



***Ami*, a new Theraphosid genus from Central and South America, with the description of six new species (Araneae: Mygalomorphae)**

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Abstract

A new genus *Ami* Pérez-Miles is proposed for six new species: *A. caxiuana* Pérez-Miles, Miglio & Bonaldo, from Caxiuana National Forest, Pará, Brasil, the type species; *A. yupanquii* Pérez-Miles, Gabriel & Gallon, from the area of Puyo, Ecuador; *A. bladesi* Pérez-Miles, Gabriel & Gallon, from Isla Colón, Panamá; *A. pijaos* Jimenez & Bertani, from Ibagué, Tolima, Colombia; *A. amazonica* Jimenez & Bertani, from Leticia, Amazonas, Colombia; and *A. weinmanni* Pérez-Miles, from La Azulita, Apure, Venezuela. *Avicularia obscura* (Ausserer 1875) is transferred to *Ami* and re-diagnosed. Diagnostic characters of *Ami* are the modification of Type I urticating hairs, with unusually longer area b, and one or two subconical processes on retrolateral face of male palpal tibiae. Females of *Ami* differ further from those of other theraphosid genera by their highly characteristic spermathecae: paired ventral receptacles attached to an almost discrete, semi-circular, sclerotized back-plate.

Key words: Tarantula, spider, Neotropics, systematics, urticating hairs

Introduction

The Theraphosidae are the most speciose family of Mygalomorphae, comprising 113 genera and 900 species (Platnick 2007); they include some of the largest spiders in the world, usually called tarantulas. The subfamily Theraphosinae is known only from the New World, primarily the Neotropics, and includes about half of all known theraphosid species. Considering that one-third of spider genera occur in the Neotropics and only 20% of world spider fauna is known (Coddington & Levi 1991), most new Theraphosidae are expected to be in the Neotropics.

The Theraphosinae were characterized by the combination of well-developed embolic keels and an extended subtegulum on the male palpal organ (Raven 1985) and by the presence of abdominal urticating hairs (Type I and/or Type III and/or Type IV). They appear closely related to the Harpactirinae, Aviculariinae and part of the Ischnocolinae in an unresolved polytomy in the first cladistic approach for the group. (Raven 1985). The cladistic relationships of representatives of the subfamily were analyzed by Pérez-Miles (1992, 1998, 2000), Pérez-Miles et al. (1996, 2007), Bertani (2000) and Guadanucci (2005). Despite the scarcity of characters and the low support of parts of the cladogram, a poorly resolved basal group can be recognised

which includes genera with type IV urticating hairs and another better resolved group including genera with type I urticating hairs. Several small theraphosids collected recently in northern Brazil, Ecuador, Colombia and Panama, as well as the type of *Ischnocolus obscurus* Ausserer 1875 from Colombia, present modified type I urticating hairs and other unusual characters which did not fit with any known theraphosid genus. A new genus is therefore erected to accommodate these species.

Methods

Abbreviations: AME = anterior median eyes, ALE = anterior lateral eyes, PME = posterior median eyes, PLE = posterior lateral eyes, OQ = ocular quadrangle (including lateral eyes), d = dorsal, p = prolateral, r = retrolateral, v = ventral; BMNH = The Natural History Museum (London, England); FCE-MY = entomological collection, Facultad de Ciencias (Montevideo, Uruguay); HMO = arachnological collection of Hope Museum, Oxford, United Kingdom; ICN-Ar = arachnological collection of Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogota; MIF = in Museo de Invertebrados "G.B. Fairchild", Universidad de Panamá (Panama); MPEG = Museu Paraense Emilio Goeldi (Belém, Pará, Brazil). All measurements are in millimeters (mm) and were taken using an ocular micrometer. Drawings were made with a camera lucida. Urticating hair terminology follows Cooke et al. (1972). Male palpal organ keel terminology follows Bertani (2000).

Cladistics: Outgroups were *Pseudohapalopus amazonicus* (Mello-Leitão 1923); *Pseudohapalopus anomalous* (Mello-Leitão 1923) and *Pseudohapalopus multicuspidatus* (Mello-Leitão 1929); data for the utgroups were taken from Bertani (2001). A data matrix with 15 characters and 10 taxa was analyzed (Table 11). Cladistic analysis was carried out using TNT version 1.1 (Goloboff et al. 2004), implicit enumeration algorithm. The outgroups were considered as terminal taxa to test the monophyly of the ingroup (Nixon & Carpenter 1993).

Systematics

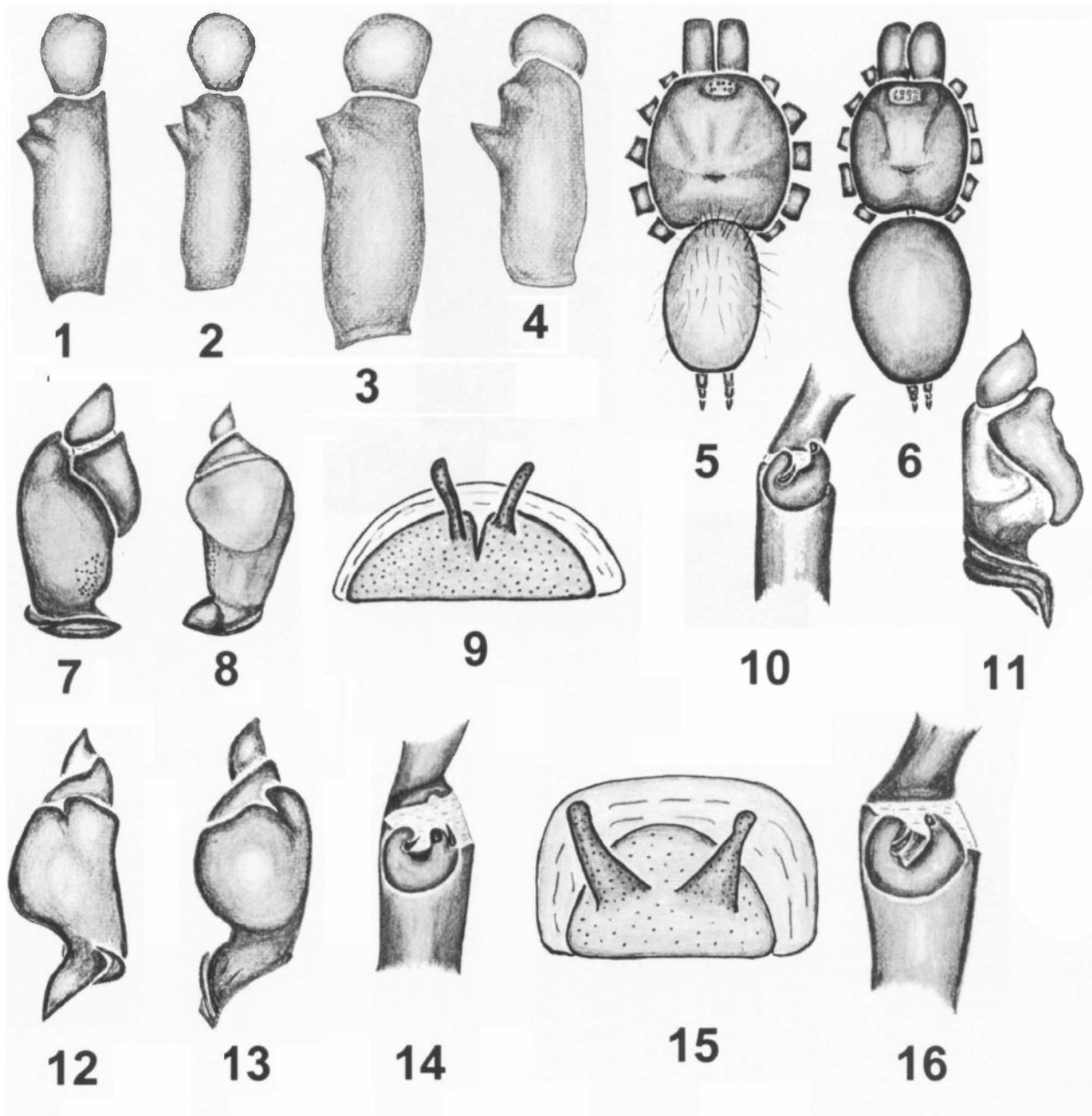
Ami Pérez-Miles, gen. nov.

Type species: *Ami caxiuana* Pérez-Miles, Miglio & Bonaldo, sp. nov.

Etymology: *Ami* is a noun in apposition from the Tupí language (which means a spider that does not spin a web); the gender of *Ami* as feminine.

Diagnosis: *Ami* males differ from those other of theraphosid genera by the presence of one or two distal sub-conical processes on the retrolateral surface of the male palpal tibia (Figs 1–4, 22, 23, 32). Males and females with modified Type I abdominal urticating hairs (Fig. 43), with area b longer than previously described (Cooke et al. 1972), similar to those found in *Proshapalopus* Mello-Leitão 1923 (Bertani 2001) and *Citharacanthus livingstoni* Schmidt & Weinmann 1996 holotype (R.B. pers. obs.). Female of *Ami* differ further from those of all other theraphosines by their highly characteristic spermathecae with paired ventral receptacles attached to an almost discrete, semicircular, sclerotized back-plate (Fig. 9). Males also differ from those of other theraphosids by the palpal organ morphology, having prolateral keels that are more or less convergent.

Affinities: The modified type I urticating hairs of *Ami* resemble that in *Proshapalopus* from which it differs in the general palpal organ morphology, especially in lacking subapical keel, and in the presence of retrolateral processes in male palpal tibia. Also *Citharacanthus livingstoni* has modified type I urticating hairs (R.B. pers. obs.) but there are several differences between this genus and *Ami* such as prolateral keels poorly developed, distal part of palpal organ more narrow and presence of stridulatory bristles. Both *Proshapalopus* and *Citharacanthus* lack the sclerotized back-plate in spermathecae as in *Ami*.



FIGURES 1–16. *Ami* species. 1–4. Left palpal tibiae, males, dorsal view, showing two retrolateral processes. 1. *Ami obscura*; 2. *Ami bladesi*; 3. *Ami yupanqui*; 4. *Ami caxiuana*. 5–6. *Ami caxiuana*, dorsal view. 5. Male; 6. Female. 7–8. Left palpal organ, *A. caxiuana*, male. 7. Pro-lateral view, showing keels and granular area; 8. Retrolateral view. 9. *A. caxiuana*, spermathecae, ventral view. 10. *A. caxiuana*, left tibial apophyses, male, proventral view. 11–13. *A. yupanqui*, male, left palpal organ. 11. Pro-lateral view showing ventral flattened area (on left); 12. Retrolateral view; 13. Dorsal view. 14. *A. yupanqui*, male, left tibial apophyses, proventral view. 15. *A. yupanqui*, spermathecae, ventral view. 16. *A. bladesi*, male, left tibial apophyses, proventral view.

Description. Carapace ovate, hirsute, light to dark brown. Caput slightly arched. Fovea short transverse, straight to slightly procurved. Eyes group subquadrate to wider than long, tubercle well-defined. Clypeus narrow. Chelicerae normal, with 8–11 teeth on promargin of furrow, basomesally 11–14 small teeth. Labium wider than long, suture broad, with reduced number of cuspules. Maxillae longer than wide, slightly setose, pro-lateral anterior angle slightly produced, number of cuspules reduced, distributed along proximal edge, mostly on pro-lateral angle. Sternum as long as wide, sigilla small oval, submarginal. Stridulatory bristles

absent. Legs moderately stout, hirsute, with or without (*A. yupanquii*) homogenous color pattern, spines present except on femora. Paired claws on legs and claw tufts well-developed. All tarsi with scopula, metatarsi with distal scopulae or ascopulate (usually metatarsi IV). Abdomen hirsute, without pattern, modified type I urticating hairs present, type III urticating hairs absent. PMS well-developed; PLS small, apical segment domed. Males with two (most species) or one (*A. pijaos*) retrolateral processes on palpal tibiae. Palpal organ piriform, with subtegulum extended, prolateral superior and prolateral inferior keels present and an additional small keel between them (*A. caxiuana*, *A. pijaos*). Tibia I with paired distal proventral apophysis. Spermathecae with back flattened sclerotized atrium with or without coniform or tubuliform receptacles.

***Ami caxiuana* Pérez-Miles, Miglio & Bonaldo, sp. nov.**

(Figs 4–10; Tables 1–2)

Types: Holotype male, Caxiuanã [1°46'56"S, 51°27'31"W] Melgaço, Pará Brasil, 22 Oct 2003 (J.A.P. Barreiros & L.T. Miglio), MPEG 00994. Paratype female, same data as holotype but 26 May 2003 (J.A.P. Barreiros & C.O. Araújo), MPEG 00989.

Etymology: The specific epithet is a noun in apposition from the Tupí language for the name of the type locality, which means 'place of many snakes'.

Diagnosis: Differs from other species by the morphology of the male palpal organ, with the main axis of the terminal embolic region directed laterally (Figs 7–8), and in the female by the spermathecae, with a notched semicircular back-plate (Fig. 9). This species seems to be the sister group of all other species of *Ami* (see Cladistics).

Description: Male (holotype): Total length, excluding chelicerae and spinnerets, 20.9. Carapace length 10.3, width 9.5. Anterior eye row slightly procurved, posterior slightly recurved. Eyes sizes and interspaces: AME 0.38, ALE 0.50, PME 0.32, PLE 0.36, AME–AME 0.24, AME–ALE 0.08, PME–PME 0.74, PME–PLE 0.04, ALE–PLE 0.20, OQ length 0.8, width 1.7, clypeus 0.4. Fovea slightly procurved, width 1.1. Labium length 1.0, width 1.7 with 23 cuspules, maxillae with *ca.* 38 cuspules on inner third. Sternum length 4.2. Chelicerae with 11 teeth on promargin and 11 small teeth on proximal retromargin. Tarsi I–IV densely scopulated: entire on I–II, divided in apical half of III, and divided by strip of longer, thicker setae on IV. Metatarsi I and II scopulate for distal half, III apically scopulate, IV ascopulate. Palpal tibia with two distal conical processes on retrolateral surface (Fig. 4). Tibia I with paired distal proventral apophyses (Fig. 10). Flexion of metatarsus I retrolateral with respect to tibial apophyses. Palpal organ piriform (Figs 4–5). Spination: femora and patellae I–IV and palp, 0. Tibiae: palp 2V; I 0; II 2V; III 3V, 2P; IV 3V, 1P, 1R. Metatarsi: I 0; II 2V; III 2V, 2P; IV 5V, 2P, 2R; Tarsi I–IV and palp 0. Color: cephalothorax and legs reddish-brown; abdomen dark brown.

Female (paratype): Total length, excluding chelicerae and spinnerets, 18.7. Carapace length 7.9, width 7.2. Anterior eye row straight to slightly procurved, posterior row slightly recurved. Eye sizes and interspaces: AME 0.34, ALE 0.44, PME 0.30, PLE 0.30, AME–AME 0.16, AME–ALE 0.08, PME–PME 0.62, PME–PLE 0.04, ALE–PLE 0.14, OQ length 0.68, width 1.44, clypeus 0.13. Fovea slightly procurved, width 0.80. Labium length 0.9, width 1.2, with 26 cuspules, with *ca.* 46 cuspules on inner third. Sternum length 3.4. Chelicerae with 11 teeth on promargin and 11 small teeth on proximal retromargin. Tarsi densely scopulate: entire on I–II, divided by strip of longer, thicker setae on III, IV. Metatarsi I and II scopulate for distal half, III apically scopulate, IV ascopulate. Spination: femora I–IV and palp, 0. Tibiae I–IV and palp, I 2V; II 1V; III 4V, 1P; IV 3V, 1R; palp 3V, 1P. Metatarsi: I 1V; II 4V; III 4V, 2P, 2R; IV 8V, 1P, 2R, 2D. Tarsi I–IV and palp, 0. Color: cephalothorax and legs light reddish-brown, abdomen light-brown. Modified Type I urticating hairs with area b longer than usual. Spermathecae with paired ventral receptacles attached to almost discrete, notched, semicircular, sclerotized back-plate (Fig. 9).

Natural history: Both specimens were taken in the same site of Terra Firme (Dry land) Forest, in pitfall traps used for a herpetological survey. The female was collected in May during the rainy season (January–June) and the male in October during the dry season (July–December).

TABLE 1. Length of leg and palpal segments of male *A. caxiuana*.

	I	II	III	IV	Palp
Fe	10.6	10.0	8.7	10.6	5.6
Pa	5.0	4.7	4.0	3.9	3.5
Ti	9.0	7.8	6.6	9.2	4.7
Mt	7.0	7.1	7.7	11.5	–
Ta	5.5	5.1	4.6	5.1	2.2
Total	37.1	34.7	31.6	40.3	16.0

TABLE 2. Length of leg and palpal segments of female *A. caxiuana*.

	I	II	III	IV	Palp
Fe	5.2	4.5	4.1	5.5	3.4
Pa	3.5	3.3	2.6	3.1	2.1
Ti	3.6	2.9	2.9	4.3	2.0
Mt	2.5	2.5	3.4	4.8	–
Ta	2.8	2.8	2.7	3.0	2.3
Total	17.6	16.0	15.7	20.7	9.8

***Ami yupanquii* Pérez-Miles, Gabriel & Gallon, sp. nov.**

(Figs 3, 11–15, 39; Table 3–4)

Types: Holotype male and paratype female, near Puyo (1° 30' S, 77°58'W), Ecuador 2001 (P. Stevens), deposited in HMO.

Etymology: The specific epithet is a patronym in honor of the Inca leader, Tupac Yupanqui, who unified the agricultural populations of Ecuador.

Diagnosis: The male differs from that of *A. caxiuana* by the palpal organ being ventrally flattened, and in the orientation of the embolus (Figs 11–13); from *A. bladesi* by the longer apical portion of the palpal organ and the prolateral inferior keel of the palpal organ with a finely serrated edge; and from *A. pijaos* by having only two prolateral keels on the palpal organ. The more developed prolateral keels on the palpal organ distinguish it from *A. obscura*. The female differs from those of *A. caxiuana*, *A. pijaos*, and *A. amazonica* by the conical form of the ventral receptacles and the absence of a notch or division in the semicircular back-plate of the spermathecae (Fig. 15). This species is the sister group of *A. pijaos* + *A. weinmanni* (see Cladistics).

Description: Male (holotype): Total length, excluding chelicerae and spinnerets, 21.0. Carapace length 9.4, width 8.2. Anterior eye row slightly procurved, posterior slightly recurved. Eyes sizes and interspaces: AME 0.36, ALE 0.46, PME 0.36, PLE 0.40, AME–AME 0.18, AME–ALE 0.12, PME–PME 0.70, PME–PLE 0.10, ALE–PLE 0.17, OQ length 0.86, width 1.68, clypeus 0.32. Fovea transverse, width 1.1. Labium length 0.9, width 1.6 with 20 cuspules, maxillae with *ca.* 43 cuspules on inner third. Sternum length 3.7. Chelicerae with 9 teeth on promargin and 12 small teeth proximally. Tarsi I–IV densely scopulated, on tarsi I–II entire, III divided in apical half and IV divided by strip of longer, thicker setae. Metatarsi I, II scopulate on distal 2/3, III

apically scopulate, IV ascopulate. Palpal tibia with two distal conical processes on retrolateral surface (Fig. 3). Tibia I with paired distal proventral apophyses with spine retrolaterally (Fig. 14). Flexion of metatarsus retrolateral with respect to tibial apophyses. Palpal organ piriform (Figs 11–13). Leg lengths (Table 3). Spination: femora I–IV and palp 0. Patellae I–IV and palp 0. Tibiae I 1R; II 3V; III 3V, 1P; IV 3V, 1D; palp 0. Metatarsi I 1V; II 4V; III 7V, 2P, 2D; IV 10V, 1R, 2P, 1D. Tarsi I–IV and palp 0. Color: cephalothorax, abdomen, femora and patellae light reddish-brown, chelicerae, tibiae, metatarsi and tarsi dark brown.

TABLE 3. Length of leg and palpal segments of male *A. yupanquii*.

	I	II	III	IV	Palp
Fe	9.4	8.9	8.1	9.5	7.0
Pa	4.7	4.2	3.4	3.3	3.2
Ti	7.5	6.4	5.5	7.5	5.0
Mt	5.6	6.2	7.1	9.9	–
Ta	5.3	4.8	4.1	4.8	1.8
Total	32.5	30.5	28.2	35.0	17.0

TABLE 4. Length of leg and palpal segments of female *A. yupanquii*.

	I	II	III	IV	Palp
Fe	5.5	5.1	4.6	5.8	4.2
Pa	3.4	3.4	3.0	3.2	2.8
Ti	3.8	2.8	2.6	4.3	2.9
Mt	2.8	2.8	3.6	5.6	–
Ta	2.9	2.7	2.5	2.9	2.7
Total	18.4	16.8	16.3	21.5	12.6

Female (paratype): Total length, excluding chelicerae and spinnerets, 18.3. Carapace length 7.7, width 7.5. Anterior eye row straight to slightly procurved, posterior row slightly recurved. Eye sizes and interspaces: AME 0.24, ALE 0.46, PME 0.34, PLE 0.36, AME–AME 0.28, AME–ALE 0.12, PME–PME 0.72, PME–PLE 0.04, ALE–PLE 0.12, OQ length 0.7 width 1.3, clypeus 0.2. Fovea procurved, width 0.6. Labium length 0.7, width 1.2, with 18 cuspules, maxillae with about 43 cuspules on inner third. Sternum length 3.7. Chelicerae with 9 teeth on promargin and 12 small teeth on proximal retromargin. Tarsi densely scopulate: I, II entire; III apically divided strip of longer, thicker setae; IV divided. Metatarsi I, II scopulate for distal half, III apically scopulate, IV ascopulate. Spination: femora and patellae I–IV and palp, 0. Tibiae: I 1v; II 1v; III 1p, 1r, 4v; IV 1p, 1r, 2v; palp 3v. Metatarsi I 2v; II 2v; III 4d, 1p, 7v; IV 2p, 2r, 9v. Tarsi I–IV and palp 0. Color as in male. Modified Type I urticating hairs with area b longer than usual. Spermathecae with paired conical ventral receptacles attached to almost discrete, semicircular, sclerotized back-plate (Fig. 15).

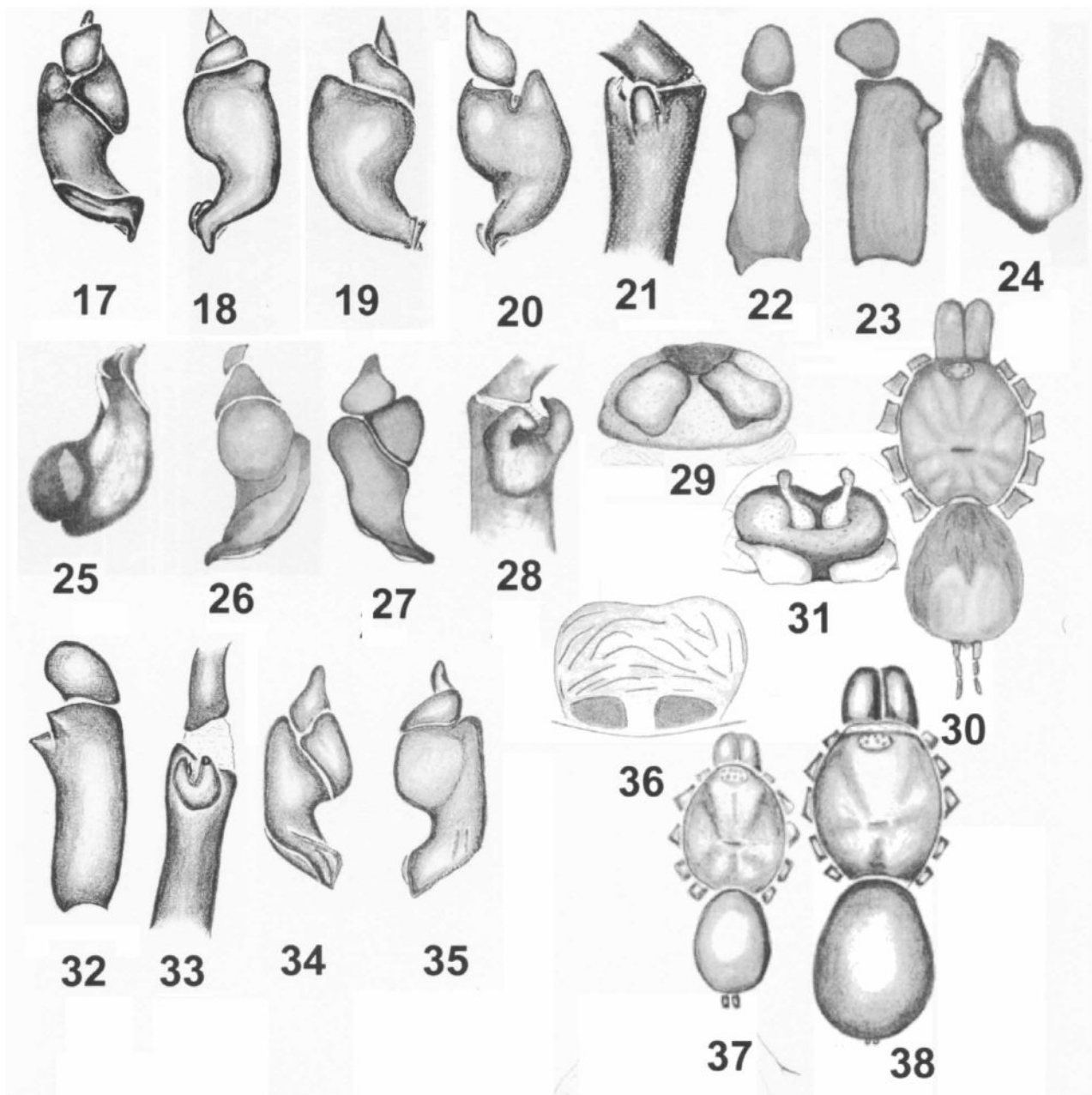
***Ami bladesi* Pérez-Miles, Gabriel & Gallon, sp. nov.**

(Figs 2, 16–18, 40; Table 5)

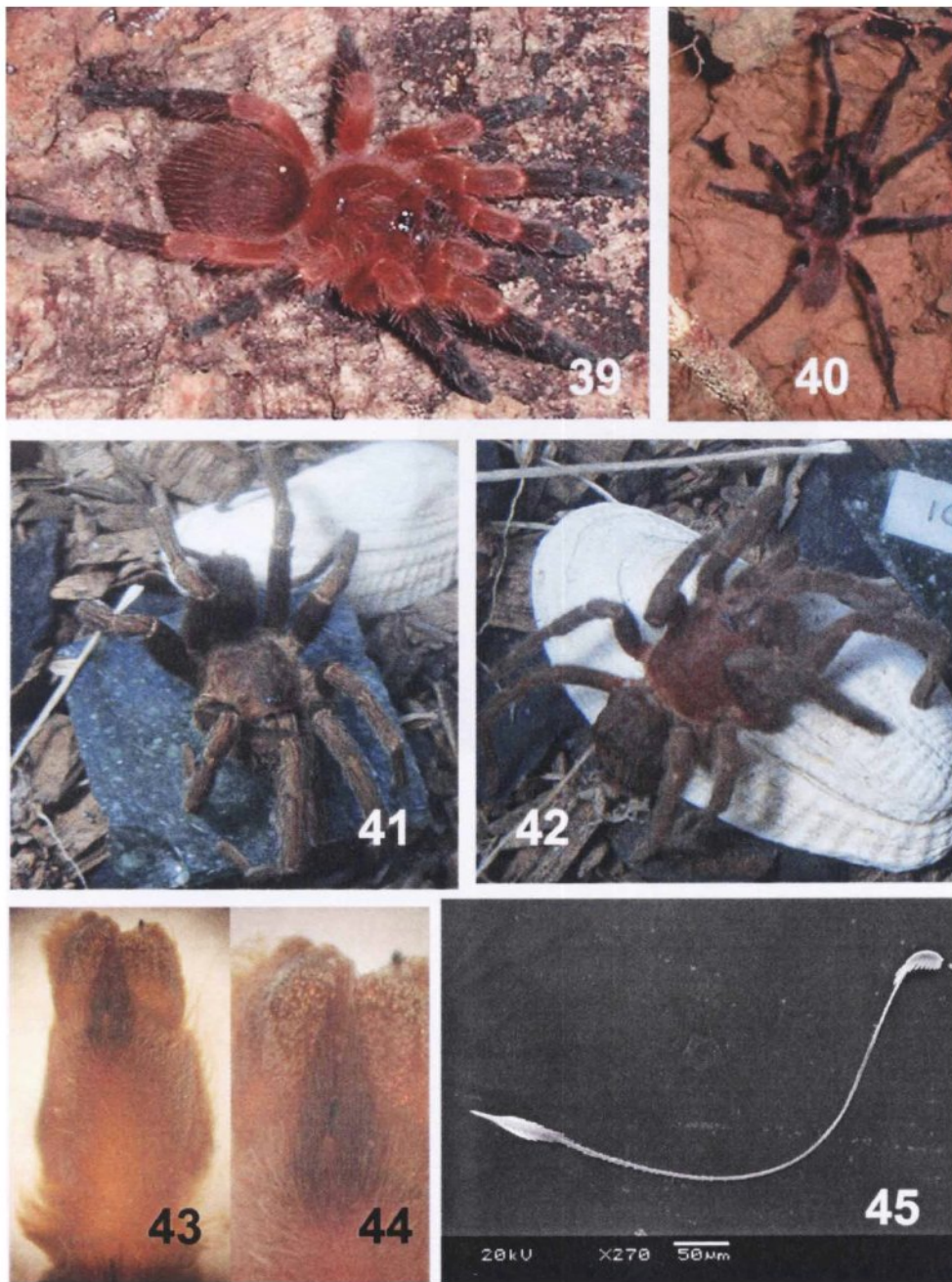
Type: Holotype male, Isla Colón (9° 20' N, 82° 15' W), Panamá, R. Gabriel, 13 Apr 2004, deposited in MIF.

Etymology: The specific epithet is a patronym in honor of Ruben Blades (born 1948) a famous singer and composer from Panama.

Diagnosis: Male differs from that of *A. caxiuana* by the orientation of the embolus (which ends almost perpendicularly to papal organ axis); from *A. yupanquii* by the shorter apical portion of the palpal organ and the prolateral inferior keel having a non-serrated edge (Figs19–20); from *A. obscura* by well-developed prolateral keels on the palpal organ; and from *A. pijaos* by having only two prolateral keels on the palpal organ. Female unknown. Related to *A. obscurus* and the clade *A. yupanqui* +, in an unresolved polytomy (see Cladistics).



FIGURES 17–38. *Ami* species. 17–18. *A. bladesi*, male, left palpal organ. 17. Prolateral view; 18. Retrolateral view. 19–20. *A. obscura*, male, right palpal organ. 19. Retrolateral view, 20. Prolateral view. 21. *A. obscura*, male, right tibial apophyses, proventral view. 22–23. *Ami pijaos*, male, left palpal tibiae, showing retrolateral process. 22. Dorsal view; 23. Ventral view. 24–27. *A. pijaos*, male, left palpal organ. 24. Prolateral view. 25. Retrolateral view; 26. Prodorsal view. 27. Retrodorsal view. 28. *A. pijaos*, male, left tibial apophyses, proventral view. 29. *A. pijaos*, spermathecae, ventral view. 30. *Ami amazonica*, female, dorsal view. 31. *A. amazonica*, spermathecae, ventral view. 32. *A. weinmanni*, male, left palpal tibia, dorsal view, showing two retrolateral processes. 33. *A. weinmanni*, male, left tibial apophyses, proventral view. 34–35. *A. weinmanni*, male, left palpal organ. 34. Prolateral view; 35. Retrolateral view. 36. *A. weinmanni*, spermathecae, ventral view. 37–38. *Ami weinmanni*, dorsal view. 37. Male; 38. Female.



FIGURES 39-45. *Ami* species. 39. *A. yupanquii*, female, habitus. 40. *A. bladesi*, male, habitus. 41. *A. pijaos*, male, habitus. 42. *A. amazonica*, female, habitus. 43-44. *Ami weinmanni*, female tarsus II, ventral view. 43. Tarsal scopula with distal rhomboidal group of longer setae. 44. Close-up of distal tarsal scopula showing group of longer setae. 45. *A. weinmanni*, male, modified Type I abdominal urticating hairs, with area b longer than usual.

Description: Male (holotype): Total length, excluding chelicerae and spinnerets, 17.5. Carapace length 8.6, width 7.5. Anterior eye row slightly procurved, posterior slightly recurved. Eyes sizes and interspaces: AME 0.41, ALE 0.22, PME 0.30, PLE 0.37, AME-AME 0.17, AME-ALE 0.05, PME-PME 0.75, PME-PLE 0.05, ALE-PLE 0.17, OQ length 0.96, width 1.8, clypeus 0.32. Fovea transverse, width 1.0. Labium length 1.1, width 1.5 with 19 cuspules, maxillae with *ca.* 55 cuspules on inner third. Sternum length 3.6. Chelicerae with 8 teeth on promargin and 12 small teeth on proximal retromargin. Tarsi I-IV densely scopulated: I, II entire, III divided in apical half, IV divided by strip of longer, thicker setae. Metatarsi I, II scopulate in apical

half, III for apical quarter, IV ascopulate. Palpal tibia with two distal conical processes on retrolateral surface (Fig. 2). Tibia I with paired distal proventral apophyses, without retrolateral spine on retrolateral apophysis (Fig. 16). Flexion of metatarsus retrolateral with respect to tibial apophyses. Palpal organ piriform (Figs 17–18). Spination: femora, patella and tarsi I–IV and palp, 0. Tibiae I 1R; II 3V; III 3V; IV 3V, 1R, 1P. Metatarsi I 1V, 1P; II 3V; III 7V, 1P, 1R; IV 9V, 1R, 1P. Color: cephalothorax, abdomen and legs reddish-brown with central carapace and femora darker.

TABLE 5. Length of leg and palpal segments of male *A. bladesi*.

	I	II	III	IV	Palp
Fe	4.8	4.3	3.9	4.8	2.9
Pa	2.6	2.2	1.9	2.0	1.7
Ti	3.7	3.3	2.7	4.3	2.2
Mt	3.2	3.0	3.3	4.6	–
Ta	1.9	1.5	1.6	2.0	0.9
Total	16.2	14.3	12.8	17.7	7.7

***Ami pijaos* Jimenez & Bertani, sp. nov.**

(Figs 22–29, 41; Tables 6–7)

Types: Holotype male (ICN–Ar–1995), Tolima, Ibaguè, [4°30'N, 75°15'W] 1290m, Colombia, H. Pulido, 3 Feb 2002, and paratype female (ICN–Ar–997), Puerto Boyacá, [5°50'9"S, 74°23'16"N] Boyacá, Colombia, 320m, J. Pinzon, May 1996; deposited in ICN–Ar.

Etymology: The specific epithet is a noun in apposition honoring and recalling the Pijaos, ancient ethnical culture that populated this specific region of Colombia.

Diagnosis: The male differs from those of all other *Ami* species by the presence of only one retrolateral process on the palpal tibiae and from most *Ami* (except *A. caxiuana*) in the palpal organ having a third keel between the prolateral superior and prolateral inferior keels. (Figs 24–25). The female differs from all those of all other *Ami* species by having spermathecae with two paired back-plates without modified receptacles (Fig. 29). This species is closely related to *A. weinmanni* (see Cladistics).

Description: Male (holotype): Total length, excluding chelicerae and spinnerets, 21.0. Carapace length 8.7, width 7.4. Anterior eye row slightly procurved, posterior recurved. Eyes sizes and interspaces: AME 0.40, ALE 0.46, PME 0.32, PLE 0.31 AME–AME 0.17, AME–ALE 0.07 PME–PME 0.071, PME–PLE 0.04, ALE–PLE 0.21, OQ length 0.86, width 1.68, clypeus 0.4. Fovea transverse, width 1.1. Labium length 0.7, width 1.1, with 10 cuspules, maxillae with *ca.* 40 cuspules on inner third. Sternum length 3.2; width 2.6. Chelicerae with 11 teeth on promargin and 14 smaller teeth on proximal retromargin. Tarsi I–IV densely scopulate: entire on I, II; III, divided in apical half; IV, divided by strip of longer, thicker setae. Metatarsi I scopulate for distal 9/10; II, for distal 2/3; III, apically scopulate (1/3); IV, ascopulate. Palpal tibia with one distal conical process on retrolateral surface (Figs 22–23). Tibia I with paired distal proventral apophyses with spine retrolaterally (Fig. 28). Flexion of metatarsus I retrolateral with respect to tibial apophyses. Palpal organ piriform (Figs 24–27). Spination: femora, patellae and tarsi, I–IV and palp, 0. Tibiae: palp 2V; I 0; II 2V; III 3V, 2P; IV 3V, 1P, 1R. Metatarsi: I 0; II 2V; III 2V, 2P; IV 5V, 2P, 2R. Color: cephalothorax and abdomen light reddish-brown, femora reddish-brown. Carapace reddish-brown; coxae of legs and pedipalps light brown, femora reddish brown, other segments of legs and palps dark brown, abdomen brown.

Female (paratype): Total length, excluding chelicerae and spinnerets, 33.2. Carapace length 14.2, width 11.3. Anterior eye row straight to slightly procurved, posterior row slightly recurved. Eye sizes and inter-

spaces: AME 0.24, ALE 0.46, PME 0.34, PLE 0.36, AME–AME 0.28, AME–ALE 0.12, PME–PME 0.72, PME–PLE 0.04, ALE–PLE 0.12, OQ length 1.6, width 2.6, clypeus 0.2. Fovea procurved, width 0.6. Labium length 1.1, width 1.5, with 18 cuspules, maxillae with *ca.* 43 cuspules on inner third. Sternum length 5.2. Chelicerae with 9 teeth on promargin and 14 small teeth on proximal retromargin. Tarsi densely scopulate: entire on I, II; III apically divided by strip of longer, thicker setae; IV divided. Metatarsal scopulae: for distal 9/10 of I, distal 2/3 of II, for distal 1/3 of III; IV ascopulate. Spination: femora, and tarsi of palp and I–IV, 0. Tibiae: I 2V; II 1V; III 4V, 1P; IV 3V, 1R, palp 3V, 1P. Metatarsi: I 1V; II 4V; III 4V, 2P, 2R; IV 8V, 1P, 2R, 2D. Color: chelicerae dark brown, carapace reddish brown. Coxae of legs and palps light brown, other segments reddish brown, abdomen dark-brown. Spermathecae with two paired back-plates without modified receptacles (Fig. 29).

TABLE 6. Length of leg and palpal segments of male *A. pijaos*.

	I	II	III	IV	Palp
Fe	7.7	8.2	7.2	8.6	5.2
Pa	4.5	4.0	3.6	3.8	3.1
Ti	6.3	6.3	5.1	8.2	5.5
Mt	6.5	6.1	7.1	10.4	–
Ta	5.0	4.8	4.7	5.1	2.7
Total	30	29.4	27.7	36.1	16.5

TABLE 7. Length of leg and palpal segments of female *A. pijaos*.

	I	II	III	IV	Palp
Fe	8.9	8.8	7.3	9.6	7.6
Pa	5.6	5.2	4.6	5.3	4.4
Ti	7.1	6.5	5.4	7.5	6.5
Mt	5.4	4.8	6.0	9.1	–
Ta	4.2	4.3	3.8	4.6	4.7
Total	31.2	29.6	27.1	36.1	23.2

***Ami amazonica* Jimenez & Bertani, sp. nov.**

(Figs 30–31, 42; Table 8)

Type: Holotype female (ICN–Ar–1149), Leticia [4°10'11"S, 69°56'49"W, alt. 100m] Amazonas, Colombia, 4 Nov 2005, E. Florez; deposited in ICN–Ar.

Etymology: The specific epithet is a noun in apposition from the Colombian amazonic region.

Diagnosis: Females differ from those of all species by the spermathecae having two back-plates with slender receptacles (Fig. 31). Male unknown. Uncertain position with respect to other species of *Ami* due to several missing entries (see Cladistics).

Description: Female (holotype): Total length, excluding chelicerae and spinnerets, 17.8. Carapace length 8.4, width 7.2. Anterior eye row slightly procurved, posterior slightly recurved. Eyes sizes and interspaces: AME 0.34, ALE 0.42, PME 0.27, PLE 0.34, AME–AME 0.15, AME–ALE 0.05, PME–PME 0.68, PME–PLE 0.02, ALE–PLE 0.19, OQ length 0.6, width 1.2, clypeus 0.3. Fovea width 0.9. Labium length 0.6, width 1.0 with 13 cuspules, maxillae with *ca.* 37 cuspules on inner third. Sternum length 2.8. Chelicerae with 11 teeth

on promargin and 14 small teeth on proximal retromargin. Tarsi I–IV densely scopulate: entire on I, II; III, divided in apical half; IV, divided by strip of longer, thicker setae. Metatarsi I and II scopulate on distal $\frac{3}{4}$ of surface; III, apically scopulate; IV, ascopulate. Legs (Table 8). Spination: femora I–IV and palp, 0. Tibiae I–IV and palp, I 2V; II 1P; III 3V, 1P; IV 3V, 1P; palp 2V, 1P. Metatarsi: I 2V; II 3V, 1P; III 6V, 2P, 3R; IV 8V, 4P, 3R, 2D. Tarsi I–IV and palp, 0. Color: cephalothorax light reddish-brown, legs and abdomen brown. Spermathecae having two back-plates with slender receptacles, wider proximally, globose distally (Fig. 31).

Natural History:—Specimen captured in Leticia, Amazonas, collected by hand on November 4, 2005, near the base of the IMANI Institute, and in a small area of highly disturbed tropical forest at an altitude 100m.

TABLE 8. Length of leg and palpal segments of female *A. amazonica*.

	I	II	III	IV	Palp
Fe	5.7	4.9	4.5	6.1	4.5
Pa	3.7	3.0	2.4	2.6	2.6
Ti	3.9	3.4	3.1	4.9	3.1
Mt	2.8	2.7	3.6	5.7	–
Ta	2.5	2.3	2.2	2.9	2.8
Total	18.6	16.3	15.8	22.2	13.0

***Ami weinmanni* Pérez-Miles, sp. nov.**

(Figs 32–34, 43–45. Tables 9–10)

Type: Holotype male and paratype female, La Azulita [7°16'18"N, 71°56'25"W] Apure, Venezuela; 26 September 2002, Dirk Weinmann, FCE–MY.

Etymology: The specific epithet is a patronym in honor of Dirk Weinmann, arachnologist and collector of the type specimens.

Diagnosis: The male differs from those of other species of *Ami* in the very reduced number of cuspules on labium (4). The females differ from those of most species of *Ami* in the morphology of the spermathecae with two basal plates and without modified receptacles and from *A. pijaos* in the presence of a single large striated receptacle (Fig. 36) which additionally differs from other species of *Ami* in the presence of very short sub-triangular tarsi with a particular longitudinal rhomboid scopulae division (43–44). This species is closely related to *A. pijaos* (see Cladistics).

Description: Male (holotype). Total length, excluding chelicerae and spinnerets 20.5. Carapace length 10.5, width 10.3. Anterior eye row slightly procurve posterior slightly recurve. Eyes sizes and interspaces: AME 0.32, ALE 0.44, PME 0.34, PLE 0.80, AME–AME 0.22, AME–ALE 0.14, PME–PME 0.72, PME–PLE 0.04, ALE–PLE 0.10, OQ length 0.80, width 1.70, clypeus 0.20. Fovea transverse, width 2.0. Labium length 1.5, width 1.4 with 4 cuspules, maxillae with *ca.* 42 cuspules on inner quarter. Sternum length 4.1. Chelicerae with 11 teeth on promargin and 12 small teeth on proximal retromargin. Tarsi I–IV densely scopulate; scopula I–II entire; III, divided by narrow strip; IV, clearly divided. Metatarsi I and II scopulate for apical half III, scopulate for apical third; IV, ascopulate. Palpal tibia with two distal conical processes on retrolateral surface (Fig 32). Tibia I with paired distal proventral apophyses (Fig. 33). Flexion of metatarsus retrolateral with respect to tibial apophyses. Palpal organ piriform (Figs 34–35). Spination: femora I–IV and palp, 0. Patellae I–IV and palp, 0. Tibiae I 1V; II 2V; III 4V, 1P, 1R; IV 3V, 1P, 1R; palp 1V. Metatarsi I 0; II 4V; III 6V, 3P, 2R 1D; IV 11V, 2P, 2R, 1D. Tarsi I–IV and palp, 0. Color: cephalothorax, abdomen and legs reddish-brown.

Female (paratype): Total length, excluding chelicerae and spinnerets 26.8. Carapace length 12.8, width

11.5. Anterior eye row slightly procurved, posterior straight. Eyes sizes and interspaces: AME 0.40, ALE 0.60, PME 0.36, PLE 0.40, AME_AME 0.30, AME–ALE 0.16, PME–PME 0.98, PME–PLE 0.06, ALE–PLE 0.18, OQ length 1.06, width 1.96, clypeus 0.16. Fovea transverse, width 2.3. Labium length 1.2, width 2.3 with 10 cuspules, maxillae with *ca.* 61 cuspules on inner third. Sternum length 5.4. Chelicerae with 11 teeth on promargin and 12 small teeth on proximal retromargin. Tarsi I–IV short, subtriangular, densely scopulated. Scopulae I–IV divided only distally by medial rhomboid patch of longer conical setae that pass over claw tufts (Figs 43–44). Metatarsi I fully scopulate, II scopulate for apical half, III scopulate for apical third, IV ascopulate. Spination: femora I–IV and palp 0, patellae I–IV and palp 0. Tibiae I 2V, 1P; II 3V; III 3V, 2P, 1R; IV 2V, 1P, 2R; palp 3V, 2P. Metatarsi I 2V; II 4V; III 3V, 3P, 2R; IV 6V, 2P, 3R, 1D. Tarsi I–IV and palp 0. Spermathecae: two basal plates with one fused striated receptaculum (Fig. 36). Color: cephalothorax, abdomen and legs reddish-brown. Modified Type I urticating hairs with area b longer than usual.

TABLE 9. Length of leg and palpal segments of male *A. weinmanni*.

	I	II	III	IV	Palp
Fe	10.0	9.4	8.9	10.6	7.9
Pa	5.3	4.8	4.0	4.5	4.0
Ti	8.3	7.3	6.4	8.3	5.7
Mt	7.1	7.2	7.9	11.2	–
Ta	4.5	4.4	3.6	4.1	1.8
Total	35.2	33.1	30.8	38.7	19.4

TABLE 10. Length of leg and palpal segments of female *A. weinmanni*.

	I	II	III	IV	Palp
Fe	9.1	7.6	7.2	9.0	7.2
Pa	5.8	5.3	4.6	4.8	4.4
Ti	5.8	4.8	4.5	6.6	4.5
Mt	4.4	4.5	6.3	8.7	–
Ta	3.5	2.9	3.5	3.6	4.5
Total	28.6	25.1	26.1	32.7	20.6

Ami obscura (Ausserer 1875) new combination

Ischnocolus obscurus Ausserer 1875: 171.

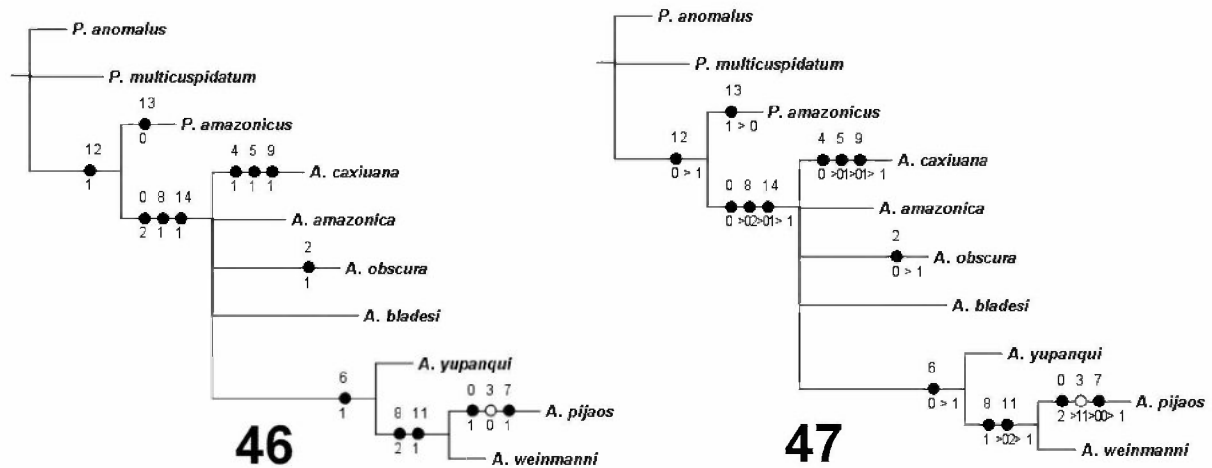
Eurypelma obscurum: Roewer 1942: 240.

Avicularia obscura: Platnick 2007.

Type: Lectotype male from Bogotá, Colombia, (Keyserling collection, BMNH 1890–7–1–340), examined. Ausserer (1875) described a male and female but did not designate a holotype; the female has not been located.

Diagnosis: Male differs from those of other species by the reduced retrolateral keels on the palpal organ (Figs 19–20). Related with *A. bladesi* and the clade *A. yupanqui* +, in an unresolved polytomy (see Cladistics).

Remarks: This species shares the characters considered generic apomorphies; two retrolateral processes on male palpal tibia (Fig. 1), modified Type I urticating hairs, and the morphology of male palpal organ with two prolateral keels. For these reasons it is included in the genus *Ami*. One of us (R.B.) found a female in the collection of BMNH (1890.278) labelled: “called *Ischnocolus obscurus* by Ausserer, 1875”. It was an adult (with developed ovules) but unfortunately lacking spermathecae.



FIGURES 46–47. Two most parsimonious cladograms of *Ami* species and outgroup (*Pseudohapalopus* species) obtained by TNT (implicit enumeration). Length = 18, Consistency Index = 94, Retention Index = 93.

Cladistics

Characters: Multistate characters were coded as non-additive. (0) Male palpal retrolateral processes: absent = 0; one = 1 (Figs 22–23); two = 2 (Figs 1–4, 32). (1) Bases of male palpal retrolateral processes: separated = 0 (Figs 1–3); fused or close = 1 (Fig. 4). (2) Male tibial apophyses: with bases fused = 0 (Figs 10, 14, 16, 28, 33); separated = 1 (Fig. 21). (3) Palpal organ keel between prolateral superior and prolateral inferior keels: present = 0 (Figs 7, 25); absent = 1 (Figs 11–13, 17–20, 34–35). (4) Distal portion of palpal: sub-parallel with respect to basal (subtegular) axis = 0 (Figs 11–13, 17–20, 24–27, 34–35); sub-perpendicular = 1 (Figs 7–8). (5) Granular area on palpal organ: absent = 0; present = 1 (Fig. 7). (6) Basal portion of palpal organ: dorsally curved convexe = 0 (Figs 7, 17, 19); dorsally flattened or concave = 1 (Figs 11, 27, 34). (7) Distal portion of prolateral brach of tibial apophysis: normal = 0; incrassate = 1 (Fig 28). (8) Spermathecae: with only two receptacles = 0; with basal atrium and two receptacles = 1 (Figs 9, 15, 31); only basal atrium = 2 (Figs 29, 36). (9) Bases of spermathecal receptacles: wider than fundus = 0 (Figs 15, 31); not wider = 1 (Fig. 9). (10) Basal atrium of spermathecae: notched = 0 (Figs 9, 31); not notched = 1 (Figs 15, 24, 36). (11) Two dark plates on basal atrium of spermathecae: absent = 0; present = 1 (Figs 29, 36). (12) Type III urticating hairs: present on females = 0; absent on females = 1. (13) Modified type I urticating hairs: absent = 0; present = 1; (14) Labial cuspules: more than 100 = 0; less than 25 = 1.

Discussion

Search using TNT (implicit enumeration) found two trees (Figs 46, 47) of the same length (18), consistency-index (94) and retention index (93).

The genus *Ami* was returned as monophyletic based on the presence of two retrolateral processes on male palpal tibiae (with a homoplasy to one process in *A. pijaos*); the modified spermathecae (with basal atrium and receptacles and secondary lost of receptacles) and the high reduction of labial cuspules. Both trees recovered the topology of the group (*A. yupanqui* (*A. pijaos*–*A. weinmanni*)) supported by the dorsally flattened basal portion of male palpal organ. The basal part of the tree is not well supported but *A. caxiuana* seems to be the sister group of the other species of *Ami*. *A. amazonicus* is a critical taxon because, since the male is unknown, it has several missing entries and its position as sister group of *Ami* species, except for *A. caxiuana*, is not well

supported. An additional analysis, excluding *A. amazonicus* (as suggested by Wilkinson 1994 for wildcard taxa), found only one tree (reduced consensus) of similar topology of the combinable component consensus for the other *Ami* species. *Ami obscurus* and *A. bladesi* resulted in an unresolved trichotomy with the clade of *A. yupanqui* +. This group is supported in the synapomorphic absence of a keel between prolateral superior and inferior keels on the palpal organ.

TABLE 11. Data matrix showing the distribution of character states used in cladistic analysis of *Ami* (? = Unknown or non applicable, treated as missing data in the analysis).

	0	1	2	3	4	5	6	7	8	9	10	1	2	3	4
<i>Pseudohapalopus anomalus</i>	0	?	0	0	0	0	0	0	0	0	?	?	0	1	0
<i>Pseudohapalopus multicuspidatum</i>	0	?	0	0	0	0	0	0	0	0	?	?	0	1	0
<i>Pseudohapalopus amazonicus</i>	0	?	0	0	0	0	0	0	0	0	?	?	1	0	0
<i>Ami caxiuana</i>	2	0	0	0	0	1	0	0	1	1	0	0	1	1	1
<i>Ami yupanqui</i>	2	1	0	1	0	0	1	0	1	0	1	0	1	1	1
<i>Ami bladesi</i>	2	1	0	1	0	0	0	0	?	?	?	?	1	1	1
<i>Ami obscurus</i>	2	1	1	1	0	0	0	0	?	?	?	?	1	1	1
<i>Ami pijaos</i>	1	?	0	0	0	0	1	1	2	?	1	1	1	1	1
<i>Ami weinmanni</i>	2	1	0	1	0	0	1	0	2	?	1	1	1	1	1
<i>Ami amazonicus</i>	?	?	?	?	?	?	?	?	1	0	0	0	1	1	1

The new genus *Ami* seems to be more closely related to *Pseudohapalopus* than to other Theraphosinae. It is also similar to other Andean / Amazonian theraphosines of the genera *Cyclosternum* Ausserer 1871, *Reversopelma* Schmidt 2001 and *Pseudohapalopus* Strand 1907. Species of these genera are small and brownish, having prolateral superior and prolateral inferior keels on the male palpal organ, tibial apophyses with two branches originating from a common base and type I urticating hair. In contrast to most *Ami* species, these genera have weakly developed keels on male palpal organ and, in *Cyclosternum* and *Reversopelma* there is the tendency of the tibial apophyses be small. Considering these genera and *Pseudohapalopus*, it is possible that the presence of one or two distal sub-conical processes on the retrolateral face of male palpal tibia is apomorphic. The modification of type I hairs (with a long area b) appears also in *Proshapalopus* spp. (Bertani 2001) in which, however, the modification is not so developed as in *Ami*. *Citharacanthus livingstoni* type I urticating hair has a more striking resemblance with *Ami*. However, *Citharacanthus* seems most similar to *Aphonopelma* suggesting the modification on type I urticating hair is a homoplasy. The most striking synapomorphy for *Ami* species is the presence modified spermathecae with basal atrium and receptacles (receptacles are probably secondarily lost in two species), since this modification of female organ is not found in any other theraphosid species.

The discovery of a new genus having such distinct characteristics, with six new species found largely in least four South American countries shows how poor is our present knowledge of theraphosids.

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