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JOSÉ MOISÉS BATISTA PEREIRA FILHO

Filogenia da tribo Attacobiini Roewer, 1955 (Araneae, Corinnidae, Corinninae)

Belém,
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Dissertação apresentada ao Programa de Pós-graduação em Zoologia, do convênio da Universidade Federal do Pará e Museu Paraense Emílio Goeldi, como requisito parcial para obtenção do título de Mestre em Zoologia.
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Orientador: Dr. Alexandre Bragio Bonaldo

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SUMÁRIO

INTRODUÇÃO GERAL

As aranhas aqui tratadas são pertencentes à família Corinnidae, que somente se estabeleceu como tal a partir das evidencias do trabalho de Lehtinen (1967) sobre a artificialidade de Clubionidae, família que incluía Corinninae desde o trabalho de Simon (1897). Recentemente a composição da família sofreu alterações, passando a ser composta apenas por duas subfamílias, Corinninae e Castianeirinae, além de um agrupamento de gêneros considerados como *Incertae sedis* (Ramirez, 2014), passando a a ser composta por 659 espécies distribuídas em 58 gêneros (WSC, 2015). As subfamílias de Corinnidae são facilmente reconhecidas pelas morfologias do palpo do macho. Castianeirinae apresenta o bulbo do palpo em forma de pêra, enquanto Corinninae apresenta duto espermático com percurso helicoidal. Ambas as subfamílias compartilham uma placa epiginal única nas fêmeas; os palpos dos machos apresentam um alargamento no setor distal do ducto espermático; normalmente são desprovidos de apófise média, exceto em Attacobiini (tribo de Corinninae), nos gêneros neotropicais *Ianduba* Bonaldo e *Olbus* Simon e nos gêneros africanos *Mandaneta* Strand, *Procopius* Thorell e *Pseudocorinna* Simon (Corinnidae *insertae sedis*). Além disso, o corpo fortemente esclerotinizado, principalmente a carapaça (exceto em algumas espécies de *Olbus* e em alguns gêneros de Corinninae, incluindo os pertencentes à Attacobiini) e os espiráculos pulmonares largos, com bordas esclerotinizadas, são também características informativas para o reconhecimento da família.

A Tribo Attacobiini, objeto do presente estudo, inclui aranhas com história natural bastante peculiar, pois alguns dos representantes deste táxon vivem associados à colônias de formigas. Mello-Leitão (1923) quando descreveu a primeira aranha conhecida do grupo, *Attacobius luederwaldti* (Mello-Leitão), interpretou equivocadamente esse comportamento ao afirmar que esta espécie representava a primeira aranha parasita de saúvas (*Atta* sp.) conhecida. Roewer (1935) por ocasião da descrição de *A. attarum*, informou o que lhe fora relatado pelo coletor, Dr. Eidmann, que coletou estas aranhas nos ninhos de saúvas *Atta sexdens* (Linnaeus), indicando que as mesmas foram encontradas cavalgando a região dorsal do tórax destas formigas. Bonaldo & Brescovit (1998) ao descreverem *Ecitocobius comissator*, relataram que o único espécime conhecido desta espécie foi encontrado junto à uma correição de formigas do gênero *Eciton* Latreille, mas não que verificou-se o mesmo comportamento de equitação de *A. attarum*. Em 2001, Erthal & Tonhasca observaram *A. attarum* cavalgando formigas em um formigueiro de laboratório, indicando que as aranhas, nestas condições, eram capazes de predar as larvas das formigas. Ichinose *et al*. (2004) observaram que *A. luederwaldti* utilizam o período de voo nupcial de *Atta* sp. como estratégia de dispersão, pois elas permanecem sobre as formigas mesmo durante o voo. No trabalho de Da Silva Camargo *et al*. (2015) foi considerado que *A. attarum*, principalmente as fêmeas, utilizam o voo nupcial de *Atta sexdens* somente como estratégia de dispersão, pois não foram encontradas aranhas nos novos formigueiros.

As primeiras contribuições para a taxonomia destas aranhas foram confusas. A subfamília Myrmecobiinae foi proposta por Mello-Leitão (1923), para agrupar uma única espécie, *Myrmecobius luederwaldti*. Na ocasião o autor defendeu a proposição da subfamília devido a estas aranhas possuírem características tão singulares que não se enquadrariam em quaisquer das subfamílias até então propostas em Clubionidae. Posteriormente foi proposto *Attacobius* como um novo nome para o gênero, pois *Myrmecobius* estava pré-ocupado por um marsupial (Mello-Leitão, 1925). Mello-Leitão (1947) sinonimizou *Myrmeques* Roewer (1935) com *Attacobius*, sinonimizando a espécie-tipo, *Myrmeques attarum* Roewer, 1935, com *Attacobius luederwaldti*. Roewer (1955) alocou o nome do grupo tribal Attacobieae, na subfamília Liocraninae, Clubionidae, grupo que posteriormente foi elevado a família. Platnick & Baptista (1995) transferiram a tribo Attacobiini de Liocranidae para Corinninae (Corinnidae), tornando-a a única tribo aceita até o momento na subfamília, além de Corinnini, a tribo-tipo. Além disso, estes autores removeram *Attacobius attarum* da sinonímia de *A. luederwaldti*, trazendo à luz dois sinônimos adicionais do gênero, *Morenilia* e *Achalaicola*, propostos por Mello-Leitão (1942; 1943) em Gnaphosidae e Prodidomidae, respectivamente. Uma vez que *Morenilia* e *Achalaicola* são gêneros monotípicos e dado que que suas espécies-tipo foram sinonimizadas por Platnick & Baptista (1995), apenas uma espécie foi acrescida ao gênero na revisão de Platnick & Baptista, *A. nigripes* (Mello-Leitão, 1942). Uma nova espécie de *Attacobius* foi descoberta somente 56 anos após a última contribuição de Mello-Leitão, com a descrição de *A. verhaagui* por Bonaldo & Brescovit (1998). Contudo, a real diversidade de *Attacobius* foi reconhecida apenas após o trabalho de Bonaldo & Brescovit (2005) que acrescentaram seis espécies ao gênero, quatro das quais conhecidas por machos. Esta contribuição permitiu pela primeira vez uma apreciação da variação dos caracteres morfológicos do palpo do macho, uma vez que a única forma masculina conhecida até aquele momento era a de *A. attarum*.

Um segundo gênero de Attacobiini, o monotípico *Ecitocobius*, que aloca *E. comissator*, foi proposto por Bonaldo & Brescovit (1998). Esta espécie é a única representante de Corinnidae que apresenta apenas dois olhos e sua descoberta possibilitou testar as hipóteses de sinapomorfias que poderiam sustentar a monofilia da tribo propostas por Platnick & Baptista (1995). Segundo Platnick & Baptista (1995), a tribo distingue-se dos demais membros de Corinninae pela linha anterior dos olhos recurvada, grandes olhos medianos anteriores, poucos espinhos nas pernas, ápice das pernas e tarso do palpo das fêmeas escurecidos e comprimidos lateralmente, além da ausência de sérrula. A descoberta de *Ecitocobius* por Bonaldo & Brescovit (1998) indicou que a compressão lateral dos ápices dos tarsos é exclusiva de *Attacobius*. Desta forma esta característica não seria uma sinapomorfia de Attacobiini, mas do gênero. Eles também propuseram duas sinapomorfias putativas adicionais para a tribo: labium muito mais largo do que longo (característica já observada por Mello-Leitão em 1923 em *Attacobius luederwaldti*) e palpo do macho com um processo retrolateral longo e fino, medialmente embutido no tegulum, denominado como processo tegular Attacobiini, que mais tarde foi considerado homólogo à apófise média por Bonaldo & Brescovit (2005). *Ecitocobius* distingue-se de *Attacobius* pela ausência dos olhos posteriores e laterais anteriores e pela presença de um espinho curvo não pareado na região ventral apical dos metatarsos de todas as pernas. Outras características adicionais são a ausência de qualquer padrão distintivo nos olhos medianos anteriores e tarsos das pernas não modificados (Bonaldo & Brescovit, 1998).

Atualmente a tribo Attacobiini é composta por dois gêneros, *Attacobius* e *Ecitocobius*. O gênero *Attacobius* compreende 10 espécies válidas. As aranhas deste gênero ocorrem no Brasil e na Argentina. O gênero *Ecitocobius*, é representado por uma única espécie, conhecida apenas por um indivíduo macho coletado na Reserva Florestal Adolpho Ducke, Manaus, Amazonas, Brasil.

QUADRO 1. Lista de espécies válidas da tribo Attacobiini, espécies tipos dos gêneros marcadas com (*).

Espécie	**Autor**	**Sexo conhecido**
*Ecitocobius comissator**	Bonaldo & Brescovit, 1998	Macho
*Attacobius luederwaldti**	(Mello-Leitão 1923)	Fêmea
Attacobius attarum	(Roewer 1935)	Ambos
Attacobius nigripes	(Mello-Leitão 1942)	Fêmea
Attacobius verhaaghi	Bonaldo & Brescovit, 1998	Fêmea
Attacobius tucurui	Bonaldo & Brescovit, 2005	Macho
Attacobius lamellatus	Bonaldo & Brescovit, 2005	Ambos
Attacobius uiriri	Bonaldo & Brescovit, 2005	Macho
Attacobius blakei	Bonaldo & Brescovit, 2005	Macho
Attacobius carranca	Bonaldo & Brescovit, 2005	Ambos
Attacobius kitae	Bonaldo & Brescovit, 2005	Fêmea

Bonaldo & Brescovit (2005) realizaram a primeira análise cladística da tribo, a qual apontou para o monofilia de Attacobiini (Figura 1). Naquela análise, a tribo foi suportada por 18 sinapomorfias não ambíguas e seu valor de suporte de Bremer (SB) em termos de *fit* é o maior em todo o cladograma (43.0). *Attacobius* é suportado por 7 sinapomorfias não ambíguas e SB = 8.0. De acordo com o resultado da análise, *Attacobius* apresenta uma separação basal em dois clados, o primeiro composto por *A. tucurui*, *A. lamellatus* e *A. verhaaghi*, sendo estes dois últimos mais intimamente relacionados. O segundo clado é composto pelos demais representantes do gênero, sendo que um clado formado por três espécies, *A. attarum*, *A. luederwaldti* e *A. nigripes*, é o melhor suportado dentro do gênero com 4 sinapomorfias e SB = 3.0.

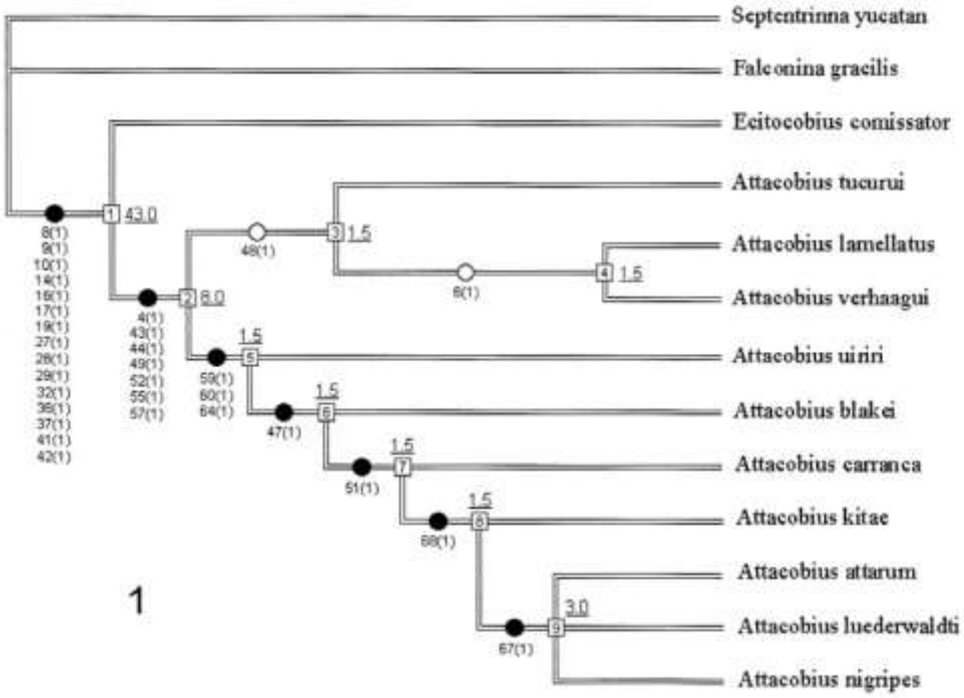

FIGURA 1: Filogenia de Attacobiini proposta por Bonaldo & Brescovit. Percebe-se que o suporte dos grupos de espécies de *Attacobius* foi mais fraco do que os suportes obtidos para a Tribo e para o gênero *Attacobius*. FONTE: Bonaldo e Brescovit (2005).

No intuito de obter uma análise mais completa e com maiores resolução e suporte, o presente trabalho realizou uma nova filogenia utilizando, além de todos os terminais usados por Bonaldo e Brescovit (2005), novos terminais (espécies descritas após o trabalho de Bonaldo e Brescovit, 2005), complementando a matriz com informação adicional sobre terminais incluídos originalmente (sexos não conhecidos naquela ocasião). Assim, apresenta-se a seguir a análise de uma matriz mais completa, incorporando as informações taxonômicas disponibilizadas por Pereira-Filho & Bonaldo (em preparação), que propuseram duas novas espécies de *Attacobius* (*Attacobius* sp. n. PAR e *Attacobius* sp. n. TOC) bem como apresentaram pela primeira vez as descrições do macho de *A. verhaaghi* e das fêmeas de *A. uiriri* e *A. blakei*.

Para facilitar a análise do trabalho, a seguir apresenta-se reproduções da documentação dos caracteres na bibliografia disponível e no trabalho de Pereira-Filho & Bonaldo (em preparação). A análise cladística é apresentada a seguir em formato de artigo científico a ser submetido ao periódico Zoologica Scripta. A documentação de caracteres apresentada neste artigo limita-se àquela não realizada em trabalhos anteriores. Informações entre colchetes serão retiradas da versão a ser encaminhada à publicação.

Xeropigo cotijuba De Souza & Bonaldo (Figura 2):

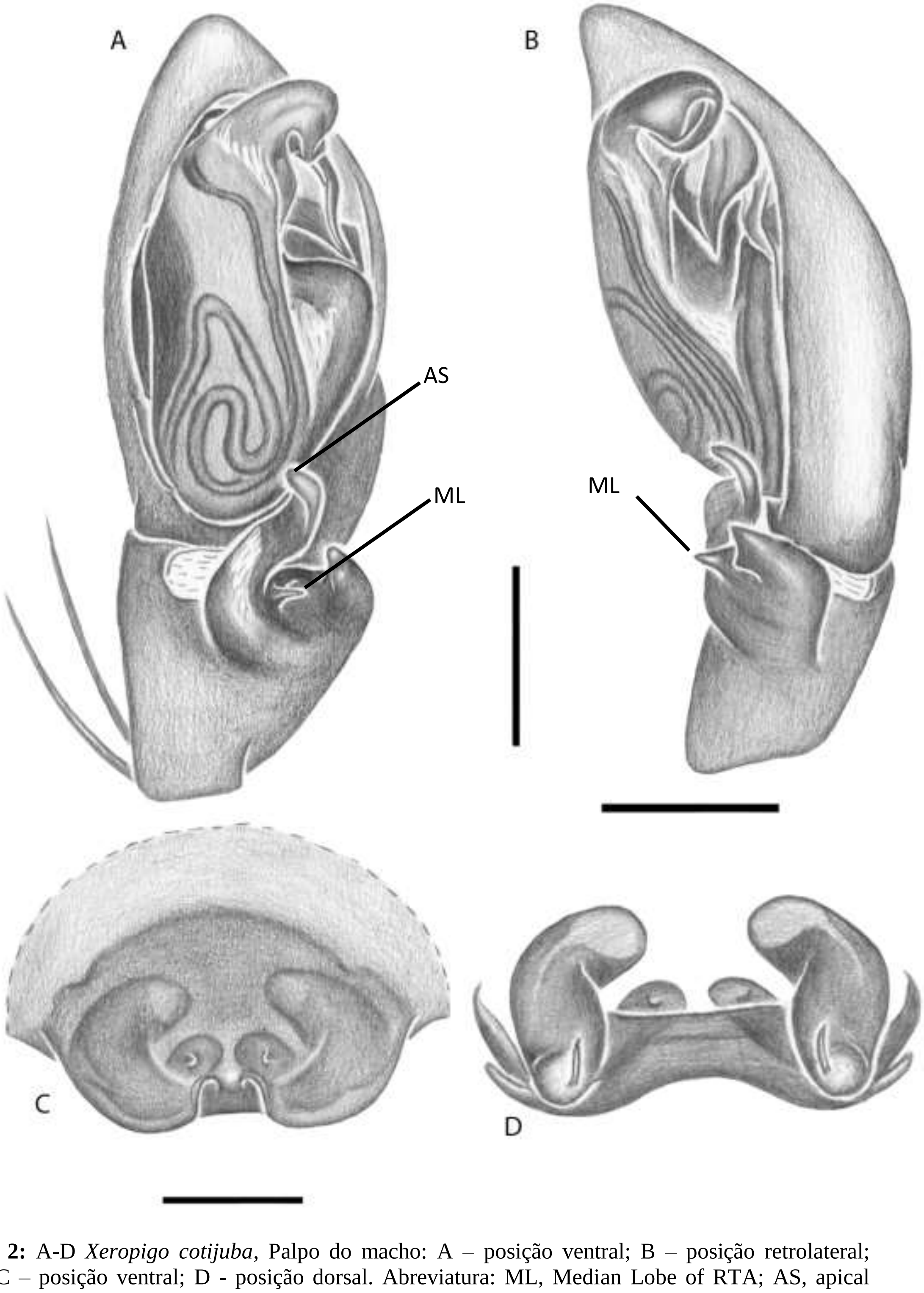

FIGURA 2: A-D *Xeropigo cotijuba*, Palpo do macho: A – posição ventral; B – posição retrolateral; Epígino: C – posição ventral; D - posição dorsal. Abreviatura: ML, Median Lobe of RTA; AS, apical spur. Barra de escala, 0,50 mm. FONTE: Modificado de De Souza & Bonaldo (2007).

Septentrinna yucatan Bonaldo (Figura 3):

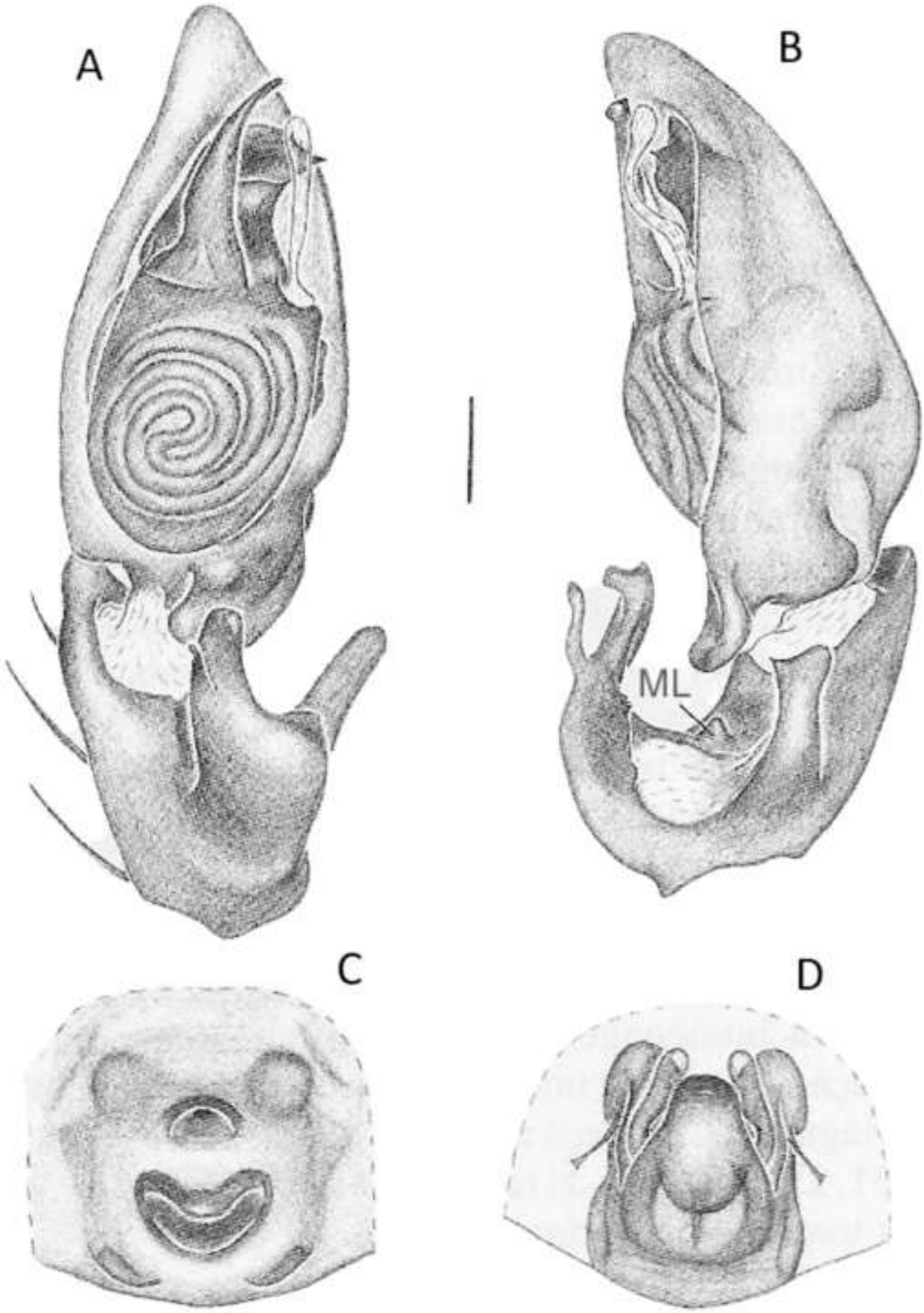

FIGURA 3: A-D *Septentrinna yucatan*, Palpo do macho: A – posição ventral; B – posição retrolateral; Epígino: C – posição ventral; D - posição dorsal. Abreviatura: ML, Median Lobe of RTA. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo (2000).

Falconina gracilis (Keyserling) (Figura 4):

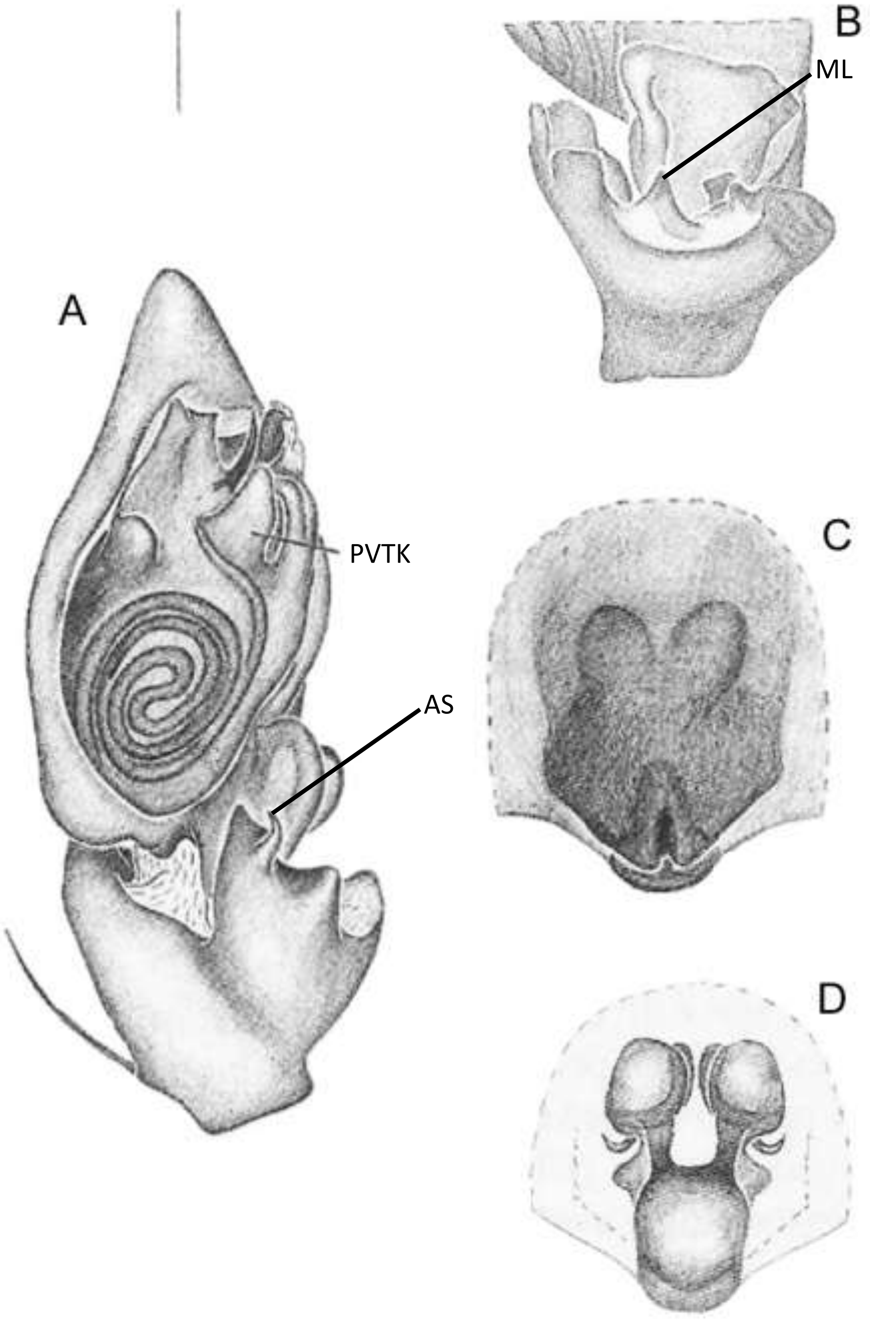

FIGURA 4: A-D *Falconina gracilis*, Palpo do macho: A – posição ventral; B – Tíbia retrolateral; Epígino: C – posição ventral; D - posição dorsal. Abreviaturas: PVTK, prolateral ventral tegular keel; AS, apical spur; ML, median lobe. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo (2000).

Ecitocobius comissator Bonaldo & Brescovit (Figura 5):

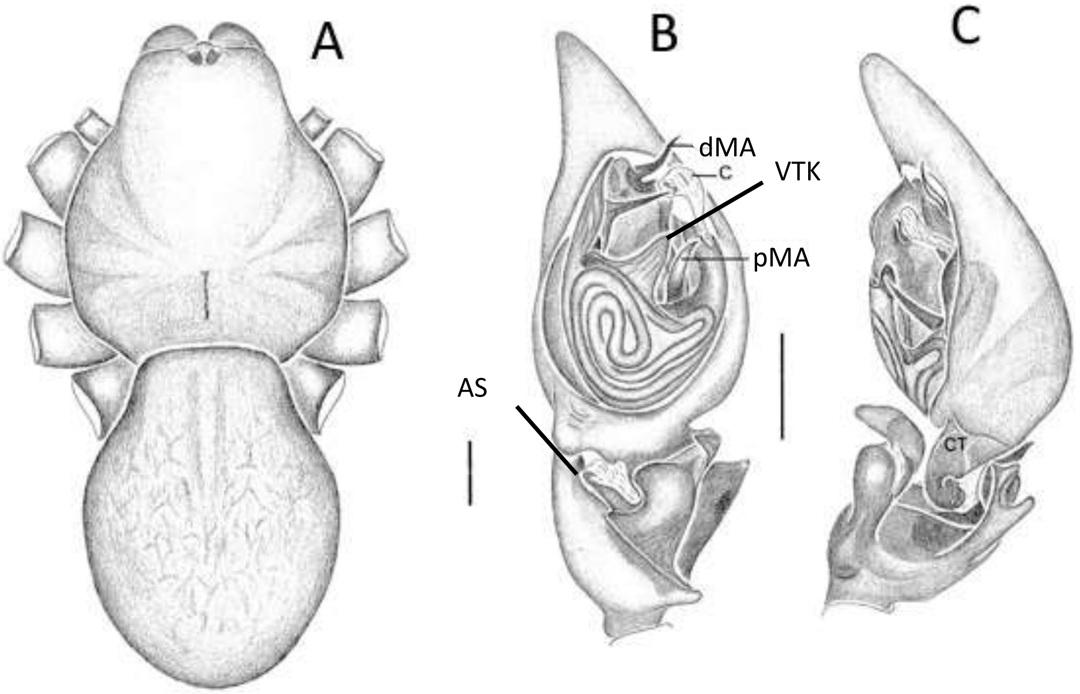

FIGURA 5: A-C *Ecitocobius comissator*, A – cefalotórax e abdome, vista dorsal; Palpo do macho: B – posição ventral; C – posição retrolateral. Abreviaturas: CT, cymbial tubercle; VTK, ventral tegular keel; AS, apical spur; dMA, distal end of median apophysis; pMA, proximal end of median apophysis. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (1998).

Attacobius tucurui Bonaldo & Brescovit (Figura 6):

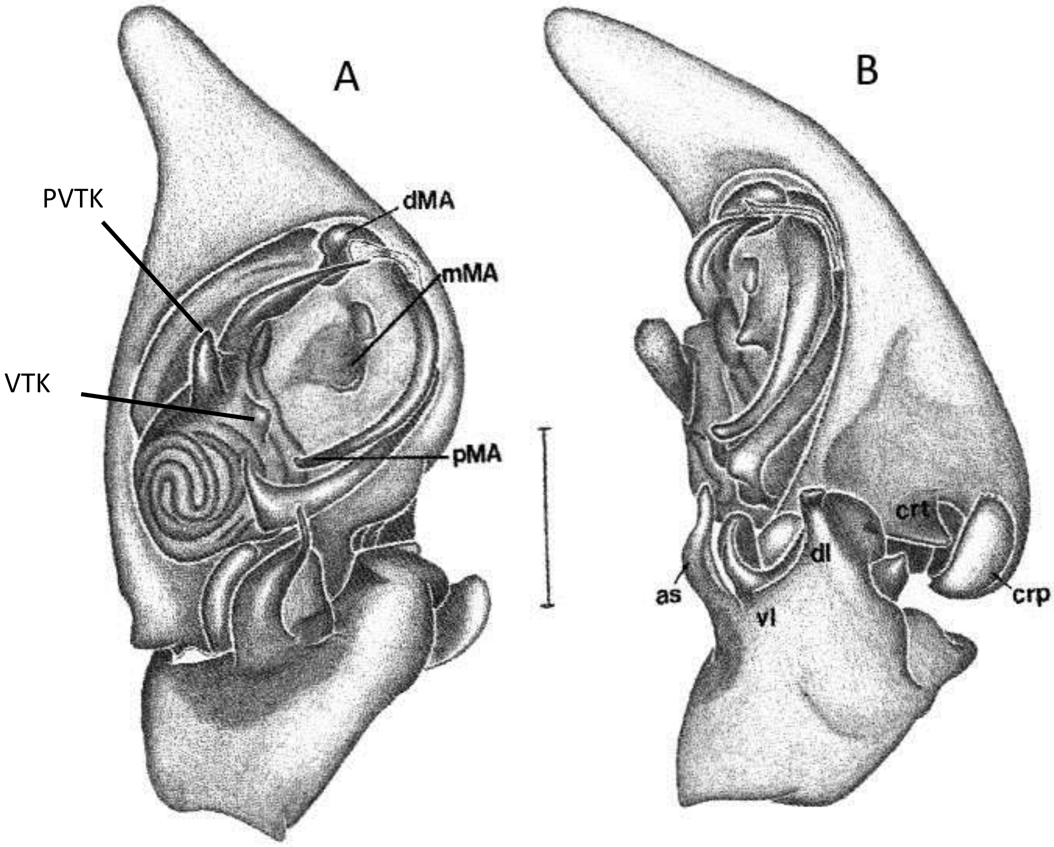

FIGURA 6: A-B *Attacobius tucurui*, Palpo do macho: A – posição ventral; B – posição retrolateral. Abreviaturas: AS, apical spur of VL; CRP, cymbial retrodorsal process; CRT, cymbial retrolateral tubercle; DL, dorsal lobe of RTA; VL, ventral lobe of RTA; dMA, distal end of median apophysis; mMA, median extension of median apophysis; pMA, proximal end of median apophysis; PVTK, prolateral ventral tegular keel; VTK, ventral tegular keel. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (2005).

Attacobius uiriri Bonaldo & Brescovit (Figura 7):

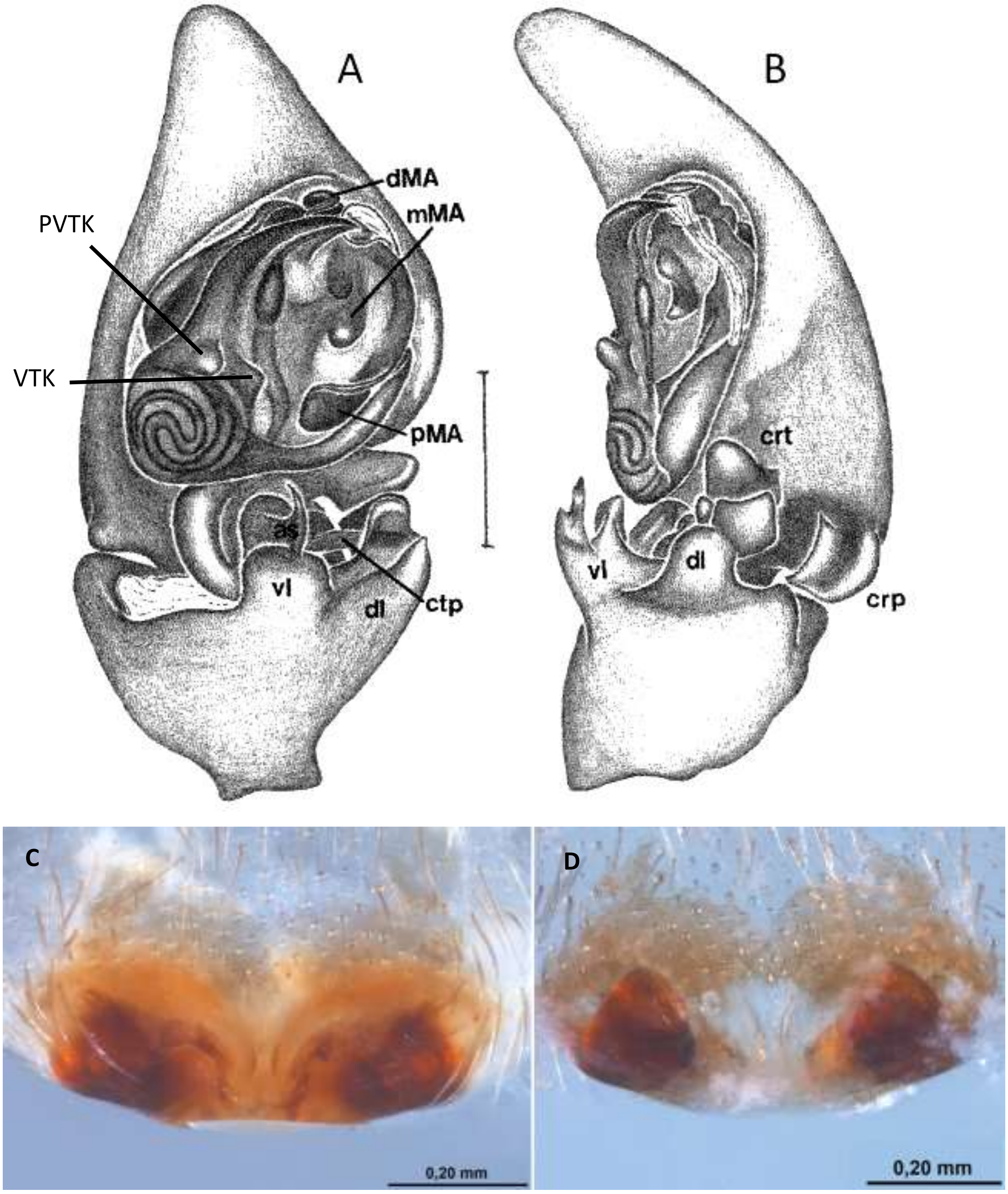

FIGURA 7: A-D *Attacobius uiriri*, Palpo do macho: A – posição ventral; B – posição retrolateral. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo & Brescovit (2005). Epígino da fêmea: C – posição ventral; D – posição dorsal. FONTE: Pereira-Filho & Bonaldo (em preparação). Abreviaturas: AS, apical spur of VL; CRP, cymbial retrodorsal process; CRT, cymbial retrolateral tubercle; DL, dorsal lobe of RTA; VL, ventral lobe of RTA; dMA, distal end of median apophysis; mMA, median extension of median apophysis; pMA, proximal end of median apophysis; PVTK, prolateral ventral tegular keel; VTK, ventral tegular keel.

Attacobius blakei Bonaldo & Brescovit (Figura 8):

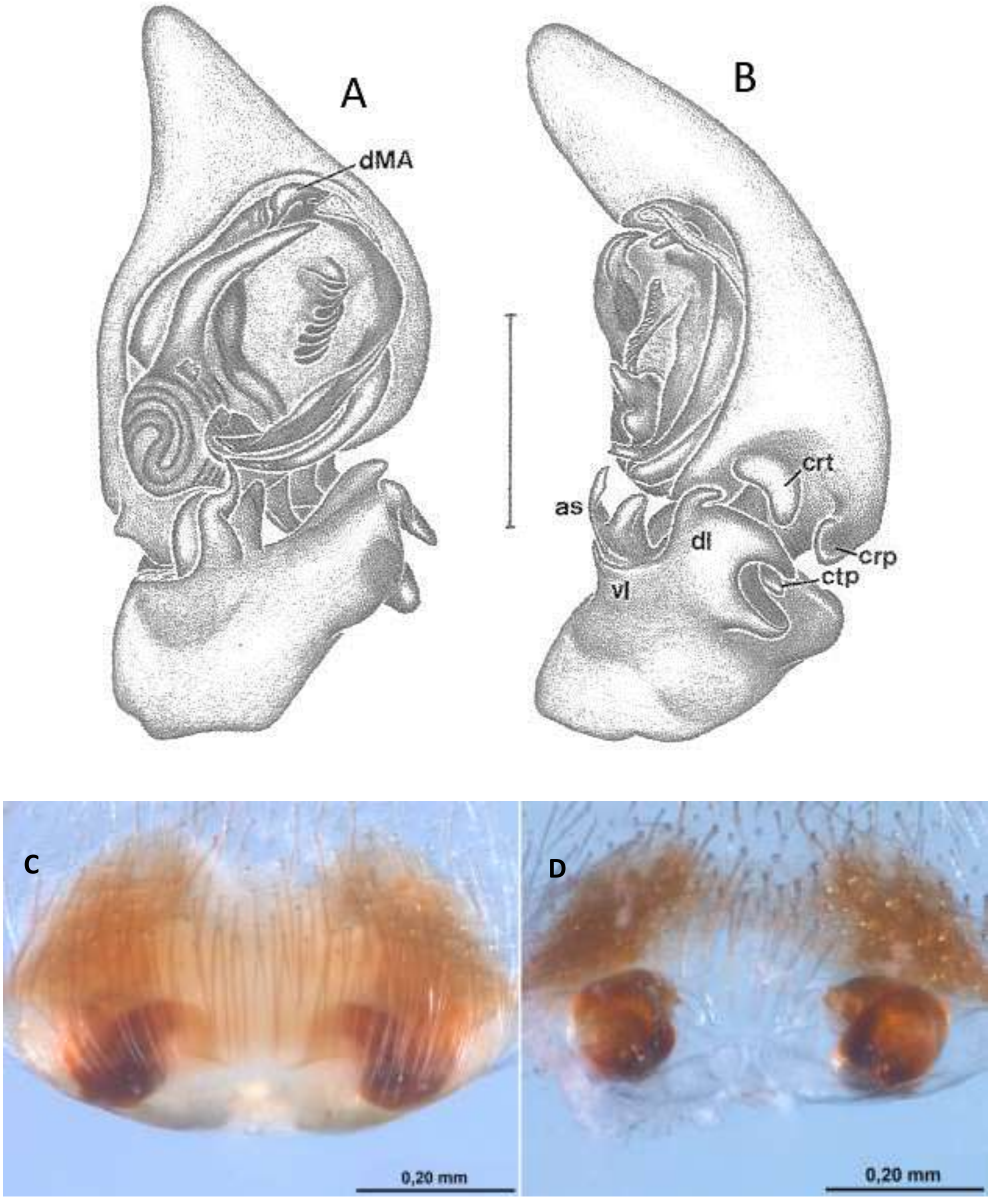

FIGURA 8: A-D *Attacobius blakei*, Palpo do macho: A – posição ventral; B – posição retrolateral. Barra de escala, 0,25 mm. FONTE: Bonaldo e Brescovit (2005). Epígino da fêmea: C – posição ventral; D – posição dorsal. FONTE: Pereira-Filho & Bonaldo (em preparação). Abreviaturas: AS, apical spur of VL; CRP, cymbial retrodorsal process; CRT, cymbial retrolateral tubercle; DL, dorsal lobe of RTA; VL, ventral lobe of RTA; dMA, distal end of median apophysis.

Attacobius attarum (Roewer) (Figura 9):

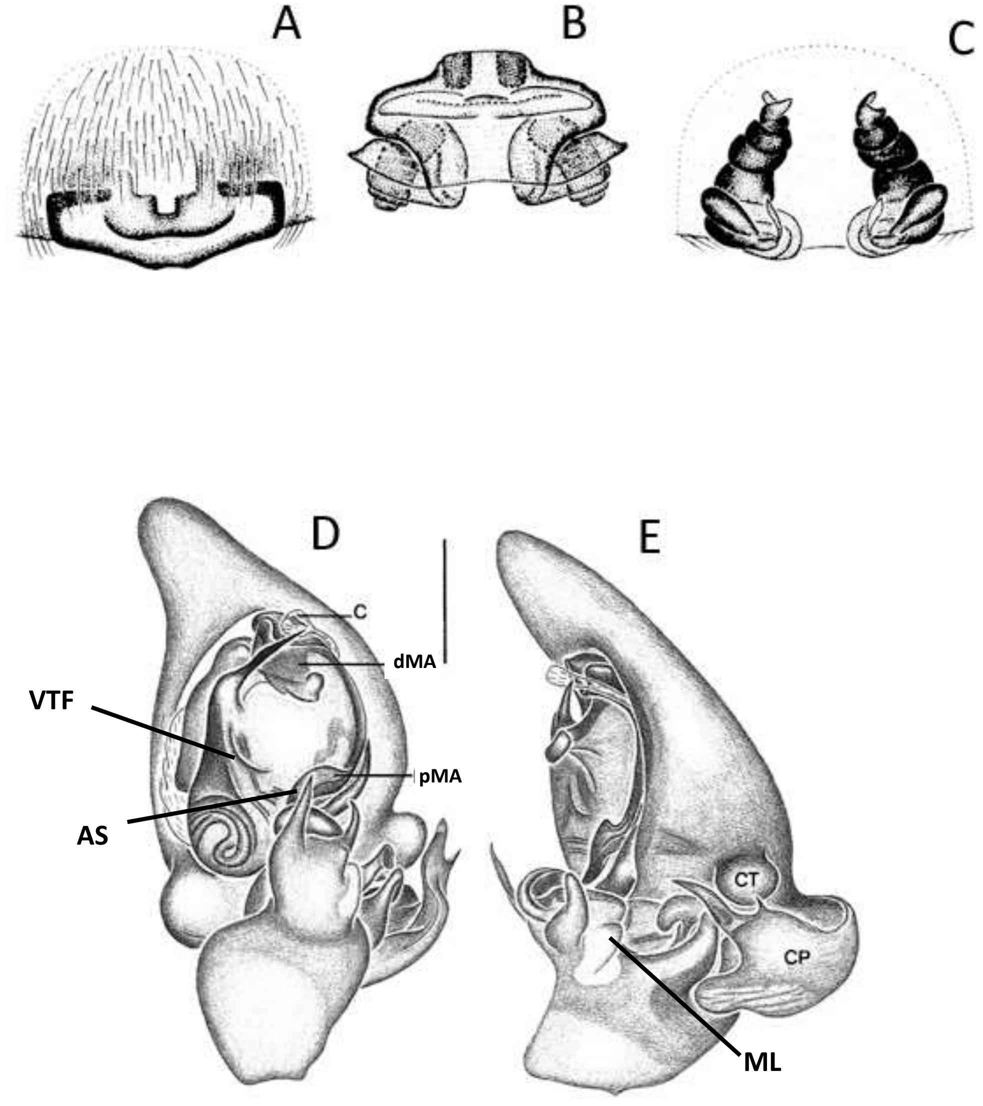

FIGURA 9: A-E *Attacobius attarum*, Epígino: A – posição ventral; B – posição posterior; C – posição dorsal. FONTE: Modificado de Platnick & Baptista (1995). Palpo do macho: D – posição ventral; E – posição retrolateral. FONTE e de Bonaldo e Brescovit (1998). Abreviaturas: C, condutor; CP, processo cimbial; CT, tubérculo cimbial; dMA, distal end of median apophysis; pMA, proximal end of median apophysis; VTF, ventral tegular flange; AS, apical spur; ML, median lobe. Barra de escala, 0,25 mm para os palpos; epíginos sem escala.

Attacobius carranca Bonaldo & Brescovit (Figura 10):

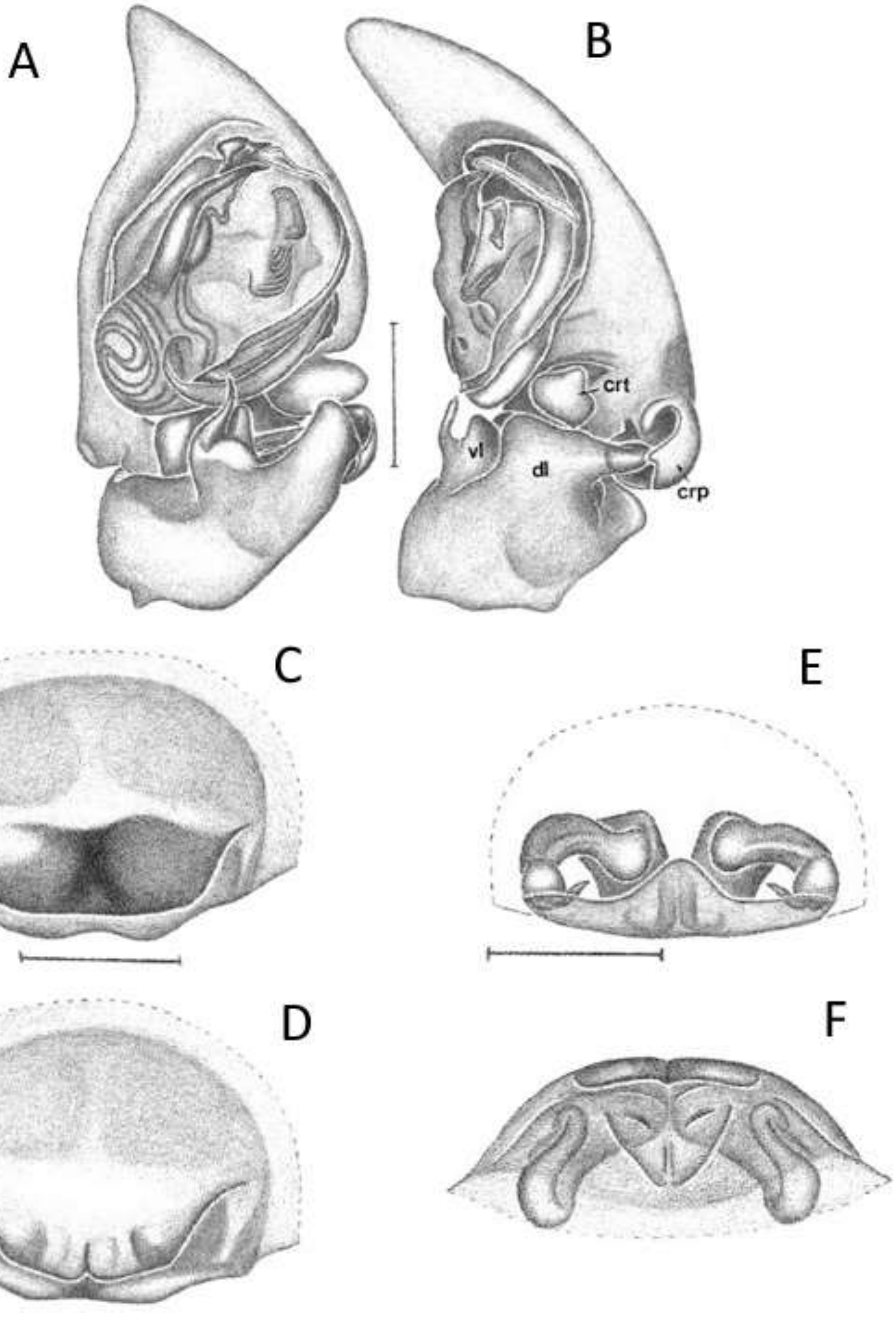

FIGURA 10: A-F *Attacobius carranca*, Palpo do macho: A – posição ventral; B – posição retrolateral. Epígino: C – posição ventral; D – variação, posição ventral; E – posição dorsal; F - posição posterior. Abreviaturas: CRP, processo cimbial retrodorsal; CRT, tubérculo cimbial retrolateral; DL, lobo dorsal da ATR; VL, lobo ventral da ATR. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (2005).

Attacobius lamellatus Bonaldo & Brescovit (Figura 11):

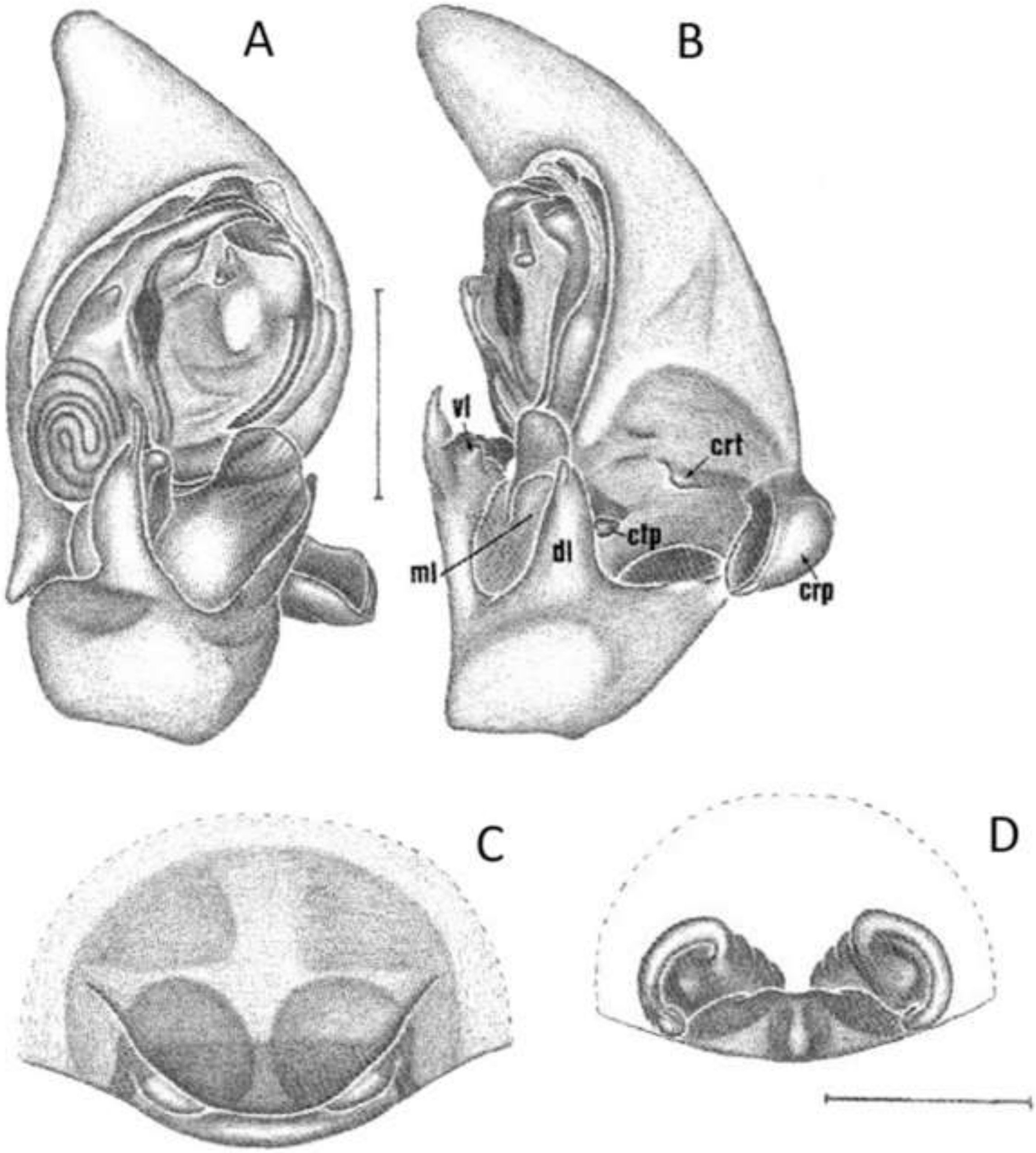

FIGURA 11: A-D *Attacobius lamellatus*, Palpo do macho: A – posição ventral; B – posição retrolateral. Epígino: C – posição ventral; D – posição dorsal. Abreviaturas: CRP, processo cimbial retrodorsal; CRT, tubérculo cimbial retrolateral; CTP, processo cimbial transverso; DL, lobo dorsal da ATR; VL, lobo ventral da ATR; ML, lobo médio da ATR. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (2005).

Attacobius luederwaldti (Mello-Leitão) (Figura 12):

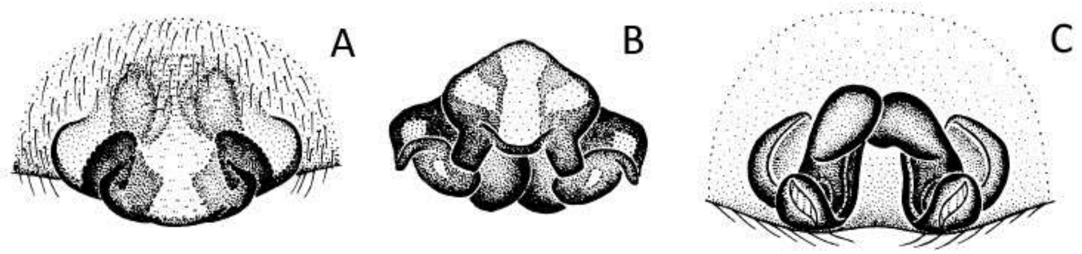

FIGURA 12: A-C *Attacobius luederwaldti*, Epígino: A – posição ventral; B – posição posterior; C – posição dorsal. Sem escala. FONTE: Modificado de Platnick e Baptista (1995).

Attacobius nigripes (Mello-Leitão) (Figura 13):

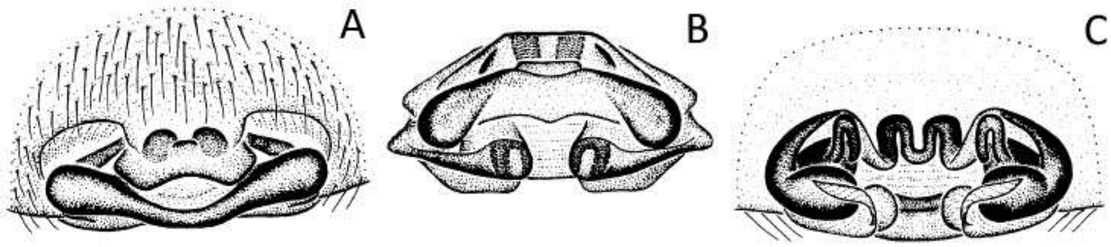

FIGURA 13: A-C *Attacobius nigripes*, Epígino: A – posição ventral; B – posição posterior; C – posição dorsal. Sem escala. FONTE: Modificado de Platnick e Baptista (1995).

Attacobius verhaaghi Bonaldo & Brescovit (Figura 14):

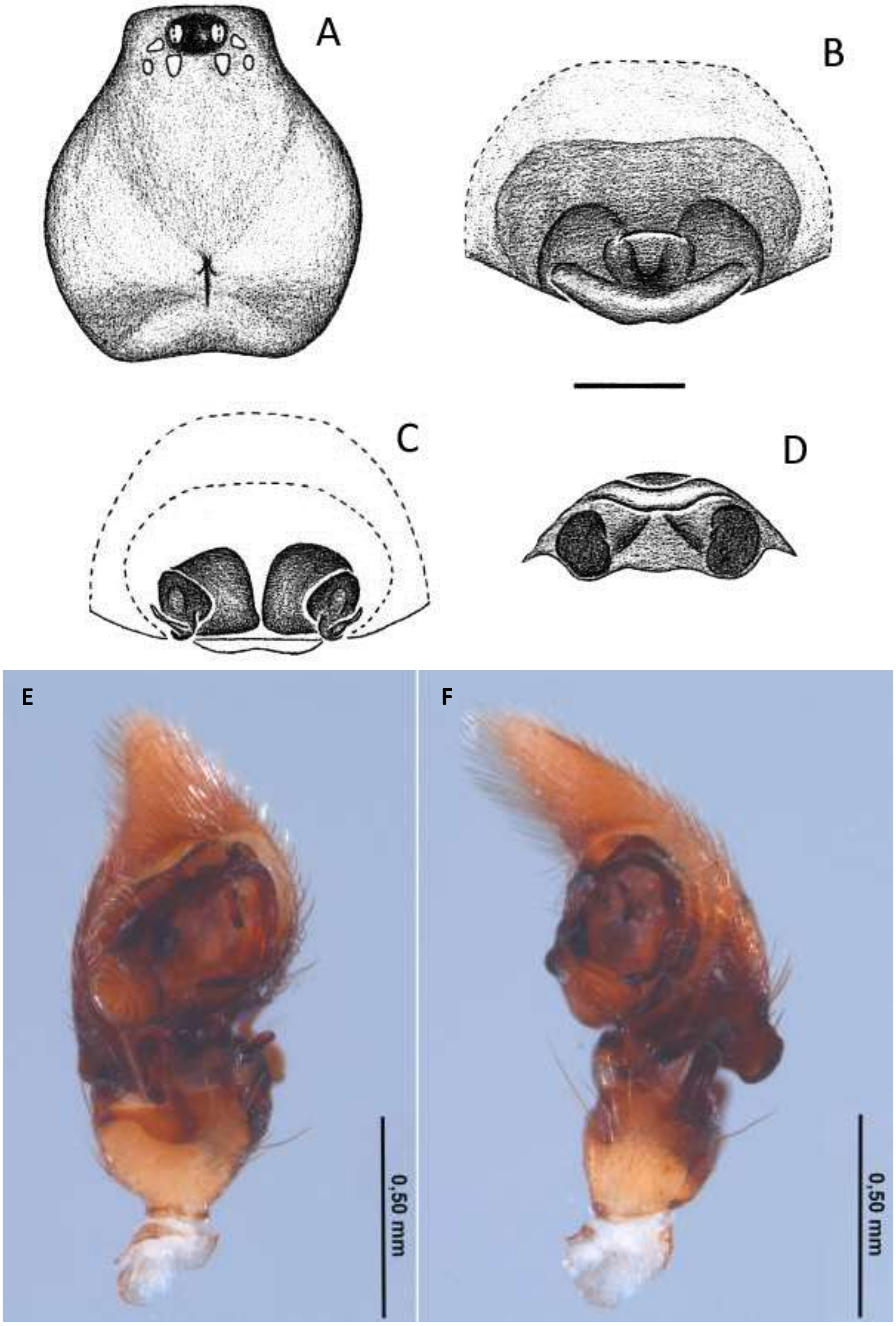

FIGURA 14: A-F *Attacobius verhaaghi*, A – Carapaça, posição dorsal; Epígino: B – posição ventral; C – posição dorsal; D - posição posterior. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (1998). Palpo do macho: E – posição ventral; F – posição retrolateral. FONTE: Pereira-Filho & Bonaldo (em preparação).

Attacobius kitae Bonaldo & Brescovit (Figura 15):

FIGURA 15: A-C *Attacobius kitae*, Epígino: A – posição ventral; B – posição dorsal. C – posição posterior. Abreviaturas: VP, placa epiginal ventral; PTS, septo epiginal transverso posterior. Barra de escala, 0,25 mm. FONTE: Modificado de Bonaldo e Brescovit (2005).

***Attacobius* PAR** Pereira-Filho & Bonaldo (em preparação) (Figura 16):

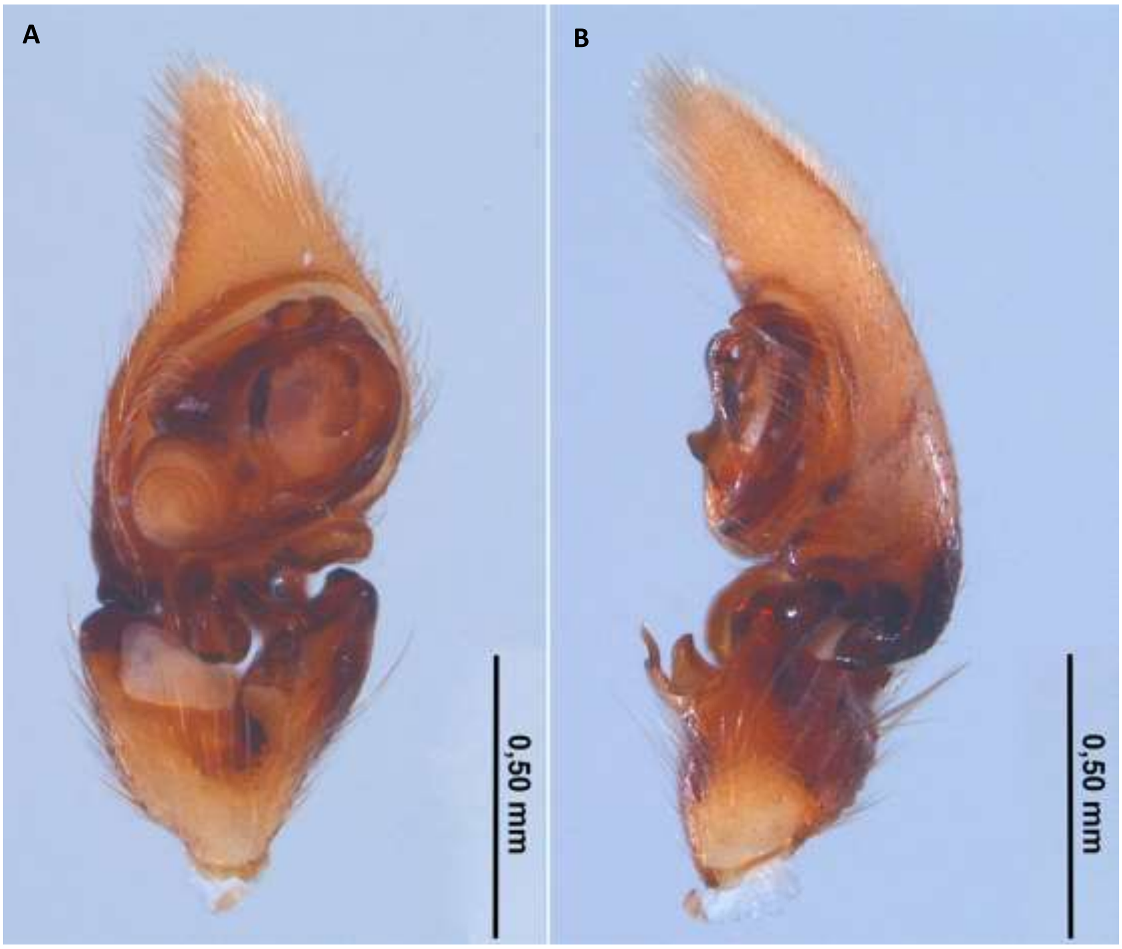

FIGURA 16: A-F *Attacobius* PAR. Palpo do macho: A – posição ventral; B – posição retrolateral. FONTE: Pereira-Filho & Bonaldo (em preparação).

***Attacobius* TOC** Pereira-Filho & Bonaldo (em preparação) (Figura 17):

FIGURA 17: A-D *Attacobius* TOC. Palpo do macho: A – posição ventral; B – posição retrolateral; Epígino da fêmea: C – posição ventral; D – posição dorsal. FONTE: Pereira-Filho & Bonaldo (em preparação).

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A cladistic analysis of the tribe Attacobiini Roewer, 1955 (Araneae, Corinnidae, Corinninae)

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Abstract

A cladistic analysis of tribe Attacobiini (Corinnidae, Corinninae) with 17 taxa and 109 characters is presented. The outgroup is composed by four species (*Castianeira aff rubicunda* ACR; *Xeropigo cotijuba*; *Septentrinna yucatan* and *Falconina gracilis*) all of them represented by males and females. The ingroup is represented by 13 Attacobiini species, seven of which represented by both sexes (*Attacobius* TOC; *A. attarum*; *A. verhaaghi*; *A. lamellatus*; *A. uiriri*; *A. blakei* and *A. carranca*), three represented only by females (*A. luederwaldti*; *A. nigripes* and *A. kitae*) and three represented only by males (*Ecitocobius comissator*; *Attacobius* PAR and *A. tucurui*). Regarding to terminals, the present data matrix represent an increase of two species in relation to a previous analysis of the Tribe. The availability of data was improved by adding character states on genitalic features for three terminals, of which the counterpart sex was unknown at the time in which that previous analysis was made (males of *A. verhaagui* and females of *A. blakei* and *A. uiriri*). Furthermore, several characters used in the previous analysis were re-interpreted and some new characters were proposed. A single tree was obtained under equal weights. Attacobinni and *Attacobius* were retrieved as monophyletic groups but the groups of species of *Attacobius* depicted here are considerably different from those recognized in the previous analysis. The exact solution under equal weights and all characters running unordered resulted in a fully resolved, single most parsimonious tree. As in the previous analysis, the better-supported clades were Attacobiini and Attacobius. However, the groups of Attacobius species recovered here are considerably different from the ones recovered previously, with the exception of an apical clade composed by *A. nigripes, A. kitae, A. attarum* and *A. luederwaldti,* which was recognized in both analyses as the best supported group within the genus.

Key words: Corinnidae; Corinninae; Attacobiini; *Ecitocobius*; *Attacobius*; Phylogeny

Introduction

The systematic knowledge of the genus *Attacobius* Mello-Leitão had been significantly improved in the past two decades. Only three species, *A. luederwaldti* (Mello-Leitão, 1923)*; A. attarum* (Roewer,1935) and *A. nigripes* (Mello-Leitão, 1942), were recognized as valid in the first modern revision of the genus by Platnick & Baptista (1995), who presented a synonymic list of five generic names, most of then originally assigned to different family groups. At that time, a total of only 13 adults were reported in the primary taxonomical literature, among them only one male. The rarity of these spiders in collections was probably the major difficulty in accessing the relationships of these enigmatic animals, but the single male known in the group (*A. attarum*) provided grounds for Platnick & Baptista (1995) to correct the family assignment of Attacobiini, transferring it from Liocranidae to Corinninae, Corinnidae, since the male palp of that species present the coiled sperm duct hypothesized as a synapomorphy for Corinninae. Bonaldo & Brescovit (1998) proposed a second genus of the tribe, the monotypic *Ecitocobius*, providing some insights on putative synapomorphies that could support Attacobiini and both *Attacobius* and *Ecitocobius* as well. Bonaldo & Brescovit (2005) made the first attempt to access the species relationships on Attacobiini, presenting a cladogram that included *E. comissator* and 10 species of *Attacobius*, six of which represented also by males. In their analysis, Attacobiini was supported by 18 unambiguous synapomorphies while *Attacobius* was supported by seven unambiguous synapomorphies. By contrast, the support of *Attacobius* species clades retrieved at that time was low. From the 11 ingroup terminals (*E. comissator* and 10 species of *Attacobius*), only three were known by both sexes. This situation generated several missing entries in the data matrix used in that analysis, since nearly 40% of all characters used were genitalic.

In this paper, a novel cladistic analysis of the Tribe Attacobiini is presented, adding taxonomic information recently made available by Pereira-Filho & Bonaldo (in press), thus bringing an increase of two species of *Attacobius* in relation to the previous analysis. The outgrup was increased to represent a more comprehensive sample of Corinnidae. We also present character states on genitalic features for three terminals for which the counterpart sex was unknown at the time in which the previous analysis was made. Furthermore, several characters used in that analysis were re-interpreted and some new characters were proposed.

Material and Methods

Specimens

For the present analysis, 49 specimens from the following institutions were examined: Instituto Butantan, São Paulo (IBSP, A. D. Brescovit); Instituto Nacional de Pesquisas da Amazônia, Manaus (INPA, M. L. Oliveira); Museu de Ciências Naturais (MCN, R. Ott); Museu de La Plata, La Plata (MLP, L. A. Pereira); Museu de Zoologia da Universidade de São Paulo, São Paulo (MZSP, R. Pinto-da-Rocha); Museu Paraense Emílio Goeldi, Belém (MPEG, A. B. Bonaldo); Universidade Federal de Minas Gerais, Belo Horizonte (UFMG, A. J. Santos); Universidade Nacional de Brasília, Brasília (UNB, J. R. P. Luz). We were able to examine 16 types (holotypes or paratypes) of eleven of the thirteen species presently known in the tribe, including those of the two new species described by Pereira-Filho & Bonaldo (in prep). Ordinary specimens of *Attacobius attarum* were identified through Platnick & Baptista (1995) and Bonaldo & Brescovit (1998). Specimen of *Attacobius nigripes* were not available for examination. However, photographs of the types of this species and of its junior synonym *Achalaicola vestita* were made available by the MLP curator, thus allowing the codding of most characters in the data matrix for this terminal. A complete list of the vouchers used here is presented on Appendix 1.

Abbreviations in character descriptions and illustrations

AME, anterior median eyes; ALE, anterior lateral eyes; AS, apical spur of VL; BVS, basal ventral sclerotization; C, conductor; CO, copulatory openings; CRP, cymbial retrodorsal process; CRT, cymbial retrolateral tubercle; CTP, cymbial transverse process; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; DP, dorsal process of DL; dTP, dorsal tegular process; E, embolus; EC, epiginal complex; EVP, epiginal ventral plate; EVS, epiginal ventral surface; ML, median lobe of RTA; mMA, median extension of median apophysis; PLE, posterior lateral eyes; pMA proximal end of median apophysis; PME, posterior median eyes; PVTK, prolateral ventral tegular keel; R, reservoir; RTA, retrolateral tibial apophysis; SD, spermatic duct; Sp, spermatecae; T, tegulum; VL, ventral lobe of RTA; VTK, ventral tegular keel.

Laboratory procedures

Specimens were examined and photographed under alcohol 80% in a Leica M205A stereomicroscope. For visualization of internal structures of the female genitalia, the epigynum was detached from the body, cleaned mechanically with pins and chemically with pancreatine solution, and immersed in clove oil. Male palps (preferably the left one) were detached from the body and examined immersed in alcohol or, for visualization of internal details, in clove oil. For scanning electron microscopy (SEM), structures were excised, air dried, mounted on stubs with double-face adhesive tape, sprayed coated with gold and examined under a Zeiss LEO 1450 VP from Institutional Laboratory of Electron Microscopy of Scan of Museu Paraense Emilio Goeldi (MPEG).

Cladistic Analyses

The ingroup included all valid species of the tribe Attacobiini known for both males and females or for only one sex (13 taxa). According to Bonaldo (2000) the genera *Attacobius* and *Ecitocobius* are composed of highly specialized species, making it difficult to establish hypotheses about its relationship with other members of Corinninae, hindering the choice of external groups. Bonaldo & Brescovit (2005) used only two species as outgroup, *Septentrinna yucatan* Bonaldo and *Falconina gracilis* (Keyserling). This choice was made on grounds of three characters shared with Attacobiini and these two genera: labium wider than long, a median epigynal plate produced by a fold in the epiginal ventral surface, and a keel in the male palpal tegulum. Since the informativeness of these characters was not yet tested in a comprehensive analysis of Corinninae, the outgroup representation is here increased to include a putatively basal Corinninae genus (*Xeropigo*) and a representative of Castianeirinae (*Castianeira aff. rubicunda* ACR), the only other subfamily of Corinnidae presently recognized. This increased outgroup representation allowed to test the support of the tribe found by Bonaldo & Brescovit (2005), totaling four species in the outgroup and 17 taxa in total.

Several characters proposed elsewhere (Bosselaers & Jocqué, 2002; Bonaldo & Brescovit, 2005; Ramirez, 2014) were evaluated and added to the matrix when relevant. The character matrix was edited using Mesquite version 3.02 (Maddison & Maddison, 2015) and non-applicable and unknown data entered the matrix as “-“. All characters were treated as unordered with multistate characters coded as non-additive. Searches for the most parsimonious trees were carried out in TNT version 1.1 (Goloboff et al., 2008).

The most parsimonious tree was searched by submitting implicit enumeration (command "*ienum*"). The character optimization and tree's edition was implemented in Winclada 1.00.08 (Nixon, 2002). Ambiguous characters were optimized directly in the obtained trees under either ACCTRAN or DELTRAN regimes, as noted. An asterisk indicates when ACCTRAN and DELTRAN produce the same results (unambiguous). Branch support was estimated by the Bremer Support (BS) (Bremer, 1994), a statistic based on the number of extra steps needed on a tree in order to collapse a given branch. The BS was calculated in TNT.

Results and Discussion

The exact solution under equal weights and all characters running unordered resulted in a fully resolved, single most parsimonious tree (L = 204, CI = 63, RI = 74) (Fig. 1).

Character coding and optimization

Carapace:

Character 1. Relative height of carapace regions (L=2, Ci=100, Ri=100): (0) Cephalic region higher than thoracic region (Bonaldo, 2000: figs. 312, 318); (1) Thoracic region higher than cephalic region (Fig. 9); (2) Domed carapace (Bonaldo, 2000: fig. 295; Bonaldo & Brescovit, 1998: fig. 8). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 1). State 0 occur only in the external group, state 1 is a synapomorphy of Attacobiini and state 2 is an autapomorphy of *E. comissator*.

Character 2. Carapace shape (L=2, Ci=50, Ri=50): (0) longer than wide (Bonaldo, 2000: fig. 215); (1) approximately as long as wide. (Fig. 4; Platnick & Baptista, 1995: fig. 7; Bonaldo & Brescovit, 1998: figs. 7, 14; Bonaldo & Brescovit, 2005: fig. 13; [Introdução Geral: fig. 5A]). Codified under ACCTRAN optimization. State 1 is a synapomorphy of Corinninae, reversed in node 3

Character 3. Carapace sclerotization* (L=2, Ci=50, Ri=50): (0) Clearly more intense than in the legs; (1) Carapace and legs similarly sclerotized. State 1 reflects a diminution on carapace sclerotization and, in this dataset, is a synapomorphy of Attacobiini, independently appeared in *S. yucatan*.

Character 4. Posterior invagination of carapace edge (L=2, Ci=50, Ri=50): (0) Present (Ramirez, 2014: Fig. 1B); (1) Absent (Fig. 4; Ramirez, 2014: Fig. 1D). Codified under ACCTRAN optimization. In this dataset, the absence of this invagination appears as a synapomorphy of Corinninae, reversed in outgroup node 3.

Character 5. Thoracic fovea* (L=2, Ci=50, Ri=0): (0) Superficial (Bonaldo, 2000: fig. 215; Ramirez, 2014: Fig. 2F); (1) Deep (Figs. 2, 4; Ramirez, 2014: Fig. 2B, 2C). In this dataset, state 1 is a synapomorphy of Corinninae, reversed in *F. gracilis*. A wider representation of both Castianeirines and Corinnines may refute this statement.

Character 6. Stiff feathery setae on carapace, legs and abdomen* (L=1, Ci=100, Ri=100): (0) Absent; (1) Present. (See Bonaldo & Brescovit, 2005: character 10). The presence of this kind of modified seta is unique to Attacobiini spiders.

Eyes:

Character 7. PME* (L=1): (0) Present (Figs. 4, 10; Platnick & Baptista, 1995: figs. 7, 8; Bonaldo & Brescovit, 1998: fig. 14; Bonaldo & Brescovit, 2005: fig. 13; [Introdução geral: fig. 14A]); (1) Absent (Bonaldo & Brescovit, 1998: figs. 7, 8; [Introdução geral: fig. 5A]). The absence of PME is an autapomorphy of *E. comissator.*

Character 8. ALE* (L=1): (0) Present (Figs. 4, 10; Platnick & Baptista, 1995: figs. 7, 8; Bonaldo & Brescovit, 1998: fig. 14; Bonaldo & Brescovit, 2005: fig. 13; [Introdução geral: fig. 14A]); (1) Absent (Bonaldo & Brescovit, 1998: figs. 7, 8; [Introdução geral: fig. 5A]). The absence of ALE is an autapomorphy of *E. comissator.*

Character 9. PLE* (L=1): (0) Present (Figs. 4, 10; Platnick & Baptista, 1995: figs. 7, 8; Bonaldo & Brescovit, 1998: fig. 14; Bonaldo & Brescovit, 2005: fig. 13; [Introdução geral: fig. 14A]); (1) Absent (Bonaldo & Brescovit, 1998: figs. 7, 8;

[Introdução geral: fig. 5A]). The absence of PLE is an autapomorphy of *E. comissator*.

Character 10. AME demarcation* (L=1, Ci=100, Ri=100): (0) Absent (Bonaldo & Brescovit, 1998: fig.7; [Introdução Geral: fig. 5A]); (1) Present (Fig. 10; Platnick & Baptista, 1995: figs. 7, 8; Bonaldo & Brescovit, 1998: fig. 14; [Introdução Geral: fig. 14A]). See Bonaldo & Brescovit, 2005: character 4. State 1 is a unambiguous synapomorphy of *Attacobius*

Character 11. Black spot on AME area (L=4, Ci=25, Ri=0): (0) Absent (Fig. 10; Platnick & Baptista, 1995: figs. 7, 8; Bonaldo & Brescovit, 1998: fig.7; [Introdução Geral: fig. 5A]); (1) Present (Bonaldo & Brescovit, 1998: fig. 14; [Introdução Geral: fig. 14A]). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 5). The presence of a black spot around AMEs was independently acquired three times: in node 7 with a subsequent loss in *Attacobius* PAR (polymorphic in *A. uiriri*); in *A. verhaaghi* and in *A. kitae*.

Character 12. Size of AME in relation to the size of PME (L=2, Ci=50, Ri=50): (0) AME larger than PME (Platnick & Baptista, 1995: figs. 7, 8); (1) AME and PME similarly sized (Fig. 10; Bonaldo & Brescovit, 1998: fig. 14; [Introdução Geral: fig. 14A]). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 6; Bosselaers & Jocqué, 2002: character 96). State 1 is a synapomorphy of node 10, reversed in the node 13. It is inapplicable in *E. comissator* and polymorphic in *Attacobius* TOC. In the male of this species AME and PME are similar in size while the female presents AME larger than PME.

Character 13. Anterior lateral and posterior eyes (L=1, Ci=100, Ri=100): (0) Domed-shaped; (1) Flattened (Figs. 4, 9, 10). (See Bonaldo & Brescovit, 2005: character 7; Ramirez, 2014: character 19). Codified under DELTRAN optimization. Inapplicable in *E. comissator*. State 1 is a synapomorphy of *Attacobius*.

Character 14. Flattened PME shape (L=3, Ci=33, Ri=0): (0) Circular (Bonaldo, 2000: fig. 215); (1) Elliptical (Fig. 10; Ramirez, 2014: figs. 12A, 12B). (Like to Bosselaers & Jocqué, 2002: character 97). Codified under DELTRAN optimization.

This character is only applicable to *Attacobius* species. States 0 was independently acquired in *A. tucurui*, *A. kitae* and *A. luederwaldti*.

Character 15. Flattened PLE shape* (L=4, Ci=50, Ri=0): (0) Circular; (1) Elliptical; (2) Irregular (Fig. 10). This character is only applicable to *Attacobius* species. State 2 is a synapomorphy of node 10, independently acquired in *A. blakei; A. uiriri* is coded polymorphic since states 1 (in male) and 2 (in female); state 0 was independently acquired in *A. tucurui* and *A. kitae*.

Character 16. PME-AME lenses distance* (L=1): (0) Separated (Fig. 10); (1) Contiguous. Uninformative in this dataset. State 1 is an autapomorphy of *A. verhaaghi*. Maintained here for documentation purposes.

Character 17. ALE-PLE lenses distance (L=2, Ci=50, Ri=80): (0) Separated; (1) Juxtaposed (Fig. 10). (See Ramirez, 2014: character 8). Codified under DELTRAN optimization. The juxtaposed ALE and PLE occurs in all *Attacobius* species but those of node 15, in which it reverse to state 0.

Character 18. ALE-AME lenses distance (L=3, Ci=33, Ri=66): (0) Separated; (1) Contiguous (Fig. 10). Codified under DELTRAN optimization. The contiguous ALE and AME is a synapomorphy of *Attacobius* reversed independently in node 15 and in *Attacobius* PAR.

Character 19. ALE-PLE tubercle* (L=1, Ci=100, Ri=100): (0) Absent (Fig. 4, 10); (1) Present. (See Ramirez, 2014: character 6). The presence of this tubercle is a synapomorphy of node 2, supporting in this dataset a group composed of Corinninae other than Attacobiini.

Character 20. Anterior eye row (L=1, Ci=100, Ri=100): (0) Procurved; (1) Recurved (Figs. 4, 10). (See Bonaldo & Brescovit, 2005: character 3; Ramirez, 2014: character 9). Codified under DELTRAN optimization. *Attacobius* is unique in Corinninae for having a recurved anterior eye row.

Chelicera:

Character 21. Cheliceral geniculum* (L=5, Ci=20, Ri=42): (0) Absent (Fig. 5); (1) Present (Bonaldo, 2000: Figs. 144, 163, 173, 215). In this dataset State 1 appears as a synapomorphy of Corinninae; The cheliceral geniculum is independently lost in *A. tucurui*, *A. blakei* and node 10 (with a single reappearance in *A. nigripes*).

Character 22. Chelicerae Texture* (L=1, Ci=100, Ri=100): (0) Smooth (Fig. 5); (1) Reticulate (Bonaldo, 2000: Fig. 15; De Souza & Bonaldo, 2007: Figs. 7, 8). State 1 is a synapomorphy of node 2.

Mouthparts:

Character 23. Labium* (L=1, Ci=100, Ri=100): (0) Sub-squared; (1) Trapezoid (Figs. 3, 11). (See Bonaldo & Brescovit, 2005: character 9). A trapezoid labium is a synapomorphy of Attacobiini.

Character 24. Serrula* (L=1, Ci=100, Ri=100): (0) Present; (1) Absent (Figs. 3, 11). (See Bonaldo & Brescovit, 2005: character 8; Ramirez, 2014: character 74). The loss of the serrula is a synapomorphy of Attacobiini.

Character 25. Endites* (L=5, Ci=20, Ri=33): (0) Parallel (Fig. 11); (1) Convergent (Fig. 3; Bonaldo & Brescovit, 1998: fig. 9). Convergent endites appears in the present dataset as a synapomorphy of Corinninae. The parallel condition is a synapomorphy of node 11 reversed in *A. kitae*, and polymorphic in *A. attarum* (in female is convergent, however in male is parallel). State 0 also appears independently in *Attacobius* TOC and *A. uiriri*.

Legs:

Character 26. Femur I dorsal spines* (L=2): (0) Three spines; (1) Two spines; (2) one spine. (See Bonaldo & Brescovit, 2005: character 11). Uninformative. The lost of two spines in this femoral surface is an autapomorphy of *E. comissator*. Polymorfic in *X. cotijuba*, where the same specimen (female) have lost one spine in one leg (right) and two in the other (left).

Character 27. Femur I prolateral spine* (L=2, Ci=50, Ri=75): (0) Present; (1) Absent. (Bonaldo & Brescovit, 2005: character 12). The loss of this spine is a synapomorphy of node 13, also occurring independently in *E. comissator*. Polymorphic in *Attacobius* TOC, present in female but present in male.

Character 28. Femur II dorsal spines* (L=2): (0) Three spines; (1) Two spine; (2) One spines. (See Bonaldo & Brescovit, 2005: character 13). The presence of one spine is an autapomorphy of *E. comissator*; polymorphic in *A. tucurui*, where the same specimen have one spine in the right leg but two in the left.

Character 29. Femur II prolateral spine* (L=1, Ci=100, Ri=100): (0) Present; (1) Absent. (See Bonaldo & Brescovit, 2005: character 14). The loss of this spine is a synapomorphy of Attacobiini.

Character 30. Femur III dorsal spines (L=2, Ci=100, Ri=100): (0) Three spines; (1) Two spines; (2) One spine. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 15). The presence of three spines in this femoral surface is universal in the outgroup. The loss of one spine is a synapomorphy of Attacobiini, while the loss of two spines is an autapomorphy of *E. comissator*.

Character 31. Femur III prolateral spines (L=3, Ci=66, Ri=50): (0) Three spines; (1) Two spines; (2) None. Codified under DELTRAN optimization. (See Bonaldo & Brescovit, 2005: character 16). The absence of spines in the femur III prolateral surface is a synapomorphy of Attacobiini, as found by Bonaldo & Brescovit, 2005.

Character 32. Femur III retrolateral spine* (L=1, Ci=100, Ri=100): (0) Present; (1) Absent. (See Bonaldo & Brescovit, 2005: character 17). The unarmed retrolateral surface of femur III is a synapomorphy of Attacobiini.

Character 33. Femur IV dorsal spines (L=2, Ci=100, Ri=100): (0) Three spines; (1) Two spines; (2) One spine. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 18). The presence of three spines in this femoral surface is universal in the outgroup, except for the male’s left leg of *X. cotijuba*, with only one spine in this surface (codded polymorphic). The loss of one spine is a synapomorphy of Attacobiini, while the loss of two spines is an autapomorphy of *E. comissator*.

Character 34. Femur IV prolateral spines* (L=1, Ci=100, Ri=100): (0) Two spines; (1) None. (See Bonaldo & Brescovit, 2005: character 19). The loss of these two spines is a synapomorphy of Attacobiini.

Character 35. Femur IV retrolateral spine* (L=3, Ci=33, Ri=66): (0) Present; (1) Absent. (See Bonaldo & Brescovit, 2005: character 20). The femur IV retrolateral spine was independently lost three times in the ingroup: in *E. comissator*, clade 9 and clade 13. Bonaldo & Brescovit (2005) stated wrongly that the absence of this spine was a synapomorphy of Attacobiini.

Character 36. Tibia I ventral prolateral spines* (L=2, Ci=100, Ri=100): (0) Four or more spines; (1) Three spines; (2) Two spines. (See Bonaldo & Brescovit, 2005: character 21). The presence of three spines is nearly universal across the terminals used here. The Corinninae outgroup acquired a fourth spine and the presence of only one spine is an autapomorphy from *A. luederwaldti*. Polymorphic in *Attacobius* TOC (female with 3 spines but male with two).

Character 37. Tibia I ventral retrolateral spines* (L=2, Ci=100, Ri=100): (0) Four or more spines; (1) Three spines; (2) Two spines. (See Bonaldo & Brescovit, 2005: character 22). Nearly the same as previous character but *E. comissator* presents only two spines in this surface and it is polymorphic in *A. luederwaldti* instead, where the same specimen have three spines in the right leg and two in the left.

Character 38. Tibia I ventral basal spine (L=2, Ci=50, Ri=0): (0) Absent; (1) Present (Fig. 12). Codified under ACCTRAN optimization. In this dataset the presence of this spine is a synapomorphy of Corinninae, autapomorphically lost in *E. comissator*. The condition in *A. nigripes* is unknown.

Character 39. Tibia II ventral prolateral spines* (L=3, Ci=66, Ri=50): (0) Three or more spines; (1) Two spines; (2) One spine. (See Bonaldo & Brescovit, 2005: character 23). Most Corinnines present three or more spines in this surface. State 1 appears only in *Castianeira* and ingroup node 15. Two species are polymorphic, *A. uiriri* and *A. lamellatus* (0,1 - in both species, female with three spines; male with two). State 2 is an autapomorphy of *E. comissator.*

Character 40. Tibia II ventral retrolateral spines (L=4, Ci=50, Ri=33): (0) Three or more spines; (1) Two spines; (2) One spine. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 24). Most Corinnines present three or more spines in this surface. State 2 appeared independently in *E. comissator* and *A. luederwaldti*, but it is polymorphic in the last (voucher with two spines in right leg and one the left). State 1 appeared independently in *Castianeira* and node 13, reversed in *A. kitae*, and is also polymorphic (0,1) in *A. uiriri* and *A. lamellatus* (in both species, males with two spines, females with three).

Character 41. Tibia II ventral basal spine* (L=2, Ci=50, Ri=50): (0) Absent; (1) Present. The presence of this spine occurs independently in outgroup node 3 and in *A. attarum*. The condition in *A. nigripes* is unknown.

Character 42. Tibia III prolateral spines (L=2, Ci=100, Ri=100): (0) Two spines; (1) One spine; (2) None. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 25). The presence of two spines is the universal condition in the outgroup. State 1 is a synapomorphy of Attacobiini, while state 2 is a synapomorphy of *Attacobius*.

Character 43. Tibia III retrolateral spines (L=2, Ci=100, Ri=100): (0) Two spines; (1) One spine; (2) None. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 26) As in previous character.

Character 44. Tibia III ventral prolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) None. (See Bonaldo & Brescovit, 2005: character 27). The Corinninae outgroup presents three spines, while the lost of these spines (state 1) is a synapomorphy of Attacobiini.

Character 45. Tibia III ventral retrolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) None. (See Bonaldo & Brescovit, 2005: character 28). As in previous character.

Character 46. Tibia IV prolateral spines* (L=1, Ci=100, Ri=100): (0) Two spines; (1) None. (See Bonaldo & Brescovit, 2005: character 29). The loss of two spines in this surface is a synapomorphy of Attacobiini.

Character 47. Tibia IV retrolateral spines (L=2, Ci=100, Ri=100): (0) Two or three spines; (1) One spine; (2) None. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 30). As in character 42.

Character 48. Tibia IV ventral prolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) None. (See Bonaldo & Brescovit, 2005: character 31). The loss of three spines in this surface is a synapomorphy for Attacobiini.

Character 49. Tibia IV ventral retrolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) None. (See Bonaldo & Brescovit, 2005: character 32). Same as in previous character.

Character 50. Metatarsus I ventral apical median spine* (L=1): (0) Absent; (1) Present, curved. (See Bonaldo & Brescovit, 2005: character 33). Uninformative. Autapomorphy of *E. comissator*.

Character 51. Metatarsus II ventral prolateral spines* (L=1): (0) Two spines, (1) One spine. Uninformative. Throughout the data set, the only terminal that have lost a spine in this surface is *A. luederwaldti*. Maintained here because the condition in *A. nigripes* is unknown.

Character 52. Metatarsus II ventral apical median spine* (L=1): (0) Absent; (1) Present, Curved. (See Bonaldo & Brescovit, 2005: character 35). Uninformative. The single curved median apical spine in metatarsus II is an autapomorphy of *E. comissator.*

Character 53. Metatarsus III prolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) Two spines; (2) One spine; (3) None. (See Bonaldo & Brescovit, 2005: character 36). The absence of spines on metatarsus III prolateral surface is a synapomorphy for Attacobiini, but it is polymorphic in *Attacobius* PAR (voucher right Me III with one prolateral spine, left Me III with prolateral surface unarmed), in *A. kitae* (same pattern as *Attacobius* PAR), and in *X. cotijuba* (male with three spines in this surface, female with only two spines).

Character 54. Metatarsus III retrolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) None. (See Bonaldo & Brescovit, 2005: character 37). The absence of spines on metatarsus III retrolateral surface is a synapomorphy for Attacobiini.

Character 55. Metatarsus III ventral prolateral spines (L=3, Ci=66, Ri=75): (0) Two or three spines; (1) One spine; (2) None. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 38). The presence of just one spine is a synapomorphy for Attacobiini. The unarmed metatarsus III ventral prolateral surface is a synapomorphy for *Attacobius*, but was reversed to state 0 in *A. attarum*, which presents two spines in this surface.

Character 56. Metatarsus III ventral retrolateral spines (L=4, Ci=50, Ri=60): (0) Two or three spines; (1) One spine; (2) None. Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 39). The presence of just one spine is a synapomorphy for Attacobiini. Unarmed metatarsus III ventral retrolateral surface is a synapomorphy for *Attacobius*, reversed to state 1 in *A. nigripes* and to state 0 in *A. attarum*.

Character 57. Metatarsus III ventral apical median spine* (L=1, Ci=100, Ri=100): (0) Absent; (1) Present. (See Bonaldo & Brescovit, 2005: character 40). The majority of Corinnines present a ventral apical, medially inserted spine in metatarsus III. The loss of this spine is a synapomorphy of *Attacobius*.

Character 58. Metatarsus III ventral apical median spine shape (L=1): (0) Unmodified; (1) Curved. Codified under DELTRAN optimization. (See Bonaldo & Brescovit, 2005: character 40). Uninformative. State 1 is an autapomorphy of *E. comissator*. Under ACCTRAN optimization the presence of this modified spine would be regarded as a synapomorphy of the tribe, with all *Attacobius* species codding as ambiguous, since they do not present such spine.

Character 59. Metatarsus IV prolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) Two spines; (2) None. (See Bonaldo & Brescovit, 2005: character 41). The presence of three spines in this surface is common in the outgroup, the only exception is *X. cotijuba* which is polymorphic for this character (male left leg with only two spines on this surface). The loss of these spines is a synapomorphy of Attacobiini.

Character 60. Metatarsus IV retrolateral spines* (L=1, Ci=100, Ri=100): (0) Three spines; (1) Two spines; (2) None. (See Bonaldo & Brescovit, 2005: character 42). Same as previous character.

Character 61. Metatarsus IV ventral prolateral spines* (L=1, Ci=100, Ri=100): (0) Two spines; (1) None. (See Bonaldo & Brescovit, 2005: character 43). The absence of these spines is a synapomorphy of *Attacobius*.

Character 62. Metatarsus IV ventral retrolateral spines* (L=1, Ci=100, Ri=100): (0) Two spines; (1) None. (See Bonaldo & Brescovit, 2005: character 44). Same as previous character.

Character 63. Metatarsus IV ventral apical median spine* (L=1, Ci=100, Ri=100): (0) Absent; (1) Present. (See Bonaldo & Brescovit, 2005: character 45). As in character 57.

Character 64. Metatarsus IV ventral apical median spine shape (L=1): (0) Unmodified; (1) Curved. Codified under DELTRAN optimization. (See Bonaldo & Brescovit, 2005: character 45). As in character 58.

Character 65. Coloration of tarsus of legs I-IV* (L=1, Ci=100, Ri=100): (0) Same colored or slightly darker than other articles (Fig. 13); (1) Distinctly black (Fig. 14). The contrasting tarsal coloration is a synapomorphy of node 13.

Male palp (unknown for *A. nigripes*, *A. kitae* and *A. luederwaldti*).

Character 66. Lobes of RTA (L=3, Ci=66, Ri=80): (0) One lobe (Fig. 15); (1) Two lobes (Fig. 17; Bonaldo & Brescovit, 1998: fig. 11; Bonaldo & Brescovit, 2005: figs. 3, 10, 12, 15; [Introdução Geral: figs.5C, 6B, 7B, 8B, 10B, 16B, 17B]); (2) Three lobes (Figs. 8, 18; Bonaldo & Brescovit, 1998: fig. 13; Bonaldo, 2000: figs. 220, 223, 243; Bonaldo & Brescovit, 2005: fig. 5; De Souza & Bonaldo, 2007: figs. 51, 52; [Introdução Geral: figs. 2A, 2B, 3B, 4B, 9E, 11A, 11B, 14F]). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 46).

Castianeira aff rubicunda ACR present a single lobed RTA (state 0). State 1 is a synapomorphy of Corinninae and state 2 arises independently twice, as synapomorphies of node 2 and 11. *F. gracilis* has a third, median RTA lobe (contra Bonaldo & Brescovit, 2005), but other species of this genus present only two (Bonaldo, 2000). The median lobe of *F. gracilis* is multi-tuberculate (Bonaldo, 2000: fig. 223). *X. cotijuba* also have a third, median lobe (= Pvd, Processo ventral do lobo dorsal in De Souza & Bonaldo, 2007: figs. 51, 52).

Character 67. AS insertion*(L=2): (0) Apical (De Souza & Bonaldo, 2007: fig. 52; Bonaldo, 2000: fig. 158; [Introdução geral: fig. 2A]); (1) Sub-apical (Figs. 6, 7, 20; Bonaldo, 2000: figs. 216, 243; Bonaldo & Brescovit, 2005: figs. 3, 12; [Introdução geral: figs. 3A, 3B, 4A, 6B, 8B, 9D, 9E, 10A, 10B, 11A, 11B, 14A, 14B, 16A, 16B, 17A, 17B]); (2) Basal; (Fig. 16; Bonaldo & Brescovit, 1998: fig. 10; [Introdução geral: fig. 5B]). Uninformative. The Attacobiini apical spur is homologous to the “processo ventral do lobo ventral da ATR (PV)” in Bonaldo (2000) and De Souza & Bonaldo (2007). Not applicable to *Castianeira*. State 1 is almost universal in this dataset. State 0 appear only in *X. cotijuba*, and state 2 is an autapomorphy of *E. comissator*.

Character 68. AS shape* (L=2, Ci=50, Ri=50): (0) Spiniform, with narrow base (Fig. 16; Bonaldo & Brescovit, 1998: fig. 10; [Introdução geral: figs. 2A, 2B, 3A, 3B, 5B]); (1) Lameliform, with broad base (Figs. 6, 7, 20, 21; Bonaldo & Brescovit, 2005: figs. 2, 4, 11, 14; [Introdução geral: figs. , 4A, 6A, 6B, 7A, 7B, 8A, 8B, 9D, 9E, 10A, 10B, 11A, 11B, 14A, 14B, 16A, 16B, 17A, 17B]). Not applicable to *Castianeira*. State 1 is a synapomorphy of *Attacobius* and appears independently in *F. gracilis*.

Character 69. Ventral lobe apices orientation, in ventral view* (L=2, Ci=50, Ri=66): (0) Apically or retrolaterally oriented (Figs. 16, 21, 22); (1) Prolaterally displaced (Figs. 6, 7, 20). Not applicable to *Castianeira*. The prolaterally displaced apices of RTA ventral lobe is a synapomorphy of node 11, appearing independently in *A. uiriri*.

Character 70. ML of RTA (L=2, Ci=100, Ri=100): (0) Represented by a small sclerotized process (=Pvd in De Souza & Bonaldo, 2007: fig. 52; =PMS in Bonaldo, 2000: figs. 220, 223, 243; [Introdução Geral: figs. 3A, 3B, 4B, 5C]); (1) Represented by two unsclerotized lobes (Fig. 18); (2) Represented by a lameliform or finger-like process (Fig. 6, 7, 8; Bonaldo & Brescovit, 2005: figs. 4, 5; [Introdução Geral: figs. 12A, 12B]). Codified under DELTRAN optimization. Applicable only in the Corinninae outgroup (state 0) and three species of *Attacobius*. State 1 is an autapomorphy of *A. attarum* and state 2 is a synapomorphy of node 12.

Character 71. DL shape* (L=3, Ci=66, Ri=75): (0) Small, truncated (DL=LD in Bonaldo, 2000: fig. 223; DL=Pdd in De Souza & Bonaldo, 2007: fig. 52; [Introdução geral: fig. 2B, 4B]); (1) Long, finger-shaped (Figs. 8, 18; Bonaldo & Brescovit, 2005: figs. 5; [Introdução geral: fig. 11B]); (2) Long, truncated (Fig. 17; Bonaldo & Brescovit, 2005: figs. 3, 10, 12; [Introdução geral: fig. 6B, 7B, 8B]). Not applicable to *Castianeira*. State 2 is a synapomorphy of Attacobiini, state 1 is a synapomorphy of node 11 and appear independently in *S. yucatan*.

Character 72. DL Long, finger-shaped (L=2, Ci=50, Ri=0): (0) With prolateral flattening (Bonaldo, 2000: figs. 242, 243; Bonaldo & Brescovit, 1998: figs. 10, 11; [Introdução geral: figs. 3A, 3B, 5B, 5C]) (1) Cylindrical (Figs. 8, 18; Bonaldo & Brescovit, 2005: fig. 5 [Introdução geral: figs. 11B]). Codified under DELTRAN optimization. Not applicable to the majority of terminals in the present data matrix. State 1 appears independently twice, in *A. verhaagui* and in *A. attarum*.

Character 73. DL long, truncated (L=3, Ci=33, Ri=0): (0) Entire (Fig. 17; Bonaldo & Brescovit, 2005: fig. 15 [Introdução geral: fig. 10B]); (1) Subdivided (Bonaldo & Brescovit, 2005: fig. 12 [Introdução geral: fig. 8B]). Codified under DELTRAN optimization. Not applicable to the majority of terminals in the present data matrix. State 1 appears independently three times, in *A. tucurui*, in *Attacobius* PAR and in *A. carranca*.

Character 74. Dorsal process of DL* (L=3, Ci=33, Ri=60): (0) Absent (Figs. 8, 18); (1) Present (Fig. 17; Bonaldo & Brescovit, 2005: fig. 15 [Introdução geral: fig.

10B]). The presence of a dorsal accessory process on the ATR dorsal lobe is a synapomorphy of Attacobiini, lost independently twice, in node 11 and in *A. tucurui*.

Character 75. Subapical process on the ventral margin of ATR's dorsal lobe (L=1): (0) Absent (Fig. 17); (1) Present (Bonaldo & Brescovit, 2005: fig. 12 [Introdução geral: fig. 8B]). Codified under DELTRAN optimization. Uninformative. State 0 is an autapomorphy of *A. carranca*.

Character 76. Prolateral tubercle on ATR's dorsal lobe* (L=2, Ci=50, Ri=66): (0) Absent; (1) Present (Fig. 24). The presence of this structure is a synapomorphy of node 8, independently acquired by *A. carranca*.

Character 77. ATR's basal ventral sclerotization - BVS* (L=1, Ci=100, Ri=100): (0) Absent (Figs. 15, 16); (1) Present (Figs. 20, 21, 22, 23). The presence of this sclerotized area is a synapomorphy of *Attacobius*.

Character 78. Cymbial Retrolateral Tubercle - CRT* (L=1): (0) Absent (Fig. 15); (1) Present (Figs. 17, 18, 19, 20, 21, 22, 24). (See Bonaldo & Brescovit, 2005: character 48). This structure is present in all Corinninae represented in the dataset.

Character 79. CRT shape (L=3, Ci=33, Ri=50): (0) Blunt (Figs. 17, 18, 19, 20, 21); (1) Laminar (Fig. 22, 23, 24). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 48). State 1 is a synapomorphy in node 7, reversed in *A. uiriri* and appears independently in node 12.

Character 80. CRT size* (L=3, Ci=33, Ri=33): (0) Massive (Figs. 17, 18, 19 20, 21; Bonaldo & Brescovit, 2005: figs. 3, 10; Bonaldo & Brescovit, 1998: fig. 13 [Introdução geral: fig. 6B, 7B, 9E]); (1) Small (Fig. 22, 24; Bonaldo & Brescovit, 2005: fig. 5 [Introdução geral: fig. 11B]). State 1 appeared independently three times: in *X. cotijuba*, node 9 and *A. lamellatus*.

Character 81. Cymbial Retrodorsal Process - CRP* (L=1, Ci=100, Ri=100): (0) Absent (Figs. 15, 16); (1) Present (Figs. 6, 8, 17, 18, 20). (See Bonaldo & Brescovit, 2005: character 49). The presence of a cymbial retrodorsal process is a synapomorphy of *Attacobius*.

Character 82. CRP shape* (L=1, Ci=100, Ri=100): (0) Spoon-shaped; (1) Ventral surface concave (Figs. 8, 17, 18, 20). (See Bonaldo & Brescovit, 2005: character 50). State 0 is a synapomorphy of node 8.

Character 83. Apical projection on CRP (L=2, Ci=50, Ri=0): (0) Absent (Fig. 8); (1) Present (Figs. 17, 18). Codified under ACCTRAN optimization. (See Bonaldo & Brescovit, 2005: character 51). The presence of an apical projection on the cymbial retrodorsal process is a synapomorphy in node 10, reversed in node 12.

Character 84. Basal projection on CRP* (L=1): (0) Absent; (1) Present (Fig. 17). Uninformative. State 1 is an autapomorphy of *A. carranca*.

Character 85. Cymbial transverse process - CTP* (L=1, Ci=100, Ri=100): (0) Absent (Figs. 15, 16); (1) Present (Figs. 6, 7, 8, 22, 24). (See Bonaldo & Brescovit, 2005: character 50). The presence of this structure is a synapomorphy of *Attacobius*.

Character 86. Direction of the apical cymbial apices* (L=2, Ci=50, Ri=0): (0) Apical (Fig. 15; Bonaldo, 2000: fig. 242; [Introdução geral: fig. 3A]); (1) Prolateral (Figs. 16, 19, 20, 21, 22, 23; Bonaldo & Brescovit, 1998: figs. 10, 12; Bonaldo & Brescovit, 2005: figs. 2, 4, 9, 11, 14; [Introdução geral: figs. 5B, 6A, 7A, 8A, 9D, 10A, 11A, 14E, 16A, 17A]). In the present dataset, the curved cymbial apices is a synapomorphy of Corinnidae reversed in *S. yucatan*.

Character 87. Ventral Tegular flange* (L=1, Ci=100, Ri=100): (0) Absent (Figs. 15, 16, 19, 21, 22; [Introdução geral: figs. 16A, 17A]; (1) Present (Figs. 18, 20, 23; Bonaldo & Brescovit, 1998: fig. 12; [Introdução geral: fig. 9D]). The presence of this structure is a synapomorphy of node 11. This structure went unnoticed in previous studies, likely because it is conspicuous only in *A. verhaaghi*, which male was only recently discovered.

Character 88. Prolateral ventral tegular keel - PVTK* (L=4, Ci=25, Ri=40): (0) Absent (Figs. 15, 16, 17, 18, 19, 20, 21); (1) Present (Fig. 6, 22, 23). (See Bonaldo & Brescovit, 2005: character 54). A prolateral ventral tegular keel appeared independently three times: in *F. gracilis*, in nodes 7 (reversed in *A. blakei*) and in node 12. Bonaldo & Brescovit (2005) coded the presence of a ventral tegular keel also in *E. comissator*. However, the recognition of a second tegular keel (which occurs concomitantly with the tegular keel in five terminals), led to the reinterpretation of this character. Thus, character 88 codes a tegular keel inserted near the embolus, in a prolatero-ventral position, while the next character (89) codes a tegular keel secluded from embolar insertion, in a more ventral position.

Character 89. Ventral tegular keel - VTK* (L=3, Ci=33, Ri=66): (0) Absent (Figs. 15, 17, 18, 19, 20, 21); (1) Present (Figs. 6, 16, 22, 23). (See Bonaldo & Brescovit, 2005: character 54). The presence of this structure appeared three times in the ingroup, in *E. comissator* and in *Attacobius* nodes 7 and 12.

Character 90. Tegular retrolateral groove* (L=1, Ci=100, Ri=100): (0) Absent (Figs. 15, 16); (1) Present (Figs. 19, 20, 21, 22, 23, 24). (See Bonaldo & Brescovit, 2005: character 55). State 1 is a synapomorphy of *Attacobius*.

Character 91. Spermatic duct course * (L=1): (0) Folded (Fig. 15); (1) Coiled (Figs. 16, 19, 20, 21, 22, 23, 24; Bonaldo, 2000: figs. 216, 242; De Souza & Bonaldo, 2007: fig. 51; Bonaldo & Brescovit, 1998: figs. 10, 12; Bonaldo & Brescovit, 2005: figs. 2, 4, 9, 11, 14; [Introdução geral: figs. 2A, 3A, 4A, 5B, 6A, 7A, 8A, 9D, 10A, 11A]). The coiled spermatic duct is a synapomorphy of Corinninae (node 1).

Character 92. Coiled spermatic duct* (L=1, Ci=100, Ri=100): (0) Ventrally coiled (Fig. 16); (1) Prolaterally coiled (Figs. 19, 20, 21, 22, 23, 24). (See Bonaldo & Brescovit, 2005: character 57). Not applicable to *Castianeira*. *Attacobius* species are unique in Corinninae by presenting spermatic duct coilings shifted prolaterally on the tegulum.

Character 93. Central spermatic duct loop orientation (L=3, Ci=33, Ri=0): (0) Retrolateral (Figs. 20, 21); (1) Proximal (Figs. 16, 19, 22, 23, 24). Codified under DELTRAN optimization. Not applicable to *Castianeira*. State 0 appear three times in this dataset, in *F. gracilis*, *Attacobius* TOC and in *A. attarum*.

Character 94. Median apophysis* (L=2, Ci=50, Ri=0): (0) Absent (Fig. 15); (1) Present (Figs. 16, 19, 20, 21, 22, 23). (See Bonaldo & Brescovit, 2005: character 58;

Ramirez, 2014: character 356). In this dataset the presence of median apophysis is a synapomorphy of Corinninae, reversed in *F. gracilis*.

Character 95. Median apophysis* (L=1, Ci=100, Ri=100): (0) Massive (Bonaldo, 2000: figs. 242; De Souza & Bonaldo, 2007: fig. 51; [Introdução geral: figs. 2A, 3A]); (1) Composed of 3 parts (Figs. 16, 19, 20, 21, 22, 23; Bonaldo & Brescovit, 1998: figs. 10, 12; Bonaldo & Brescovit, 2005: figs. 2, 4, 9, 11, 14; [Introdução geral: figs. 5B, 6A, 7A, 8A, 9D, 10A, 11A, 14E, 16A, 17A]). Not applicable to *Castianeira*. State 1 is a synapomorphy of Attacobiini.

Character 96. Proximal end of median apophysis* (L=2, Ci=50, Ri=50): (0) Unfolded (Figs. 16, 21); (1) Folded over itself (Figs. 6, 19, 20, 22, 23, 24). (See Bonaldo & Brescovit, 2005: character 59). Inapplicable in the outgroup. State 1 appears independently as synapomorphies of nodes 8 and 10.

Character 97. Median extension of median apophysis* (L=1): (0) Directed retrolaterally (Fig. 16); (1) Folded ventrally (Figs. 6, 17, 18, 19, 20, 21, 22, 23). (See Bonaldo & Brescovit, 2005: character 61). Uninformative. Inapplicable in the outgroup. State 1 is a synapomorphy of *Attacobius*.

Character 98. Median extension of median apophysis* (L=3, Ci=66, Ri=75): (0) Entire, smooth (Figs. 6, 16, 20, 23); (1) With two pieces, smooth (Fig. 21); (2) With two pieces, the proximal one sculptured (Fig. 17, 19, 22). (See Bonaldo & Brescovit, 2005: character 62). Inapplicable in the outgroup. State 1 is a synapomorphy of node 6, changing to state 2 in node 9. *A. carranca* also has state 2.

Character 99. Distal end of median apophysis - dMA* (L=1): (0) Directed retrolaterally (Fig. 16); (1) Folded ventrally (Figs. 6, 19, 20, 21, 22, 23). (See Bonaldo & Brescovit, 2005: character 63). Same as character 97.

Female genitalia: (Unknown for *E. comissator, A. tucurui* and *Attacobius* PAR).

Character 100. Epiginal ventral plate - EVP* (L=3, Ci=33, Ri=60): (0) Absent (Figs. 27, 28, 30, 32, 34, 39); (1) Present (Figs. 26, 29, 31, 33, 35, 37). (See Bonaldo &

Brescovit, 2005: character 65). An epiginal ventral plate appeared independently twice as synapomorphies of outgroup node 3 and ingroup node 10.

Character 101. Epiginal ventral surface* (L=1, Ci=100, Ri=100): (0) Flattened (Figs. 27, 28, 29, 30, 31, 32, 33, 34); (1) Medially projected (Fig. 26, 35, 36, 37, 38, 39, 40). (See Bonaldo & Brescovit, 2005: character 68). A medially projected epigynal surface is a synapomorphy of node 13.

Character 102. Secondary spermathecae* (L=3, Ci=33, Ri=50): (0) Small; (1) Large (Fig. 25). (See Bonaldo & Brescovit, 2005: character 70). The Large secondary spermathecae appears independently three times in this dataset, twice in the outgroup (*Castianeira* and *X. cotijuba*) and as a synapomorphy of ingroup node 14.

Character 103. Primary and secondary spermathecae* (L=1): (0) Fused (Fig. 25); (1) Separate. The separated primary and secondary spermathecae appears in this data set as a synapomorphy of Corinninae, a result that may change if more outgroup terminals are added.

Character 104. Number of Copulatory openings * (L=3, Ci=33, Ri=33): (0) Two (Figs. 26, 27, 28, 30, 32, 34, 36, 38, 40, 45; De Souza & Bonaldo, 2007: fig. 53; [Introdução geral: figs. 2C; 7C; 8C; 17C]); (1) One (Figs. 41, 43; Bonaldo, 2000: figs. 221, 244; [Introdução geral: figs. 3C, 4C]). The fusion of the copulatory openings into a single aperture occurred three times in the dataset: as autapomorphies of *A. carranca* and *A. verhaaghi* and as a synapomorphy of outgroup node 3.

Character 105. Slit-shaped copulatory openings (L=3, Ci=33, Ri=0): (0) Absent (Figs. 27, 28, 30, 32, 34, 40; Bonaldo, 2000: figs. 221, 244; De Souza & Bonaldo, 2007: fig. 53; [Introdução geral: figs. 2C, 3C, 4C]); (1) Present (Fig. 26, 36, 38, 45). Codified under ACCTRAN optimization. State 1 is a synapomorphy of node 14, reversed in *A. luederwaldti*, and also appeared independently in *A. lamellatus*.

Character 106. copulatory openings position * (L=2, Ci=50, Ri=66): (0) Lateral (Figs. 26, 27, 36, 38, 40; Platnick & Baptista, 1995: figs. 9, 18; Bonaldo & Brescovit, 2005: fig. 21; [Introdução geral: figs. 9A, 12A, 15A]); (1) Median (Fig. 28, 30, 32, 34, 41, 43, 45; Bonaldo, 2000: figs. 221, 244; De Souza & Bonaldo, 2007: fig. 53;

[Introdução geral: figs. 2C, 3C, 4C, 7C, 8C, 17C]). State 1 is a synapomorphy of Corinninae, reversed in node 14.

Character 107. Copulatory openings position * (L=1, Ci=100, Ri=100): (0) Ventral (Figs. 27, 28, 30, 32, 34; Bonaldo, 2000: figs. 221, 244; De Souza & Bonaldo, 2007: fig. 53; [Introdução geral: figs. 2C, 3C, 4C, 7C, 8C, 17C]); (1) Posterior (Fig. 26, 36, 38, 40, 41, 43, 45). The shift of the copulatory openings from a ventral to a posterior position is a synapomorphy of clade 10.

Character 108. Epiginal complex (L=2, Ci=50, Ri=83): (0) Developed anteriorly (Fig. 25; Platnick & Baptista, 1995: figs. 11, 20; Bonaldo, 2000: figs. 222, 245; Bonaldo & Brescovit, 2005: fig. 22; De Souza & Bonaldo, 2007: fig. 54; [Introdução geral: figs. 2D, 3D, 4D, 9C, 12C, 15B]); (1) Restricted to the posterior region of epigynum (Platnick & Baptista, 1995: fig. 14; Bonaldo & Brescovit, 1998: fig. 16; Bonaldo & Brescovit, 2005: figs. 7, 19; [Introdução geral: figs. 7D, 8D, 10E, 11D, 13C, 14C, 17D]). Codified under ACCTRAN optimization. Compact epiginal complex is a synapomorphy of Attacobiini reversed in node 14. We called of epiginal complex the set of all structures which comprise the female epigynum in dorsal view.

Character 109. Spermatecae* (L=4, Ci=25, Ri=40): (0) Attached or contiguous to each other (Figs. 25, 29, 31, 33, 41, 43, 45; Platnick & Baptista, 1995: fig. 11; Bonaldo & Brescovit, 1998: fig. 16; Bonaldo, 2000: figs. 222, 245; Bonaldo & Brescovit, 2005: figs. 7, 19, 22; [Introdução geral: figs. 3D, 4D, 10E, 11D, 12C, 14C, 15B]); (1) Separated (Figs. 28, 30, 32, 34, 42, 44, 46; Platnick & Baptista, 1995: figs. 14, 20; De Souza & Bonaldo, 2007: fig. 54; [Introdução geral: figs. 2D, 7D, 8D, 9C, 13C, 17D]). State 1 is a synapomorphy of node 6, and appears independently in *A. nigripes* and *A. attarum*.

Recognized clades

Even with the increased amount of terminals and the reinterpretation of several characters, in relation to the previous analysis carried out by Bonaldo & Brescovit (2005), the analysis of the present data matrix, including all taxa known by both or only one sex, also resulted in a single most parsimonious tree, fully resolved in spite of some rather weakly supported clades (Fig. 1). Furthermore, the node 13, which includes (*A. nigripes* (*A. kitae* (*A. attarum; A. luederwaldti*))) was also the one with better support in the Attacobius clade with BS=4. In both analyses, the group recovered in clade 13 was the most derivative.

The tribe Attacobiini was once more recovered as a monophyletic group (clade 4, SB=15), and is supported by 16 unambiguous synapomorphies, 15 of then non-homoplastic: similar sclerotization between carapace and legs (Char. 3:1) (the only homoplastic synapomorphy in the clade, appear independently in *S. yucatan*); presence of stiff feathery setae on carapace, legs and abdomen (Char. 6:1); trapezoid labium (Char. 23:1); absence of serrula (Char. 24:1); absence of prolateral spine in femur II (Char. 29:1); absence of retrolateral spine in femur III (Char. 32:1); absence of prolateral spine in femur IV (Char. 34:1); absence of prolateral spine in tibia II (Char.44:1); absence of ventral retrolateral spine in tibia III (Char. 45:1); absence of prolateral spine in tibia IV (Char. 46:1); the unarmed ventral surface of tibia IV (Chars. 48:1 and 49:1); absence of prolateral spine in metatarsus III (Char. 53:3); absence of retrolateral spine in metatarsus III (Char. 54:1); absence of prolateral spine in metatarsus IV (Char. 59:2); absence of retrolateral spine in metatarsus IV (Char. 60:2). This results corroborate some hypotheses of synapomorphies of the tribe proposed by Bonaldo (2000), Bonaldo & Brescovit (1998) and Bonaldo & Brescovit (2005): presence of stiff feathery setae on carapace, legs and abdomen; labium much wider than long; absence of serrula and reduced leg spination.

The species *E. comissator* appeared as the sister group of the clade *Attacobius*, emerging in the tree as the most basal species in the tribe, supported by 14 autapomorphies, 11 of then non-homoplastic: absence of PME, ALE and PLE (Chars. 7:1, 8:1, 9:1); only one dorsal spine in femur I (Char. 26:2); absence of prolateral spine in femur I (Char. 27:1) (homoplastic, occurring independently in node 13 and *Attacobius* TOC, where it is polymorphic); presence of only one dorsal spine on femur II (Char. 28:2); absence of retrolateral spine on femur IV (Char. 35:1) (homoplastic, spine also absent in clades 9 and 13); presence of two ventral retrolateral spine on tibia I (Char. 37:2); presence of only one ventral prolateral spine on tibia II (Char. 39:2); presence of only one ventral retrolateral spine on tibia II (Char. 40:2); presence of one curved ventral apical median spine on metatarsus I, II (Chars. 50:1 and 52:1); AS with basal insertion (Char. 67:2); presence of ventral tegular keel (Char. 89:1) (homoplastic, the presence of this structure occurs also in clades 7 and 12).

The genus *Attacobius* appears as a monophyletic group (clade 5, SB=8), supported by 11 unambiguous synapomorphies, of which 10 are non-homoplastic: presence of AME demarcation (Char. 10:1); absence of ventral apical median spine on metatarsus III (Char. 57:0), unarmed ventral surface of metatarsus IV (Chars. 61:1, 62:1); absence of ventral apical median spine on metatarsus IV (Char. 63:0); AS lameliform, with broad base (Char. 68:1) (homoplastic, acquired independently by *F. gracilis*); presence of ATR's basal ventral sclerotization (Char. 77:1); presence of a cymbial retrodorsal process (Char. 81:1); presence of cymbial transverse process (Char. 85:1); presence of tegular retrolateral groove (Char. 90:1); spermatic duct prolaterally coiled (Char. 92:1). All synapomorphies proposed by Bonaldo & Brescovit (2005) were recovered (Chars. 10, 61, 62, 81, 85, 90 and 92).

The *Attacobius* clade presented a basal division in two clades (6 and 10). The species belonging to the clade 6 are (*Attacobius* TOC (*A. tucurui* (*A. uiriri* (*A. blakei*; *Attacobius* PAR)))). Clade 10 is composed by (*A. carranca* (*A. lamellatus*; *A. verhaaghi*) (*A. nigripes* (*A. kitae* (*A. attarum*; *A. luederwaldti*)))).

Clade 6 is low supported (BS=1) but presents two unambiguous synapomorphies: median extension of median apophysis with two pieces, smooth (Char. 98:1) and the separated spermatecae (Char. 109:1), a feature which appears also in as autapomorphies of *A. nigripes* and *A. attarum*.

Clade 7 is composed of (*A. tucurui* (*A. uiriri* (*A. blakei*; *Attacobius* PAR))) supported (BS=1) by two unambiguous yet homoplastic synapomorphies: presence of PVTK (Char. 88:1) (lost in *A. blakei* and independently acquired in *F. gracilis* and in node 12); presence of VTK (Char. 89:1) (also present in *E. comissator* and in clade 12).

Clade 8 is composed of (*A. uiriri* (*A. blakei*; *Attacobius* PAR)) and is supported (BS=2) by three unambiguous synapomorphies (one non-homoplastic): presence of prolateral tubercle on ATR's dorsal lobe (Char. 76:1), independently acquired by *A.*

carranca; proximal end of median apophysis folded over itself (Char. 96:1), appearing also in node 10 and; cymbial retrodorsal process spoon-shaped (Char. 82:0). This group was not recovered by Bonaldo & Brescovit (2005), despite the fact that these authors also coded *A. uiriri* and *A. blakei* as presenting spoon-shaped cymbial retrodorsal process. The inclusion of *Attacobius* PAR, which also presents this modification, appears to be decisive for the retrieving of clade 8. In Bonaldo & Brescovit (2005), *A. uiriri* appears as the sister group of a large clade defined by the dorsally oriented dorsal lobe of RTA (Bonaldo & Brescovit, 2005: character 47:1), in which *A. blakei* appeared as a basal species (Bonaldo & Brescovit, 2005: fig. 1, node 6). This character is not used here, and the details of RTA's dorsal lobe variation are described in three different characters (71 - 73).

Node 9, composed of (*A. blakei*; *Attacobius* PAR), appears to be well supported (BS=3) by 3 unambiguous yet homoplastic synapomorphies: absence of retrolateral spine on femur IV (Char. 35:1), the loss of which also occurs in clade 13 and *E. comissator*; small cymbial retrolateral tubercle (Char. 80:1), also present in *X. cotijuba* and *A. lamellatus*; median extension of median apophysis with two pieces, the proximal one sculptured (Char. 98:2), a condition that appears also in *A. carranca*.

Clade 10 is low supported (BS=1) by four unambiguous synapomorphies (a single one non-homoplastic): absence of cheliceral geniculum (Char. 21:0), a loss which has two other independent instances, in *A. tucurui* and *A. blakei*; proximal end of median apophysis folded over itself (Char. 96:1), a characteristic that appear one more time (in node 8); presence of epiginal ventral plate (Char. 100:1) which is present also in outgroup node 3; copulatory openings in posterior position (Char. 107:1). The shifting of the copulatory openings from a ventral to a posterior position is an exclusive synapomorphy in this clade. The inclusion of two new characters (Chars. 21, 107) in the present analysis was decisive for the recognition of this clade.

The node 11 is composed of ((*A. lamellatus*; *A. verhaaghi*) (*A. nigripes* (*A. kitae* (*A. attarum*; *A. luederwaldti*)))) and is relatively well supported (BS=3) by six unambiguous synapomorphies (one non-homoplastic): parallel endites (Char. 25:0), a condition reversed in *A. kitae*, polymorphic in *A. attarum* and which appears independently twice outside node 11, in *Attacobius* TOC and *A. uiriri*; RTA composed by three lobes (Char. 66:2), in which the additional median lobe (ML) appears also in outgroup clade 2; VL apices prolaterally displaced (Char. 69:1), a condition which appear independently in *A. uiriri*; DL long, finger-shaped (Char. 71:1), which appears independently in *S. yucatan*; absence of DP's DL (Char. 74:0), a loss occurred also in *A. tucurui*; and the non-homoplastic presence of ventral tegular flange (Char. 87:1). The vast majority of the synapomorphies of this clade are from a single character system, the male palp structures. Of the six taxa in this clade, only three are known by males. The hypothesis here presented implies that the unknown males of *A. luederwaldti*, *A. kitae* and *A. nigripes* share these palpal characters.

Node 12 depicts a sister group relationship for *A. lamellatus* and *A. verhaaghi* (BS=2) and is supported by three unambiguous, homoplastic synapomorphies: laminar cymbial retrolateral tubercle (Char. 79:1), a condition that appears also in *A. tucurui* and in clade 9; presence of PVTK (Char. 88:1), which appeared independently also in *F. gracilis* and in node 7 (with a further loss in *A. blakei*); presence of VTK (Char. 89:1), also present in *E. comissator* and in clade 7. The sister group relationship of these two species was also recognized by Bonaldo & Brescovit (2005) but in that hypothesis they were sister to *A. tucurui* (Bonaldo & Brescovit, 2005: fig. 1, node 3), not part of a larger clade (node 11), sister of *A. carranca*, as depicted in the present analysis. This change is probably due to the inclusion of the male of *A. verhaagui*, absent in the analysis by Bonaldo & Brescovit (2005). Males of *A. verhaagui*, *A. lamellatus* and *A. attarum* are unique within the genus by sharing the trilobulated RTA with long finger-shaped dorsal lobe.

The clade 13 is composed of (*A. nigripes* (*A. kitae* (*A. attarum*; *A. luederwaldti*))) been the one with the higher support (BS=4), within the genus. This clade is supported by four unambiguous synapomorphies (two non-homoplastic): absence of prolateral spine in femur I (Char. 27:1), a loss also occurring independently in *E. comissator*; absence of retrolateral spine in femur IV (Char. 35:1), independently lost also in *E. comissator* and in clade 9; tarsus of legs I-IV distinctly black (Char. 65:1) a condition regarded by Platnick & Babtista (1995) as a synapomorphy of Attacobiini; epiginal ventral surface medially projected (Char. 101:1), a character also considered as a synapomorphy to the same grouping in Bonaldo & Brescovit (2005).

The previous analysis depicted a polytomy between *A. attarum, A. luederwaldti* and *A. nigripes*, with the strongest support within the genus (Bonaldo & Brescovit, 2005: fig. 1, node 9). The sister species of this group was *A. kitae*. Among the characters that supported this group was the presence of epigynal lateral grooves. These grooves are reinterpreted here as slit-shaped (Character 105:1), lateral (character 106:0) copulatory apertures that were shifted posteriorly (character 107:1). As a result of these refinements, the group is fully resolved, with *A. nigripes* appearing as the sister species of the apical clade composed by the remaining species.

Clade 14 is composed by (*A. kitae* (*A. attarum*; *A. luederwaldti*)) (BS=2), supported by three unambiguous synapomorphies (all homoplastic): large secondary spermathecae (Char. 102:1), a condition appearing independently in the outgroup (*Castianeira aff. rubicunda* ACR and *X. cotijuba*); lateral copulatory openings (Char. 106:0), a condition also present only in the outgroup *Castianeira aff. rubicunda* ACR; epiginal complex developed anteriorly (Char. 108:0), also present in the outgroup.

The clade 15 is composed by *A. attarum* and *A. luederwaldti* (BS=2) and is supported by three unambiguous synapomorphies (all homoplastic): ALE-PLE separated (Char. 17:0), a reversion to the plesiomorphic state found in the outgroup; ALE-AME separated (Char. 18:0), also a reversion to the condition found in the outgroup, but with an additional instance of independent acquisition, in *Attacobius* PAR; two spines in ventral prolateral surface in tibia II (Char. 39:1), which is also present only in the outgroup *Castianeira aff. rubicunda* ACR.

Character systems

The 109 characters presented above were retrieved from six character systems: carapace (six characters), eyes (14), mouthparts (five), legs (40), male palp (34) and female genitalia (10). Approaches for codding spination patterns vary widely in the literature. Giving the difficult to establish hypotheses of primary homology between particular spines, several authors, including Bonaldo & Brescovit (2005), choose simply to code the number of spines in any giving surface, increasing the number of multistate characters and consciously allowing the potential inclusion of primary homology errors in the matrices (Bosselaers & Jocqué, 2002). Ramírez (2003) proposed a more accurate notation to record the presence or absence of any particular spine. Since the loss of leg spines is a general trend in Attacobiini, homology assumptions among individual spines are particularly hard and most spination characters are codded here by counting spines in each article surface. However, attempts were made to establish homology on particular spines (characters 27, 29, 32, 35, 38 and 41). Experimental runs with all spination characters deactivated (or even with only those spination characters codded by surface deactivated), resulted in significant loss of resolution. In the present case, the mixed approach adopted here appears to be the best way to maintain critically informative characters while minimizing eventual primary homology errors.

The male palp of Attacobinni is arguable the most complex of all Corinnids, presenting unique tibial, cymbial and tegular modifications. Due to the outgroup representation, the dataset analyzed here imply that, under ACCTRAN, a bifid RTA is a synapomorphy of Corinninae. This result might change if more Corinnines were added to the outgroup, including those with a single, non-divided RTA, which would allows a full representation of RTA morphological diversity of Corinnidae. If the hypothesis that the bilobed RTA is a synapomorphy of Attacobiini (instead of Corinninae) cannot be tested here, at least an instance of acquisition of a trilobed RTA is fully documented, as a synapomorphy of clade 11. This condition is achieved by the appearance of a median lobe between the ventral and dorsal lobes, which is not homologous to the median lobe codded for the Corinninae outgroups. The several cymbial modifications presented by *Attacobius* are concentrated in the retrobasal surface, interacting with the complex RTA. Two unique structures, here regarded as unambiguous synapomorphies of *Attacobius*, emerge retrobasally from the cymbium, a retrodorsal process and a transversal process. In the unexpanded palp, the apex of the transversal process generally rests on an excavation of the RTA’s dorsal lobe inner surface. A prolateral tubercle on ATR’s dorsal lobe, occurring independently in clade 8 and *A. carranca* (character 76), appears to be an additional element promoting the locking of the cymbial transversal process on the RTA. The tegulum of Attacobiini and specially those of *Attacobius* species, also present several unique characters. The presence of a median apophysis appears in this dataset as an additional synapomorphy of Corinninae, a result that would probably change in a larger context. In this paper, a broader definition of MA was adopted, with the tegular processes of *Xeropigo* and *Septentrinna* considered as such. All these processes matches a definition of Median apophysis as an articulated sclerite (Ramírez, 2014). The median apophysis of Attacobiini is perfectly coupled to the tegular surface in the unexpanded palp and the articulation is only visible in preparations of expanded palps (Bonaldo & Brescovit, 2005). The Attacobiini median apophysis is also unique by been divided in three sectors (character 95). In *Attacobius*, a tegular modification not present in *Ecitocobius* accommodates the proximal sector of the median apophysis in the unexpanded palp, the tegular retrolateral groove (character 90).

The morphological interpretation of the epigynal complex in *Attacobius* here presented departs from that depicted by Bonaldo & Brescovit (2005) in some details. Particularly interesting is the discovery of instances of fusion of the pair of copulatory openings to form a single median aperture, as here documented for *A. carranca* and *A. verhaagui*. As shown by Bonaldo (2000), nearly half of the Corinninae genera present species with a single copulatory aperture while several other genera have the putatively plesiomorphic condition (separated copulatory apertures), universally present in Castianeirinae (Reiskind, 1969). In *Attacobius*, the copulatory apertures are strikingly diverse, varying in shape and position. The shifting of these apertures from a ventral position to a posterior one defines a large clade of *Attacobius* species (clade 10). A further shift occurred in a sub-group of clade 10 (clade 14), with the pair of copulatory apertures assuming a lateralized position in the posterior epigynal surface. In *A. carranca* and *A. verhaagui*, however, a shifting in the opposite direction toke place and the copulatory ducts converged to form a single aperture.

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LEGENDS

Fig. 1: Cladogram obtained for thirteen Attacobiini species and four outgroup species. Only unambiguous synapomorphies (for 67 out of 109 characters) were mapped. Black circles are non-homoplasious characters and white circles are homoplasious characters. Bremer support values for each node are underlined.

Figs. 2-5: *A. verhaaghi*, male: 2. Thoracic fovea; 3. Labium and Endites; 4. Carapace, dorsal view; 5. Chelicerae.

Figs. 6-8: *A. verhaaghi*, male. 6. Palp, ventral view; 7. RTA, vental view; 8. RTA, retrolateral view. Abbreviations: AS, apical spur of VL; C, conductor; CRP, cymbial retrodorsal process; CTP, cymbial transverse process; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; PVTK, prolateral ventral tegular keel; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTK, ventral tegular keel.

Figs. 9-14: *A. lamellatus*, male (9; 10; 11; 13), *A. verhaaghi*, female (12), *A. luederwaldti*, female (14). 9.Carapace, lateral view; 10. Eyes; 11. Endites; 12. Tibia I ventral basal spine; 13. Leg, tarsus slightly darker than other articles; 14. Leg, tarsus distinctly black.

Figs. 15-19: Male palp and RTA. 15. *Castianeira aff. rubicunda* ACR, ventral view (right palp); 16. *E. comissator*, ventral view; 17. *A. carranca*, retrolateral view, red arrow is basal projection on CRP; 18. *A. attarum*, retrolateral view; 19. *A. carranca*, ventral view. Abbreviations: AS, apical spur of VL; C, conductor; CRP, cymbial retrodorsal process; CRT, cymbial retrodorsal tubercle; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTK, ventral tegular keel.

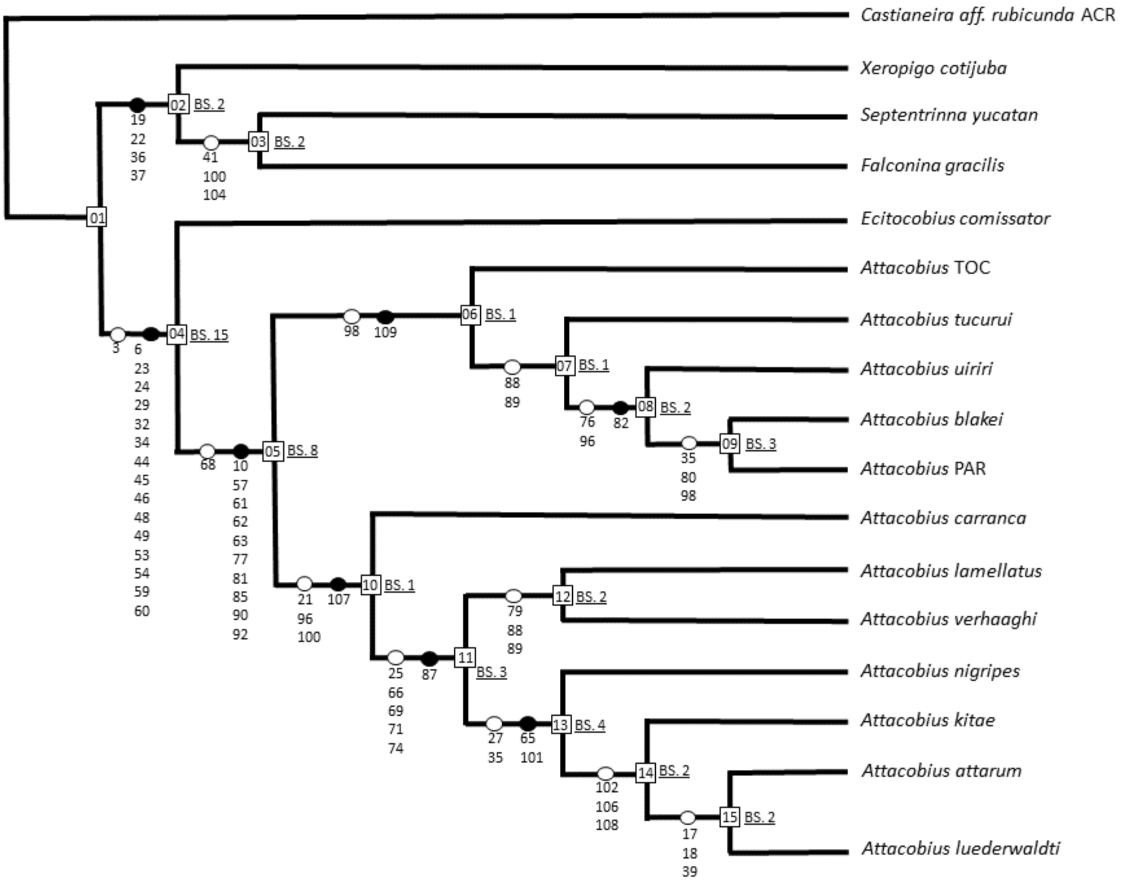
Figs. 20-24: Male palp structures. 20. *A. attarum*, ventral view; 21. *Attacobius* TOC, ventral view; 22. *Attacobius* PAR, ventral view; 23. *A. verhaaghi*, ventral view; 24. *Attacobius* PAR, red arrow is prolateral tubercle on ATR's dorsal lobe. Abbreviations: AS, apical spur of VL; BVS, basal ventral sclerotization; C, conductor; CRP, cymbial retrodorsal process; CTP, cymbial transverse process; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; PVTK, prolateral ventral tegular keel; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTF, ventral tegular flange; VTK, ventral tegular keel.

Figs. 25-28: Structures of female genitalia. 25. *Castianeira aff. rubicunda* ACR, dorsal view; 26. *A. kitae*, lateroposterior view, red arrow is slit-shaped copulatory openings; 27. *Castianeira aff. rubicunda* ACR, ventral view; 28. *A. blakei*, ventral view. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate; Sp, spermatecae.

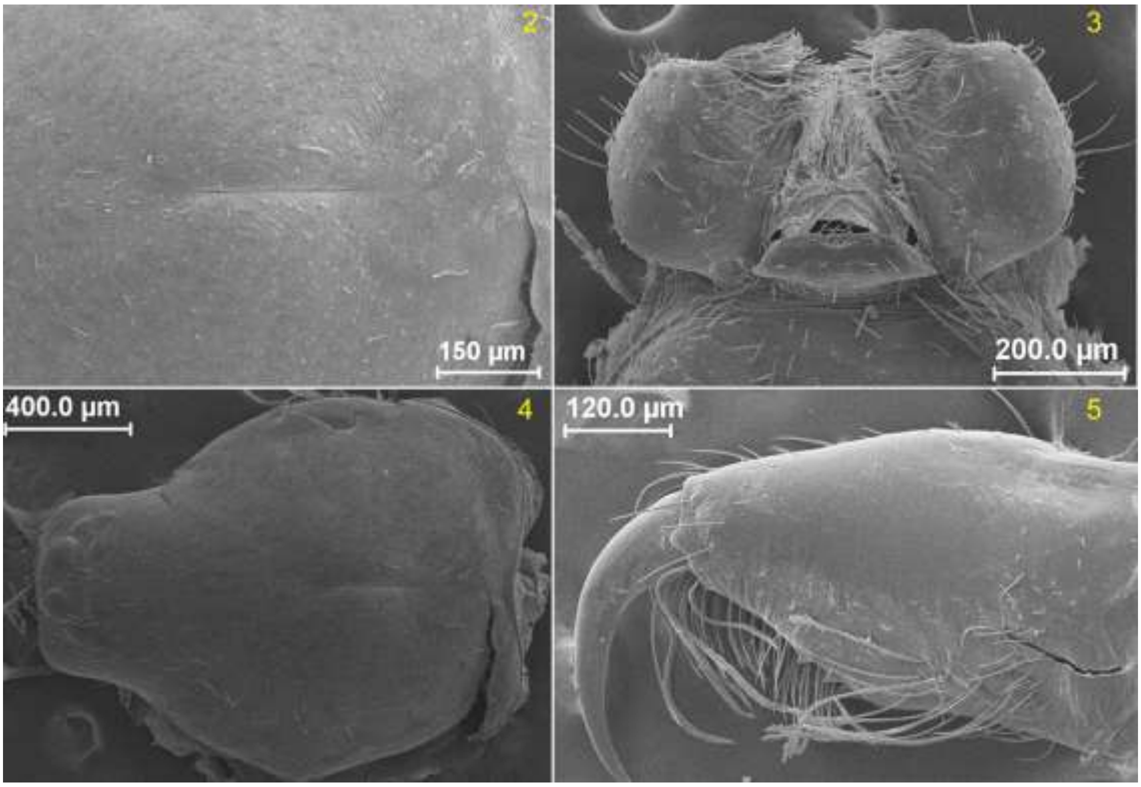
Figs. 29-34: Structures of female genitalia, in ventral view, immersed in clove oil. 29. *A. carranca*; 30. *A. blakei*; 31. *A. verhaaghi*; 32. *Attacobius* TOC; 33. *A. lamellatus*; 34. *A. uiriri*. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate.

Figs. 35-40: Structures of female genitalia, immersed in clove oil. *A. attarum*: 35. Ventral view; 36. Posterior view; *A. kitae*: 37. Ventral view; 38. Posterior view; *A. luederwaldti*: 39. Ventral view; 40. Posterior view. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate.

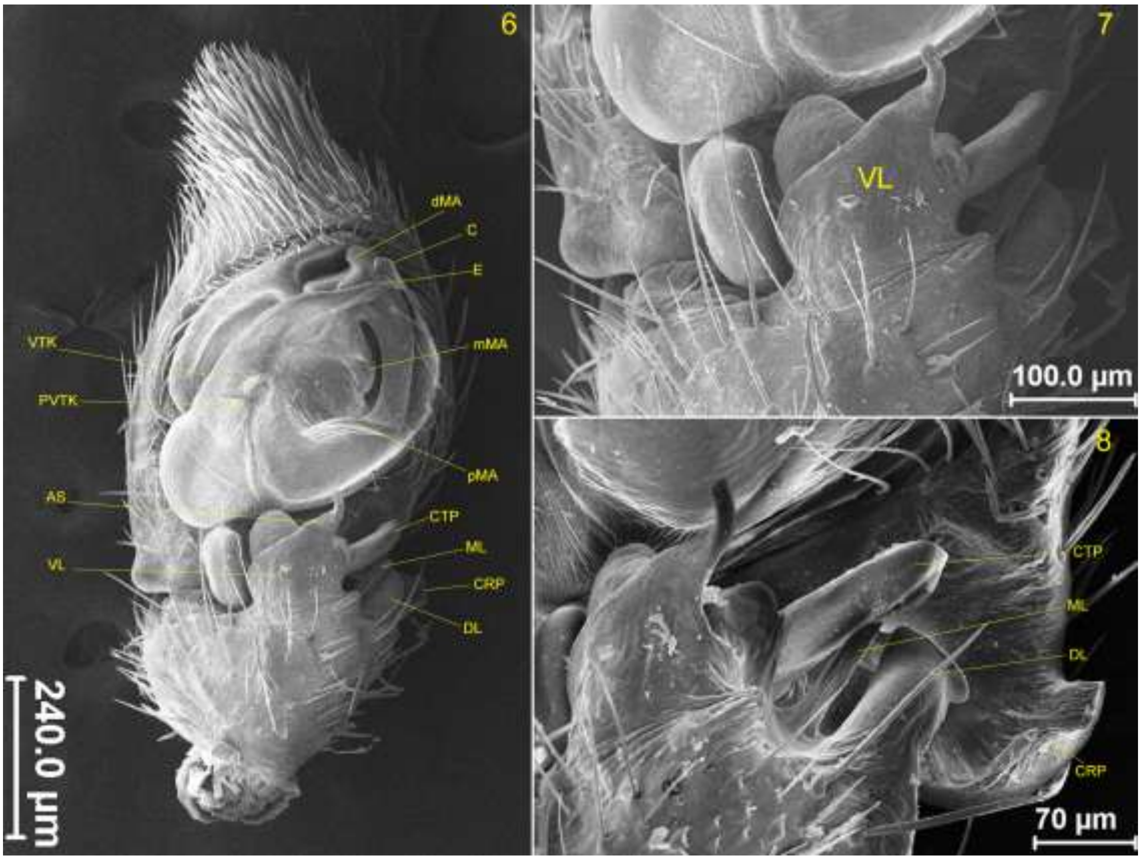
Figs. 41-46: Structures of female genitalia, in posterior view, immersed in clove oil. 41. *A. carranca*; 42. *A. blakei*; 43. *A. verhaaghi*; 44. *Attacobius* TOC; 45. *A. lamellatus*; 46. *A. uiriri*. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate; Sp, spermatecae.



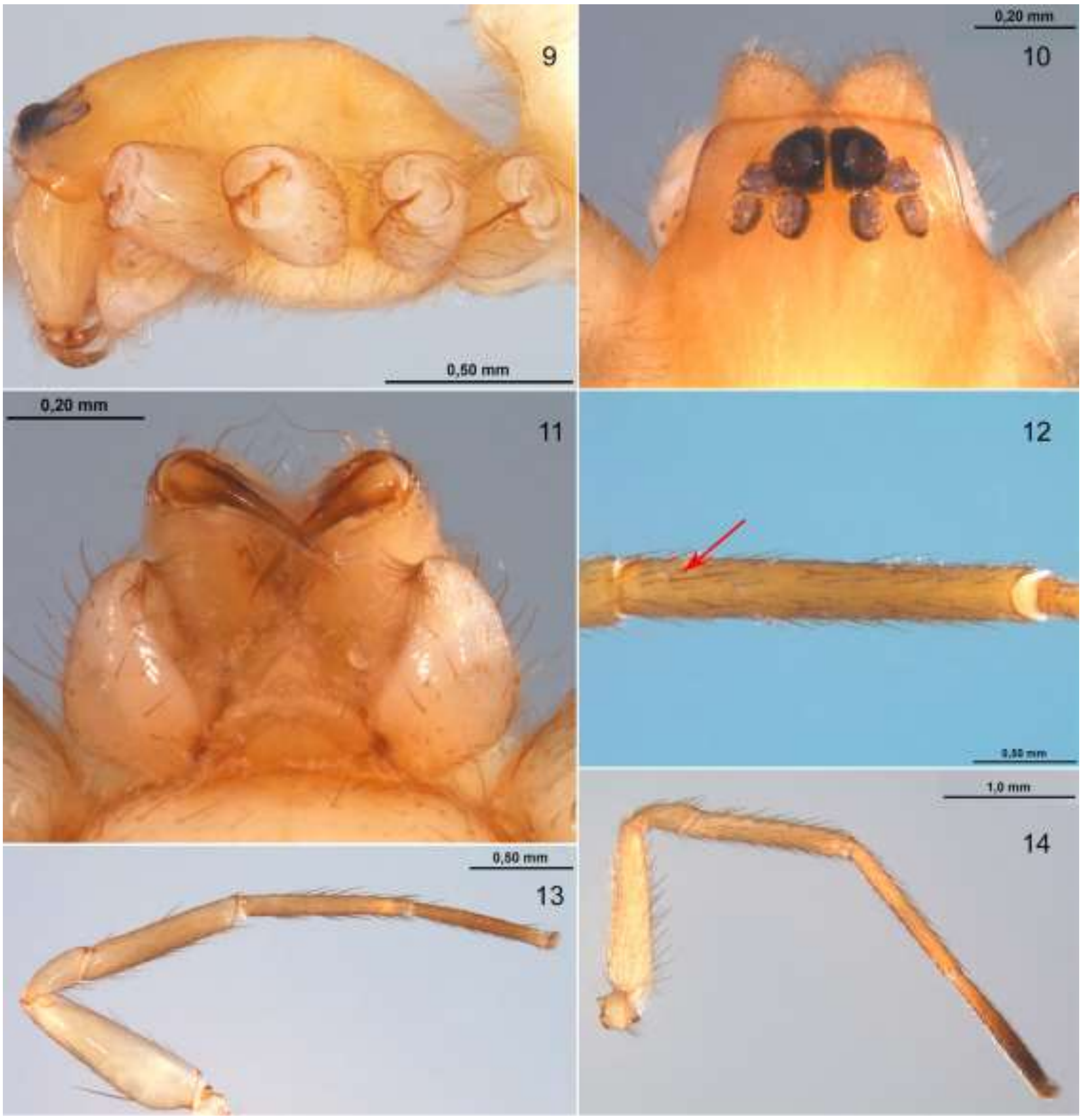
[**Fig. 1:** Cladogram obtained for thirteen Attacobiini species and four outgroup species. Only unambiguous synapomorphies (for 67 out of 109 characters) were mapped. Black circles are non-homoplasious characters and white circles are homoplasious characters. Bremer support values for each node are underlined.]



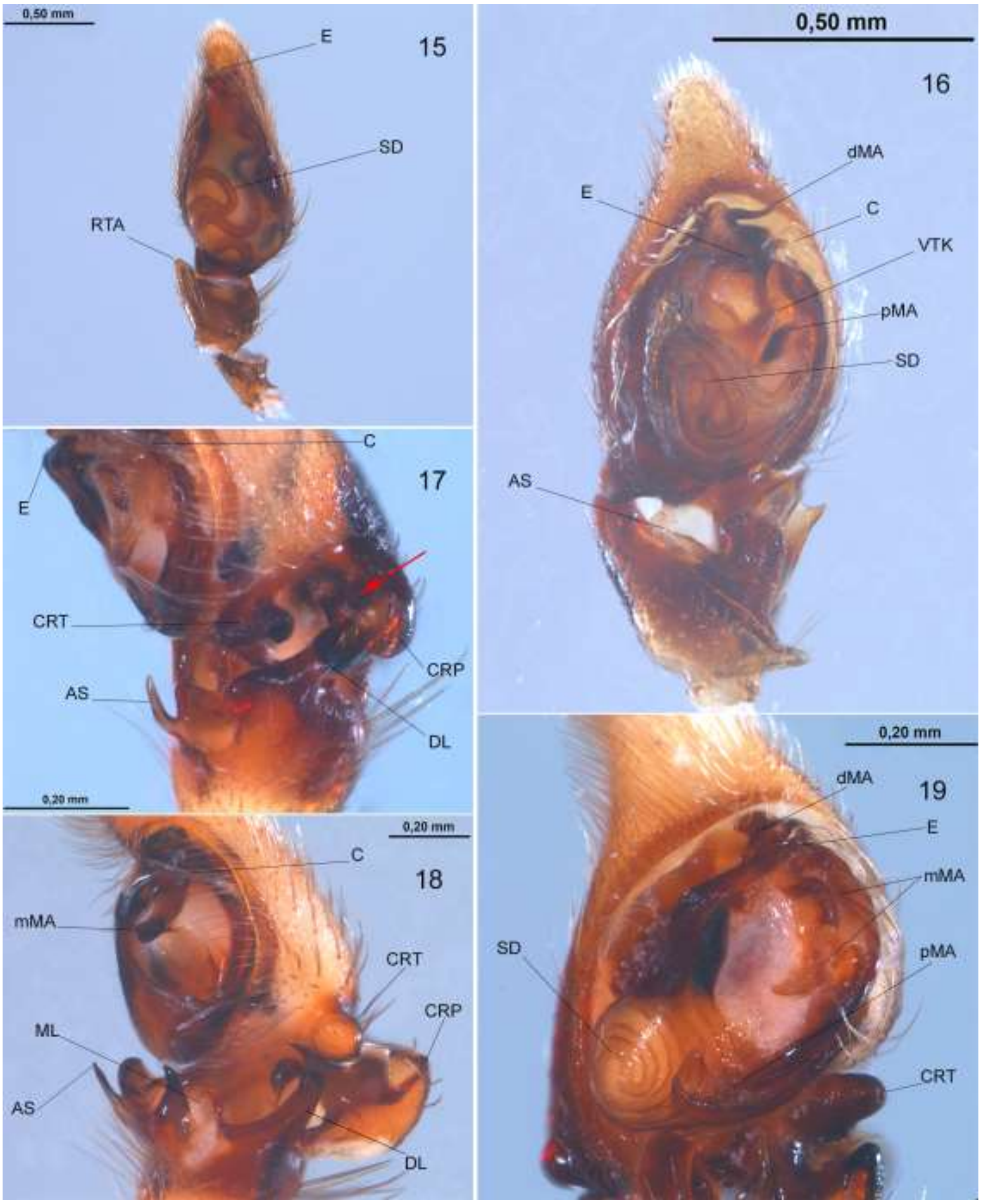
[**Figs. 2-5**: *A. verhaaghi*, male: 2. Thoracic fovea; 3. Labium and Endites; 4. Carapace, dorsal view; 5. Chelicerae.]



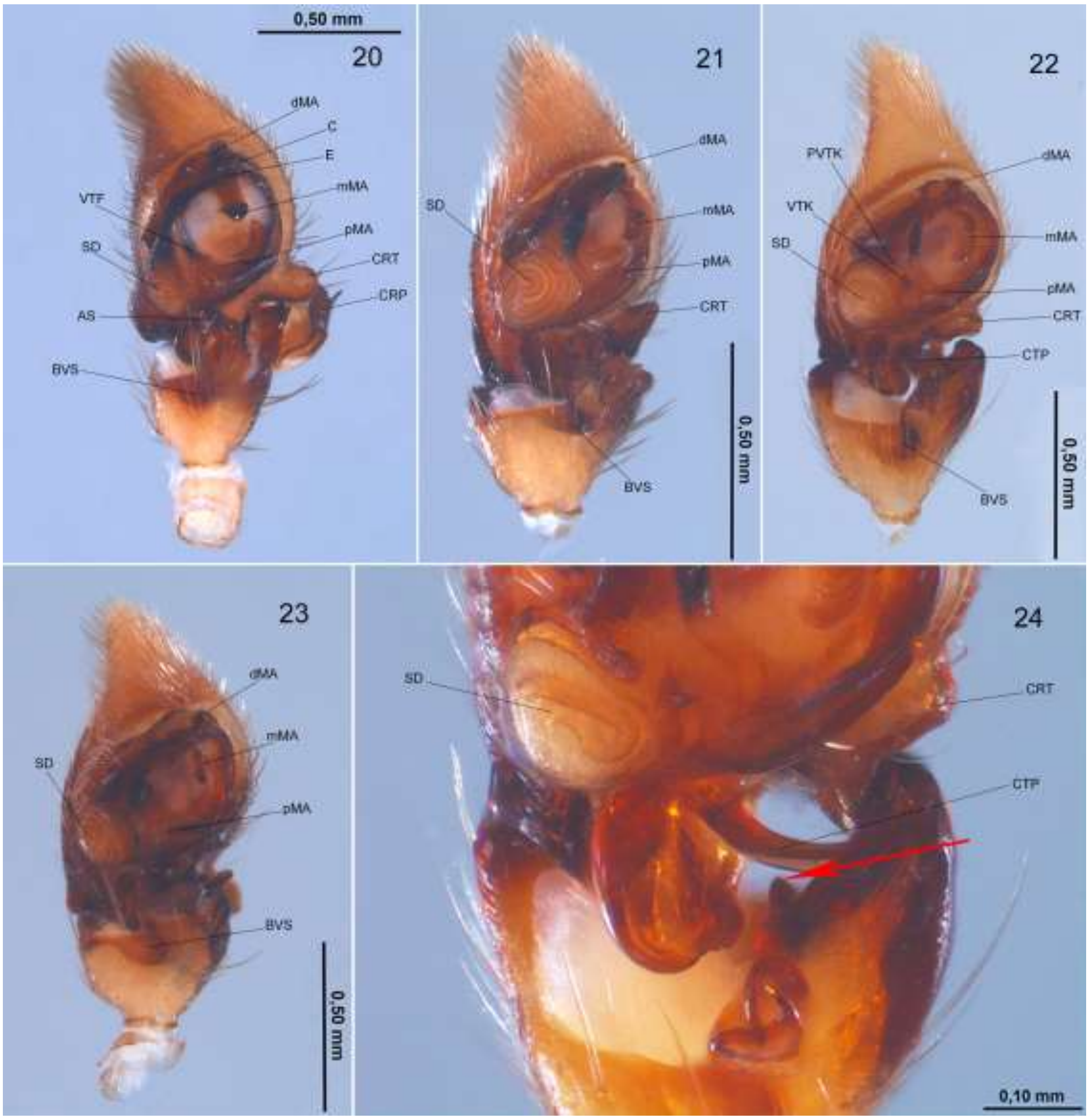
[**Figs. 6-8**: *A. verhaaghi*, male: 6. Palp, ventral view; 7. RTA, vental view; 8. RTA, retrolateral view. Abbreviations: AS, apical spur of VL; C, conductor; CRP, cymbial retrodorsal process; CTP, cymbial transverse process; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; PVTK, prolateral ventral tegular keel; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTK, ventral tegular keel.]



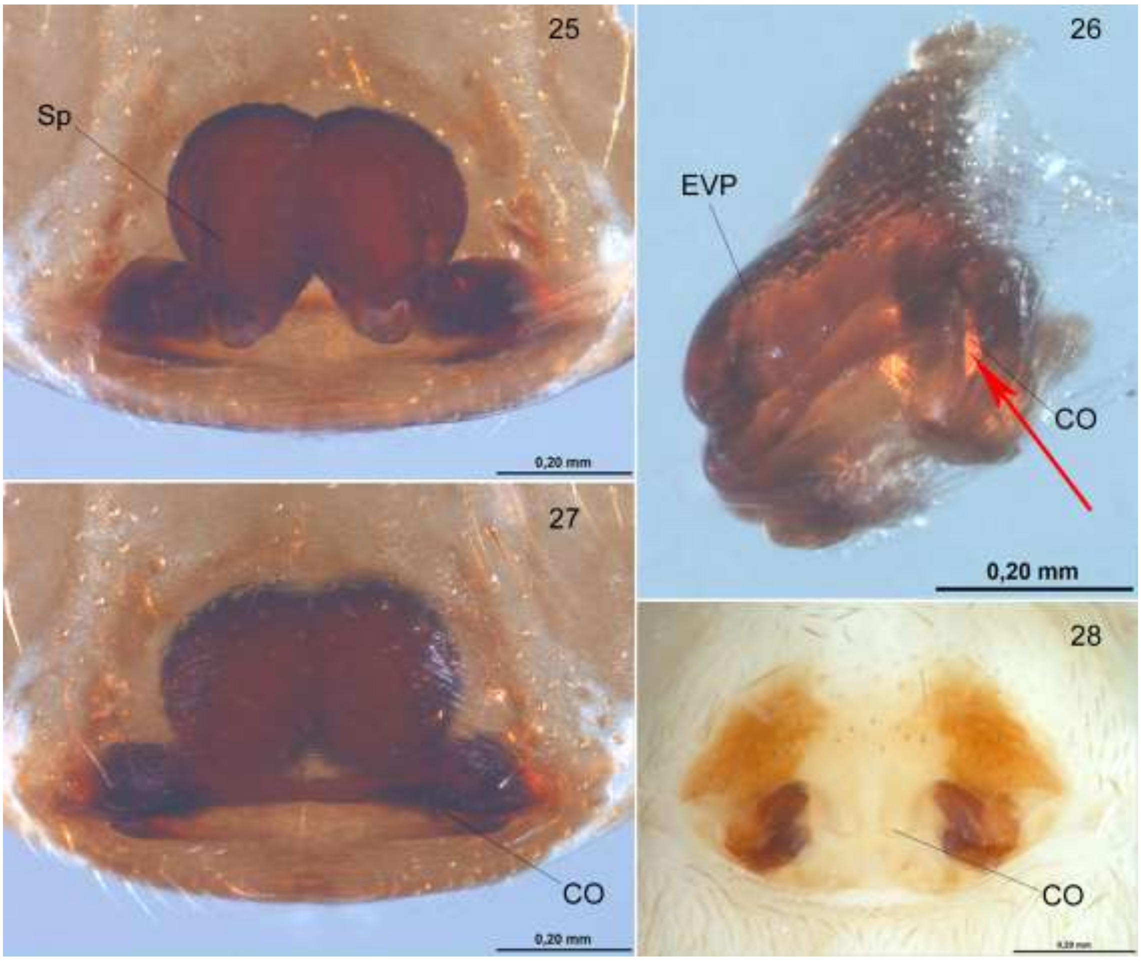
[**Figs. 9-14**: *A. lamellatus*, male (9; 10; 11; 13), *A. verhaaghi*, female (12), *A. luederwaldti*, female (14). 9.Carapace, lateral view; 10. Eyes; 11. Endites; 12. Tibia I ventral basal spine; 13. Leg, tarsus slightly darker than other articles; 14. Leg, tarsus distinctly black.]



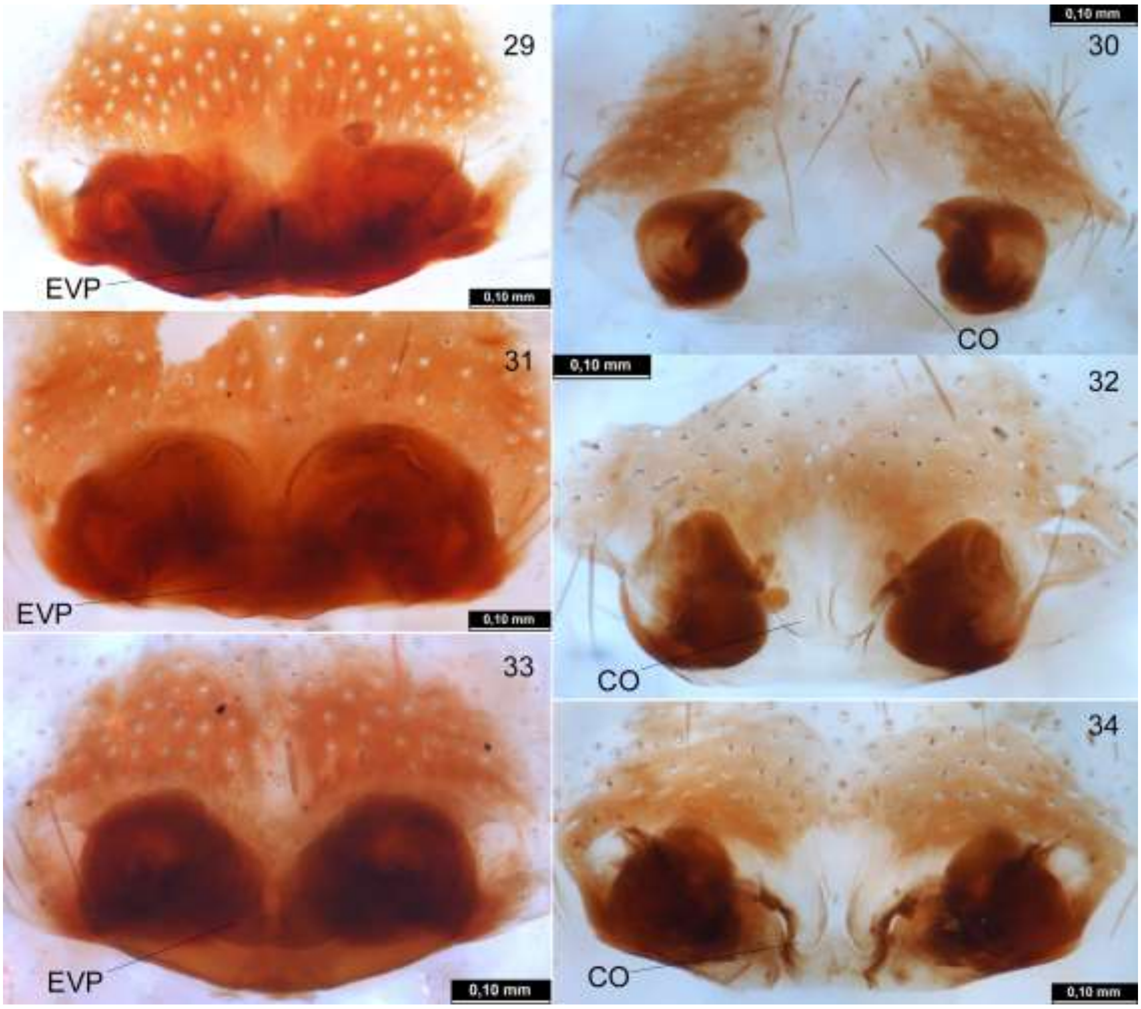
[**Figs. 15-19**: Male palp and RTA. 15. *Castianeira aff. rubicunda* ACR, ventral view (right palp); 16. *E. comissator*, ventral view; 17. *A. carranca*, retrolateral view, red arrow is basal projection on CRP;; 18. *A. attarum*, retrolateral view; 19. *A. carranca*, ventral view. Abbreviations: AS, apical spur of VL; C, conductor; CRP, cymbial retrodorsal process; CRT, cymbial retrodorsal tubercle; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTK, ventral tegular keel.]



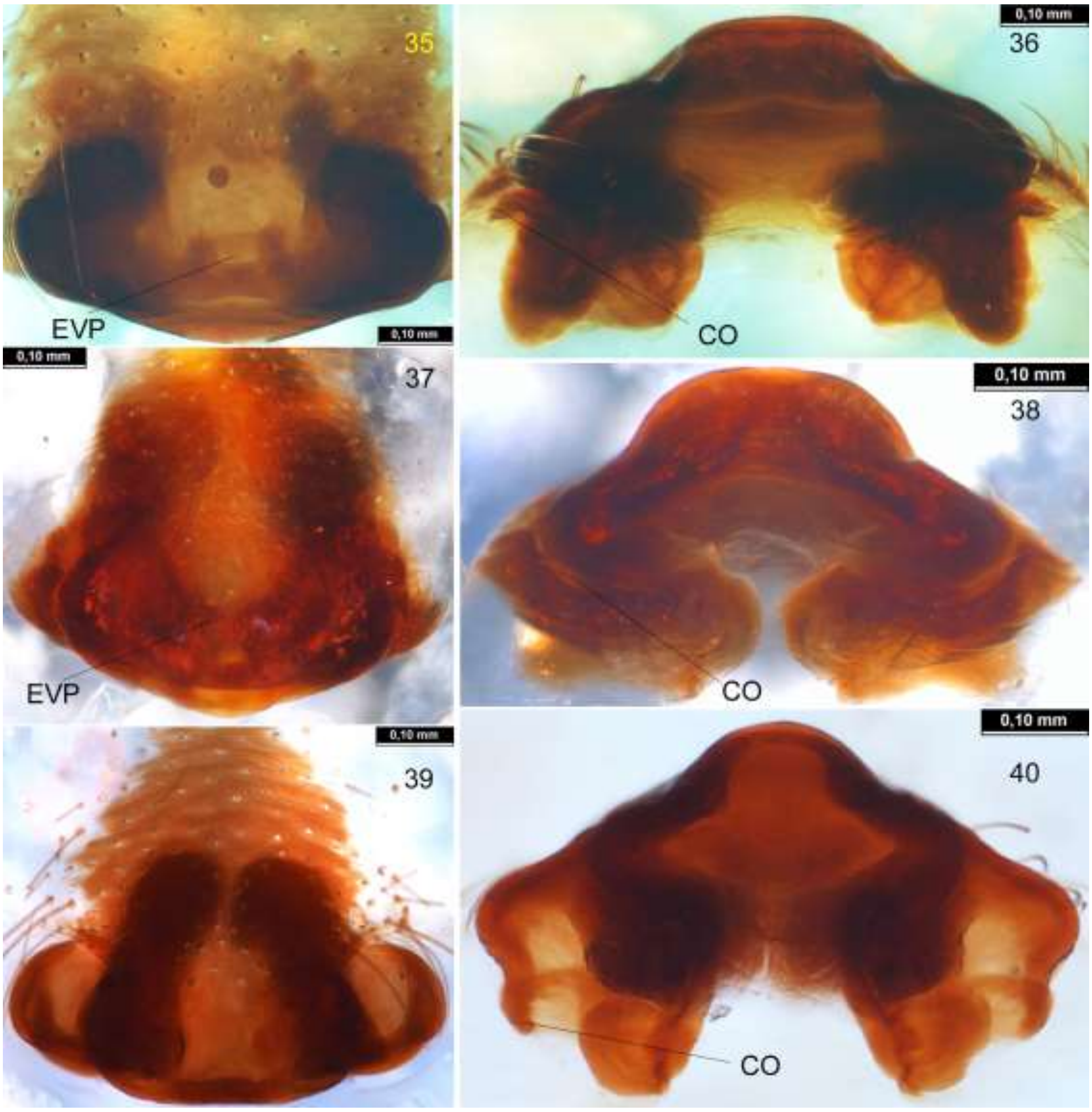
[**Figs. 20-24**: Male palp structures. 20. *A. attarum*, ventral view; 21. *Attacobius* TOC, ventral view; 22. *Attacobius* PAR, ventral view; 23. *A.* verhaaghi, ventral view; 24. *Attacobius* PAR, red arrow is prolateral tubercle on ATR's dorsal lobe. Abbreviations: AS, apical spur of VL; BVS, basal ventral sclerotization; C, conductor; CRP, cymbial retrodorsal process; CTP, cymbial transverse process; DL, dorsal lobe of RTA; dMA, distal end of median apophysis; E, embolus; ML, median lobe of RTA; mMA, median extension of median apophysis; pMA proximal end of median apophysis; PVTK, prolateral ventral tegular keel; RTA, retrolateral tibial apophysis; SD, spermatic duct; VL, ventral lobe of RTA; VTF, ventral tegular flange; VTK, ventral tegular keel.]



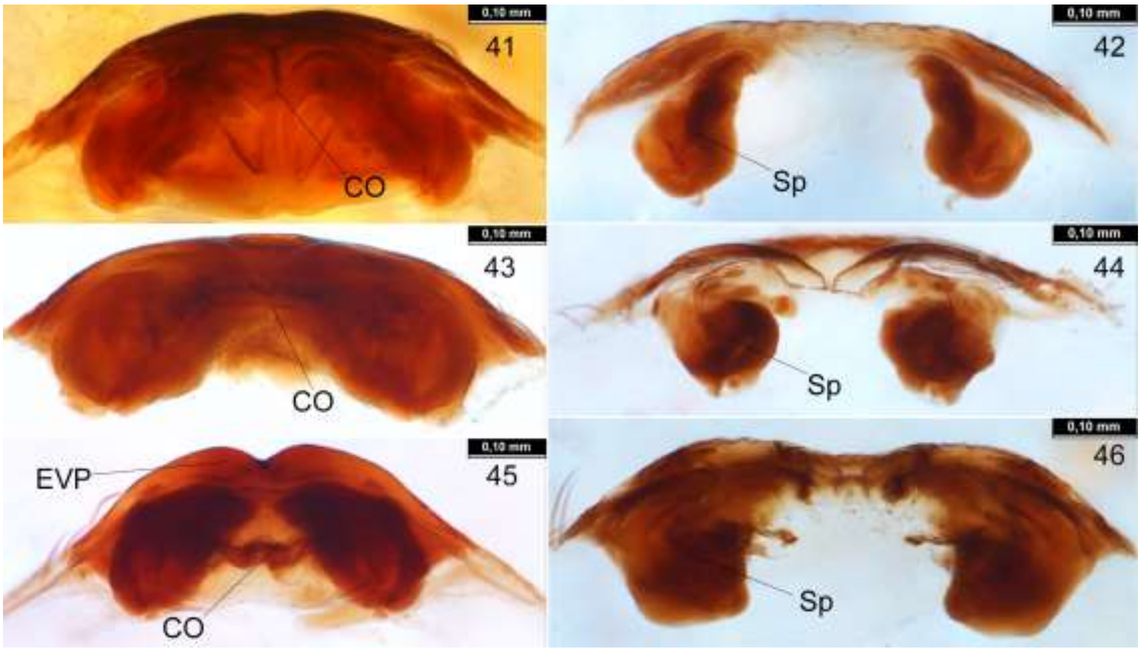
[**Figs. 25-28**: Structures of female genitalia. 25. *Castianeira aff. rubicunda* ACR, dorsal view; 26. *A. kitae*, lateroposterior view, red arrow is slit-shaped copulatory openings; 27. *Castianeira aff. rubicunda* ACR, ventral view; 28. *A. blakei*, ventral view. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate; Sp, spermatecae.]



[**Figs. 29-34**: Structures of female genitalia, in ventral view, immersed in clove oil. 29. *A. carranca*; 30. *A. blakei*; 31. *A. verhaaghi*; 32. *Attacobius* TOC; 33. *A. lamellatus*; 34. *A. uiriri*. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate.]



[**Figs. 35-40**: Structures of female genitalia, immersed in clove oil. *A. attarum*: 35. Ventral view; 36. Posterior view; *A. kitae*: 37. Ventral view; 38. Posterior view; *A. luederwaldti*: 39. Ventral view; 40. Posterior view. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate.]



[**Figs. 41-46**: Structures of female genitalia, in posterior view, immersed in clove oil. 41. *A. carranca*; 42. *A. blakei*; 43. *A. verhaaghi*; 44. *Attacobius* TOC; 45. *A. lamellatus*; 46. *A. uiriri*. Abbreviations: CO, copulatory openings; EVP, epiginal ventral plate; Sp, spermatecae.]

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Appendix 1

Vouchers for the phylogenetic analysis

Castianeira aff. rubicunda **ACR**:

Male (IB-12148), Parque Nacional da Serra do Divisor, Acre, Brasil.
Female (IB-8626), Xapuri, Acre, Brasil.

Xeropigo cotijuba De Souza & Bonaldo:

Male (Paratype, INPA), Rio Tarumã-Mirim, Manaus, Amazonas, Brasil.
Female (Paratype, INPA), Rio Tarumã-Mirim, Manaus, Amazonas, Brasil.

Septentrinna yucatan Bonaldo:

Male and Female (Paratype, AMNH), Chichen Itza, Yucatan, México.

Falconina gracilis (Keyserling):

Male (MPEG 3771), Jari, Almerim, Pará, Brasil
Female (MPEG 4515), Castelo dos Sonhos, Altamira, Pará, Brasil

Ecitocobius comissator Bonaldo & Brescovit:

Male (Holotype, MCN 26589), Reserva Florestal Adolpho Ducke, Manaus, Amazonas, Brasil.
Female, unknown.

Attacobius tucurui Bonaldo & Brescovit:

Male (Holotype, MPEG 0151), Rio Tocantins, Tucuruí, Pará, Brasil.
Female, unknown.

Attacobius uiriri Bonaldo & Brescovit:

Male (MPEG), Serra das Andorinhas, São Geraldo do Araguaia, Pará, Brasil.
Female (MPEG), Serra das Andorinhas, São Geraldo do Araguaia, Pará, Brasil.
Attacobius blakei Bonaldo & Brescovit:

Male (Holotype, MPEG 0152), Estação Científica Ferreira Penna, Floresta Nacional de Caxiuanã, Melgaço, Pará, Brasil.

Female (MPEG), Estação Científica Ferreira Penna, Floresta Nacional de Caxiuanã, Melgaço, Pará, Brasil.

Attacobius attarum (Roewer):

Male and Female (UNB), Condominio Fraternidade, Sobradinho, Distrito Federal, Brasil.

Attacobius carranca Bonaldo & Brescovit:

Male (MPEG), Parque Nacional da Serra das Confusões, Guaribas, Piauí, Brasil.

Female (Paratype, IBSP 32729), Fazenda Frigovalle, Porto Nacional, Tocantins, Brasil.

Attacobius lamellatus Bonaldo & Brescovit:

Male (Holotype, IBSP 32726), Fazenda Frigovalle, Porto Nacional, Tocantins, Brasil.

Female (Paratype, IBSP 32730), Fazenda Frigovalle, Porto Nacional, Tocantins, Brasil.

Attacobius luederwaldti (Mello-Leitão):

Male, unknown.

Female (MZSP 59511), Botucatu, São Paulo, Brasil.

Attacobius nigripes (Mello-Leitão):

Male, unknown.

Female (Holotype-photos, MLP 15775), Pampa de Achala, Córdoba, Argentina.

Attacobius verhaaghi Bonaldo & Brescovit:

Male (MPEG), ECB Rochas Ornamentais LTDA, Fazenda Bonito, Castelo do Piauí, Piauí, Brasil.

Female (MPEG), Fazenda Nazareth, José de Freitas, Piauí, Brasil.

Attacobius kitae Bonaldo & Brescovit:

Male, unknown.
Female (MPEG) Acampamento Mutum, Juruti, Pará, Brasil.

***Attacobius* PAR** Pereira-Filho & Bonaldo (*in press*):

Male (Holotype, MPEG), IPAM - Fazenda Arataú, Juruti, Pará, Brasil.
Female, unknown.

***Attacobius* TOC** Pereira-Filho & Bonaldo (*in press*):

Male (Holotype, UFMG 5760), Ananás, Tocantins, Brasil.
Female (Paratype, UFMG 5744), Xambioá, Tocantins, Brasil.

Appendix 2

					5					10					15					20					25					30					35
Castianeira aff. rubicunda ACR	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Xeropigo cotijuba	0	1	0	1	1	0	0	0	0	0	0	0	0	-	-	0	0	0	1	0	1	1	0	0	1	Z	0	1	0	0	0	0	X	0	0
Septentrinna yucatan	0	0	1	0	1	0	0	0	0	0	0	0	0	-	-	0	0	0	1	0	1	1	0	0	1	1	0	1	0	0	0	0	0	0	0
Falconina gracilis	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0	0	1	0	1	1	0	0	1	1	0	1	0	0	1	0	0	0	0
Ecitocobius comissator	2	1	1	1	1	1	1	1	1	0	0	-	-	-	-	-	-	-	-	-	1	0	1	1	1	2	1	2	1	2	2	1	2	1	1
Attacobius tucurui	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	0	1	1	0	1	0	0	1	1	1	1	0	Z	1	1	2	1	1	1	0
Attacobius uiriri	1	1	1	1	1	1	0	0	0	1	W	0	1	1	Z	0	1	1	0	1	1	0	1	1	0	1	0	1	1	1	2	1	1	1	0
Attacobius blakei	1	1	1	1	1	1	0	0	0	1	1	0	1	1	2	0	1	1	0	1	0	0	1	1	1	1	0	1	1	1	2	1	1	1	1
Attacobius attarum	1	1	1	1	1	1	0	0	0	1	0	0	1	1	2	0	0	0	0	1	0	0	1	1	W	1	1	1	1	1	2	1	1	1	1
Attacobius carranca	1	1	1	1	1	1	0	0	0	1	0	1	1	1	2	0	1	1	0	1	0	0	1	1	1	1	0	1	1	1	2	1	1	1	0
Attacobius lamellatus	1	1	1	1	1	1	0	0	0	1	0	1	1	1	2	0	1	1	0	1	0	0	1	1	0	1	0	1	1	1	2	1	1	1	0
Attacobius luederwaldti	1	1	1	1	1	1	0	0	0	1	0	0	1	X	2	0	0	0	0	1	0	0	1	1	0	1	1	1	1	1	2	1	1	1	1
Attacobius nigripes	1	1	1	1	1	1	0	0	0	1	0	0	1	1	2	0	1	1	0	1	1	0	1	1	0	1	1	1	1	1	2	1	1	1	1
Attacobius verhaaghi	1	1	1	1	1	1	0	0	0	1	1	1	1	1	2	1	1	1	0	1	0	0	1	1	0	1	0	1	1	1	2	1	1	1	0
Attacobius kitae	1	1	1	1	1	1	0	0	0	1	1	0	1	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1	1	1	2	1	1	1	1
Attacobius Sp1	1	1	1	1	1	1	0	0	0	1	0	0	1	1	1	0	1	0	0	1	1	0	1	1	1	1	0	1	1	1	2	1	1	1	1
Attacobius Sp4 TO	1	1	1	1	1	1	0	0	0	1	0	W	1	1	1	0	1	1	0	1	1	0	1	1	0	1	W	1	1	1	2	1	1	1	0

Table 1. Data matrix for Attacobiini species. Polymorphic entries coded as: W = (0,1), X = (0,2), Y = (0,3), Z = (1,2), T = (2,3); - = inapplicable or unknown.

					40					45					50					55					60					65					70
Castianeira aff. rubicunda ACR	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	-	-	-	-
Xeropigo cotijuba	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	W	0	0	0	1	0	W	W	0	0	1	0	0	2	0	0	0	0
Septentrinna yucatan	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	1	0	0	0
Falconina gracilis	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	1	1	0	0
Ecitocobius comissator	1	2	0	2	2	0	1	1	1	1	1	1	1	1	1	0	1	3	1	1	1	1	1	2	2	0	0	1	1	0	1	2	0	0	-
Attacobius tucurui	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	0	-
Attacobius uiriri	1	1	1	W	W	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	1	-
Attacobius blakei	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	0	-
Attacobius attarum	1	1	1	1	1	1	2	2	1	1	1	2	1	1	0	0	0	3	1	0	0	0	-	2	2	1	1	0	-	1	2	1	1	1	1
Attacobius carranca	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	0	-
Attacobius lamellatus	1	1	1	W	W	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	2	1	1	1	2
Attacobius luederwaldti	2	Z	1	1	Z	0	2	2	1	1	1	2	1	1	0	1	0	3	1	2	2	0	-	2	2	1	1	0	-	1	-	-	-	-	-
Attacobius nigripes	1	1	-	0	1	-	2	2	1	1	1	2	1	1	0	-	0	3	1	2	1	0	-	2	2	1	1	0	-	1	-	-	-	-	-
Attacobius verhaaghi	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	2	1	1	1	2
Attacobius kitae	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	T	1	2	2	0	-	2	2	1	1	0	-	1	-	-	-	-	-
Attacobius Sp1	1	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	T	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	0	-
Attacobius Sp4 TO	Z	1	1	0	0	0	2	2	1	1	1	2	1	1	0	0	0	3	1	2	2	0	-	2	2	1	1	0	-	0	1	1	1	0	-

					75					80					85					90					95					100					105
Castianeira aff. rubicunda ACR	-	-	-	-	-	-	0	0	-	-	0	-	-	-	0	0	0	0	0	0	0	-	-	0	-	-	-	-	-	0	0	1	0	0	0
Xeropigo cotijuba	0	-	-	0	-	0	0	1	0	1	0	-	-	-	0	1	0	0	0	0	1	0	1	1	0	-	-	-	-	0	0	1	1	0	0
Septentrinna yucatan	1	0	-	0	-	0	0	1	0	0	0	-	-	-	0	0	0	0	0	0	1	0	1	1	0	-	-	-	-	1	0	0	1	1	0
Falconina gracilis	0	-	-	0	-	0	0	1	0	0	0	-	-	-	0	1	0	1	0	0	1	0	0	0	-	-	-	-	-	1	0	0	1	1	0
Ecitocobius comissator	2	-	1	1	1	0	0	1	0	0	0	-	-	-	0	1	0	0	1	0	1	0	1	1	1	0	0	0	0	-	-	-	-	-	-
Attacobius tucurui	2	-	0	0	1	0	1	1	1	0	1	1	0	0	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	-	-	-	-	-	-
Attacobius uiriri	2	-	1	1	1	1	1	1	0	0	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	0	0
Attacobius blakei	2	-	1	1	1	1	1	1	1	1	1	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	2	1	0	0	0	1	0	0
Attacobius attarum	1	1	-	0	-	0	1	1	0	0	1	1	1	0	1	1	1	0	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1
Attacobius carranca	2	-	0	1	0	1	1	1	0	0	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	1	2	1	1	0	0	1	1	0
Attacobius lamellatus	1	0	-	0	-	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	1
Attacobius luederwaldti	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1	1	0	0
Attacobius nigripes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0	1	0	0
Attacobius verhaaghi	1	1	-	0	-	0	1	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	0
Attacobius kitae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	0	1
Attacobius Sp1	2	-	0	1	1	1	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	1	2	1	-	-	-	-	-	-
Attacobius Sp4 TO	2	-	1	1	1	0	1	1	0	0	1	1	0	0	1	1	0	0	0	1	1	1	0	1	1	0	1	1	1	0	0	0	1	0	0

				109
Castianeira aff. rubicunda ACR	0	0	0	0
Xeropigo cotijuba	1	0	0	1
Septentrinna yucatan	1	0	0	0
Falconina gracilis	1	0	0	0
Ecitocobius comissator	-	-	-	-
Attacobius tucurui	-	-	-	-
Attacobius uiriri	1	0	1	1
Attacobius blakei	1	0	1	1
Attacobius attarum	0	1	0	1
Attacobius carranca	1	1	1	0
Attacobius lamellatus	1	1	1	0
Attacobius luederwaldti	0	1	0	0
Attacobius nigripes	1	1	1	1
Attacobius verhaaghi	1	1	1	0
Attacobius kitae	0	1	0	0
Attacobius Sp1	-	-	-	-
Attacobius Sp4 TO	1	0	1	1