenedos* O.-P. CAMBRIDGE, 1897 and *Ishania* CHAMBERLIN, 1925, JOCQUÉ & BAERT (2002) sketched the situation of the family Zodariidae in the Neotropical region and demonstrated that the number of zodariid taxa is not as low as usually assumed. The impression of low zodariid diversity in the Neotropics, was mainly based on the uniformity of the zodariid somatic patterns in that area. JOCQUÉ & BAERT's study (2002) was a first indication that speciose genera of the family exist on that subcontinent. However, in their revision they tried to retain the somatically similar species in one genus. This principle is defended because the split up of genera on the base of the structure of the genitalia alone, obscures the evolutionary patterns that have prevailed in a clade and mainly the presence of genitalic morphoclines. A perfect example is that of *Bacelarella* (JOCQUÉ & SZÜTS, 2001) with seven syntopic species with a clear morphocline of the genitalia but considered to belong to different genera by PROSZYNSKI (2004). In the same manner, both *Tenedos* and *Ishania* could have been split up in different species groups or even genera according to the structure of the male palps. However, one of the synapomorphies for these genera, considered as sister groups, is a character of the male palp: the distal tegular apophysis and the median apophysis

are converging. In both the genera described here this condition is different: in *Epicratinus* there is no distal tegular apophysis and in *Colima* the conformation of the palp is even more different as it is provided with a concave tegulum. For the first genus, there are a few striking somatic characters that corroborate its placement outside the *Tenedos-Ishania* clade as is shown below in the phylogenetic analysis.

### Abbreviations

ALS: anterior lateral spinnerets  
AW: anterior width  
DTA: distal tegular apophysis  
Fe: femur  
juv.: juveniles  
L: length  
MA: median apophysis  
MOQ: median ocular quadrangle  
Mt: metatarsus,  
Pa: patella  
PLS: posterior lateral spinnerets  
PMS: posterior median spinnerets  
PW: posterior width  
RTA: retrolateral tibial apophysis  
sa: subadult  
ST: subtegulum  
Ta: tarsus  
Ti: tibia  
Tr: trochanter  
\*: one row  
\*\*: two rows

### Acronyms of museum and institutions

AMNH: American Museum of Natural History, New York, USA, (N. Platnick)  
KBIN: Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium (L. Baert)  
MPEG: Museu PARaense Emilio Goeldi, Belém, Brazil (A. Bonaldo)

SMNK: Staatliche Museum für Naturkunde Karlsruhe (B. Höfer)

USNM: National Museum of Natural History, Washington (J. Coddington)

All measurements are in mm. The structure of the male palp of *Colima* is peculiar and not completely understood; the palps were not expanded because only the type specimens are available.

### *EPICRATINUS* new genus

*Tenedos* BRESCOVIT et al. 2002: 319, Figs. 113-115, misidentification.

**DIAGNOSIS:** Representatives of the genus are easily recognized by the strongly procurved posterior eye row; the fused posterior median and posterior lateral spinnerets in the females and the complete absence of these spinnerets in the males; the genitalia are characterized by the concavity on the retrolateral posterior part of the cymbium accommodating the RTA and the central rounded depression in the epigyne.

**DESCRIPTION:** Medium-size spiders (4.7 – 7.8) with elongate carapace (Figs. 11-13), about 1.5 times longer than wide; slightly narrowed in front to 0.75-0.80 times maximum width, reached at level of coxae II. Highest point of profile between eyes and fovea (Fig. 17), falls sharply behind PME. Fovea shallow.

**Colour:** prosoma, including legs, chelicerae and sternum orange to reddish brown; abdomen (Figs. 15-16) pale to dark grey with pale pattern consisting of a few pale dots on dorsum; venter usually pale, sometimes with darker pattern. Carapace slightly reticulated or smooth.

**Eyes:** both rows and mainly posterior one strongly procurved (Figs. 11, 12). Eyes rather small. AME the smallest, about 2/3 their diameter apart and 1.5 the diameter from ALE which are 2/3 their diameter from PLE. PME the largest; 2/3 diameter apart and more than 2.5 times that distance from PLE. MOQ much longer ( $\pm 2$  times) than wide in front, and much narrower ( $\pm 1.5$  times) in front than behind. Clypeus high, 5 times the diameter of an ALE; convex. Chilum divided, consisting of two well delimited triangles. Chelicerae 1.5 times to twice as long as wide at the base; slightly pubescent in front, with row of long hairs distomesally; lateral condyle strongly developed; one small tooth on promargin; fangs short. Endites (Fig. 14) strongly converging; triangular with anteromesal scopula. Labium almost as long as wide, triangular, strongly narrowed in front. Sternum triangular, with sinuous margins; as long as wide, anterior margin with wide concavity.

**Legs:** Formula 4123. Spination: poor on legs I and II; spines more numerous on legs III and IV. Three tarsal claws; 7 to 10 teeth on superior tarsal claws. Trichobothria: in 2 rows on Ti, in 1 row on Mt and Ta. Hinged hairs present. Scopulae spiniform or absent; ventral preening brush on Mt II-IV poorly developed but with typical chisel-shaped hairs (Figs. 7-8).

Abdomen elongate, oval; 6 spinnerets in females, the posterior spinnerets fused, only 1 pair of spinnerets in males (Figs. 5, 6); AS long, biarticulate, distal segment very short (Figs. 2, 3, 5, 6), provided with one major ampullate gland spigot surrounded by a few piriform gland spigots. Colulus represented by group of setae. Tracheal spiracle just in front of spinnerets, straight, with sclerified anterior lip.

**Male palp** (Figs. 18-20, 23-25, 28-30): tibia with ventral swelling and two dorsolateral apophyses: one short prolateral and one larger, retrolateral; cymbium with proximal lateral flange, sometimes ridged; with retrolateral dorsal concavity accommodating RTA. Embolus usually long, originating on posterior extension of tegulum; median apophysis (MA) large and grooved, functioning as conductor, sometimes provided with thin basal membranous appendage. Female with conical palpal tarsus, provided with toothed claw. Epigyne with narrow scape originating from rounded central depression. Entrance openings near posterior rim; entrance ducts corkscrew-shaped; spermathecae transversely oval at posterior rim and clearly apart.

**TYPE SPECIES:** *Epicratinus amazonicus* new species.

**DISTRIBUTION:** Brazil and Guyana.

**ETYMOLOGY:** *Epicratinus* is the diminutive of *Epicratus* which means "master" or "ruler". The gender is masculine.

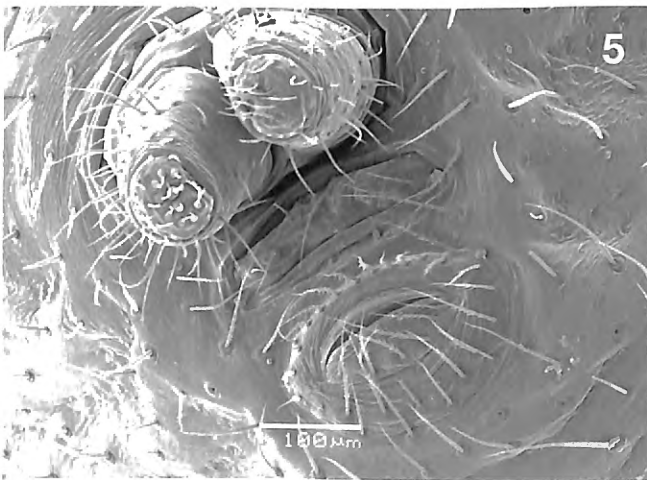
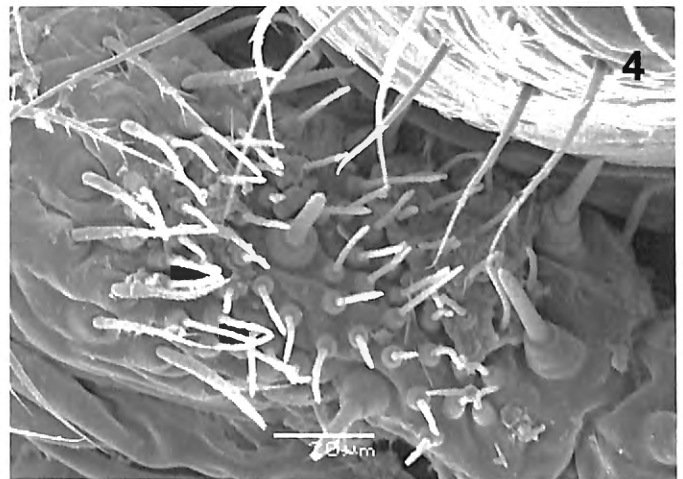
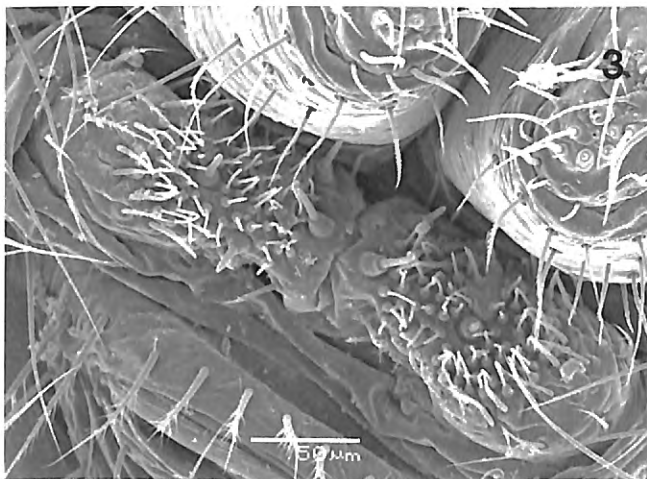
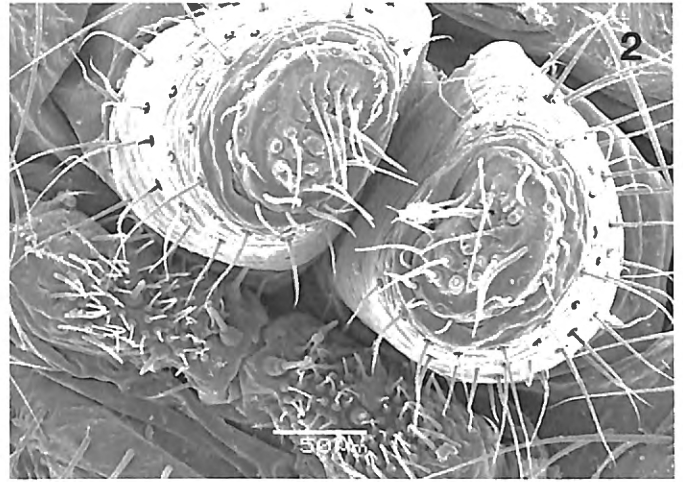
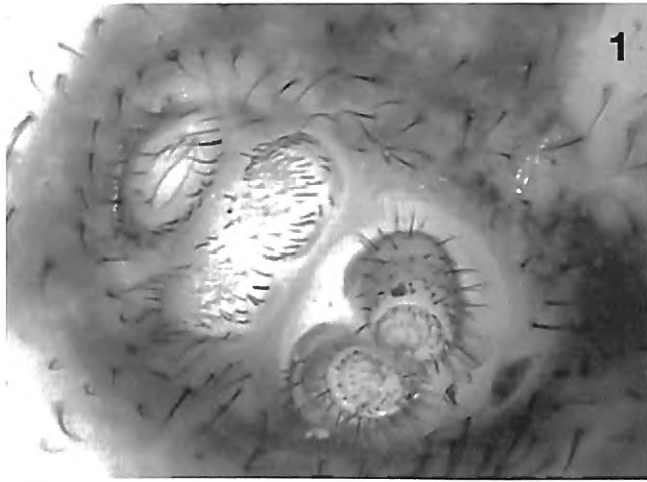
### *Epicratinus amazonicus* new species

Figs. 1-6, 11-22

**TYPE MATERIAL:** Holotype: male: BRAZIL: Reserva Ducke, Manaus, 2.X.1991, (M. Paarman) (SMNK). Paratypes: BRAZIL: 1♀: Manaus, Reserva Ducke, 14.X.1991, (Höfer & Gasnier) (SMNK); 3♀: as previous on 21.X.1991, 23.III.1992 and 1.VI.1992; 1♀: Manaus, Reserva Ducke, 17.II.1994, (M. Christopher) (MPEG IB44458); 1♂: Manaus, Reserva Ducke, 23.III.1992, (H. Höfer) (MPEG IB10689, now in KBIN).

**OTHER MATERIAL:** 1♀: Manaus, Reserva Ducke, 20.II.1992, (H. Höfer) (MPEG IB10687); ♀: Manaus, Reserva Ducke, 23.III.1992, (H. Höfer) (MPEG IB10692; now in KBIN); ♀: Manaus, Reserva Ducke, 4.IV.1994, (C. Martins) (MPEG IB44459); ♀: Area de Estudo do PBDF (Smithsonian/INPA), 80 km de Manaus, prox. 174, XI.2001-V.2002, (F.A. Rego et al.) (MPEG IB42714).

**DIAGNOSIS:** males of *E. amazonicus* can be recognized by the absence of a ventral tibial ridge, the shape of the RTA with triangular distal part, not rimmed along its prolateral side, the rounded prolateral tibial apophysis and the shape of the membranous tegular appendage. Females are characterized by the transversely oval central depression in the epigyne and the entrance ducts with three coils.



Figs. 1-6 — *Epicratinus amazonicus*. 1. Female spinnerets, photo. 2. Female spinnerets. 3. Posterior spinnerets of female. 4. Fused PLS and PMS of female. *Epicratinus pugionifer*. 5. Spinnerets of male. 6. ALS of male. (all SEM's except 1).

ETYMOLOGY: *amazonicus* is an adjective referring to the area where the species appears to be common.

DESCRIPTION: **Male:** Total length 4.96; carapace 2.52 long, 1.72 wide, 1.12 high.

**Colour:** prosoma chestnut brown, strongly reticulated, small depression in front of fovea; sternum orange brown; legs yellow with orange tinge, coxae and proximal half of

femora whitish; chelicerae sparsely covered with hairs; abdomen sepia black with an anterior brown 'scutum' followed by 3 white patches triangularly arranged, laterals with a pair of large white patches, venter sepia, brown area between tracheal spiracle and spinnerets with two rows of modified spines and a small chitinized lobe-like extension projecting backwards.

**Eyes:** MOQ: AW = 0.79PW; AW = 0.49L.

**Legs:** Spination: femora I d3\*pl1 II d3\*pl1rl3\* III d4\*pl4\*rl2\* IV d4\*pl4(3)\*rl2(3)\*; patellae III-IV d1pl1rl1; tibiae I d1fpl2\*v2-1-2 II d1fpl2\*v2-2-2 III d2\*pl2\*rl2\*v2-2-2 IV d3\*pl2\*rl2\*v2-2-2; metatarsi I pl1v2-2-2 II pl1-2v1-1-1-2 III d2-2-2pl2\*rl1v2-2-2 IV d1-2-2-2pl2\*rl1v2-1-2-2. (Mt II and III with tuft of hairs distally, less pronounced on Mt IV).

**Measurements:** Pa+Ti I 2.18 II 1.76 III 1.72 IV 2.40.

**Male palp** (Figs. 18-20): tibia with a small ventral boss, a transverse lateral row of six macrosetae and two apophyses: a prolateral dorsal one, short and rounded and a retrolateral one, a broad extension of the body of the tibia ending in a flat ridge-like tip as seen from the side, triangular as seen from above; cymbium broad and fairly flat with well developed simple flange; retrolateral dorsal part with deep concavity, accommodating the RTA; distal tip with three spines; tegulum with a posterior membranous extension overlying the broad embolus base and the visible part of the subtegulum which is sclerotized and globular; visible part of sperm duct horse-shoe shaped; embolus thin and flexible, 3/4 of a complete loop, distal part in grooved distal part of median apophysis; with a very thin, membranous and transparent appendage originating at base of median apophysis, slightly widened and rounded at tip.

**Female:** Total length 4.72 (range: 4.70-7.76); carapace 2.44 long, 1.56 wide, 1.12 high.

**Colour:** As in male but: prosoma lighter brown; abdomen sepia grey with 5 white dorsal patches, sides and venter greatly white.

**Eyes:** MOQ: AW = 0.69PW; AW = 0.44L.

**Legs:** Spination: femora I d2\*pl1 II d2(3)\*pl1 III d2+3\*pl3(4)\*rl2(3)\* IV d5\*pl2\*rl2\*; patellae III-IV d1pl1rl1; tibiae I d1fpl2\*v1-1-2 II d1fpl2\*v1-2-2 III d2\*pl2\*rl2\*v2-2-2 IV d3\*pl2\*rl2\*v2-2-2; metatarsi I pl1v1-1-1-2 II pl1v2-1-2 III d2-2-2pl2\*v2-2-2 IV confused. (Mt II and III with tuft of hairs distally, less pronounced on Mt IV).

**Measurements:** Pa+Ti I 1.74 II 1.46 III 1.44 IV 1.96.

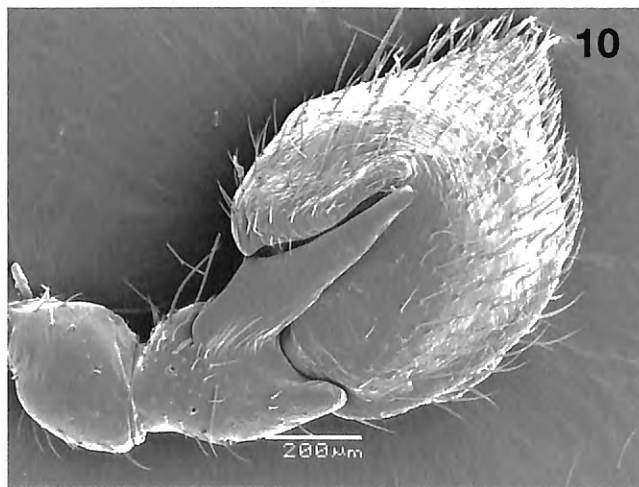
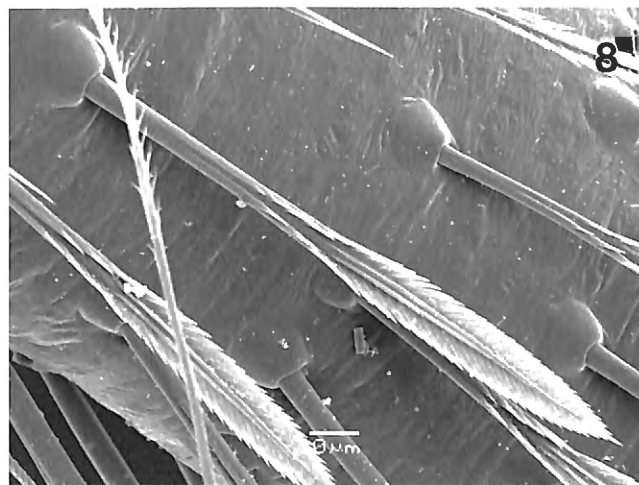
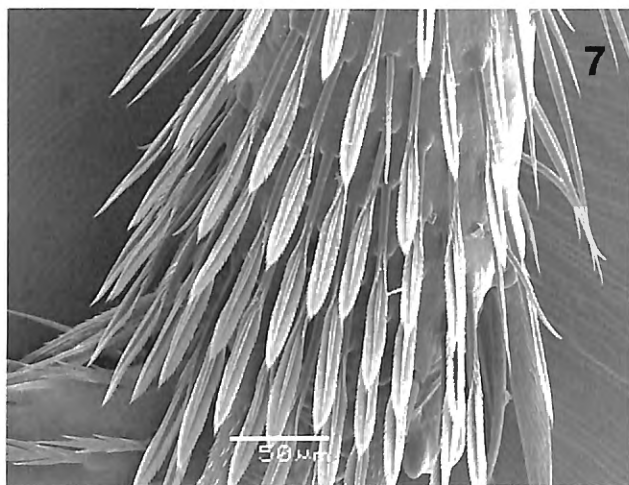
**Epigyne** (Figs. 21, 22): slightly bulging with central oval depression slightly wider than long.

### *Epicratinus pugionifer* new species

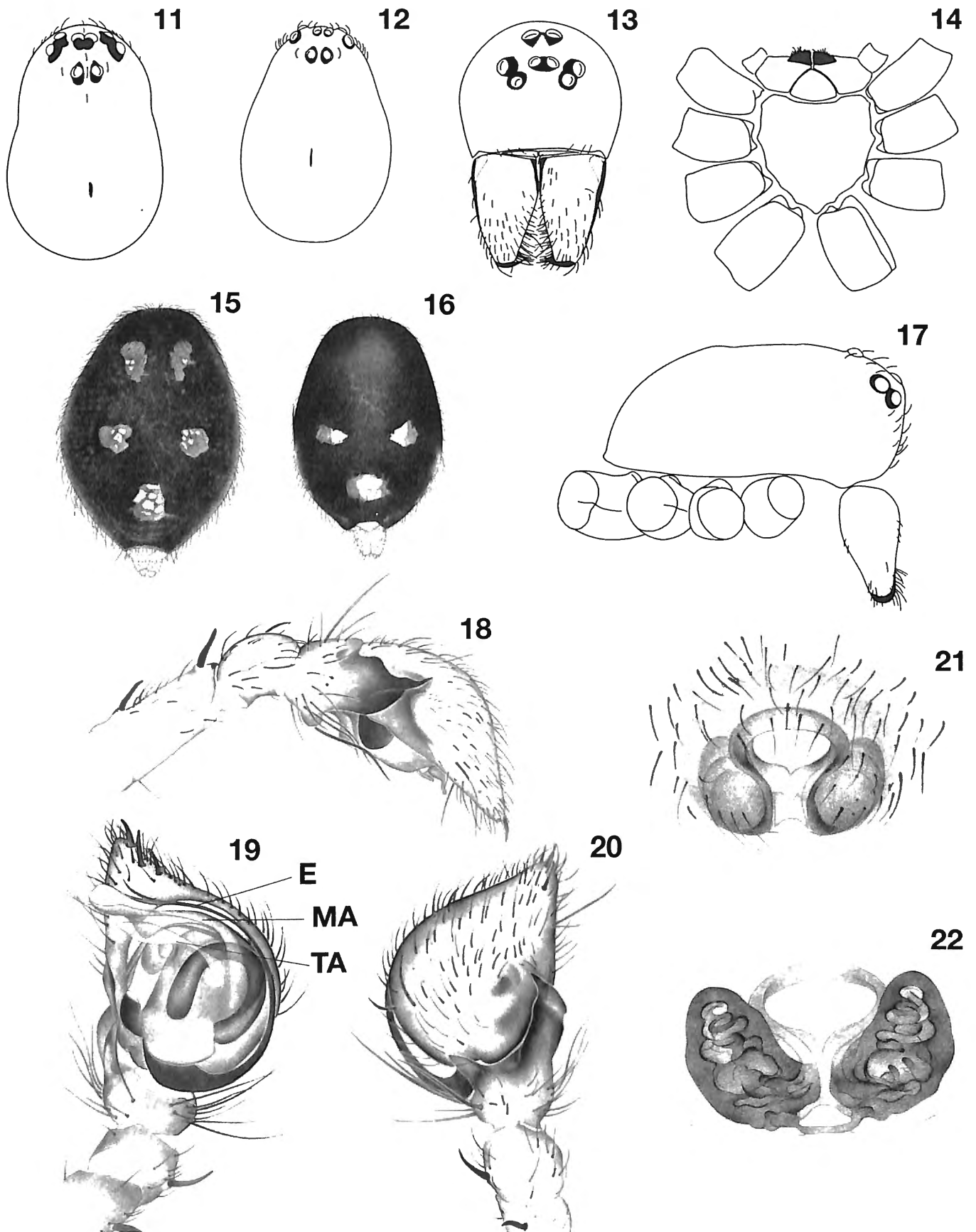
Figs. 7-10, 23-27

**TYPE MATERIAL:** Holotype male: BRAZIL: Mato Grosso; Sinop. X.1976 (M. Alvarenga) (AMNH).

Paratypes: 3 ♂: together with holotype; 61 ♂: Mato Grosso; Sinop. X.1976, (M. Alvarenga) (AMNH); 5 ♂ in

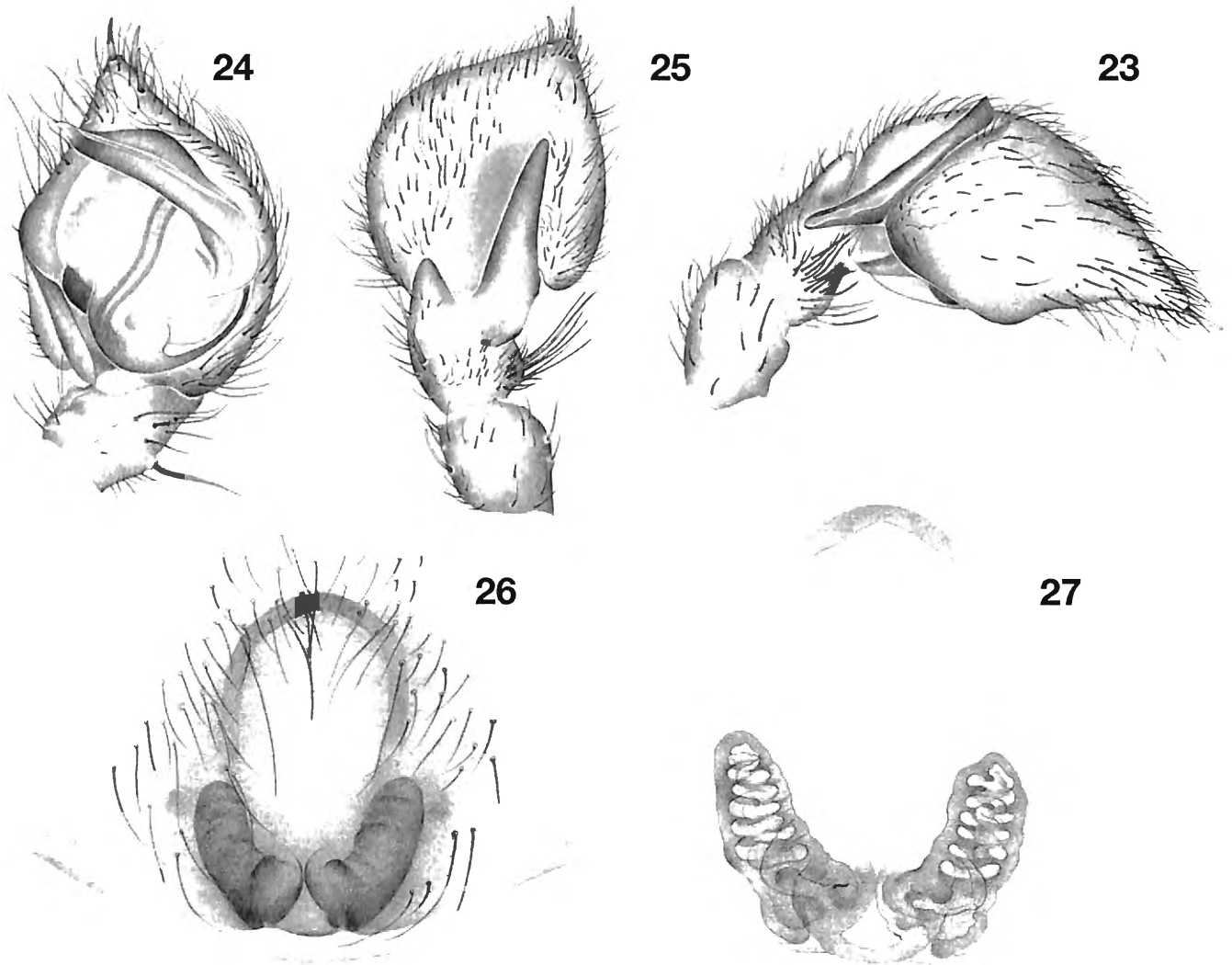


Figs. 7-10 — *Epicratinus pugionifer*. 7. Male, tip of metatarsus III, showing chisel-shaped setae. 8. Detail of 7. 9. Epigyne. 10. Male palp, dorsal view showing cymbial concavity accommodating RTA.



Figs. 11-22 — *Epicratinus amazonicus*. 11. female cephalothorax, dorsal view. 12. male cephalothorax, dorsal view. 13. male cephalothorax, frontal view. 14. Cephalothorax, ventral view, remark indented anterior margin of sternum. 15. Female abdomen. 16. Male, abdomen. 17. Male, cephalothorax, lateral view. 18. Male palp, retrolateral view. 19. Male palp, ventral view. 20. Male palp, dorsal view. 21. Epigyne, ventral view. 22. Epigyne, dorsal view. (E: embolus; MA: median apophysis; TA: tegular appendage)





Figs. 23-27 — *Epicratinus pugionifer*. 23. Male palp, retrolateral. 24. Male palp, ventral view. 25. Male palp, prolateral view. 26. Epigyne, ventral view. 27. Epigyne, dorsal view.

KBIN); 1 ♀: Mato Grosso: Sinop. X.1976, (M. Alvarenga) (AMNH); 6 ♂: Mato Grosso: Sinop. X.1975, (M. Alvarenga) (AMNH).

**DIAGNOSIS:** males of *E. pugionifer* can be recognized by the shape of the RTA with a large dagger-shaped distal prong and the absence of a membranous tegular appendage. Females are characterized by the elongate central depression in the epigyne and the entrance ducts with 6 coils.

**ETYMOLOGY:** *pugionifer* is a noun in apposition and means "carrier of a dagger" referring to the shape of the RTA.

**DESCRIPTION: Male:** Total length 6.50; carapace 3.00 long, 2.00 wide, 1.25 high.

**Colour:** prosoma chestnut brown, finely reticulated; sternum yellow brown; legs yellow brown coxae and proximal half of femora II-IV white; chelicerae sparsely

covered with hairs; abdomen sepia black with 5 white patches, laterals with a pair of white bands, venter sepia with 1 median and 2 lateral white bands.

**Eyes:** MOQ: AW = 0.73 PW; AW = 0.5 L.

**Legs:** Spination: femora I d2\*pl1 II d3\*pl1 III d5\*pl4\*rl4\* IV d5\*pl3\*rl1; patellae III-IV d1pl1rl1; tibiae I v2-1-2 II pl1v2-1-2 III d3\*pl2\*rl2\*v2-2-2 IV d3\*pl3\*rl3\*v2-2-2; metatarsi I v2-1-2 II pl1v2-1-2 III d2-2-2pl3\*v2-2-2 IV d1-1-3pl3\*rl3v2-2-2. (Mt II and III with tuft of hairs distally, less pronounced on Mt IV).

**Measurements:** Pa+Ti I 2.55 II 2.15 III 2.05 IV 2.83.

**Male palp** (Figs. 10, 23-25): tibia with a small ventral swelling but with transverse rows of macrosetae; two apophyses: a prolateral dorsal one, short and with pointed tip; the base of the retrolateral one is to the dorsolateral side and is ridged, its distal part long, pointed and dagger-shaped; cymbium broad and fairly high flat with well developed flange with lateral upward faced ridge; retrolateral dorsal part with deep concavity, accommodating the RTA; distal tip with three spines; tegulum with a

posterior membranous extension from where embolus originates juxtaposed against the visible part of the subtegulum which is sclerotized and globular; visible part of sperm duct sinuous; embolus thin and flexible, 3/4 of a complete loop, distal part lying in large, grooved distal part of median apophysis; membranous appendage absent.

**Female:** Total length 7.40; carapace 3.56 long, 2.31 wide, 1.69 high.

**Colour:** As in male but: only proximal end of Fe IV whitish; dorsum of abdomen white grey covered with black patches, venter white with 2 longitudinal sepia stripes.

**Eyes:** MOQ: AW = 0.77 PW; L = 0.52 AW.

**Legs:** Spination: femora I d2\*pl1 II d2\*pl1 III d3\*pl3\*rl2\* IV d5\*pl1rl1; patellae III-IV d1pl1rl1; tibiae I v2-1-1 II v1-2-2 III d3\*pl3\*rl2\*v2-2-2 IV d3\*pl4\*rl3\*v2-2-2; metatarsi I pl1v2-2-2 II pl1v2-1-2 III d1-1-2pl3\*rl3\*v2-2-2 IV d1-1-1-2pl4\*rl4\*v2-1-2-2. (Mt II and III with tuft of hairs distally, less pronounced on Mt IV).

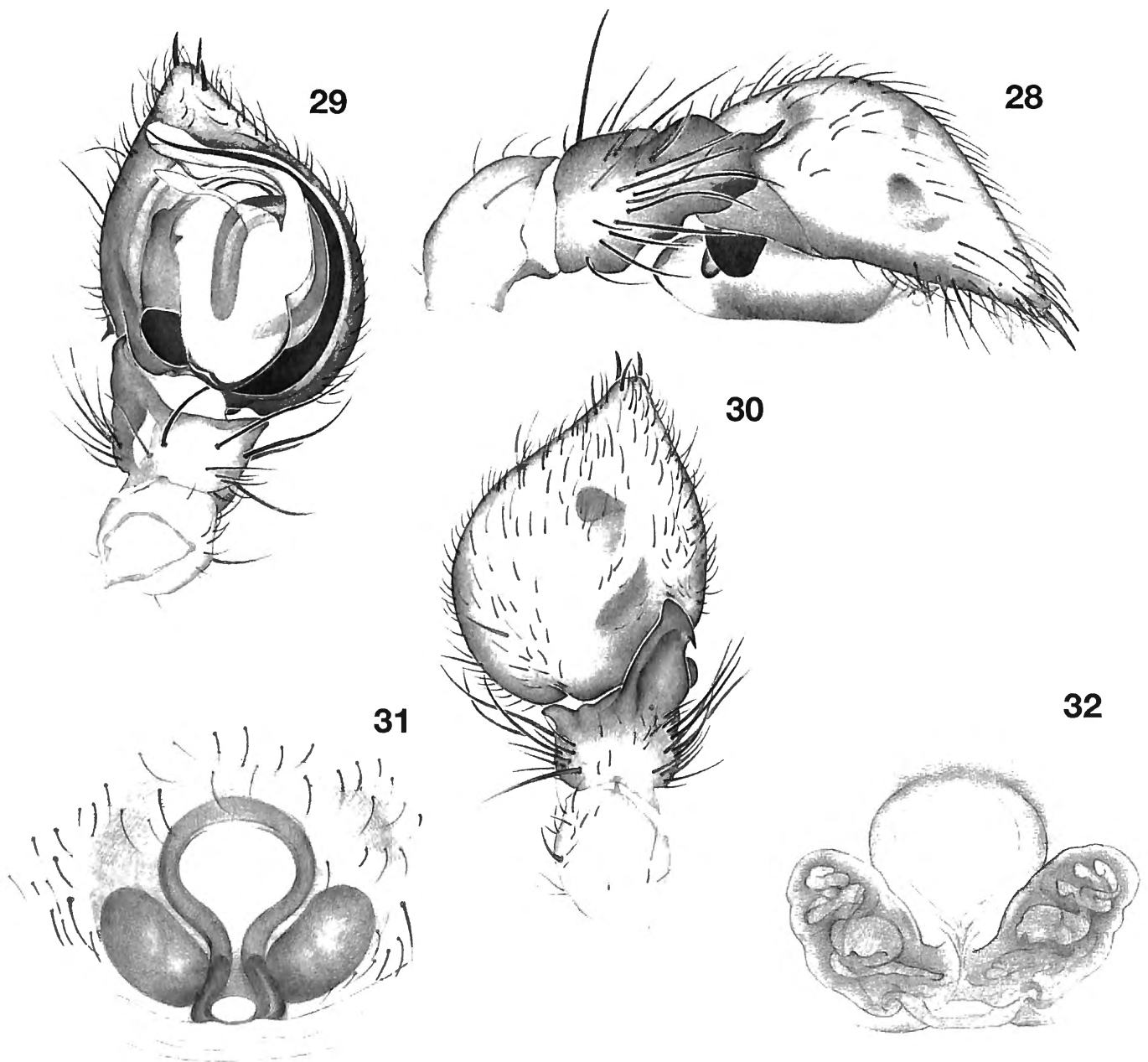
**Measurements:** Pa+Ti I 2.81 II 2.25 III 2.19 IV 3.06.

**Epigyne** (Figs. 9, 26, 27): slightly bulging with central depression slightly longer than wide.

***Epicratinus takutu* n. sp.**

Figs. 28-31

**TYPE MATERIAL:** Holotype male: GUYANA: Mazaruni-Potaro District, Takutu Mountains (06°15'N 58°55'W),



Figs. 28-32 — *Epicratinus takutu*. 28. Male palp, retrolateral. 29. Male palp, ventral view. 30. Male palp, dorsal view. 31. Epigyne, ventral view. 32. Epigyne, dorsal view.

window trap in mountain forest, 8.XII.1983, P.D. (Perkins & W.E. Steiner) (USNM).

Paratypes: GUYANA: 2 ♀: together with holotype (USNM).

**DIAGNOSIS:** males of *E. takutu* can be recognized by the ventral tibial ridge, the shape of the RTA with triangular distal part, rimmed along its retro- and prolateral sides and the slightly pointed prolateral tibial apophysis, and the shape of the tegular appendage. Females are characterized by the perfectly round central depression in the epigyne and the entrance ducts with few coils.

**ETYMOLOGY:** *takutu* is a noun in apposition taken from the type locality.

**DESCRIPTION: Male:** Total length 5.06; carapace 2.50 long, 1.88 wide, 1.13 high.

**Colour:** prosoma chestnut brown, finely reticulated; sternum yellow brown; legs yellow brown with legs I & II lighter, coxae whitish; abdomen sepia grey dorsum with 5 white patches, laterals with 3 white bands, venter sepia.

**Eyes:** MOQ: AW = 0.70 PW; AW = 0.47 L.

**Legs:** Spination: femora I d3\*pl1 II d4\*pl1 III d4\*pl3\*rl3\* IV d5\*pl1rl2; patellae III-IV d1pl1rl1; tibiae I d1fpl1v2-1-2 II d1fpl2\*v1-1-2 III d2\*pl2\*rl2\*v2-2-2 IV d3\*pl2\*rl2\*v2-2-2; metatarsi I v2-2-2 II pl2\*v1-1-1-2 III d2-2-2pl3\*rl3\*v1-2-2 IV d1-1-2pl3\*rl3v2-2-2. (Mt II and III with tuft of hairs distally, less pronounced on Mt IV).

**Measurements:** Pa+Ti I 2.13 II 1.75 III 1.69 IV 2.31.

**Male palp** (Figs. 28-29): tibia with a longitudinal ventral ridge, a retrolateral transverse row of 10 macrosetae and two apophyses: prolateral one, short, curved outward and pointed; retrolateral one a broad extension of the body of the tibia ending in a triangular part rimmed by raised but low ridges; cymbium broad and fairly flat with well developed simple flange; retrolateral dorsal part with deep concavity, accommodating the RTA; distal tip with three spines; tegulum with a posterior membranous extension overlying the broad embolus base and the visible part of the subtegulum which is sclerotized and globular; visible part of sperm duct horse-shoe shaped; embolus thin and flexible, 3/4 of a complete loop, distal part in grooved distal part of long curved median apophysis; basal part of embolus broadened with slightly angular posterior extension; tegulum with a very thin, membranous and transparent appendage originating at base of median apophysis, slightly widened and rounded at tip.

**Female:** Total length 6.06; carapace 2.75 long, 1.81 wide, 1.13 high.

**Colour:** As in male

**Eyes:** MOQ: AW = 0.66 PW; AW = 0.45 L.

**Legs:** Spination: femora I d2\*pl1 II d2\*pl1 III d3\*pl3\*rl2\* IV d4\*pl1rl1; patellae III-IV d1pl1rl1; tibiae I d1fpl1v1-1-0 II d1fpl2v1-1-2 III d3\*pl2\*rl2\*v2-2-2 IV d3\*pl2\*rl2\*v2-1-2; metatarsi I v2-2-2 II pl2\*rl1v2-1-2 III d1-1-2pl3\*rl3\*v2-2-2 IV d1-1-2pl3\*rl3\*v2-2-2.

(Mt II+III with tuft of hairs distally, less pronounced on Mt IV).

**Measurements:** Pa+Ti I 1.86 II 1.63 III 1.63 IV 2.16.

**Epigyne** (Figs. 31-32): slightly bulging with central depression perfectly round.

### COLIMA new genus

**DIAGNOSIS:** Representatives of the genus are recognized by the very high clypeus (6x ALE) and the unique male palp in which the tegulum is horseshoe-shaped and has a rigidly connected, pointed retrolateral extension; the embolus, mostly hidden, originates from the tegular concavity.

**DESCRIPTION:** Medium-size spiders (3.5-6.0 mm) with elongate carapace (Figs. 33-37), about 1.5 – 1.7 times longer than wide; slightly narrowed in front to 0.65-0.80 times maximum width, reached at level of coxae II. Highest point of profile (Fig. 37) between eyes and fovea, falls sharply behind PME. Fovea shallow.

**Colour:** prosoma, including legs, chelicerae and sternum pale orange to pale brown; abdomen pale to dark sepia with complex pale pattern consisting of chevrons and spots; venter usually pale, sometimes with darker pattern. Carapace slightly reticulated or smooth.

**Eyes:** both rows and mainly posterior slightly procurved. Eyes rather small. AME the smallest, about 0.5 times their diameter apart and 0.5 the diameter from ALE which are 2/3 their diameter from PLE. PME the largest; 2/3 diameter apart and more than 2.5 times that distance from PLE. MOQ longer ( $\pm 1.6$  times) than wide in front, and narrower ( $\pm 1.4$  times) in front than behind. Clypeus high,  $\pm 6$  times the diameter of an ALE; slightly convex. Chilum single, a poorly delimited triangle with a few setae. Chelicerae 1.5 times to twice as long as wide at the base; sparsely setose in front, lateral condyle well developed; no teeth; fangs short. Endites strongly converging; triangular with anteromesal scopula. Labium (Fig. 36) almost as long as wide, triangular, strongly narrowed in front. Sternum triangular, with sinuous margins; as long as wide, anterior margin straight.

**Legs:** Formula 4123. Spination: poor on legs I and II; spines more numerous on legs III and IV. Three tarsal claws; 9 to 12 teeth on superior tarsal claws. Trichobothria: in 2 rows on Ti, in one row on Mt and Ta. Hinged hairs present. Scopulae spiniform; ventral preening comb on Mt II-IV poorly developed. Abdomen elongate, oval; 6 spinnerets in both sexes. AS long, biarticulate, distal segment very short. Posterior spinnerets very short. Colulus represented by a few setae. Tracheal spiracle just in front of spinnerets.

**Male palp** (Figs. 38, 39, 42-45): tibia with simple, broad retrolateral apophysis; cymbium with proximal lateral flange, sometimes ridged; with retrolateral dorsal concavity accommodating RTA. Tegulum with deep frontal concavity; retrolateral part with rigidly attached inward pointing prong; median apophysis (MA) absent.



Female with slightly conical palpal tarsus, provided with toothed claw, turned inward over some  $10^\circ$ . Epigyne (Figs. 40, 41, 46, 47) a simple plate with sclerotized posterior margin. Entrance openings near posterior rim; entrance ducts short or cork-screw-shaped; spermathecae transversely oval.

TYPE SPECIES: *Colima colima* new species

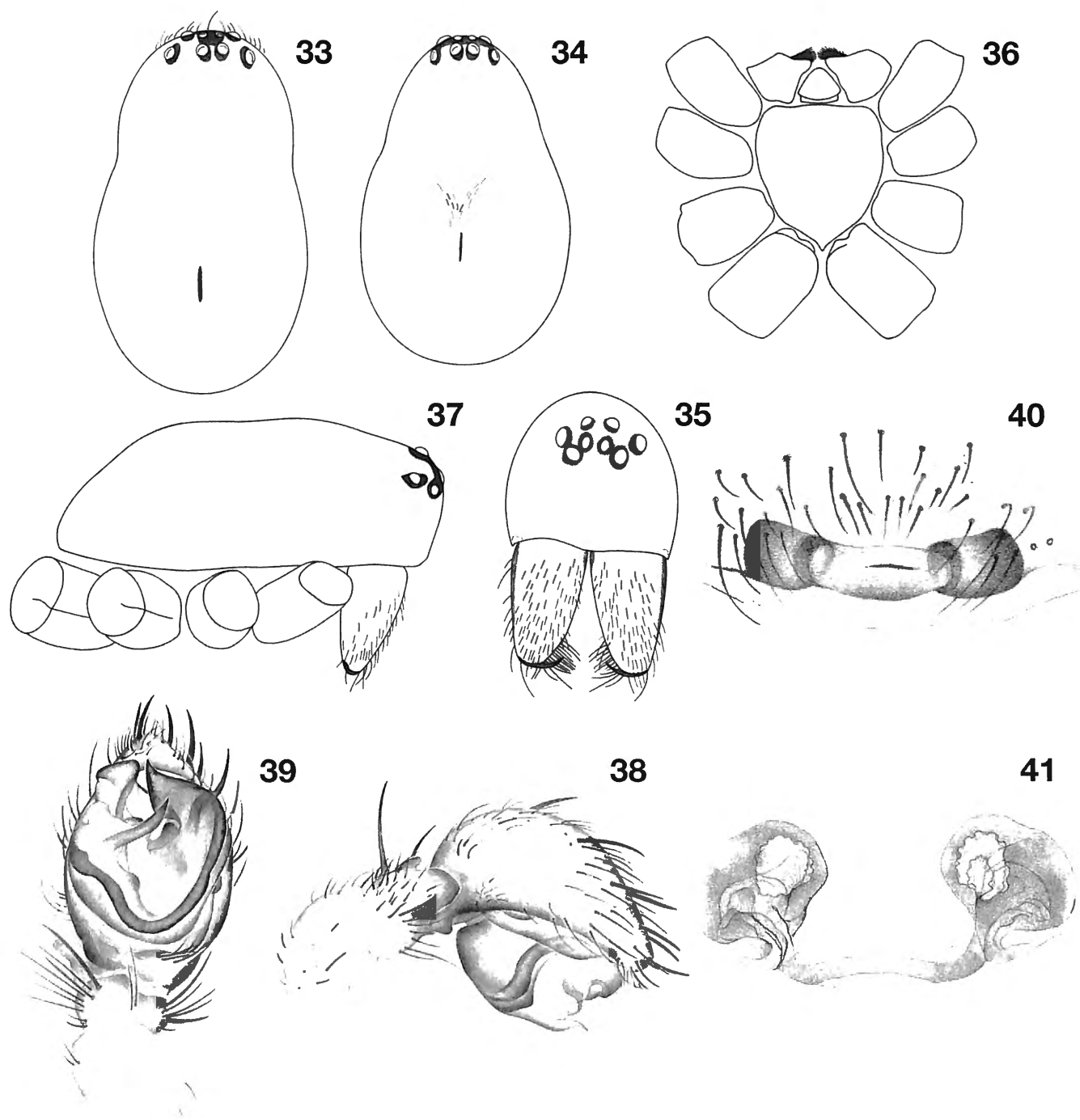
DISTRIBUTION: Mexico.

ETYMOLOGY: *Colima* is taken from the Province in which the type locality is situated. The gender is feminine.

*Colima colima* new species

Figs. 33-41

TYPE MATERIAL: Holotype male and Paratype female: MEXICO, 8 miles SW of Colima,  $19^\circ 10' N$   $103^\circ 45' W$ , 10.V.1963, (W.J. Gertsch & W. Ivie) (AMNH).



Figs. 33-41 — *Colima colima*. 33. Female cephalothorax, dorsal view. 34. Male cephalothorax, dorsal view. 35. Male cephalothorax, frontal view. 36. Cephalothorax, ventral view. 37. Male, cephalothorax, lateral view. 38. Male palp, retrolateral view. 39. Male palp, ventral view. 40. Epigyne, ventral view. 41. Epigyne, dorsal view.

**DIAGNOSIS:** *C. colima* males are recognized by the shape of the slender, parallel sided retrolateral tegular prong and the tegulum reaching the posterior part of the cymbial alveolus. Females have a broad epigynal plate and short entrance ducts.

**ETYMOLOGY:** the species name is a noun in apposition taken from the type locality.

**DESCRIPTION:** *Male Holotype:* Total length 5.04; carapace 2.64 long, 1.68 wide, 1.00 high.

*Colour:* Prosoma orange, finely reticulated, thinly covered with short black hairs; sternum yellowish orange; legs yellow with orange tinge. Abdomen: dorsum sepia with pattern of white spots: an apical horseshoe followed by a chevron, a pair of small spots and an elongate caudal spot; sides white except a black oblique median stripe and caudal part; venter pale with a series of small black spots.

*Eyes:* MOQ: AW = 0.79 PW; AW = 0.75 L.

*Legs:* Spination: femora I d3\*pl1 II d3\*pl1 III d3\*pl1r1

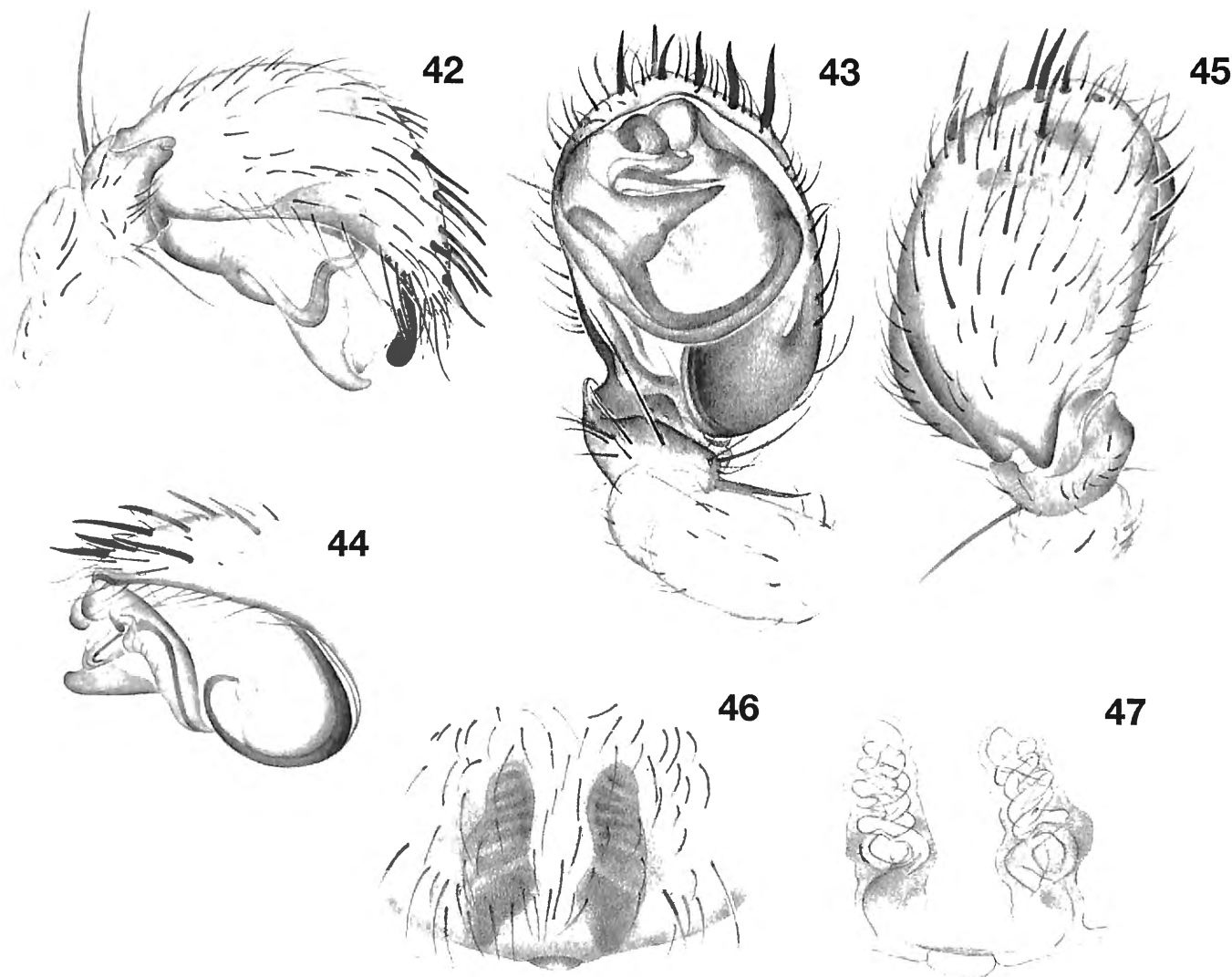
IV d3\*pl1r1; patellae III-IV d1pl2r1; tibiae I d1fp12\*v2-1-2 II d1fp11v1-2-2 III-IV d2\*pl2\*v2-2-2r12\*; metatarsi I pl1v2-2-2 II pl2\*v2-1-2-2 III d2\*pl4\*v1-2-2-2r14\* IV d1pl1-1-2v1-1-2-2-1r11-1-2.

*Measurements:* Pa+Ti: I 1.92 II 1.76 III 1.68 IV 2.24.

*Male palp* (Figs. 38, 39): Cymbium with ten short, strong spines. Tibia with a short and rounded retrolateral apophysis, a fringe of seven retrolateral macrosetae and a group of four prolateral spines. Tegulum extending to posterior end of cymbial alveolus, with deep frontal concavity; with sclerotized, rigidly attached, parallel sided retrolateral prong, pointing inwards; ST poorly developed only visible in prolateral view; embolus short, originating dorsad of the prolateral part of tegulum, emerging in distal concavity.

*Female:* Total length 6.00; carapace 2.88 long, 1.68 wide, 1.00 high.

*Colour:* Prosoma light brown; legs and sternum yellowish brown; abdomen as in male.



Figs. 42-47 — *Colima manzanillo*. 42. Male palp, retrolateral view. 43. Male palp, ventral view. 44. Male palp, distal part, prolateral view. 45. Male palp, dorsal view. 46. Epigyne, ventral view. 47. Epigyne, dorsal view.

*Eyes:* MOQ: AW = 0.70 PW; AW = 0.67 L.

*Legs:* Spination: femora I d3\* II d3\*pl1 III d3\*pl1r1 IV d3\*pl1r1; patellae III-IV d1pl2r1; tibiae I d1fv3\* II d1fv3\* III d2(3)pl2\*r1v1-2-2 IV d2\*pl2\*v2-2-2r2\*; metatarsi (irregular implantation) I v2-2-2 II v2-2-2 III d1-2-2pl2\*v2-2-2r1 IV d1-2-2pl3\*v2-1-2-3r3\*.

*Measurements:* Pa+Ti I 1.88 II 1.68 III 1.52 IV 2.16.

*Epigyne* (Figs. 40, 41): a simple, wide plate with sclerotized posterior rim; entrance ducts short, leading into well separated spermathecae.

### *Colima manzanillo* new species

Figs. 42-47

**TYPE MATERIAL:** Holotype male: MEXICO, Colima, 12 mi. E of Manzanillo, 19°01' N 104° 01'W, 11.V.1963, (Gertsch & Ivie) (AMNH).

Paratypes: 2 ♀: together with holotype. Tube contains 11 juveniles.

**DIAGNOSIS:** *C. manzanillo* males are recognized by the shape of the broad, strongly tapered retrolateral tegular prong and the large subtegulum occupying the posterior part of the cymbial alveolus. Females have a narrow epigynal plate and corkscrew shaped entrance ducts.

**ETYMOLOGY:** the species name is a noun in apposition taken from the type locality.

**DESCRIPTION: Male Holotype:** Total length 3.69; carapace 1.94 long, 1.31 wide, 0.72 high.

*Colour:* Prosoma orange, finely reticulated; sternum yellowish orange; legs yellow with orange tinge. Abdomen: dorsum sepia with pattern of seven white spots, venter pale.

*Eyes:* MOQ: PW = 1.36 AW; L = 1.36 AW.

*Legs:* Spination: femora I d3\*pl1 II d3\*pl1 III d3\*r1l IV d3\*r1l; patellae III-IV d1pl2r1; tibiae I d1fv1-1-1 II d1fp1v1-1-1 III-IV d2\*pl2\*r12\*v2-2-2; metatarsi I v2-2-2 II v2-2-2 III d1-2\*pl2\*r13\*v2-2-2 IV d1-2pl2\*r13\*v2-1-2-2.

*Measurements:* Pa+Ti: I 1.92 II 1.76 III 1.68 IV 2.24.

*Male palp* (Figs. 42-45): Cymbium with 10 strong short spines. Tibia with short, rounded, retrolateral apophysis, with fringe of seven retrolateral macrosetae and group of four prolateral spines. ST large, occupying posterior part of cymbial alveolus. Tegulum fairly short, with deep frontal concavity; with sclerotized, rigidly attached, parallel strongly tapered retrolateral prong, pointing inwards; embolus short, originating dorsad of prolateral part of tegulum, emerging in distal concavity.

*Female:* Total length 3.62; carapace 1.69 long, 1.13 wide, 0.75 high.

*Colour:* As in male but dorsum with nine white spots.

*Eyes:* MOQ: PW = 1.43 AW; L = 1.62 AW.

*Legs:* Spination: femora I d3\* II d3\* III d3\* IV d3\*r1l; patellae III-IV d1pl2r1; tibiae I d1fv1-0-0 II d1fv1-1-0 III d2pl2\*r12\*v1-1-1 IV d2\*pl2\*r12\*v1-2-2; metatarsi I v1-

0-2 II v1-0-2 III d1-2-2pl2\*r12\*v2-0-2 IV d1-1-2pl2\*r12\*v2-0-2.

*Measurements:* Pa+Ti I 1.88 II 1.68 III 1.52 IV 2.16.

*Epigyne* (Figs. 46, 47): with narrow plate; entrance ducts corkscrew shaped leading into well separated posterior spermathecae.

### Affinities

The genera *Epicratinus* and *Colima* are apparently related to *Tenedos* and *Ishania*. The fact that the *Epicratinus* was mistaken for *Tenedos* (Brescovit *et al.*, 2002) is symptomatic in this respect. In order to analyse the position of the new genera, the matrix presented in the revision of JOCQUÉ & BAERT (2002) was adapted. Only species for which both sexes are known were considered and the five new species described here were added which gave a total number of 39 species. Seven new characters were added to the matrix and for three of the existing characters a number of states had to be added.

Among the new characters three are somatic:

One of the striking characters of *Epicratinus* is the strongly procurved PER (character 44). The same genus is also characterized by the absence of posterior spinnerets in males (character 45) and the peculiar, fused posterior spinnerets in the female (character 46).

Four other characters pertain to the genitalia:

In our present ingroup, the absence of a median apophysis is unique in *Colima* (character 43) just as the presence of a concave tegulum (character 47) and of a rigid prolateral extension of the tegulum (character 48). In both the new genera the cymbium has a concavity accommodating the RTA (character 49).

Character 1 was extended with state 2: clypeus height 6 times the diameter of an ALE for the situation in *Colima*.

Character 15 received a third state; 3: base of embolus originates in frontal concavity of tegulum (*Colima*).

Character 31 received one more state: 4. entrance ducts corkscrew shaped (for both *Colima* and *Epicratinus*); *Colima colima* has short and slightly curved entrance ducts (state 0).

The following characters were added to the list (Table 1 in JOCQUÉ & BAERT, 2002):

43. 0. MA present
  1. MA absent
44. 0. PER slightly procurved
  1. PER; slightly procurved or straight
45. 0. male with 6 spinnerets
  1. male with 2 spinnerets
46. 0. posterior spinnerets of female not fused
  1. posterior spinnerets of female fused
47. 0. tegulum oval
  1. tegulum with deep frontal concavity
48. 0. tegulum without rigid prolateral extension
  1. tegulum with rigid prolateral extension.
49. 0. cymbium without posterior concavity
  1. cymbium with posterior concavity accommodating the RTA

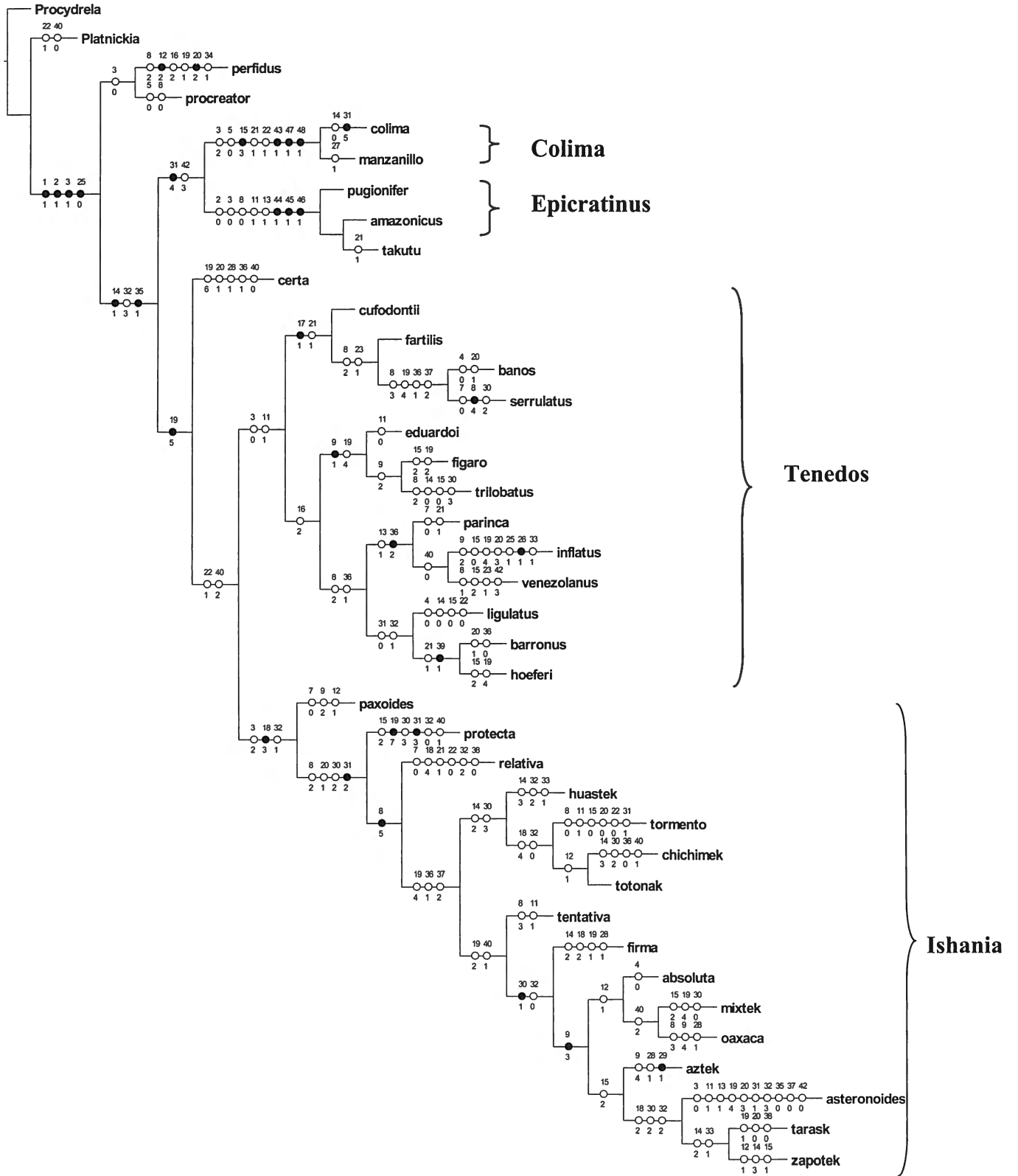


Fig. 48 — Cladogram for major Neotropical genera of the subfamily Zodariinae including only those taxa for which both sexes are known. The tree is one of 27 equally long trees (L = 291, CI = 29, RI = 65).

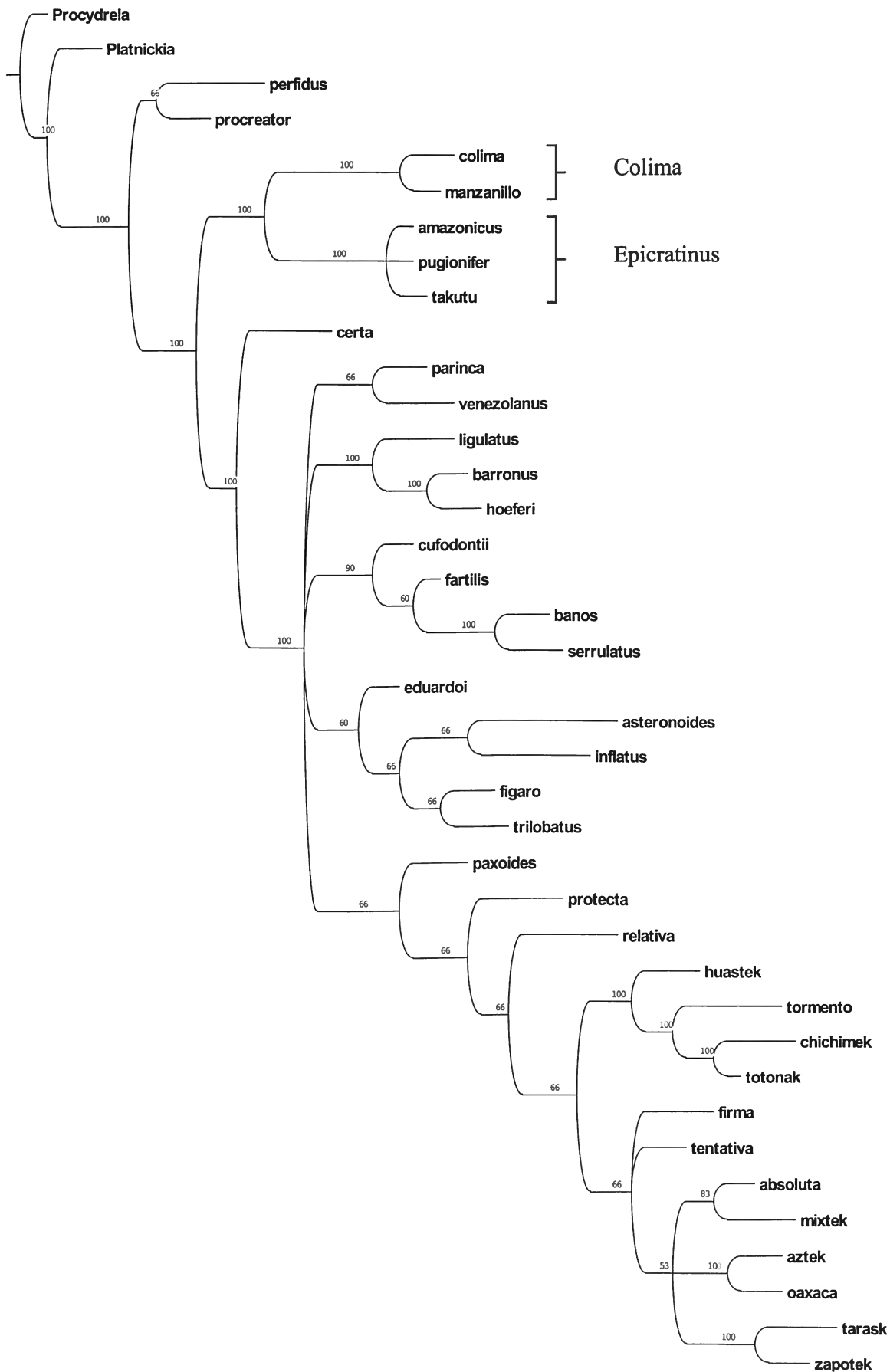


Fig. 49 — Majority rule cladogram showing frequency scores for each node. Remark the sister-group relationship between *Epicratinus* and *Colima* and the fact that *Tenedos* as presently construed is not monophyletic (see text for explanation).



Table 1 — Character matrix for species known from both sexes of *Tenedos* and *Ishania* mentioned in Jocqué & Baert (2002) and representatives of *Epicratinus* and *Colima*.

Procydrela	0 0 0 2 0 0 0 0 0 0	0 0 0 0 0 0 0 ? ? ? 0	0 0 0 0 0 1 0 0 0 0	0 0 0 1 0 0 0 0 0 0	1 1 2 0 0 0 0 0 0 0
Platnickia	0 0 0 2 0 1 0 1 1 0	0 0 0 0 0 0 0 ? ? ? 0	0 0 1 0 0 1 0 0 0 0	? 1 2 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
absoluta	0 1 1 2 0 1 0 1 5 3	0 0 1 0 1 1 1 1 0 3 2	0 0 1 0 0 0 0 0 0 0	1 2 0 0 0 1 1 2 1 0	1 0 1 0 0 0 0 0 0 0
asteronoides	0 1 1 0 1 1 0 1 5 3	0 1 0 1 1 2 1 0 2 4	3 0 1 0 0 0 0 0 0 0	2 1 3 0 0 0 0 0 ? 0	1 0 0 0 0 0 0 0 0 0
aztek	0 1 1 2 1 1 0 1 5 4	0 0 0 0 1 2 1 0 3 2	1 0 1 0 0 0 0 0 1 1	1 2 0 0 0 1 1 2 1 0	1 0 1 0 0 0 0 0 0 0
banos	0 1 1 0 0 1 0 1 3 0	0 1 0 1 1 1 1 1 2 4	1 1 1 1 0 0 0 1 0 0	0 1 3 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
barronus	0 1 1 0 1 1 0 1 2 0	0 1 0 0 1 1 2 0 0 5	1 1 1 0 0 0 0 1 0 0	0 0 1 0 0 1 0 2 1 1	2 0 1 0 0 0 0 0 0 0
certa	0 1 1 1 0 1 0 1 1 0	0 0 0 0 1 0 1 0 0 6	1 0 0 0 0 0 0 1 0	0 1 3 1 0 1 1 0 ? 0	0 ? ? 0 0 0 0 0 0 0
chichimek	0 1 1 2 1 1 1 1 5 0	1 0 1 0 3 1 1 0 4 4	1 0 1 0 0 0 0 0 0 0	2 2 0 0 0 1 0 2 1 0	1 0 1 0 0 0 0 0 0 0
cufodontii	0 1 1 0 1 1 0 1 1 0	0 1 0 1 1 1 1 1 2 5	0 1 1 0 0 0 0 1 0 0	0 0 3 0 0 1 0 0 1 0	2 0 1 0 0 0 0 0 0 0
eduardoi	0 1 1 0 1 1 0 1 1 1	0 0 0 0 1 1 2 0 0 4	0 0 1 0 0 0 0 ? ? ?	? ? ? ? ? ? ? ? ? ? ?	? ? ? 0 0 0 0 0 0 0
fertilis	0 1 1 0 1 1 0 1 2 0	0 1 0 0 1 1 1 1 2 5	0 1 1 1 0 0 0 0 0 0	0 0 3 0 0 1 0 1 1 0	2 0 1 0 0 0 0 0 0 0
figaro	0 1 1 0 1 1 0 1 1 2	0 1 0 0 1 2 2 0 0 2	0 0 1 0 0 0 0 1 0 0	0 1 3 0 1 1 0 1 1 0	2 0 1 0 0 0 0 0 0 0
firma	0 1 1 2 1 1 0 1 5 0	0 0 0 0 2 1 1 0 2 1	1 0 1 0 0 0 0 0 1 0	1 2 0 0 0 1 1 2 1 0	1 0 1 0 0 0 0 0 0 0
hoferi	0 1 1 0 1 1 0 1 2 0	0 1 0 0 1 2 2 0 0 4	0 1 1 0 0 0 0 1 0 0	0 0 1 0 0 1 1 2 1 1	2 0 1 0 0 0 0 0 0 0
huastek	0 1 1 2 1 1 1 1 5 0	1 0 0 0 3 1 1 0 3 4	1 0 1 0 0 0 0 0 0 0	3 2 2 1 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
inflatus	0 1 1 0 1 1 0 1 2 2	0 1 0 1 1 0 2 0 0 4	3 0 1 0 0 1 1 1 0 0	0 1 3 1 0 1 2 2 1 0	0 0 1 0 0 0 0 0 0 0
ligulatus	0 1 1 0 0 1 0 1 2 0	0 1 0 0 0 0 2 0 0 5	0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
mixtek	0 1 1 2 1 1 0 1 5 3	0 0 1 0 1 2 1 0 3 4	0 0 1 0 0 0 0 0 0 0	0 2 0 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
oaxaca	0 1 1 2 1 1 0 1 3 4	0 0 1 0 1 1 1 0 3 2	1 0 1 0 0 0 0 0 1 0	1 2 0 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
parinca	0 1 1 0 1 1 0 0 2 0	0 1 0 1 1 1 2 0 0 6	0 1 1 0 0 0 0 1 0 0	0 1 3 0 0 1 2 ? 1 0	2 0 1 0 0 0 0 0 0 0
paxoides	0 1 1 2 1 1 0 0 1 2	0 0 1 0 1 1 1 0 3 5	0 0 1 0 0 0 0 1 0 0	0 1 1 0 0 1 0 0 1 0	2 0 1 0 0 0 0 0 0 0
perfidus	0 1 1 0 0 1 0 0 2 0	0 0 2 0 0 0 2 0 0 1	2 0 0 0 0 0 0 0 0 0	0 1 0 0 1 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0
procreator	0 1 1 0 0 0 0 0 0 0	0 0 0 0 0 0 1 0 0 0	0 0 0 0 0 0 0 0 0 0	0 1 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0
protecta	0 1 1 2 1 1 0 1 2 0	0 0 0 0 1 2 1 0 3 7	1 0 1 0 0 0 0 0 0 0	3 3 0 0 0 1 0 0 ? 0	1 ? 1 0 0 0 0 0 0 0
relativa	0 1 1 2 1 1 0 0 5 0	1 0 0 0 1 1 1 0 4 5	1 1 0 0 0 0 0 0 0 0	2 2 2 0 0 1 0 0 0 0	2 0 1 0 0 0 0 0 0 0
serrulatus	0 1 1 0 1 1 0 0 4 0	0 1 0 1 1 1 1 1 2 4	0 1 1 1 0 0 0 0 0 0	2 1 3 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
tarask	0 1 1 2 1 1 0 1 5 3	0 0 0 0 2 2 1 0 2 1	0 0 1 0 0 0 0 0 0 0	2 2 2 1 0 1 1 2 0 0	1 0 1 0 0 0 0 0 0 0
tentativa	0 1 1 2 1 1 0 1 3 0	0 1 0 0 1 1 1 0 3 2	1 0 1 0 0 0 0 0 0 0	2 2 1 0 ? 1 1 2 ? 0	1 0 1 0 0 0 0 0 0 0
tormento	0 1 1 2 1 1 0 1 0 0	1 1 0 0 2 0 1 0 4 4	0 0 0 0 0 0 0 0 0 0	3 1 0 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
totonak	0 1 1 2 1 1 1 1 5 0	1 0 1 0 2 1 1 0 4 4	1 0 1 0 0 0 0 0 0 0	3 2 0 0 0 1 1 2 1 0	2 0 1 0 0 0 0 0 0 0
trilobatus	0 1 1 0 1 1 0 1 2 2	0 1 0 0 0 0 2 0 0 4	0 0 1 0 0 0 0 0 0 0	3 1 3 0 1 1 0 1 1 0	2 0 1 0 0 0 0 0 0 0
venezolanus	0 1 1 0 1 1 0 1 1 0	0 1 0 1 1 2 2 0 0 6	0 0 1 1 0 0 0 1 0 0	0 1 3 0 0 1 2 1 1 0	0 0 3 0 0 0 0 0 0 0
zapotek	0 1 1 2 1 1 0 1 5 3	0 0 1 0 3 1 1 0 2 2	1 0 1 0 0 0 0 0 0 0	2 2 2 1 0 1 0 2 1 0	1 0 1 0 0 0 0 0 0 0
amazonicus	0 1 0 0 1 1 0 0 0 0	0 1 0 1 1 1 0 _ _ 0	0 0 0 0 0 0 0 0 0 0	0 4 3 1 0 1 0 1 0 0	1 0 3 0 1 1 1 0 0 1
pugionifer	0 1 0 0 1 1 0 0 0 0	0 1 0 1 1 1 0 _ _ 0	0 0 0 0 0 0 0 0 0 0	0 4 3 1 0 1 0 1 0 0	1 0 3 0 1 1 1 0 0 1
takutu	0 1 0 0 1 1 0 0 0 0	0 1 0 1 1 1 0 _ _ 0	0 1 0 0 0 0 0 0 0 0	0 4 3 1 0 1 0 1 0 0	1 0 3 0 1 1 1 0 0 1
colima	0 1 1 2 1 0 0 1 1 0	0 0 0 0 0 3 0 _ _ _	0 1 1 0 0 0 0 0 0 0	0 5 3 1 0 1 0 0 0 0	1 0 3 1 0 0 0 1 1 1
manzanillo	0 1 1 2 1 0 0 1 1 0	0 0 0 0 1 3 0 _ _ _	0 1 1 0 0 0 0 1 0 0	0 4 3 1 0 1 0 1 0 0	1 0 3 1 0 0 0 1 1 1

These adaptations, new characters and new states resulted in the matrix shown in Table 1.

### Cladistic analysis

The ratchet (NIXON, 1999) (200 iterations, 1 tree to hold, 4 characters to sample, amb-) yielded 27 equally long trees (L: 291; CI: 29; RI: 65). Fig. 48 shows one of the 27 trees and Fig. 49 the majority rule tree with frequency scores for each node. The 27 trees differ exclusively in the position of the different species of *Tenedos* and *Ishania*. Important, and recurring in all 27 trees, so also in the majority rule tree and in the strict consensus tree, is the position of *Colima* and *Epicratinus*. These genera appear to be sister groups and form a clade that is sister to the combination of the majority of *Tenedos* and *Ishania* as a whole. Surprising and interesting is the position of a few

of the basal “*Tenedos*” species (*T. procreator* and *T. perfidus*) that appear to be ancestral to the rest of the ingroup. This means that *Tenedos* as presently construed, is not monophyletic and that these species, together with a few more for which only males are known and which were not considered here, will fall out of *Tenedos* and will have to be included in another genus. In a forthcoming cladistic analysis of the Zodariidae (JOCQUÉ, in prep.), mainly based on a large number of somatic characters, this problem will be addressed and nomenclatorial consequences will be solved at that occasion.

### Acknowledgments

We thank Marylise Leclercq for making the drawings (KBIN). We are indebted to the curators mentioned under “acronyms” for the loan of specimens and specially to A. Bonaldo for the loan of additional material.

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