Research Article

On the Taxonomy of *Acanthoscurria* Ausserer from Southeastern Brazil with Data on the Natural History of *A. gomesiana* Mello-Leitão (Araneae, Mygalomorphae, Theraphosidae)

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The study of type material and specimens of *A. gomesiana* of several Brazilian spider collections offered us the possibility to redescribe this species and consider synonyms of the first one of the following: *A. violacea*, *A. pugnax*, and *A. aurita*. *Acanthoscurria cunhae* and *A. melanotheria* are considered *Species inquirendae*, the types were not located, and the descriptions are not enough for identification of similar ones. We considered as valid only two species from the southeast of Brazil: *A. paulensis* and *A. gomesiana*. The distribution range of *A. gomesiana* is enhanced in the state of Minas Gerais, Brazil. Some data on natural history and phenology are presented.

1. Introduction

The genus *Acanthoscurria* Ausserer, 1871 currently comprises 34 species and is distributed mainly in South America [1]. The genus is characterized by the presence of stridulating bristles on the retrolateral face of the trochanter of the palp, presence of only one tibial apophysis and a retrolateral nodule on palpal tibia of males and seminal receptacle of the female with a common base and two lobes, more or less evident [2, 3]. Nine species from the southeastern Brazil were described, the majority by Mello-Leitão [4]. In 1923, he described six species: *Acanthoscurria cunhae*, *A. chiracantha*, *A. violacea*, *A. paulensis*, *A. gomesiana*, and *A. melanotheria*. Vellard [5] described *A. pugnax*, and Piza [6, 7] described two other species, *A. aurita* and *A. guaxupe*. The study of specimens from several localities of southeastern Brazil, from expressive Brazilian collections, and the type material of *A. gomesiana* enables us to redescribe and consider synonyms of the following species: *A. violacea*, *A. pugnax*, and *A. aurita*. The other two species, *A. cunhae* and *A. melanotheria*, were considered *Species inquirendae* because the types are lost and the descriptions are too resumed to identify the

species. *Acanthoscurria guaxupe* was considered a junior synonymy of *A. paulensis* [8] and *A. chiracantha* of *A. natalensis* Chamberlin, 1917 [9]. We concluded that *A. paulensis* and *A. gomesiana* are the only valid species for the southeastern Brazil. The distribution range of *A. gomesiana* is enhanced. Some data of natural history, based on the field observations of the species *A. gomesiana*, were given. Also some phenological data through the analysis of the specimens received at the laboratory are presented.

2. Material and Methods

The material examined is deposited in the following institutions: Instituto Butantan, São Paulo (IBSP, D. B. Battesti), Museu de Zoologia da Universidade de São Paulo, São Paulo (MZSP, R. Pinto da Rocha), Museu Nacional do Rio de Janeiro (MNRJ, A. B. Kury), and Coleções Taxonômicas da Universidade Federal de Minas Gerais, Belo Horizonte (UFMG, A. J. Santos).

Spine notation follows Petrunkevitch [10]. Terminology of male palpal bulb follows Bertani [11]. All measurements are in millimeters. Female seminal receptacles were dissected

and cleared in lactic acid for observation of internal structures. The length of leg segments was measured between joints in dorsal view. Length and width of carapace, eye tubercle, labium, and sternum represent maximum values. Total body length excludes pedicel and spinnerets. Pictures were taken with a Leica DFC500 digital attached to a Leica MZ16A stereoscopic microscope.

Abbreviations. AME: anterior median eyes; ALE: anterior lateral eyes; PLE: posterior lateral eyes; PME: posterior median eyes; STC: superior tarsal claws; ap: apical; d: dorsal; v: ventral; p: prolateral; r: retrolateral; PI: prolateral inferior keel; PS: prolateral superior keel; A: apical keel; PEJ: Parque Estadual do Jaraguá, São Paulo, SP, Brazil.

The natural history data were obtained from 715 specimens deposited in the IBSP collection. For studies on the phenology were used data of the specimens received at laboratory during the last 64 years (1946–2010), from the states of São Paulo and Minas Gerais, Brazil.

3. Taxonomy

Theraphosidae Thorell, 1869.

Theraphosinae Thorell, 1870.

Acanthoscurria gomesiana Mello-Leitão, 1923.

(Figures 1(a)–1(d), 2(a)–2(f), 4(a)–4(b), and 5(a)–5(f)).

Acanthoscurria violacea Mello-Leitão, 1923: 292, figure 182; Schiapelli and Gerschman de Pikelin, 1964: 415. PL III, figures 19–21 (female holotype from São Paulo, Brazil, deposited in MZSP 136, not located) “*New synonymy*”.

Acanthoscurria gomesiana Mello-Leitão, 1923: 306, figures 51–55 and 167 (several syntypes from the districts of Butantã and Ipiranga, São Paulo, SP, Brazil, deposited in MZSP, not located, and syntype MNRJ 49 examined, here designated as lectotype); Schiapelli and Gerschman de Pikelin, 1964: 412. PL III, figure 9.

Acanthoscurria pugnax Vellard, 1924: 142. PL VIII, figures 34a–d (male holotype from Vila de Fortaleza, Minas Gerais, Brazil, deposited in Instituto Vital Brazil, Rio de Janeiro, not located “*New synonymy*”.

Acanthoscurria aurita Piza, 1939: 5, figures 2–3 (male holotype from Piracicaba, São Paulo, Brazil, deposited in IBSP 138193, examined) “*New synonymy*”.

Diagnosis. Males of *Acanthoscurria gomesiana* resemble *A. natalensis* due to the aspect of the keels on the embolus ending like a shell but can be distinguished by the joining of similar ones in the central portion (Figures 2(a) and 2(b)); the female presents a singular aspect of the receptacles, and the basal membrane involves totally the two very small lobes (Figures 2(e) and 2(f)), different from all the other species of the genus.

Additional Material Examined. Brazil. “Minas Gerais” Januária, (Parque Nacional Cavernas do Peruaçu), 15°29'16"S, 44°21'43"W, 1 female, 03–25.I.2008, M. Teixeira and R. Recoder leg. (IBSP 15350); João Pinheiro, 17°44'34"S, 46°10'22"W, 1 immature, XII.1986, A. A. Domingues leg. (IBSP 17767); Prata, (Rio da Pedra), 19°18'25"S, 48°55'26"W, 1 female, VII.1997, D. S. Vito leg. (IBSP 110374); Capitão Andrade, 19°4'1"S, 41°51'28"W, 1 female, 29.X.1947, J. Galhardo leg. (IBSP 11027); Vespasiano, 19°41'31"S, 43°55'22"W, 1 male, 30.IV.2002, Waldio leg. (IBSP 11179); Belo Horizonte, (Reserva da Universidade Federal de Minas Gerais), 19°49'1"S, 43°57'21"W, 1 male, 25.X.2001, E. S. S. Álvares leg. (IBSP 11183); Frutal, 20°1'30"S, 48°56'27"W, 1 male, 07.X.2004, Polícia Ambiental leg. (IBSP 11027); São Roque de Minas, (Parque Nacional da Serra da Canastra), 20°14'42"S, 46°21'57"W, 1 male, 08.IV.1998, O. A. V. Marques leg. (IBSP 18283); Ouro Preto, 20°23'8"S, 43°30'29"W, 1 immature, 5.V.1951, W. Bittencourt leg. (IBSP 13476); Ibiraci, 20°27'43"S, 47°7'19"W, 1 male, J. B. Lima leg. (IBSP 17558); Cristiano Otoni, 20°49'55"S, 43°48'21"W, 1 female, 17.III.1980, S. S. Pereira leg. (IBSP 14522); São Sebastião do Paraíso, (Estação Ferroviária de Ipoméia), 20°55'1"S, 46°59'27"W, 1 female, 10.XII.1948, J. Movesco leg. (IBSP 11742); Campos Gerais, 21°14'6"S, 45°45'32"W, 1 female, III.1996, A. C. Abreu leg. (IBSP 17328); Guaxupé, 21°18'18"S, 46°42'46"W, 1 male, III.1996, M. F. M. Filho leg. (IBSP 17325); Cabo Verde, 21°28'19"S, 46°23'45"W, 1 female, 06.VII.2005, S. D. Oliveira leg. (IBSP 11322); Leopoldina, 21°31'55"S, 42°38'34"W, 1 female, 31.VIII.1948, Equipe IBSP leg. (IBSP 11836); Poços de Caldas, 21°47'16"S, 46°33'39"W, 1 male, 3.IV.1979, Alcominas leg. (IBSP 14413); Cruzilha, 21°50'20"S, 44°48'28"W, 1 female, 9.IX.1949, W. F. Magalhães leg. (IBSP 11990); Lima Duarte, (Parque Estadual de Ibitipoca), 21°50'34"S, 43°47'34"W, 1 male, 22–24.IX.1997, A. Oliveira & B. M. Souza leg. (IBSP 8404); Aiuruoca, 21°58'33"S, 44°36'10"W, 1 male, 14.X.2004, J. F. Gomes leg. (IBSP 111076); Liberdade, 22°1'44"S, 44°19'12"W, 1 male, 16.IX.1977, (IBSP 14277); Santa Rita do Sapucaí, 22°15'7"S, 45°42'10"W, 1 male, 27.VII.01, A. P. Esteves leg. (IBSP 19554); Jacutinga, 22°17'9"S, 46°36'43"W, 1 female, I.1992, W. S. Júnior leg. (IBSP 17514); Munhoz, 22°36'46"S, 46°21'39"W, 1 female, XII.1983, L. C. J. Ferreira leg. (IBSP 17741); Toledo, 22°44'34"S, 46°22'19"W, 1 female, VI.1989, W. Horosinskis leg. (IBSP 17743); Camanducaia, 22°45'18"S, 46°8'42"W, 1 female, VI.1984, S. Berezutchi leg. (IBSP 14826); Extrema, 22°51'18"S, 46°19'4"W, 1 female, IX.1988, Fiala Agropecuária S. A leg. (IBSP 17755). “São Paulo” Vargem Alegre, 19°36'28"S, 42°17'52"W, 1 male, 27.II.1947, Dr. Raccieri leg. (IBSP 10047); Ilha Solteira, 20°25'58"S, 51°20'34"W, 1 female V.1973, Equipe IBSP leg. (IBSP 12445); Pereira Barreto, (Usina Hidrelétrica de Três Irmãos), 20°38'16"S, 51°6'32"W, 1 immature, (IBSP 17427); Guarani d'Oeste, 20°4'30"S, 50°20'20"W, 1 female, II.1986, P. T. Tamitsuka leg. (IBSP 17457); Colina, 20°42'46"S, 48°32'27"W, 1 female, 11.XI.1947, A. J. Franco leg. (IBSP 11076); Sales Oliveira, 20°46'19"S, 47°50'16"W, 1 female, III.1978 (IBSP 1175B); São José do Rio Preto,

20°49'12"S, 49°22'44"W, 1 female, 27.II.1952, L. L. Franco *leg.* (IBSP 12821); Viradouro, 20°52'22"S, 48°17'49"W, 1 female, 22.I.1951, A. Masuk *leg.* (IBSP 12420); Monte Azul Paulista, 20°54'25"S, 48°38'27"W, 1 female, 15.VI.1998, Centro de Saúde de Monte Azul Paulista *leg.* (IBSP 18238); Tabapuã, 20°57'50"S, 49°1'55"W, 1 female, 16.VII.1951, H. M. Monteiro *leg.* (IBSP 12685); Adamantina, 21°40'60S, 51°4'0W, 1 female, 21.III.1980, H. Machisu *leg.* (IBSP 14529); Ribeirão Preto, 21°10'40"S, 47°48'36"W, 1 male, V.1985, Sucen *leg.* (IBSP 17405); Araçatuba, 21°12'32"S, 50°25'58"W, 1 male, 7.IV.1954 (IBSP 13265); Jaboticabal, 21°15'18"S, 48°19'19"W, 1 male, 15.III.1983, J. C. Mesquita *leg.* (IBSP 14770); Guararapes, 21°15'39"S, 50°38'34"W, 1 female, 25.V.1948, A. Carvalho *leg.* (IBSP 11495); Candido Rodrigues, 21°19'30"S, 48°37'51"W, 1 male, 20.VII.1951, C. Rossi *leg.* (IBSP 12692); Guataparã, 21°29'49"S, 48°2'16"W, 1 female, 18.X.1948, D. Neves *leg.* (IBSP 11642); Irapuru, 21°34'15"S, 51°20'42"W, 2 females, 05.VI.01, J. A. da Silva *leg.* (IBSP 19135); Rincão, (Vila Guilherme), 21°35'13"S, 48°4'15"W, 1 female, I.2005, M. J. Zambom *leg.* (IBSP 11094); São José do Rio Pardo, 21°35'45"S, 46°53'20"W, 1 male, III.2002, J. C. A. Rocha *leg.* (IBSP 114205); Matão, (Toriba), 21°36'10"S, 48°21'57"W, 1 female, 16.II.1948, Companhia Agrícola Fazenda Paulista *leg.* (IBSP 11231); Guaiçara, 21°37'19"S, 49°47'56"W, 1 female, 14.V.1951, M. Garrido *leg.* (IBSP 12619); Ibirá, 21°4'48"S, 49°14'27"W, 1 female, V.1991, C. Kishimoto *leg.* (IBSP 17262); Santa Lúcia, 21°41'6"S, 48°5'2"W, 1 female, 11.XI.1948, J. Nascimento *leg.* (IBSP 1681); Araraquara, 21°47'38"S, 48°10'33"W, 1 male, X.2003, F. Zanin *leg.* (IBSP 114801); Osvaldo Cruz, 21°47'49"S, 50°53'24"W, 1 male, 17.IV.1979, Y. Nakashima *leg.* (IBSP 14418); Vargem Grande do Sul, 21°49'55"S, 46°53'38"W, 1 male, V.2006, A. Mendes da Silva *leg.* (IBSP 114662); Águas da Prata, 21°56'13"S, 46°43'1"W, 1 male, IV.1999, V. Onofre *leg.* (IBSP 10718); São João da Boa Vista, 21°58'8"S, 46°47'52"W, 1 male, IV.1995, Sucen Campinas *leg.* (IBSP 17240); Boa Esperança do Sul, (Estação Ferroviária de Java), 21°59'34"S, 48°23'27"W, 1 female, 23.IX.1947, M. Morales *leg.* (IBSP 10944); Caiabu, 22°0'43"S, 51°14'9"W, 1 female, 12.X.1979, H. T. Uebele *leg.* (IBSP 14485); Indiana, 22°10'26"S, 51°15'7"W, 1 female, 10.III.1954, S. Fortunato *leg.* (IBSP 13204); Espírito Santo do Pinhal, 22°11'27"S, 46°44'27"W, 1 male, IV.2000, J. P. Martinelli *leg.* (IBSP 14660); Rancharia, 22°13'44"S, 50°53'34"W, 1 female, 2.III.1978, M. A. D. Torre *leg.* (IBSP 14309); Itirapina, 22°15'10"S, 47°49'22"W, 1 female, XI.1983, M. A. Toledo *leg.* (IBSP 14800); Brotas, 22°17'2"S, 48°7'37"W, 1 female, 23.XII.1975, Casa da Agricultura *leg.* (IBSP 114172); Bauru, 22°18'54"S, 49°3'39"W, 1 male, 28.IV.2003, E. Piccoli *leg.* (IBSP 114650); Araras, 22°21'25"S, 47°23'2"W, 1 female, VII.1983, M. E. S. Telles *leg.* (IBSP 17748); Dois Córregos, 22°21'57"S, 48°22'48"W, 1 female, 10.XI.1952, L. Fraschetti *leg.* (IBSP 13082); Rio Claro, 22°24'39"S, 47°33'39"W, 1 male, E. G. Oliveira *leg.* (IBSP 17571); Duartina, 22°24'50"S, 49°24'14"W, 1 female, 20.XI.1947, J. M. Braga *leg.* (IBSP 11047); Mogi Mirim, 22°25'55"S, 46°57'28"W, 1 male, 15.III.1954, J. M. Andrade *leg.* (IBSP 13217); Itapira, 22°26'9"S, 46°49'19"W, 1 male, 21.III.1952, D. Bouchini *leg.* (IBSP 12857); Santa Gertrudes, 22°27'25"S, 47°31'48"W, 1

female, VIII.1986, J. Medeiros *leg.* (IBSP 17203); Euclides da Cunha Paulista, 22°33'39"S, 52°35'24"W, 1 female, I.1983 (IBSP 14752); Limeira, 22°33'54"S, 47°24'7"W, 1 female, 1946 (IBSP 10799); Iracemápolis, (Fazenda Paraguassú), 22°34'51"S, 47°31'8"W, 1 female, 18.XI.1999, J. Medeiros *leg.* (IBSP 17968); Socorro, 22°35'27"S, 46°31'44"W, 1 female, VIII.1986, Prefeitura Municipal Estância de Socorro *leg.* (IBSP 17199); (Trilha da Gruta), 2 females, 19-26.XII.2010, R. P. Indicatti & B. Gambaré *leg.* (IBSP 110998; 110999); Serra Negra, 22°36'43"S, 46°42'3"W, 1 male, IV.2004, N. F. Junior *leg.* (IBSP 114179); Assis, 22°39'43"S 50°24'43"W, 1 male, IV.2001, H. Bastos *leg.* (IBSP 114213); Monte Alegre do Sul, 22°40'55"S, 46°40'51"W, 1 male, III.2004, A. Masuleno *leg.* (IBSP 115120); Amparo, 22°42'3"S, 46°45'50"W, 1 male, IV.2002, L. Araújo *leg.* (IBSP 114901); Piracicaba, 22°43'30"S, 47°38'56"W, 1 male, VIII.2001, Prefeitura Municipal *leg.* (IBSP 114640); Lorena, 22°43'51"S, 45°7'30"W, 1 male, 03.II.1986, T. Betitto *leg.* (IBSP 111236); Campos do Jordão, 22°44'20"S, 45°35'27"W, 1 female, XI.1957, K. Senko *leg.* (IBSP 13608); Americana, 22°44'20"S, 47°19'51"W, 2 females, 5.VIII.1968, Centro de Saúde de Americana *leg.* (IBSP 10073); Pedreira, 22°44'31"S, 46°54'3"W, 1 male, IV.2004, L. M. Rodrigues *leg.* (IBSP 15127); Cândido Mota, 22°44'45"S, 50°23'13"W, 1 female, 5.I.1948, A. Focerra *leg.* (IBSP 11157); Santa Bárbara d'Oeste, 22°45'14"S, 47°24'50"W, 1 male, VI.1989, J. Monaro *leg.* (IBSP 17736); Paulínia, 22°45'40"S, 47°9'15"W, 1 female, XI.1985, D. Hosii *leg.* (IBSP 17452); Pinhalzinho, 22°46'44"S, 46°35'27"W, 1 female, VI.2006, J. Sobrinho *leg.* (IBSP 115088); Morungaba, 22°52'48"S, 46°47'31"W, 1 male, 15.IV.1977, Dr. Dedro *leg.* (IBSP 14256); Águas de Santa Bárbara, 22°52'51"S, 49°14'20"W, 1 female, E. Gonçalves *leg.* (IBSP 17428); Vargem, 22°53'20"S, 46°24'50"W, 1 female, 30.XI.1978, A. Ishmura *leg.* (IBSP 14386); Santa Cruz do Rio Pardo, 22°53'56"S, 49°37'58"W, 1 female (IBSP 12591); Botucatu, 22°53'9"S, 48°26'42"W, 1 male, III.2003, E. Wienkowski *leg.* (IBSP 112659); Florínia, 22°54'10"S, 50°44'16"W, 1 female, III.1970, G. Brisola *leg.* (IBSP 10119C); Campinas, 22°54'21"S, 47°3'39"W, 1 male, IV.2004, C. V. Guimarães *leg.* (IBSP 114884); Pindamonhangaba, 22°55'26"S, 45°27'43"W, 1 male, 23.X.1950, L. I. Hertl *leg.* (IBSP 12335); Bragança Paulista, 22°57'7"S, 46°32'31"W, 1 male, IV.2003, V. F. José *leg.* (IBSP 114183); Valinhos, 22°58'15"S, 46°59'45"W, 1 male, IV.2002, Prefeitura Municipal *leg.* (IBSP 114627); Ourinhos, 22°58'44"S, 49°52'15"W, 1 female, 1945, Prefeitura Municipal *leg.* (IBSP 10759); Capivari, 22°59'42"S, 47°30'28"W, 1 male, 18.III.1952, Centro de Saúde de Capivari *leg.* (IBSP 12852); Itatiba, 23°0'21"S, 46°50'20"W, 1 male, IV.2006, M. Ferraz *leg.* (IBSP 114789); Vinhedo, 23°1'48"S, 46°58'30"W, 1 male, IV.2004, J. R. Barbosa *leg.* (IBSP 115118); Porangaba, 23°10'33"S, 48°7'30"W, 1 female, 29.VII.1980, A. A. Tozo *leg.* (IBSP 14556); São José dos Campos, 23°10'44"S, 45°53'13"W, 1 male, IV.2001, D. R. Ribeiros *leg.* (IBSP 114986); Nazaré Paulista, 23°10'51"S, 46°23'42"W, 1 male, 17.VI.1986, E. Faltus *leg.* (IBSP 111240); Jundiaí, (Reserva Biológica Municipal da Serra do Japi), 23°11'9"S, 46°53'2"W, 1 male, XII.2003, L. A. Lunardelli *leg.* (IBSP

114802); Campo Limpo Paulista, 23°12'21"S, 46°47'2"W, 1 female, II.2004, Prefeitura Municipal *leg.* (IBSP 114911); Várzea Paulista, 23°12'39"S, 46°49'40"W, 1 female, 15.III.1977, Granja Barra Azul *leg.* (IBSP 14235); Porto Feliz, 23°12'54"S, 47°31'26"W, 1 female, VIII.1985, A. S. Filho *leg.* (IBSP 17763); Cesário Lange, (Campus da Betel do Brasil), 23°13'37"S, 47°57'10"W, 1 female, 20.IX.1948, J. Correia *leg.* (IBSP 11619); Itu, 23°15'50"S, 47°17'56"W, 1 male, IV.2002, E. Corati *leg.* (IBSP 114217); Francisco Morato, 23°16'55"S, 46°44'42"W, 1 female, IX.2004, M. S. Schwartz *leg.* (IBSP 115122); Boituva, 23°16'58"S, 47°40'19"W, 1 male, XI.1986, F. Mota *leg.* (IBSP 17349). Jacaré, 23°18'18"S, 45°57'57"W, 1 male, IV.2003, C. Aliade *leg.* (IBSP 114198); Cabreúva, 23°18'28"S, 47°7'58"W, 1 male, V.1981, G. Albano *leg.* (IBSP 14652); Franco da Rocha, 23°19'19"S, 46°43'37"W, 1 female, IV.2004, C. E. da Silva *leg.* (IBSP 115115); Mairiporã, 23°19'8"S, 46°35'13"W, 1 male, VI.2004, J. A. S. Velame *leg.* (IBSP 115139); Cajamar, 23°21'21"S, 46°52'37"W, 1 female, X.2004, R. Rodrigo *leg.* (IBSP 115132); Tatuí, 23°21'21"S, 47°51'25"W, 1 male, II.2003, S. E. Malaspina *leg.* (IBSP 114878); Caieiras, 23°21'50"S, 46°44'27"W, 1 male, IV.2001, O. Louva *leg.* (IBSP 112663); Arujá, 23°23'45"S, 46°19'15"W, 1 male, V.2003, J. R. Santana *leg.* (IBSP 115163); Itaí, 23°25'4"S, 49°5'27"W, 1 male, V.1985, G. Cortisi *leg.* (IBSP 17156); Araçariguama, 23°26'20"S, 47°3'39"W, 1 male, 02.IV.2001, D. Andrade *leg.* (IBSP 19431); Santana do Parnaíba, 23°26'38"S, 46°55'4"W, 1 male, V.2006, D. S. Vecchi *leg.* (IBSP 115095); Itaquaquecetuba, 23°29'9"S, 46°20'52"W, 1 female, 26.V.1994, J. P. Pacheco *leg.* (IBSP 111830); Piracaia, 23°3'14"S, 46°21'28"W, 1 male, XI.2003, I. Knysak *leg.* (IBSP 114876); Araçoiaba da Serra, 23°30'18"S, 47°36'50"W, 1 male, V.2003, F. E. Springer *leg.* (IBSP 115051); Barueri, 23°30'39"S, 46°52'33"W, 1 male, V.2006, J. P. C. Fernandes *leg.* (IBSP 114791); Sorocaba, 23°30'7"S, 47°27'28"W, 1 male, IX.2004, E. P. de Almeida *leg.* (IBSP 114927); Mogi das Cruzes, (Serra do Itapety), 23°31'22"S, 46°11'16"W, 1 male, 16.VI.1986, M. A. Clara *leg.* (IBSP 111241); Carapicuíba, 23°31'22"S, 46°50'9"W, 1 male, V.2006, M. V. Fontes *leg.* (IBSP 115097); Jandira, 23°31'40"S, 46°54'10"W, 1 male, III.2002, Prefeitura Municipal *leg.* (IBSP 114225); São Roque, 23°31'44"S, 47°8'6"W, 1 male, III.2004, P. H. Tavares *leg.* (IBSP 115137); Osasco, 23°31'58"S, 46°47'31"W, 1 female, X.2004, A. J. A. Augusto *leg.* (IBSP 15134). Suzano, 23°32'34"S, 46°18'39"W, 1 male, 19.IV.1954, V. Calixto *leg.* (IBSP 13279); Mairinque, 23°32'45"S, 47°10'58"W, 1 male, V.2006, G. G. dos Santos *leg.* (IBSP 114776); Itapevi, 23°32'56"S, 46°56'2"W, 1 male, 02.I.2002, G. Fernandes *leg.* (IBSP 114658); Alumínio, 23°32'6"S, 47°15'43"W, 1 male, 12.IV.02, J. E. de Oliveira *leg.* (IBSP 19625); Itapetininga, 23°35'31"S, 48°3'10"W, 1 female, 13.II.2007, Vigilância Epidemiológica de Itapetininga *leg.* (IBSP 113450); Vargem Grande Paulista, 23°36'10"S, 47°1'33"W, 1 male, VII.2006, E. J. Serra *leg.* (IBSP 115092). São Paulo, 23°31'S, 46°37'W, (Parque Estadual do Jaraguá), 1 female, I.2005, R. P. Indicatti *leg.* (IBSP 110995); 1 male, 15.V.2011, R. P. Indicatti *leg.* (IBSP 110996); (Reserva da Cidade Universitária Armando Sales de Oliveira, Universidade de São Paulo), 1 female,

26.V.2009, A. A. Nogueira, R. H. Willemart & T. H. Kawamoto *leg.* (IBSP 110997); (Bairro Pinheiros), 1 male, 27.I.2004 (IBSP 110465); Cotia, 23°36'14"S, 46°55'8"W, 1 female, IV.2007, J. L. de Santana *leg.* (IBSP 115089); Embu, 23°38'56"S, 46°51'7"W, 1 female, 2.II.2004, S. B. Canis *leg.* (IBSP 19963); Salto de Pirapora, 23°38'56"S, 47°34'22"W, 1 male, V.2004, R. Crozatti *leg.* (IBSP 115135); Ibiúna, 23°39'21"S, 47°13'22"W, 1 male, V.2004, P. França *leg.* (IBSP 114950); Mauá, 23°40'4"S, 46°27'39"W, 1 female, 1946, (IBSP 10828); Ribeirão Pires, 23°42'39"S, 46°24'46"W, 1 female, 25.IX.1947, M. Arariboia *leg.* (IBSP 10951); Pilar do Sul, 23°48'46"S, 47°42'57"W, 2 males, VI.1981, J. Zivai *leg.* (IBSP 14670); Indaiatuba, 23°5'24"S, 47°13'4"W, 1 male, IV.2004, J. M. dos Reis *leg.* (IBSP 115116); Louveira, 23°5'9"S, 46°57'3"W, 1 male, IV.2006, Prefeitura Municipal *leg.* (IBSP 114788); São Lourenço da Serra, 23°51'10"S, 46°56'34"W, 1 male, VII.2003, L. Fortunato Filho *leg.* (IBSP 114870); Santos, 23°56'16"S, 46°19'04"W, 1 female, 1945, Prefeitura Municipal *leg.* (IBSP 10772); Caçapava, 23°6'3"S, 45°42'25"W, 1 male, IV.2003, Prefeitura Municipal *leg.* (IBSP 114869); Jarinú, 23°6'3"S, 46°43'40"W, 1 female, III.1981, R. F. Correa *leg.* (IBSP 17740); Tietê, 23°6'7"S, 47°42'54"W, 1 female, 1946, (IBSP 10791); Atibaia, 23°7'1"S, 46°33'0"W, 1 male, IV.2004, A. Ferraz *leg.* (IBSP 115130); Itupeva, 23°9'10"S, 47°3'28"W, 1 male, V.2004, J. Augusto Neto *leg.* (IBSP 114861); Capão Bonito, 24°0'21"S, 48°20'56"W, 1 female, III.1992, T. Sakamoto *leg.* (IBSP 17710); Itanhaém, 24°10'58"S, 46°47'20"W, 1 male, VI.1986, C. E. Vilara *leg.* (IBSP 17542); Juquiá, 24°19'15"S, 47°38'6"W, 1 male, V.1981, B. G. Lux Paisagismo Ltda. *leg.* (IBSP 14651); Registro, 24°29'16"S, 47°50'38"W, 1 male, IV.1980, M. Alves *leg.* (IBSP 14714); Itaóca, 24°38'24"S, 48°50'34"W, 1 male, 29.III.1952, G. Teixeira Filho *leg.* (IBSP 12875).

Description. Male (IBSP 17400). Color in live: general aspect brown. The color of carapace and dorsal side of the abdomen, including the femura, dark brown (Figure 1(a)).

Legs and chelicerae lighter brown. The dorsal side of the abdomen covered by orange or yellow short hairs. Total length 27.6. Carapace 14.7 long, 12.2 wide. Fovea procurved. Clypeus narrow. Eye group rectangular. Anterior eye row procurved, posterior recurved. Eyes sizes: AME 0.45, ALE 1.85, PLE 1.75, PME 1.45. Eye tubercle 1.8 long, 2.1 wide. Labium 3.7 long, 2.9 wide, with c.a. 200 cuspules. Endites with c.a. 50 cuspules each. Sternum convex, 7.2 long, 6.5 wide, with posterior sigillae two times larger than anterior. Cheliceral furrow with 10 teeth and 53 smaller basal teeth. Stridulatory apparatus with approximately 20 bristles. STC I 4, II 7, III 5, IV 6. Measurements: palp: femur 9.0, patella 5.4, tibia 7.5, cymbidium 7.2, total 29.1. Legs: I: femur 14.7, patella 6.5, tibia 11.5, metatarsus 9.5, tarsus 7.8, total 51.0; II: 12.4, 6.3, 9.7, 8.8, 6.7, 43.9; III: 14.0, 6.0, 8.0, 10.9, 7.0, 45.9; IV: 13.5, 6.5, 10.4, 14.5, 12.3, 57.2. Spines: palp: tibia p0-0-1-0-1-1-3ap; I: femur d0-1-0-0, tibia v0-2-0-1-1-0-0-1-2-1p-1-0-0-5ap, metatarsus v0-1-0-0-3ap; II: femur 0-0-1, tibia v0-1-1-0-0-1-0-2-0-1-1-1p-0-0-4ap, metatarsus

FIGURE 1: (a)–(d) *Acanthoscurria gomesiana*, all from the state of São Paulo. (a) Male from Jandira (IBSP 114225); (b)–(d) females color variation pattern. (b)–(c) From Trilha da Gruta (trail), Socorro (IBSP 110998; 110999); (d) from Parque Estadual do Jaraguá, São Paulo (IBSP 110996). Photos by R. P. Indicatti.

v0-1-0-2-0-0-1-0-0-3ap; III: femur d0-0-0-1, tibia v0-1-0-2-0-2-0-0-1-1p-2-0-1r-1-1p-6ap, metatarsus v1p-1-1-0-1-0-1r-1-0-1-0-0-4ap; IV: femur d0-0-1, tibia v0-0-1-1-0-1-1-1-1p-0-0-3ap, metatarsus v1-1-0-1-1p-0-1r-1-0-2-1-2-0-1-1-1r-4ap. Scopulae on metatarsi I-II present throughout all ventral portions and are restricted to apical half on metatarsi III and apical third on IV. All tarsi scopulae entire. Tibial apophysis of leg I is large with 11 spines on apex (Figure 2(d)). Conical tubercle on palpal tibia (Figure 2(c)). Male palpal bulb with the embolus elongated ending like a shell with the prolateral superior and inferior keels confluent at the apex and with helical aspect (Figures 2(a) and 2(b)).

Female (IBSP 11257). Color as in male (Figure 1(b)), but lighter brown and dorsal side of the abdomen covered with brown short hairs. Total length 44.2. Carapace 21.2 long, 19.8 wide. Fovea procurved. Clypeus narrow. Eye group rectangular. Anterior eye row procurved, posterior recurved. Eyes sizes: AME 0.50, ALE 1.95, PLE 2.15, PME 1.45. Eye tubercle 2.3 long, 3.1 wide. Labium 5.3 long, 4.9 wide, with c.a. 250 cuspules. Endites with c.a. 110 cuspules each. Sternum convex, 10.2 long, 8.0 wide, with posterior sigillae two times larger than anterior. Cheliceral furrow with 10

teeth and 51 smaller basal teeth. Stridulatory apparatus with approximately 20 bristles. STC with two rows of 6 on tarsi I, 5 on II-III, 7 on IV. Measurements: palp: femur 12.2, patella 6.5, tibia 7.8, cymbidium 7.1, total 33.6. Legs: I: femur 15.5, patella 8.5, tibia 12.1, metatarsus 9.3, tarsus 6.1, total 51.5; II: 14.8, 7.9, 9.3, 8.8, 6.0, 46.8; III: 13.6, 7.1, 9.0, 10.5, 5.2, 45.2; IV: 15.7, 8.5, 10.6, 17.5, 6.9, 59.2. Spines: palp: tibia p0-1-1-0-1-4ap; I: femur d0-0-1, tibia v0-0-1-1p-0-3ap, metatarsus v1-0-0-3ap; II: femur d0-0-1, tibia v0-0-1-1r-1p-0-2ap, metatarsus v1-1-0-3ap; III: femur d0-0-1, tibia v1p-2-1r-0-0-2-0-3ap, metatarsus v1p-1-1-0-1-0-1r-1-0-1-0-0-4ap; IV: tibia v0-0-1r-1p-0-1-0-0-2ap, metatarsus v2-0-2-0-1-1r-0-2-1r-0-0-1-0-1-1-1r-5ap. Scopulae on metatarsi I-II present throughout ventral portion and are restricted to apical half of metatarsi III and IV. All tarsi with full scopulae. Spermathecae with basal membrane involving totally the two little lobes (Figures 2(e) and 2(f)).

Variation ($N = 20$). In some specimens, the sternum of *A. gomesiana* is very convex, and in others, it is slightly convex. Total length: male 21.2–36.2 and female 31.2–48.3.

FIGURE 2: (a)–(f) *Acanthoscurria gomesiana*. (a)–(b) Left male palpal (IBSP 117400). (a) Prolateral view; (b) retrolateral view; (c)–(d) male tibial apophysis; (c) ventral view; (d) prolateral view. (e)–(f) Female spermathecae (IBSP 111257); (e) dorsal view; (f) ventral view. Photos by André Girotti. Scale bars: 1 mm.

FIGURE 3: (a)–(b) Collecting site of *Acanthoscurria gomesiana* in the state of São Paulo. (a) Area near Trilha da Gruta (trail), Socorro. (b) Parque Estadual do Jaraguá, São Paulo. Photos by R. P. Indicatti.

FIGURE 4: (a)–(d) *Acanthoscurria gomesiana*, both from the state of São Paulo. (a)–(b) Female (IBSP 110998), Trilha da Gruta (trail), Socorro; (a) spider beside its burrow, waiting for a prey; (b) burrow; (c)–(d) Parque Estadual do Jaraguá, São Paulo. (c) Ravine and burrow (indicated by arrow). (d) Detail of a burrow from a juvenile specimen. Photos by R. P. Indicatti.

The general color of this species could be deep dark until lighter brown (Figures 1(a)–1(d)).

Distribution. Southeastern Brazil: states of Minas Gerais and São Paulo (Figure 6).

Remark 1. Mello-Leitão [4] described *A. gomesiana* based on several specimens from two districts of São Paulo city: Ipiranga and Butantã, São Paulo, Brazil. Part of the type material was deposited in the collection of the MZSP and an other in MNRJ, and he did not choose a holotype. Schiapelli & Gerschman de Pikelin [3] examined the type material from both collections and erroneously cited a holotype, a male, instead of a lectotype and paralectotypes. From all type materials, only the male MNRJ 49 was located, the specimen has attached a label, handwritten by Mello-Leitão: typus from São Paulo, and so we elected the same as lectotype.

Based on the study of the type material of *A. gomesiana*, descriptions of the species, redescription and illustrations of the sexual organs, male palpal bulb and seminal receptacle of female given by Schiapelli & Gerschman de Pikelin [3] of *A. gomesiana* and *A. violacea*, and exam of specimens of several

collections, *A. violacea* is considered a junior synonym of *A. gomesiana*. The option for *A. gomesiana*, although *A. violacea* is described some pages before, in the same paper, is due to the fact that *A. gomesiana* is the only type material available and is a common cited species, and *A. violacea* never more was cited since 1964 [3].

Acanthoscurria pugnax is considered a junior synonym of *A. gomesiana* based on the description, measurements, and spinulation of the legs, and figures of the male palpal bulb, tibial apophysis, and general dorsal aspect are given by Vellard [5], which agree with *A. gomesiana*. Also, the study of specimens of the type locality, Belo Horizonte, Minas Gerais, Brazil confirms the synonymy. The exam of the holotype of *A. aurita* confirms the junior synonymy with *A. gomesiana* which shares the same general aspect, mainly the morphology of the sexual organ.

4. Natural History

This species occurs in the Atlantic Forest (Figures 3(a) and 3(b)) and Brazilian savanna (Cerrado) of southeastern Brazil, between 300 and 1800 m elevations. The species is mainly nocturnal, but sometimes it can be found during the

FIGURE 5: (a)–(f) *Acanthoscurria gomesiana*, female from São Paulo, SP. (a)–(b) Mother care of egg sac, while the spiderlings begin out of it; (c)–(e) spiderlings in the first instar out of the egg sac. (d)–(e) Spiderlings in the second instar out of the egg sac. (f) Male-defensive threat display (IBSP 114950). Photos by R. P. Indicatti.

day and can dig tubular burrows under rocks, fallen trunks, and in ravines, near the ground level and also until about three meters height (Figures 4(a) and 4(c)). In the Parque Estadual do Jaraguá (PEJ), *Acanthoscurria gomesiana* occurs in the same habitat of some Nemesiidae, Idiopidae, and

also other species of Theraphosidae. The tubular burrows present a subcircular (oval) or triangular shape (Figures 4(b) and 4(d)), 3–7 cm wide and 3–5 cm height, and the depth ranging from 12 to 50 cm. The burrow is simple, horizontal with a small chamber, and different from the one observed

FIGURE 6: Distribution map of *Acanthoscurria gomesiana* (squares = metropolitan region of São Paulo).

by Pérez-Miles et al. [12] in *A. suina* Pocock, 1903, where the subcircular entrance was followed by an abrupt profile (step-shaped) vertical tube, continued by a horizontal great chamber. A female of *A. gomesiana* living in an anthropized area of the PEJ (Figures 3(b), 4(c), and 4(b)) was observed during the day digging its burrow with its palps and legs I-II, as occurs in some other Theraphosidae [12, 13]; granular soil was found near the entrance (Figure 4(d)) as occurs in the entrances of *A. suina* and *Eupalaestrus weijenberghi* Thorell, 1894 [12].

The observations were made with three females in the field and seven in captivity. The period in which they made the egg sacs was from December to February, and the hatching of spiderlings occurred from February to March. We did not observe the construction of egg sacs to determine if the spider deposited urticating setae on it, as reported by Melchers [14] and Marshall & Uetz [15], but the silk used to construct it was examined and had many type I setae throughout the egg sac structure. Females took care of egg sacs during 50–70 days until the spiderlings hatch (Figures 5(a) and 5(b)). The number of spiderlings ranged from 300 to 570 (Figures 5(c)–5(e)), which represents an average number if compared to other theraphosids species [16]. The measurement of oval egg sac shape was 6.5×5.0 cm ($n = 470$ spiderlings and about 40 nonhatched eggs). The mother care of the spiderlings was observed until the second instar was completed.

These spiders are aggressive and, when disturbed, they bite and easily throw urticating setae, and they can also display defensive behavior by raising the anterior legs, palp, and opening the chelicerae, to expose the red ventral setae (Figure 5(f)). Also they can release poison droplets or give false attacks, mainly males, like *A. suina* [12]. It

is the most commonly found Theraphosidae species in the metropolitan region of São Paulo, inhabiting peridomiliary areas [17]. Due to these factors it is the Mygalomorphae species which causes the greatest number of accidents in humans in the state of São Paulo, and all accidents presented no complications. The accidents caused only local pain [18].

For phenology were included data from 715 specimens of *A. gomesiana* from 646 municipalities from the state of São Paulo and 69 from the state of Minas Gerais. From the state of São Paulo, 249 specimens were obtained from metropolitan region of the municipality of São Paulo (Figure 7(b)).

Males presented the reproductive period in March, April, and May, in late Summer and early Fall, with a peak in April (Figures 7(a) and 7(b)). Females had two periods of increased activity: one in March, April, and May, in late summer and throughout autumn and another in October and November, during the spring; both without a well-defined peak, opposite to what had occurred with males (Figures 7(a) and 7(b)). Only the first period of activity was considered as reproductive for females, because it occurs simultaneously in both sexes. The overall results show that *A. gomesiana* presents only a well-defined reproductive period during the year (univoltine), which runs from late summer to early fall, with a peak occurring in April. The rest of the year presents low reproductive activity (Figures 7(a) and 7(b)). If only data of spiders collected in the metropolitan region of São Paulo were considered, the first peak period of increased activity of females occurs in May and not in April, and the second period is slightly longer than the first (Figure 7(b)). Some possible interpretations for the two peaks of females could be looking for a new burrow during the rainy season, foraging after long period of inactivity due to construction of the egg sac, and care of spiderlings.

FIGURE 7: (a)-(b) Phenology-based specimen activity (individuals/months) of *A. gomesiana*, during the last 64 years (1946–2010). (a) States of São Paulo and Minas Gerais. (b) Metropolitan region of São Paulo (MRSP).

5. Species Inquirendae

The descriptions of the two species were based on color, eyes distance, and other characters and nowadays not considered so important in taxonomy, without figures of the sexual structures, and does not allow an identification of the two species. So we considered the two, *A. cunhae* and *A. melanotheria*, *Species inquirendae*.

Acanthoscurria cunhae Mello-Leitão, 1923.

Acanthoscurria cunhae Mello-Leitão, 1923: 282, figures 55–59, 168.

Type material. Holotype male from Belo Horizonte, Minas Gerais, Brazil. Almeida Cunha leg. should be deposited in the MNRJ 1397, not located, considered lost.

Acanthoscurria melanotheria Mello-Leitão, 1923.

Acanthoscurria melanotheria Mello-Leitão, 1923: 310.

Type material. Holotype female from Minas Gerais, Brazil. Handwritten note on the collection card, Goiás, Brazil, should be deposited in the MNR 1398, not located, considered lost.

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