

TRABAJOS ORIGINALES

*Ami armihuariensis*, a new species from Peru (Araneae: Theraphosidae: Theraphosinae)

*Ami armihuariensis*, una especie nueva de Perú (Araneae: Theraphosidae: Theraphosinae)

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**Abstract**

*Ami armihuariensis* sp. nov. from Cuzco region, Peru is described, diagnosed and figured. Males of *Ami armihuariensis* sp. nov. differ from all other congeners, except *A. pijaos*, by the presence of only one retrolateral process on male palpal tibia, from *A. pijaos* by the granulation in tegular area of male palpal bulb. Additionally, photographs of *A. yupanquii* spermatheca are for the first time presented in order to emphasize the characteristic shape of spermathecae in this genus.

**Keywords:** Araneae; Mygalomorphae; South America; Peru; taxonomy.

**Resumen**

Se describe, diagnostica e ilustra *Ami armihuariensis* sp. nov. de la región de Cuzco, Perú. Los machos de *Ami armihuariensis* sp. nov. se diferencian del resto de sus congéneres, excepto *A. pijaos*, por tener una sola apófisis retrolateral en la tibia pedipalpal y de *A. pijaos* por la granulación en el área tegular de los bulbos pedipalpaes de los machos. Adicionalmente, se presentan por primera vez fotografía de la espermateca de *A. yupanquii* para resaltar la forma característica de las espermatecas en este género.

**Palabras clave:** Araneae; Mygalomorphae; America del Sur; Perú; taxonomía.

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**Introduction**

In 2008, Pérez-Miles et al. established the genus *Ami* to accommodate several small theraphosids from northern Brazil, Ecuador, Colombia, Venezuela and Panama, characterized by having modified type I urticating setae and other unusual characters which did not fit any known theraphosid genus, especially the shape of spermathecae in females and the presence of one or two subconical processes on male palpal tibia, in combination with a palpal bulb with very short and stout embolus carrying two prolateral keels.

In October 2013, during a study of spider collection in the Museum of Natural History in Lima, Peru, a single male of new species of *Ami* was discovered, differing from all other known species by the presence of one retrolateral process on palpal tibia and the micro-spikes in the tegular area of male palpal bulb. This new species is here described, diagnosed and figured.

At present the genus *Ami* which is exclusive to tropical regions of South and Central America comprises seven species: *A. caxiuana* Pérez-Miles, Miglio & Bonaldo 2008, *A. yupanquii* Pérez-Miles, Gabriel & Gallon 2008, *A. bladesi* Pérez-Miles, Gabriel & Gallon 2008, *A. pijaos* Jimenez & Bertani 2008, *A. amazonica* Jimenez & Bertani 2008, *A. weinmanni* Pérez-Miles 2008 and *A. obscura* (Ausserer 1875).

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## Material and methods

Abbreviations: Eye sizes and interdistances: AME = anterior median eyes, ALE = anterior lateral eyes, PME = posterior median eyes, PLE = posterior lateral eyes, OQ = ocular quadrangle (including lateral eyes). Spination: p = prolateral, r = retrolateral, d = dorsal, v = ventral. Male palpal bulb: PS = prolateral superior keel, PI = prolateral inferior keel, A = apical keel. Cheliceral teeth pattern: v = small teeth, V = big teeth, - = space. PLS = posterior lateral spinnerets, PMS = posterior median spinnerets. MUSM = Museo de Historia Natural, Lima, Peru. RKCP = Radan Kaderka collection, Prague, Czech Republic.

Measurements were taken with an ocular micrometer according to the central axis of structures and are given in millimetres. The measurements of the leg and palpal segments were taken dorsally. The eye measurements were taken from the widest spans of the lens, AME in dorsal view, ALE, PLE and PME in dorsolateral view. The measurement of the total body length including cephalothorax and abdomen without spinnerets was made using a calliper.

The extent of tarsal and metatarsal scopulae on ventral side of both leg segments was expressed as a percentage of the total length of segment, from apical end.

The leg spination was described using a following method. Each leg segment was divided into four quadrants (ventral, prolateral, retrolateral and dorsal) and each quadrant described separately from basal to apical end. Unequal numbers of spines of the same leg segments on the right and left side were expressed by parentheses.

The terminology of male palpal bulb structures follows Bertani (2000).

The abdominal urticating setae were removed from the area of urticating setae by pincette, placed in alcohol and examined by a binocular microscope Leica S6D. The terminology of urticating setae follows Cooke et al. (1972) and Bertani (2001). The barbs of urticating setae whose tips are oriented to the body are considered as reversed.

## Taxonomy

ORDER: ARANEAE CLERCK 1757  
 INFRAORDER: MYGALOMORPHAE POCOCK 1892  
 FAMILY: THERAPHOSIDAE THORELL 1870  
 SUBFAMILY: THERAPHOSINAE THORELL 1870

Genus: *Ami* Pérez-Miles et al. 2008

**Type species:** *Ami caxiuana* Pérez-Miles, Miglio & Bonaldo 2008

**Modified diagnosis:** *Ami* males differ from all known theraphosid genera by the presence of one or two subconical processes on the retrolateral surface of the male palpal tibia. Males and females have modified abdominal urticating setae of the type I, with area "b" (according Bertani 2001) 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. Females of *Ami* differ from all other theraphosines by their characteristic spermathecae (Figures 12, 13) with paired ventral receptacles attached to an almost discrete, semicircular, sclerotized back-plate. Males also

differ from all theraphosids by the palpal organ morphology, having prolateral keels that are more or less convergent (Pérez-Miles et al. 2008).

## *Ami armihuariensis* sp. nov.

(Figures 1–11, Table 1)

**Type:** Male holotype (MUSM-ENT 0506547) from Peru, Cuzco, Rio Camisea, Armihuari, 11°51'51.3"S, 72°46'45.6"W, altitude 579 m, May-June 1997, Saida Cordova col.

**Etymology:** The specific name refers to the type locality.

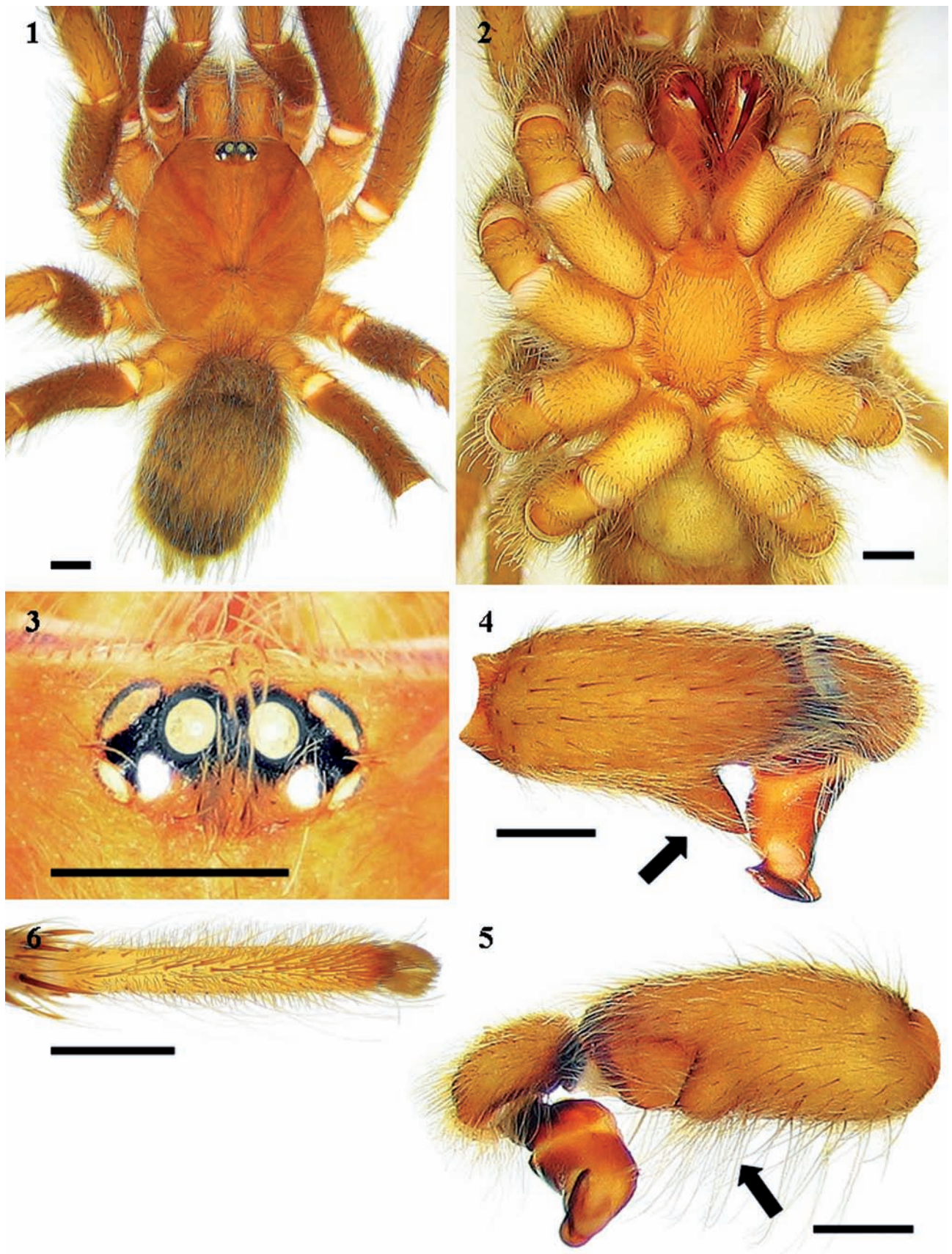
**Diagnosis:** Males of *Ami armihuariensis* sp. nov. differ from all other congeners, except *A. pijaos*, by the presence of only one retrolateral process on male palpal tibia, from *A. pijaos* by the granulation in regular area of male palpal bulb.

**Remarks:** Although characters of the opposite sex, complementary to both holotypes of *Ami armihuariensis* sp. nov. and *A. amazonica*, are unknown for now, it is supposed that both are valid species in part due to the geographical difference between both type localities which are separated approximately 800 km by many geographical barriers between Peru and Brazil. In addition, both species show certain differences in number of cheliceral teeth (9–10 contra 11 in *A. amazonica*), number of labial and maxillary cuspules (18 labial and 19 – 22 maxillary cuspules contra 13 labial and ca. 37 maxillary cuspules in *A. amazonica*), division of tarsal scopulae IV (along the whole segment contra only apical half in *A. amazonica*), extension of metatarsal scopulae beneath legs I–II (50% and 25% scopulate contra 75% scopulate in both segments in *A. amazonica*) and spination of leg segments, especially spination of tibiae III which is almost congruent in both types of already described *Ami* species, and spination of metatarsi IV (see Table 2).

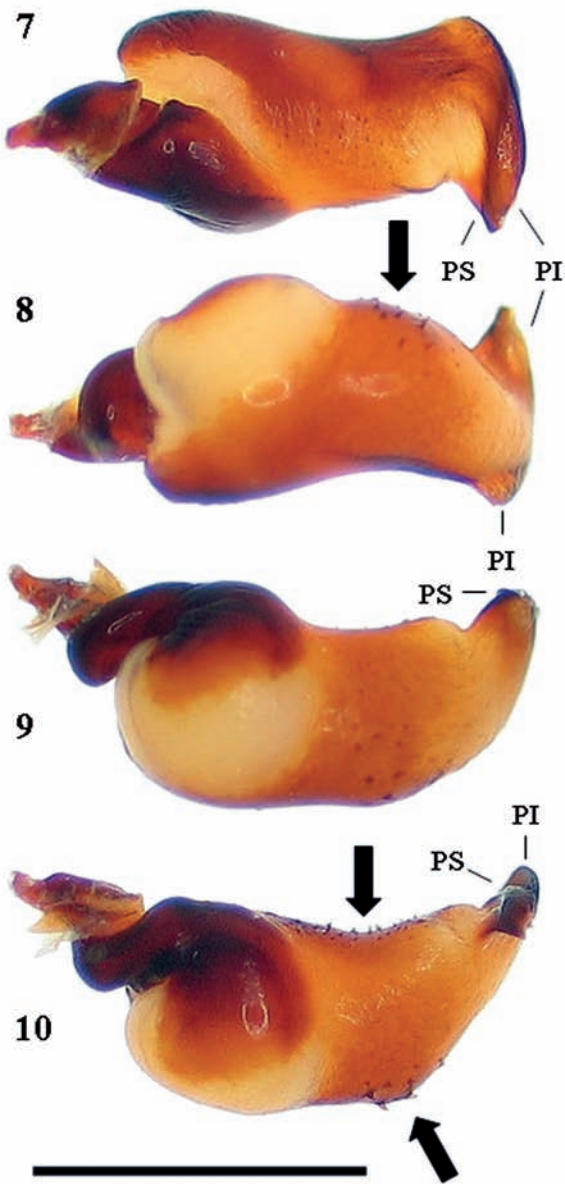
**Distribution** (figure 14): Known only from the type locality.

**MALE** (MUSM-ENT 0506547) (figures 1, 2): Total length: 11.1, carapace length 5.6, width 5.1, chelicerae with 9–10 teeth on promargin, with granulation near last two basal teeth. Cheliceral teeth pattern from the basal end: right side: VVVV-V-V-VVV, 9 big teeth. Left side: VVVV-V-V-VVVv, 1 small and 9 big teeth. Anterior eye row slightly procurved, posterior eye row slightly recurved. Eye sizes and interdistances (fig. 3): AME 0.34 (circular), ALE 0.36 (oval), PME 0.21 (oval), PLE 0.24 (oval), AME-AME 0.10, AME-ALE 0.02, PME-PME 0.51, PME-PLE 0.03, ALE-PLE 0.08, AME-PME 0.03, OQ length 0.49, width 1.13. Ocular tubercle length 0.70, width 1.13, clypeus absent. Fovea transverse, width 0.8, 3.6 from the anterior edge of carapace. Labium length 0.57, width 1.07, anterior third with 18 cuspules, maxilla with 19–22 cuspules in basal third. Sternum length 3.00, width 2.33, three pairs of sternal sigilla located near coxae III, coxae II and near coxae I. Leg pattern: IV>I>II>III. Incrassate leg segments absent.

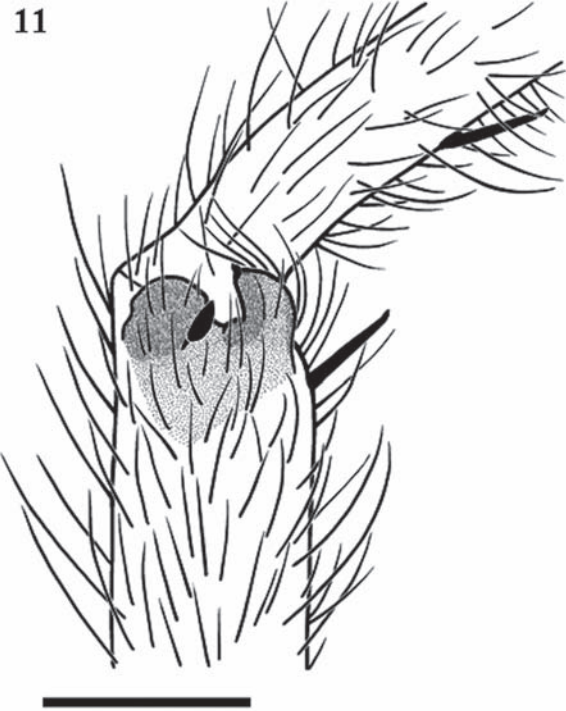
**Scopulae:** All tarsi, 100% scopulate, metatarsi I 50%, metatarsi II 25%, metatarsi III 15% scopulated, metatarsi IV ascopulate. Tarsi I–III with scopula entire, tarsi IV divided by a wide band of setae (fig. 6). Dorsal face of all tarsi and cymbium with two irregular longitudinal rows of very short claviform trichobothria. All paired tarsal claws with two teeth. Pad of plumose setae on retrolateral face of femur IV absent.



**Figures 1.–6.** *Ami armihuariensis* sp. nov., male holotype (MUSM-ENT 0506547), Peru, Cuzco, Rio Camisea, Armihuari. **1.** Habitus, dorsal view. **2.** Sternum, labium, coxae and trochanters, ventral view. **3.** Ocular tubercle, dorsal view. **4.** Cymbium, bulb and tibia of right palp, dorsal view. Arrow shows retrolateral process. **5.** Cymbium, bulb and tibia of left palp, retrolateral view. Arrow shows retrolateral process. **6.** Right tarsus IV, ventral view. Scale bar = 1 mm.



**Figures Figures 7.–10.** *Ami armihuariensis* sp. nov., male holotype (MUSM-ENT 0506547), Peru, Cuzco, Rio Camisea, Armihuari. Morphology of right male palpal bulb, (7) prolateral view, (8) retrolateral view, (9) dorsoretrolateral view, (10) dorsal view. Arrows show an area with micro-spikes (granulation). PS = prolateral superior keel, PI = prolateral inferior keel. Scale bar = 1 mm.



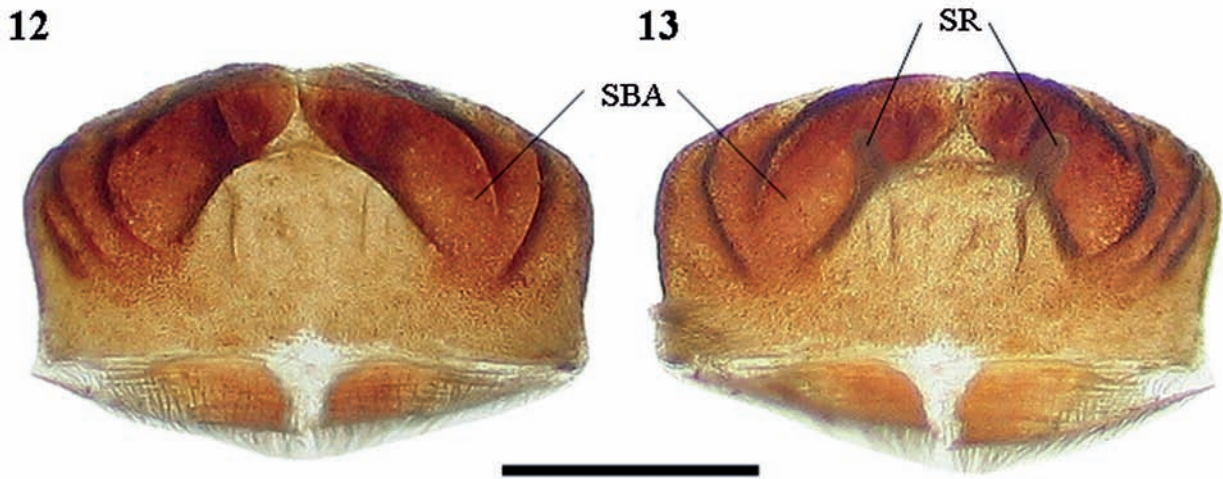
**Figure11.** *Ami armihuariensis* sp. nov., male holotype (MUSM-ENT 0506547), Peru, Cuzco, Rio Camisea, Armihuari. Left tibia I with apophyses, projecting prolaterally, prolaterally ventral view. Scale bar = 1 mm.

**Table 1.** *Ami armihuariensis* sp. nov. Male holotype. Lengths of palpal and leg segments.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
Palp	3.24	2.09	3.28	-	1.48	10.09
Leg I	5.85	2.91	5.00	3.77	3.03	20.56
Leg II	5.16	2.54	4.01	3.52	2.91	18.14
Leg III	4.30	2.17	3.40	4.01	2.87	16.75
Leg IV	5.73	1.96	4.42	6.06	3.19	21.36

**Table 2.** Spination of male holotype of *Ami armihuariensis* sp. nov. and female holotype of *Ami amazonica* – comparison (*A. armihuariensis* sp. nov. / *A. amazonica*).

	Femur	Patella	Tibia	Metatarsus	Tarsus
Palp	0 / 0	0 / ?	0 / v2	- / 0	0 / 0
Leg I	0 / 0	0 / ?	v1 / v2	v3 / v2	0 / 0
Leg II	0 / 0	0 / ?	v2, p1 / v2	v4 / v3	0 / 0
Leg III	0 / 0	0 / ?	v3, p1, r1 / p1	v5, p2, r1 / v6, p2, r3	0 / 0
Leg IV	0 / 0	0 / ?	v4, p1-2, r1-2 / v3, p1	v6, p2, r2 / v8, p4, r3, d2	0 / 0



Figures 12.–13. *Ami yupanquii* Pérez-Miles, Gabriel & Gallon, 2008, female (RKCP 0314) from Ecuador, spermatheca with coniform receptacles from (12) dorsal and (13) ventral view. Abbreviations: SR = seminal receptacles; SBA = flattened and partly sclerotized basal atrium, fused with a ventral part of uterus externus. Scale bar = 1 mm.

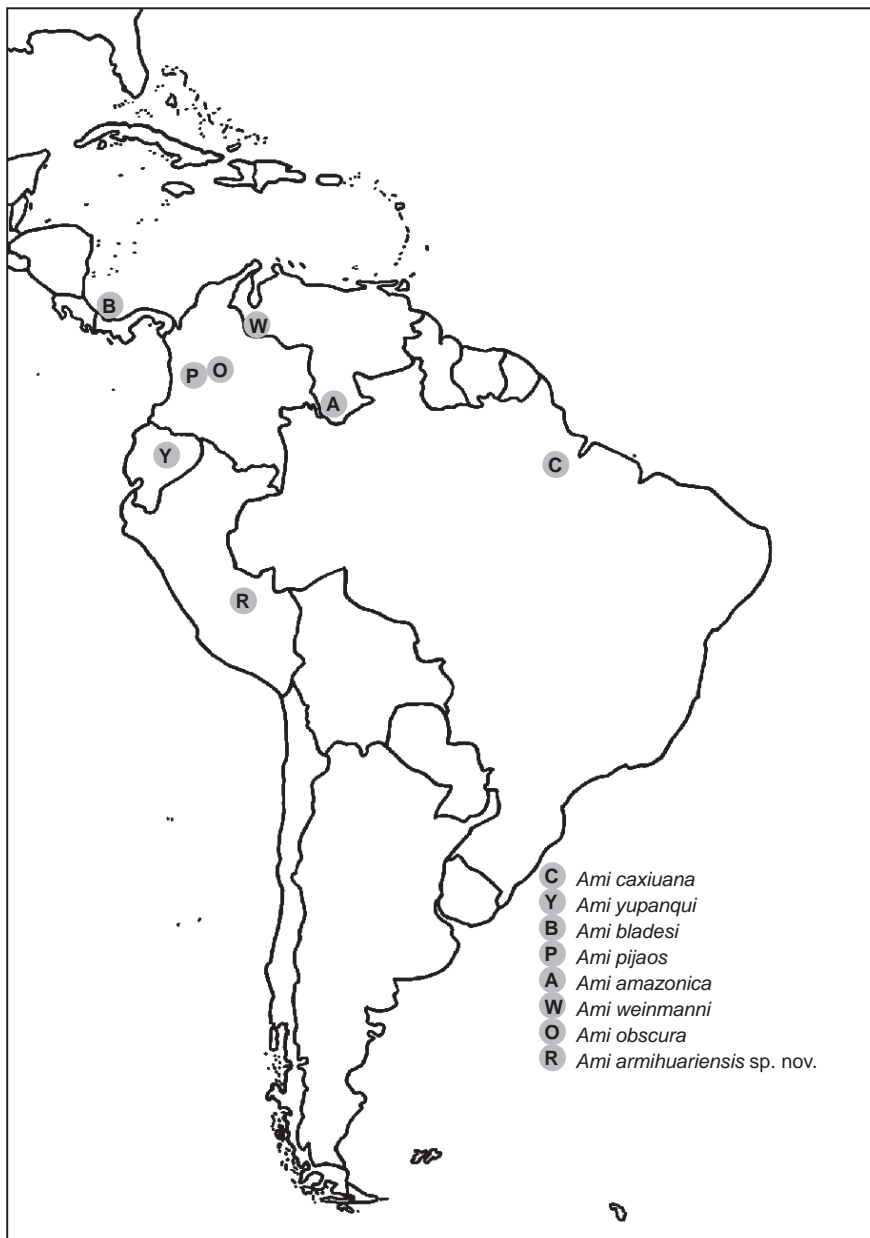


Figure 14. Distribution map of the genus *Ami* in Middle and South America.

**Spination:** femora I–IV and femora of palps 0; patellae I–IV and patellae of palps 0; tibiae I v 0-0-1 (apical), II p 0-1-0, v 0-0-2 (apical), III p 0-1-0, r 0-1-0, v 0-0-3 (apical), IV p 0-(0-1)-1, r 0-(0-1)-1, v 0-1-3 (apical) and tibiae of palps 0; metatarsi I v 0-1-2 (apical), II v 0-1-3 (apical), III p 0-1-1, r 0-0-1, v 0-2-3 (apical), IV p 0-1-1, r 0-1-1, v 1-2-3 (apical), tarsi I–IV and tarsi of palps 0.

Palpal organ (Figures 7 – 10), with embolus short and stout, basal area covered with micro-spikes (granulation), PI keel very well developed, basally weakly serrated, PS and A keel weakly developed. Embolus and tegulum incrassate, distal portion of embolus sub-perpendicular to the basal axis, tegulum without regular apophysis and granulation. Cymbium with almost equal cymbial lobes. Presence of a distinct subconical median protuberance on retrolateral face of palpal tibia (Figures. 4, 5), ending by indistinct spine. Two unequal tibial apophyses present on tibia I (Figure 11), fused in their bases. Ventral tibial apophysis with very short apical spine. Prolateral tibial apophysis incrassate, with one stout retrolateral spine, approximately of the same length as the apophysis. Metatarsus I contacts the retrolateral side of ventral tibial apophysis when flexed. Maxillary and trochanteral stridulatory bristles absent. Abdomen with modified type I urticating setae located in dorsoposterior part. PLS triarticulated, length 2.13, basal segment 0.78, middle segment 0.62, apical segment 0.73, all digitiform. PMS monoarticulated, length 0.52.

Coloration (after preservation in alcohol): dorsal view: yellowish brown, except femora and abdomen which are dark brown. Patellae I, II and palpal patella with two almost equal longitudinal stripes without covering pubescens, patellae III, IV

with one diagonal stripe. Ventral view: yellowish brown, except chelicerae reddish brown and femora dark brown.

**Other material examined:** *Ami yupanquii*, female (RKCP 0314) from Ecuador, without further data.

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