

Redescription and new distribution records of *Acanthoscurria natalensis* (Araneae: Mygalomorphae: Theraphosidae)

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ABSTRACT. *Acanthoscurria natalensis* Chamberlin, 1917 is redescribed. The following species are considered junior synonyms of *A. natalensis*: *A. cursor* Chamberlin, 1917, *A. fracta* Chamberlin, 1917, *A. rondoniae* Mello-Leitão, 1923, *A. chiracantha* Mello-Leitão, 1923, and *A. parahybana* Mello-Leitão, 1926. All examined specimens, including the types, share the same general aspect, morphology of the sexual organs, color, and measurements. *Acanthoscurria natalensis* resembles *A. paulensis* Mello-Leitão, 1923 and *A. chacoana* Brèthes, 1909 in the general aspect, size, and by the morphology of the sexual organs: male palpal bulb with embolus ending like a shell, due to the prolateral and superior keels. It can be distinguished from these two species by the less developed keels and the longer embolus. The female resembles *A. paulensis* and *A. chacoana* by the fused base of the spermathecae and differs by the more evident lobes, projected from base. The distribution of *A. natalensis* is expanded to Brazilian states covering the Caatinga and the Cerrado biomes.

KEY WORDS. Caatinga; Cerrado; synonymies; taxonomy; Theraphosinae.

Acanthoscurria Ausserer, 1871, with 39 described species (PLATNICK 2011), is widely distributed in the Neotropical region, mainly in South America. The genus is characterized by the presence of stridulating bristles on the retrolateral face of the palpal trochanter, only one tibial apophysis on leg I and a retrolateral nodule on palpal tibia of males. Females can be recognized by the seminal receptacles with a common base and two lobes, more or less evident (SCHIAPELLI & GERSCHMAN DE PIKELIN 1979, PÉREZ-MILLES *et al.* 1996). Early descriptions of species in this genus (AUSSENER 1871, C.L. KOCH 1842, MELLO-LEITÃO 1923) emphasized ambiguous features, such as color, eyes position and distances between them, but did not present illustrations or detailed descriptions of the male palpal bulb and seminal receptacles of females, nowadays considered important in spiders taxonomy. Several species are known only from their holotypes and most descriptions are poor in details. For example, CHAMBERLIN (1917) described three species based on single specimens deposited in the Museum of Comparative Zoology (Harvard University), two from northeastern Brazil (*A. natalensis* Chamberlin, 1917, based on a female from Natal, Rio Grande do Norte, and *A. cursor* Chamberlin, 1917, based on a male from Maranguape, Ceará), and a third from northern Brazil, *A. fracta* Chamberlin, 1917 (based on a male from Pará). The holotypes of the first two species were reexamined by SCHIAPELLI & GERSCHMAN DE PIKELIN (1964), who mentioned

more details and supposed that both could belong to the same species. MELLO-LEITÃO (1923) described *A. rondoniae* Mello-Leitão, 1923 based on a single female from São Luiz de Cáceres (currently Cáceres), Mato Grosso, and *A. chiracantha* Mello-Leitão, 1923, based on a single male from São Paulo. MELLO-LEITÃO (1926) described *A. parahybana* Mello-Leitão, 1926, based on a single male from Campina Grande, Paraíba. The study of type material and comparisons to specimens deposited in the Mygalomorph Collection of the Instituto Butantan, São Paulo, enabled us to redescribe and establish the junior synonymies of *A. natalensis*: *A. cursor*, *A. fracta*, *A. rondoniae*, *A. chiracantha*, and *A. parahybana*.

MATERIAL AND METHODS

The material examined is deposited in the collections of the Instituto Butantan, São Paulo (IBSP, curator: I. Knysak), Museu Nacional, Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ, curator: A. B. Kury), Museum of Comparative Zoology, Harvard University, Cambridge (MCZ, curator: G. Giribet), Muséum National d'Histoire Naturelle, Paris (MNHN, curator: C. Rollard), and Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires (MACN, curator: C.L. Scioscia). Spine notation follows PETRUNKEVITCH (1925). 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 are maximum values. Total body length excludes pedicel and spinnerets. The drawings were made on a Leica MZ12 with a camera lucida. Abbreviations: (AME) anterior median eyes, (ALE) anterior lateral eyes, (PLE) posterior lateral eyes, (PME) posterior median eyes, (STC) superior tarsal claws; Spines: (ap) apical, (d) dorsal, (v) ventral, (p) prolateral, (r) retrolateral; Keels: (PI) prolateral inferior keel, (PS) prolateral superior keel, (A) apical keel (BERTANI 2000).

TAXONOMY

Acanthoscurria natalensis Chamberlin, 1917

Figs 1-9

Acanthoscurria natalensis Chamberlin, 1917: 64 (female holotype from Natal, Rio Grande do Norte, Brazil, Stanford 1911 Exped. leg W.M. Mann, MCZ 88, examined); Schiapelli & Gerschman de Pikelin, 1964: Pl. II, figs 1-2.

Acanthoscurria cursor Chamberlin, 1917: 65, Pl. IV fig. 10 (male holotype from Maranguape, Ceará, Brazil, Stanford 1911 Exped. leg W.M. Mann, MCZ 92, examined); Schiapelli & Gerschman de Pikelin, 1964: Pl. II, figs 15-18. **Syn. nov.**

Acanthoscurria fracta Chamberlin, 1917: 66, Pl. V fig. I (male holotype from Pará, Brazil, N. Thayer Exped., MCZ 87, examined). **Syn. nov.**

Acanthoscurria rondoniae Mello-Leitão, 1923: 287 (female holotype, only seminal receptacle available, from São Luiz de Cáceres [currently Cáceres], Mato Grosso, Brazil, leg. E. de Oliveira, MNRJ 28, examined); Schiapelli & Gerschman de Pikelin, 1964: Pl. II, fig. 24. **Syn. nov.**

Acanthoscurria chiracantha Mello-Leitão, 1923: 279, figs 81, 82, 89, 181 (male holotype from São Paulo, Brazil, MNRJ 38, examined); Schiapelli & Gerschman de Pikelin, 1964: Pl. II, figs 19-23. **Syn. nov.**

Acanthoscurria parahybana Mello-Leitão, 1926: 321 (male holotype from Campina Grande, Paraíba, Brazil, leg. T. Leitão, MNRJ 42, examined). **Syn. nov.**

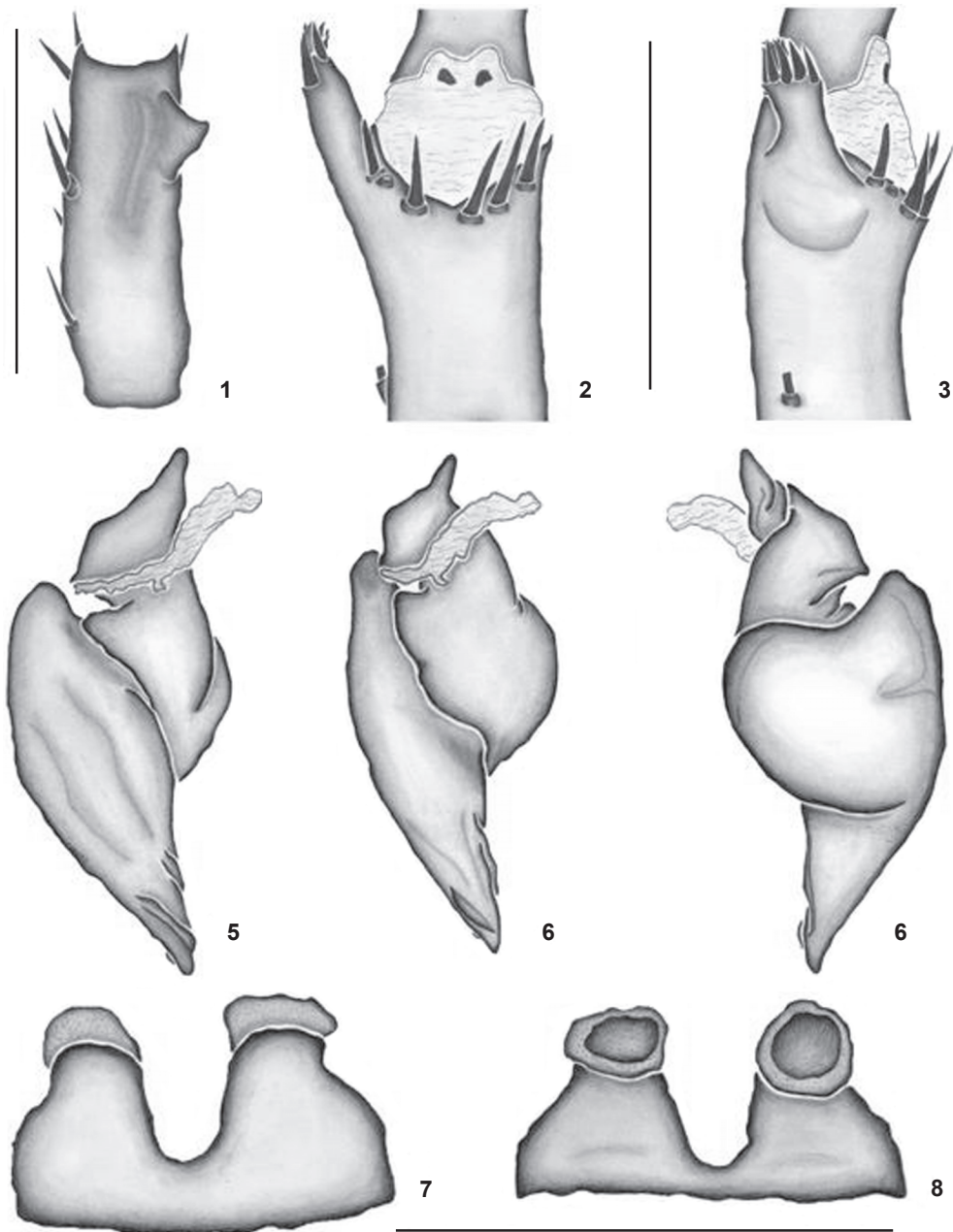
Diagnosis. Males of *A. natalensis* resemble those of *A. paulensis* and *A. chacoana* in the aspect of the palpal organ with an embolus with two prolateral keels, one superior and the other inferior, and the presence of a blunt tubercle on the palpal tibia (Fig. 1), but can be distinguished by the less developed keels with a well marked anterior projection of the embolus (Figs 4-6). Females can be distinguished from other species of the genus by the lobes of the seminal receptacle more projected and with a narrower base (Figs 7 and 8).

Description. Male (IBSP 115328). Coloration in life: carapace dark brown bordered with short yellowish hairs. Femora with same coloration of carapace. Dorsal and ventral aspect of legs and body light brown, covered with short pale reddish hairs.

Total length 38.2. Carapace 18.2 long, 16.8 wide. Fovea procurved. Clypeus narrow. Eye group rectangular. Anterior eye row procurved, posterior recurved. Eye sizes: AME 0.50, ALE 1.65, PLE 1.96, PME 1.35. Eye tubercle 2.1 long, 2.9 wide. Labium 2.49 long, 2.48 wide, with 107 cuspules. Endites with 249 cuspules each. Sternum moderately convex, 8.5 long, 7.0 wide, with posterior sigillae two times larger than anterior pair. Cheliceral furrow with 11 teeth and 39 smaller basal teeth. Stridulatory apparatus with approximately 20 bristles. STC I-II with 6 teeth, III-IV with 5. Palp: femur length 11.1, patella 5.8, tibia 9.9, cymbium 4.8, total 31.6. Legs: I: femur 19.2, patella 9.0, tibia 14.0, metatarsus 15.9, tarsus 9.0, total 67.1; II: 17.9, 7.6, 13.9, 14.1, 9.1, 62.6; III: 15.0, 7.1, 12.1, 15.1, 7.9, 57.2; IV: 17.5, 7.6, 15.8, 21.1, 9.0, 71.0. Spines: palp: femur d0-0-0-1, tibia p0-1-0-1-0-1-1-1-1-4ap; I: femur d0-0-0-1, tibia v1-0-0-2-1p-1-1-1-0-2-1p-5ap, metatarsus v0-0-1-1ap; II: femur d0-0-0-0-1, tibia v2-0-1-1p-1-0-0-2-1-1p-0-3ap, metatarsus v0-2-1-0-0-2ap; III: femur d0-0-0-0-1, patella d0-1r-0, tibia v1-0-1-2-0-2-0-2-0-4ap, metatarsus v0-0-1-1-2-0-0-2-0-0-1p-5ap; IV: femur d0-0-0-0-1, patella d0-1r-0, tibia v0-0-1p-1r-0-1-2-0-3-0-3ap, metatarsus v1-1-0-0-1-1-0-1-0-1-0-1-1-0-1-1-0-2-1r-2-0-0-2-1-1-2-4ap. Scopulae on metatarsi I-II throughout ventral portion, restricted to apical half of metatarsi III and apical third of IV. All tarsi with undivided scopulae. Tibial apophysis of leg I large with 8 spines on apex (Figs 2 and 3). Palpal tibia with blunt retrolateral tubercle (Fig. 1). Male palpal bulb with long embolus, with shell-like end formed by two low keels, one superior and one inferior (Figs 4-6).

Female (IBSP 107155). Coloration as in male (Fig. 9). Total length 51.4. Carapace 24.5 long, 21.2 wide. Fovea procurved. Clypeus narrow. Eye group rectangular. Anterior eye row procurved, posterior recurved. Eye sizes: AME 0.70, ALE 2.39, PLE 1.74, PME 2.51. Eye tubercle 2.3 long, 3.2 wide. Labium 3.83 long, 4.19 wide, with 271 cuspules. Endites with 385 cuspules each. Sternum moderately convex, 11.6 long, 7.1 wide, with posterior sigillae two times larger than anterior. Cheliceral furrow with 12 teeth and 52 smaller basal teeth. Stridulatory apparatus with approximately 20 bristles. STC I with 5 teeth, II with 7, III with 4, IV with 6. Palp: femur length 13.2, patella 7.4, tibia 10.1, cymbium 9.8, total 40.5. Legs: I: femur 17.9, patella 10.2, tibia 13.8, metatarsus 12.8, tarsus 8.2, total 62.9; II: 15.3, 9.2, 11.5, 11.0, 7.8, 54.8; III: 13.9, 8.0, 10.0, 12.9, 6.9, 51.7; IV: 17.9, 10.1, 13.5, 17.3, 7.5, 66.3. Spines: palp: femur d0-0-0-1ap, tibia v0-1-0-1-1p-0-3ap; leg I: femur d0-0-0-1ap, tibia v1-0-0-1-0-1p-0-0-3ap, metatarsus v1-0-0-0-3ap; II: tibia v1-0-2-0-0-0-3ap, metatarsus v0-1-0-1r-0-0-3ap; III: tibia v0-0-2-1p-0-3ap, metatarsus v1p-0-1-1-0-1-1-0-1p-1r-1-0-0-0-4ap; IV: tibia v0-0-1r-0-2-0-2-0-4ap, metatarsus v0-1-0-1-0-0-1-0-0-1r-1-1-1p-0-1-0-1-1-0-2-0-2ap. Scopulae on metatarsi I-II throughout ventral portion, restricted to apical half of metatarsi III and apical third of IV. All tarsi with undivided scopulae. Spermathecae with narrower base and projected lobes (Figs 7 and 8).

Material examined. BRAZIL, Maranhão: São Luís, 2°32' 0.31"S, 44°18'20.76"W, 1 female, 1 immature, 15.VI.1966, Instituto



Figures 1-8. *Acanthoscurria natalensis*. (1) ventral view of left palpal tibia; (2-3) ventral and retrolateral views, respectively, of left tibial apophysis; (4-6) left male palpal bulb, IBSP 115328: (4) prolateral view; (5) prolateral-ventral view; (6) retrolateral view; (7-8) female spermathecae, IBSP 107155: (7) dorsal view; (8) ventral view. Scale bars 1 = 10 mm, 2-3 = 6 mm, 4-6 and 7-8 = 5 mm.

Agrônômico *leg.* (IBSP 103784); Itapecuru-Mirim, 3°23'54.94"S, 44°21'51.47"W, 1 female, 1 immature, II.1971, J.C. Freitas *leg.* (IBSP 104088); Santa Quitéria do Maranhão, Indústria Rosana, 3°30'1.53"S, 42°33'38.15"W, 1 female, 19.XII.2001, W. Flores *leg.* (IBSP 111414); Bacabal, 4°13'2.82"S, 44°46'52.01"W, 1 male,

12.XI.1999, A. Zanotti *leg.* (IBSP 108036); Caxias, Povoado Boa Vista, 4°51'7.65"S, 43°21'42.47"W, 1 female, 22.V.2004, J.S. Lopes *leg.* (IBSP 120498). Ceará: Fortaleza, 3°43'45.41"S, 38°33'25.11"W, 1 female, 16.XI.1960, A.R. Hoge & M.P. Paiva *leg.* (IBSP 100984); Ubajara, Parque Nacional de Ubajara, 3°51'25.59"S, 40°55'



Figure 9. *Acanthoscurria natalensis* (IBSP 109238), female from Lajeado, state of Tocantins, dorsal view. Photo: Rafael P. Indicatti.

35.75"W, 1 male, 1 female, 1 immature, VII-XII.2007, D. Loebmann *leg.* (IBSP 115328); Russas, 4°56'39.94"S, 37°58'22.45"W, 1 male, IV.1986, D. Elias *leg.* (IBSP 107527); Quixadá, 4°58'31.56"S, 39°1'21.79"W, 1 male, 15.III.1965, S. Cardoso *leg.* (IBSP 103706); Crateús, 5°11'55.51"S, 40°40'3.75"W, 1 female, V.1986, S. Lucas *leg.* (IBSP 107532); Pedra Branca, 5°29'2.76"S, 39°29'7.83"W, 1 male, 4.IX.1956, (IBSP 103484); Senador Pompeu, Fazenda Bom Lugar, 5°35'30.43"S, 39°21'59.49"W, 1 male, 24.VIII.82, Alfredo L. *leg.* (IBSP 109755); Parambú, 6°12'33.94"S, 40°41'49.03"W, 1 female, V.1985, D. Elias *leg.* (IBSP 107155). *Piauí*: Parnaíba, Campus Embrapa, 2°53'41.57"S, 41°45'18.20"W, 1 female, 3 immatures, 10.I-22.II.2005, D. Loebmann *leg.* (IBSP 111268); Teresina, 5°5'7.35"S, 42°48'9.79"W, 1 female, VIII.1978, R. Schwarck *leg.* (IBSP 102342B); Curimatá, 7°16'0.88"S, 40°49'58.30"W, 1 female, V.1986, P.S. Kawall *leg.* (IBSP 107529); São Raimundo Nonato, 9°0'38.68"S, 42°41'53.84"W, 1 female, 14.VIII.1978, Fundação Ruralista Curral Novo *leg.* (IBSP 104204A); Caracol, Parque Nacional da Serra das Confusões, 9°33'57.40"S, 45°28'0.44"W, 1 female, 11-26.I.2002, Giovana *leg.* (IBSP 111844). *Rio Grande do Norte*: Mossoró, 5°11'20.41"S, 37°19'46.79"W, 1 male, I.2008, D. Araújo *leg.* (IBSP 115326). *Tocantins*: Guaraí, Fazenda Marupiara, Km 300 BR 153, 8°48'18.56"S, 48°30'46.93"W, 1 male, F. F. Curcio *leg.* (IBSP 109775); Miracema do Tocantins, Usina Hidrelétrica Luíz Eduardo Magalhães, 9°45'31.06"S, 48°21'40.11"W, 1 male, 08.X.2001, C.Y. Fukai & E.K. Kashimata *leg.* (IBSP 110203); Palmas, 10°13'12.98"S, 48°16'30.39"W, 1 male, 1 female, 1 immature, 14.I.1982, V.L.C.

Olivetto *leg.* (IBSP 107216); Ipueiras, Fazenda Ouro Verde, 11°13'44.14"S, 48°27'2.99"W, 1 male, 01.XI.2001, I. Knysak *al. leg.* (IBSP 109355); Gurupí, 11°44'51.29"S, 49°3'33.29"W, 1 male, XII.1980, H. S. G. Schullz *leg.* (IBSP 104596). *Paraíba*: Santa Luzia, 6°51'51.86"S, 36°55'38.09"W, 1 male, 23.VI.1952, J. Soares de Oliveira *leg.* (IBSP 102962); Santa Rita, 7°7'0.70"S, 34°58'55.45"W, 1 female, X.2004, G.G. Santana *leg.* (IBSP 113176); Campina Grande, Distrito de Galante, 7°13'44.47"S, 35°53'10.97"W, 1 female, VIII.1985, J. J. Medeiros *leg.* (IBSP 107430). *Pernambuco*: Araripina, 7°34'40.07"S, 40°29'38.65"W, 1 female, 29.V.02, F. Soave *leg.* (IBSP 109798); Salgueiro, Sertão Central, 8°3'32.94"S, 39°7'48.07"W, 1 female, D.F.L. Silva *leg.* (IBSP 110392); Recife, 8°3'25.13"S, 34°52'51.94"W, 1 female, D.F.L. Silva *leg.* (IBSP 110689); Jaboatão dos Guararapes, 8°6'7.28"S, 35°0'31.05"W, 1 female, 27.X.1947, L. Sichiari *al. leg.* (IBSP 101021); Floresta, Usina Hidrelétrica de Itaparica, 8°30'24.94"S, 38°30'43.35"W, 4 females, 3 immatures, V.1988, W. Bockermann *leg.* (IBSP 104930). *Mato Grosso*: São Félix do Araguaia, 11°37'0.97"S, 50°41'51.90"W, 4 males, 2 immatures, *leg.* (IBSP 102678); Sapezal, Usina Hidrelétrica de Sapezal, 12°54'13.15"S, 58°54'56.06"W, 1 male, 2007, F.D. de Godoy *leg.* (IBSP 113749). *Bahia*: Santo Sé, Fazenda Castela, 9°45'33.81"S, 41°53'37.27"W, 2 males, 2.XII.1964, Cia. de Mineração Cominag *leg.* (IBSP 103699); Queimadas, 10°58'36.84"S, 39°37'30.40"W, 1 female, I.2004, *leg.* (IBSP 111415); Irecê, 11°17'59.51"S, 41°51'41.74"W, 1 immature, IX.1980, Marília Guimarães *leg.* (IBSP 104558); Capim Grosso, 11°22'27.57"S, 39°59'41.57"W, 1

male, 11.XII.1986, E.P. Rodrigues *leg.* (IBSP 104928); Riachão das Neves, 11°44'46.11"S, 44°54'26.27"W, 1 female, 18.II.1974, A. Pereira Filho *leg.* (IBSP 104234); Barreiras, Fazenda Inês Pita, 12°9'7.99"S, 44°59'7.01"W, 1 male, 31.VII.2000, A.D. Brescovit *et al.* *leg.* (IBSP 108687); Feira de Santana, 12°16'19.64"S, 38°57'28.39"W, 1 female, 12.III.1976, Paulo Cesar David *leg.* (IBSP 104182); Camaçari, 12°41'46.76"S, 38°19'26.92"W, 1 female, 30.VI.1986, Central de Polímeros da Bahia *leg.* (IBSP 104920); Salvador, 12°58'9.14"S, 38°30'30.03"W, 1 male, 1981, T.B. Nunes *leg.* (IBSP 107904). *Alagoas*: Campo Grande, 10°13'57.34"S, 36°30'13.80"W, 1 male, XI.1998, R.C. Abujamra *leg.* (IBSP 111981). *Sergipe*: Canindé de São Francisco, Usina Hidrelétrica Xingó, 9°37'33.26"S, 37°47'4.29"W, 1 immature, 06.XII.1996, A.D. Brescovit *et al.* *leg.* (IBSP 111982). *Goiás*: Minaçu, Usina Hidrelétrica da Serra da Mesa, Rio Tocantins, 13°49'50.21"S, 48°18'16.83"W, 2 females, 1996, Resgate de Fauna *leg.* (IBSP 111934); Posse, 14°3'55.99"S, 46°20'31.34"W, 1 male, 29.X.1991, V. G. da Silva *leg.* (IBSP 107254); Luziânia, Usina Hidrelétrica de Corumbá, 16°47'40.71"S, 47°55'48.40"W, 1 male, 22.XI.2005, Equipe Butantan *leg.* (IBSP 112939); Ipameri, 17°43'44.05"S, 48°8'56.66"W, 1 male, (IBSP 107223); Panamá, 18°9'33.13"S, 49°16'59.12"W, 1 male, J.E.B. Onaga *leg.* (IBSP 104688). *Minas Gerais*: 16°34'9.10"S, 46°36'37.69"W, 1 male, 6.XI.1975, Cia. Reflorestamento Rio Escuro *leg.* (IBSP 104164); Paracatu, 17°13'53.88"S, 46°53'1.90"W, 1 male, 23.II.2001, R.A. Gallon *leg.* (IBSP 160915). *Mato Grosso do Sul*: Coxim, 18°30'48.35"S, 54°42'55.86"W, 1 male, IX.1982, A. Marques *leg.* (IBSP 104183).

Distribution. Brazilian Caatinga and Cerrado: states of Pará, Maranhão, Piauí, Ceará, Rio Grande do Norte, Tocantins, Pernambuco, Paraíba, Mato Grosso, Bahia, Alagoas, Sergipe, Goiás, and Minas Gerais (Fig. 10).

Remarks. The type locality of *A. chiracantha* is doubtful and probably wrong. MELLO-LEITÃO (1923) mentioned only São Paulo as type locality with no further information. In the large Mygalomorph Collection of the Instituto Butantan, only two species of *Acanthoscurria* are represented from the state of São Paulo: *A. paulensis*, with a large distribution range (LUCAS *et al.* 2010) and *A. gomesiana* Mello-Leitão, 1923, which is a common species around the city of São Paulo according to MELLO-LEITÃO (1923).

The female allotype of *A. fracta* Chamberlin, described by VELLARD *et al.* (1945) from Alto Gy-Paraná, Mato Grosso, was originally deposited in MACN; it could not be located. The description and figures do not allow the identification of the species. The only information available on the type locality of *A. fracta* is "Pará." Due to these problems, the type localities of *A. chiracantha* and *A. fracta* are not given in Fig. 10.

The synonymies established in this article were based on the examination of holotypes and of specimens of the Mygalomorph Collection of the Instituto Butantan. The comparative study was based mainly on the palpal bulb, tubercle of the palpal tibia and tibial apophysis of leg I of males and seminal receptacle of females.



Figure 10. Known distribution of *Acanthoscurria natalensis*.

ACKNOWLEDGEMENTS

We wish to thank Irene Knysak and her lab staff, who collected the specimens from Tocantins, Brazil, reported in this article. We are grateful to Wilson Lourenço, Gustavo Ruiz, Rafael P. Indicatti, and Cristina Rheims for helpful comments on the manuscript and assistance. We also thank the following curators who sent us specimens for study: G. Giribet, A. B. Kury, C. Rollard, and C. L. Scioscia. This study was supported by funds from the INCTTox PROGRAM of Conselho Nacional de Desenvolvimento Científico e Tecnológico to FSP (ATP) and ADB (PQ) and Fundação de Amparo à Pesquisa do Estado de São Paulo.

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Submitted: 01.III.2011; Accepted: 23.IV.2011.

Editorial responsibility: Gabriel L.F. Mejdalani