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REVISED TAXONOMIC PLACEMENT AND DISTRIBUTION UPDATE OF *GRAMMOSTOLA* SIMON, 1892, *PHRIXOTRICHUS* SIMON, 1889 AND *THRIXOPELMA* SCHMIDT, 1994 SPECIES, A CHAOTIC HISTORY OF CHILEAN TARANTULAS (ARANEAE, THERAPHOSIDAE)

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Abstract: The taxonomic status and distributions of three species of Theraphosidae from Chile are studied. *Grammostola porteri* (Mello-Leitão, 1936) is proposed as a junior synonym of *Grammostola rosea* (Walckenaer, 1837) **syn nov**. and is redescribed. *Phrixotrichus vulpinus ater* (Donoso, 1957) is considered as a ***nomen dubium*** because the type is lost and descriptions are not informative enough. The known geographical distributions of *Thrixopelma pruriens* Schmidt, 1998 and *Grammostola rosea* are updated.
Key words: Araneae, Theraphosidae, *Grammostola*, *Phrixotrichus*, *Thrixopelma*, taxonomy, Chile.

Revisión de la ubicación taxonómica y actualización de la distribución conocida de especies de *Grammostola* Simon, 1892, *Phrixotrichus* Simon, 1889 and *Thrixopelma* Schmidt, 1994, una caótica historia de las tarántulas chilenas (Araneae, Theraphosidae)
Resumen: Se estudia la posición taxonómica y la distribución de tres especies de Theraphosidae de Chile. Se propone que *Grammostola porteri* (Mello-Leitão, 1936) es sinónimo posterior de *Grammostola rosea* (Walckenaer, 1837) **syn nov.** y se le redescribe. *Phrixotrichus vulpinus ater* (Donoso, 1957) es considerado como ***nomen dubium***. Se actualizan las distribuciones geográficas conocidas de *Thrixopelma pruriens* Schmidt, 1998 y *Grammostola rosea*.
Palabras clave: Araneae, Theraphosidae, *Grammostola*, *Phrixotrichus*, *Thrixopelma*, taxonomía, Chile.

Introduction

Theraphosidae Thorell, 1869 is represented by 16 species and 1 subspecies in Chile [WSC, 2022]. Some species of theraphosids present a convoluted and obscure taxonomy with several synonyms and genera transfer [Simon, 1903; Schmidt, 1996, 1998; Perafán & Pérez-Miles, 2014], and in Chile this history dates back to 1782 [Molina, 1782]. Therefore, many old species descriptions were considered as valid species although lack diagnosis, while others are treated as part of the intra-specific variation and are included in synonymy [Cetzal-Ix & Balam-Narváez, 2010]. Synonyms are often a consequence of increased knowledge because the scarce number of specimens in collections, or simply due to human error [Eastop & Blackman, 2005]; the tarantulas species from Chile are not the exception.

The main purpose of this contribution is to address the conflicting taxonomic of three theraphosid spiders, *Grammostola porteri* (Mello-Leitão, 1936), *Phrixotrichus vulpinus ater* (Donoso, 1957) and *Thrixopelma pruriens* Schmidt, 1998 and to update the geographic distribution of them.

Material and Methods

Repository abbreviation
MNHN = Museo Nacional de Historia Natural, Santiago, Chile.
MZUC-UCCC = Museo de Zoología, Universidad de Concepción, Concepción, Chile.
MNUFRJ = Museo Nacional, Universidad Federal de Rio de Janeiro, Rio de Janeiro, Brasil.
SFN = Senckenberg Forschungsinstitute und Naturmuseen, Frankfurt am Main, Germany.
SMNS = Staatliches Museum für Naturkunde, Stuttgart.
FNAG36 = Fundación núcleo aracnológico grado 36.
SAG = Servicio Agrícola y Ganadero Reg. Metropolitana. Laboratorio de entomología.

Anatomical abbreviation
PI = prolateral inferior keel.
PS = prolateral superior keel.
PB = prolateral branch of tibial I apophysis.
RB = retrolateral branch of tibial I apophysis.
TA = tegular apophysis
STA = serrated edge on tegular apophysis (here proposed)
ALE = anterior lateral eyes
AME = anterior median eyes
PLE = posterior lateral eyes
PME = posterior median eyes
OQ = ocular quadrangular
PLS = posterior lateral spinnerets
PMS = posterior median spinnerets

Methods

For identification of *G. rosea*, we follow Montes de Oca *et al.* [2016] and Aguilera *et al*. [2019], the tibial apophysis according to Schiapelli & Gerschman [1961], coxal spiniform setae by Ferretti *et al*. [2011], the palpal bulb structure by Bertani [2000] and the urticating setae by Cooke [1972]. The identification of *Euathlus truculentus, P. vulpinus ater* and *T. pruriens* follows Donoso [1957], Legendre & Calde-

rón [1984], Perafán & Pérez-Miles [2014], Schmidt [1998] and Sherwood *et al*. [2021]. All measurements in mm. DATUM WGS84 H18 y H19.

Sampling was authorized by the Servicio Agrícola y Ganadero, Exempt Resolution Nº6972/2019 Metropolitan SAG and Corporación Nacional Forestal, Authorization Nº019/2019 CONAF, Santiago, Chile.

Systematics

Class **ARACHNIDA** Cuvier, 1812

Order **ARANEAE** Clerck, 1757

Family **Theraphosidae** Thorell, 1869

SubFamilia Theraphosinae Thorell, 1869

Grammostola Simon, 1892

Grammostola rosea (Walckenaer 1837)
Mygale rosea Walckenaer, 1837: 213 (Description ♂).
Mygale rubiginosa Nicolet, 1849: 330 (Description ♂ y ♀).
Lasiodora rosea C. L. Koch, 1850: 73.
Eurypelma rosea Ausserer, 1871: 215.
Phrixotrichus rubiginosa Simon, 1889: 222 (Transfer from *Orthotrichus*).
Eurypelma spatulatum F. O. Pickard-Cambridge, 1897: 24, pl. 1, f. 19 (Description ♂).
Citharoscelus kochii Pocock, 1899: 348 (Description ♂ y ♀).
*Grammostola argentinens*e Strand, 1907: 29 (Description ♂ y ♀).
Grammostola cala Chamberlin, 1917: 47, pl. 3, f. 8-9 (Description ♂).
Lasiodora porteri Mello-Leitão, 1936: 122, pl. 13 (Description ♂); *Grammostola porteri* Schiapelli & Gerschman, 1979: 295. **Syn nov**.

TYPE DATA. Holotype Male, Chile. Lost. 1 ♂; Limache, Region de Valparaíso, Chile; 33° 2'46.46"S, 71°11'46.54"W; Aug. 2017; Rubén Montenegro & Andrés Olivera leg. Neotype (herein designated - FNAG36 N°1071).

Holotype *G. porteri*: 1 ♂, *Lasiodora porteri*, Papudo, Región de Valparaíso, Chile. MNUFRJ. (Examined).

DIAGNOSIS
The genus *Grammostola* can be distinguished from other theraphosids by stridulating setae on coxae of palp and leg I (Fig. 1B, E).

Males of *G. rosea* can be recognized by having a piriform copulatory bulb with prolateral keels separated and well developed (Fig. 1G, H; and see Aguilera *et al*. [2019] fig. 3E, 3F). Tibia I with ventral apophysis, the RB with an apical long and curved thorn, PB with a basal long thorn and also with one or two thorns on the distal retrolateral part (Fig. 1C, F; and see Aguilera *et al* [2019] fig. 3C). Female have a spermathecae with two long and straight spermatical receptacles, with a fine neck ending in a spheroidal lobe (see Aguilera *et al* [2019] fig. 3D).

REDESCRIPTION
Male: Total length: 43.1. Carapace: length 20.5, width 18.9. Eyes: anterior row slightly procurved, posterior recurved. Eyes sizes: ALE>AME, AME>PLE, PLE>PME, OQ length 1.5, width 2.0. Fovea: transverse, straight, width 2.3. Labium: length 2.2, width 3.3 with approximately 100 cuspules. Maxillae (right/left) with approximately 200 cuspules. Sternum: length 10.3, width 7.6. Chelicerae with nine well-developed teeth on promargin of furrow. Long spiniform black setae coxal of legs I–IV. Stridulating orange setae on coxae of palp and leg I. Abdomen: Lenght 22.6. PMS well-developed, PLS normal, apical segment digitiform.

Copulatory bulb pyriform with PI well developed and PS developed, slightly curved and long embolus.

Lengths of legs and palp (femur, patella, tibia, metatarsus, tarsus, total): I: 18.1, 9.7, 14.2, 15.0, 9.1, 66.1. II: 16.9, 9.2, 15.0, 13.9, 8.9, 63.9. III: 16.0, 8.1, 11.5, 13.4, 9.0, 58.0. IV: 17.6, 8.0, 15.0, 18.8, 9.5, 68.9. Palpo: 11.0, 5.7, 8.4, -, 2.8, 27.9.

Chaetotaxy: Femora I: 1P; II: 0; III: 0; IV: 1R. Patellae I-IV y palp 0. Tibiae I: 4V; II: 2P, 5V; III: 1P, 2R, 4V; IV: 1P, 2R, 5V; Palp: 0. Metatarsi I: 5V; II: 1P, 6V; III: 2P, 2R, 5V; IV: 2P, 3R, 7V. Tarsi I-IV y palp 0. Tibia I with RB noticeably longer than PB; PB with a basal internal short spine, RB with an external subapical spine; one or two thorns on the distal retrolateral part (Fig. 1C y 1F). Metatarsus I curved. Flexion of metatarsus I on the RB.

Scopulae: Tarsi I–IV densely scopulate and entire. Metatarsi I almost complete, II 3/4 scopulate, III 1/2, IV 1/4 apically scopulate.

Colour (in vivo): Cephalothorax and legs black, with a rose or grey pubescence on the carapace. Abdomen black with long redish or grey setae with, with an anterior small dorsal patch grey of type III-IV urticant setae.

Female: Total length: 40.0. Carapace: length, 21.2, width 18.9. Eyes: anterior row slightly procurved, posterior recurved. Eyes sizes: ALE>AME, AME>PLE, PLE>PME, OQ length 1.7, width 2.4. Fovea: transverse, straight; width 3.2. Labium: length 2.4, width 3.5 with 134 cuspules. Maxillae (right/left) with approximately 200 cuspules. Sternum: length 10.0, width 7.6. Chelicerae with nine well-developed teeth on promargin of furrow. Long spiniform black setae coxal of legs I–IV. Stridulating orange setae on coxae of palp and leg I. Abdomen: length 23.8. PMS well-developed, PLS normal, apical segment digitiform.

Spermathecae with two long and straight spermatical receptacles, with a fine neck ending in a spheroidal lobe.

Lengths of legs and palp (femur, patella, tibia, metatarsus, tarsus, total): I: 15.7, 9.3, 12.5, 9.5, 6.8, 53.8.II: 14.8, 7.5, 10.9, 9.4, 6.8, 49.4. III: 12.1, 7.6, 8.0, 9.2, 6.8, 43.7. IV: 15.6, 7.5, 11.5, 13.4, 7.3, 55.3. Palp: 11.1, 6.1, 8.2, -, 7.5, 32.9.

Chaetotaxy: Femora I: 1P; II: 1P; III: 0; IV: 0; Palp: 1P; Patellae I-IV y palp 0. Tibiae I: 1P, 4V; II: 2P, 4V; III: 1P, 4V; IV: 2P, 3V; Palp: 4V. Metatarsi I: 1V; II: 4V; III: 2P, 2R, 5V; IV: 4P, 6V. Tarsi I-IV y palp 0.

Scopulae: Tarsi I–IV densely scopulate and entire. Metatarsi I almost complete, II 3/4 scopulate, III 1/2, IV 1/4 apically scopulate.

Colour (in in vivo): As in male (Fig. 1A). Urticating setae as in male.

Variation: lengths of legs, palpal, abdominal structures and stridulating setae see Table I.

REAMARKS
Grammostola rosea was described as *Mygale rosea* [Walckenaer, 1837], on the other hand, *Lasiodora porteri* Mello-Leitão 1936 was described based on only one male from Papudo, Región de Valparaíso, Chile. Mello-Leitao [1936] classified it as *Lasiodora* C. L. Koch, 1850 due to the presence of a stridulatory apparatus on the coxa palp and leg I

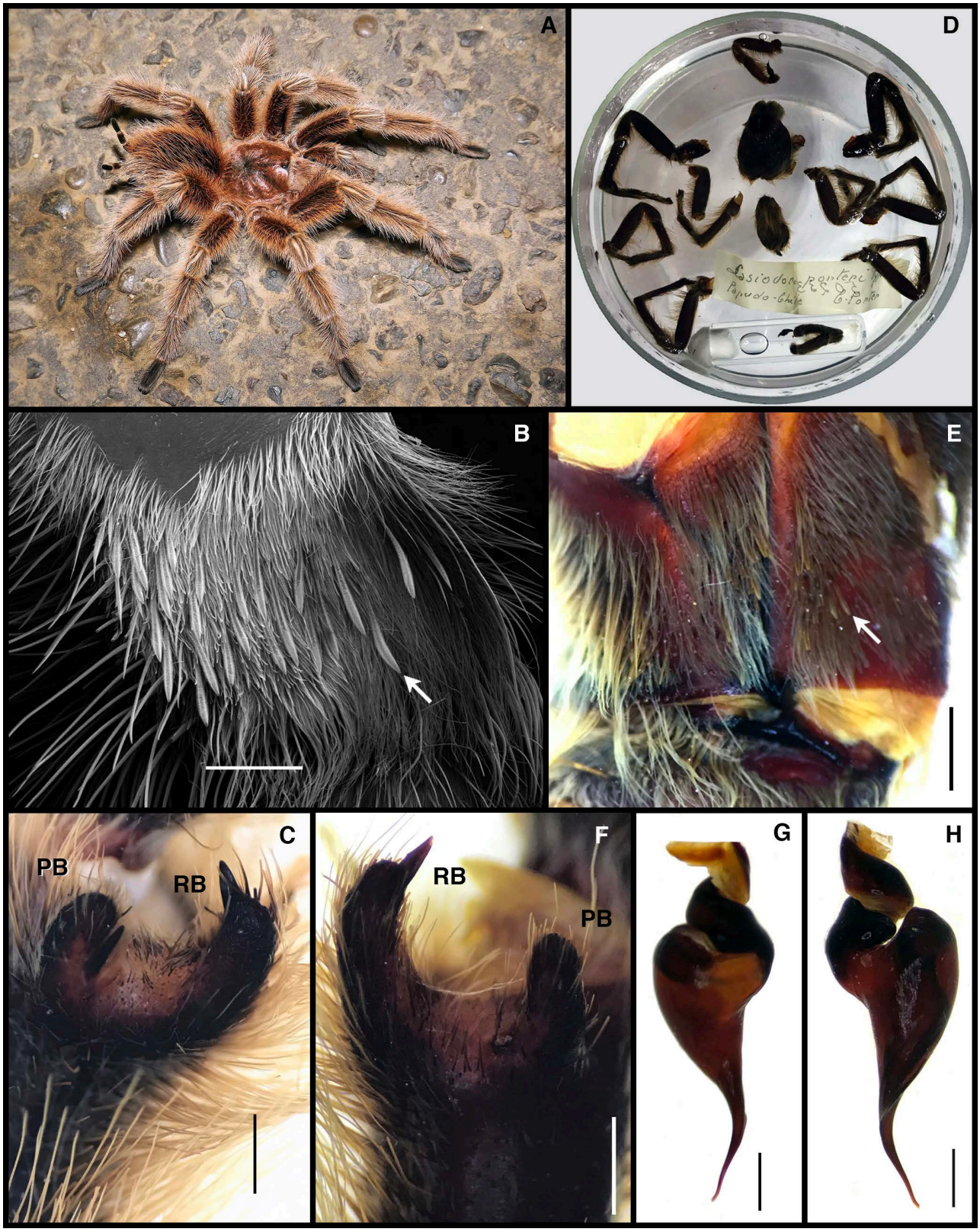


Fig. 1.- A-C, *G. rosea.* **A**, habitus; **B**, Stridulating setae on coxae of palp; **C**, Tibial apophysis on leg I. **D-H**, *G. porteri*: **D**, Typus; **E**, Stridulating setae on coxae of leg I; **F**, Tibial apophysis on leg I; **G**, Retrolateral palp; **H**, Prolateral palp. Scale bar: 1 mm. / **Fig. 1.- A-C**, *G. rosea.* **A**, habitus; **B**, Setas estridulatorias en coxa del palpo; **C**, Apófisis Tibial de la pata I. **D-H**, *G. porteri*: **D**, Typus; **E**, Setas estridulatorias en coxa de la pata I; **F**, Apófisis Tibial de la pata I; **G**, Palpo vista Retrolateral; **H**, Palpo vista Prolateral. Escala: 1 mm.

(Fig. 1B, E). This description is vague and without details or illustrations, and the author highlights rose color in all body as an important character of this species.

Schiapelli & Gerschman [1967] presented a review of *Theraphosa* Thorell, 1870, *Lasiodora* and *Sericopelma* Ausserer, 1875, transferring *L. porteri* to *Grammostola* because evidently its characters did not correspond to *Lasiodora*.

Table I.- variation of the length of appendages and structures of *Grammostola rosea*.
Tabla I.- variación de la longitud de los apéndices y estructuras de *Grammostola rosea*.
SsoP = Stridulating setae on palp; SsoL I= Stridulating setae on leg I

Average	Cephalotorax		Abdomen		Sternon		Labium	
	L	W	L	W	L	W	L	W
female	20.25 ± 2.75	17.55 ± 2,45	21.7 ± 6.2	15.7 ± 6.1	9.2 ± 1.6	7.0 ± 1.4	2.3 ± 0.4	3.6 ± 0.8
Male	18.85 ± 1.65	17.6 ± 1.3	18.9 ± 3.8	12.2 ± 4.7	8.15 ± 2.15	5.95 ± 1.65	1.85 ± 0.45	2.9 ± 0.6

Average	Palpo	Leg				SSoP	SsoL I
		I	II	III	IV		
female	31.4 ± 2.9	52.3 ± 6.9	47.4 ± 6.8	44.7 ± 5.0	54.0 ± 5.0	26 ± 20	37 ± 32
Male	27.85 ± 3.45	60.75 ± 5.35	58.3 ± 5.6	52.0 ± 6.0	62.65 ± 6.25	22 ± 14	47 ± 23

At present a formal diagnosis for *G. porteri* is not available in the literature, but no differences are found when comparing the type of *G. porteri* with *G rosea* neotype, so we consider *G. porteri* a junior synonym of *G. rosea*. The specimen of *G. porteri* show stridulating setae on coxae of palp and leg I (Fig. 1B, E); palp, piriform bulb with prolateral keels separated and well developed (Fig. 1G, H); tibia I with ventral apophysis, the RB with an apical long and curved thorn, PB with a basal long thorn and also with two thorns on the distal retrolateral part (Fig. 1C, F) same as *G. rosea*. neotype.

The type of *G. porteri* was requested on loan from the National Museum of Rio de Janeiro before the great fire occurred, saving this specimen which is essential to solve the problem of these taxa, hence the importance of the collections scientific.

GEOGRAPHIC DISTRIBUTIONS

In order to understand the correct distribution of *G. rosea* it is necessary to analyze its taxonomic history. Bücherl [1951] synonymized *G. gossei* (Aconcagua, Argentina, Bolivia), *G. cala* (Chile) and *G. argentinense* (Argentina) with *G. spatulata* (Chile). Then Schiapelli & Gerschman [1961] removed *G. cala* as a synonym of *G. spatulata* and cited *G. cala* for Chubut-Argentina. Smith [1986] removed *G. gossei* as a synonym of *G. spatulata*. Later Schmidt [1996] considered *G. spatulata* a junior synonym of *G. rosea*.

Bücherl [1951] could not establish with certainty the origin or distribution of the *G. argentinense* and furthermore Schiapelli & Gerschman [1961] mentioned that this species cannot be corroborated as valid.

Ferretti *et al*. [2011] and Ferretti (*com pers*.) mentioned that *G. cala* specimens cited for Chubut in Schiapelli & Gerschman [1961] correspond to *G. doeringi*.(Holmberg, 1881) According to this background information, *G. rosea* is proposed as a valid species for Chile (Fig. 3A).

MATERIAL EXAMINED. **Chile - Región de Valparaíso** • 1 ♀; Longotoma; 32,38648°S, 71,36907°W; Feb. 2015; Rubén Montenegro & Andrés Olivares leg. • 1 ♀; Las Chilcas; 32,86723°S, 70,84853°W; Feb. 2015; Andrés Olivera leg. • 1 ♀; Cerro Vizcachas; 33,08611°S, 71,01889°W; 1700 m a.s.l.; 2017; Andrés Olivera leg., • 1 ♀; El Arrayán; 33,34173°S, 70,47203°W; 2017; Andrés Olivera leg. • 1 ♂; Los Andes; 32,83381°S, 70,59722°W; 2300 msnm; 2017; Andrés Olivera leg. • 3 ♀, 1 ♂; Limache; same data as neotype. • 1 ♂; Limache; 33,00728°S, 71,25994°W; Jan. 2015; Andrés Olivera leg. • 1 ♂; Papudo; Papudo; Feb. 2018; Nicolas Zañartu leg. • 1 ♀; Catemu; Catemu; Oct. 2015; Andrés Olivera leg. • 1 ♀; San Esteban; 32,80050°S, 70,57981°W; Dic. 2015; Andrés Olivera leg. • 1 ♂; El Quisco; 33,39860°S, 71,69816°W*; MNHN. **Región Metropolitana** • 2 ♀; Cerro San Cristóbal; 33,42024°S, 70,63138°W; Apr. 2019; Rubén Montenegro, Nelson Arriagada & Milenko A. Aguilera leg. • 1 ♂; Cerro San Cristóbal; 33,42024°S, 70,63138°W*; Dic. 2017; Nicolás Zañartu leg. • 1 ♂; Santiago; 33,45255°S, 70,65635°W*; 1977; MNHN. • 4 ♀; Parque Panul; 33,53722°S, 70,53226°W; Oct. 2016; Rubén Montenegro & Milenko Aguilera leg. • 1 ♀, 1 ♂; Colina; 33,20520°S, 70,66340°W*; Mar. 2013; Juan Pablo Orellana leg. • 1 ♂; Colina; 33,20520°S, 70,66340°W*; May. 2016; Cesar Palma leg.; SAG. • 1 ♀; Cuesta Barriga; 33,51620°S, 70,97888°W; Dic. 2016; Cesar Palma leg.; SAG.• 1 ♀, 1 ♂; Lampa; 33,28967°S, 70,89025°W; Mar. 2014; Juan Pablo Orellana leg. • 1 ♂; Pirque; 33,68123°S, 70,58360°W; Dic. 2014; Pablo Lowenstein leg. • 1 ♀; Cajón del Maipo; Mar. 2013. • 1 ♀; Altos de Miraflores; 33,40319°S, 70,73999°W; Dic. 2015; Cesar Palma leg.; SAG. • 1 ♀; Lo Aguirre; 33,46529°S, 70,82973°W; Nov. 2019; Daniel Altamirano & Milenko A. Aguilera leg. **Región del Libertador Bernardo O'Higgins** • 2 ♂; Codegua; 34,03704°S, 70,67287°W*; Feb. 2014; Juan Pablo Orellana leg. • 1 ♀; Coltauco; 34,28738°S, 71,08450°W; Dic. 2017; Rubén Montenegro & Milenko Aguilera leg. • 1 ♀; Machalí; 34,17946°S, 70,65653°W; Nov. 2019; Rubén Montenegro, Andrés Olivera & Milenko A. Aguilera leg. **Región del Maule** • 1 ♀; Rauco; 34,92534°S, 71,31563°W; Feb. 2019; Nelson Arriagada & Milenko A. Aguilera leg. • 1 ♀, 1 ♂; Ancoa; 35,91443°S, 71,35190°W; Jul. 2014; Roberto Rojas leg. • 1 ♀; Vilches; 35,60546°S, 70,96602°W; Dic. 2014; Roberto Rojas leg. * cartographic app/historical data.

Phrixotrichus vulpinus ater (Donoso, 1957). ***Nomen dubium***
Phrixotrichus roseus ater Donoso, 1957 (Description ♀).
Euathlus vulpinus ater Schmidt, 1998.
Phryxotrichus vulpinus ater Perafán & Pérez-Miles, 2014.

TYPE MATERIAL

Holotype ♀; Chile- Región de Coquimbo, Isla de Pichidangui; Feb. 1954; Roberto Donoso leg. Colección de la Cátedra de Biología de la Facultad de Medicina Veterinaria de la Universidad de Chile, Santiago de Chile. Lost, this scientific collection no longer exists.

Paratypes 12 ♀; same data as for holotype. Lost.

REMARKS

The spider collection of the Universidad de Chile does not currently exist, so the holotype and paratype material is presumed lost. The description of *P. vulpinus ater* is not very informative, without illustrations, relevant taxonomic or diagnostic characters. The autor [Donoso, 1957] highlights coloration of specimens saying: "the general coloring is black, with few dark brown hairs. Cephalothorax dorsally and ventrally black with the dorsolateral area with few short golden hairs. Black abdomen with a lighter area in the middle of the posterior third. Legs dorsally and ventrally black, where the marked melanism of the femurs stands out. Over the tibia two leaden lines".

It is important to mention that in the collection of MNHN from Chile, there are ten specimens of *P. vulpinus ater* collected by Donoso in 1961 from Isla Locos, Pichidangui, Región de Valparaíso, the same type locality. This material was analyzed and it is considered as a misidentification, because it corresponds to *Euathlus truculentus* L. Koch, 1875.

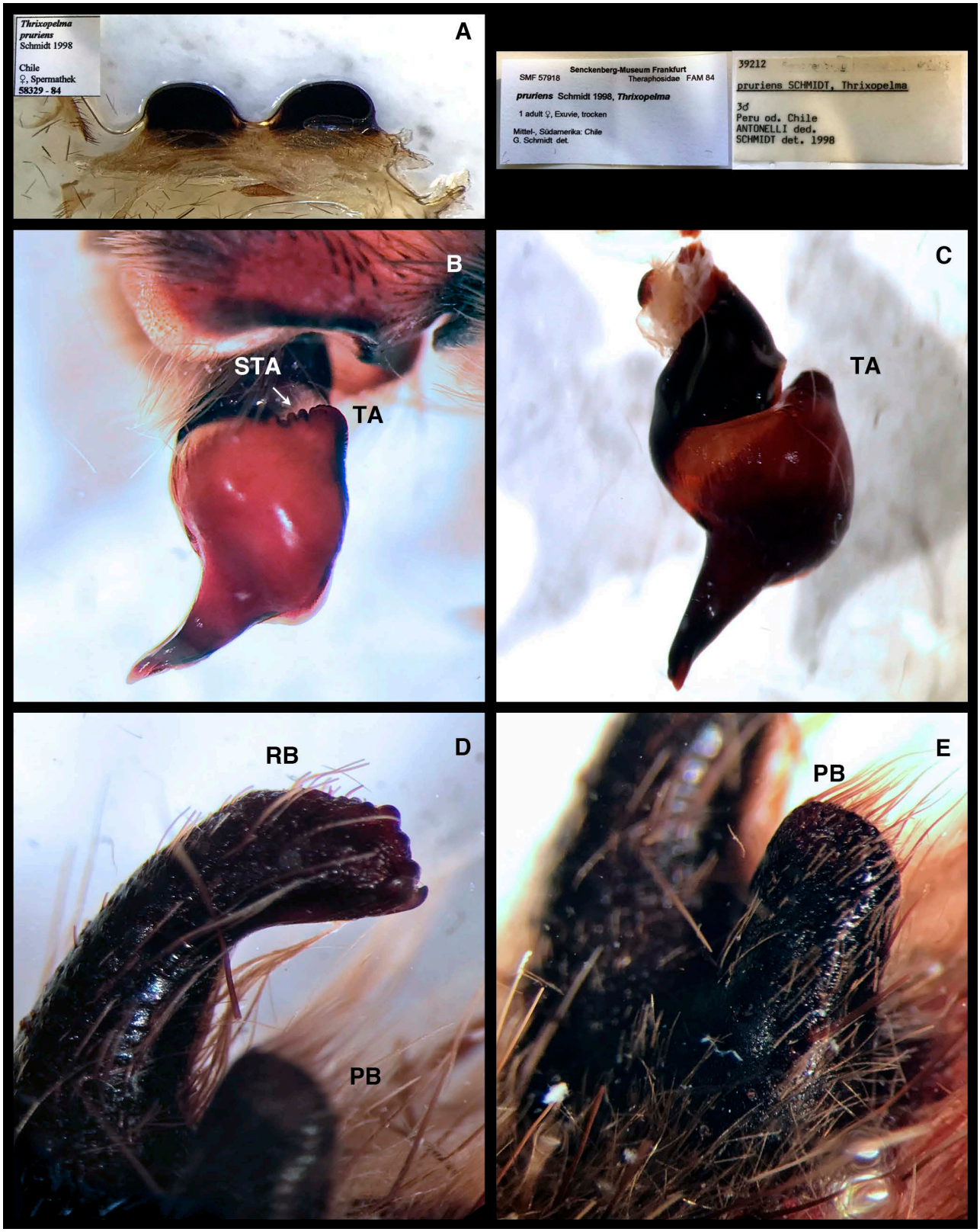


Fig. 2.- *T. pruriens*: **A**, spermathecae; **B**, Retrolateral palp, serrated edge on tegular apophysis (STA); **C**, Prolateral palp; **D**, Tibia I retrolateral branch; **E**, Tibia I prolateral branch. Scale bar: 1 mm. / **Fig. 2.-** *T. pruriens*: **A**, Espermateca; **B**, Palpo vista retrolateral, borde dentado en la apófisis tegular (DAT); **C**, Palpo vista prolateral; **D**, Apófisis retrolateral de la Tibia I; **E**, Apófisis prolateral de la Tibia I. Escala: 1 mm.

Mygale rosea Walckenaer, 1837 was described from one male from Chile [Walckenaer, 1837; 213 pp.]. The following year, Guérin cited and drew a *Mygale rosea* male [Guérin, 1838; 165 pp. pl. 48]. Koch [1842; 59 pp.] also described one male of *Mygale rosea* from Chile. Nicolet [1849] cited *Mygale rosea* for many localities from Chile.

On the other hand, Simon [1889[1888 in WSC]; 222 pp.] mentioned that *Orthotrichus* genus is preoccupied and replace it by *Phrixotrichus*, with type species *Phrixotrichus vulpinus*. Years later, this same author transferred *Mygale*

rubiginosa Nicolet, 1849 to genus *Phrixotrichus*. According to Schmidt [1998], Simon was based on Guérin's [1838] specimen of *Mygale rosea* to explain this transfer, thus making *Phrixotrichus roseus* a valid species [Simon, 1892; 163 pp.]. Then Simon [1903; 936 pp.] claimed that the species *Mygale rosea* described by Walckenaer [1837], Koch [1842] and Nicolet [1849] can be one or more species, leaving the assignment of the name *Mygale rosea* an unsolved problem.

Meanwhile in Chile, Porter [1930] transferred *Araneus scrofa* Molina, 1782 to *Phrixotrichus*, and Donoso [1957], described the subspecies *Phrixotrichus roseus ater,* which is important because Simon [1903] indicated it was not possible to recognize *Phrixotrichus roseus*.

Almost 40 years later, Schmidt [1996] considered *Phrixotrichus* as a junior synonym of *Euathlus* and Schmidt [1998; 6 pp.] said [in German] that "Porter in 1930 synonymized *Phrixotrichus roseus* with *P. scrofa*, therefore *P. scrofa ater* must be placed in the genus *Euathlus*". However Porter [1930] did not mention *Phrixotrichus roseus* (which would involve *Phrixotrichus roseus ater*), only mentioned *Phrixotrichus scrofa* being transferred from *Araneus scrofa.* This fact, in addition with that of Pérez-Miles *et al*. [1996] who synonymized *Paraphysa scrofa* with *Euathlus vulpinus*, made Schmidt [1998] to transfer *Phrixotrichus roseus ater* to *Euathlus vulpinus ater*, and consequently *Phrixotrichus roseus roseus* to *Euathlus roseus roseus*. Apparently Schmidt [1998] alluded to "*P. scrofa*" referring to *Paraphysa scrofa* and not to *Phrixotrichus scrofa* as indicated by Porter [1930].

Finally Perafán & Pérez-Miles [2014] revalidated the genus *Phrixotrichus*, and proposed the new combination *Phrixotrichus vulpinus ater*. It is important to mention that, *Euathlus roseus* is a *nomen dubium* according to Schmidt [1996], because type material was not found in Paris and the specimen of *Mygale rosea* from Walckenaer [1837] is the type specimen of *Grammostola rosea*.

STATUS OF *Phrixotrichus vulpinus ater*

Based on the description of this species, without diagnostic characters, differentiation from other species by inadequate characters (color), type material lost and the inability to find specimens in type locality or others localities from Chile, it was impossible to fit this subspecies in any known species; the most similar species is *Euathlus truculentus* based on specimens in the collection of MNHN, but an analysis of the type material or topotypes is needed to sustain an accurate decision. *Phrixotrichus vulpinus ater* is considered as ***nomen dubium***.

MATERIAL EXAMINED. **Chile- Región de Coquimbo** • 1 ♂, 9 ♀; Isla Locos, Pichidangui; 19H 261245 6442201*; 29 Apr. 1961; Donoso leg.; MNHN. Misidentified. * cartographic app/historical data.

Thrixopelma pruriens Schmidt, 1998

Paraphysa scrofa Schmidt, 1997: 16, f. 71 (Description ♀, misidentified).
Thrixopelma pruriens Schmidt (1998a): 16, fig. 71. (lapsus).
Thrixopelma pruriens Schmidt, 1998b: 6, fig. 2.
Thrixopelma pruriens Schmidt & Antonelli 1999: 22, figs. 8–17.
Thrixopelma pruriens Vol 1999: 13, fig. ZZ.
Thrixopelma pruriens Schmidt 2003b: 191, figs. 522–524.

TYPE MATERIAL

Holotype ♂; **Chile** (probably wrong, see distribution remarks); 1995; B. Scheiring Ellwangen leg. Exuvia SFN Nº 57918; spermathecae in a slide (26/16) and claw in a slide (26/17) SFM Nº 58329. (Examined).

DISTRIBUTIONS REMARKS

Many species of Theraphosids were described with specimens from the pet trade [Hüsser, 2018; Lüddecke *et al*., 2018; Sherwood *et al*., 2018; Turner *et al*., 2018; Sherwood *et al*., 2021]. This situation has caused frequent errors in the origin or labeling of the specimens during importation [Gallon, 2005; Sherwood and Gabriel, 2020]. There are antecedents in Chile with these errors, *e.g*. *Grammostola rosea* cited for Mexico [Pickard-Cambridge, 1897], *Euathlus truculentus* from Chile, but cited for Mexico in its multiple synonyms and taxonomic history [Raven, 1985; Schmidt, 1992; Smith, 1994] or *Phrixotrichus vulpinus* cited for Ghana by Strand [1908]. All these cases were subsequently resolved [Pocock, 1903; Smith, 1994; Perafán and Pérez-Miles, 2010].

Furthermore, other species described by Schmidt have carried erroneous collection data, at the country level [Sherwood and Gabriel, 2020], and he has also described many species from pet stores like *Paraphysa pulcherrimaklaasi* Schmidt, 1991; *Brachypelmides ruhnaui* Schmidt, 1997; *Pamphobeteus petersi* Schmidt, 2002 or *Thrixopelma pruriens* Schmidt, 1998. *T. pruriens* was described for Chile, but Peters [2003] mentioned that this species is from northern Peru under 10º S latitude in the Atlantic side of the Andes near Pucallpa (see map *in* Peters 2003, fig. 1199) and remarked "it is said that it would be distributed in Chile".

On the other hand Schmidt [1998] described *T. pruriens* using an female exuvia and its spermathecae and claw in a slide from Chile (SMF Nº 57918 y Nº 58329) and mentioned that "the pet specimen would be deposited in the museum after his death" [in German], but this never happened (Fig. 2A). In addition three male specimens of *T. pruriens* in the SMF collection (Nº 39212) are labeled as "Chile od Peru" locality (Fig. 2B-E) and three females exuvias without original label but relabeled as Chile (SFN Nº 58011; spermathecae in a slide (27/12) SFM Nº 58337). However, according to Schmidt & Antonelli [1999] this male specimens and three female exuvias are from a pet store Tropenhaus Marxen in Hamburg and assign Peru as the locality of origin. Sherwood *et al*. [2021], stresses that the locality data on the label of the male specimens does not match what is stated in the published article of Schmidt and Antonelli [1999].

The arachnology collection from MNHN, MZUC-UCCC, FNAG36 was reviewed and between 2015 and 2019 were collected in 157 locality from 18°S to 32°S south latitude in Chile (Fig. 3B), with significant field work efforts as Sherwood *et al*. [2021] suggests. It was impossible to find individuals belonging to *T. pruriens*, or other species of the same genus, agreeing with Peters (2003) who reported the species would only be present in Peru, and in additions to possible errors in the origin or labeling of the type specimens during importation, the same indicates Sherwood *et al*. [2021]. According to this information, the type locality of *Thrixopelma pruriens* is considered to be wrong and it is proposed as a species of Peru, like the other species of *Thrixopelma.*

MATERIAL EXAMINED. **Chile** • 3 ♂; Peru or Chile?; 1992; SFN Nº 39212. • 3 ♀; Chile; 1992; Exuvia SFN Nº 58011; spermathecae in a slide (27/12) SFM Nº 58337. • 1 ♀; Chile; Exuvia SFN Nº 57891. • 1 ♀; Chile; Exuvia and spermathecae in a slide (4/18) SFN Nº 57949.

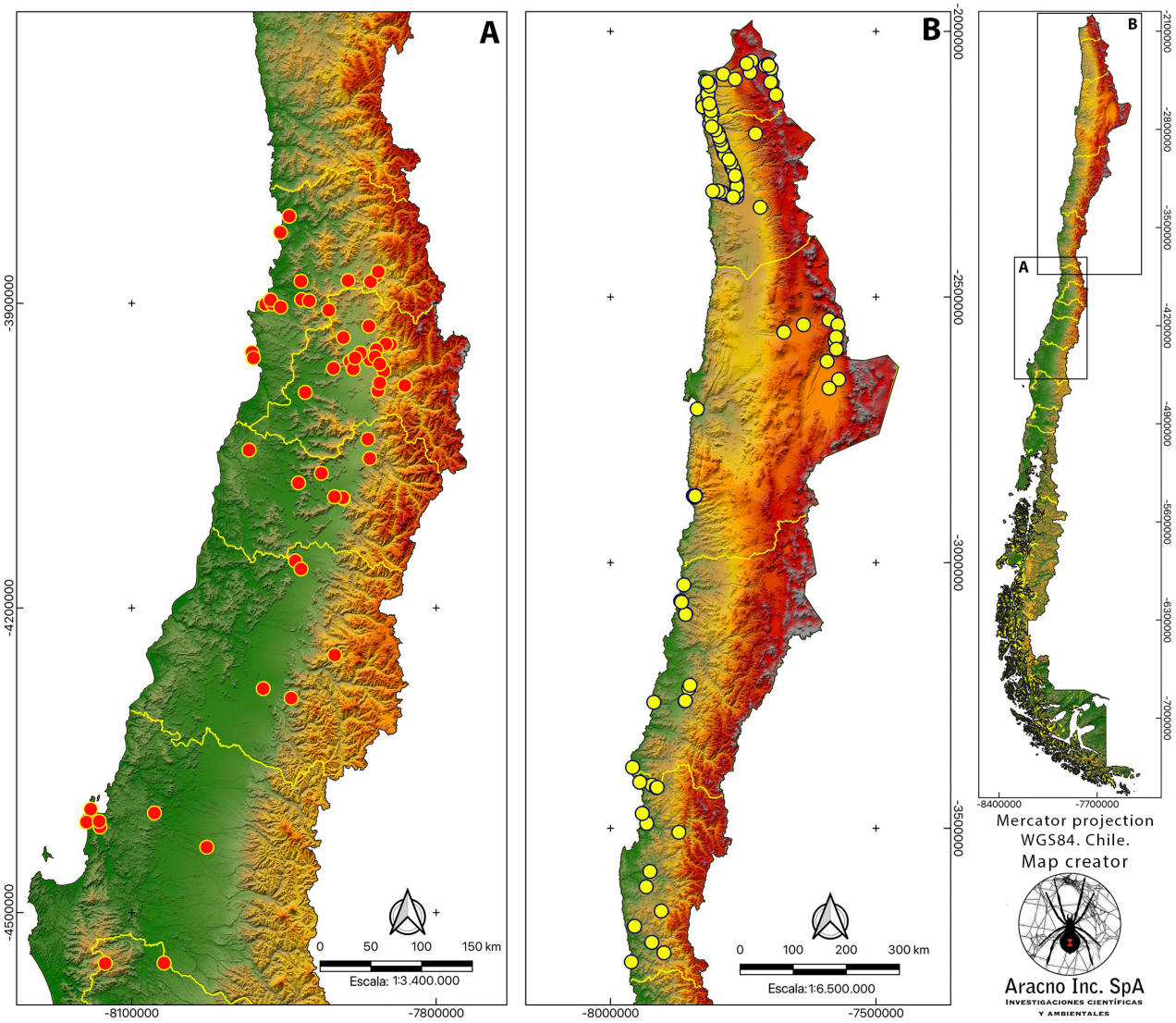


Fig. 3.- A, *Grammostola rosea* distribution in Chile; **B**, Collect effort for *Thrixopelma pruriens* in the northern zone of Chile bordering Peru. / **Fig. 3.- A**, Distribution en Chile de *Grammostola rosea*; **B**, Esfuerzo de recolecta para *Thrixopelma pruriens* en la zona norte de Chile y limite con Perú.

Discussion

It has always been challenging to unravel the complex taxonomic history of the Theraphosidae, mainly due to old descriptions, lost types, labeling errors [Smith, 1994; Gallon, 2005; Perafán & Pérez-Miles, 2010; Sherwood & Gabriel, 2020]. These problems limit the correct description of their diversity; and takes on more importance when involve historical data to infer past distributions or make future predictions [Longhorn, 2014]. The knowledge of number of species of tarantulas is necessary for conservation plans [Stuart *et al*., 2006; Turner *et al.*, 2018].

Phrixotrichus vulpinus ater is a remarkable example of a complex taxonomic history, with multiple basionym transfers, missing type of *Phrixotrichus vulpinus ater*, confusing types (two specimens possibly of different species for *Mygale rosea*), possible confusions in the transfer of genera (*Phrixotrichus* by *Paraphysa*), type species of the basionym considered ***nomen dubium***, errors of interpretation by Schmidt [1998], which are the main causes of the problem described here.

On the other hand, this paper also clarifies the problem of the taxonomic status of *Grammostola porteri* **Syn nov** of *G. rosea* and the geographical distribution of *Grammostola rosea* and *Thrixopelma pruriens* species is update, which have some labeling errors. It is important to note that Schmidt was provided specimens of *T. pruriens* from third parties and from the pet trade, and they possibly to have given him the incorrect locality information, which has happened with other species of Schmidt [Bertani and Fukushima, 2004; Longhorn, 2014; Gabriel, 2020; Sherwood & Gabriel, 2020]. We strongly agree with Sherwood at al. [2021] in regards to his comments on that there are wrong labels and that possibly those labeled specimens from Chile are from Peru.

In conclusion, the correct information of the collect data and the labeling is very important to understand the geographic distribution of organisms. Museum data provide this information to infer past distributions or make future predictions. The above in conjunction with our new field work and taxonomic analysis has enriched arachnological knowledge and collections, and solved taxonomic and distribution problems of three species of tarantulas.

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