

A new endemic genus of tarantula
(Theraphosidae, Ischnocolinae)
from southern Peru

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COUVERTURE / *COVER*:

Holotype male of *Allpamayu suyuwixsa* n. gen., n. sp. (MUBI 121) from Maska, Peru. Photo credit: Josh Allen.

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A new endemic genus of tarantula (Theraphosidae, Ischnocolinae) from southern Peru

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ABSTRACT

We propose establishing a new genus of mygalomorph spiders in the family Theraphosidae Thorell, 1869, from the Province Calca, Department of Cusco, Peru. The monotypic genus *Allpamayu* n. gen. with its type species *Allpamayu suyuwixsa* n. gen, n. sp. is described. *Allpamayu* n. gen. differs from the known Ischnocolinae Simon, 1892 by the following unique combination of characters: abdomen with stripes, labium with a low number of cuspules, and clavate trichobothria on tarsi forming two parallel rows along half of tarsus length. Additional characters are palpal bulb of males with two keels, metatarsal ventral tumescence on the first pair of legs, cymbium with long erected setae, spermathecae of females with large subquadrate receptacles and a short wide duct oriented laterally and pointing upwards carrying two to three rounded lobes.

KEY WORDS

Neotropical,
South America,
Cusco,
high elevation,
new genus,
new species.

RÉSUMÉ

Un nouveau genre de tarentule (Theraphosidae, Ischnocolinae) endémique du sud du Pérou.

Nous proposons la création d'un nouveau genre d'araignées mygalomorphes au sein de la famille des Theraphosidae Thorell, 1869, provenant de la province de Calca, dans le département de Cusco, au Pérou. Nous décrivons le genre monotypique *Allpamayu* n. gen. et son espèce type *Allpamayu suyuwixsa* n. gen., n. sp. *Allpamayu* n. gen. se distingue des Ischnocolinae Simon, 1892 connues par la combinaison originale de caractères suivante : abdomen strié, labium présentant un faible nombre de cuspules et trichobothries claviformes sur les tarsi, formant deux rangées parallèles sur la moitié de la longueur du tarse. De plus, le bulbe palpal des mâles présente deux carènes, une tumescence ventrale métatarsienne existe sur la première paire de pattes, le cymbium est muni de longues soies dressées, et les spermatheques des femelles comportent de grands réceptacles subquadrangulaires et un canal court et large, orienté latéralement et pointant vers le haut, portant deux à trois lobes arrondis.

MOTS CLÉS
Néotropique,
Amérique du Sud,
Cusco,
haute altitude,
nouveau genre,
nouvelle espèce.

INTRODUCTION

The family Theraphosidae Thorell, 1869 is the most speciose group of mygalomorph spiders comprising 1132 species and 172 genera (World Spider Catalog 2025), including the largest tarantulas of the world. Ischnocolinae Simon, 1892 is considered one of the most controversial subfamilies among Theraphosidae because of its problematic taxonomy (Guadanucci 2004; 2007; 2014; 2020). Raven (1985) was the first to demonstrate a paraphyletic condition of this subfamily based on a cladistic analysis of morphological data. Guadanucci (2014) performed a cladistic analysis with an extensive representation not only from Ischnocolinae but also from all Theraphosidae subfamilies. He found that New World Ischnocolinae comprises a non-monophyletic group and established the new subfamily Schismatothelinae. In addition, the author proposed a new terminology for smaller groups: Ischnocolinae “*sensu stricto*”, including the Neotropical genera *Acanthopelma* F.O. Pickard-Cambridge, 1897, *Trichopelma* Simon, 1888, *Reichlinga* Rudloff, 2001 and two *Holothele* Karsch, 1879 species, *H. culebrae* (Petrunkevitch, 1929) and *H. longipes* (L. Koch, 1875) together with the African and Middle East genus *Ischnocolus* Ausserer, 1871; and Ischnocolinae “*sensu lato*” for some unresolved genera, including *Catumiri* Guadanucci, 2004, *Dolichothele* Mello-Leitão, 1923, *Nesiergus* Simon, 1903, *Heterothele* Karsch, 1879, *Chaetopelma* Ausserer, 1871, and *Plesiophrictus* Pocock, 1899 (Guadanucci 2014). Recent phylogenies based on morphology were conducted in order to evaluate the phylogenetic position of the genus *Trichopelma* and *Cyrtogrammomma* Pocock, 1895 (Mori & Bertani 2020; Ríos-Tamayo 2024). Mori & Bertani (2020) recovered Ischnocolinae as paraphyletic and revalidated the subfamily Trichopelmatinae. Moreover, molecular phylogenies also supported a paraphyly of Ischnocolinae (Ortiz *et al.* 2018; Foley *et al.* 2019, 2021).

During the study of theraphosid spiders from Peruvian high-altitude environments housed in the biological collections of Museo de Biodiversidad de Perú (Cusco, Perú), along with specimens collected during a field sampling in October 2023, we identified a species sharing the absence of urticating setae that characterized Ischnocolinae, but differ-

ing remarkably from all known genera of ischnocolinae. The striped abdomen of specimens resembles that of the Schismatothelinae genus *Neoholothele* Guadanucci & Weinmann, 2015 but differs by the shape of the tibial apophysis of males and the spermathecae of females. Unlike most Ischnocolinae, the copulatory bulb of these males has well-developed keels, a feature previously known only from the Caribbean representatives of the genus *Holothele* inside this subfamily. In addition, in this novel taxon, the male palpal bulb has two distinct keels, there is a white transversal line on the tarsus and a ventral metatarsal tumescence in the first pair of legs, features unknown in any other Neotropical Ischnocolinae. Females possess spermathecae with large oval receptacles oriented laterally carrying two to three rounded apical lobes, also different from those of all known Ischnocolinae. Based on this morphological along with phylogenetic evidence, we propose *Allpamayu* n. gen. Here, we illustrate this new genus with the type species *Allpamayu suyuwixsa* n. gen., n. sp. and perform a new cladistics analysis based on morphological characters to unveil its phylogenetic position.

MATERIAL AND METHODS

MORPHOLOGY

Total body length was taken from the dorsal view and does not include the chelicera and spinnerets. Carapace length was measured from the clypeus margin to the posterior margin. Palp and leg segments were measured between the joints in dorsal view: femur, patella, tibia, metatarsus, and tarsus. The female spermatheca was dissected with scissors and then the soft tissues were removed by putting a pill of the enzyme ©Naclens (contact eye lens cleaner) in a 0.5 tube filled with distilled water. The clean spermathecae was stored in small vial containing 70% ethanol. Legs measurements were taken with a digital caliper to the nearest 0.01 mm. Photographs that illustrate this work were obtained using a Leica S APO stereomicroscope with LED3000 SLI spotlight illuminator including two integrated LED spotlights on flexible goosenecks, and a MShot digital coupled camera. Photographs were stacked using the Helicon Focus Software v.7, with the exception of the bulbs

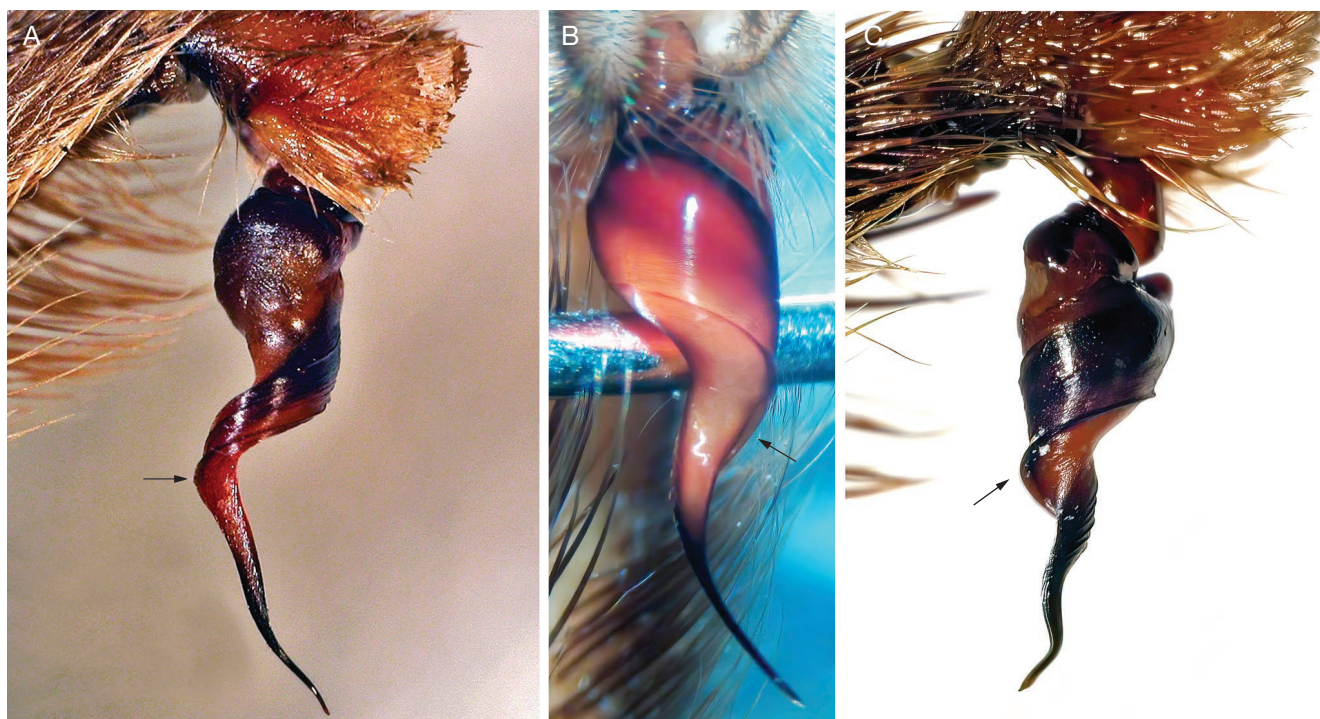


FIG. 1. — Palpal bulb of some Caribbean species of *Holothele* Karsch, 1879: **A**, *Holothele* aff. *shoemakeri* (Petrunkevitch, 1926) from St. John Island, U.S. Virgin Islands; **B**, *Holothele denticulata* (Franganillo, 1930) from Santiago de Cuba province, Cuba; **C**, *Holothele* sp. from Toro Negro State Forest, Central Highlands, Puerto Rico. **Black arrows** indicate the keel on embolus. Photos credits: A, C, Rick West; B, David Ortiz.

from Figure 1, which were kindly provided by colleagues and coauthor. Terminology for descriptions follows Ischnocolinae standards (Guadanucci *et al.* 2017; Galleti-Lima *et al.* 2021; Peñaherrera *et al.* 2023). The distribution map was made using the public domain online tool SimpleMappr (Shorthouse 2010).

ABBREVIATIONS

Institutions

MUBI Museo de Biodiversidad del Perú, Cusco;
MACN-Ar Museo Argentino de Ciencias Naturales “Bernardino Rivadavia” (MACN-Ar), Buenos Aires.

General structures and views

A apical keel;
ALE anterior lateral eyes;
AME anterior median eyes;
ap apical;
d dorsal;
fe femur;
ITC inferior tarsal claw;
me metatarsus;
p prolateral;
pa patella;
PLE posterior lateral eyes;
PLS posterior lateral spinnerets;
PME posterior median eyes;
PMS posterior median spinnerets;
r retrolateral;
ta tarsus;
ti tibia;
v ventral.

All measurements are in millimeters (mm).

CLADISTIC ANALYSIS

Cladistic analysis was based on the matrix constructed for the Ischnocolinae genera presented by Guadanucci (2014) with some modifications. The original matrix was modified to include one new character (63 in total) related to the presence of metatarsal tumescence (white soft area along the entire segment covered by scopulate hairs) on the first pair of legs of males; some genera of African/Asian subfamilies whose relationships were not supported under new molecular phylogenies were removed from the analysis. The data matrix (Supplementary Material 1) included 46 terminal taxa. The new genus under description was scored for the 63 morphological characters. The character matrix was assembled and edited using the computer software Mesquite version 3.61 (Maddison & Maddison 2019). The cladistics analysis was carried out in TNT version 1.5 (Goloboff & Catalano 2016), under maximum parsimony. Parsimony analysis was made using implied weighting and to decide upon appropriate k-values, we followed the proposal by Mirande (2009). Character optimization and tree editing were performed with the computer software Winclada-ASADO 1.61 (Nixon 2004).

CHARACTERS USED FOR THE CLADISTICS ANALYSIS

0. Cymbium lobes: (0) distinct in size from each other (see Guadanucci & Wendt 2014); (1) similar sizes among each other.

1. Subtegulum: (0) strongly fused to tegulum; (1) partially fused to tegulum.

2. Subtegulum width: (0) narrow, restricted to proximal tegulum; (1) wide, extend over tegulum.
3. Embolus insertion: (0) embolus inserted at distal portion of tegulum; (1) embolus inserted at ventral-proximal portion of tegulum.
4. Male palpal bulb: (0) embolus without furrow; (1) embolus with furrow a distal end (see Guadanucci 2007).
5. Prolateral keels: (0) absent; (1) present.
6. Male tibial spur: (0) absent; (1) present, prolateral branch well developed with spine; (2) present, weakly developed, with megaspine; (3) present, composed of spiniform setae; (4) present, prolateral branch well developed and fused with retrolateral branch.
7. Retrolateral branch of male tibial spur: (0) apical end as wide as proximal end; (1) apical end wider than proximal end.
8. Apical row of spines on retrolateral branch of tibial spur: (0) absent; (1) present.
9. Thorns at apical end of male tibia I: (0) absent; (1) present.
10. Small nodule at apical end of male tibia I: (0) absent; (1) present.
11. Ventral-prolateral face of male tibia I: (0) few or no spines; (1) several spines (more than 15).
12. Male palpal tibiae: (0) normal, similar to other leg articles; (1) strongly swollen, more than three times wider than other leg articles.
13. Strong thorns on male palpal tibiae: (0) absent; (1) present.
14. Male palpal tibia ventral furrow: (0) straight or slightly curved; (1) sigmoid and short.
15. Spermathecae: (0) composed of two receptacles; (1) composed of four receptacles, two dorsal and two ventral.
16. Spermathecal receptacles: (0) smooth, without lobes; (1) with lobes.
17. External lateral projection of spermathecal receptacles: (0) absent; (1) present.
18. Spermathecal receptacles cuticle: (0) thin and soft; (1) hard and strongly sclerotized.
19. Intercheliceral intumescence: (0) present; (1) absent.
20. Cheliceral lyra composed of short setae (cheliceral strikers): (0) absent; (1) present.
21. Cheliceral lyra composed of long setae: (0) absent; (1) present.
22. Retrolateral scopula on chelicera: (0) absent; (1) present; (2) present intermixed with well-developed setae.
23. Stridulating apparatus on cheliceral prolateral face: (0) absent; (1) present.
24. Rastelum: (0) absent; (1) present.
25. Anterior maxillary lobe: (0) not produced; (1) conspicuously produced.
26. Maxillary heel: (0) absent; (1) present.
27. Maxilla cuspules quantity: (0) several cuspules (more than 30); (1) few cuspules (fewer than 15).
28. Strikers on maxillae: (0) absent; (1) present.
29. Maxillary lyra: (0) absent; (1) present.
30. Stridulatory apparatus on prolateral maxillae: (0) absent; (1) present.
31. Serrula: (0) present (figs 1 and 2 in Guadanucci, 2011); (1) absent.
32. Labium: (0) wider than long; (1) as wide as long.
33. Cuspules on labium: (0) located on a flat area; (1) located on a raised area.
34. Labium cuspules: (0) without cuspules; (1) few cuspules (fewer than 50); (2) several cuspules (more than 50).
35. Labium cuspules density: (0) weakly dense, spread over the labium; (1) strongly dense, concentrated at the apical portion (approximately 200 cuspules) (see figs 9A, B in Guadanucci 2014).
36. Labiosternal suture: (0) with mounds; (1) mounds absent, conspicuous furrow.
37. Sternal anterior bulge: (0) absent; (1) present.
38. Sternal sigillae: (0) marginal; (1) far from sternal margin.
39. Clypeus: (0) absent or very narrow; (1) conspicuous wide.
40. Eye tubercle: (0) wider than long; (1) as wide as long (anterior lateral eyes anteriorly dislodged).
41. Lateral row of teeth on tarsal claws: (0) double row (bipectinated); (1) single lateral row; (2) absent, claws bare.
42. Single median tooth on tarsal claws: (0) absent; (1) present.
43. Single median row of teeth on tarsal claws: (0) absent or weakly developed; (1) present, composed of strong teeth.
44. Third tarsal claw: (0) absent; (1) present.
45. Leg spines: (0) several spines, mainly on tibiae and metatarsi; (1) few spines, concentrated at apical tibiae and metatarsi; (2) spines absent.
46. Tarsal spines: (0) absent; (1) present.
47. Tarsal pseudosegmentation (tarsi cracked): (0) absent; (1) present on all legs.
48. Retrolateral scopula on femur IV: (0) absent; (1) present.
49. Tarsal and metatarsal scopula laterally projected: (0) absent; (1) present.
50. Tarsal scopula I: (0) divided; (1) not divided with longitudinal band of setae; (2) not divided.
51. Tarsal scopula IV: (0) divided; (1) not divided with longitudinal band of setae; (2) not divided.
52. Tarsal trichobothria: (0) filiform only; (1) filiform and clavate intermixed.
53. Tarsal clavate trichobothria size: (0) very small; (1) large.
54. Tarsal trichobothria disposition: (0) completely absent; (1) small compact group; (2) short apical median row; (3) long median row; (4) two rows; (5) U-shaped; (6) wide median row, intermixed with short covering setae.
55. Tibial thickened trichobothria: (0) absent; (1) present.
56. Tibial clavate trichobothria: (0) absent; (1) present.
57. Tibial clavate trichobothria disposition: (0) straight row; (1) compact group.
58. Paddle-like setae on coxae I and II: (0) absent; (1) present.
59. Urticating setae type III: (0) absent; (1) present.
60. Posterior lateral spinnerets length: (0) normal, shorter than abdomen length; (1) very long, longer than abdomen length.
61. Apical segment of posterior lateral spinnerets: (0) triangular; (1) domed; very short, hardly visible; (2) digitiform, longer than median article.
62. Ventral tumescence on metatarsi I of male legs: (0) absent; (1) present.

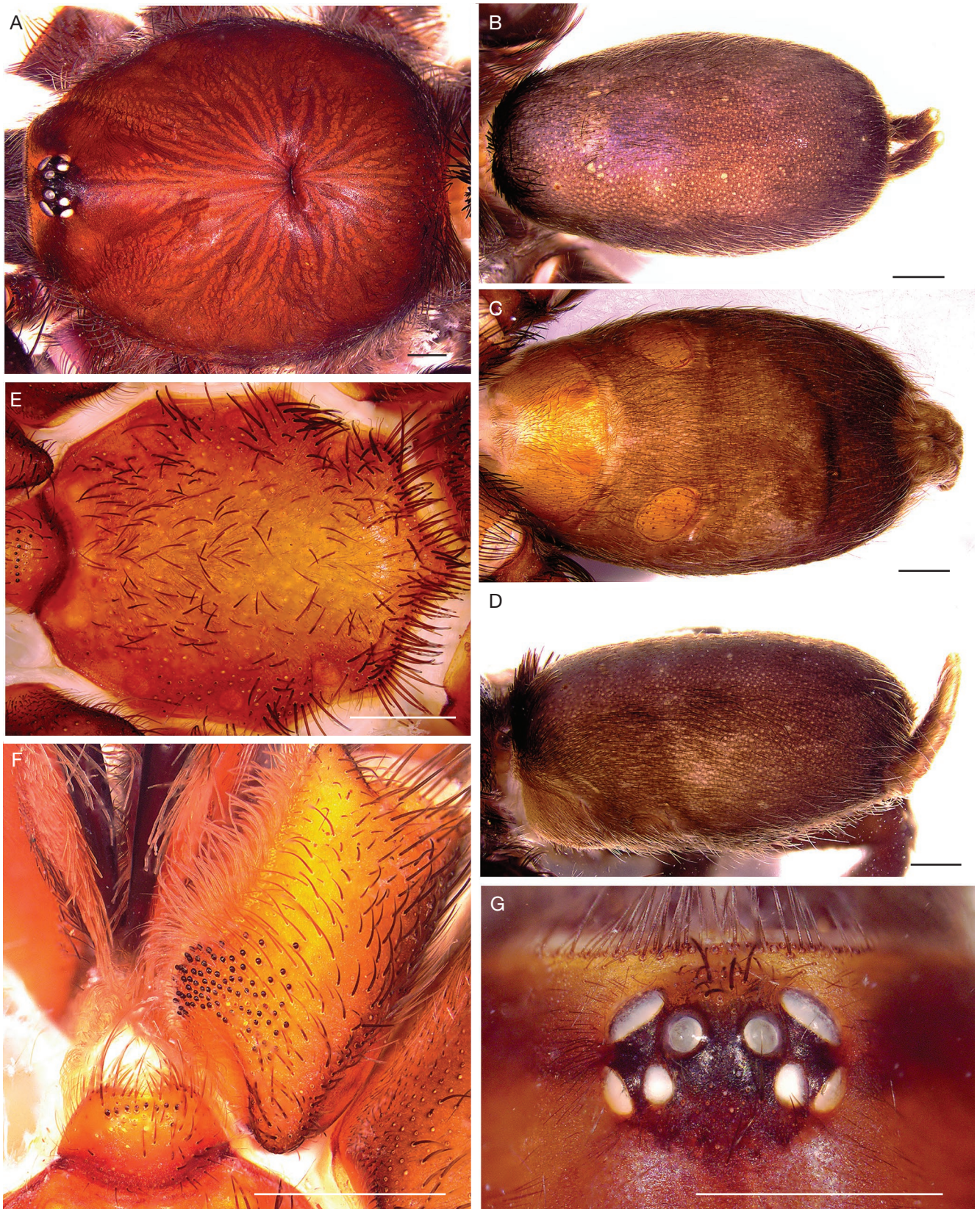


FIG. 2. — *Allpamayu suyuwixsa* n. gen, n. sp. holotype male (MUBI 121): **A**, carapace, dorsal view; **B**, abdomen, dorsal view; **C**, abdomen, ventral view; **D**, abdomen, lateral view; **E**, sternum, ventral view; **F**, labium and maxillae, ventral view; **G**, eyes, dorsal view. Scale bars: 1 mm. Photos credit: Nelson Ferretti.

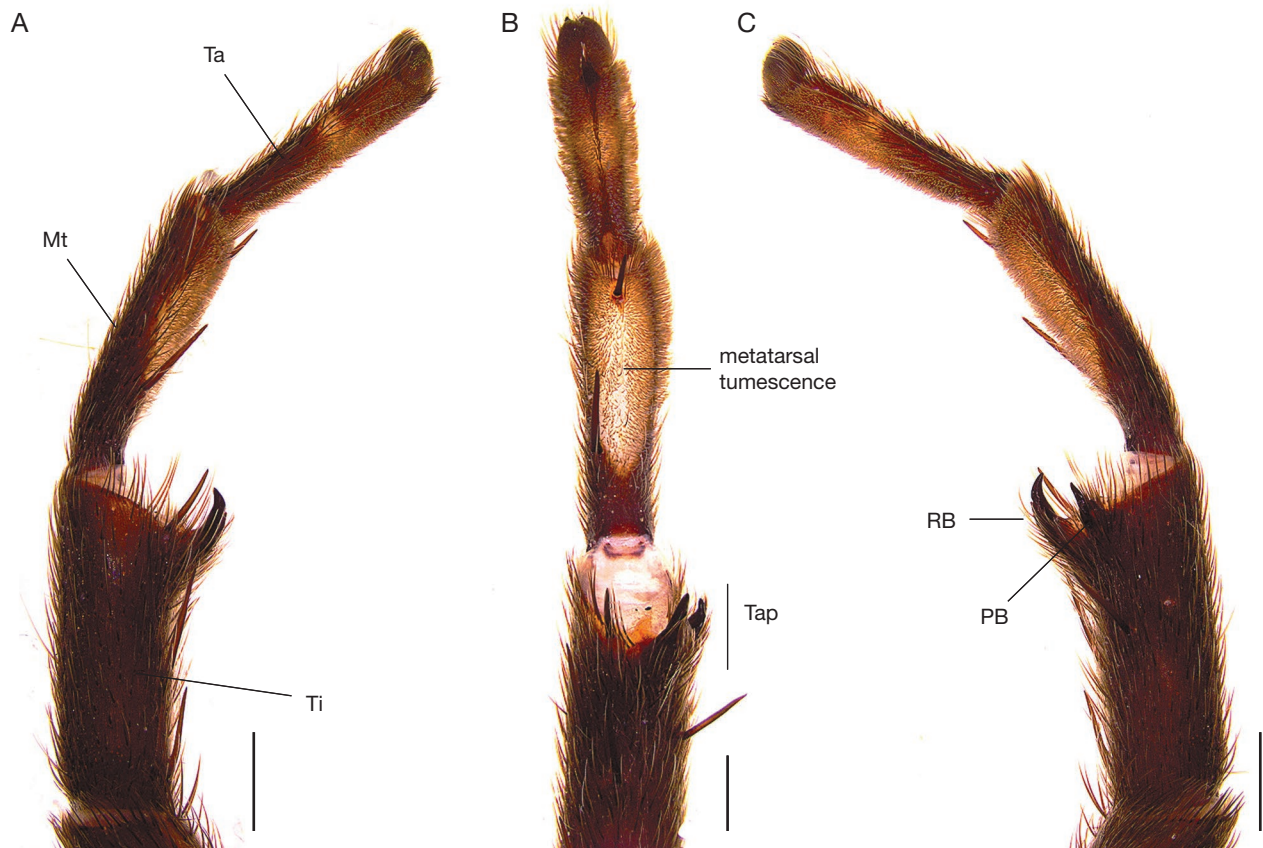


FIG. 3. — *Allpamayu suyuwixsa* n. gen. n. sp. Holotype male (MUBI 121), right leg I: **A**, retrolateral view; **B**, ventral view; **C**, prolateral view. Abbreviations: **Mt**, metatarsus; **PB**, prolateral branch; **RB**, retrolateral branch; **Ta**, tarsus; **Tap**, tibial apophysis; **Ti**, tibia. Scale bars: 1 mm. Photos credits: Nelson Ferretti.

SYSTEMATICS

Class ARACHNIDA Cuvier, 1812
 Order ARANEAE Clerck, 1757
 Family THERAPHOSIDAE Thorell, 1869
 Subfamily ISCHNOCOLINAE Simon, 1892

Allpamayu n. gen.
 (Figs 2-7)

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TYPE SPECIES. — *Allpamayu suyuwixsa* n. sp.

ETYMOLOGY. — The generic epithet works as a noun in apposition referring to the Alpamayo mountain at 5947 m. a.s.l., known as the world's most beautiful mountain because of the symmetry of its lines or canals on one surface, which resemble the stripes on the dorsal abdomen of the species described. "Allpamayu" is the name in Quechua for Alpamayo mountain (Academia Mayor de la Lengua Quechua 2005).

DIAGNOSIS. — *Allpamayu* n. gen. differs from the remaining Ischnocolinae by the following unique combination of characters: presence of a striped abdomen (Figs 5B, C; 7D), a low number of labial cuspules (ranging from 20-22) (Figs 2F; 5F) and clavate trichobothria on tarsi forming two parallel rows along half of tarsus length (Fig. 6C). Males of *Allpamayu* n. gen. differ from those of all known

Ischnocolinae by the unique combination of two keels on the palpal bulb (Figs 4A-D), erected long and strong setae on apical cymbium (Fig. 4E-F), a transverse white line on tarsi of all legs (Fig. 3A) and the presence of metatarsal ventral tumescence on the first pairs of legs (Fig. 3B). The general structure of the palpal bulb resembles that of *Holothele* (mainly the Caribbean species) due to its elongated tegulum, twisted, long and sinuous embolus and the presence of a keel (Fig. 1). However, *Allpamayu* n. gen. is clearly distinct in having two keels along the embolus (Fig. 4A; D) with a low crest between them in conjunction with a low number of labial cuspules (around 100 in *Holothele* spp., about 20 in *Allpamayu suyuwixsa* n. gen. n. sp.). Females are easily distinguished from all known Ischnocolinae genera by the combination of clavate trichobothria on the tarsi forming two parallel rows along half the tarsus length (Fig. 6C), tarsus IV without pseudosegmentation (Fig. 6A, B) and spermathecae with basal large subquadrate receptacles and a short wide duct oriented laterally and pointing upwards carrying two to three rounded lobes (Fig. 5H).

AFFINITIES. — *Allpamayu* n. gen. resembles *Holothele* in the general aspect of the palpal bulb and tibial apophysis of males, but differs by the stripes on the abdomen along with a low number of labial cuspules and metatarsal tumescence on the first pair of legs. The genus *Holothele* includes two morphological distinct groups: first, *Holothele longipes* with a wide distribution in South America, from which *Allpamayu* n. gen. males and females can be distinguished by the presence of stripes on the abdomen, males having keels in the palpal bulb and females differing in the shape of the spermathecae; and second the species of *Holothele* from the Caribbean Islands [*H. culebrae* (Petrunkevitch, 1929),

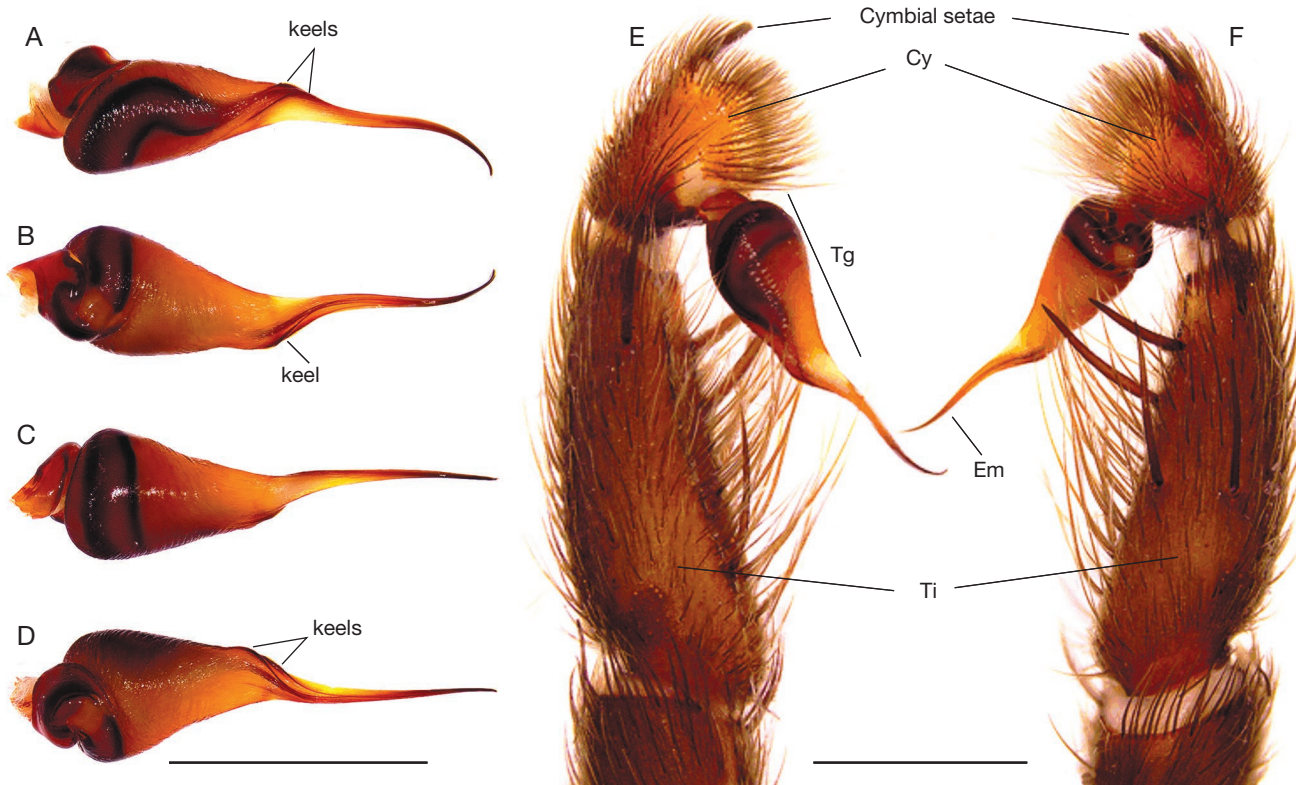


FIG. 4. — *Allpamayu suyuwixsa* n. gen., n. sp. holotype male (MUBI 121), palpal tibia and bulb: **A**, bulb, prolateral view; **B**, bulb, retrolateral view; **C**, bulb, ventral view; **D**, bulb, dorsal view; **E**, palpal tibia, retrolateral view; **F**, palpal tibia, prolateral view. Abbreviations: **Cy**, cymbium; **Em**, embolus; **Ti**, tibia; **Tg**, tegulum. Scale bars: 1 mm. Photos credits: Nelson Ferretti.

H. denticulate (Franganillo, 1930), *H. shoemakeri* (Petrunkevitch, 1926) and *H. sulfurensis* Maréchal, 2005], from which males can be distinguished by the presence of two keels on the palpal bulb instead of one well-developed keel along the embolus length and metatarsal tumescence on the first pair of legs, females differing by the shape of the spermathecae and both can be distinguished by the stripped abdomen. *Allpamayu* n. gen. resembles *Catumiri* in the low number of cuspules but differs by the clavate trichobothria on tarsi forming two parallel rows along half of tarsus length and the genitalic characters such as the palpal bulb of males and the spermathecae of females. Females also resemble *Dolichothele* in the low number of labial cuspules and clavate trichobothria in two parallel rows but differ by the anterior tarsal scopulae divided and presence of stripes on the abdomen.

Allpamayu suyuwixsa n. sp.
(Figs 2-8)

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TYPE MATERIAL. — **Holotype.** Peru • 1♂; Cusco department, Calca province, Maska; 13°24'14.07"S, 71°50'2.37"W; 3260 m a.s.l.; 22.IV.2021; Allen J. leg.; MUBI 121.

Paratypes. Peru • 1♀; Cusco department, Acomayo province, Yananpampa, Laguna Pomacanchi; 13°59'54.52"S, 71°31'18.19"W; 3757 m a.s.l.; 7.X.2023; Ferretti N., Chaparro J. West R. legs.; MUBI 194 • 3♀; Cusco department, Canchis province, Chuquica-huana; 13°59'20.60"S, 71°29'41.56"W; 3785 m a.s.l.; 7.X.2023; Ferretti N., Chaparro J. West R. legs; MUBI 193 • 1♀; Cusco

department, Yananpampa, Laguna Pomacanchi; 13°59'54.52"S, 71°31'18.19"W; 3757 m. a.s.l.; 7.X.2023; Ferretti N., Chaparro J. West R. legs; MUBI 373.

OTHER MATERIAL EXAMINED. — Peru • 1♂; Cusco department, Chumbivilcas province, Velille; 14°34'1"S, 71°55'16"W; 3787 m a.s.l.; 30.VIII.2023; Ccahuana R., Pumacachua Z. legs; MUBI 160 • 1♂, 3♀; Cusco department, Inca trail to Machu picchu, near Way-ruro river; 3500 m a.s.l.; 15.I.1983; Roig A. leg.; MACN-Ar 46343.

ETYMOLOGY. — The specific epithet is taken from the Central Quechua language, 'suyu' meaning 'striped' and 'wixsa' meaning 'abdomen' or 'belly' (Parker & Ibañez 1964).

DESCRIPTION

Male holotype (MUBI 121)

Total length 14.35. Carapace length 7.34, width 6.01. Coloration in live: Carapace and chelicerae black with bronze setae along carapace margins, around striae, and forming a dorsal line above chelicerae (Fig. 7A), legs dark grey with bronze setae on coxa and trochanter (Fig. 7A), abdomen dark grey with bronze mottling on dorsal and long setae in the proximal region, spinnerets dark grey (Fig. 7A). Coloration in alcohol: Carapace reddish-brown (Fig. 2A), darker at striae and around the ocular tubercle (Fig. 2A; G), abdomen dark brown, with short hairs and small white spots (Fig. 2B-D). Clypeus length 0.09. Eye tubercle: length 0.77, width 0.97. Anterior eye row procurved, posterior row slightly recurved. Fovea slightly recurved (Fig. 2A), width

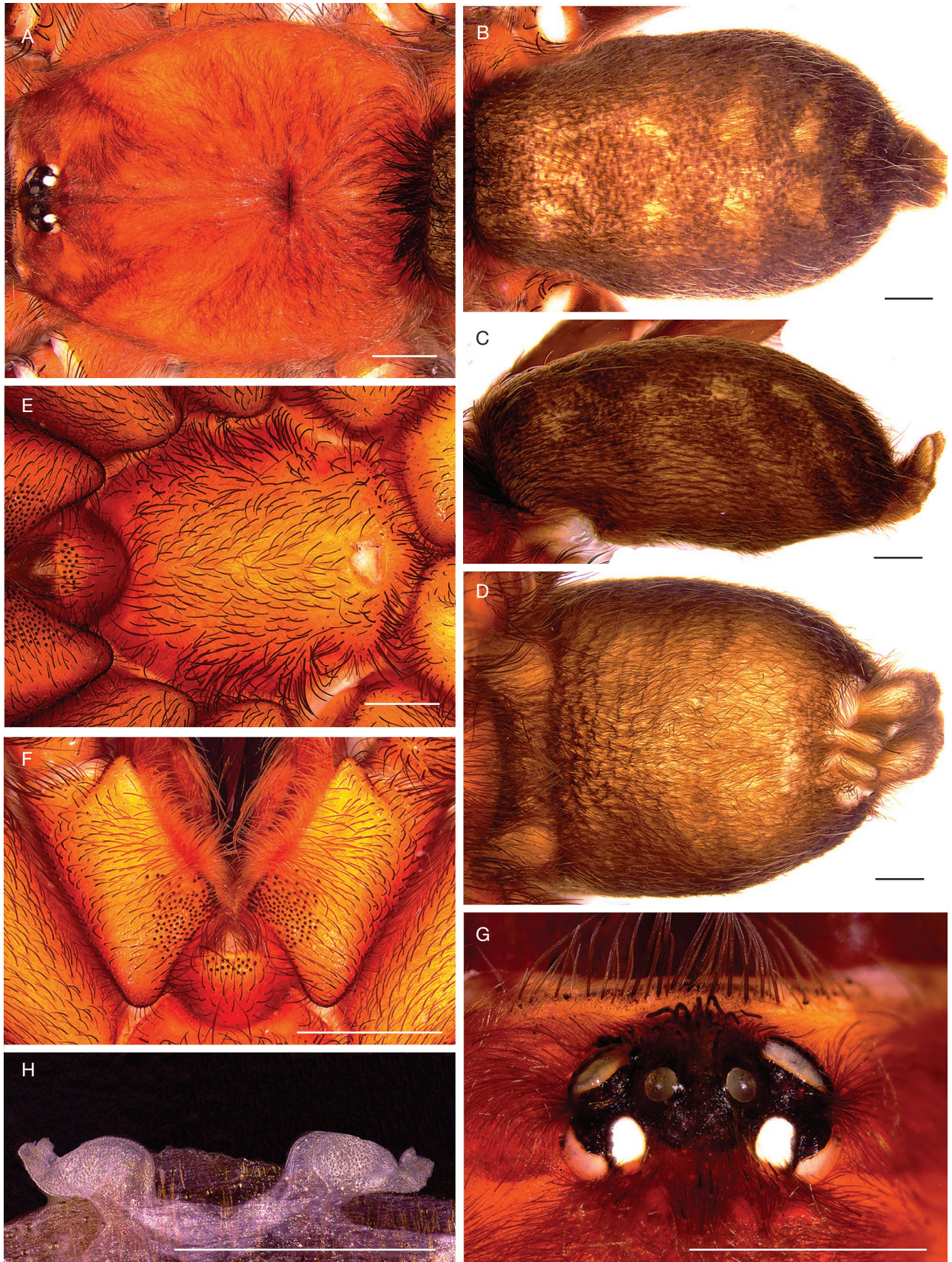


FIG. 5. — *Allpamayu suyuwixsa* n. gen. n. sp. paratype female (MUBI 194): **A**, carapace, dorsal view; **B**, abdomen, dorsal view; **C**, abdomen, lateral view; **D**, abdomen, ventral view; **E**, sternum, ventral view; **F**, labium and maxilla, ventral view; **G**, eyes, dorsal view; **H**, spermathecae, dorsal view. Scale bars: 1 mm. Photos credits: Nelson Ferretti.



FIG. 6. — *Allpamayusuyuwixsa* n. gen, n. sp. paratype female (MUBI 194), right leg IV: **A**, metatarsus and tarsus, prolateral view; **B**, metatarsus and tarsus, retrolateral view; **C**, tarsus, dorsal view. Scale bars: 1 mm. Photos credits: Nelson Ferretti.

0.76. Labium length 0.52, width 1.01. Sternum length 3.20, width 2.76 with three pairs of visible rounded sigillae, about half of diameter separate from sternum margin (Fig. 2E). Cheliceral furrow with nine teeth on prolateral margin and 14 small denticles on the retrolateral margin. Labium with 20 cuspules (Fig. 2F). Maxilla with 92 cuspules on each side (Fig. 2G).

Eye sizes and interdistances: AME 0.14, ALE 0.28, PME 0.15, PLE 0.21, AME–AME 0.17, AME–ALE 0.08, ALE–ALE 0.10, PME–PLE 0.06, PME–PME 0.41, ALE–PLE 0.10, PLE–PLE 0.61.

Leg measurements: palp: femur 2.95 / patella 2.00 / tibia 2.11 / tarsus 1.17 / total 8.23. Legs I: femur 4.80 / patella 3.22 / tibia 3.53 / metatarsus 3.30 / tarsus 2.23 / total 17.08. II: 4.61 / 2.89 / 3.23 / 3.26 / 2.33 / 16.32. III: 4.38 / 2.43 / 2.90 / 4.21 / 2.38 / 16.30. IV: 5.75 / 3.03 / 4.45 / 6.41 / 2.91 / 8.23.

Spines: tarsi without spines. Palp: femur 1-3-1d, patella 0, tibia 1-1-1v, 0-2-2p, 0-0-1r; Legs: I: femur 0, patella 0, tibia 2-3-1v, 0-1-0p, metatarsus 1-0-1v; II: femur 0-0-2p, patella 0, tibia 2-1-3v, 1-1-0p, metatarsus 1-0-1v, 1-0-0p; III: femur 1-1-2p, 1-1-1r, patella 0-1-0p, 0-1-0r, tibia 2-1-3(ap)v, 2-2-0p, 1-2-0r, metatarsus 3-2-3(ap)v, 2-2-2p, 2-1-2r; IV: femur 0-1-1r, 0-2-2d, patella 0-1-0p, 0-1-0r, tibia 3-2-3v, 2-2-0p, 1-2-1r, metatarsus 1-1-3v, 4-4-1p, 3-1-3r, 0-0-2d.

Tibial apophysis composed of two branches, retrolateral branch slightly larger than prolateral branch (Fig. 3A–C). Both branches with a strong spine in the apical region (Fig. 3C). Metatarsi of the first pair of legs with a ventral tumescent area (white area) covered with scopulate hairs (Fig. 3B).

Paired tarsal claws of I, II, III and IV smooth. ITC absent in all legs.

Scopulae on ventral metatarsi: 3/4 of metatarsi I, II and III occupied by scopula, and IV with scopula on 1/2 of metatarsus divided by a longitudinal smooth area. Tarsal scopulae: I, II, III and IV divided by a longitudinal band of setae. Tarsi of all legs with pseudosegmentation (cracked) as a white transversal line (Fig. 3A). Clavate trichobothria on tarsi of all legs forming two parallel rows along half the length of tarsus.

Palpal tibia long and slightly excavated with two long ventral spines (Fig. 4F), cymbium with a small group of apically erect long setae (Fig. 4E, F). Palpal bulb with elongated tegulum and twisted embolus (Fig. 4A–D). Embolus long, curved on its apical half, with two parallel keels at the base of tegulum and extending towards the embolus, and a small crest present between the keels (Fig. 4A).

Abdomen length 8.2, width 5.6. Spinnerets: PMS length 0.63; PLS tri-segmented, basal segment 0.81, median segment 0.49, and apical segment 0.64, digitiform in shape (Fig. 2D).

Female paratype (MUBI 194)

Total length 15.35. Carapace length 7.46, width 6.22. Coloration in life: Carapace light brown with golden reflections, chelicerae black, legs brown with darker femora, abdomen brown with dorsal and lateral stripes barely distinguished (Fig. 7B–D). Coloration in alcohol: Carapace reddish with short black hairs on ocular region (Fig. 5A, G), legs light brown, abdomen light brown with dark stripes more noticeable in lateral sides (Fig. 5B, C). Clypeus length 0.11. Eye tubercle: length 0.60, width 1.11. Anterior eye row slightly procurved, posterior slightly recurved (Fig. 5G). Fovea straight (Fig. 5A), width 0.59. Labium length 0.84, width 1.25. Sternum length 3.33, width 3.08, with three pairs of rounded sigillae, about



Fig. 7. — *Allpamayu suyuwixsa* n. gen, n. sp. male and female, in life habitus: **A**, holotype male (MUBI 121) from Maska, Peru; **B**, adult female in retreat found in Chuquicahuana River, Cusco, Peru; **C**, female carrying an egg sac from Achupampa, Cusco, Peru; **D**, paratype female (MUBI 194), **black arrows** indicate the stripes on the abdomen. Photos credit: A, Josh Allen; B, C, Rick C. West; D, Juan C. Chaparro.

half of diameter separate from sternum margin (Fig. 5E). Cheliceral furrow with 10 teeth on prolateral margin and 24 small denticles on the retrolateral margin. Labium with 22 cuspules (Fig. 5F). Maxilla with 125 cuspules on each side (Fig. 5F).

Eye sizes and interdistances: AME 0.14, ALE 0.30, PME 0.18, PLE 0.24, AME–AME 0.21, AME–ALE 0.12, ALE–ALE 0.11, PME–PLE 0.10, PME–PME 0.47, ALE–PLE 0.14, PLE–PLE 0.65.

Leg measurements: palp: femur 3.26 / patella 1.99 / tibia 2.12 / tarsus 1.91 / total 9.28. Legs I: femur 4.52 / patella 2.79 / tibia 3.27 / metatarsus 2.53 / tarsus 1.83 / total 14.94. II: 4.02 / 2.70 / 2.72 / 2.50 / 1.99 / 13.93. III: 3.36 / 2.34 / 2.57 / 3.43 / 2.07 / 13.77. IV: 4.90 / 2.78 / 4.00 / 4.83 / 2.34 / 18.85.

Spines: tarsi without spines. Palp: femur 0-0-1p, patella 0, tibia 0-2-3(ap)v, 0-0-1(ap)p; Legs: I: femur 0-0-1p, patella 0, tibia 1-1-1(ap)v, 0-1-0p, metatarsus 1-0-1v; II: femur 0-0-1p, patella 0, tibia 1-1-1(ap)v, 0-0-1p, metatarsus 2-0-1(ap)v; III: femur 0-1-2p, 0-0-1r, patella 0-1-0r, tibia 1-1-3(ap)v,

2-2-0p, 1-1-0r, metatarsus 2-2-3v, 1-2-1p, 2-1-2r, 2-0-2d; IV: femur 0-0-1p, patella 0, tibia 1-1-3(ap)v, 2-2-0p, 1-2-0r, metatarsus 2-2-3v, 2-1-2p, 2-1-2r, 2-0-2d.

Paired tarsal claws of STC with teeth: leg I: int 6/0, ext 3/6; II: 6/0, 3/6; III: 6/0, 5/6; IV: 6/0, 5/6. ITC absent from all legs.

Scopulae on ventral metatarsi: metatarsi I and II with complete scopulae, III and IV with scopula on 1/2 of metatarsus divided by a longitudinal smooth area. Tarsal scopulae: I, II, III and IV divided by a longitudinal band of setae. Tarsi of all legs integral (Fig. 6A, B). Clavate trichobothria on tarsi of legs forming two parallel rows along the half of tarsus length (Fig. 6C).

Abdomen length 7.89, width 4.52. Spinnerets: PMS length 0.64; PLS tri-segmented, basal segment length 1.17, median segment 0.63, apical segment 0.82, digitiform in shape (Fig. 5C).

Spermathecae with basal large oval receptacles and a short wide duct oriented laterally carrying two to three rounded lobes (Fig. 5H).



FIG. 8. — Distribution map and habitat of *Allpamayu* n. gen.: **A**, map with the distribution of *Allpamayu* n. gen.; **B**, habitat at type locality in Chuquicahuana River, Cusco, Peru. Photo credit: Rick C. West.

DISTRIBUTION AND NATURAL HISTORY

Allpamayu n. gen. is known from southeastern Peru, specifically in the Cusco department (Fig. 8A). Vegetation at the type locality consists of montane grasses, scattered low shrubs and transplanted pine or eucalyptus trees (Fig. 8B). Specimens in this study were found between 3200–3800 m a.s.l. Female and immature specimens of both sexes construct thin, loosely-webbed burrows, with no distinct entrance, located under angular stones amongst the roots of surrounding plants and grasses (Fig. 7B) in inter Andean valleys. Some females found in October carried a single white detached egg sac, measuring between 7–15 mm in diameter (Fig. 7C). Average annual temperatures in the region of *Allpamayu suyuwixsa* n. gen, n. sp. range from 11–14°C with the rainy season occurring between December to April and a drier cooler season between May and November. Mature males were found in the months of January, April and August. Unlike most theraphosid males that are seasonal breeders, maturing and wandering in search of receptive females for a short period generally at the onset of the rainy season, *Allpamayu suyuwixsa* n. gen, n. sp. males have a more varied mating season which would suggest they are opportunistic breeders, maturing and breeding whenever the conditions of their environment are favorable.

CLADISTIC ANALYSIS

The results of the implied weighting (IW) analyses are shown in Table 1. The strict consensus of IW resulted in a tree with 123 steps (CI = 0.5 and RI = 0.8). The tree shown in Figure 9

TABLE 1. — Results from the phylogenetic analyses using implied weighting.

| Analysis (k-value) | Tree length | Trees | Total fit |
|--------------------|-------------|-------|-----------|
| 1.37 | 109 | 5 | 10.3364 |
| 1.57 | 105 | 5 | 9.7730 |
| 1.82 | 105 | 5 | 9.1412 |
| 2.13 | 105 | 5 | 8.4632 |
| 2.53 | 105 | 5 | 7.7317 |
| 3.07 | 155 | 5 | 6.9368 |
| 3.84 | 105 | 5 | 6.0669 |
| 5.01 | 105 | 5 | 5.1021 |
| 7.04 | 105 | 5 | 4.0214 |
| 11.2 | 105 | 5 | 2.7893 |

represents the result of the implied weighting analyses with $K = 11.2$, which is within the range of k -values that showed the most consistent topology and shortest length. The analysis resulted in the paraphyletic condition of the subfamily “Ischnocolinae” (blue and red rectangles on Fig. 9). The genus *Ischnocolus* Ausserer, 1871 (*Ischnocolinae sensu stricto*) was recovered as sister to the remaining taxa (Fig. 9). The subfamily Schismatothelinae was recovered as monophyletic (Fig. 9). The genus *Holothele* was not recovered as monophyletic in the analysis (Fig. 9). The new genus *Allpamayu* was recovered as the sister genus of a large paraphyletic group formed by the genera *Holothele*, *Reichlingia* (Rudloff, 2001), *Acanthopelma* Pickard-Cambridge, 1897 and a representative of the subfamily Trichopelmatinae, *Trichopelma nitidum* Simon, 1888 (Fig. 9).

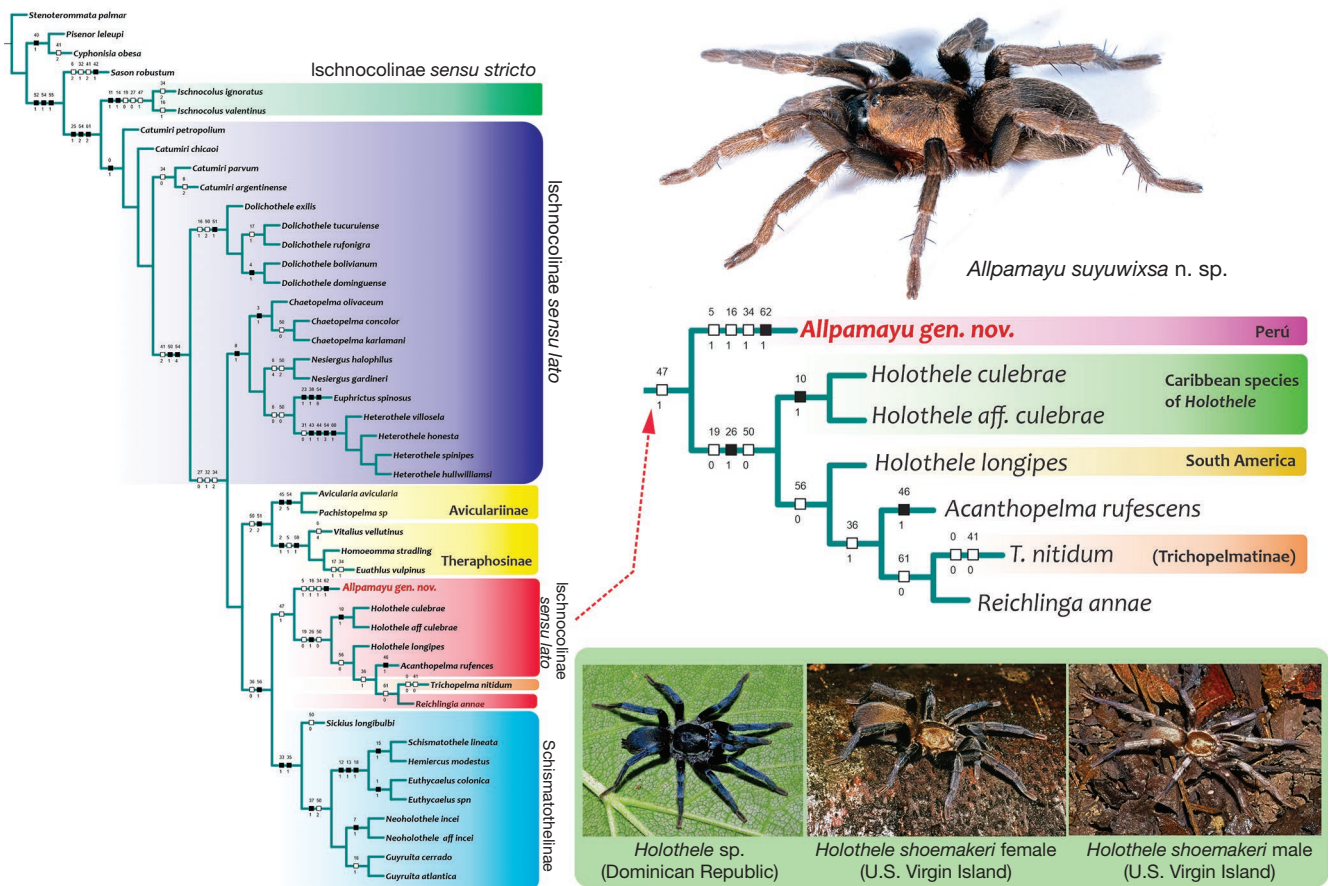


FIG. 9. — Consensus tree resulting from implied weighting under k-value: 20.46: **black squares**, exclusive synapomorphies; **white squares**, homoplasies; number above the circles: characters; number below the circles: states. Photo credit of female of *Allpamayu suyuwixsa* n. gen. n. sp.: Juan C. Chaparro. The **green rectangle** includes photos of live specimens of *Holothele* Karsch, 1879 from the Caribbean region. photos credit: Rick C. West.

DISCUSSION

According to Guadanucci (2020), the New World Ischnocolinae can only be recognized by exclusion, as they lack the synapomorphic characters of Theraphosinae and Aviculariinae, and it comprises a non-monophyletic group, as evidenced in morphological and recent molecular phylogenies (Guadanucci 2014; Mori & Bertani 2020; Korba *et al.* 2022; Ríos-Tamayo 2024). For the inclusion of *Allpamayu* n. gen. in a phylogenetic context, we opted to use the Guadanucci (2014) cladistics analysis rather than the more recent phylogenies by Mori & Bertani (2020) and Ríos-Tamayo (2024), since it has the highest number of representatives of *Holothele* and even includes a Caribbean species, given the morphological similarities observed in the studied specimens. In contrast, the phylogenies of Mori & Bertani (2020) and Ríos-Tamayo (2024), primarily focus on the phylogenetic placement of many *Trichopelma* species.

The paraphyletic condition of Ischnocolinae was confirmed in the present study, supporting its division into less inclusive non-monophyletic groups: 1) New World Ischnocolinae genera, such as *Catumiri* and *Dolichothele*; 2) another Ischnocolinae

group including the new genus *Allpamayu* n. gen., as well the New World genera *Acanthopelma*, *Holothele* and *Reichlinga*, along with *Trichopelma nitidum* from the subfamily Trichopelmatinae. The cladistics analysis presented in this study supports the establishment of the new genus *Allpamayu* n. gen., which was found closely related to the genera *Acanthopelma*, *Holothele*, and *Reichlinga*, as well as *Trichopelma nitidum*. This group was recovered as Ischnocolinae *sensu stricto* in a clade based on previous morphological phylogenies (Guadanucci 2014). Although we recovered *Trichopelma nitidum* inside Ischnocolinae *sensu lato*, the recent update in the taxonomy and phylogeny of the genus *Trichopelma* unveil the revalidation of the subfamily Trichopelmatinae as a member of the family Theraphosidae more related with *Cyrtogrammomma* Pocock, 1895 and not *Holothele* (Mori & Bertani 2020). Also, the group including *Allpamayu* n. gen. did not include the genus *Ischnocolus*, which was recovered as sister to other Ischnocolinae, thus considered as *sensu stricto* because they represent the type genus of the subfamily. This reclassification introduces another paraphyletic grouping within Ischnocolinae. Additionally, the phylogenetic position of *Ischnocolus* based on morphology remains problematic, since recent cladistics

analyses have recovered *Ischnocolus valentinus* as a sister species of representatives of the genus *Catumiri* (Mori & Bertani 2020; Ríos-Tamayo 2024), suggesting that further revisions may lead to new relationships among the Ischnocolinae *sensu lato* groups identified in this study.

Regarding the morphological characteristics of *Allpamayu* n. gen., the male genitalic features, specifically the general aspect of the palpal bulb, resembles the Caribbean species of the genus *Holothele* rather than *H. longipes* which is present in Peru and most of central South America (Guadanucci *et al.* 2017; Guadanucci 2020; Peñaherrera *et al.* 2023). One of the most important features is the twisted embolus with keels. While all Caribbean *Holothele* species possess a single distinct keel along the twisted embolus (Maréchal 2005), *Allpamayu* n. gen. is distinguished by the presence of two well-developed parallel keels with an additional crest between them. In the case of the spermathecae of females, *Holothele* species have long and narrow seminal receptacles bearing very small lobes on the inner edge (Guadanucci *et al.* 2017; Guadanucci 2020), while *Allpamayu* n. gen. have lobes on the apical portion of the wide and laterally oriented seminal receptacles. From a somatic morphological perspective, *Allpamayu* n. gen. differs from *Holothele* in the shape of the labium, a low number of labial cuspules and the presence of stripes on the abdomen. Males of *Allpamayu* has a distinct character, unknown in any other Ischnocolinae, which is the presence of a ventral tumescence in the metatarsi of the first pair of legs.

In this study, we propose *Allpamayu* as a new genus within Ischnocolinae, supported by a cladistic analysis that demonstrates its close relationship with *Acanthopelma*, *Holothele*, and *Reichlingia*, as well as the presence of novel morphological traits not previously documented in other Ischnocolinae species.

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SUPPLEMENTARY MATERIAL 1. — Data matrix showing distribution of character states in cladistic analysis. https://sciencepress.mnhn.fr/sites/default/files/documents/en/zoosystema_48_6_ms1_data_matrix.pdf. <https://doi.org/10.5852/zoosystema2026v48a9S1>