

***Alpaida* (Araneae: Araneidae) from the Amazon Basin and Ecuador: new species, new records and complementary descriptions**

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ABSTRACT. Two new species of *Alpaida*, *A. levii* and *A. yanayacu*, the male of *A. iquitos* Levi, 1988 and the female of *A. gurupi* Levi, 1988 are described and illustrated for the first time. *Alpaida levii*, described from the states of Pará and Amazonas, is closely related to *A. delicata* (Keyserling, 1892), but differs in that males have a curved and distally pointed terminal apophysis, and females have the epigynum longer than wide and a drop-shaped median lobe. *Alpaida yanayacu* is only known from Ecuador and is characterized by long and rounded lateral lobes in ventral view and median lobe wide at base. A brief discussion about the morphological similarity among *A. levii*, *A. delicata* and *A. truncata* (Keyserling, 1865) is presented. Based on the information provided, new diagnoses are proposed for *A. delicata* and *A. truncata*. New records of *A. antonio* Levi, 1988, *A. bicornuta* (Taczanowski, 1878), *A. boa* Levi, 1988, *A. deborae* Levi, 1988, *A. delicata*, *A. erythrothorax* (Taczanowski, 1873), *A. guimaraes* Levi, 1988, *A. guto* Abraham & Bonaldo, 2008, *A. gurupi*, *A. iquitos*, *A. leucogramma* (White, 1841), *A. murtinho* Levi, 1988, *A. negro* Levi, 1988, *A. rossi* Levi, 1988, *A. septemmammata* (O. Pickard-Cambridge, 1889), *A. simla* Levi, 1988, *A. tayos* Levi, 1988, *A. truncata*, *A. urucuca* Levi, 1988, *A. utiariti* Levi, 1988 and *A. veniliae* Levi, 1988 are presented.

KEY WORDS. Arachnida, distribution, Neotropical Region, spiders, taxonomy.

Species of *Alpaida* O. Pickard-Cambridge, 1889 are diurnal orb-weaving spiders occurring only in the Neotropical region. Currently, the genus is composed of 148 species (WORLD SPIDER CATALOG 2014), although it is estimated to contain about 200-300 species (LEVI 1988). Species of this genus are characterized by the glabrous body, orange to red carapace, abdomen and carapace without bristles; male palp with radix, embolus and terminal apophysis fused into one sclerite; mushroom-shaped paramedian apophysis connected to conductor; epigynum usually represented by a transverse sclerotized structure, with posterior lips, a median scape and copulatory openings located on each side between plate and lips (LEVI 1988).

Alpaida was revised by LEVI (1988), who dealt with 134 species, among which 94 were described as new. Many of the 40 previously known species had been erroneously transferred to *Alpaida* from different genera. Since LEVI'S (1988) contribution only 11 species have been added to the genus: *A. guto* Abraham & Bonaldo, 2008 described from the Brazilian Amazon; *A. itacolomi* Santos & Santos, 2010, *A. tonze* Santos & Santos, 2010, *A. caramba* Buckup & Rodrigues, 2011 and *A. arvoredo* Buckup & Rodrigues, 2011 described from the Atlantic Forest; *A. teresinha* Braga-Pereira & Santos, 2013 and *A. toninho* Braga-Pereira & Santos, 2013 from coastal forest areas in Brazil; *A. monzon audiberti* Dierkens, 2014 and *A. oyapockensis* Dierkens, 2014 from French Guiana; *A. losamigos* Deza & Andía, 2014 and *A. penca* Deza & Andía, 2014 from Peru.

As discussed by BRAGA-PEREIRA & SANTOS (2013), even though *Alpaida* is amongst the largest Neotropical spider genera, much of its diversity is still to be described (see LEVI 1988). Since 52 species are known only from females (including the two subspecies of *A. truncata* and *A. monzon audiberti*) and 17 species only from males, there is still much work to be done in the taxonomy of the genus. Since the revision of LEVI (1988), previously unknown opposite sexes were described for only seven species: the male of *A. scriba* (Mello-Leitão, 1940) by BUCKUP & MEYER (1993), the males of *A. citrina* (Keyserling, 1892) and *A. octolobata* Levi, 1988 by RODRIGUES & MENDONÇA (2011), the males of *A. hoffmanni* Levi, 1988, *A. kochalkai* Levi, 1988, *A. lombia* Levi, 1988 and the female of *A. arvoredo* by BUCKUP & RODRIGUES (2011).

Several species of the genus have large distribution ranges. Considering that only 53% of the described species are known from both sexes, it may be questionable to describe a new species in the absence of strong evidence for matching it with the opposite sex of a known species.

As documented in a growing number of faunistic inventories (e.g., HÖFER & BRESCOVIT 2001, BONALDO et al. 2009, CAFORO et al. 2013), the diversity of *Alpaida* species in the Amazon Basin is high. In some particularly well-collected sites, up to 17 sympatric species have been found (unpublished data). In view of this, we have endeavored to examine all specimens of *Alpaida* deposited at the Museu Paraense Emílio Goeldi, which

contain expressive material from the Amazon region. As a result, two new species of *Alpaida* are described, one based on both sexes from Brazil, the other on a female from Ecuador. One of the new species is morphologically related to *A. delicata* (Keyserling, 1892), which was compared to *A. truncata* (Keyserling, 1865) by LEVI (1988). A discussion about the morphological similarity among the three species is presented and new diagnoses are proposed for *A. delicata* and *A. truncata*. Additionally, the male of *A. iquitos* Levi, 1988 and the female of *A. gurupi* Levi, 1988 are described for the first time and new records for twenty one species of *Alpaida* are documented: *A. antonio* Levi, 1988, *A. bicornuta* (Taczanowski, 1878), *A. boa* Levi, 1988, *A. deborae* Levi, 1988, *A. delicata*, *A. erythrothorax* (Taczanowski, 1873), *A. guimaraes* Levi, 1988, *A. guto* Abraham & Bonaldo, 2008, *A. gurupi*, *A. iquitos*, *A. leucogramma* (White, 1841), *A. murtinho* Levi, 1988, *A. negro* Levi, 1988, *A. rossi* Levi, 1988, *A. septemmammata* (O. Pickard-Cambridge, 1889), *A. simla* Levi, 1988, *A. tayos* Levi, 1988, *A. truncata*, *A. urucuca* Levi, 1988, *A. utiariti* Levi, 1988 and *A. veniliae* Levi, 1988.

MATERIAL AND METHODS

The specimens examined were deposited in the Museu Paraense Emílio Goeldi, Belém, Brazil (MPEG, curator: Alexandre Bonaldo), Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (INPA, curator: Célio Magalhães) and Museo de Zoología, Sección de Invertebrados, Pontificia Universidad Católica, Quito, Ecuador (QCAZ, curator: Clifford Keil). The description format and palpal terminology follows LEVI (1988). Male palps were expanded by alternated immersion in 10% KOH (potassium hydroxide) solution in distilled water for a few minutes. All measurements are in millimeters. The specimens were photographed and measured using a Leica M205A, with LAS automontage software. Additional information not originally inserted in labels is included between [brackets]. The following abbreviations are used: (A) terminal apophysis, (ALE) anterior lateral eyes, (AME) anterior median eyes, (C) conductor, (E) embolus, (L) distal lobe, (LL) lateral lobes, (MA) median apophysis, (N) notch, (PLE) posterior lateral eyes, (PME) posterior median eyes, (PM) paramedian apophysis, (PMP) posterior median plate, (R) radix, (S) median lobe of the scape. The distribution maps were made using the program QGIS (QGIS DEVELOPMENT TEAM 2012) and include records only from the specimens listed here.

TAXONOMY

Alpaida levii sp. nov.

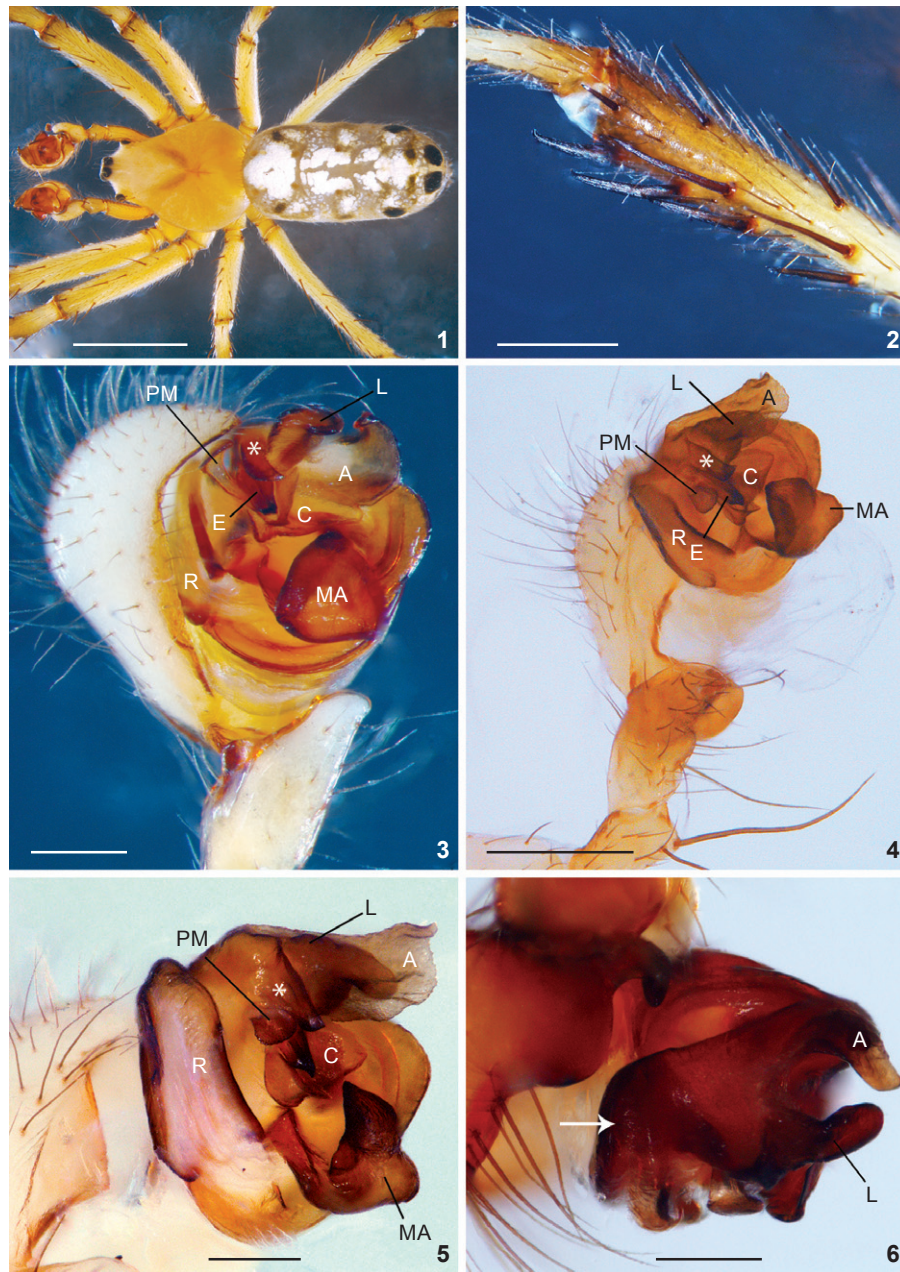
Figs. 1-9, 29

Type material. Male holotype from BRAZIL, Pará: Juruti (Mutum), 02°36'10.6"S 56°12'25.8"W, 14.IX.2002, D. Guimarães leg., deposited in MPEG (24370). Paratypes: BRAZIL, Amazonas: Manaus (Reserva Adolpho Ducke), 02°59'05.97"S

59°55'42.58"W, 1 female, 01.VIII.2008, J. ten Caten leg. (INPA); 1 male, 14.VIII.2008, R. Saturnino leg. (INPA); Canutama, 08°39'14.8"S 64°21'34.3"W, 1 male and 1 female, 30.IV.2007, R. Saturnino leg. (INPA); 1 female (INPA); 08°39'11.6"S 64°21'34.6"W, 1 male and 1 female, 06.V.2007, R. Saturnino leg. (INPA); Pará: Juruti (Capiranga), 02°28'0.6"S 56°12'42.2"W, 1 female, 15.IX.2002, A.B. Bonaldo leg. (MPEG 24371); 1 male (MPEG 24375); 02°29'19"S 56°06'34"W, 1 female, 15.IV.2008, B.V.B. Rodrigues leg. (MPEG 24374); 02°30'25.4"S 56°11'04.8"W, 1 male, 09.II.2007, J.A.P. Barreiros leg. (MPEG 24376); (Mutum), 02°36'10.6"S 56°12'25.8"W, 1 male and 1 female, 10.IX.2002, D. Guimarães leg. (MPEG 24372); Portel (Floresta Nacional de Caxiuanã), 01°57'38.9"S 51°36'45.3"W, 1 female, 12.V.2005, D.F. Candiani leg. (MPEG 24373).

Diagnosis. Males of *A. levii* resemble those of *A. delicata* by the dorsal abdominal coloration pattern (Figs. 1, 11), by the finger-shaped distal lobe (L, Fig. 3) and by the strong spines on tibiae I and II (Fig. 2). They differ by the distally pointed and curved retrolateral apical sector of the terminal apophysis (A, Fig. 3) (spoon-shaped in *A. delicata*; Fig. 12) – see LEVI (1988: Figs. 476-478) for comparison – and by the reduced cymbial prolateral projection (Fig. 3) (well-developed in *A. delicata*), see LEVI (1988: Fig. 477) for comparison. Females of *A. levii* resemble those of *A. delicata* by the two black humps on posterior end of abdomen (Figs. 7, 10), but differ by the drop-shaped median lobe of the scape (Fig. 8), epigynum longer than wide (Fig. 8) (wider than long in *A. delicata*), posterior median plate medially constricted (Fig. 9) (wide in *A. delicata*); lateral lobes of epigynum diamond-shaped in posterior view (Figs. 8, 9), see LEVI (1988: figs. 472-474) for comparison.

Description. Male (MPEG 24370). Total length 6.1. Carapace length 2.6, width 2.0, height 0.6. Clypeus height 0.05. Sternum length 1.3, width 0.9. Abdomen length 3.6, width 1.8, height 1.5. Leg formula I/IV/II/III. Leg lengths: femur, I 3.3, II 2.7, III 1.9, IV 3.0; patella, I 1.1, II 1.0, III 0.8, IV 0.9; tibia, I 2.8, II 2.2, III 1.4, IV 2.5; 1metatarsus, I 3.0, II 2.5, III 1.4, IV 2.8; tarsus, I 1.1, II 1.0, III 0.7, IV 0.9. Eye diameters and interdistances: AME 0.1, ALE 0.1, PME 0.11, PLE 0.1; AME-PME 0.08, AME-ALE 0.34, PME-PLE 0.4, AME-AME 0.14, PME-PME 0.07. Carapace pale yellow, with two gray diagonal stripes on each side of the carapace (Fig. 1). Sternum pale yellow with brown margins, and a central black stripe. Endites and labium pale brown with white apices and brown margins. Chelicerae and legs yellow. Apices of femur, patella, tibia and metatarsus gray. Abdomen longer than wide, rectangular, with rounded borders. Dorsal side pale gray, with many white dots with different sizes (Fig. 1). Two black humps and four black spots posteriorly. Two dark spots anteriorly. Venter pale gray with dark gray stripes, epigastric area slightly darker. Palp: palpal patella with two long macrosetae; median apophysis triangular-shaped in mesal view; paramedian apophysis formed by a distally expanded branch (Figs. 3, 4); embolus longer than terminal apophysis basal prong (Figs. 3-5); distal lobe of the terminal



Figures 1-6. *Alpaída levii* sp. nov., male: (1) habitus dorsal; (2) spines of the tibia I; (3) palpus, mesal view; expanded palpus (MPEG 24376): (4) mesal view; (5) detail of the mesal view; (6) detail of the terminal apophysis. (A) Terminal apophysis, (C) conductor, (E) embolus, (L) distal lobe, (MA) median apophysis, (PM) paramedian apophysis, (*) basal prong of the terminal apophysis, (R) radix. Scale bars: (1) = 2 mm, (2, 4) = 0.5 mm, (3, 5, 6) = 0.2 mm.

apophysis finger-shaped in mesal view (Figs. 3, 6); terminal apophysis thin and curved (Fig. 3).

Female (MPEG 24374). Total length 7.8. Carapace length 3.2, width 2.5, height 0.7. Clypeus height 0.13. Sternum length 1.3, width 1.1. Abdomen length 6.0, width 2.6, height 2.2. Leg

formula I/IV/II/III. Leg lengths: femur, I 3.5, II 3.0, III 2.0, IV 3.6; patella, I 1.3, II 1.1, III 0.8, IV 1.1; tibia, I 3.1, II 2.5, III 1.4, IV 2.8; metatarsus, I 3.3, II 2.6, III 1.5, IV 2.9; tarsus, I 1.1, II 1.1, III 0.7, IV 1.0. Eye diameters and interdistances: AME 0.15, ALE 0.13, PME 0.15, PLE 0.14; AME-PME 0.1, AME-ALE 0.6,

PME-PLE 0.6, AME-AME 0.16, PME-PME 0.13. Carapace pale yellow, with two lateral gray, diagonal stripes (Fig. 4). Sternum pale yellow with brown margins, and a central gray stripe. Endites and labium pale brown with white apices and brown margins. Chelicerae and legs yellow. Apices of femur, patella, tibia and metatarsus gray. Abdomen longer than wide, rectangular, with rounded borders. Dorsum pale gray, almost entirely covered by white and yellow spots and differently sized stripes (Fig. 4). Posteriorly with two black humps and four black spots. Venter pale gray, epigastric area slightly darker. Epigynum longer than wide, with inconspicuous notch (Fig. 8); posterior median plate narrow (Fig. 9); lateral lobes diamond-shaped (Figs. 8, 9); scape drop-shaped.

Additional material examined. BRAZIL, Amazonas: Manaus (Reserva Adolpho Ducke), 02°59'11.33"S 59°56'14.69"W, 1 female, 30.VII.2008, J. ten Caten leg. (INPA); Coari (Base de Operações Geólogo Pedro de Moura, Porto Urucu), 04°52'07.6"S 65°15'53.6"W, 1 male, 22.VII.2003, A.B. Bonaldo leg. (MPEG 19874); 04°50'32"S 65°04'80"W, 1 female, 05.IX.2006, S. C. Dias leg. (MPEG 13762); Manicoré, 04°54.705'S 61°06.788'W, 1 female, 14.VII.2007, L.T. Miglio leg. (INPA). Pará: Melgaço (Floresta Nacional de Caxiuanã, TEAM 2), 01°43'43.2"S 51°29'00.6"W, 1 female, 26.IV.2006, J.A.P. Barreiros leg. (MPEG 24348); 1 female, R.B. Lopes leg. (MPEG 24369); (Floresta Nacional de Caxiuanã, TEAM 3), 01°43'59.2"S 51°30'38.6"W, 1 female, 04.X.2005, N. Abraham leg. (MPEG 24339); 1 female, 17.IV.2006, C.B. Lopes leg. (MPEG 24353); (Floresta Nacional de Caxiuanã, TEAM 6), 01°44'18.02"S 51°27'48.01"W, 1 female (MPEG 24358); 1 female, 15.IV.2006, R.B. Lopes leg. (MPEG 24360); 1 female, 02.VIII.2011, Equipe MPEG (MPEG 24350); 1 female (MPEG 24366); (Floresta Nacional de Caxiuanã, Estação Científica Ferreira Penna), 01°44'15.5"S 51°26'42.0"W, 1 female, 10.VII.2002, J.P. Sifuerite leg. (MPEG 24356); (Floresta Nacional de Caxiuanã, TEAM 4), 01°45'12.8"S 51°31'14.7"W, 1 female, 12.X.2005, N. Abraham leg. (MPEG 24351); 1 female, 23.IV.2006, E.J. Sales leg. (MPEG 24346); Juruti (Capiranga), 02°28'0.6"S 56°12'42.2"W, 2 females, 07.IX.2002, D. Guimarães leg. (MPEG 24357); 1 female, 12.IX.2002, D. Guimarães leg. (MPEG 24368); 1 female, A.B. Bonaldo leg. (MPEG 24365); 1 female, 15.IX.2002, A.B. Bonaldo leg. (MPEG 24363); 02°28'22.1"S 56°12'29.4"W, 1 female, 11.VIII.2008, N.C. Bastos leg. (MPEG 24359); 1 female, 10.III.2006, S.C. Dias leg. (MPEG 9133); (Barroso), 02°27'0.11"S 56°00'60"W, 1 female, 09.II.2009, B.V.B. Rodrigues leg. (MPEG 24354); 02°27'45.5"S 56°00'51"W, 1 female, 12.IV.2008, N.C. Bastos leg. (MPEG 24361); 1 male, 12.VIII.2008, N.F. Lo Man Hung leg. (MPEG 24340); 02°27'51.4"S 56°00'08.6"W, 1 female, 22.V.2009, N. Abraham leg. (MPEG 24333); (Beneficiamento), 02°30'25.4"S 56°11'04.8"W, 1 female, 09.II.2007, N.F. Lo Man Hung leg. (MPEG 24364); 02°30'27.4"S 56°10'39.5"W, 1 female, 10.VIII.2010, B.V.B. Rodrigues leg. (MPEG 24336); 1 female, N.C. Bastos leg. (MPEG 24343); 1 female, 20.II.2011, N.C. Bastos leg. (MPEG 24334); (Mutum), 02°33'06.9"S 56°13'29.0"W, 1 female, 11.VIII.2010, B.V.B. Rodrigues leg. (MPEG 24335); 1 female,

(MPEG 24349); 1 female, N.C. Bastos leg. (MPEG 24347); 1 female, N. Abraham leg. (MPEG 24352); 02°33'07.2"S 56°13'06.2"W, 1 female, 07.IX.2002, D. Guimarães leg. (MPEG 24337); 02°36'11.2"S 56°12'36.3"W, 1 female, 04.VIII.2004, D.R. Santos-Souza leg. (MPEG 24341); 1 female (MPEG 24342); 02°36'44.7"S 56°11'39.2"W, 1 female, 27.V.2009, N. Abraham leg. (MPEG 24338); 1 female, N.F. Lo Man Hung leg. (MPEG 24355); 1 female, 19.VIII.2011, R. Saturnino leg. (MPEG 24345); Novo Progresso (Serra do Cachimbo), 09°22'02.9"S 55°01'11.9"W, 1 male, 06.IV.2004, D. Guimarães leg. (MPEG 6358).

Distribution. Brazil, states of Pará and Amazonas.

Etymology. The specific name is a patronym to honor the late arachnologist Herbert W. Levi, and to recognize his immense contribution to spider taxonomy. His seminal work inspired and will continue to inspire generations of arachnologists.

Variation in paratypes. Six males, total length. 4.8 to 7.4; carapace: 2.3 to 3.0; number of spines on tibiae I and II: 5 to 10. Seven females, total length: 7.4 to 9.0; carapace: 2.0 to 3.2.

Alpaida delicata (Keyserling, 1892)

Figs. 10-13, 31

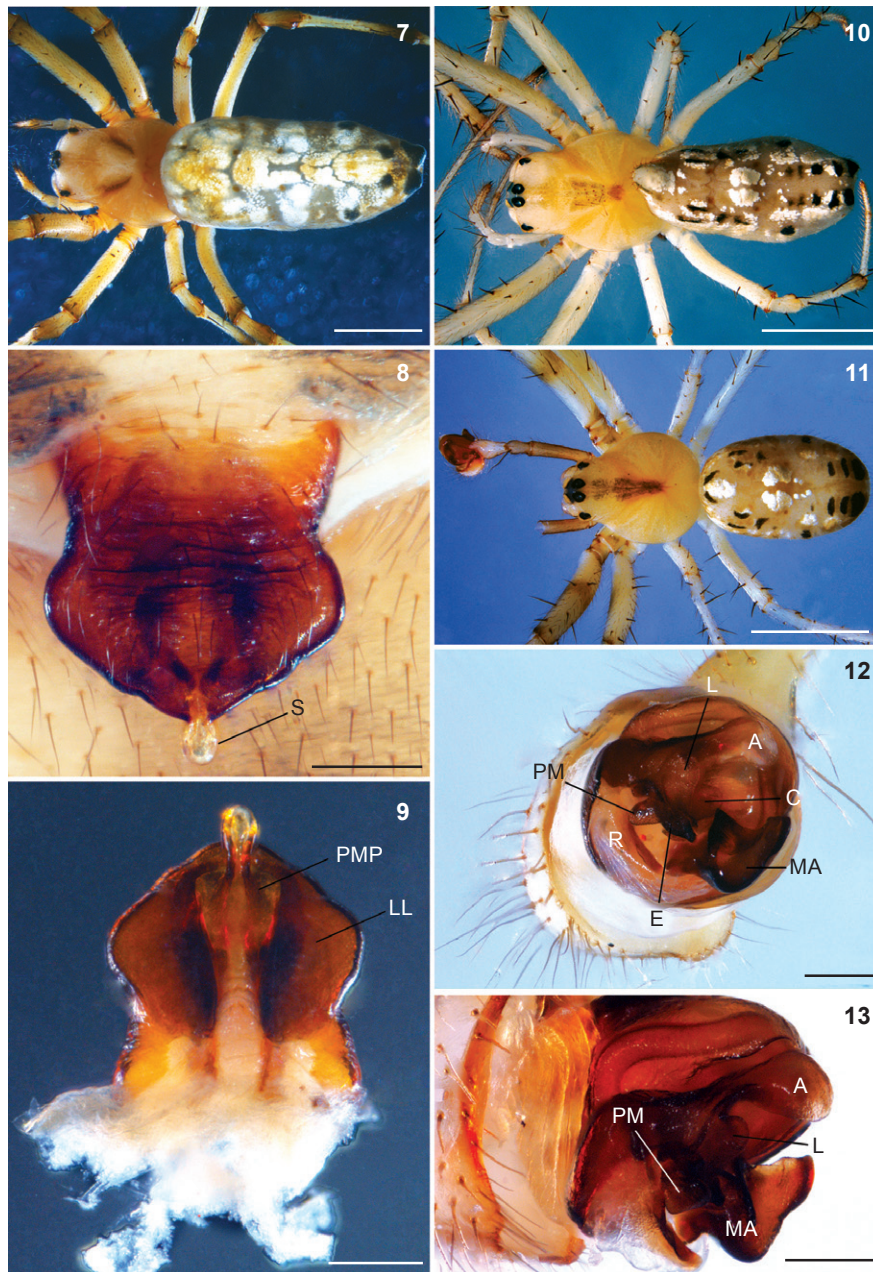
Epeira delicata Keyserling, 1892: 183, pl. 9, fig. 135, 6 (females and 4 males syntypes from Espírito Santo, Brazil, deposited in Natural History Museum (BMNH), London, not examined).

Araneus taczanowskii Simon, 1897: 473 (female holotype from Tefé, Est. Amazonas, Brazil, deposited in MNHN, not examined); Bonnet, 1955: 609. Synonymized by Levi, 1988.

Alpaida delicata: Levi, 1988: 458, figs. 472-478; Dierkens, 2014: 17, figs. 7, 8, 30, 41.

Diagnosis. Males of *A. delicata* resemble those of *A. levii* by the dorsal abdominal coloration pattern (Figs. 1, 11), by the finger-shaped distal lobe (L, Figs. 3-6) and by the strong spines on tibiae I and II (Fig. 2). They differ by the spoon-shaped retrolateral apical sector of the terminal apophysis (Figs. 12, 13) (distally pointed and curved in *A. levii*; Figs. 3-5) and by the well-developed cymbial prolateral projection (reduced in *A. levii*), see LEVI (1988: figs. 476-478) for comparison. Females of *A. delicata* resemble those of *A. levii* by the two black humps on posterior end of abdomen (Figs. 7, 10) and by the epigynum with the notch not well demarcated, but differs by the sinuous lips in ventral view, epigynum wider than long (longer than wide in *A. levii*; Figs. 8, 9); posterior median plate medially wide (medially constricted in *A. levii*; Fig. 9); lateral lobes rounded in posterior view (diamond-shaped in *A. levii*; Figs. 8, 9), see LEVI (1988: figs. 472-474) for comparison.

Material examined. BRAZIL, Amazonas: Presidente Figueiredo (Reserva Biológica de Uatumã), 01°49'05.55"S 59°14'34.23"W, 1 female (INPA); 01°49'37.24"S 59°14'31.81"W, 1 male (INPA); Manaus (Reserva Adolpho Ducke), 02°57'30.23"S 59°55'57.45"W, 1 female (INPA); 02°59'21.44"S 59°57'18.62"W, 1 female (INPA); Autazes, 04°09'26.3"S 60°07'53"W, 1 male and 4 females (INPA); 04°09'55.4"S 60°07'53.9"W, 1 male (INPA);



Figures 7-13. (7-9) *Alpaida levii* sp. nov., female: (7) habitus dorsal; (8) epigynum ventral view; (9) epigynum posterior view. (10-13) *Alpaida delicata*: (10) female (MPEG 24408), habitus dorsal; (11) male (MPEG 9136), habitus dorsal; (12-13) expanded palpus: (12) mesal view; (13) detail of the terminal apophysis, median apophysis and paramedian apophysis. (A) Terminal apophysis, (C) conductor, (E) embolus, (L) distal lobe, (LL) lateral lobes, (MA) median apophysis, (PM) paramedian apophysis, (PMP) posterior median plate, (R) radix, (S) median lobe of the scape, (*) basal prong of the terminal apophysis. Scale bars: (7, 10, 11) = 2 mm, (8, 9, 12, 13) = 0.2 mm.

Canutama, 08°38'49"S 64°22'05.5"W, 1 female (INPA); 1 male (INPA); 08°39'05.8"S 64°22'05.6"W, 2 females (INPA); 08°39'06.8"S 64°22'05.8"W, 1 female (INPA); 1 male (INPA); 08°39'11.6"S 64°21'34.6"W, 1 male and 1 female (INPA); 1 male

(INPA); 1 female (INPA); 2 females (INPA); 08°39'14.8"S 64°21'34.3"W, 1 male (INPA); 1 female (INPA). Pará: Melgaço (Floresta Nacional de Caxiuanã, TEAM 1), 01°42'24.00"S 51°27'34.30"W, 1 male (MPEG 24539); (Floresta Nacional de

Caxiuanã, TEAM 2), 01°43'43.20"S 51°29'0.70"W, 1 male (MPEG 24541); 1 male (MPEG 24540); 1 male (MPEG 24522); 1 female (MPEG 24528); (Floresta Nacional de Caxiuanã, TEAM 3), 01°43'59.20"S 51°30'38.60"W, 1 female (MPEG 24542); 1 female (MPEG 24545); 1 male (MPEG 24543); 1 male (MPEG 24544); 1 female (MPEG 24523); 1 female (MPEG 24527); 1 female (MPEG 24526); 1 male (MPEG 24524); 1 male and 1 female (MPEG 24525); (Castanhal do Jacaré), 01°44'13.5"S 51°25'32.8"W, 1 male (MPEG 24560); (Floresta Nacional de Caxiuanã, Estação Científica Ferreira Penna), 01°44'15.5"S 51°26'42.0"W, 1 female (MPEG 24561); (Floresta Nacional de Caxiuanã, TEAM 4), 01°45'12.80"S 51°31'14.70"W, 1 female (MPEG 24529); 2 females (MPEG 24531); 1 female (MPEG 24532); 1 male (MPEG 24530); 1 female (MPEG 24535); 1 female (MPEG 24536); 1 female (MPEG 24546); 1 female (MPEG 24547); 1 male (MPEG 24548); (Floresta Nacional de Caxiuanã, Caiçara), 01°46'41.4"S 51°25'28.7"W, 1 female (MPEG 24558); (Floresta Nacional de Caxiuanã, TEAM 5), 01°47'23.66"S 51°34'52.18"W, 1 female (MPEG 24533); 1 male (MPEG 24534); 1 female (MPEG 24537); 1 female (MPEG 24538); 1 female (MPEG 24550); 1 male (MPEG 24552); 1 female (MPEG 24551); 1 male and 1 female (MPEG 24556); 1 female (MPEG 24557); 1 male and 1 female (MPEG 24555); 1 female (MPEG 24554); 1 female (MPEG 24549); 2 females (MPEG 24553); (Terra Preta), 01°51'19.30"S 51°25' 57.50"W, 1 male (MPEG 24559); (Portel, Plote PPBio), 01°57'38.9"S 51°36'45.3"W, 1 male and 1 female (MPEG 24562); 1 male (MPEG 24563); 1 male (MPEG 24564); (Cametá, Curuçambaba, Área de Floresta), 02°06'27.2"S 49°18'33.1"W, 1 male (MPEG 24577); 1 male (MPEG 24575); 02°07'27.6"S 49°18'52.7"W, 1 male (MPEG 24574); 02°06'39.4"S 49°18' 40.7"W, 1 female (MPEG 24578); 1 female (MPEG 24580); (Curuçambaba, Área de Praia), 02°06'31.4"S 49°18'55.8"W, 1 female (MPEG 24579); 1 female (MPEG 24576); 1 male and 1 female (MPEG 24581); 2 females (MPEG 24573); (Moju, Campo experimental da Embrapa), 02°11'12.44"S 48°47'34.31"W, 1 male (MPEG 24321); (Juruti, Capiranga), 02°28'0.60"S 56°12'42.20"W, 2 females (MPEG 24412); 1 female (MPEG 24380); 02°28'22.1"S 56°12'29.4"W, 1 female (MPEG 24430); 1 female (MPEG 24421); 1 female (MPEG 24414); 1 male (MPEG 9203); 1 male (MPEG 9132); (Barroso), 02°27'41.7"S 56°00'11.6"W, 1 female (MPEG 24420); 02°27'51.4"S 56°00'08.6"W, 1 female (MPEG 24422); 1 female (MPEG 24426); 1 female (MPEG 24403); 1 female (MPEG 24390); 1 female (MPEG 24404); (Ferrovia Km 23), 02°29'19"S 56°06'34"W, 1 male. (MPEG 24401); (Beneficiamento), 02°30'25.4"S 56°11'04.8"W, 1 male (MPEG 24416); 02°30'27.4"S 56°10'39.5"W, 1 male (MPEG 24378); 1 female (MPEG 24387); 1 female (MPEG 24393); (Mutum), 02°33'06.9"S 56°13'29.0"W, 1 female (MPEG 24398); 1 male and 1 female (MPEG 24399); 1 female (MPEG 24417); 1 female (MPEG 24394); 1 male (MPEG 24383); 02°33'18.0"S 56°13'22.4"W, 1 male (MPEG 24384); 1 female (MPEG 24418); 02°36'10.6"S 56°12'25.8"W, 1 female (MPEG 24396); 1 male (MPEG 24410); 02°36'11.2"S 56°12' 36.3"W, 2 females (MPEG 24405); 1 male (MPEG 24411); 2 fe-

males (MPEG 24391); 1 female (MPEG 24392); 02°36'44.7"S 56°11'39.2"W, 1 male (MPEG 24386); 1 male (MPEG 9136); 1 female (MPEG 9137); 1 female (MPEG 24379); 1 female (MPEG 24423); 1 male (MPEG 24419); 1 male (MPEG 24427); 1 female (MPEG 24425); 1 female (MPEG 24429); 1 male (MPEG 24382); 1 female (MPEG 24400); 2 males (MPEG 24406); 1 male (MPEG 24409); 1 male (MPEG 24388); 1 female (MPEG 24385); 1 male (MPEG 24377); 1 female (MPEG 24389); 1 female (MPEG 24381); 1 male (MPEG 24397); 1 female (MPEG 24402); 02°36'45.2"S 56°11'27.5"W, 1 male (MPEG 24413); 1 female (MPEG 24407); 1 female (MPEG 24408); 1 male and 1 female (MPEG 24395); 1 female (MPEG 24415); 02°36'45.7"S 56°11'38.2"W, 1 female (MPEG 24424); 1 male (MPEG 24428).

Distribution. Previously known from Colombia, Peru, Bolivia, French Guiana and Brazil (Amazonas: Tefé; Pará: Melgaço; Espírito Santo). Recorded here also from Presidente Figueiredo, Manaus, Autazes and Canutama, state of Amazonas; Moju and Juruti, state of Pará, Brazil.

Alpaida truncata (Keyserling, 1865)

Figs. 14-17, 32

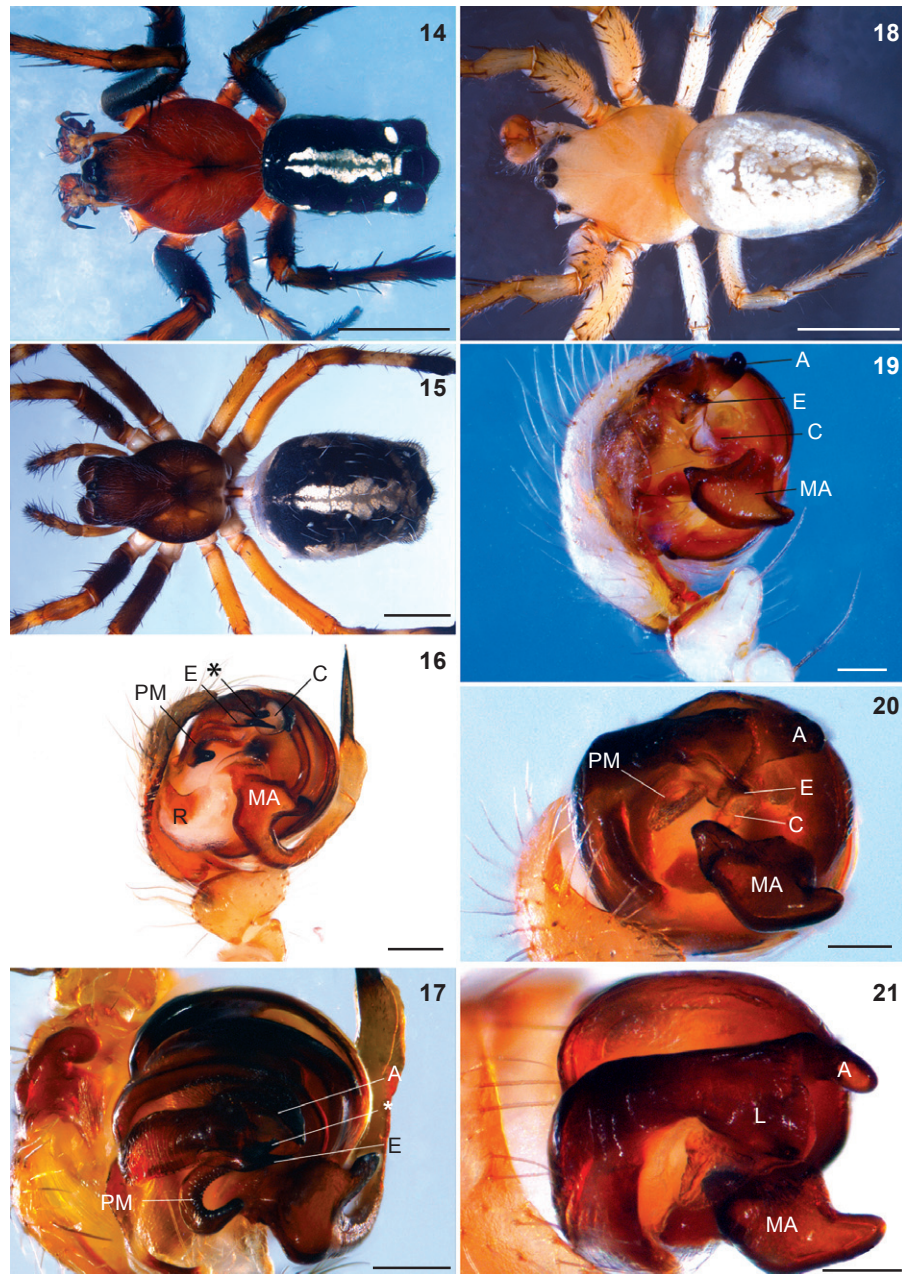
Epeira truncata Keyserling, 1865: 807, pl. 19, figs. 21-22 (female from Uruguay, deposited in BMNH, not examined).

Alpaida truncata Levi, 1988: 472, figs. 570-578; Levi, 2002: 538, figs. 75-77, 260-261; Dierkens, 2014: 22, figs. 19-20, 34, 47.

Diagnosis. Males of *A. truncata* resemble those of *A. levii* and *A. delicata* by having the posteriorly hump-shaped abdomen (Figs. 7, 10, 14) and *A. queremal* by the extremely long and distally pointed median apophysis (Fig. 16), see LEVI (1988: fig. 569) for comparison. They differ from other species of *Alpaida* by the c-shaped and digitiform paramedian apophysis (Figs. 16, 17), and a modified second tibia, flattened and wide, bearing two macrosetae; differ from *A. queremal* by a notch in the base of the median apophysis – modified from LEVI (1988: see figs. 569, 577-578 for comparison). Females also resemble those of *A. levii*, *A. delicata* and *A. queremal* by the posteriorly hump-shaped abdomen, but differ from *A. levii* by the epigynum wider than longer, from *A. delicata* by the median lobe not well-developed and from *A. queremal* by the lack of the lateral lobes of the epigynum – modified from LEVI (1988: see figs. 472-473, 564-565, 570-571 for comparison).

Description. Male and female. See LEVI (1988): 472, figs. 570-578.

Material examined. BRAZIL, Pará: Santa Bárbara, 01°13' 37.32"S 48°17'45.59"W, 2 females (MPEG 24519); Benevides, 01°21'43.87"S 48°14'37.79"W, 1 male (MPEG 2972); Belém (Jardim Botânico Rodrigues Alves), 01°25'49.0"S 48°27'22.3"W, 1 female (MPEG 24516); 1 female (MPEG 24517); (Museu Paraense Emílio Goeldi, Campus de Pesquisa), 01°27'03.03"S 48°26'40.2"W, 1 male (MPEG 4907); 1 male (MPEG 24512); (Parque Zoobotânico Emílio Goeldi), 01°27'12"S 48°28'35"W, 1 male (MPEG 24513); 1 male (MPEG 24514); 1 female (MPEG



Figures 14-21. (14-17) *Alpaida truncata*: (14, 16, 17) male (MPEG 24508): (14) habitus dorsal; (16) palpus, mesal view; (17) expanded palpus, detail of the terminal apophysis, basal prong, embolus, median and paramedian apophyses; (15) female (MPEG 24503), habitus dorsal. (18-21) *Alpaida iquitos*, male: (18) habitus dorsal; (19) palpus, mesal view; (20-21) expanded palpus: (20) mesal view; (21) detail of the terminal apophysis and median apophysis. (A) Terminal apophysis, (C) conductor, (E) embolus, (L) distal lobe, (MA) median apophysis, (PM) paramedian apophysis, (R) radix, (*) basal prong of the terminal apophysis. Scale bars: (14, 15) = 2 mm, (16, 17) = 0.2 mm, (18) = 1 mm, (19-21) = 0.1 mm.

24515); (Mata do Betina, Universidade Federal do Pará), 01°28'02"S 48°26'33"W, 1 female (MPEG 24518); Melgaço (Floresta Nacional de Caxiuanã, Estação Científica Ferreira

Penna), 01°44'15.5"S 51°26'42"W, 1 female (MPEG 8010); 1 female (MPEG 8011); 1 female (MPEG 8009); 01°44'18.02"S 51°27'48.01"W, 1 female (MPEG 22499); 01°47'32.7"S

51°25'59.2"W, 1 male (MPEG 24520); Juruti (Barroso), 02°27'51.4"S 56°00'08.6"W, 1 female (MPEG 24497); 1 male (MPEG 24500); 1 female (MPEG 24504); 1 male (MPEG 24505); (Capiranga), 02°28'22.1"S 56°12'29.4"W, 1 male (MPEG 24499); 1 female (MPEG 24501); 02°29'57.8"S 56°12'60"W, 1 male (MPEG 24502); (Beneficiamento), 02°30'04.9"S 56°09'46.6"W, 1 male (MPEG 24507); 02°30'25.4"S 56°11'04.8"W, 1 male and 1 female (MPEG 24498); 1 female (MPEG 24503); 02°30'27.4"S 56°10'39.5"W (MPEG 24506); 1 male (MPEG 24508); 1 female (MPEG 24511); 2 females (MPEG 24510); 1 female (MPEG 24509); (Mutum), 02°36'45.2"S 56°11'27.5"W, 1 female (MPEG 24596); Marabá (Serra Norte), 06°0'23.1"S 50°17'50.3"W, 1 male (MPEG 4243); 1 male (MPEG 4194); Novo Progresso, 07°08'07"S 55°24'51"W, 1 male (MPEG 4495); Serra do Cachimbo, 09°16'18.6"S 54°56'22.9"W (MPEG 6330).

Distribution. Previously known from Mexico to Argentina. Recorded here also from Benevides, Juruti and Marabá, state of Pará, Brazil.

Alpaida iquitos Levi, 1988

Figs. 18-21, 30

Alpaida iquitos Levi, 1988: 416, figs. 194-197 (female holotype and female paratype from Iquitos, Peru, V.1920, deposited in Museum of Comparative Zoology (MCZ), Harvard University, not examined).

Note. The male, described here, is identified as belonging to *A. iquitos* based on the morphological similarity and also in the sympatric distribution with the female previously described by LEVI (1988).

Diagnosis. Males of *A. iquitos* resemble those of *A. bicornuta* by the wider than long median apophysis (MA, Figs. 19-21) and by the flattened distal lobe (L, Fig. 21), but differs from this and all other species of *Alpaida* by the sharply pointed, opposed proximal ends of median apophysis (MA, Figs. 19-21) and by the distally rounded retrolateral apical sector of the terminal apophysis (A, Figs. 19-21) – see Levi (1988: Figs. 17-18) for comparison. As diagnosed by LEVI (1988), females differ from *A. variabilis* and *A. kochalkai* by having the posterior plate of the epigynum constricted in the middle and from *A. variabilis* by having the epyginum longer (LEVI 1988: see figs. 194-197).

Description. Male (MPEG 24164). Total length 3.3. Carapace length 1.7, width 1.3, height 0.6. Clypeus height 0.05. Sternum length 0.7, width 0.6. Abdomen length 2.0, width 1.2, height 1.0. Leg formula I/II/IV/III. Leg lengths: femur, I 1.6, II 1.4, III 1.1, IV 1.3; patella, I 0.6, II 0.6, III 0.4, IV 0.4; tibia, I 1.3, II 1.0, III 0.6, IV 1.1; metatarsus, I 1.2, II 1.1, III 0.6, IV 1.0; tarsus, I 0.6, II 0.5, III 0.4, IV 0.4. Eyes diameters and interdistances: AME 0.12, ALE 0.09, PME 0.11, PLE 0.09; AME-PME 0.09, AME-ALE 0.21, PME-PLA 0.24, AME-AME 0.09, PME-PME 0.07. Carapace pale yellow. Sternum, endites and labium pale yellow with brown margins. Chelicerae pale yellow. Legs pale yellow; tibia, metatarsus and tarsus of legs I-II darker. Abdomen longer than wide, oval. Laterals of dorsal side, pale yellow, center white, with

a dark gray stripe posteriorly (Fig. 18). Venter pale yellow. Palp: palpal patella and palpal tibiae with one long macrosetae; median apophysis wider than long, sharply pointed, opposed proximal ends of median apophysis two-pointed (Figs. 19-21); paramedian apophysis distally expanded (Fig. 20); embolus short, covered by terminal apophysis (Figs. 19-20); basal prong of the terminal apophysis absent; distal lobe of the terminal apophysis well-developed, visible only with the expanded palpus in apical view of the terminal apophysis (Fig. 21); retrolateral portion of the terminal apophysis rounded (Figs. 19-21).

Female. See LEVI (1988: 416, figs. 194-197).

Material examined. BRAZIL, Pará: Portel (Floresta Nacional de Caxiuanã, Plote PPBio), 01°57'38.9"S 51°36'45.3"W, 1 female, 10.V.2005, C.A. Lopes (MPEG 24184); 1 female, 12.V.2005, D.F. Candiani (MPEG 24179); Melgaço (Floresta Nacional de Caxiuanã, TEAM 1), 01°42'24.0"S 51°27'34.3"W, 1 male, 26.IX.2005, J.A.P. Barreiros leg. (MPEG 24167); (Floresta Nacional de Caxiuanã, TEAM 5), 01°43'21.6"S 51°25'51.2"W, 1 female, 08.X.2005, J.A.P. Barreiros leg. (MPEG 24175); 1 female (MPEG 24177); 1 male, 13.X.2005, Robinho leg. (MPEG 24164); (Floresta Nacional de Caxiuanã, TEAM 2), 01°43'43.2"S 51°29'00.6"W, 1 male, 03.X.2005, J.A.P. Barreiros leg. (MPEG 24168); 1 female, 28.IX.2005, B.B. Santos leg. (MPEG 24170); 1 female, 05.X.2005, J.A.P. Barreiros leg. (MPEG 24171); 3 females, N. Abraham leg. (MPEG 24169); (Floresta Nacional de Caxiuanã, TEAM 3), 01°43'59.2"S 51°30'38.6"W, 1 female, 29.IX.2005, B.B. Santos leg. (MPEG 24173); 1 female, J.A.P. Barreiros leg. (MPEG 24176); 1 female, 04.X.2005, J.A.P. Barreiros leg. (MPEG 24174); 1 female, 17.IV.2006, C.A. Souza leg. (MPEG 24163); 1 female, R.B. Lopes leg. (MPEG 24162); (Floresta Nacional de Caxiuanã, Estação Científica Ferreira Penna), 01°44'15.5"S 51°26'42.0"W, 1 female, 16.XI.2001, Aires leg. (MPEG 24180); 1 female, 07-13.II.2002, A.B. Bonaldo leg. (MPEG 24181); 1 female, 17.IV.2002, M. Andrade leg. (MPEG 24182); 1 female, 05.VI.2004, A.B. Bonaldo leg. (MPEG 24183); 01°44'18.02"S 51°27'48.01"W, 1 female (MPEG 24185); 1 female (MPEG 24187); 1 female, 25.III.2002, N. Abraham leg. (MPEG 24178); 1 female, 05.VI.2004, C. Trinca leg. (MPEG 24186); (Floresta Nacional de Caxiuanã, TEAM 4), 01°45'12.8"S 51°31'14.7"W, 1 female, 07.X.2005, Robinho leg. (MPEG 24172); 1 female, 12.X.2005, J.A.P. Barreiros leg. (MPEG 24165); 1 male, N. Abraham leg. (MPEG 24166).

Distribution. Previously known from Brazil (Pará: Melgaço and Canindé [Paragominas]; Mato Grosso: Chapada dos Guimarães), Ecuador, French Guiana and Peru. Recorded here also from Portel, state of Pará, Brazil.

Alpaida gurupi Levi, 1988

Figs. 22-24, 30

Alpaida gurupi Levi, 1988: 429, figs. 278-279 (male holotype from Canindé, Rio Gurupi, Pará, Brazil, 27-28.II.1966, deposited in American Museum of Natural History (AMNH), not examined).

Note. The females, described here, were identified as belonging to *A. gurupi* based on the morphological similarity and



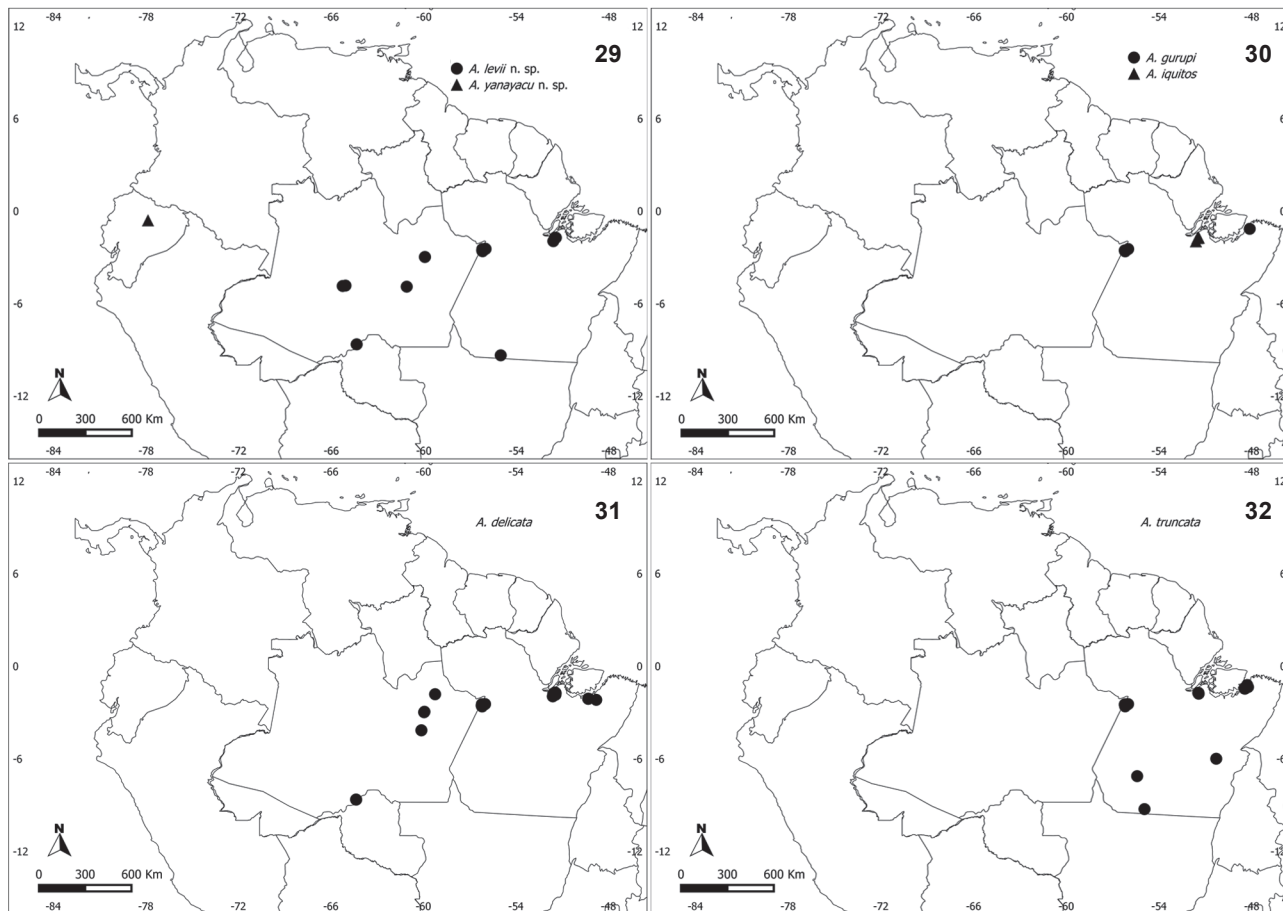
Figures 22-28. (22-24) *Alpaida gurupi*, female: (22) habitus dorsal, arrow = spines; (23-24) epigynum: (23) ventral view; (24) posterior view. (25-28) *Alpaida yanayacu* new species, female: (25) habitus dorsal; (26-28) epigynum: (26) ventral view; (27) lateral view; (28) posterior view. (LL) Lateral lobes, (N) notch, (PMP) posterior median plate, (S) median lobe of the scape. Scale bars: (22, 25) = 1 mm, (23-28) = 0.2 mm.

also in the sympatric distribution with the male previously described by LEVI (1988).

Diagnosis. Females of *A. gurupi* resemble those of *A. amambay* by the epigynum wider than long, by the well demarcated notch and by short and rounded scape median lobe (Fig. 23), but differs by the notch occupying more than half of the epigynum width (Fig. 23), posterior median plate wide, without sinuous borders (Fig. 24), see LEVI (1988: Figs. 274-275) for comparison. As diagnosed by LEVI (1988), males differ from other species of *Alpaida* by the gently curved median apophysis and the hooded appearance of the terminal apophysis see LEVI (1988: figs. 278-279).

Description. Female (MPEG 24190). Total length 5.4. Carapace length 2.2, width 1.8, height 0.8. Clypeus height 0.08. Sternum length 0.9, width 0.9. Abdomen length 3.3, width 2.0,

height 1.8. Leg formula IV/I/II/III. Leg lengths: femur, I 2.0, II 1.8, III 1.4, IV 2.1; patella, I 0.8, II 0.8, III 0.6, IV 0.8; tibia, I 1.6, II 1.3, III 1.0, IV 1.8; metatarsus, I 1.5, II 1.4, III 1.0, IV 1.6; tarsus, I 0.8, II 0.7, III 0.6, IV 0.8. Eyes diameters and interdistances: AME 0.1, ALE 0.12, PME 0.17, PLE 0.14; AME-ALE 0.14, PME-PL 0.3, AME-AME 0.12, PME-PME 0.2. Carapace pale yellow, with darker yellow stripes on cephalic and thoracic region of the carapace (Fig. 9). Sternum pale yellow with orange margins. Endites and labium pale orange with white apices and brown margins. Chelicerae yellow. Legs orange-brownish. Femur, patella, tibia and metatarsus gray. Abdomen longer than wide, oval, posteriorly pointed with rounded borders; anteriorly with two spines, one on each side (see arrow Fig. 22). Dorsal side dark gray, many white and pale gray dots with different sizes (Fig. 22). Ventral side dark gray with light



Figures 29-32. Distribution of *Alpaيدا* species in the Amazon region, North Brazil, and Ecuador: (29) *Alpaيدا levii* sp. nov. and *A. yanayacu* sp. nov.; (30) *A. gurupi* and *A. iquitos*; (31) *A. delicata*; (32) *A. truncata*.

gray stripes and many white dots. Epigynum wider than long, with evident notch; (Fig. 23); posterior median plate wide (Fig. 24); median lobe of scape short, drop-shaped (Fig. 23).

Male. See LEVI (1988): 429, figs. 278-279.

Material examined. BRAZIL, Pará: Santo Antônio do Pará 01°09'09"S 48°07'45"W, 1 male, 07.IV.1975, R.F. da Silva leg. (MPEG 2973); Juruti (Barroso), 02°27'51.4"S 56°00'08.6"W, 1 female, 08.II.2007, N.F. Lo Man Hung leg. (MPEG 24199); 1 female, 16.XI.2007, N.F. Lo Man Hung leg. (MPEG 24197); 1 female (MPEG 24201); 1 male and 1 female, 08.VIII.2008, N.F. Lo Man Hung leg. (MPEG 24189); (Mutum), 02°33'06.9"S 56°13'29.0"W, 2 females, 12.VIII.2010, N.C. Bastos leg. (MPEG 24195); 02°33'18"S 56°13'22.4"W, 1 female, 05.V.2010, N.C. Bastos leg. (MPEG 24191); 02°36'11.2"S 56°12'36.3"W, 1 female, 04.VIII.2004, D.F. Candiani and D.R. Santos-Souza leg. (MPEG 24193); 1 female, 09.VIII.2004, D.F. Candiani leg. (MPEG 24196); 1 male, 09.VIII.2004, D.R. Santos-Souza leg. (MPEG 24194); 02°36'44.7"S 56°11'39.2"W, 1 female, 12.II.2007, N.F. Lo Man Hung leg. (MPEG 24198); 1 female (MPEG 24200); 1

female, 08.VIII.2008, N.C. Bastos leg. (MPEG 24188); 1 female, N.F. Lo Man Hung leg. (MPEG 24190); 1 female, L.T. Miglio leg. (MPEG 24192).

Distribution. Previously known from Colombia and Brazil (Pará: Canindé [Paragominas]). Recorded here also from Santo Antônio do Pará and Juruti, state of Pará, Brazil.

Variation. Six females, total length. 5.4 to 7.2; carapace: 2.4 to 2.9.

Alpaيدا yanayacu sp. nov.

Figs. 25-28, 29

Type material. Female holotype from ECUADOR: Napo (Yanayacu Biological Station), 0°36'29.76"S 77°52'56.82"W, 25.XI.2009, A.B. Bonaldo leg., deposited in QCAZ.

Diagnosis. Females of *A. yanayacu* resemble those of *A. machala* Levi, 1988 and *A. eberhardi* Levi, 1988 by having the lateral lobes long and median lobe wide at its base, which is proportionally closer to *A. eberhardi*, since the median lobe is larger in both species than in *A. machala*; they differ by the

lateral lobes rounded in ventral view (Fig. 26) (almost straight in *A. machala* and not visible in this view in *A. eberhardi*); by the borders of the posterior median plate parallel (Fig. 27); and by the less curved median lobe scape (Fig. 28) than in *A. machala*, see LEVI (1988: 555-556, 559-560) for comparison.

Description. Female (QCAZ). Total length 4.4. Carapace length 1.7, width 1.35, height 0.5. Clypeus height 0.05. Sternum length 0.75, width 0.67. Abdomen length 3.25, width 1.9, height 1.8. Leg formula I/II/IV/III. Leg lengths: femur, I 1.55, II 1.5, III 1.1, IV 1.6; patella, I 0.7, II 0.57, III 0.45, IV 0.47; tibia, I 1.47, II 1.17, III 0.75, IV 1.17; metatarsus, I 1.3, II 1.15, III 0.62, IV 1.15; tarsus, I 0.62, II 6.0, III 0.45, IV 0.52. Eyes diameters and interdistances: AME 0.1, ALE 0.07, PME 0.08, PLE 0.07; AME-PME 0.075, AME-ALE 0.26, PME-PLA 0.3, AME-AME 0.08, PME-PME 0.11. Carapace yellow, with two gray stripes on the lateral edges. Sternum black. Endites and labium dark brown with pale apices. Chelicerae yellow with distal third brown. Legs yellow, except the tarsus brown. Abdomen longer than wide, rounded anteriorly and pointed posteriorly. Dorsal side gray with white pigments of different sizes. Two pairs of white lateral stripes. Venter dusky gray from epigastric area to behind spinnerets. Epigynum wider than long, with notch not demarcated (Fig. 26); posterior median plate narrow with parallel borders (Fig. 27); scape relatively long and curved (Fig. 28).

Distribution. Known only from the type locality.

Etymology. The specific name is a noun in apposition taken from the type locality.

Alpaida antonio Levi, 1988

Fig. 33

Alpaida antonio Levi, 1988: 446, figs. 392-397 (female holotype from Fazenda Santo Antônio, Uruçuca, Bahia, Brazil, 27.XI.1977, deposited in Museu de Ciências Naturais (MCN), Fundação Zoobotânica do Rio Grande do Sul, not examined); Dierkens 2014: 15, figs. 1, 38.

Material examined. BRAZIL, Amazonas: Manicoré, 04°54'57"S 61°06'45.4"W, 1 male (INPA); 1 male (INPA); 1 male (INPA).

Distribution. Previously known from Guyana, French Guiana and Brazil (Pará: Melgaço, Canindé [Paragominas]; Bahia: Uruçuca, Camacã; Espírito Santo: Rio São José). Recorded here also from Manicoré, state of Amazonas, Brazil.

Alpaida bicornuta (Taczanowski, 1878)

Fig. 34

Epeira bicornuta Taczanowski, 1878: 168, pl. 2, fig. 18 (female lectotype and paralectotypes designated by Levi, 1988 from Pumamarca and Amable María, Junín, Peru, deposited in Polska Akademia Nauk (PAN), not examined).

Alpaida bicornuta: Levi, 1988: 387, figs. 11-18; Dierkens, 2014: 16, figs. 3, 4, 28, 39.

Material examined. BRAZIL, Pará: Bragança (Ilha das Canelas), 0°47'8.08"S 46°43'20.88"W, 1 female (MPEG 4980); 5 males and

2 females (MPEG 11187); 01°3'S 46°46'W, 1 female (MPEG 2971); Juruti (Área de várzea), 02°12'36.1"S 56°07'20.7"W, 1 female (MPEG 24493); 1 male (MPEG 24490); 1 male (MPEG 24491); 1 female (MPEG 24492); 1 female (MPEG 24494); 1 female (MPEG 24495); 02°24'33.2"S 56°26'10.6"W, 1 male (MPEG 24486); 1 male (MPEG 24487); (Barroso), 02°28'28.9"S 55°59'58.8"W, 1 female (MPEG 24489); 1 female (MPEG 24488); Marabá (Serra Norte, Fofoca), 05°58'13.81"S 50°21'28.16"W, 1 female (MPEG 4262).

Distribution. Previously known from Costa Rica to Argentina. Recorded here also from Bragança, Juruti and Marabá, state of Pará, Brazil.

Alpaida boa Levi, 1988

Fig. 35

Alpaida boa Levi, 1988: 447, figs. 408-409 (male holotype from Fonte Boa, Amazonas, Brazil, IX.1975, deposited in AMNH, not examined); Dierkens 2014: 16, figs. 5, 29.

Material examined. BRAZIL, Pará: Almerim (Jari), 0°53'16.53"S 52°50'41.59"W, 1 male (MPEG 7604).

Distribution. Previously known from French Guyana and Brazil (Amazonas: Fonte Boa). Recorded here also from Almerim, state of Pará, Brazil.

Alpaida deborae Levi, 1988

Fig. 36

Alpaida deborae Levi, 1988: 442, figs. 364-366 (female holotype from Browns Berg, 05°N, 55°27'W, Brokopondo Prov., Surinam, 20.II.1982, deposited in MCZ, not examined); Dierkens 2014: 16, figs. 6, 40.

Material examined. BRAZIL, Pará: Juruti (Área de Várzea), 02°24'33.2"S 56°26'10.6"W, 1 female (MPEG 24313).

Distribution. Previously known from Surinam, French Guiana and Brazil (Pará: Belém). Recorded here also from Juruti, state of Pará, Brazil.

Alpaida erythrothorax (Taczanowski, 1873)

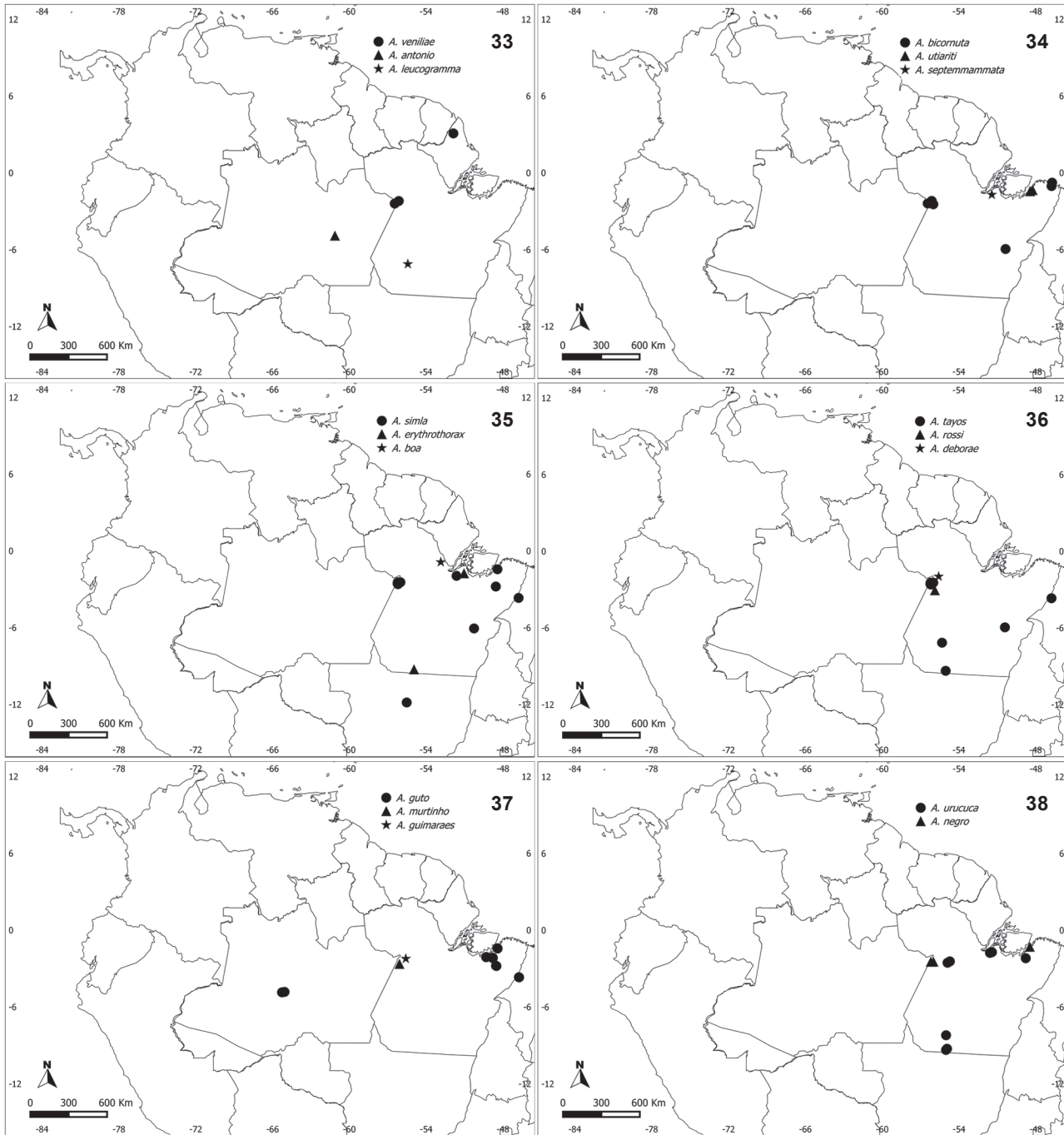
Fig. 35

Singa erythrothorax Taczanowski, 1873: 126 (female lectotype, 2 males and 1 juvenile paralectotypes from Cayenne, French Guiana, deposited in PAN, not examined).

Alpaida erythrothorax: Levi, 1988: 444, figs. 376-378; Dierkens, 2014: 22.

Material examined. BRAZIL, Pará: Melgaço (Floresta Nacional de Caxiuanã), 01°44'18.02"S 51°27'48.01"W, 1 female (MPEG 24330); 1 female (MPEG 24332); 1 female (MPEG 24331); 01°44'15.5"S 51°26'42.0"W, 1 female (MPEG 24329); 1 female (MPEG 24328); Novo Progresso (Serra do Cachimbo), 09°16'18.6"S 54°56'22.9"W, 1 female (MPEG 6182); 1 female (MPEG 6363).

Distribution. Previously known from French Guiana and Brazil (Pará: Melgaço). Recorded here also from Novo Progresso, state of Pará, Brazil.



Figures 33-38. Distribution of new records of *Alpaida* species in the Amazon region, North Brazil: (33) *Alpaida antonio*, *A. leucogramma* and *A. veniliae*; (34) *A. bicornuta*, *A. septemmammata* and *A. utiariti*; (35) *A. boa*, *A. erythrothorax* and *A. simla*; (36) *A. deborae*, *A. rossii* and *A. tayos*; (37) *A. guimaraes*, *A. guto* and *A. murтинho*; (38) *A. negro* and *A. urucuca*.

Alpaida guimaraes Levi, 1988

Fig. 37

Alpaida guimaraes Levi, 1988: 390, figs. 19-24 (female holotype

from Chapada dos Guimarães, Mato Grosso, Brazil, 01.XII.1983, deposited in MCN, not examined); Dierkens, 2014: 23.

Material examined. BRAZIL, Pará: Juruti (Área de Várzea), 02°12'36.1"S 56°07'20.7"W, 1 female (MPEG 24317); 1 female

(MPEG 24319); 1 female (MPEG 24318); 1 female (MPEG 24320).

Distribution. Previously known from Guyana and Brazil (Pará: Jacareacanga; Bahia: Uruçuca; Mato Grosso: Xavantina). Recorded here also from Juruti, state of Pará, Brazil.

Alpaida guto Abraham & Bonaldo, 2008

Fig. 37

Alpaida guto Abraham & Bonaldo, 2008: 398, figs. 1-4 (male holotype from Floresta Nacional de Caxiuanã, Melgaço, Pará, Brazil, 09.V.2005, deposited in MPEG 5241, examined); Dierkens, 2014: 14.

Material examined. BRAZIL, Amazonas: Coari (Base de Operações Geólogo Pedro de Moura, Porto Urucu), 04°50'01"S 65°03'53"W, 1 female (MPEG 13776); 04°52'06"S 65°15'52"W, 1 female (MPEG 13736). Pará: Belém (Parque Estadual do Utinga), 01°25'18.8"S 48°25'48.3"W, 1 male and 3 females (MPEG 24203); 1 male (MPEG 24217); 3 females (MPEG 24218); 1 female (MPEG 24210); 1 female (MPEG 24222); 1 male (MPEG 24212); 1 female (MPEG 24202); 1 male and 4 females (MPEG 24204); 2 females (MPEG 24205); 1 male (MPEG 24206); 1 female (MPEG 24207); 1 female (MPEG 24208); 1 male (MPEG 24209); 1 female (MPEG 24211); 1 male (MPEG 24213); 1 female (MPEG 24214); 2 females (MPEG 24215); 1 male (MPEG 24216); 2 males and 5 females (MPEG 24219); 1 female (MPEG 24220); 1 male (MPEG 24221); 1 male and 6 females (MPEG 24223); (Reserva Mocambo), 01°26'48"S 48°25'1"W, 1 female (MPEG 24246); 2 males and 1 female (MPEG 24254); 1 female (MPEG 24245); 1 female (MPEG 24253); 1 male and 1 female (MPEG 24259); 1 female (MPEG 24255); 3 females (MPEG 24264); 1 female (MPEG 24252); 1 male (MPEG 24239); 1 female (MPEG 24251); 2 females (MPEG 24238); 1 male and 3 females (MPEG 24260); 1 male and 1 female (MPEG 24249); 1 male and 1 female (MPEG 24256); 3 males (MPEG 24240); 1 male (MPEG 24247); 1 male (MPEG 24248); 1 female (MPEG 24261); 1 male and 1 female (MPEG 24241); 2 males (MPEG 24242); 1 male and 1 female (MPEG 24243); 1 female (MPEG 24244); 1 male (MPEG 24250); 1 female (MPEG 24258); 1 female (MPEG 24262); 1 male and 1 female (MPEG 24257); 1 male (MPEG 24263); Cametá (Curuçambaba, Área de Floresta), 02°06'27.2"S 49°18'33.1"W, 4 females (MPEG 24586); 2 males (MPEG 24590); 1 male (MPEG 24588); 2 females (MPEG 24582); 1 male and 1 female (MPEG 24587); 1 male (MPEG 24589); 02°07'27.6"S 49°18'52.7"W, 2 females (MPEG 24585); 1 female (MPEG 24584); 1 female (MPEG 24583); Moju (Campo experimental da Embrapa), 02°09'38.9"S 48°47'50.64"W, 1 male (MPEG 24234); 02°10'41.52"S 48°47'37.13"W, 1 male (MPEG 24232); 02°11'44.37"S 48°47'38.79"W, 1 male (MPEG 24235); Tailândia (Fazenda Marupira), 02°47'44.9"S 48°32'39.2"W, 1 male (MPEG 24230); 1 male (MPEG 24233); 02°48'43.7"S 48°30'44"W, 1 male (MPEG 24237); 1 male (MPEG 24231); 1 male (MPEG 24236). Maranhão: Centro Novo do Maranhão (Reserva Biológica do Gurupi), 03°41'21"S 46°45'16.5"W, 1 female (MPEG 24227); 2 males (MPEG 24228); 1 male (MPEG 24229); 03°41'33.84"S 46°44'46.62"W, 1 female

(MPEG 24226); 03°41'47.22"S 46°44'17.4"W, 1 male (MPEG 24224); 1 female (MPEG 24225).

Distribution. Previously known from Brazil (Pará: Melgaço and Santa Bárbara). Recorded here also from Coari, state of Amazonas; Belém, Moju and Tailândia, state of Pará; and Centro Novo do Maranhão, state of Maranhão, Brazil.

Alpaida leucogramma (White, 1841)

Fig. 33

Epeira (*Singa*) *leucogramma* White, 1841: 474 (female holotype from Rio de Janeiro, Brazil, deposited in BMNH, not examined).

Alpaida leucogramma: Levi, 1988: 391, figs. 32-38; Dierkens, 2014: 17, figs. 10, 31.

Material examined. BRAZIL, Pará: Novo Progresso, 07°08'07"S 55°24'51"W, 1 male (MPEG 4478).

Distribution. Previously known from Panama to Argentina. Recorded here also from Novo Progresso, state of Pará, Brazil.

Alpaida murtinho Levi, 1988

Fig. 37

Alpaida murtinho Levi, 1988: 399, figs. 84-85 (male holotype from Vila Murtinho, Rondônia, Brazil, 03.IV.1922, ex MCZ, deposited in Museu de Zoologia da Universidade de São Paulo (MZSP), not examined).

Material examined. BRAZIL, Pará: Juruti (Beneficiamento), 02°30'08.8"S 56°09'48.87"W, 12 males (MPEG 24314).

Distribution. Previously known from Brazil (Rondônia). Recorded here also from Juruti, state of Pará, Brazil.

Alpaida negro Levi, 1988

Fig. 38

Alpaida negro Levi, 1988: 448, figs. 410-414 (female holotype from Rio Negro, Paraná, Brazil, deposited in MZSP, not examined).

Material Examined. BRAZIL, Pará: Belém (Icoaraci), 01°17'59.5" S 48°28'42.1"W, 1 male (MPEG 3348); Juruti (Barroso), 02°27'51.4"S 56°00'08.6"W, 1 female (MPEG 24485); (Capiranga), 02°28'22.1"S 56°12'29.4"W, 1 female (MPEG 24484).

Distribution. Previously known from Brazil (Mato Grosso and Paraná). Recorded here also from Belém and Juruti, state of Pará, Brazil.

Alpaida rossi Levi, 1988

Fig. 36

Alpaida rossi Levi, 1988: 447, figs. 404-407 (female holotype from Monzón Valley, Tingo María, Dpto. Huánuco, Peru, 10.XI.1954, deposited in California Academy of Sciences (CAS), not examined).

Material examined. BRAZIL, Pará: Juruti (Mutum), 02°33'18.0"S 56°13'22.4"W, 1 female (MPEG 24315); 02°33'13.8"S 56°13'22.1"W, 1 female (MPEG 24316).

Distribution. Previously known from Peru. Recorded here also from Juruti, state of Pará, Brazil.

Alpaida septemmammata (O. Pickard-Cambridge, 1889)

Fig. 34

Epeira septemmammata O. Pickard-Cambridge, 1889: 42, pl. 7, fig. 6 (fifteen females specimens from Teapa, Mexico, deposited in BMNH, type not located, both material not examined); Keyserling, 1892: 89. Pl. 4, fig. 67.

Alpaida septemmammata: Levi, 1988: 452, figs. 427-434; Dierkens, 2014: 21, figs. 15, 32.

Material examined. BRAZIL, Pará: Melgaço (Floresta Nacional de Caxiuanã, Estação Científica Ferreira Penna), 01°43'21.6"S 51°25'51.2"W, 1 male (MPEG 24482); 1 male (MPEG 24483).

Distribution. Previously known from Mexico to Argentina. Recorded here also from Melgaço, state of Pará, Brazil.

Alpaida simla Levi, 1988

Fig. 35

Alpaida simla Levi, 1988: 430, figs. 289-293 (female holotype, male and 6 immature paratypes from Simla, Trinidad, Lesser Antilles, IV.1964, deposited in MCZ, not examined); Bonaldo et al., 2009; Cafofo et al., 2013.

Material examined. BRAZIL, Pará: Belém (Reserva Mocambo), 01°26'48"S 48°25'1"W, 1 male (MPEG 24289); 1 male (MPEG 24290); Portel (Floresta Nacional de Caxiuanã, Plote PPBio), 01°57'38.9"S 51°36'45.3"W, 1 female (MPEG 13399); Tailândia (Fazenda Marupiara), 02°47'44.9"S 48°32'39.2"W, 1 female (MPEG 24288); Juruti (Capiranga), 02°28'0.6"S 56°12'42.2"W, 1 female (MPEG 24282); 02°28'22.1"S 56°12'29.4"W, 2 males (MPEG 8141); 1 female (MPEG 8188); 2 males (MPEG 8162); 1 male (MPEG 24265); 1 male (MPEG 24283); 1 female (MPEG 24286); (Barroso), 02°27'41.7"S 56°00'11.6"W, 1 male (MPEG 8148); 1 male (MPEG 8153); 1 male (MPEG 8180); 1 male (MPEG 8192); (Beneficiamento), 02°30'08.8"S 56°09'48.87"W, 2 females (MPEG 24270); 02°30'27.4"S 56°10'39.5"W, 1 female (MPEG 24275); (Mutum), 02°33'04.8"S 56°13'32.5"W, 1 female (MPEG 24267); 1 female (MPEG 24271); 1 female (MPEG 24276); 1 female (MPEG 24284); 1 male (MPEG 24280); 02°33'06.9"S 56°13'29.0"W, 1 male (MPEG 24277); 1 female (MPEG 24266); 1 male (MPEG 24269); 1 male (MPEG 24268); 1 male (MPEG 24272); 02°33'13.8"S 56°13'22.1"W, 1 male (MPEG 24285); 1 male (MPEG 24273); 02°33'18.0"S 56°13'22.4"W, 1 female (MPEG 24278); 1 female (MPEG 24281); 1 female (MPEG 24274); 02°36'44.7"S 56°11'39.2"W, 1 female (MPEG 24279); Marabá (Serra Norte), 06°4'22.10"S 50°14' 47.27"W, 2 males (MPEG 4196). Maranhão: Centro Novo do Maranhão (Reserva Biológica do Gurupi), 03°41'07.92"S 46°45' 46"W, 1 female (MPEG 24287). Mato Grosso: Sinop, 11°51'38.73"S 55°30'34.85"W, 1 male (MPEG 3350).

Distribution. Previously known from Trinidad & Tobago and Brazil (Pará: Melgaço and Portel). Recorded here also from Belém, Tailândia, Juruti and Marabá, Pará; Centro Novo do Maranhão, state of Maranhão; and Sinop, state of Mato Grosso, Brazil.

Alpaida tayos Levi, 1988

Fig. 36

Alpaida tayos Levi, 1988: 456, figs. 458-467 (female holotype from Los Tayos-Santiago, banana plantation, 03°04'S, 78°02'W, Prov. Morona-Santiago, Ecuador, 03.VIII.1976, deposited in MCZ, not examined).

Material examined. BRAZIL, Pará: Juruti (Capiranga), 02°28'0.6"S 56°12'42.2"W, 1 female (MPEG 24158); 02°28'22.1"S 56°12'29.4"W, 1 male (MPEG 24142); (Barroso), 02°27'51.4"S 56°00'08.6"W, 1 female (MPEG 24145); 1 male (MPEG 24161); 1 male (MPEG 24139); (Beneficiamento), 02°30'25.4"S 56°11' 04.8"W, 1 male (MPEG 24140); 02°30'27.4"S 56°10'39.5"W 1 male (MPEG 24136); 1 female (MPEG 24132); (Mutum), 02°33'06.9"S 56°13'29.0"W, 1 female (MPEG 24133); 1 female (MPEG 24147); 1 male (MPEG 24134); 1 female (MPEG 24137); 1 female (MPEG 24148); 1 female (MPEG 24135); 1 male (MPEG 24150); 1 female (MPEG 24146); 02°33'13.8"S 56°13'22.1"W, 1 female (MPEG 24159); 1 male and 2 females (MPEG 24141); 02°33'18.0"S 56°13'22.4"W, 1 female (MPEG 24156); 02°36'11.2"S 56°12' 36.3"W, 1 male (MPEG 24155); 02°36'44.7"S 56°11'39.2"W, 1 female (MPEG 9204); 1 female (MPEG 9134); 1 male (MPEG 163); 1 male (MPEG 24138); 1 female (MPEG 24143); 1 female (MPEG 24149); 1 female (MPEG 24151); 1 male (MPEG 24153); 2 females (MPEG 24152); 1 male (MPEG 24160); 02°36'45.2"S 56°11'27.5"W, 1 male (MPEG 24154); 1 female (MPEG 24157); 02°36'45.7"S 56°11'38.2"W, 1 female (MPEG 24144); Marabá (Serra Norte), 05°57'48.56"S 50°24'1.7"W, 1 male (MPEG 4234); Novo Progresso, 07°09'53"S 55°18'53"W, 1 female (MPEG 4499); (Serra do Cachimbo), 09°21'59"S 55°02'01"W, 1 male (MPEG 6169). Maranhão: Centro Novo do Maranhão (Reserva Biológica do Gurupi), 03°41'07.92"S 46°45'46.08"W, 1 male (MPEG 24131).

Distribution. Guyana, Ecuador, Peru, French Guiana and Brazil (Pará: Ananindeua and Canindé [Paragominas]). Recorded here also from Juruti, Marabá, Novo Progresso, state of Pará; and Centro Novo do Maranhão, state of Maranhão, Brazil.

Alpaida urucuca Levi, 1988

Fig. 38

Alpaida urucuca Levi, 1988: 454, figs. 440-445 (female holotype from Fazenda Antonio, Uruçuca, Bahia, Brazil, 24.X.1979, deposited in MCN, not examined).

Material examined. BRAZIL, Pará: Melgaço (Floresta Nacional de Caxiuanã), 01°42'24"S 51°27'34.3"W, 1 female (MPEG 24325); 01°43'21.6"S 51°25'51.2"W, 1 female (MPEG 24326); 01°45'12.8"S 51°31'14.7"W, 1 female (MPEG 24323); 1 female (MPEG 24324); 01°46'36.00"S 51°35'12.21"W, 1 female (MPEG 24322); Moju (Campo experimental da Embrapa), 02°11'44.37"S 48°47' 38.79"W, 1 female (MPEG 24327); Santarém (Alter-do-Chão), 02°26'33.18"S 54°43'8.70"W, 1 female (MPEG 16153); 1 female (MPEG 16154); 1 female (MPEG 16151); 02°32'59.02"S 54°54'05.20"W, 1 female (MPEG 16152); 1 female (MPEG 16408); 1 female (MPEG 16150); Altamira (Castelo dos Sonhos),

08°13'03"S 55°00'57"W, 1 female (MPEG 4488); Novo Progresso (Serra do Cachimbo), 09°16'18.6"S 54°56'22.9"W, 1 female (MPEG 6125); 09°22'02.9"S 55°01' 11.9"W, 1 female (MPEG 6086).

Distribution. Previously known from Brazil (Pará: Melgaço; Bahia: Uruçuca). Recorded here also from Moju, Santarém, Altamira and Novo Progresso, state of Pará, Brazil.

Alpaida utiariti Levi, 1988

Fig. 34

Alpaida utiariti Levi, 1988: 466, figs. 523-524 (male holotype from Utiariti, Mato Grosso, Brazil, 30.VII.1961, deposited in MZSP, not examined).

Material examined. BRAZIL, Pará: Belém (MPEG, Campus de Pesquisa), 01°27'03.0"S 48°26'40.2"W, 1 male (MPEG 22467); 1 male (MPEG 24521); Benevides, [01°21'43.87"S 48°14'37.79"W], 1 male (MPEG 4665).

Distribution. Previously known from Brazil (Mato Grosso: Utiariti). Recorded here also from Benevides, state of Pará, Brazil.

Alpaida veniliae Levi, 1988

Fig. 33

Epeira veniliae Keyserling, 1865: 817, pl. 19, fig. 23 (seven females and one male syntypes from New Granada, deposited in BMNH, not examined); Keyserling, 1893: 256, pl. 13, fig. 191.

Epeira pantherina Taczanowski, 1872: 132. Male lectotype designated by LEVI (1988) from Uaçá, Amapá, Brazil (PAN), not examined. Synonymized by LEVI (1988).

Alpaida veniliae: Levi, 1988: 402, figs. 103-109; Dierkens, 2014: 22, figs. 21, 22, 35, 48.

Material examined. BRAZIL, Amapá: Oiapoque, 03°4'25.63"S 51°51'8.18"W, 2 males and 5 females (MPEG 5000). Pará: Juruti (Área de Várzea), 02°12'36.1"S 56°07'20.7"W, 1 male and 1 female (MPEG 24308); 1 female (MPEG 24297); 1 male (MPEG 24305) 1 female (MPEG 24309); 1 female (MPEG 24301); 1 female (MPEG 24311); 2 females (MPEG 24299); 2 males (MPEG 24304); 1 male (MPEG 24303); 1 female (MPEG 24312); 02°24'33.2"S 56°26'10.6"W, 3 females (MPEG 24291); 2 males and 1 female (MPEG 24293); 4 females (MPEG 24294); 2 females (MPEG 24295); 2 females (MPEG 24298); 1 male and 1 female (MPEG 24302); 1 female (MPEG 24306); 1 female (MPEG 24307); 2 females (MPEG 24310); 6 males and 11 females (MPEG 24292); 3 males and 4 females (MPEG 24296).

Distribution. Previously known from Panama to Argentina. Recorded here also from Oiapoque, state of Amapá; and Juruti, state of Pará, Brazil.

DISCUSSION

Alpaida levii new species shares somatic and genitalic characters with *A. delicata*: abdomen hump-shaped, cymbium prolaterally expanded and strong spines on tibiae I and II, sug-

gesting that *A. levii* and *A. delicata* may be sister species. Due to these similarities, records of *A. delicata* in the faunistic literature may not be accurate, as observed for at least some of the specimens of *A. levii* examined by us, which were previously determined as *A. delicata*.

LEVI (1988) compared *A. delicata* with *A. truncata* for diagnostic purposes, based on the hump-shaped abdomen, which is shared by both species. However, considering the new information provided here, we propose a new diagnosis for *A. delicata*, which we compare with *A. levii*. The median apophysis of *A. truncata* is extremely long, with a distally pointed tip (Fig. 16), more similar to that of by *A. queremal* Levi, 1988, while the median apophysis of *A. delicata* is short, medially excavated and quadrangular, similar to *A. levii*. *Alpaida delicata* and *A. levii* also share strong spines on tibiae I and II. The terminal apophysis of *Alpaida* species can present a distal lobe, a basal prong and a retrolateral apical sector, recognized here for the first time. The retrolateral apical sector can be very developed in some species, such as *A. delicata* (A, Fig. 12) and *A. levii* (A, Figs. 3-5) or reduced, as in *A. truncata* (A, Fig. 17). The distal lobe and the basal prong of the terminal apophysis are absent in some *Alpaida* species and the distribution of those characters may be important in a phylogenetic context.

Due to the high complexity of the palps of *Alpaida*, especially with regards to the terminal apophysis, and giving LEVI's (1988) choice to document the palps only in mesal view, it is difficult to identify all sclerites of all species and the identification of some species may be uncertain, especially when there is intra-specific variation. For this reason we document the expanded palp and details of some sclerites for the new species and for the males of *A. iquitos* and *A. truncata*. This refined information will facilitate the recognition of these taxa and an eventual phylogenetic analysis to clarify the relationship among species of *Alpaida*.

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