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Novas espécies do gênero *Neoxyphinus* Birabén 1953 (Araneae: Oonopidae) do Brasil

NÍTHOMAS MATEUS DAS NEVES FEITOSA

Dissertação de mestrado apresentada ao Programa de Pós-graduação em Zoologia, Curso de Mestrado, do Museu Paraense Emílio Goeldi e Universidade Federal do Pará, como requisito parcial para obtenção do grau de mestre em Zoologia.

Orientador: Dr. Alexandre Bragio Bonaldo

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SUMÁRIO

Resumo

Um total de 27 novas espécies do gênero *Neoxyphinus* são descritas, todas ocorrendo em território Brasileiro, elevando o número total de espécies do gênero para 48. As novas espécies são listadas a seguir, com a respectiva distribuição geográfica e sexos descritos: *N. capiranga* **sp**. **nov**. (♂♀) do Amazonas, Pará, Mato Grosso e Rondônia; *N. caprichoso* **sp**. **nov**. (♂♀) e *N. garantido* **sp**. **nov**. (♂♀) do Amazonas e Pará; *N. crasto* **sp**. **nov**. (♂♀) da Bahia e Sergipe; *N. murici* **sp**. **nov**. (♂♀) de Alagoas e Sergipe; *N. meurei* **sp**. **nov**. (♀) da Bahia e Mato Grosso; *N. belterra* **sp**. **nov**. (♂♀) do Pará e Mato Grosso; *N. ornithogoblin* **sp**. **nov**. (♂♀), *N. sax* **sp**. **nov**. (♂♀), *N. coari* **sp**. **nov**. (♂♀), *N. tucuma* **sp**. **nov**. (♂♀), *N. ducke* **sp**. **nov**. (♂) e *N. carigoglin* **sp**. **nov**. (♀) do Amazonas; *N. almerim* **sp**. **nov**. (♂), *N. mutum* **sp**. **nov**. (♂♀), *N. caxiuana* **sp**. **nov**. (♂♀), *N. cachimbo* **sp**. **nov**. (♂) e *N. jacareacanga* **sp**. **nov**. (♀) do Pará; *N. paraty* **sp**. **nov**. (♂♀) e *N. rio* **sp**. **nov**. (♂♀) do Rio de Janeiro; *N. novalima* **sp**. **nov**. (♂♀) e *N. celluliticus* **sp**. **nov**. (♂) de Minas Gerais; *N. paraiba* **sp**. **nov**. (♂) e *N. simsinho* **sp**. **nov**. (♂♀) da Paraíba; *N. cantareira* **sp**. **nov**. (♂) de São Paulo; *N. cavus* **sp**. **nov**. (♂) do Espírito Santo e *N. stigmatus* **sp**. **nov**. (♂) da Bahia. Uma chave para identificação de todas as 48 espécies conhecidas de *Neoxyphinus* é fornecida e possíveis linhagens monofiléticas dentro do gênero são discutidas.

Palavras-chave: Região Neotropical, PBI, taxonomia, espécies novas.

Introdução Geral

A família Oonopidae é composta por aranhas haplóginas com corpo pouco ou fortemente esclerotizado (Baehr & Harvey, 2013), que variam entre 0,5 e 4 mm de comprimento total (Baehr, Harvey & Smith, 2010), e são altamente diversificadas e encontradas em todos os continentes (exceto na Antártida) (Burger & Carrera, 2011). Podem ocorrer em ambientes variados tais como florestas, desertos (Jocqué & Dippenaar-Schoeman, 2006) e até mesmo cavernas (Harvey & Edward, 2007). Atualmente, a família possui 1.613 espécies distribuídas em 113 gêneros (World Spider Catalog, 2016) e, de acordo com Platnick *et al*. (2012a), é dividida em três subfamílias: Orchestininae Chamberlin & Ivie, 1942, Oonopinae Petrunkevitch, 1923 e Sulsulinae Platnick *et al*., 2012. O conhecimento sobre o relacionamento entre os gêneros de Oonopinae ainda é incipiente, sendo reconhecidos até o momento seis grupos informais de gêneros: grupo *Scaphiella* (Platnick & Dupérré, 2009); grupo *Stenoonops* (Platnick & Dupérré, 2010); grupo *Pelicinus* (Platnick *et al*., 2012; Álvarez-Padilla *et al*., 2012); Gamasomorphoids (Álvarez-Padilla *et al*., 2012); grupo *Zyngoonops* (Fannes, 2012) e grupo *Dysderina* (Platnick & Dupérré, 2011).

Uma análise mais abrangente e quantitativa das inter-relações de Oonopidae ainda está longe de ser apresentada (Platnick *et al*., 2012a). Contudo, a compreensão da taxonomia e sistemática da família tem apresentado um crescimento expressivo nos últimos anos (Lipke & Michalik, 2015). De Busschere *et al*. (2014), por exemplo, utilizaram pela primeira vez marcadores nucleares para inferir a filogenia interna da família e os resultados obtidos suportaram fortemente seu monofiletismo, bem como o de vários grupos de gêneros. Resultados semelhantes foram obtidos por Lipke & Michalik (2015), através da análise de 44 caracteres morfológicos do sistema reprodutivo.

Neoxyphinus Birabén, 1953 é um gênero neotropical de Oonopidae e pertence ao grupo *Dysderina*, compartilhando com os demais gêneros do grupo alguns caracteres potencialmente sinapomórficos no palpo dos machos, como: bulbo inflado, completamente fundido com o címbio e o êmbolo posicionado na região subdistal (Abrahim *et al*., 2012). Os membros do gênero podem ser diferenciados dos demais Oonopidae por uma combinação única de caracteres (Abrahim *et al*., 2012): enditos do macho com uma escavação retrolateral apical e uma apófise retrolateral subapical; presença de um conjunto de cerdas recurvas na superfície posterior da carapaça, tanto nos machos como nas fêmeas; fêmeas com átrio epiginal grande, fortemente rebordado, com margens laterais angulares (Abrahim *et al*., 2012). Atualmente, o gênero inclui 21 espécies descritas, ocorrendo da Jamaica ao norte da Argentina, incluindo o Caribe (Abrahim *et al*., 2012, Moss *et al*., 2016). A morfologia do corpo de *Neoxyphinus* é bastante diversificada entre os integrantes do gênero, com espécies que podem ou não apresentar espinhos ou bases de cerdas modificadas na superfície da carapaça, dentículos na região anterior do escudo abdominal dorsal, incisões tegumentares na superfície do esterno, entre outros. Além disso, novos caracteres morfológicos vêm sendo reconhecidos com o aumento do número de espécies descritas, alguns deles relacionados ao dimorfismo sexual, tais como em *Neoxyphinus yekuana* Moss & Feitosa, 2016, cuja fêmea apresenta o clípeo extremamente alto quando comparado com o do macho (Moss *et al*., 2016). No mesmo trabalho, os autores ainda apontam a presença de cristas remanescentes na superfície do esterno de *N. saarineni* Moss & Bonaldo, 2016, o que levou a suposição de algumas hipóteses evolutivas. Tendo em vista que espécies de outros gêneros do grupo *Dysderina* também podem apresentar modificações similares na superfície do esterno, a presença desta modificação em *N. saarineri* pode indicar uma simplesiomorfia, sendo que a ausência dessas cristas seria um caráter apomórfico dentro do gênero.

No presente trabalho são descritas 27 novas espécies de *Neoxyphinus* que ocorrem em 12 estados Brasileiros (Amazonas, Alagoas, Bahia, Espírito Santo, Mato Grosso, Minas Gerais, Pará, Paraíba, Rio de Janeiro, Rondônia, São Paulo e Sergipe), sendo fornecida uma chave de identificação para todas as 48 espécies do gênero.

Os resultados desta dissertação são apresentados no formato de artigo científico, já nos padrões da revista "Zootaxa", a qual o artigo será submetido.

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Twenty-seven new species of the goblin spider genus *Neoxyphinus* Birabén 1953 (Araneae: Oonopidae) from Brazil

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Abstract

Twenty-seven new species of the genus *Neoxyphinus* are described, all from Brazil, are described, rising the total number of species of the genus to 48. The new species with the respective geographic distribution and known sexes are: *N. capiranga* **sp**. **nov**. (♂♀) from Amazonas, Pará, Mato Grosso and Rondônia; *N. caprichoso* **sp**. **nov**. (♂♀) and *N. garantido* **sp**. **nov**. (♂♀) from Amazonas and Pará; *N. crasto* **sp**. **nov**. (♂♀) from Bahia and Sergipe; *N. murici* **sp**. **nov**. (♂♀ from Alagoas and Sergipe; *N. meurei* **sp**. **nov**. (♀) from Bahia and Mato Grosso; *N. belterra* **sp**. **nov**. (♂♀) from Pará and Mato Grosso; *N. ornithogoblin* **sp**. **nov**. (♂♀), *N. sax* **sp**. **nov**. (♂♀), *N. coari* **sp**. **nov**. (♂♀), *N. tucuma* **sp**. **nov**. (♂♀), *N. ducke* **sp**. **nov**. (♂) and *N. carigoblin* **sp**. **nov**. (♀) from Amazonas; *N. almerim* **sp**. **nov**. (♂), *N. mutum* **sp**. **nov**. (♂♀), *N. caxiuana* **sp**. **nov**. (♂♀), *N. cachimbo* **sp**. **nov**. (♂) and *N. jacareacanga* **sp**. **nov**. (♀) from Pará; *N. paraty* **sp**. **nov**. (♂♀) and *N. rio* **sp**. **nov**. (♂♀) from Rio de Janeiro; *N. novalima* **sp**. **nov**. (♂♀) and *N.*

celluliticus **sp**. **nov**. (♂) from Minas Gerais; *N. paraiba* **sp**. **nov**. (♂) and *N. simsinho* **sp**. **nov**. (♂♀) from Paraíba; *N. cantareira* **sp**. **nov**. (♂) from São Paulo; *N. cavus* **sp**. **nov**. (♂) from Espírito Santo and *N. stigmatus* **sp**. **nov**. (♂) from Bahia. A key for identification of all 48 known species of *Neoxyphinus* is provided and possible monophyletic lineages within the genus are discussed.

Key words: *Dysderina* complex, Oonopinae, Haplogynae, Taxonomy, Neotropical Region

Introduction

Oonopidae is a family of small, haplogyne spiders with soft or strongly sclerotized bodies (Baehr & Harvey, 2013), which vary between 0.5 and 4 mm in total length (Baehr, Harvey & Smith, 2010). They are highly diversified, can be found in all continents (except Antarctica) (Burger & Carrera, 2011) and can inhabit different environments such as forests, deserts (Jocqué & Dippenaar-Schoeman, 2006) and even caves (Harvey & Edward, 2007). The family currently has 1.613 species distributed in 113 genera (World Spider Catalog, 2016) and, according to Platnick *et al*. (2012a), is divided in three subfamilies: Orchestininae Chamberlin & Ivie, 1942, Oonopinae Petrunkevitch, 1923 and Sulsulinae Platnick *et al*., 2012. The systematic knowledge of Oonopinae is still incipient and few putatively monophyletic, informal groups of genera have been recognized so far: *Scaphiella*-group (Platnick & Dupérré, 2009); *Stenoonops*-group (Platnick & Dupérré, 2010); *Pelicinus*-group (Platnick *et al*., 2012; Álvarez-Padilla *et al*., 2012); Gamasomorphoids (Álvarez-Padilla *et al*., 2012); *Zyngoonops*-group (Fannes, 2012); and *Dysderina*-group (Platnick & Dupérré, 2011).

A comprehensive, quantitative analysis of Oonopidae interrelations is still far from being presented (Platnick *et al*., 2012a). However, the taxonomic knowledge of the family has increased significantly in the last years (Lipke & Michalik, 2015). De Busschere *et al*. (2014), for example, used nuclear markers to infer phylogenetic relationships within family for the first time, and their results strongly support the family monophyly, as well of the informal groups of genera recognized so far. The same phylogenetic relationships were recovered by Lipke & Michalik (2015), through an analysis of 44 morphological characters from the reproductive system.

Neoxyphinus Birabén, 1953 is a Neotropical genus of Oonopidae belonging to the *Dysderina*-group. The genera belonging to this group are related by caracters of the male palp: inflated male palpal bulb, completely fused to the cymbium, with no traces of a seam and bearing a subdistal embolus (Platnick & Dupérré, 2011). *Neoxyphinus* is striking by its diverse morphology, especially on the carapace, which may present spikes or modified posterior setal sockets, and on the dorsal scutum of the opisthosoma, which may present denticles on its anterior surface. The sternum morphology is also diverse, with several tegumental modifications. Nevertheless, the genus is easily distinguished by the following combination of characters (Abrahim *et al*., 2012): male endites with retrolateral excavation bearing a subapical tooth like apophysis; carapace posterior surface of both females and males with a recurve set of setae; and females with large, ellipsoid, strongly rebordered epigynal atrium, with angular lateral margins (Abrahim *et al*., 2012). The genus currently contains 21 described species, distributed from Jamaica to northern Argentina (Abrahim *et al*., 2012, Moss *et al*., 2016).

Neoxyphinus was first revised by Abrahim *et al*. (2012), who described five new species occurring from Brazil, Colombia, Ecuador, Guyana, Peru and Venezuela, and re-diagnosed five previously known species: *N. termitophilus* (Bristowe, 1938) (type

species), *N. xyphinoides* (Chamberlin e Ivie, 1942), two species transferred from Dysderina, *N. furtivus* (Chickering, 1968), and *N. keyserlingi* (Simon, 1907) and one transferred from the monotypic genus *Decuana*, *N. hispidus* (Dumitrescu & Georgescu, 1987). Abrahim *et al*. (2012) also transferred to *Neoxyphinus*, the only two species of the genus *Hawkeswoodoonops* Makhan & Ezzatpanah, 2011, *H. trevori* and *H. rishwani*, which were considered them as *species inquirendae*. The taxonomic study of the genus continued with Moss *et al*. (2016), who described 11 new species from Northern South America, excluding the species occurring exclusively in Brazil.

In this paper, we descrtibe 27 new species occurring in 12 Brazilian states (Amazonas, Alagoas, Bahia, Espírito Santo, Mato Grosso, Minas Gerais, Pará, Paraíba, Rio de Janeiro, Rondônia, São Paulo and Sergipe). An indentification key for all 48 species of the genus is provided and possible monophyletic lineages within the genus are discussed.

Material and Methods

The specimens examined belong to the following institutions (abreviations and curators in parentheses): Instituto Butantan, São Paulo, Brazil (IBSP, A.D. Brescovit); Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil (INPA, C. Magalhães); Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (MACN, C. Scioscia); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre, Brazil (MCN, R. Ott); Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, Brazil (MCTP, A. Lise); Museum of Comparative Zoology at Harvard University, Cambridge, United States of America (MCZ, G. Giribet); Museu Paraense Emílio Goeldi, Belém, Brazil

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Specimens were described using a Zeiss Stemi SV 11 and Leica MZ16 stereomicroscopes. Photographs of body parts were obtained using a Leica M205A stereomicroscope with a DFC420 camera and were assembled in multifocus images using the Leica Applications Suite software package (LAS). Preparations of female genitalia followed the protocol by Álvarez-Padilla & Hormiga (2007) and were examined in clove oil. All measurements are expressed in millimeters. The maps were made using Quantum Gis 2.12 software. Specimens were prepared for scanning electron microscopy (SEM) by dehydration through a series of increasingly concentrated 75% to 100% ethanol solutions, then air-dried and gold coated. SEM images were obtained in LEO 1450VP and Zeizz EVO LS15 electronic microscopes. Spination pattern descriptions follow Abrahim *et al*. (2012). Descriptions were generated with the aid of the Planetary Biodiversity Inventory (PBI) descriptive goblin spider database and manually edited. The description of the females includes just the differences from the males. High-resolution versions of the images, and a distribution maps for each species, will be available on the PBI project's website (http://research.amnh.org/oonopidae). Species are listed in the text according to the key order. We report coordinates of the localities from the labels when avaliabe; otherwise, we provide approximate coordinates calculated with Google earth (http://earth.google.com), based on the available information.

Taxonomy

Neoxyphinus Birabén, 1953

Diagnosis and Description: see Abrahim *et al*. (2012).

Distribution: Caribbean and South America, from Jamaica to northern Argentina.

Key to Species

1. Males ...…….……...…….2

- Females ……...……...…...……46

2. Carapace posterior surface with well-developed spikes (Abrahim *et al*., 2012, figs 1, 3) or modified setal sockets (Figs 83, 123, 234) ...…….....…...…....3

- Carapace posterior surface with undifferentiated setal sockets (Figs 272, 347, 449, 466) 28

3(2). Carapace posterior surface with well-developed spikes (Moss *et al*., 2016, fig. 229; Abrahim *et al*., 2012, figs 1, 3) …...……...……...4

- Carapace posterior surface with modified setal sockets (Figs 43, 83, 122) ...…...……9

4(3). Carapace with six spikes (Abrahim *et al*., 2012, figs 12, 56, 67) ...……...…….....5

- Carapace with four spikes (Moss *et al*., 2016, fig. 227; Abrahim *et al*., 2012, figs 139, 140, 171) …...……6

5(4). Carapace smooth, spikes shorts (Abrahim *et al*., 2012, figs 55, 56) …….…….……*N. xyphinoides*

- Carapace with blunt dorsal tubercles, spikes long (Abrahim *et al*., 2012, figs 69, 87) ….……..*N. axe*

6(4). Carapace with large dorsal blunt tubercles (Abrahim *et al*., 2012, figs 105, 120) …...……..*N. gregoblin*

- Carapace without such tubercles ...…….…….....7

7(6). Carapace spikes short (Moss *et al*., 2016, fig. 227; Abrahim *et al*., 2012, fig. 135) …...……8

- Carapace spikes long (Abrahim *et al*., 2012, fig. 169) ...……...……...…...*N. petrogoblin*

8(7). Sternum with small pits (Moss *et al*., 2016, fig. 231) …….....……..*N. pure*

- Sternum without pits (Abrahim *et al*., 2012, figs 137, 155) ...…...…...…*N. termitophilus*

9(3). Carapace surface smooth (Figs 2, 35, 81, 120, 234) ...…….....……...10

- Carapace surface texturized (Figs 345, 388, 449, 630) ...……..…….25

10(9). Embolus length reaching at least one third bulbus length (Figs 12, 51) ...…...…...11

- Embolus relatively short, reaching at most one fifth bulbus length (Figs 91, 130, 169) …...…….……12

11(10). Embolus directed apically, with pointed proventral small projections (Figs 15, 38, 39) …….……...……...*N. ornithogoblin* **sp**. **nov**.

- Embolus strongly bent prolaterally, with large basal and apical projections (Figs 51, 54) ..……...…….*N. sax* **sp**. **nov**.

12(10). Sternum with pits (Figs 116, 124, 152) ...……..……...13

- Sternum without pits (Figs 163, 193, 242) ...……..…..……..……16

13(12). Sternal pits large (Figs 85, 116) ……..……....……...*N. belterra* **sp**. **nov**.

- Sternal pits small (Fig.152; Moss *et al*., 2016, figs 142, 156) ...…….....……...14

14(13). Surface of abdominal dorsal scutum texturized (Moss *et al*., 2016, fig. 146) …...……*N. yekuana*

- Surface of abdominal dorsal scutum smooth (Figs 166, 208) ...……..……..……..……15

15(14). Embolar apical projection small, narrow (Abrahim *et al*., 2012, fig. 257) …...…….……*N. barreirosi*

- Embolar apical projection large, wide (Fig. 137) ...……...…..….*N. tucuma* **sp**. **nov**.

16(12). Abdominal anterior denticles present (Abrahim *et al*., 2012, fig. 239) .....…...17

- Abdominal anterior denticles absent (Fig. 166, 194) ...……...……...……...……..…18

17(16). Posterior pair of modified setal sockets on carapace posterior surface large (Moss *et al*., 2016, fig. 201); embolar prolateral prong present (Moss *et al*., 2016, fig. 210) …..…….……*N. macuna*

- Posterior pair of modified setal sockets on carapace posterior surface small (Abrahim *et al*., 2012, fig. 222); embolar prolateral prong absent (Abrahim *et al*., 2012, fig. 231) …….....*N. boibumba*

18(16). Posterior surface of carapace with well-developed posterior modified setal sockets (Moss *et al*., 2016, fig. 75) ...……...……...……...*N. inca*

- Posterior surface of carapace with small posterior modified setal sockets (Figs 203, 241) ...…….……19

19(18). Posterior surface of carapace with one pair of small posterior modified setal sockets (Fig. 161; Moss *et al*., 2016, fig. 50) ...……..……...……...20

- Posterior surface of carapace with two pairs of small posterior modified setal sockets (Fig. 122; Moss *et al*., 2016, fig. 50) ..……...……..…….23

20(19). Embolus with prolateral distal lamella (Figs 176, 218) ...…….…...…...…..21

- Embolus without prolateral distal lamella (Fig. 287) ...…….....……22

21(20). Embolus with prolateral prong (Figs 173, 176) ……..…….…..*N. coari* **sp**. **nov**.

- Embolus without prolateral prong (Moss *et al*., 2016, fig. 58) ……...…...…….*N. coca*

22(20). Embolus with prolateral proximal lamella (Fig. 218) ….....*N. caprichoso* **sp**. **nov**.

- Embolus without prolateral proximal lamella (Moss *et al*., 2016, fig. 113) ……...*N. beni*

23(19). Embolus with retrolateral process (Moss *et al*., 2016, fig. 138) .....*N. tuparro*

- Embolus without retrolateral process (Fig. 250) .....……...……..……..24

24(23). Embolus with large, not projected, ejaculatory opening (Moss *et al*., 2016, fig. 29) ….……...….……..*N. amazonicus*

- Embolus with small, projected, ejaculatory opening (Figs 250, 252) …….……..…..*N. almerim* **sp**. **nov**.

25(9). Carapace with granulations on lateral borders (Abrahim *et al*., 2012, fig. 200) …...……*N. hispidus*

- Carapace without granulations, entire surface striated (Figs 348, 378) ...……...……26

26(25). Anterior surface of abdominal dorsal scutum without denticles (Fig. 259) …….…….……*N. ducke* **sp**. **nov**.

- Anterior surface of abdominal dorsal scutum with denticles (Moss *et al*., 2016, fig. 194) ...……..27

27(26). Surface of abdominal dorsal scutum texturized (Moss *et al*., 2016, fig. 175) ……...*N. trujilo*

- Surface of abdominal dorsal scutum smooth (Moss *et al*., 2016, fig. 192) …...……...*N. yacambu*

28(2). Carapace surface smooth (Moss *et al*., 2016, fig. 99) …….....*N. saarineni*

- Carapace surface texturized (Figs 315, 449) ...….....29

29(28). Carapace surface striated (Fig. 443) 30

- Carapace surface granulated (Fig. 464) ..……..…....…..……..35

30(29). Striations of carapace surface restricted to lateral borders (Figs 273, 306) …….…….……*N. capiranga* **sp**. **nov**.

- Striations evenly distributed on carapace surface (Fig. 345) ...…….....…..…....……31

31(30). Surface of abdominal dorsal scutum texturized (Fig. 318) .....……...…...….32

- Surface of abdominal dorsal scutum smooth (Fig. 352) …...…...…….....……33

32(31). Sternum with pits (Abrahim *et al*., 2012, fig. 301) ...……...……*N. furtivus*

- Sternum without pits (Fig. 317) ...……...……..…...*N. garantido* **sp**. **nov**.

33(31). Sternum wrinkled (Figs 349, 383) ...…….....*N. mutum* **sp**. **nov**.

- Sternum smooth (Figs 392, 417) ……...…..……..……....……...……34

34(33). Apical border of embolar apical projection folded over distal sector of embolus in ventral view (Fig. 401) ……..…...……..……..…...*N. caxiuana* **sp**. **nov**.

- Apical border of embolar apical projection folded over the entire width of embolus in ventral view (Fig. 434) ……...……..……..*N. cachimbo* **sp**. **nov**.

35(29). Sternum wrinkled, without pits (Fig. 452) ……..….....……36

- Sternum smooth, with pits (Figs 583, 631) 40

36(35). Surface of abdominal dorsal scutum texturized (Fig. 453) ……..*N. cantareira* **sp**. **nov**.

- Surface of abdominal dorsal scutum smooth (Fig. 471) .....……...….37

37(36). Embolar copulatory opening displaced proximally (Fig. 481) …….……...…*N. paraty* **sp**. **nov**.

- Embolus with distal copulatory opening (Fig. 524) ...……..……..……38

38(37). Embolus with a deep prolateral sulcus and copulatory opening displaced apically (Abrahim *et al*., 2012, fig. 327) …...…….……...…….*N. keyserlingi*

- Embolus without embolar prolateral sulcus, copulatory opening prolateral (Fig. 560) ……...……..39

39(38). Embolar prolateral margin straight (Figs 520, 524) ……...…*N. novalima* **sp**. **nov**.

- Embolar prolateral margin sinuous (Figs 560, 564) ……...…… *N. rio* **sp**. **nov**.

40(35). Surface of abdominal dorsal scutum smooth (Fig. 586) ...…..……...…...…..…41

- Surface of abdominal dorsal scutum texturized (Fig. 646) ...……..……..…….42

41(40). Embolus with long prolateral distal lamella (Figs 593–594) ……..…….*paraiba* **sp**. **nov**.

- Embolus without prolateral distal lamella (Fig. 614) …….....…..…..*N. crasto* **sp**. **nov**.

42(40). Abdominal ventral scutum with large pits (Fig. 648) ..…...……*N. cavus* **sp**. **nov**.

- Abdominal ventral scutum with narrow tegumental incisions (Figs 666, 695) .....…43

43(42). Abdominal ventral scutum with cross-shaped tegumental incisions (Fig. 680) ….....*N. stigmatus* **sp**. **nov**.

- Abdominal ventral scutum with slit-shaped tegumental incisions (Fig. 743) ....…..…44

44(43). Embolus with distal copulatory opening (Fig. 699) …….…….*N. celluliticus* **sp**. **nov**.

- Embolar copulatory opening displaced proximally (Fig. 764) ...…..……..…..……..45

45(44). Embolar tip directed prolaterally (Figs 717, 721) ...…….....*N. simsinho* **sp**. **nov**.

- Embolar tip directed retrolaterally (Figs 760, 764) ...……...…….*N. muruci* **sp**. **nov**.

46(1). Carapace posterior surface with well-developed spikes or modified setal sockets (Figs 65, 104, 792, 803) …….……...……..…….47

- Carapace posterior surface with undifferentiated setal sockets (Figs 369, 488, 531; Abrahim *et al*., 2012, fig. 340) ...……....……..……..69

47(46). Carapace posterior surface with well-developed spikes (Figs 792, 803; Moss *et al*., 2016, figs 221, 238; Abrahim *et al*., 2012, figs 98, 159) ...…...…...…..…..……...48

- Carapace posterior surface with modified setal sockets (Figs 104, 143, 182; Moss *et al*., 2016, figs 41, 93; Abrahim *et al*., 2012, figs 211, 269) ...…….....…….55

48(47). Outer borders of book lung covers sculptured (Figs 799, 809; Moss *et al*., 2016, fig. 226) …….……..……...…….……....49

- Outer borders of book lung covers not sculptured (Figs 817, 755) ...……...…….....51

49(48). Surface of abdominal dorsal scutum texturized (Fig. 797) ……..……*N. jacareacanga* **sp**. **nov**.

- Surface of abdominal dorsal scutum smooth (Fig. 807; Moss *et al*., 2016, fig. 225) …...……..50

50(49). Carapace with four spikes (Fig. 804) ……..…..…..….*N. carigoblin* **sp**. **nov**.

- Carapace with only two posterior spikes (Moss *et al*., 2016, fig. 222) .....*N. macuna*

51(48). Carapace with six spikes (Abrahim *et al*., 2012, fig. 97) .....……...…..……*N. axe*

- Carapace with four spikes (Abrahim *et al*., 2012, fig. 130; Moss *et al*., 2016, fig. 252) …...…….....52

52(51). Carapace anterior portions with blunt tubercles on median surface (Abrahim *et al*., 2012, fig. 129) ...……...…….....….*N. gregoblin*

- Carapace anterior portions without blunt tubercles (Moss *et al*., 2016, fig. 248; Abrahim *et al*., 2012, fig. 159) ...……...……...…….…….....53

53(52). Sternum with pits (Moss *et al*., 2016, fig. 250) ...……...…….....*N. pure*

- Sternum without pits ...…….……...……..54

54(53). Carapace spikes short, similar sized (Abrahim *et al*., 2012, fig. 161) or anterior pair larger than posterior one (Abrahim *et al*., 2012, fig. 164) ...…....…..*N. termitophilus*

- Carapace spikes large, similar sized (Abrahim *et al*., 2012, fig. 192) ……*N. petrogoblin*

55(47). Carapace surface smooth (Figs 23, 63, 180, 222) ...……..……..…..…56

- Carapace surface texturized (Figs 144, 292, 329) ……...……..……..……...62

56(55). Posterior surface of carapace with two pairs of well-developed posterior modified setal sockets (Figs 224; Moss *et al*., 2016, figs 39, 118); groove connecting posterior spiracles with pockets (Figs 232; Moss *et al*., 2016, figs 98, 124) ...….....…...57

- Posterior surface of carapace with two pairs of small posterior modified setal sockets (Figs 25, 65, 182); groove connecting the posterior spiracles without pockets (Figs 33, 73, 190) ...……59

57(56). Shallow lateral pockets on the groove connecting the posterior spiracles (Moss *et al*., 2016, figs 124) ...……...……...……..……*N. beni*

- Deep lateral pockets on the groove connecting the posterior spiracles (Figs 232, 827; Moss *et al*., 2016, fig. 97) ……...……..……58

58(57). Epigynal atrium narrow, lateral corners sharply acute (Moss *et al*., 2016, fig. 98) …..…….……..….*N. inca*

- Epigynal atrium wide, lateral corners relatively blunt (Figs 232, 827) …….…….…*N. caprichoso* **sp**. **nov**.

59(56). Epigynal atrium extremely wide (Figs 33, 73, 822, 823) …...…...…….……..60

- Epigynal atrium otherwise (Figs 112, 151) ...……...……..……61

60(59). Anterior border of epigynal atrium straight (Figs 37, 822) …...……..*N. ornithogoblin* **sp**. **nov**.

- Anterior border of epigynal atrium arched (Fig. 823) ...…...……...*N. sax* **sp**. **nov**.

61(59). Sternum with pits (Abrahim *et al*., 2012, fig. 269) ...…...…...……*N. barreirosi*

- Sternum without pits (Fig. 184) .....*N. coari* **sp**. **nov**.

62(55). Carapace surface striated (Figs 144, 811) .....….63

- Carapace surface granulated (Fig. 105; Moss *et al*., 2016, fig. 161) ...…...……..….64

63(62). Surface of abdominal dorsal scutum smooth (Fig. 148) …..…..*N. tucuma* **sp**. **nov**.

- Surface of abdominal dorsal scutum texturized (Fig. 818) ..……...…..*N. meurei* **sp**. **nov**.

64(62). Clypeus high, nearly twice the length of AME (Moss *et al*., 2016, fig. 162) …...……*N. yekuana*

- Clypeus low, nearly equal the length of AME (Fig. 113) ...……65

65(64). Granulations of carapace surface restricted to laterals (Fig. 102) ...…..…...……66

- Granulations evenly distributed on carapace surface (Moss *et al*., 2016, figs 62, 183) …….....68

66(65). Sternum with pits (Fig. 106) ..……..……..…...*N. belterra* **sp**. **nov**.

- Sternum without pits (Moss *et al*., 2016, fig. 43) ……..…...……...…..67

67(66). Posterior surface of carapace with one pair of posterior modified setal sockets (Abrahim *et al*., 2012, fig. 211) ...……...…..……...…..…….*N. hispidus*

- Posterior surface of carapace with 5 pairs of posteriors modified setal sockets (Moss *et al*., 2016, fig. 41) ……...…..……...……...……*N. amazonicus*

68(65). Shallow lateral pockets on the groove connecting the posterior spiracles (Moss *et al*., 2016, fig. 70) ...……...……...…….…..……..*N. coca*

- Deep lateral pockets on the groove connecting the posterior spiracles (Moss *et al*., 2016, fig. 186) ...……..…….……...……*N. trujilo*

69(46). Carapace surface striated (Figs 292, 329) ...…….…..……..……70

- Carapace surface granulated (Figs 486, 529, 571) ...……..……..…..……74

70(69). Striations of carapace surface restricted to laterals (Fig. 295); post-epigastric scutum short, reaching half of the abdominal length (Fig. 300) …….…….....*N. capiranga* **sp**. **nov**.

- Striations evenly distributed on carapace surface (Figs 367, 408); post-epigastric scutum reaching posterior third of abdomen (Figs 375, 413) ...……...……71

71(70). Surface of abdominal dorsal scutum texturized (Figs 336, 340) ...……...72

- Surface of abdominal dorsal scutum smooth (Figs 374, 412) ...……..……..…….73

72(71) Anterior and posterior borders of epigynal atrium similarly arched (Figs 339, 829) ……...…….....…..*N. garantido* **sp**. **nov**.

- Posterior border of epigynal atrium less arched than anterior one (Abrahim *et al*., 2012, fig. 312) ...……...……....……..…….*N. furtivus*

73(71). Sternum wrinkled (Fig. 371) ……..……..…..……*N. mutum* **sp**. **nov**.

- Sternum smooth (Fig. 409) …….……...……..……*N. caxiuana* **sp**. **nov**.

74(69). Sternum smooth, with pits (Figs 623, 733) ...……..…….……..……..75

- Sternum wrinkled, without pits (Figs 490, 730) ...……..……...……76

75(74). Surface of abdominal dorsal scutum texturized (Fig. 776) ……..*N. murici* **sp**. **nov**.

- Surface of abdominal dorsal scutum smooth (Fig. 626) ...……...……...*N. crasto* **sp**. **nov**.

76(74). Groove connecting posterior spiracles without pockets (Figs 736, 834) ……..……*N. simsinho* **sp**. **nov**.

- Groove connecting posterior spiracles with pockets (Figs 496, 574) .....…….…..77

77(76). Pockets on groove connecting posterior spiracles deep (Fig. 831) …..…….……..*N. paraty* **sp**. **nov**.

- Pockets on groove connecting posterior spiracles shallow (Figs 539, 832) ...….....….78

78(77). Epigynal atrium narrow, anterior and posterior borders almost parallel (Fig. 574) ……..…….....*N. rio* **sp**. **nov**.

- Epigynal atrium otherwise (Fig. 539) 79

79(78). Anterior and posterior borders of epigynal atrium similarly arched; median element anteriorly positioned (Fig. 344) ...……...……..……*N. keyserlingi*

- Anterior border of epigynal atrium less arched than posterior one (Fig. 539); median element medially positioned (Fig. 832) ……..……..…….*N. novalima* **sp**. **nov**.

***Neoxyphinus ornithogoblin* Feitosa & Bonaldo, sp. nov.**

Figs 1–39, 822; Map 1

Type material: **Holotype**: male from Fazenda Experimental da Universidade Federal do Amazonas, km 38, BR 174, Manaus, Amazonas, Brazil (2°38’55.8”S, 60°3’9.4”W), 23 June 2009, B. Machado leg. (MPEG 30600, PBI_OON 40439). **Paratypes**: one female, same locality and collector as holotype, 26 June 2009 (MPEG 30589, PBI_OON 40440);

one female, same locality and collector as holotype (2°39’21.23”S, 60°4’31.25”W), 19 September 2008 (MPEG 30594, PBI_OON 40442); one male, same locality and collector as holotype (2°39’21.23”S, 60°4’31.25”W), 21 June 2009 (MPEG 30596, PBI_OON 40449).

Etymology. The specific name is a contraction of the words “ornithos” (the Greek for “bird”) and goblin, referring to the similarity of the embolar apical portion with the head of a bird in ventral view.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 41, 48, 81, 88, 120, 127, 159, 166, 201, 208, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the very long embolus, reaching more than one third of bulbus length and from those of *N. sax* **sp**. **nov**. by the absence of basal embolar projection (Figs 12–21). Females differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 63, 70, 180, 187, 222, 229; see Moss *et al*., 2016, figs 89, 118, 122; see Abrahim *et al*., 2012, fig. 265) by the very large epigynal atrium (Figs 33, 37, 822) and from those of *N. sax* **sp**. **nov**. (Figs 73, 823) by the straight anterior border of the epigynal atrium (Fig. 33).

Description. *Male* (holotype): total length 1.46. Cephalothorax: Carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides smooth (Fig. 2); lateral margin with blunt denticles. Clypeus margin unmodified, straight in frontal view, low (Fig. 3). Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, with inconspicuous pits (Figs 6, 36). Chelicerae, endites and labium orange-brown. Abdomen: book lung covers large and round. Pedicel tube long.

Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Figs 9–10). Epigastric and postepigastric scutum orange-brown (Fig. 11). Legs: orange-brown. Leg spination: tibia I v4-2-2; metatarsus I v2-2-2. Genitalia: epigastric region with small, oval sperm pore (Fig. 11). All palpal segments yellow. Embolus light, directed apically, with pointed proventral small projections (Figs 12–21, 39).

Female (paratype): total length 1.68. Cephalothorax: Carapace darker at edges (Fig. 23). Sternum without pits (Fig. 27). Abdomen: dorsum soft portions pale orange (Fig. 30). Legs: orange-brown. Leg spination: tibia: I v4-4-2; II v4-2-2; metatarsus: I v2-2-2; II v4-0-2. Genitalia: epigynal atrium very large, anterior border of epigynal atrium straight in dorsal view (Figs 33, 822).

Other material examined. **BRAZIL**: **Amazonas**: ***Manaus***: 1♂, Fazenda Experimental da Universidade Federal do Amazonas, km 38, BR 174 (2°38’55.8”S, 60°3’9.4”W), PAF 65, Base da Palmeira, E.P. Franken & A.C.K. Silva leg. (INPA, PBI_OON 44521); 2♂, PAF 29 (INPA, PBI_OON 44535); 1♂, PAF 17 (INPA, PBI_OON 44519); 1♂, PAF 31 (INPA, PBI_OON 44520); 1♂, PAF 68 (INPA, PBI_OON 44532); 2♂, PAF 32 (INPA, PBI_OON 44524); 1♂, PAF 38 (INPA, PBI_OON 44528); 1♂, PAF 57 (INPA, PBI_OON 44531); 1♂, PAF 65 (INPA, PBI_OON 44523); 1♂, PAF 55 (INPA, PBI_OON 44527); 2♂, PAF 64 (INPA, PBI_OON 44522); 1♀, PAF 15 (INPA, PBI_OON 44529); 1♀, PAF 31 (INPA, PBI_OON 44533); 1♀, PAF 40 (INPA, PBI_OON 44534); 1♀, PAF 64 (INPA, PBI_OON 44536); 2♀, PAF 29 (INPA, PBI_OON 44526); 1♀, PAF 32 (INPA, PBI_OON 44518); 1♀, PAF 43 (INPA, PBI_OON 44530); 1♀, PAF 07 (INPA, PBI_OON 44525); 1♂ 1♀ (2°39’21.23”S, 60°4’31.25”W), 28 June 2009, B. Machado leg. (MPEG 30591, PBI_OON 40443); 1♂ (MPEG 30597, PBI_OON 40448); 1♂ (MPEG 30592, PBI_OON 40441); 1♀, 22 June 2009 (MPEG 30595, PBI_OON 40452);

1♂ (MPEG 30598, PBI_OON 40451); 1♀, 26 June 2008 (MPEG 30593, PBI_OON 40444); 1♀, 06 September 2008 (MPEG 30599, PBI_OON 40447); 1♂, 27 September 2008 (MPEG 30590, PBI_OON 40450); 1♀, 29 June 2009 (MPEG 30560, PBI_OON 40446); 1♂, 19 June 2009 (MPEG 30561, PBI_OON 40445).

Distribution. Known from the type locality, Manaus, state of Amazonas, Brazil.

***Neoxyphinus sax* Feitosa & Bonaldo, sp. nov.**

Figs 40–79, 823; Map 1

Type material: **Holotype**: male from Reserva Florestal Adolpho Ducke, Manaus, Amazonas, Brazil (3°0'10.71"S, 59°56'31.20"W), 19–24 February 1992, Arno A. Lise leg. (MCTP 1692, PBI_OON 44352). **Paratypes**: one male and one female, same locality as holotype, 17−29 August 1991, A.D. Brescovit leg. (MCTP 21481, PBI_OON 40456).

Etymology. The specific name is a noun in apposition taken from Adolphe Sax, creator of the saxophone. The embolus in apical view resembles the profile of that instrument.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 81, 88, 120, 127, 159, 166, 201, 208, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the very long embolus, reaching nearly one third of bulbus length (Figs 52–61) and from those of *N. ornithogoblin* **sp**. **nov**. by the presence of an embolar basal projection (Fig. 55). Females differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 23, 30, 180, 187, 222, 229; see Moss *et al*., 2016, figs

89, 118, 122; see Abrahim *et al*., 2012, fig. 265) by very large epigynal and from those of *N ornithogoblin* **sp**. **nov**. by the arched epigynal anterior border (Fig. 73).

Description. *Male* (holotype): total length 1.52. Cephalothorax: carapace pale orange, broadly oval, *pars cephalica* slightly elevated anteriorly, posterolateral surface without spikes, surface of elevated portion *of pars cephalica* and sides smooth (Fig. 42); lateral margin with blunt denticles. Clypeus margin strongly rebordered, straight in frontal view, high (Fig. 42). Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, with inconspicuous pits (Figs 45, 77). Chelicerae, endites and labium pale orange (Fig. 46). Abdomen: book lung covers large and elliptical. Pedicel tube medium. Dorsal scutum yellow, smooth, anterior half without projecting denticles (Fig. 48). Epigastric and postepigastric scutum pale orange (Fig. 50). Legs: white. Genitalia: epigastric region with small, narrow sperm pore. All palpal segments white. Embolus dark strongly bent prolaterally, with large basal and apical projections (Figs 52–61).

Female (PBI_OON 10680): total length 1.72. Cephalothorax: carapace pale orange, posterolateral surface without spikes, surface of elevated portion *of pars cephalica* and sides smooth (Fig. 63). Abdomen: dorsal scutum pale orange. Legs: yellow. Leg spination: tibia: I v4-4-0; II v4-2-0; metatarsus: I v4-2-0; II v2-2-0. Genitalia: epigynal atrium very large, anterior border of epigynal atrium arched in dorsal view (Figs 73, 823).

Other material examined. **BRAZIL**: **Amazonas**: ***Manaus***: 1♂, Sistema Agroflorestal, Embrapa (2°53’40.11”S, 59°58’20.82”W), 05 July 2001, unknown collector (SMNK, PBI_OON 44354); 2♀, 28 January 1992, A.B. Bonaldo leg. (MCTP 8789, PBI_OON 44353).

Distribution. Known from Manaus, state of Amazonas, Brazil.

***Neoxyphinus belterra* Feitosa & Ruiz, sp. nov.**

Figs 80–118, 824; Map 1

Type material: **Holotype**: male from Mata do Butantan, Belterra, Pará, Brazil (3°7'45.85"S, 55°1'59.41"W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161270, PBI_OON 44598). **Paratypes**: four males and three females, same data as holotype (IBSP 161266, PBI_OON 44603).

Etymology. The specific epithet is a noun in apposition taken from the type locality.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 41, 48, 120, 127, 159, 166, 201, 208, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the presence of pits on the sternal surface (Figs 85, 116) and by the enlarged setal sockets on the carapace posterior surface (Fig. 83). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 141, 148, 292, 299, 367, 374, 408, 412, 486, 493, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, fig. 159, 210, 213, 336) by the granulated carapace (Fig. 105), by the presence of modified setal sockets on the carapace posterior surface (Fig. 104) and by the presence of pits on sternal surface (Fig. 106).

Description. *Male* (holotype): total length 1.78. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, carapace posterior margin with two pairs of enlarged setal sockets (Figs 83–84); surface of elevated portion of *pars cephalica* and

sides smooth, lateral margin without blunt denticles (Fig. 81). Clypeus margin unmodified, straight in frontal view, high (Fig. 82). Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, covered with pits (Figs 85, 116). Chelicerae, endites and labium orange-brown. Abdomen: book lung covers large and elliptical. Pedicel tube long. Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 88). Epigastric and postepigastric scutum pale orange. Legs: pale orange (Fig. 90). Leg spination: tibia: I v2-2-2; metatarsus: I v2-2-2. Genitalia: epigastric region with sperm pore large and oval. All palpal segments white. Embolus dark, with prolateral proximal lamella (Figs 94, 98).

Female (PBI_OON 10680): total length 1.93. Cephalothorax: carapace orange-brown, *pars cephalica* slightly elevated, carapace posterior margin with two pairs of enlarged setal sockets (Fig. 104); surface of elevated portion of *pars cephalica* and sides granulated, lateral margin without blunt denticles (Fig. 105). Legs: pale orange. Leg spination: tibia: I v4-2-2; II v2-2-0; metatarsus: I v2-2-0; II v2-0-0. Genitalia: atrium wide, genital median element medially positioned (Fig. 824).

Other material examined. **BRAZIL**: **Pará**: ***Belterra***: 6♂ 4♀, Área de Proteção Ambiental de Aramanai (3°8’38.34”S, 55°3’9.8”W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161263, PBI_OON 44693); 7♂ 2♀, Mata do Butantan (3°7’45.85”S, 55°1’59.41”W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161256, PBI_OON 44604); 2♂ (IBSP 161247, PBI_OON 44599). **Mato Grosso**: ***Cuiabá***: 1♀, Unidade de Conservação Parque Mãe Bonifácia (15°35’40.92”S, 55°6’17.49”W), 1–30 August 2007, S.E. Marçal leg. (MPEG 30549, PBI_OON 44634); 1♂ (MPEG 30550, PBI_OON 44615).

Distribution. Known from the west of the state of Pará and south of the state of Mato Grosso, Brazil.

Neoxyphinus tucuma **Feitosa & Moss, sp. nov.**

Figs 119–157, 825; Map 1

Type material: **Holotype**: male from Fazenda Experimental da Universidade Federal do Amazonas, km 38, BR 174, Manaus, Amazonas, Brazil (2°39'21.23"S, 60°4'31.25"W), 29 June 2009, B. Machado leg. (MPEG 30566, PBI_OON 44347). **Paratypes**: one female, same locality and collector as holotype, 27 September 2008 (MPEG 30567, PBI_OON 44345); one female from km 46, Estação Experimental de Silvicultura Tropical (2°38'55.8"S, 60°3'9.4"W), (2°39'21.23"S, 60°4'31.25"W), 14 September 2008, same collector as holotype (MPEG 30563, PBI_OON 40454); one male from km 46, Estação Experimental de Silvicultura Tropical (2°38'55.8"S, 60°3'9.4"W), (2°39'21.23"S, 60°4'31.25"W), 31 October 2008, same collector as holotype (MPEG 30568, PBI_OON 44346).

Etymology. The specific refers to "tucumã", an Amazonian palm tree, whose fruits are greatly appreciated in Manaus and nearby localities.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 41, 48, 81, 88, 159, 166, 201, 208, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the presence of pits on sternal surface (Figs 124, 152) and absence of enlarged setal sockets on the posterior surface of carapace (Fig. 122); and from those of *N. barreirosi* Abrahim & Bonaldo, 2012 (see Abrahim *et al*., 2012, figs 256, 257) by the

wide and large embolar apical projection (Fig. 137). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 292, 299, 367, 374, 408, 412, 486, 493, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the striated carapace (Fig. 144) and the presence of enlarged setal sockets instead of spikes or bumps in the carapace posterior surface (Figs 143–144).

Description. *Male* (holotype): total length 1.34. Cephalothorax: carapace orange-brown, broadly oval, *pars cephalica* strongly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides smooth (Fig. 120); lateral margin with blunt denticles. Clypeus margin slightly rebordered, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, with pits (Figs 124, 152). Chelicerae, endites and labium orange-brown (Fig. 125). Abdomen: book lung covers large and elliptical. Pedicel tube medium. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Fig. 127). Epigastric and postepigastric scutum orange-brown (Fig. 129). Legs: orange-brown. Leg spination: tibia I v4-4-0; metatarsus I v4-2-0. Genitalia: epigastric region with small, narrow sperm pore. All palpal segments pale orange. Embolus dark, with wide and large embolar apical projection (Figs 133, 137).

Female (paratype): total length 1.57. Cephalothorax: carapace surface of elevated portion of *pars cephalica* and sides striated, carapace posterior margin with two pairs of enlarged setal sockets (Fig. 143–144); Sternum as long as wide, orange-brown, surface smooth, with pits (Fig. 145). Abdomen: dorsum soft portions yellow. Legs: yellow. Leg spination: tibia: I v4-4-2; II v4-2-2; metatarsus: I v2-2-2; II v2-2-0. Genitalia: the anterior and posterior border of epigynal atrium similarly arched, genital median element medially positioned (Fig. 825).

Other material examined. **BRAZIL**: **Amazonas**: ***Manaus***: 1♂, Fazenda Experimental da Universidade Federal do Amazonas, km 38, BR 174 (2°38'55.8"S, 60°3'9.4"W), PAF 37, Liteira Aberta, E.P. Franken & A.C.K. Silva leg. (INPA, PBI_OON 44334); 1♂, PAF 68, Base da Palmeira (INPA, PBI_OON 44337); 1♂, PAF 64 (INPA, PBI_OON 44705); 1♂, PAF 01, Raízes (INPA, PBI_OON 44333); 1♀, PAF 27 (INPA, PBI_OON 44336); 1♂, PAF 64 (INPA, PBI_OON 44335); 1♂, km 46, Estação Experimental de Silvicultura Tropical (2°38'55.8"S, 60°3'9.4"W), 13 October 1990, A.K. Harada & R. Botinelli leg. (INPA, PBI_OON 44578); 1♂ (2°39'21.23"S, 60°4'31.25"W), 30 June 2009, B. Machado leg. (MPEG 30562, PBI_OON 40455); 1♀, 11 October 2008 (MPEG 30564, PBI_OON 44343).

Distribution. Known from the type locality in Manaus, state of Amazonas, Brazil.

Neoxyphinus coari **Feitosa & Moss, sp. nov.**

Figs 158–199, 826; Map 2

Type material: **Holotype**: male from Base de Operações Geólogo Pedro de Moura, Coari, Amazonas, Brazil (4°52'7.6"S, 65°15'53.6"W), 12–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10149, PBI_OON 40186). **Paratypes**: one female, same locality as holotype (4°53'14"S, 65°13'37"W), 23 September 2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung & C.A.C. Santos Jr. leg. (MPEG 14125, PBI_OON 40191); one female, same locality as holotype (4°52'6"S, 65°15'52"W), 25 July 2006, S.C. Dias, L.T. Miglio & C.A.C. Santos Jr. leg. (MPEG 14123, PBI_OON 40187); one male, same locality as holotype (4°52'6"S, 65°15'52"W), 11 September

2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung & C.A.C. Santos Jr. leg. (MPEG 14100, PBI_OON 40197).

Etymology. The specific epithet is a noun in apposition taken from the type locality.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 41, 48, 81, 88, 120, 127, 201, 208, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the presence of a pointed prolateral embolar prong (Figs 173, 176) and by the absence of well-developed posterior setal sockets on the posterior surface of carapace (Fig. 161). Females differ from those of other species with smooth carapace and abdominal dorsal scutum (Figs 23, 30, 63, 70, 222, 229; see Moss *et al*., 2016, figs 89, 118, 122; see Abrahim *et al*., 2012, fig. 265) by the combined absence of enlarged posterior setal sockets on posterior surface of carapace (Fig. 182) and pits on sternal surface (Fig. 184); they differ from *N. ornithogoblin* **sp**. **nov**. (Fig. 822) and *N. sax* **sp**. **nov**. (Fig. 823) by the relatively small epigynal atrium, with posterior border slightly arched (Fig. 190).

Description. *Male* (holotype): total length 1.97. Cephalothorax**:** carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides smooth (Fig. 159); lateral margin straight, rebordered, without denticles. Clypeus margin slightly rebordered, straight in frontal view. Eyes: ALE separated from the edge of carapace by their radius or more. Sternum longer than wide, orange-brown, surface smooth, without pits (Figs 163, 193). Chelicerae, endites and labium orange-brown (Fig. 164). Abdomen: book lung covers large, elliptical. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Fig. 166).

Epigastric and postepigastric scutum orange-brown (Fig. 168). Legs**:** yellow. Leg spination: tibia: I v6-4-0, metatarsus I v2-2-0. Genitalia: sperm pore large. All palpal segments yellow. Embolus dark, with prolateral prong and prolateral proximal lamella (Figs 173, 176–177).

Female (paratype): total length 2.26. Dorsal scutum orange-brown, smooth (Fig. 180); groove connecting the posterior spiracles without pockets (Fig. 190, 199). Legs: yellow. Leg spination: tibia I v6-2-2; II v4-4-0; metatarsus I v2-2-2; II v0-2-2. Genitalia: with inconspicuous apodemes, genital median element oblong (Fig. 826).

Other material examined. **BRAZIL**: **Amazonas**: ***Coari***: 1♂, Base de Operações Geólogo Pedro de Moura, Urucu (4°52’6”S, 65°15’52”W), 09 July 2006, S.C. Dias, L.T. Miglio & C.A.C. Santos Jr. leg. (MPEG 14121, PBI_OON 40188); 1♀, 12–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10173, PBI_OON 40189); 1♂ (MPEG 10167, PBI_OON 40305); 1♂ (MPEG 10179, PBI_OON 40236); 1♂, 19–20 July 2003 (MPEG 10184, PBI_OON 40192); 1♂, 11–20 July 2003 (MPEG 10169, PBI_OON 40308); 1♀ (MPEG 10157, PBI_OON 40235); 1♀ (MPEG 10148, PBI_OON 40309); 1♂ (MPEG 10180, PBI_OON 40190); 1♂ (MPEG 10188, PBI_OON 40196); 1♀ (MPEG 10151, PBI_OON 40195); 1♀ (MPEG 10186, PBI_OON 40307); 1♂ (MPEG 10158, PBI_OON 40234); 1♂ 1♀ (MPEG 10158, PBI_OON 40234); 1♀, 11 October 2006, S.C. Dias, N.F. Lo Man Hung & N.C. Bastos leg. (MPEG 14137, PBI_OON 44357); 1♀, 22 September 2004, A.B. Bonaldo, D.F. Candiani & J. Fernandez leg. (MPEG 14124, PBI_OON 40193); 1♀, 02 October 2004 (MPEG 14122, PBI_OON 40194). ***Manaus***: 1♀, Reserva Ducke, 31 August 1992, H. Höfer (IBSP 10707, PBI_OON 45069); 1♂, Tarumã Mirím (3°6’0”S, 60°1’48”W), 13 May 1983, unknown collector (SMNK 4583, PBI_OON 40400). **Pará**: ***Juruti***: 1♀, Vale do Igarapé Mutum, Platô do Rio Juruti (1°36’44.7”S, 56°11’39.2”W), 04 August 2004, D.F. Candiani & D.R. Santos-Souza leg.

(MPEG 10701, PBI_OON 44827); 1♀, 08–15 August 2006 (MPEG 10677, PBI_OON 40311).

Distribution. Known from midwestern state of Amazonas and Juruti, state of Pará, Brazil.

***Neoxyphinus caprichoso* Feitosa & Ruiz, sp. nov.**

Figs 200–238, 827; Map 2

Type material: **Holotype**: male from Base de Operações Geólogo Pedro de Moura, Urucu, Coari, Amazonas, Brazil (4°52'7.6"S, 65°15'53.6"W), 11–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10154, PBI_OON 40254). **Paratypes**: one female, same locality as holotype (4°48'47"S, 65°1'57"W), 18 July 2006, S.C. Dias, L.T. Miglio & C.A.C. Santos Jr. leg. (MPEG 14138, PBI_OON 40255); one female, same locality as holotype, 04 September 2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung & C.A.C. Santos Jr. leg. (MPEG 14140, PBI_OON 40261); one male, same locality as holotype, 09 September 2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung & C.A.C. Santos Jr. leg. (MPEG 14144, PBI_OON 40268).

Etymology. The specific name refers to a folkloric festival from the city of Parintins, Amazonas, which celebrates a local legend involving a dispute between two folkloric oxen, named "Caprichoso" and "Garantido".

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 41, 48, 81, 88, 120, 127, 159, 166, 241, 244; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the combined presence of a prolateral proximal embolar lamella and absence of

either embolar prolateral prong or basal embolar projection (Fig. 218). Females differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 23, 30, 63, 70, 180, 187; see Moss *et al*., 2016, figs 89, 118, 122; see Abrahim *et al*., 2012, fig. 265) by the presence of posterior enlarged setal sockets on posterior carapace surface (Fig. 224) and by the deep pockets on groove connecting posterior spiracles (Figs 232, 827); they differ from those of *N. inca* (see Moss *et al*., 2016, fig. 98) by the epigynal atrium wide, with lateral corners relatively blunt (Fig. 232).

Description. *Male* (holotype): total length 1.85. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface with one pair of small setal sockets (Figs 203, 234), surface of elevated portion of *pars cephalica* and sides smooth (Fig. 201). Clypeus margin slightly rebordered, straight in front view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, without pits (Fig. 205). Chelicerae, endites and labium pale orange. Abdomen: book lung covers large, round. Dorsal scutum strongly sclerotized, orange-brown, smooth (Figs 208, 233). Epigastric and postepigastric scutum pale orange (Fig 210). Legs: pale orange. Leg spination: tibia I v2-4-2; metatarsus I v2-2-2. Genitalia: epigastric region with small, oval sperm pore. All palpal segments yellow. Embolus light, with prolateral proximal lamella (Figs 214, 218).

Female (paratype): total length 2.18. Cephalothorax: surface of elevated portion of *pars cephalica* and sides smooth (Fig. 222); posterolateral surface with two pairs of well developed setal sockets (Fig. 224). Legs: pale orange. Leg spination: tibia: I v4-4-2; II v4-4-0; metatarsus: I, II v2-2-2. Genitalia: with conspicuous apodemes, genital median element posteriorly positioned (Fig. 827).

Other material examined. **BRAZIL**: **Amazonas**: ***Coari***: 1♀, Base de Operações Geólogo Pedro de Moura, Urucu (4°52'7.6"S, 65°15'53.6"W), 17–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10163, PBI_OON 40264); 1♂, 11–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10153, PBI_OON 40262); 1♀ (MPEG 10176, PBI_OON 40263); 1♂ (MPEG 10166, PBI_OON 40256); 1♀ (MPEG 10189, PBI_OON 40257); 1♀ (MPEG 10165, PBI_OON 40266); 1♂ (MPEG 10160, PBI_OON 45073); 1♀ (MPEG 10182, PBI_OON 40267); 1♂ (MPEG 10177, PBI_OON 45074); 1♂, 09 October 2006, S.C. Dias, N.F. Lo Man Hung & N.C. Bastos leg. (MPEG 14136, PBI_OON 44258); 1♂, 09 September 2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung & C.A.C. Santos Jr. leg. (MPEG 14142, PBI_OON 45094); 1♀, 26 October 2004, A.B. Bonaldo, D.F. Candiani & J. Fernandez leg. (MPEG 14139, PBI_OON 40259); 1♀, 09 July 2006, S.C. Dias, L.T. Miglio & C.A.C. Santos Jr. leg. (MPEG 14135, PBI_OON 40265). **Pará**: ***Juruti***: 1♂, Acampamento Mutum (1°36'44.7"S, 56°11'39.2"W), 03–10 June 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 30558, PBI_OON 45087);

Distribution. Known from the states of Amazonas and Pará, Brazil.

Neoxyphinus almerim **Feitosa & Bonaldo, sp. nov.**

Figs 239–253; Map 2

Type material: **Holotype**: male from Laranjal do Jari, Almerim, Pará, Brazil (1°29'56.94"N, 52°34'49.08"W), 19 February 2003, J.A.P. Barreiros leg. (MPEG 10399, PBI_OON 44830).

Etymology. The specific epithet is a noun in apposition taken from the type locality.

Diagnosis. Males differ from those of the other species with smooth carapace and abdominal dorsal scutum (Figs 2, 9, 41, 48, 81, 88, 120, 127, 159, 166, 201, 208; see Moss *et al*., 2016, figs 21, 27, 50, 54, 71, 99, 108, 111, 125; see Abrahim *et al*., 2012, fig. 243) by the embolus with ejaculatory opening on projected tubular extension (Fig. 250).

Description. *Male* (holotype): total length 1.85. Cephalothorax: carapace pale orange, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides smooth (Fig. 239); *pars thoracica* with two pairs of modified setal sockets (Fig. 241); lateral margin without blunt denticles. Clypeus margin unmodified, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, without pits (Fig. 242). Chelicerae, endites and labium pale orange (Fig 243). Abdomen: book lung covers large, ovoid. Pedicel tube long. Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 244). Legs: yellow. Leg spination: tibia: I v4-4-2; metatarsus: I v2-2-0. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus light, with small ejaculatory opening (Fig. 250).

Female: unknown.

Other material examined. None.

Distribution. Known only from type locality, Almerim, state of Pará, Brazil.

***Neoxyphinus ducke* Feitosa & Ruiz sp. nov.**

Figs 254–268; Map 2

Type material: **Holotype**: male from Reserva Florestal Adolfo Ducke, Manaus, Amazonas, Brazil (3°0’10.71”S, 59°56’31.2”W), 20 August 1991, A.D. Brescovit leg. (MCN 21368, PBI_OON 40703).

Etymology. The specific name is a toponymic taken from the type locality, Reserva Florestal Adolfo Ducke.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 270, 277, 345, 352, 388, 395, 421, 428, 464, 471, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the presence of one pair of posterior small setal sockets in the carapace posterior surface (Fig. 254).

Description. *Male* (holotype): total length 1.55. Cephalothorax: carapace pale orange, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides striated (Fig. 256); *pars thoracica* with one pair of small setal sockets (Fig. 254); lateral margin without denticles. Clypeus margin slightly rebordered, straight in front view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, covered with small round pits (Fig. 257). Chelicerae, endites and labium pale orange (Fig. 258). Abdomen: book lung covers large, elliptical. Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 259). Epigastric and postepigastric scutum pale orange (Fig. 261). Legs: yellow. Leg spination: tibia I v4-2-2; metatarsus I v2-2-2. Genitalia: epigastric region with large, oval sperm pore. All palpal segments white. Embolus light, small, without prolateral prong or lamellae (Figs 262, 265).

Female: unknown.

Other material examined. None.

Distribution. Known only from type locality, Manaus, state of Amazonas, Brazil.

***Neoxyphinus capiranga* Feitosa & Moss, sp. nov.**

Figs 269–311, 828; Map 3

Type material: **Holotype**: male from Platô Capiranga, Linha 168E, Juruti, Pará, Brasil (2°28'22.1"S, 56°12'29.4"W), 06–13 February 2007, N.F. Lo Man Hung & J.A.P. Barreiros leg. (MPEG 14138, PBI_OON 40269). **Paratypes**: one female, same locality as holotype, 12–14 August 2008, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 10690, PBI_OON 40270); one female, Vale do Igarapé Mutum, Platô do Rio Juruti (1°36'44.7"S, 56°11'39.2"W), 10–12 August 2006, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 10689, PBI_OON 40274); one male Vale do Igarapé Mutum, Platô do Rio Juruti (1°36'44.7"S, 56°11'39.2"W), 06–13 February 2007, N.F. Lo Man Hung & J.A.P. Barreiros leg. (MPEG 10097, PBI_OON 40277).

Etymology. The specific epithet is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 345, 352, 388, 395, 421, 428, 464, 471, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by a smooth sternum (Figs 274, 308), absence of spikes (Fig. 270) and striations of the carapace surface restricted to lateral sides (Fig. 273, 306). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 367, 374, 408, 412, 486, 493, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210,

213, 336) by the smooth sternum (Fig. 296), absence of spikes (Fig. 292), striations of carapace surface restricted to lateral sides (Fig. 295) and by the absence of posterior enlarged setal sockets or posterior bumps (Fig. 292).

Description. *Male* (holotype): total length 1.68. Cephalothorax: Carapace pale orange, *pars cephalica* slightly elevated, surface of elevated portion of *pars cephalica* smooth, sides finely reticulate (Fig. 273, 306); posterolateral surface without spikes, lateral margin without denticles (Fig. 270). Clypeus margin slightly rebordered, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum wider than long, pale orange, surface smooth, without pits (Figs 274, 308). Chelicerae, endites and labium pale orange (Fig. 275). Abdomen: book lung covers large, ovoid. Dorsal scutum pale orange, surface smooth (Fig. 277). Epigastric and postepigastric scutum pale orange (Fig. 279). Legs: yellow, without spikes. Genitalia: epigastric region with sperm pore small and circular. All palpal segments yellow. Embolus light, without lamellae (283–290).

Female (paratype): total length 1.68. Cephalothorax: carapace pale orange, broadly oval, surface of elevated portion of *pars cephalica* smooth, sides finely reticulate (Fig. 295); without spikes. Abdomen: post-epigastric scutum short (Fig. 300). Legs: leg spination: tibia: I v6-2-2; II v4-4-0; metatarsus: I v4-2-0; II v2-2-2. Genitalia: with genital median element inconspicuous (Fig. 828).

Other material examined. **BRAZIL**: **Pará**: ***Juruti***: 1♀, Sítio Três Irmãos (2°27’51.4”S, 56°0’8.6”W), 08–10 August 2006, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 10688, PBI_OON 40283); 1♂ (MPEG 10686, PBI_OON 40273); 1♂, 08–15 August 2006 (MPEG 10695, PBI_OON 40288); 1♂ (MPEG 10758, PBI_OON 40395); 1♀ (MPEG 10762, PBI_OON 40399); 1♂ (MPEG 10759, PBI_OON 40396);

1♀, 06–13 February 2007, N.F. Lo Man Hung & J.A.P. Barreiros leg. (MPEG 10091, PBI_OON 40276); 1♂ (MPEG 10137, PBI_OON 40285); 1♂ (MPEG 10104, PBI_OON 45051); 1♂ (MPEG 10084, PBI_OON 40278); 1♀ (MPEG 10132, PBI_OON 40291); 1♂ (MPEG 10088, PBI_OON 40286); 1♀, Platô Capiranga, Linha 168E (2°28'22.1"S, 56°12'29.4"W), 12–14 August 2006, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 10692, PBI_OON 40281); 1♂, 15–22 November 2007 (MPEG 19686, PBI_OON 44107); 1♀ (MPEG 19738, PBI_OON 44768); 1♂, 03–10 June 2007 (MPEG 19657, PBI_OON 44078); 1♂ (MPEG 19750, PBI_OON 40780); 1♀, 06–13 February 2007, N.F. Lo Man Hung & J.A.P. Barreiros leg. (MPEG 10118, PBI_OON 40290); 1♂ (MPEG 10143, PBI_OON 40275); 1♂ (MPEG 10082, PBI_OON 40287); 1♀, 09–11 February 2007 (MPEG 10094, PBI_OON 40272); 1♂, 13 February 2007 (MPEG 10079, PBI_OON 40289); 1♀, 16–18 November 2007, N.F. Lo Man Hung & E.S. Santos leg. (MPEG 30574, PBI_OON 44377); 1♂, Vale do Igarapé Mutum, Platô do Rio Juruti (1°36'44.7"S, 56°11'39.2"W), 06–13 February 2007, N.F. Lo Man Hung & J.A.P. Barreiros leg. (MPEG 10086, PBI_OON 40280); 1♂ (MPEG 10078, PBI_OON 40284); 1♂, 08–15 August 2006, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 10760, PBI_OON 40397); 1♂ (MPEG 10757, PBI_OON 40394); 1♂ (MPEG 10761, PBI_OON 40398); 1♀ (MPEG 10693, PBI_OON 44833); 1♀, Base Capiranga, Capoeira Baixa (2°28'0.6"S, 56°12'42.2"W), 07 September 2002, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10667, PBI_OON 40279); 1♀, Beneficiamento, Ponto 1 (2°30'27.4"S, 56°10'39.5"W), 18–23 February 2011, B.V.B. Rodrigues, N.C. Bastos & N.F. Lo Man Hung leg. (MPEG 19724, PBI_OON 44145); 1♂ 3♀ (MPEG 19728, PBI_OON 44149); 1♀ (MPEG 19736, PBI_OON 44157); 1♂ (MPEG 19725, PBI_OON 44146); 1♂ (MPEG 19714, PBI_OON 44135); 1♀ (MPEG 19716, PBI_OON 44137); 1♀ (MPEG 19729, PBI_OON 44150); 2♂ (MPEG 19715, PBI_OON 44136); 1♂ 2♀ (MPEG 19711,

PBI_OON 44132); 1♀ (MPEG 19726, PBI_OON 44147); 1♂, 07–12 May 2010 (MPEG 19614, PBI_OON 44035); 1♂ (MPEG 19622, PBI_OON 44043); 1♂ (MPEG 19613, PBI_OON 44034); 1♀ (MPEG 19621, PBI_OON 44042); 1♂ (MPEG 19618, PBI_OON 44039); 1♂, 19–25 August 2011, R. Saturnino, E.G. Cafofo & N.C. Bastos leg. (MPEG 19587, PBI_OON 44008); 1♀ (MPEG 19591, PBI_OON 44012); 1♀ (MPEG 19585, PBI_OON 44006); 1♂ (MPEG 19588, PBI_OON 44009); 1♂ 1♀ (MPEG 19586, PBI_OON 44007); 1♂, Ponto 2, 17–21 December 2012, A.S. Alves, E.L.S. Costa & N.C. Bastos leg. (MPEG 20746, PBI_OON 44212); 1♂ (MPEG 20745, PBI_OON 44211); 1♀ (MPEG 20749, PBI_OON 44215); 1♂ (MPEG 20762, PBI_OON 44228); 1♂ (MPEG 20758, PBI_OON 44224); 1♀ (MPEG 20764, PBI_OON 44230); 1♀, 19–20 July 2012 (MPEG 20741, PBI_OON 44207); 1♀, 18–19 December 2012 (MPEG 20740, PBI_OON 44206); 1♂ (MPEG 20741, PBI_OON 44207); 1♀, 18 August 2011, N.C. Bastos leg. (MPEG 19577, PBI_OON 43998); 1♀, 18–23 February 2011, B.V.B. Rodrigues, N.C. Bastos & N.F. Lo Man Hung leg. (MPEG 19735, PBI_OON 44156); 1♂ 2♀ (MPEG 19732, PBI_OON 44153); 1♂ (MPEG 19696, PBI_OON 44117); 1♀ (MPEG 19733, PBI_OON 44154); 1♀, 08–13 May 2010 (MPEG 19627, PBI_OON 44048); 1♀, 19–25 August 2011, R. Saturnino, E.G. Cafofo & N.C. Bastos leg. (MPEG 19600, PBI_OON 44021); 1♀ (MPEG 19597, PBI_OON 44018); 2♂ (MPEG 19592, PBI_OON 44013); 1♀, 21–22 August 2011 (MPEG 19579, PBI_OON 44000); 1♂ 1♀, 03–08 August 2010, B.V.B. Rodrigues, N.C. Bastos & N. Abrahim leg. (MPEG 19566, PBI_OON 43987); 1♀ (MPEG 19568, PBI_OON 43989); 1♀, Acampamento Mutum (1°36’44.7”S, 56°11’39.2”W), 03–10 June 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 19744, PBI_OON 40774); 1♂ (MPEG 19672, PBI_OON 40093); 1♂ (MPEG 19668, PBI_OON 44089); 1♂ (MPEG 19673, PBI_OON 44094); 1♀ (MPEG 19747, PBI_OON 44777); 1♀ (MPEG 19748, PBI_OON 44778); 1♀ (MPEG 19746, PBI_OON 40776);

1♂ (MPEG 30573, PBI_OON 44375); 1♂, 15–22 November 2007 (MPEG 19677, PBI_OON 44098); 1♀ (MPEG 30572, PBI_OON 44374); 1♂, 11–16 September 2002, A.B. Bonaldo *et al*. leg. (MPEG 19758, PBI_OON 40788); 1♂, 04–11 September 2002 (MPEG 19752, PBI_OON 40782); 1♀, 06–11 May 2010, B.V.B. Rodrigues, N.C. Bastos & N.F. Lo Man Hung leg. (MPEG 19609, PBI_OON 44030); 1♂ (MPEG 19608, PBI_OON 44029); 1♀, 18–23 February 2011 (MPEG 19707, PBI_OON 44128; 1♂, 19–25 August 2011, R. Saturnino, E.G. Cafofo & N.C. Bastos leg. (MPEG 19583, PBI_OON 44004); 1♀, 18–23 February 2011, B.V.B. Rodrigues, N.C. Bastos & N.F. Lo Man Hung leg. (MPEG 19705, PBI_OON 44126); 1♂, 14–18 July 2012, A.S. Alves, E.L.S. Costa & N.C. Bastos leg. (MPEG 20734, PBI_OON 44197); 1♂, Platô do Rio Juruti (2°28'0.6"S, 56°12'42.2"W), 11–16 September 2002, A.B. Bonaldo *et al*., leg. (MPEG 19760, PBI_OON 40790); 1♂ (MPEG 19759, PBI_OON 40789); 1♀, 04–11 September 2002 (MPEG 19776, PBI_OON 40786); 1♀ (MPEG 19643, PBI_OON 44064); 1♂ (MPEG 19757, PBI_OON 40787); 1♂, Sítio Barroso (2°27'41.7"S, 56°0'11.6"W), 15–22 November 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 19690, PBI_OON 44111); 1♂ (MPEG 19691, PBI_OON 44112); 1♀ (MPEG 19751, PBI_OON 40781); 1♂ (MPEG 30571, PBI_OON 44376); 1♂, 16–18 November 2007 (MPEG 19692, PBI_OON 44113); 1♂, 03–05 June 2007 (MPEG 30569, PBI_OON 44370); 1♀, 03–10 June 2007 (MPEG 30575, PBI_OON 44373); 1♀, Estrada, Plote 2 (2°36'10.6"S, 56°12'25.8"W), 04–11 September 2002, A.B. Bonaldo *et al*., leg. (MPEG 19755, PBI_OON 40785); 1♀ (MPEG 19754, PBI_OON 40784); 1♂, Ramal Pacoval, km 2 (2°28'0.6"S, 56°12'42.2"W), 19 November 2007, E.S. Santos & C.M. Souza, leg. (MPEG 30570, PBI_OON 44372). ***Belterra:*** 2♂ 1♀, Mata do Butantan (3°7'45.85"S, 55°1'59.41"W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161250, PBI_OON 44593); 3♂ 5♀ (IBSP 161271, PBI_OON 44595); 3♂ 5♀ (IBSP 161251,

PBI_OON 44601); 3♂, Área de Proteção Ambiental de Aramanai (3°8’38.34”S, 55° 3’9.80”W) (IBSP 161261, PBI_OON 44687). ***Novo Repartimento***: 1♂, Fazenda Arataú, 25–26 June 2003, Equipe IPAN leg. (MPEG 10718, PBI_OON 40282). **Amazonas**: ***Manaus***: 1♂, Fazenda Experimental da Universidade Federal do Amazonas, km 38, BR 174 (2°38’55.8”S, 60°3’9.4”W), PAF 51, Base da Palmeira, E.P. Franken & A.C.K. Silva leg. (INPA, PBI_OON 44538); 1♂, PAF 28, Raízes (INPA, PBI_OON 44540); 1♂, PAF 07 (INPA, PBI_OON 44537); 1♂, PAF 49 (INPA, PBI_OON 44539). ***Coari***: 1♀, Base de Operações Geólogo Pedro de Moura, Urucu (4°52’7.6”S, 65°15’53.6”W), 11–20 July 2003, A.B. Bonaldo, J.D. Dias & D.D. Guimarães leg. (MPEG 10232, PBI_OON 45046); 1♂ (MPEG 10213, PBI_OON 45047); 1♂ (MPEG 10228, PBI_OON 45048); 1♀ (MPEG 10171, PBI_OON 44841); 1♂ (4°48’23”S, 65°2’5”W), 08 July 2006, S.C. Dias, L.T. Miglio & C. Santos leg. (MPEG 14119, PBI_OON 44835). **Rondônia**: ***Pimenta Bueno***: 2♂ 1♀, Parque Natura Municipal de Pimenta Bueno (11°40’31.61”S, 61°12’4.19”W), 13–20 June 2010, F.R. Brandas leg. (IBSP 161242, PBI_OON 44686); 1♀ (IBSP 161241, PBI_OON 44689); 1♂ (IBSP 161239, PBI_OON 44688); 1♂ (IBSP 161240, PBI_OON 44685). **Mato Grosso**: ***Querência***: 1♀, Fazenda Tanguro (12°53’28”S, 52°22’25”W), 14–16 June 2006, D.F Candiani & N.F. Lo Man Hung leg. (MPEG 14909, PBI_OON 45036); 1♀ (13°4’26.4”S, 52°23’21.1”W), 18–20 June 2006 (MPEG 14910, PBI_OON 45032); 1♀ (13°4’25.2”S, 52°22’29.7”W), 12–24 June 2006 (MPEG 14911, PBI_OON 45031).

Distribution. Known from northern and midwestern Brazil.

Neoxyphinus garantido **Feitosa & Ruiz, sp. nov.**

Figs 312–343, 829; Map 3

Type material: **Holotype**: male from Sistema Agroflorestal, Embrapa, Manaus, Amazonas, Brazil (2°53'40.11"S, 59°58'20.82"W), 17 July 2001, unknown collector (SMNK, PBI_OON 45082). **Paratypes**: one female, same data as holotype (SMNK, PBI_OON 45082); one female from Base de Operações Geólogo Pedro de Moura, Urucu, Coari, Amazonas, Brazil (4°53'42.5"S, 65°11'18.2"W), 01 October 2004, A.B. Bonaldo, D.F. Candiani & J. Fernandes leg. (MPEG 14115, PBI_OON 40302).

Etymology. The specific name refers to a folkloric festival from the city of Parintins, Amazonas, which celebrates a local legend involving a dispute between two folkloric oxen, named "Caprichoso" and "Garantido".

Diagnosis. Males differ from those of the other species with texturized carapace and abdominal dorsal scutum (Figs 450, 453, 643, 646, 657, 664, 704, 711, 747, 754; see Moss *et al*., 2016, figs 144, 146, 171, 175; see Abrahim *et al*., 2012, figs 200–202, 297, 299) by the smooth sternum (Fig. 317), absence of anterior denticles on abdominal dorsal scutum (Fig. 318) and absence of posterior modified setal sockets on posterior surface of carapace (Fig. 313). Females differ from the other species of genus with texturized carapace and abdominal dorsal scutum (Figs 769, 776, 790, 797, 811, 818; see Moss *et al*., 2016, figs 62, 68, 179, 183; see Abrahim *et al*., 2012, figs 305, 309) by the absence of enlarged setal sockets on posterior surface of carapace (Fig. 331) and by the absence of pockets on the groove connecting posterior spiracles (Figs 339, 829); they further differ from those of *N. furtivus* (see Abrahim *et al*., 2012, fig. 312) by the anterior and posterior borders of epigynal atrium similarly arched (Fig. 339).

Description. Male (holotype): total length 2.19. Cephalothorax: Carapace orange-brown, ovoid in dorsal view, *pars cephalica* slightly elevated, posterolateral

surface without spikes (Fig. 315); surface of elevated portion of *pars cephalica* and sides finely reticulate (Fig. 313); lateral margin without denticles. Clypeus margin straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, without pits (Fig. 317). Chelicerae, endites and labium pale orange. Abdomen: book lung covers large, ovoid. Pedicel tube long. Dorsal scutum orange-brown, surface finely reticulate (Fig. 318). Epigastric and postepigastric scutum orange-brown (Fig. 320). Legs: pale orange. Leg spination: tibia I v4-4-2; metatarsus I v2-2-2. Genitalia: epigastric region with large, circular sperm pore. All palpal segments yellow. Embolus dark, without either prolateral prong or lamellae (Fig. 324).

Female (paratype): total length 2.70. Cephalothorax: Carapace orange-brown, without spikes, surface of elevated portion of *pars cephalica* and sides finely reticulate (Figs 329, 341). Abdomen: dorsal scutum orange-brown, finely reticulate (Figs 336, 340). Legs: pale orange. Leg spination: tibia I, II v4-4-2; IV r2-0-2; metatarsus: I, II v2-2-2. Genitalia: without pockets, with conspicuous apodemes, genital median element anteriorly positioned (Fig. 829).

Other material examined. **BRAZIL**: **Pará**: ***Juruti***: 1♀, Beneficiamento, Ponto 1 (2°30’27.4”S, 56°10’39.5”W), 18–23 February 2010, B.V.B. Rodrigues, N.C. Bastos & N.F. Lo Man Hung leg. (MPEG 19721, PBI_OON 44142); 1♀ (MPEG 19721, PBI_OON 44142); 1♀, Ponto 2, 08–13 May 2010 (MPEG 19626, PBI_OON 44047). ***Novo Progresso***: 1♀, Campo de Provas Brigadeiro Velloso, Serra do Cachimbo (9°31’89”S, 55°2’1”W), 16–26 March 2004, J. Ricetti, J.A.P. Barreiros & D.D. Guimarães leg. (MPEG 14113, PBI_OON 40304); 1♀ (9°22’2.9”S, 55°1’11.9”W) (MPEG 14114, PBI_OON 40303); 1♀ (9°22’2.9”S, 55°1’11.9”W), 07–17 September 2003, A.B. Bonaldo, D.R. Souza & D.D. Guimarães leg. (MPEG 30555, PBI_OON

45093); 1♀ (9°22’24”S, 55°1’10”W), unknown collector (MPEG 30554, PBI_OON 45090); 1♀ (9°20’0.1”S, 55°0’22.4”W), 25–28 March 2004, Equipe MPEG leg. (MPEG 30556, PBI_OON 45091); 1♀, 26–03 March 2004, unknown collector (MPEG 30556, PBI_OON 45091).

Distribution. Known from northern Brazil.

***Neoxyphinus mutum* Feitosa & Moss, sp. nov.**

Figs 344–386, 830; Map 3

Type material: **Holotype**: male from Acampamento Mutum, Juruti, Pará, Brazil (2°33’06.9”S, 56°13’29”W), 20 February 2011, B.V.B. Rodrigues leg. (MPEG 19695, PBI_OON 44116). **Paratypes**: one female, same data as holotype (2°33’18”S, 56°13’22.4”W), 06 May 2010, B.V.B. Rodrigues leg. (MPEG 19612, PBI_OON 44033); one female from Platô Capiranga, Linha 168E, Juruti, Pará, Brazil (2°28’22.1”S, 56°12’29.4”W), 10 August 2008, N.F. Lo Man Hung leg. (MPEG 14134, PBI_OON 40293); one male from Platô Capiranga, Linha 168E, Juruti, Pará, Brazil (2°28’22.1”S, 56°12’29.4”W), 10 February 2007, J.A.P. Barreiros leg. (MPEG 10090, PBI_OON 40296).

Etymology. The specific name is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 388, 395, 421, 428, 464, 471, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the presence of an embolar prolateral prong (Fig. 362). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal

scutum (Figs 105, 109, 141, 148, 292, 299, 408, 412, 486, 493, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the wrinkled sternum (Fig. 371), striated carapace surface (Fig. 367), absence of pockets on groove connecting posterior spiracles (Figs 377, 830) and absence of spikes, enlarged setal sockets or bumps on posterior surface of carapace (Fig. 367).

Description. *Male* (holotype): total length 1.89. Cephalothorax: carapace dark red-brown, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides striated (Figs 348, 378); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown, without pits (Figs 349, 383). Chelicerae, endites and labium orange-brown (Fig. 350). Abdomen: book lung covers large, round. Dorsal scutum orange-brown, surface smooth (Figs 352, 381). Epigastric and postepigastric scutum orange-brown (Fig. 354). Legs: orange-brown. Leg spination: tibia I v4-4-2; metatarsus I v2-0-2. Genitalia: epigastric region with small, oval sperm pore. All palpal segments yellow. Embolus dark, with prolateral prong and prolateral proximal lamella (Figs 358, 362).

Female (paratype): total length 2.14. Cephalothorax: carapace dark red-brown, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides striated (Figs 367, 370). Legs: orange-brown. Leg spination: tibia I v4-4-2; II v4-2-0; metatarsus: I v4-1-0; II v2-2-2. Genitalia: without pockets, with conspicuous apodemes, genital median element anteriorly positioned (Fig. 830).

Other material examined. **BRAZIL**: **Pará**: ***Juruti***: 1♂, Acampamento Mutum (2°33’06.9”S, 56°13’29”W), 16 July 2012, N. C. Bastos (MPEG 20719, PBI_OON 44185); 1♀ (2°33’06.9”S, 56°13’22.1”W), 20 February 2011 (MPEG 19694, PBI_OON

44115); 1♂ (2°33’18”S, 56°13’22.4”W), 20 August 2011, E.G. Cafofo leg. (MPEG 19578, PBI_OON 43999); 1♂, 06 January 2012 (MPEG 19572, PBI_OON 43993; 1♂ (2°33’18”S, 56°13’29”W), 12 August 2010, B.V.B. Rodrigues leg. (MPEG 19570, PBI_OON 44991); 1♂ (2°33’6.9”S, 56°13’29”W), 16 July 2012, E.L.S. Costa leg. (MPEG 20718, PBI_OON 44184); 1♀ (1°36’44.7”S, 56°10’39.5”W), 05 June 2007, D.F. Candiani leg. (MPEG 19764, PBI_OON 44794); 1♂ (1°36’44.7”S, 56°11’39,2”W), 10 June 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 19666, PBI_OON 44087); 1♂ (2°33’13.8”S, 56°13’29”W), 11 May 2010, N.F. Lo Man Hung leg. (MPEG 19630, PBI_OON 44051); 1♀, 14 January 2015, M.B. Aguiar-Neto leg. (MPEG 30578, PBI_OON 45045); 1♀, 16 December 2013 (MPEG 30579, PBI_OON 44715); 1♂ (MPEG 30581, PBI_OON 44714); 1♂, 16 December 2013, B.V.B Rodrigues leg (MPEG 30582, PBI_OON 44712); 1♀, B.V.B Rodrigues & M.B. Aguiar-Neto leg. (MPEG 30583, PBI_OON 44713); 1♂, Vale do Igarapé Mutum, Platô do Rio Juruti (1°36’44.7”S, 56°11’39.2”W), 07 February 2007, N.F. Lo Man Hung leg. (MPEG 10131, PBI_OON 40297); 1♀, Platô Capiranga, Linha 168E (2°28’22.1”S, 56°12’29.4”W), 10 August 2008, N.F. Lo Man Hung leg. (MPEG 10065, PBI_OON 40295); 1♀, 10 June 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 19761, PBI_OON 40791); 1♀, Beneficiamento, Ponto 1 (2°30’27.4”S, 56°10’39.5”W), 07 January 2012, R. Saturnino leg. (MPEG 19575, PBI_OON 43996); 1♀, 12 August 2010, B.V.B. Rodrigues leg. (MPEG 19571, PBI_OON 43992); 1♀, Ponto 2 (2°30’27.4”S, 56°10’39.5”W), 23 February 2011, N.F. Lo Man Hung leg. (MPEG 19697, PBI_OON 44118); 1♀, 07 January 2012, E.G. Cafofo leg. (MPEG 19574, PBI_OON 43995); 1♀, Platô do Rio Juruti (2°33’07.2”S, 56°13’6.2”W), 07 September 2002, A.B. Bonaldo leg. (MPEG 19634, PBI_OON 44055). ***Belém***: 1♀, Ilha de Cotijuba (1°14’S, 48°35’W), October 2004, unknown collector (MPEG 10270, PBI_OON 44371). ***Belterra***: 1♂, Mata do Butantan

(3°7’45.85”S, 55°1’59.41”W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161252, PBI_OON 44691); 2♂ (IBSP 161249, PBI_OON 44594); 1♂, Área de Proteção Ambiental de Aramanai (3°8’38.34”S, 55°3’9.80”W) (IBSP 161261, PBI_OON 44594); 1♂, Base do LBA (Large-Scale Biosphere–Atmosphere Experiment in Amazonia), Km 83, Rodovia Transamazônica (3°1’0.5”S, 54°57’49.82”W), 01 October 2008, C. Praxedes leg. (MPEG 30587, PBI_OON 44384). ***Santarém***: 1♀, FLONA Tapajós, Km 117, Base IBAMA (3°21’19.7”S, 54°34’19.20”W), 27 September 2008, B. Silva leg. (MPEG 30576, PBI_OON 44380); 1♂, C. Praxedes leg. (MPEG 30584, PBI_OON 44379); 1♂, Assentamento Agroextrativista Lago Grande (2°23’45”S, 55°56’34”W), 05 October 2008, B.V.B. Rodrigues leg. (MPEG 30577, PBI_OON 44383); 1♂, Alter do Chão (2°31’33.88”S, 54°57’18.63”W), 26 June 2007, B.J.F. Silva leg. (MPEG 30588, PBI_OON 44692); 1♂, E. Borari leg. (MPEG 14129, PBI_OON 40294); 1♂, 27 June 2007 (MPEG 14126, PBI_OON 40299); 6♂, 22 June 2007 (MPEG 14128, PBI_OON 40298); 3♂ (MPEG 14132, PBI_OON 40382); 1♂, B.J.F. Silva leg. (MPEG 14133, PBI_OON 40292); 3♂ 1♀, 15 July 2007, E. Borari leg. (MPEG 14131, PBI_OON 40301). ***Itaituba***: 1♂ 1♀, Rio Jamaxim, Parna do Jamaxim (5°26’46.68”S, 55°54’30.60”W), 08 December 2009, N. Abrahim leg. (MPEG 30580, PBI_OON 40453); 1♂, Km 95 da Rodovia Transamazônica, Parque Nacional da Amazônia (4°40’29.3”S, 56°26’50”W), 16 December 2009, N. Abrahim leg. (MPEG 30585, PBI_OON 44381); 1♂ (4°40’29.32”S, 56°26’49.85”W), B.V.B. Rodrigues leg. (MPEG 30586, PBI_OON 44378).

Distribution. Known from the state of Pará, Brazil.

Neoxyphinus caxiuana **Feitosa & Moss, sp. nov.**

Figs 387–419; Map 3

Type material: **Holotype**: male from Estação Científica Ferreira Penna, Floresta Nacional de Caxiuanã, Melgaço, Pará, Brazil (1°44'18.2"S, 51°27'48.1"W), 01–09 December 2000, A.B. Bonaldo *et al*., leg. (IBSP 161263, PBI_OON 44693). **Paratypes**: one female, same data as holotype (IBSP 161263, PBI_OON 44693); one male, same data as holotype, 24 October–03 November 2003, unknown collector (MPEG 14051, PBI_OON 44837).

Etymology. The specific name is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with smooth carapace and texturized abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 421, 428, 464, 471, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the smooth sternum (Figs 392, 417), absence of spikes (Fig. 388) and striations evenly distributed on carapace surface (Figs 391, 416); they differ from those of *N. cachimbo* **sp**. **nov**. (Fig. 434) by the apical border of the embolar apical projection folded over distal sector of embolus in ventral view (Fig. 401). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 292, 299, 367, 374, 486, 493, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the smooth sternum (Fig. 409), striations evenly distributed on carapace surface (Fig. 408) and by the absence of modified setal sockets, bumps or spikes in the carapace posterior surface (Figs 406, 408).

Description. *Male* (holotype): total length 1.90. Cephalothorax: carapace pale orange, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes,

surface of elevated portion of *pars cephalica* and sides finely reticulate (Fig. 388); lateral margin without denticles. Clypeus margin unmodified, straight in front view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, without pits (Figs 392, 417). Chelicerae, endites and labium pale orange (Fig. 393). Abdomen: book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Figs 395, 418). Epigastric and postepigastric scutum pale orange (Fig. 397). Legs: pale orange. Genitalia: epigastric region with large, circular sperm pore. All palpal segments yellow. Embolus dark with apical border of embolar apical projection folded over distal sector of embolus (Fig. 401).

Female (paratype): total length 2.16. Cephalothorax: carapace pale orange, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides finely reticulate (Fig 408). Abdomen: dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 412). Legs: orange-brown. Leg spination: tibia: I, II v4-4-2; metatarsus: I v4-2-2; II v2-2-2. Genitalia: without pockets, atrium wide (Fig. 415).

Other material examined. **BRAZIL**: **Pará**: ***Melgaço***: 1♂, Estação Científica Ferreira Penna, Floresta Nacional de Caxiuanã (1°44’18.2”S, 51°27’48.1”W), 18–23 November 2005, J.A.P. Barreiros *et al*., leg. (MPEG 15231, PBI_OON 44800). ***Portel***: 1♂, Plote PPBIO, Igarapé Caquajó, Floresta Nacional de Caxiuanã (1º57'36.8"S 51º37'3.3"W), 08–13 May 2005, J.A.P. Barreiros *et al*., leg. (MPEG 10427, PBI_OON 44699). ***Belterra***: 1♂, Mata do Butantan (3°7’45.85”S, 55°1’59.41”W), May 2010–May 2011, A.D. Brescovit *et al*., leg. (IBSP 161246, PBI_OON 44606).

Distribution. Known from northern and western state of Pará, Brazil.

***Neoxyphinus cachimbo* Feitosa & Moss, sp. nov.**

Figs 420–445; Map 4

Type material: **Holotype**: male from Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, Novo Progresso, Pará, Brazil (9°21'89"S, 55°2'1"W), 11–14 September 2003, A.B. Bonaldo, D.R. Santos-Souza & D.D. Guimarães leg. (MPEG 10871, PBI_OON 44700). **Paratypes**: two males, same locality as holotype, 07–17 September 2003, unknown collector (MPEG 30551, PBI_OON 44702, MPEG 30553, PBI_OON 45089).

Etymology. The specific name is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 388, 395, 464, 471, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the smooth sternum (Fig. 425), absence of spikes in the carapace posterior surface (Fig. 423), striations evenly distributed on carapace surface (Figs 421, 443) and by the apical border of embolar apical projection folded over the entire width of embolus in ventral view (Fig. 438).

Description. *Male* (holotype): total length 2.17. Cephalothorax: carapace pale orange, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides striated (Figs 421, 443); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, surface smooth, without pits (Fig. 425). Chelicerae, endites and labium pale orange (Fig. 426).

Abdomen: book lung covers large, round. Pedicel tube medium. Dorsal scutum pale orange, surface smooth, anterior half without projecting denticles (Figs 428, 442). Legs: yellow. Leg spination: tibia: I v2-4-2; II v0-2-0; metatarsus: I v2-2-2; II v2-2-0. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus dark, with apical border of embolar apical projection folded over the entire width of embolus in ventral view (Figs 434, 438).

Female: unknown.

Other material examined. **BRAZIL**: **Pará**: ***Juruti***: 1♂, Sítio Barroso (2°27'41.7"S, 56°0'11.6"W), 03–10 June 2007, D.F. Candiani & N.F. Lo Man Hung leg. (MPEG 19661, PBI_OON 44082). ***Novo Progresso***: 1♂, Campo de Provas Brigadeiro Velloso, Serra do Cachimbo (9°21'89"S, 55°2'1"W), unknown collector (MPEG 30552, PBI_OON 44701).

Distribution. Known from the type locality and Juruti, state of Pará, Brazil.

Neoxyphinus cantareira **Feitosa & Ruiz, sp. nov.**

Figs 446–462; Map 4

Type material: **Holotype**: male from Parque Estadual Cantareira, Pedra Grande, São Paulo, Brazil (23°26'25.37"S, 46°38'13.79"W), October 2000, C.L. Firmo leg. (MZSP 26595, PBI_OON 40463) **Paratype**: one male, same locality and collector as holotype, October 2000 (MZSP 26595, PBI_OON 40463).

Etymology. The specific name is a toponymic taken from the type locality.

Diagnosis. Among the species with texturized carapace and abdominal dorsal scutum (Figs 313, 318, 643, 646, 657, 664, 704, 711, 747, 754; see Moss *et al*., 2016, figs 144, 146, 171, 175; see Abrahim *et al*., 2012, figs 200–202, 297, 299) this is the only one with a wrinkled sternum (Fig. 452) and abdominal dorsal scutum without anterior denticles (Fig. 453).

Description. *Male* (holotype): total length 2.20. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Fig. 449); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface wrinkled, without pits (Fig. 452). Chelicerae, endites and labium orange-brown (Fig. 451). Abdomen: book lung covers large and elliptical. Pedicel tube medium. Dorsal scutum orange-brown, reticulate, anterior half without projecting denticles (Fig. 453). Epigastric and postepigastric scutum orange-brown (Fig. 455). Legs: pale orange. Leg spination: tibia: I v4-4-0; metatarsus: I v2-2-2. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus dark, without lamellae (Figs 456–462).

Female: unknown.

Other material examined. None.

Distribution. Known only from type locality, Pedra Grande, Parque Estadual da Cantareira, state of São Paulo, Brazil.

***Neoxyphinus paraty* Feitosa & Ruiz, sp. nov.**

Figs 463–505, 831; Map 4

Type material: **Holotype**: male from Trindade, 25 km S Paraty, Paraty, Rio de Janeiro, Brazil (23°20'55.02"S, 44°43'31.11"W), 23 January 1996, M. Ramírez leg. (MACN, PBI_OON 44349). **Paratype**: one female, Ilha Grande, arredores de Vila do Abraão, Angra dos Reis, Rio de Janeiro, Brazil (23°8'29.64"S, 44°10'19.65"W), February 1994, M. Ramírez leg. (MACN, PBI_OON 44350); two males and one female from Rio de Janeiro, Parque Nacional da Tijuca (22°56'53.8"S, 43°16'57.35"W), 16 June 1994, M. Ramírez & R. Baptista leg. (MACN, PBI_OON 44348).

Etymology. The specific name is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 388, 395, 421, 428, 507, 514, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the embolar copulatory opening displaced proximally (Figs 477, 481). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 292, 299, 367, 374, 408, 412, 529, 536, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the granulated carapace, absence of modified setal sockets, bumps or spikes in the carapace posterior surface (Figs 486, 497), presence of wrinkled sternum (Fig. 490) and presence of deep pockets on groove connecting posterior spiracles (Figs 496).

Description. Male (holotype): total length 1.96. Cephalothorax: carapace orange-brown, broadly oval, *pars cephalica* strongly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Fig. 464); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view, high (Fig. 465). Eyes: ALE separated by less than their radius. Sternum as long as wide,

orange-brown, surface wrinkled, without pits (Figs 468, 499). Chelicerae, endites and labium orange-brown (Fig. 469). Abdomen: book lung covers large, elliptical. Pedicel tube medium. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Figs 471, 500). Epigastric and postepigastric scutum orange-brown (Fig. 473). Legs: yellow. Leg spination: tibia I v6-2-2; metatarsus I v2-2-2. Genitalia: epigastric region with small, narrow sperm pore. All palpal segments yellow. Embolus dark with copulatory opening displaced proximally (Figs 474–484).

Female (paratype): total length 2.50. Cephalothorax: carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Figs 486, 497). Abdomen: dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Fig. 493). Leg spination: tibia: I v6-2-2; II v4-4-2; metatarsus: I v4-2-0; II v2-2-0. Genitalia: with deep pockets, with conspicuous apodemes, genital median element posteriorly positioned (Fig. 831).

Other material examined. **BRAZIL**: **Rio de Janeiro**: ***Nova Iguaçu***: 1♂, Tinguá (22°36'22.62"S, 43°27'6.86"W), 2002, E.F. Ramos leg. (IBSP 69517, PBI_OON 14505); 1♀ (IBSP 69519, PBI_OON 14510); 1♀ (IBSP 69518, PBI_OON 14494). ***Angra dos Reis***: 1♀, Ilha Grande, Enseada das Palmas (23°8'28.37"S, 44°8'30.9"W), 16–22 January 1996, M. Ramírez leg. (MACN, PBI_OON 44351). ***Paraty***: 1♀, Trindade, 25 km S Paraty (23°20'55.02"S, 44°43'31.11"W), 23 January 1996, M. Ramírez leg. (MACN, PBI_OON 44349).

Distribution. Known from the state of Rio de Janeiro, Brazil.

***Neoxyphinus novalima* Feitosa & Ruiz, sp. nov.**

Figs 506–545, 832; Map 4

Type material: **Holotype**: male from Reserva Particular do Patrimônio Natural Mata Samuel de Paula, Nova Lima, Minas Gerais, Brazil (20°0'S, 43°52'W), 29 April–05 May 2007, J.P.P Pena-Barbosa *et al*., leg. (UFMG 2911, PBI_OON 44404). **Paratypes**: one male and two females, same data as holotype (UFMG 19788, PBI_OON 44404).

Etymology. The specific epithet is a toponymic taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 388, 395, 421, 428, 464, 471, 547, 554, 579, 586, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the granulated carapace (Fig. 507), wrinkled sternum (Fig. 511), embolar prolateral margin straight (Figs 520, 524) and by the absence of modified setal sockets or spikes in the carapace posterior surface (Fig. 509). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 292, 299, 367, 374, 408, 412, 486, 493, 571, 575, 619, 626, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the granulated carapace (Figs 529, 544), presence of shallow pockets on the groove connecting posterior spiracles (Figs 539, 832), absence of modified setal sockets, bumps or spikes in the carapace posterior surface (Fig. 531) and wrinkled sternum (Fig. 533); differ from those of *N. rio* **sp**. **nov**. (Fig. 534) by the epigynal atrium wide (Fig. 823); they differ from those of *N. keyserlingi* (see Abrahim *et al*., 2012, fig. 344) by the anterior border of epigynal atrium less arched than posterior one and median element medially positioned (Fig. 539).

Description. *Male* (holotype): total length 2.19. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, postero-lateral surface without spikes,

surface of elevated portion of *pars cephalica* and sides granulated (Fig. 507); lateral margin without denticles. Clypeus margin unmodified, straight in frontal view, low. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown, surface wrinkled, without pits (Fig. 511). Chelicerae, endites and labium orange-brown. Abdomen: book lung covers large, round. Pedicel tube medium. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Figs 514, 540). Epigastric and postepigastric scutum orange-brown (Fig. 516). Legs: orange-brown. Leg spination: tibia I v4-4-2; metatarsus I v2-2-2. Genitalia: epigastric region with small, oval sperm pore. All palpal segments pale orange. Embolus dark, with pointed apical projection (Figs 520, 525).

Female (paratype): total length 2.43. Cephalothorax: carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulated (Fig. 529); lateral margin without denticles. Legs: orange-brown. Leg spination: tibia: I v4-4-2; II v4-4-2; metatarsus: I v2-2-2; II v2-0-2. Genitalia: median element medially positioned (Figs 539, 832). Genitalia: with shallow pockets, genital median element large (Fig. 832).

Other material examined. **BRAZIL**: **Minas Gerais**: ***Nova Lima***: 8♂, Reserva Particular do Patrimônio Natural Mata Samuel de Paula (20°0'S, 43°52'W), 18 October 2006, J.P.P Pena-Barbosa *et al*., leg. (UFMG 2914, PBI_OON 44403); 2♂ (UFMG 2570, PBI_OON 40462). ***Ouro Preto***: 2♂, Estação Ecológica do Tripuí (20°16’46.58”S, 43°43’52.42”W), 2001, H. Guimarães leg. (IBSP 67270, PBI_OON 44706). ***Marliéria***: 1♂, Parque Estadual do Rio Doce (19°48'–19°29'S, 42°38'–42°28'W), 01–10 September 2003, Equipe Biota leg. (IBSP 67680, PBI_OON 44710).

Distribution. Known from south of Minas Gerais, Brazil.

***Neoxyphinus rio* Feitosa & Bonaldo, sp. nov.**

Figs 546–577; Map 5

Type material: **Holotype**: male from Fazenda Ranchinho da Roça, Petrópolis, Rio de Janeiro, Brazil (22°29'9.89"S, 43°7'35.4"W), 15–16 August 2001, Equipe Biota leg. (IBSP 67551, PBI_OON 44707). **Paratypes**: one female, same data as holotype (IBSP 67552, PBI_OON 44708); one male, same data as holotype (IBSP 67547, PBI_OON 45065).

Etymology. The specific name is a toponymic taken from the Brazilian state where the types were collected.

Diagnosis. Males differ from those of other species with texturized carapace, smooth abdominal dorsal scutum and wrinkled sternum (Figs 345, 349, 352, 464, 468, 471, 507, 511, 514; see Abrahim *et al*., 2012, figs 315–316, 320, 333–334) by the absence of embolar prolateral sulcus (fig. 566), by the granulated carapace (Fig. 547) and distal ejaculatory opening (Figs 560, 564). Also differ from those of *N. novalima* **sp**. **nov**. (Figs 520, 525) by the embolar prolateral margin sinuous (Figs 560, 564). Females differ from those of the other species with texturized carapace, smooth abdominal dorsal scutum and wrinkled sternum (Figs 367, 371, 375, 486, 490, 493, 529, 533, 536, 726, 730, 733; see Abrahim *et al*., 2012, figs 336, 339) by the presence of shallow pockets on the groove connecting posterior spiracles (Fig. 574), granulated carapace (Fig. 571) and by the epigynal atrium narrow and with anterior and posterior borders almost parallel (Fig. 574).

Description. *Male* (holotype): total length 2.36. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes,

surface of elevated portion of *pars cephalica* and sides granulate (Fig. 547); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface wrinkled, without pits (Fig. 551). Chelicerae, endites and labium orange-brown (Fig. 552). Abdomen: book lung covers large, elliptical. Pedicel tube medium. Dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 554). Epigastric and postepigastric scutum pale orange (Fig. 556). Legs: yellow. Leg spination: tibia: I v2-4-2; II v2-2-2; metatarsus: I, II v2-2-2. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus light, without lamellae (Fig. 560).

Female (paratype): total length 2.81. Cephalothorax: carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Fig. 571). Abdomen: dorsal scutum pale orange, smooth, anterior half without projecting denticles (Fig. 575). Genitalia: epigynal atrium narrow, anterior and posterior borders almost parallel (Fig. 574).

Other material examined. **BRAZIL**: **Rio de Janeiro**: ***Petrópolis***: 3♂, Fazenda Ranchinho da Roça (22°29’9.89”S, 43°7’35.4”W), 15–16 August 2001, Equipe Biota leg. (IBSP 67538, PBI_OON 44709; IBSP 67551, PBI_OON 44707).

Distribution. Known only from type locality, Petrópolis, state of Rio de Janeiro, Brazil.

Neoxyphinus paraiba **Feitosa & Moss, sp. nov.**

Figs 578–595; Map 5

Type material: **Holotype**: male from Mata do Buraquinho, João Pessoa, Paraíba, Brazil (7°8’39.4”S, 34°51’29.42”W), 2003–2004, S.C. Dias leg. (IBSP 68351, PBI_OON 45054).

Etymology. The name is a toponymic referring to the Brazilian state where the type was collected.

Diagnosis. Males differ from those of other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 388, 395, 421, 428, 464, 471,507, 514, 547, 554, 597, 604; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the presence of a long prolateral distal lamella in the embolus (Figs 592–594).

Description. *Male* (holotype): total length 2.25. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulated (Figs 579, 582); lateral margin without denticles. Clypeus margin unmodified, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, covered with small round pits (Fig. 583). Chelicerae, endites and labium orange-brown (Fig. 584). Abdomen: book lung covers large, round. Pedicel tube medium. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Fig. 586). Epigastric and postepigastric orange-brown. Legs: pale orange. Leg spination: tibia: I v4-4-2; II v4-2-2; metatarsus: I v2-2-2; II v2-0-2. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus dark, with long prolateral distal lamella (Figs 592–594).

Female: unknown.

Other material examined. None.

Distribution. Known only from type locality, João Pessoa, state of Paraíba, Brazil.

***Neoxyphinus crasto* Feitosa & Moss, sp. nov.**

Figs 596–638, 833; Map 5

Type material: **Holotype**: male from Mata do Crasto, Santa Luzia do Itanhy, Sergipe, Brazil (11°23'S, 37°24'W), 09–13 September 1999, A.D. Brescovit *et al*., leg. (IBSP 69392, PBI_OON 40417). **Paratypes**: three females, same data as holotype (IBSP 69395, PBI_OON 40418, IBSP 69387, PBI_OON 40420); two males, same data as holotype (IBSP 69397, PBI_OON 40419, IBSP 69396, PBI_OON 40425).

Etymology. The specific epithet is a noun in apposition taken from the type locality.

Diagnosis. Males differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 81, 88, 256, 259, 270, 277, 345, 352, 388, 395, 421, 428, 464, 471, 507, 514, 547, 554, 579, 586; see Abrahim *et al*., 2012, figs 153, 156, 315, 320) by the presence of pits on sternal surface (Figs 601, 631), absence of spikes or modified setal sockets on posterior carapace surface (Fig. 599) and absence of embolar lamellae (Figs 610, 614). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 292, 299, 367, 374, 408, 412, 486, 493, 529, 536, 571, 575, 726, 733; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the presence of pits on sternal surface (Fig. 623) and by the absence of spikes or modified setal sockets on carapace posterior surface (Fig. 621).

Description. Male (holotype): total length 1.90. Cephalothorax: Carapace dark red-brown, ovoid, pars cephalica slightly elevated, without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Figs 597, 630); lateral margin without denticles. Clypeus margin straight in frontal view, high. Eyes: ALE separated by more than their diameter. Sternum as long as wide, orange-brown, surface smooth, covered with small round pits (Figs 601, 631). Chelicerae, endites and labium orange-brown (Fig. 602). Abdomen: book lung covers large, round. Pedicel tube long. Dorsal scutum orange-brown, smooth, anterior half without projecting denticles (Figs 604, 633). Epigastric and postepigastric scutum orange-brown (Fig. 606). Legs: orange-brown. Leg spination: tibia: I v4-4-2; metatarsi: I: v2-2-0. Genitalia: epigastric region with small, oval sperm pore. All palpal segments pale orange. Embolus dark, without lamellae (Figs 610–617).

Female (paratype): total length 2.20. Cephalothorax: carapace dark red-brown, without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Fig. 619). Legs: orange-brown. Leg spination: tibia: I v6-2-2; II v4-4-2; metatarsus: I v2-2-2; II v2-2-0. Genitalia: with shallow pockets, with inconspicuous apodemes (Fig. 833).

Other material examined. **BRAZIL**: **Sergipe**: ***Santa Luzia do Itanhy***: 1♀, Mata do Crasto (11°23'S, 37°24'W), 09–13 September 1999, A.D. Brescovit *et al*., leg. (IBSP 69390, PBI_OON 40422); 1♀ (IBSP 69388, PBI_OON 40424); 1♂ (IBSP 69394, PBI_OON 40426); 1♂ (IBSP 69393, PBI_OON 40421); 1♂ (IBSP 69391, PBI_OON 40423). **Bahia**: ***Ilhéus***: 1♀, Campus CEPLAC (14°47’52.62”S, 39°2’13.72”W), 06 September 2007, P.P Santos leg. (IBSP 98041, PBI_OON 44571); 1♀, 07 April 1998, A.D. Brescovit *et al*., leg. (IBSP 19289, PBI_OON 44572). ***Massarandupió***: 1♂ (12°17’55.58”S, 37°49’51.15”W), 17–19 November 2006, J.P. Alves leg. (IBSP 79421, PBI_OON 44565). ***Camaçari***: 1♂, Barra do Jacuipe (12°43’43.96”S, 38°17’21.50”W), August–November 2006, L. Stabile leg. (IBSP 71752, PBI_OON 44569). ***Mata de São***

João: 1♀, Reserva Particular do Patrimônio Natural, Dunas de Santo Antônio (12°32'1.14"S, 38°18'16.2"W), 18–25 January 2006, J.P.S Alves leg. (IBSP 71752, PBI_OON 44569).

Distribution. Known from the type locality and southeastern Bahia, Brazil.

***Neoxyphinus cavus* Feitosa & Bonaldo, sp. nov.**

Figs 639–655; Map 5

Type material: **Holotype**: male from Reserva Florestal da Companhia Vale do Rio Doce, Linhares, Espírito Santo, Brazil (18°42'47.5"S, 39°51'45.83"W), 05–12 January 1998, A.J. Santos *et al*., leg. (IBSP 27030, PBI_OON 40459).

Etymology. The specific name is a Latin adjective meaning "excavated" or "concave" referring to depressions in epigastric and postepigastric abdominal scuta.

Diagnosis. Males of *N. cavus* **sp**. **nov**. are distinguished from those of all other species of the genus by the abdominal ventral scuta with large pits (Fig. 648).

Description. *Male* (holotype): total length 1.84. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated, posterolateral surface without spikes, surface of elevated portion of *pars cephalica* and sides granulate (Figs 642–643); lateral margin without denticles. Clypeus margin slightly rebordered, straight in front view, low. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown, surface smooth, with pits (Fig. 645). Chelicerae, endites and labium orange-brown (Fig. 644). Abdomen: book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum orange-brown, reticulate, anterior half with projecting denticles (Fig.

646). Epigastric and postepigastric scutum orange-brown, covered with large round pits (Fig. 648). Legs: orange-brown. Leg spination: tibia: I v6-2-2; metatarsus: I v2-2-2. Genitalia: epigastric region with small, oval sperm pore. All palpal segments yellow. Embolus dark, wide and elongated (Figs 652–655).

Female: unknown.

Other material examined. None.

Distribution. Known only from the type locality, Linhares, state of Espírito Santo, Brazil.

***Neoxyphinus stigmatus* Feitosa & Bonaldo, sp. nov.**

Figs 656–686; Map 6

Type material: **Holotype**: male from Campus CEPLAC, Ilhéus, Bahia, Brazil (14°47'52.62"S, 39°2'13.72"W), 11 April 1998, A.D. Brescovit *et al*., leg. (IBSP 19228, PBI_OON 40436). **Paratypes**: two males, same data as holotype (IBSP 19310, PBI_OON 40437); one male from Estação Ecológica de Una, Una, Bahia (14°48'S, 39°2'W/15°17'48."S, 39°4'28"W), October 1999–September 2000, M.F. Dias leg. (IBSP 64565, PBI_OON 40438).

Etymology. The specific name is a Latin adjective meaning "bearing stigmas", referring to the cross-shaped tegumental incisions in the epigastric and post-epigastric scuta.

Diagnosis. Males resemble *N. simsinho* **sp**. **nov**. (Figs 713, 741), *N. murici* **sp**. **nov**. (Figs 757, 784) and *N. celluliticus* **sp**. **nov**. (Fig. 695) by the presence of tegumental

incisions on the surface of ventral abdominal scutum (Figs 666, 681), but differ by those incisions being cross-shaped (Fig. 680).

Description. *Male* (holotype): total length 1.84. Cephalothorax: carapace dark red-brown, broadly oval, *pars cephalica* strongly elevated, posterolateral surface without spikes (Fig. 659); surface of elevated portion of *pars cephalica* and sides granulated (Figs 657, 679); lateral margin without denticles. Clypeus margin slightly rebordered, straight in frontal view, low. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, covered with large round pits (Figs 661, 683). Chelicerae, endites and labium orange-brown (Fig. 662). Abdomen: book lung covers large and round. Pedicel tube medium. Dorsal scutum dark red-brown, reticulate, anterior half with projecting denticles (Figs 664, 678). Epigastric and postepigastric scutum dark red-brown (Fig. 666). Legs: orange-brown. Leg spination: tibia I v4-4-0; metatarsus I v2-2-0. Genitalia: epigastric region with small, narrow sperm pore. All palpal segments yellow. Embolus dark, without lamellae, with apical projection pointed, sclerotized, ejaculatory opening displaced medialy (Figs 670, 674).

Female: unknown.

Other material examined. **BRAZIL**: **Bahia**: ***Ilhéus***: 1♂, Campus CEPLAC (14°47’52.62”S, 39°2’13.72”W), 11 April 1998, A.D. Brescovit *et al*., leg. (IBSP 19225, PBI_OON 44564); 1♂ (IBSP 19300, PBI_OON 44570).

Distribution. Known from the type locality and Una, state of Bahia, Brazil.

***Neoxyphinus celluliticus* Feitosa & Ruiz, sp. nov.**

Figs 687–702; Map 6

Type material: **Holotype**: male from Estação Ecológica do Tripuí, Ouro Preto, Minas Gerais, Brazil (20°16'46.58"S, 43°43'52.42"W), 2001, H. Guimarães leg. (IBSP 67268, PBI_OON 45055).

Etymology. The specific epithet is an adjective referring to the wrinkled aspect of the abdominal ventral scutum caused by the tegumental incisions.

Diagnosis. Males differ from those of other species with tegumental incisions on surface of abdominal ventral scutum (Figs 666, 681, 713, 741, 756, 784) by these incisions being slit-shaped (Fig. 695), and by the presence of anterior denticles on abdominal dorsal scutum (Fig. 694).

Description. Male (holotype): total length 2.60. Cephalothorax: carapace orange-brown, ovoid, pars cephalica slightly elevated in lateral view, posterolateral surface without spikes (Fig. 687); surface of elevated portion of pars cephalica granulate, sides granulate (Fig. 689); lateral margin without denticles. Clypeus margin unmodified, straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, covered with small round pits (Fig. 690). Chelicerae, endites and labium pale orange (Fig. 691). Abdomen: book lung covers large, elliptical. Pedicel tube medium. Dorsal scutum orange-brown, smooth, anterior half with projecting denticles (Figs 693-694). Legs: pale orange. Leg spination: tibia: I v4-4-2; metatarsus: I v2-2-2. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus dark, without lamellae (Fig. 699).

Female: unknown.

Other material examined. None.

Distribution. Known only from type locality, Ouro Preto, state of Minas Gerais, Brazil.

***Neoxyphinus simsinho* Feitosa & Bonaldo, sp. nov.**

Figs 703–745, 834; Map 6

Type material: **Holotype**: male from Mata do Buraquinho, João Pessoa, Paraíba, Brazil (7°8'39.4"S, 34°51'29.42"W), 2003–2004, S.C. Dias leg. (IBSP 68353, PBI_OON 40404). **Paratypes**: one female, same data as holotype (IBSP 68355, PBI_OON 40410); one male and one female, same data as holotype (IBSP 68392, PBI_OON 40416); one male and one female from Reserva da Mata do Pau Ferro, Areia, Paraíba, Brazil (6°57'S, 35°44'W), 23–29 September 1999, A.D. Brescovit *et al*., leg. (IBSP 67886, PBI_OON 40415).

Etymology. The specific name refers to the cultural show "Parayba Sim Sinhô", (meaning "Paraiba, yes sir"), regularly featured on the type-locality, João Pessoa, Paraíba.

Diagnosis. Males differ from those of other species with tegumental incisions on ventral surface of abdominal scutum (Figs 666, 681, 695, 756, 784) by these incisions being slit-shaped (Figs 713, 741, 743), by the embolar copulatory opening displaced proximally and by the tip of the embolus directed prolaterally (Figs 717, 721). Females differ from those of the other species with texturized carapace and smooth abdominal dorsal scutum (Figs 105, 109, 141, 148, 292, 299, 367, 374, 408, 412, 486, 493, 529, 536, 571, 575, 619, 626; see Moss *et al*., 2016, figs 40, 47; see Abrahim *et al*., 2012, figs 159, 210, 213, 336) by the wrinkled sternum (Fig. 730), granulated carapace (Fig. 726), absence of spikes or modified setal sockets on carapace posterior surface (Fig. 728) and absence of pockets on groove connecting posterior spiracles (Figs 736).

Description. *Male* (holotype) total length 1.98. Cephalothorax: carapace dark red-brown, *pars cephalica* slightly elevated, without spikes (Fig. 707); surface of elevated portion of *pars cephalica* and sides granulated (Fig. 704); lateral margin without denticles. Clypeus margin straight in frontal view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, dark red-brown, surface wrinkled, without pits (Figs 708, 739). Chelicerae, endites and labium orange-brown (Fig. 709). Abdomen: book lung covers small and round. Pedicel tube medium. Dorsal scutum dark red-brown, surface reticulate, anterior half with projecting denticles (Figs 711, 740). Epigastric and postepigastric scutum orange-brown (Fig. 713). Legs: orange-brown. Leg spination: tibia: I v2-4-2; metatarsus: I: v2-2-2. Genitalia: epigastric region with small, circular sperm pore. All palpal segments orange-brown. Embolus dark, with the tip directed prolaterally (Figs 717, 721).

Female (paratype): total length 2.40. Cephalothorax: carapace dark red-brown, *pars cephalica* slightly elevated, without spikes (Fig. 729); surface of elevated portion of *pars cephalica* and sides granulate (Fig. 726). Sternum wrinkled (Fig. 730). Abdomen: dorsal scutum dark red-brown, smooth (Fig. 733). Legs: orange-brown. Leg spination: tibia I, II v6-2-0; metatarsus: I v2-2-2; II v2-2-0. Genitalia: without pockets, genital median element circular (Fig. 834).

Other material examined. **BRAZIL**: **Paraíba**: ***João Pessoa***: 1♀, Mata do Buraquinho (7°8’39.4”S, 34°51’29.42”W), 2003–2004, S.C. Dias leg. (IBSP 68360, PBI_OON 40408); 1♀ (IBSP 68357, PBI_OON 40412); 1♀ (IBSP 68393, PBI_OON 40409); 1♀ (IBSP 68372, PBI_OON 40411); 1♂ 1♀ (IBSP 68356, PBI_OON 40414). ***Areia***: 1♀, Reserva da Mata do Pau Ferro (6°57’S, 35°44’W), 23–29 September 1999, A.D. Brescovit *et al*., leg. (IBSP 67887, PBI_OON 40405); 1♂ (IBSP 67885, PBI_OON 40413); 1♂ (IBSP 67884, PBI_OON 40406); 1♀ (IBSP 67883, PBI_OON 40407).

Distribution. Known from the type locality and Areia, state of Paraíba, Brazil.

***Neoxyphinus murici* Feitosa & Bonaldo, sp. nov.**

Figs 746–788, 835; Map 6

Type material: **Holotype**: male from Estação Ecológica de Murici, Murici, Alagoas, Brazil (9°33'7.24"S, 35°47'55.52"W), 13–20 September 2003, Equipe Biota leg. (IBSP 69366, PBI_OON 40428). **Paratypes**: two females, same data as holotype (IBSP 69383, PBI_OON 40429, IBSP 69362, PBI_OON 40431); one male from Barra dos Coqueiros, Sergipe (10°54'5.76"S, 37°1'41.89"W), 29 August 1995, Equipe UFSE leg. (MCN 27223, PBI_OON 45079).

Etymology. The specific epithet is a toponymic taken from the type locality.

Diagnosis. Males differ from those of other species with tegumental incisions on ventral surface of abdominal scutum (Figs 666, 681, 695, 713, 741) by these incisions being slit-shaped (Figs 756, 786), by the embolar copulatory opening displaced proximally and by the tip of the embolus directed retrolaterally (Figs 760, 764). Females are distinguished from those of all other species of the genus by the combined presence of texturized carapace and abdominal dorsal scutum (Figs, 769, 776) and pits on sternal surface (Fig. 773).

Description. *Male* (holotype): total length 2.18. Cephalothorax: carapace dark red-brown, broadly oval, *pars cephalica* strongly elevated, posterolateral surface without spikes (Fig. 750); surface of elevated portion of *pars cephalica* and sides granulated (Fig. 747); lateral margin without denticles. Clypeus margin slightly rebordered, straight in front view, low. Eyes: ALE separated by less than their radius. Sternum as long as wide,

orange-brown, surface smooth, covered with large round pits (Fig. 751, 782). Chelicerae, endites and labium orange-brown (Fig. 752). Abdomen: book lung covers large, elliptical. Pedicel tube medium. Dorsal scutum orange-brown, strongly punctate, anterior half without projecting denticles (Figs 754, 783). Epigastric and postepigastric scutum dark red-brown (Fig. 756). Legs: orange-brown. Leg spination: tibia I v4-4-2; metatarsus I v2-2-0. Genitalia: epigastric region with large, oval sperm pore. All palpal segments yellow. Embolus dark, with tip directed retrolaterally (Figs 760, 764).

Female (paratype): total length 2.41. Cephalothorax: carapace dark red-brown, posterolateral surface without spikes (Fig. 772); surface of elevated portion of *pars cephalica* and sides granulated (Fig. 769). Abdomen: postepigastric scutum almost semicircular (Fig. 777). Legs: orange-brown. Leg spination: tibia: I v6-2-2; II v4-4-2; metatarsus: I, II v2-2-2. Genitalia: with shallow pockets, with inconspicuous apodemes, genital median element medially positioned (Fig. 835).

Other material examined. **BRAZIL**: **Alagoas**: ***Murici***: 1♀, Estação Ecológica de Murici (9°33'7.24"S, 35°47'55.52"W), 13–20 September 2003, Equipe Biota leg. (IBSP 69380, PBI_OON 40434); 1♂ (IBSP 69363, PBI_OON 40430); 1♀ (IBSP 69371, PBI_OON 40433); 1♀ (IBSP 69382, PBI_OON 40432); 1♂ (IBSP 69358, PBI_OON 45052).

Distribution. Known from type locality, Murici, state of Bahia and Barra dos Coqueiros, state of Sergipe, Brazil.

***Neoxyphinus jacareacanga* Feitosa & Ruiz, sp. nov.**

Figs 789–799; Map 7

Type material: **Holotype**: female from Km 350 da Rodovia Transamazônica, Jacareacanga, Pará (5°54'1.3"S, 57°41'45.89"W), 28 October 2009, E. Cafofo leg. (MPEG 30559, PBI_OON 40457).

Etymology. The specific epithet is a toponymic taken from the type locality.

Diagnosis. Females differ from those of other species with rows of cuticular round projection in the book lung margins (Fig.809; see Moss *et al*., 2016, fig. 226) by the texturized carapace and abdominal dorsal scutum (Figs 790, 797).

Description. *Female* (holotype): total length 2.85. Cephalothorax: carapace orange-brown, broadly oval, *pars cephalica* slightly elevated, posterolateral surface with two pairs of spikes (Fig. 792); surface of elevated portion of *pars cephalica* and sides striated (Fig. 790); lateral margin without denticles. *Clypeus* margin unmodified, straight in front view, high. Eyes: ALE separated by their radius to diameter. Sternum as long as wide, orange-brown, surface smooth, without pits (Fig 793). Chelicerae, endites and labium pale orange (Fig. 794). Abdomen: book lung covers large, ovoid, outer borders of book lung covers sculptured (Fig. 799). Pedicel tube medium. Dorsal scutum orange-brown, reticulate, anterior half with projecting denticles (Figs 797, 799). Epigastric and postepigastric scutum orange-brown (Fig. 798). Legs: pale orange. Leg spination: tibia: I, II v4-4-2; metatarsus: I, II v2-2-2. Genitalia: atrium narrow, with deep pockets (Fig. 796).

Male: unknown.

Other material examined. None.

Distribution. Known only from type locality, Jacareacanga, state of Pará, Brazil.

***Neoxyphinus carigoblin* Feitosa & Moss, sp. nov.**

Figs 800–809; Map 7

Type material: **Holotype**: female from 80 km from city of Manaus, Manaus, Amazonas, Brazil (2°24'S, 59°52'W), Mata 10 ha, 23 November 1989, H. Fowler leg. (MCZ 72967, PBI_OON 45086). **Paratype**: one female**,** Fazenda Esteio, Manaus, Amazonas, Brazil, 18 November 1987, B.C. Klein leg. (MCN 18388, PBI_OON 40458).

Etymology. The specific name refers to the similarity of the spikes on carapace surface with the horns of Caribou, a deer native to North America.

Diagnosis. Females differ from those of other species with rows of cuticular round projection in the book lung margins (Fig.799; see Moss *et al*., 2016, fig. 226) by the smooth carapace and abdominal dorsal scutum (Figs 804, 807) and by the presence of four posterior spikes and blunt tubercles in the carapace surface (Figs 803–804).

Description. *Female* (holotype): total length 2.45. Cephalothorax: carapace pale orange, broadly oval, *pars cephalica* slightly elevated, posterolateral surface with two pairs of spikes, surface of elevated portion of *pars cephalica* and sides smooth, with blunt tubercles scattered (Figs 803–804); lateral margin with blunt denticles. Clypeus margin unmodified, straight in front view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, surface smooth, without pits (Fig. 805). Chelicerae, endites and labium pale orange. Abdomen: book lung covers large and ovoid, outer borders of book lung covers sculptured (Fig. 809). Pedicel tube medium. Dorsal scutum pale orange, smooth, anterior half with projecting denticles (Figs 807, 809). Epigastric and postepigastric scutum pale orange (Fig. 808). Legs: yellow. Leg spination:

tibia: I v4-4-2; II v2-2-2; metatarsus: I v2-2-2. Genitalia: atrium narrow, with deep pockets (Fig. 806).

Male: unknown.

Other material examined. None.

Distribution. Known only from Manaus, state of Amazonas, Brazil.

***Neoxyphinus meurei* Feitosa & Bonaldo, sp. nov.**

Figs 810–821; Map 7

Type material: **Holotype**: female from Central, Bahia, Brazil (11°1'–11°19'S, 41°47'–42°10'W), 15–31 July 2002, E.F. Ramos & F.S. Cunha *et al*., leg. (IBSP 67402, PBI_OON 45067). **Paratype**: one female, same data as holotype (IBSP 67402, PBI_OON 45067).

Etymology. The specific name is a noun in apposition referring to the colloquial expression “meu rei” (Portuguese for “my king”), commonly used in the State of Bahia.

Diagnosis. Females differ from those of other species with texturized carapace and abdominal dorsal scutum (Figs 329, 336, 769, 776, 790, 797; see Moss *et al*., 2016, figs 62, 68, 179, 183; see Abrahim *et al*., 2012, figs 305, 309), by the presence of only one pair of posterior enlarged setal sockets in the carapace posterior surface (Fig. 813) and by the absence of pockets on the groove connecting posterior spiracles (Figs 821).

Description. *Female* (holotype): total length 2.16. Cephalothorax: carapace orange-brown, ovoid, *pars cephalica* slightly elevated,

anteriorly, posterolateral surface with two pairs of enlarged setal sockets (Fig. 813); surface of elevated portion of *pars cephalica* and sides striated (Fig. 811); lateral margin without denticles. Clypeus margin slightly rebordered, straight in front view, high. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, surface smooth, without pits (Fig. 815). Chelicerae, endites and labium orange-brown (Fig. 816). Abdomen: book lung covers large and elliptical. Pedicel tube medium. Dorsal scutum orange-brown, reticulate, anterior half without projecting denticles (Fig. 818). Epigastric and postepigastric scutum pale orange (Fig. 819). Legs: orange-brown. Leg spination: tibia: I v4-4-2; II v2-2-2; metatarsus: I, II v2-2-2. Genitalia: without pockets, atrium wide, genital median element posteriorly positioned (Fig. 821).

Male: unknown.

Other material examined. **BRAZIL**: **Mato Grosso**: ***Nossa Senhora do Livramento***: 1♀, Pirizal, Pantanal do Poconé, Fazenda Retiro Novo (16°12'44.88"S, 56°21'52.26"W), August 2007, K. Anjos leg. (IBSP 92868, PBI_OON 44695).

Distribution. Known from the states of Bahia and Mato Grosso, Brazil.

Discussion

The present paper complements the taxonomic revision on *Neoxyphinus* initiated by Abrahim *et al*. (2012) and carried on by Moss *et al*. (2016), permitting a more comprehensive appreciation of the morphological diversity of this lineage. Understanding the relationships within *Neoxyphinus* can be a complex task, mainly due to the excess of insufficiently known species — 13 of a total of 48 species are known only from males

and three only from females. Furthermore, the various character systems documented here appear to be conflicting.

As observed previously (Moss *et al*., 2016), the discovery of new species within the genus resulted in the discovery of new characters. One example is the tegumental incisions found in the epigastric and postepigastric abdominal scuta of five species (*N. cavus* **sp**. **nov**., *N. celluliticus* **sp**. **nov**., *N. stigmatus* **sp**. **nov**., *N. simsinho* **sp**. **nov**., and *N. murici* **sp**. **nov**., all of then distributed in southeastern and northeastern Brazil). This character appears to occur only in males, since it is absent in the females known from the group (those of *N. simsinho* and *N. murici*). In *N. cavus*, the incisions are pit-shaped (Fig. 648) while *N. stigmatus* has cross-shaped incisions (Fig. 680). The remaining species have slit-shaped incisions (Figs 695, 743, 786).

With the increase in the number of known species, it was also possible to observe new structures on the embolus. For example, Moss *et al*. (2016) described a retrolateral projection for *N. tuparro* Moss & Ruiz, 2016 (see Moss *et al*., 2016, fig. 138) and a prolateral distal lamella in the embolus of *N. coca* Moss & Feitosa, 2016 (see Moss *et al*., 2016, fig. 58). Here, we observed that the prolateral distal lamella vary from short and sclerotized (see Moss *et al*., 2016, fig. 58) to long and lameliform (Figs 176, 593) and is probably homologous to the prolatero-apical lamella described for *N. furtivus* (Chickering) by Abrahim *et al*. (2012, fig. 291). Other embolar structure described here is the basal projection found in *N. sax* **sp**. **nov**. (Fig. 55).

Since the work of Abrahim *et al*. (2012) it is acknowledged that *Neoxyphinus* shows a great morphological heterogeneity, harboring forms with or without spikes on posterior carapace surface or spine-like projections on the abdominal dorsal scutum anterior end, to name two of the most striking characters that may be present in species

of the genus. These and other characters described by Abrahim *et al*. (2012), Moss *et al*. (2016) and in the present paper, allowed the recognition of some informal groups for the first time.

Among the species with well-defined spikes on posterior carapace surface, two species, *N. xyphinoides* (Chamberlin & Ivie, 1942) from Guyana e *N. axe* Abrahim & Brescovit, 2012, from northeastern Brazil, are unique in having six of those spikes (see Abrahim *et al*., 2012, figs 56, 87). These two species appear to constitute a monophyletic group united by the acquisition of an additional pair of spikes located near the carapace posterior margin.

Six other species (*N. gregoblin* Abrahim & Santos, 2012, *N. petrogoblin,* Abrahim & Ott, 2012, *N. termitophilus* (Bristowe), *N. pure* Moss & Bonaldo, 2016, *N. jacareacanga* **sp**. **nov**. and *N. carigoblin* **sp**. **nov**.) have a four spikes conformation on the posterior surface of the carapace (Figs 792, 804; see Abrahim *et al*., 2012, figs 105, 136, 171; see Moss *et al*., 2016 fig. 227). All species of this group also have denticles on the anterior abdominal dorsal scutum (in *N. termitophilus* these denticles are observed only in SEM); however, four additional species (*N. hispidus* (Dumitrescu & Georgescu, 1987), *N. boibumba* Abrahim & Rheims, 2012, *N. trujillo* Moss & Bonaldo, 2016 and *N. yacambu* Moss & Feitosa, 2016) present a similar conformation of abdominal denticles, but do not have spikes on the carapace surface (see Abrahim *et al*., 2012, figs 202, 222; Moss *et al*., 2016, figs 173, 194). Within the group with four spikes, two species known only from females, *N. jacareacanga* and *N. carigoblin*, may form a subgroup because they present the book lung covers ornate with rows of cuticular semicircular projections (Figs 792, 803). This character is also observed in *N. macuna* Moss & Ruiz, 2016, from Colombia (see Moss *et al*., 2016, fig. 226). However, this species is unique in presenting sexually dimorphic spikes: the female has two spikes on the carapace posterior surface

while the male does not have spikes (see Moss *et al*., 2016, figs 201, 206, 221). Thus, giving that *N. macuna* share book lung cover modifications with two species presenting two pairs of spikes, the absence of the anterior pair in females and of both pairs in males could be regarded as the result of secondary loss.

All the remaining species of the genus are devoid of either spikes on posterior carapace surface or denticles on anterior portion of the abdominal dorsal scutum and can be divided into two large groups. One of those groups is composed by species with modified setal sockets on the carapace posterior surface, a condition that could be interpreted as an intermediate state between unmodified setal sockets and spikes, while the other is composed of species that have no such modification. Within these groups, which may not represent monophyletic lineages, various subgroups containing putatively related species could be recognized.

Among the species that share modified setal sockets, two of them (*N. ornithogoblin* **sp**. **nov**. and *N. sax*, both from Amazonas) show conspicuous modifications on the genitalia, notably the extremely elongated embolus (Figs 12, 51) and the very large epigynal atrium (Figs 33, 73). However, some embolar modifications appear to be unique for each of these species: *N. ornithogoblin* has a field of pointed proventral small projections (Fig. 39) and *N. sax* has large basal and apical projections (Fig. 55).

The presence of pits on the sternal surface (Figs 81, 105, 120, 144; see Abrahim *et al*., 2012, figs 243, 265; see Moss *et al*., 2016, figs 144, 161), may delimitate a putatively monophiletic group among those species with modified setal sockets (*N. belterra* **sp**. **nov**., *N. tucuma* **sp**. **nov**., *N yekuana* Moss & Feitosa, 2016 and *N. barreirosi* Abrahim & Bonaldo, 2012). Interestingly, all these species, except *N. barreirosi*, are

sexually dimorphic: females have a texturized carapace surface and males have a smooth carapace (Figs 85, 124; see Abrahim *et al*., 2012, fig. 263; see Moss *et al*., 2016, fig. 142).

Males of other four species with modified setal sockets (*N. coari* **sp**. **nov**., *N. caprichoso* **sp**. **nov**., *N. coca* and *N. inca* Moss & Ruiz, 2016) share the presence of a prolateral embolar lamella (Figs 176, 218; see Moss *et al*., 2016, figs 58, 87). Within this group, sexual dimorphism is present in *N. caprichoso* and *N. coca.* While the female of *N. caprichoso* has enlarged setal sockets on the carapace surface (Fig. 224) (absent in males), the female of *N. coca* has a texturized abdominal dorsal scutum, which is smooth in males (see Moss *et al*., 2016, fig. 68).

Six species with modified setal sockets cannot be placed in any subgroup: *N. tuparro* Moss & Ruiz, 2016, *N. ducke* **sp**. **nov**., *N. meurei* **sp**. **nov.,** *N. almerim* **sp**. **nov**., *N. amazonicus* Moss & Feitosa, 2016 and *N. beni* Moss & Feitosa, 2016. These species can be considered as representatives of poorly known lineages of *Neoxyphinus*.

From all species in which modified setal sockets are absent, only one (*N. saarineni* Moss & Bonaldo, 2016) has the carapace surface smooth. This species has unique modifications on the sternal surface (see Moss *et al*., 2016, figs 99, 102) and according to Moss *et al*. (2016) might be the most basal species of *Neoxyphinus*, sister to a group formed by all other species of the genus.

All other species with unmodified setal sockets present the carapace heavily texturized, a condition shared by most representatives of the *Dysderina* Complex. Six species (*N. capiranga* **sp**. **nov**., *N. garantido* **sp**. **nov**., *N. mutum* **sp**. **nov**., *N. caxiuana* **sp**. **nov**., *N. cachimbo* **sp**. **nov**. and *N. furtivus*) share striations on the carapace surface (Figs 273, 313, 347, 388, 421; see Abrahim *et al*., 2012, fig. 297); in all of them, except *N. mutum*, the embolus is simpler, without either prolateral prong or prolateral lamella

(Figs 287, 324, 401, 434; see Abrahim *et al*., 2012, fig. 291). Known females of this group are difficult to identify since they do not show any conspicuous differences in the genitalia.

All seven remaining species have granulated carapace surfaces. Five of these species, *N. cantareira* **sp**. **nov**., *N. paraty* **sp**. **nov**., *N. novalima*, *N. rio* **sp**. **nov**. and *N. keyserlingi* (Simon), share a characteristically wrinkled sternum (Figs 452, 468, 511, 551; see Abrahim *et al*., 2012, fig. 316). These species are devoid of either embolar prolateral prong and embolar prolateral lamella and only *N. cantareira* has the surface of the abdominal dorsal scutum texturized. All known females share pockets on the groove connecting the posterior spiracles. A pair of possible sister species from Brazil (*N. paraiba* **sp**. **nov**. and *N. crasto* **sp**. **nov**.) share, besides the granulated carapace, the surface of the abdominal dorsal scutum smooth and the presence of pits on the sternal surface (Figs 579, 583, 586, 597, 601, 604).

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Legends

FIGURES 1–11. *Neoxyphinus ornithogoblin* **sp**. **nov**., male: 1 habitus, dorsal; 2–6 cephalothorax (2 dorsal, 3 anterior, 4 posterior, 5 lateral, 6 ventral); 7 mouth parts, ventral; 8–11 abdomen (8 anterior, 9 dorsal, 10 lateral, 11 ventral).

FIGURES 12–21. *Neoxyphinus ornithogoblin* **sp**. **nov**., male: 12–14 left bulb (12 ventral, 13 retrolateral, 14 prolateral); 15–21 left bulb, detail of embolus (15 ventral, 16 retrolateral, 17 prolateral, 18 apical, 19 ventral, 20 retrolateral, 21 prolateral).

FIGURES 22–33. *Neoxyphinus ornithogoblin* **sp**. **nov**., female: 22 habitus, dorsal; 23–27 cephalothorax (23 dorsal, 24 anterior, 25 posterior, 26 lateral, 27 ventral); 28 mouth parts, ventral; 29–32 abdomen (29 anterior, 30 dorsal, 31 ventral, 32 lateral); 33 epigastric area, ventral.

FIGURES 34–39. *Neoxyphinus ornithogoblin* **sp**. **nov**., male: 34 abdomen, lateral; female: 35 cephalothorax, dorsal; male: 36 cephalothorax, ventral, arrow on pits inconspicuous; female: 37 epigastric area, ventral, arrow on anterior border; male: 38 left bulb, ventral; 39 detail of embolus, ventral, arrow on projected pointed.

FIGURES 40–50. *Neoxyphinus sax* **sp**. **nov**., male: 40 habitus, dorsal; 41–45 cephalothorax (41 dorsal, 42 anterior, 43 posterior, 44 lateral, 45 ventral); 46 mouth parts, ventral; 47–50 abdomen (47 anterior, 48 dorsal, 49 lateral, 50 ventral).

FIGURES 51–61. *Neoxyphinus sax* **sp**. **nov**., male: 51–53 left bulb (51 ventral, 52 retrolateral, 53 prolateral); 54–61 left bulb, detail of embolus (54 ventral, 55 retrolateral, arrow on embolar basal projection, 56 prolateral, 57 apical, 58 ventral, 59 retrolateral, 60 prolateral, 61 apical).

FIGURES 62–73. *Neoxyphinus sax* **sp**. **nov**., female: 62 habitus, dorsal; 63–67, cephalothorax (63 dorsal, 64 anterior, 65 posterior, 66 lateral, 67 ventral); 68 mouth parts, ventral; 69–72 abdomen (69 anterior, 70 dorsal, 71 ventral, 72 lateral); 73 epigastric area, ventral.

FIGURES 74–79. *Neoxyphinus sax* **sp**. **nov**., male: 74 abdomen, lateral; female: 75 cephalothorax, dorsal; male: 76 mouth parts, ventral; 77 cephalothorax, ventral; female: 78 leg I, lateral; 79 tarsus I, claw, lateral.

FIGURES 80–90. *Neoxyphinus belterra* **sp**. **nov**., male: 80 habitus, dorsal; 81–85 cephalothorax (81 dorsal, 82 anterior, 83 posterior, arrow on carapace posterior modified setal sockets, 84 lateral, 85 ventral); 86 mouth parts, ventral; 87–90 abdomen (87 anterior, 88 dorsal, 89 lateral, 90 ventral).

FIGURES 91–100. *Neoxyphinus belterra* **sp**. **nov**., male: 91–93 left bulb (91 ventral, 92 retrolateral, 93 prolateral); 94–100 left bulb, detail of embolus (94 ventral, 95 retrolateral, 96 prolateral, 97 apical, 98 ventral, arrow on prolateral proximal embolar lamella, 99 prolateral, 110 apical).

FIGURES 101–112. *Neoxyphinus belterra* **sp**. **nov**., female: 101 habitus, dorsal; 102–106, cephalothorax (102 dorsal, 103 anterior, 104 posterior, arrow on carapace posterior modified setal sockets, 105 lateral, 106 ventral); 107 mouth parts, ventral; 108–111 abdomen (108 anterior, 109 dorsal, 110 ventral, 111 lateral); 112 epigastric area, ventral.

FIGURES 113–118. *Neoxyphinus belterra* **sp**. **nov**., male: 113 abdomen, lateral; female: 114 epigastric area, ventral; 115 cephalothorax, dorsal; male: 116 cephalothorax, ventral; female: 117cephalothorax, dorsal, detail of pars thoracica; male: 118 mouth parts, ventral.

FIGURES 119–129. *Neoxyphinus tucuma* **sp**. **nov**., male: 119, habitus dorsal; 120–124 cephalothorax (120 dorsal, 121 anterior, 122 posterior, 123 lateral, 124 ventral); 125

mouth parts, ventral; 126–129 abdomen (126 anterior, 127 dorsal, 128 lateral, 129 ventral).

FIGURES 130–139. *Neoxyphinus tucuma* **sp**. **nov**., male: 130–132 left bulb (130 ventral, 131 retrolateral, 132 prolateral); 133–139 left bulb, detail of embolus (133 ventral, 134 retrolateral, 135 prolateral, 136 apical, 137 ventral, arrow on embolar apical projection, 138 retrolateral, 139 prolateral).

FIGURES 140–151. *Neoxyphinus tucuma* **sp**. **nov**., female: 140 habitus, dorsal; 141–145, cephalothorax (141 dorsal, 142 anterior, 142 posterior, arrow on carapace posterior modified setal sockets, 144 lateral, 145 ventral); 146 mouth parts, ventral; 147–150 abdomen (147 anterior, 148 dorsal, 149 ventral, 150 lateral); 151 epigastric area, ventral.

FIGURES 152–157. *Neoxyphinus tucuma* **sp**. **nov**., male: 152 cephalothorax, ventral; female: 153 cephalothorax, dorsal; male: 154 abdomen, lateroventral; female: 155 epigastric area, ventral; 156 tibia I, lateral; 157 left palp, prolateral.

FIGURES 158–168. *Neoxyphinus coari* **sp**. **nov**., male: 158 habitus, dorsal; 159–163 cephalothorax (159 dorsal, 160 anterior, 161 posterior, 162 lateral, 163 ventral); 164 mouth parts, ventral; 165–168 abdomen (165 anterior, 166 dorsal, 167 lateral, 168 ventral).

FIGURES 169–178. *Neoxyphinus coari* **sp**. **nov**., male: 169–171 left bulb (169 ventral, 170 retrolateral, 171 prolateral); 172–178 left bulb, detail of embolus (172 ventral, 173 retrolateral, arrow on embolar prolateral prong, 174 prolateral, 175 apical, 176 ventral,

white arrow on embolar prolateral prong; black arrow on prolateral proximal embolar lamella, 177 retrolateral, 178 prolateral).

FIGURES 179–190. *Neoxyphinus coari* **sp**. **nov**., female: 179 habitus, dorsal; 180–184 cephalothorax (180 dorsal, 181 anterior, 182 posterior, 183 lateral, 184 ventral); 185 mouth parts, ventral; 186–189 abdomen (186 anterior, 187 dorsal, 188 ventral, 189 lateral); 190 epigastric area, ventral.

FIGURES 191–199. *Neoxyphinus coari* **sp**. **nov**., male: 191 habitus, lateral; 192 mouth parts, ventral; 193 cephalothorax, ventral; 194 abdomen, dorsal; 195 tarsus II, claw, lateral; 196 leg II, lateral; female: 197 cephalothorax, dorsal; 198 abdomen, ventral; 199 epigastric area, ventral.

FIGURES 200–210. *Neoxyphinus caprichoso* **sp**. **nov**., male: 200 habitus, dorsal; 201–205 cephalothorax (201 dorsal, 202 anterior, 203 posterior, 204 lateral, 205 ventral); 206 mouth parts, ventral; 207–210 abdomen (207 anterior, 208 dorsal, 209 lateral, 210 ventral).

FIGURES 211–220. *Neoxyphinus caprichoso* **sp**. **nov**., male: 211–213 left bulb (211 ventral, 212 retrolateral, 213 prolateral); 214–220 left bulb, detail of embolus (214 ventral, 215 retrolateral, 216 prolateral, 217 apical, 218 ventral, arrow on prolateral proximal embolar lamella, 219 retrolateral, 220 prolateral).

FIGURES 221–232. *Neoxyphinus caprichoso* **sp**. **nov**., female: 221 habitus, dorsal; 222–226 cephalothorax (222 dorsal, 223 anterior, 224 posterior, arrow on carapace posterior

modified setal sockets, 225 lateral, 226 ventral); 227 mouth parts, ventral; 228–231 abdomen (228 anterior, 229 dorsal, 230 ventral, 231 lateral); 232 epigastric area, ventral, arrow on groove pocket.

FIGURES 233–238. *Neoxyphinus caprichoso* **sp**. **nov**., male: 233 abdomen, lateral; 234 cephalothorax, dorsal, arrow on carapace posterior modified setal sockets; 235 habitus, lateral; 236 leg I, lateral; female: 237 epigastric area, ventral; male: 238 endite, detail of distally excavated, apical.

FIGURES 239–246. *Neoxyphinus almerim* **sp**. **nov**., male: 239 habitus, dorsal; 240–242 cephalothorax (240 anterior, 241 lateral, arrow on carapace posterior modified setal sockets, 242 ventral); 243 mouth parts, ventral; 244–246 abdomen (244 dorsal, 245 lateral, 246 ventral).

FIGURES 247–253. *Neoxyphinus almerim* **sp**. **nov**., male: 247–249 left bulb (247 ventral, 248 retrolateral, 249 prolateral); 250–253 left bulb, detail of embolus (250 ventral, 251 retrolateral, 252 prolateral, 253 apical).

FIGURES 254–261. *Neoxyphinus ducke* **sp**. **nov**., male: 254 habitus, dorsal, arrow on carapace posterior modified setal sockets; 255–257 cephalothorax (255 anterior, 256 lateral, 257 ventral); 258 mouth parts, ventral; 259–261 abdomen (259 dorsal, 260 lateral, 261 ventral).

FIGURES 262–268. *Neoxyphinus ducke* **sp**. **nov**., male: 262–264 left bulb (262 ventral, 263 retrolateral, 264 prolateral); 265–268 left bulb, detail of embolus (265 ventral, 266

retrolateral, 267 prolateral, 268 apical).

FIGURES 269–279. *Neoxyphinus capiranga* **sp**. **nov**., male: 269 habitus, dorsal; 270–274 cephalothorax (270 dorsal, 271 anterior, 272 posterior, 273 lateral, 274 ventral); 275 mouth parts, ventral; 276–279 abdomen (276 anterior, 277 dorsal, 278 lateral, 279 ventral).

FIGURES 280–290. *Neoxyphinus capiranga* **sp**. **nov**., male: 280–283 left bulb (280 ventral, 281 retrolateral, 282 prolateral); 283–290 left bulb, detail of embolus (283 ventral, 284 retrolateral, 285 prolateral, 286 apical, 287 ventral, 288 retrolateral, 289 prolateral, 290 apical).

FIGURES 291–302. *Neoxyphinus capiranga* **sp**. **nov**., female: 291 habitus, dorsal; 292–296 cephalothorax (292 dorsal, 293 anterior, 294 posterior, 295 lateral, 296 ventral); 297 mouth parts, ventral; 298–301 abdomen (298 anterior, 299 dorsal, 300 ventral, 301 lateral); 302 epigastric area, ventral.

FIGURES 303–311. *Neoxyphinus capiranga* **sp**. **nov**., male: 303 abdomen, lateral; 304–305 habitus (304 lateral, 305 dorsal); 306 cephalothorax, lateral; 307 mouth parts, ventral; 308 cephalothorax, ventral; 309 endite, detail of distally excavated, apical; female: 310 left palp, prolateral; 311 epigastric area, ventral.

FIGURES 312–320. *Neoxyphinus garantido* **sp**. **nov**., male: 312 habitus, dorsal; 313–315 cephalothorax (313 dorsal, 314 anterior, 315 lateral); 316 mouth parts, ventral; 317 cephalothorax, ventral; 318–320 abdomen (318 dorsal, 319 lateral, 320 ventral).

FIGURES 321–327. *Neoxyphinus capiranga* **sp**. **nov**., male: 321–323 left bulb (321 ventral, 322 retrolateral, 323 prolateral); 324–327 left bulb, detail of embolus (324 ventral, 325 retrolateral, 326 prolateral, 327 apical).

FIGURES 328–339. *Neoxyphinus capiranga* **sp**. **nov**., female: 328 habitus, dorsal; 329–333 cephalothorax (329 dorsal, 330 anterior, 331 posterior, 332 lateral, 333 ventral); 334 chelicerae, ventral; 335–338 abdomen (335 anterior, 336 dorsal, 337 ventral, 338 lateral); 339 epigastric area, ventral.

FIGURES 340–343. *Neoxyphinus capiranga* **sp**. **nov**., female: 340 abdomen, dorsal; 341 cephalothorax, dorsal; 342 leg I, lateral; 343 left palp, prolateral.

FIGURES 344–354. *Neoxyphinus mutum* **sp**. **nov**., male: 344 habitus, dorsal; 345–349 cephalothorax (345 dorsal, 346 anterior, 347 posterior, 348 lateral, 349 ventral); 350 mouth parts, ventral; 351–354 abdomen (551 anterior, 352 dorsal, 353 lateral, 354 ventral).

FIGURES 355–365. *Neoxyphinus mutum* **sp**. **nov**., male: 355–357 left bulb (355 ventral, 356 retrolateral, 357 prolateral); 358–365 left bulb, detail of embolus (358 ventral, 359 retrolateral, 360 prolateral, 361 apical, 362 ventral, white arrow on embolar prolateral prong; black arrow on prolateral proximal embolar lamella, 363 retrolateral, 364 prolateral, 365 apical).

FIGURES 366–377. *Neoxyphinus mutum* **sp**. **nov**., female: 366 habitus, dorsal; 367–371

cephalothorax (367 dorsal, 368 anterior, 369 posterior, 370 lateral, 371 ventral); 372 mouth parts, ventral; 373–376 abdomen (373 anterior, 374 dorsal, 375 ventral, 376 lateral); 377 epigastric area, ventral.

FIGURES 378–386. *Neoxyphinus mutum* **sp**. **nov**., male: 378 cephalothorax, lateral; 379 abdomen, lateral; 380 habitus, dorsal; 381 abdomen, dorsal; 382 mouth parts; 383 cephalothorax, ventral; female: 384 epigastric area, ventral; 385 leg I, lateral; 386 tibia I, lateral.

FIGURES 387–397. *Neoxyphinus caxiuana* **sp**. **nov**., male: 387 habitus, dorsal; 388–392 cephalothorax (388 dorsal, 389 anterior, 390 posterior, 391 lateral, 392 ventral); 393 mouth parts, ventral; 394–397 abdomen (394 anterior, 395 dorsal, 396 lateral, 397 ventral).

FIGURES 398–404. *Neoxyphinus caxiuana* **sp**. **nov**., male: 398–400 left bulb (398 ventral, 399 retrolateral, 400 prolateral); 401–404 left bulb, detail of embolus (401 ventral, 402 retrolateral, 403 prolateral, 404 apical).

FIGURES 405–415. *Neoxyphinus caxiuana* **sp**. **nov**., female: 405 habitus, dorsal; 406–409 cephalothorax (406 dorsal, 407 anterior, 408 lateral, 409 ventral); 410 mouth parts, ventral; 411 leg I, lateral; 412–414 abdomen (412 dorsal, 413 ventral, 414 lateral); 415 epigastric area, ventral.

FIGURES 416–419. *Neoxyphinus caxiuana* **sp**. **nov**., male: 416–417 cephalothorax (416 lateral, 417 lateroventral); 418 abdomen, lateral; 419 leg I, lateral.

FIGURES 420–430. *Neoxyphinus cachimbo* **sp**. **nov**., male: 420 habitus, dorsal; 421–425 cephalothorax (421 dorsal, 422 anterior, 423 posterior, 424 lateral, 425 ventral); 426 mouth parts, ventral; 427–430 abdomen (427 anterior, 428 dorsal, 429 lateral, 430 ventral).

FIGURES 431–441. *Neoxyphinus cachimbo* **sp**. **nov**., male: 431–441 left bulb (431 ventral, 432 retrolateral, 433 prolateral); 434–441 left bulb, detail of embolus (434 ventral, arrow on embolar apical projection, 435 retrolateral, 436 prolateral, 437 apical, 438 ventral, 439 retrolateral, 440 prolateral, 441 apical).

FIGURES 442–445. *Neoxyphinus cachimbo* **sp**. **nov**., male: 442 abdomen, lateral; 443 cephalothorax, lateral; 444 left palp, ventral; 445 leg I, lateral.

FIGURES 446–455. *Neoxyphinus cantareira* **sp**. **nov**., male: 446–447 habitus (446 dorsal, 447 lateral); 448–450 cephalothorax (448 anterior, 449 lateral, 450 dorsal); 451 mouth parts, ventral; 452 cephalothorax, ventral; 453–455 abdomen (453 dorsal, 454 lateral, 455 ventral).

FIGURES 456–462. *Neoxyphinus cantareira* **sp**. **nov**., male: 456–458 left bulb (456 ventral, 457 retrolateral, 458 prolateral); 459–462 left bulb, detail of embolus (459 ventral, 460 retrolateral, 461 prolateral, 462 apical).

FIGURES 463–473. *Neoxyphinus paraty* **sp**. **nov**., male: 463 habitus, dorsal; 464–468

cephalothorax (464 dorsal, 465 anterior, 466 posterior, 467 lateral, 468 ventral); 469 mouth parts, ventral; 470–473 abdomen (470 anterior, 471 dorsal, 472 lateral, 473 ventral).

FIGURES 474–484. *Neoxyphinus paraty* **sp**. **nov**., male: 474–476 left bulb (474 ventral, 475 retrolateral, 476 prolateral); 477–484 left bulb, detail of embolus (477 ventral, 478 retrolateral, 479 prolateral, 480 apical, 481 ventral, arrow on ejaculatory opening, 482 retrolateral, 483 prolateral, 484 apical).

FIGURES 485–496. *Neoxyphinus paraty* **sp**. **nov**., female: 485 habitus, dorsal; 486–490 cephalothorax (486 dorsal, 487 anterior, 488 posterior, 489 lateral, 490 ventral); 491 mouth parts, ventral; 492–495 abdomen (492 anterior, 493 dorsal, 494 ventral, 495 lateral); 496 epigastric area, ventral.

FIGURES 497–505. *Neoxyphinus paraty* **sp**. **nov**., female: 497 cephalothorax, dorsal; male: 498 mouth parts, ventral; 499 sternum, ventral; 500 abdomen, lateral; female: 501 abdomen, ventral; 502 epigastric area, ventral; 503 leg I, lateral; 504 left palp, prolateral; male: 505 left palp, ventral.

FIGURES 506–516. *Neoxyphinus novalima* **sp**. **nov**., male: 506 habitus, dorsal; 507–511 cephalothorax (507 dorsal, 508 anterior, 509 posterior, 510 lateral, 511 ventral); 512 mouth parts, ventral; 513–516 abdomen (513 anterior, 514 dorsal, 515 lateral, 516 ventral).

FIGURES 517–527. *Neoxyphinus novalima* **sp**. **nov**., male: 517–519 left bulb (517

ventral, 518 retrolateral, 519 prolateral); 520–527 left bulb, detail of embolus (520 ventral, 521 retrolateral, 522 prolateral, 523 apical, 524 ventral, 525 retrolateral, 526 prolateral, 527 apical).

FIGURES 528–539. *Neoxyphinus novalima* **sp**. **nov**., female: 528 habitus, dorsal; 529–533 cephalothorax (529 dorsal, 530 anterior, 531 posterior, 532 lateral, 533 ventral); 534 mouth parts, ventral; 535–538 abdomen (535 anterior, 536 dorsal, 537 ventral, 538 lateral); 539 epigastric area, ventral.

FIGURES 540–545. *Neoxyphinus novalima* **sp**. **nov**., male: 540 abdomen, lateral; 541 mouth parts, ventral; 542 cephalothorax, ventral; 543 left palp, ventral; female: 544 cephalothorax, dorsal; 545 leg I, lateral.

FIGURES 546–556. *Neoxyphinus rio* **sp**. **nov**., male: 546 habitus, dorsal; 547–551 cephalothorax (547 dorsal, 548 anterior, 549 posterior, 550 lateral, 551 ventral); 552 mouth parts, ventral; 515–556 abdomen (553 anterior, 554 dorsal, 555 lateral, 556 ventral).

FIGURES 557–567. *Neoxyphinus rio* **sp**. **nov**., male: 557–559 left bulb (557 ventral, 558 retrolateral, 559 prolateral); 560–567 left bulb, detail of embolus (560 ventral, 561 retrolateral, 562 prolateral, 563 apical, 564 ventral, 565 retrolateral, 566 prolateral, 567 apical).

FIGURES 568–577. *Neoxyphinus rio* **sp**. **nov**., female: 568 habitus, dorsal; 569–572 cephalothorax (599 dorsal, 570 anterior, 571 lateral, 572 ventral); 573 mouth parts,

ventral; 574 epigastric area, ventral, arrow on groove pocket; 575–577 abdomen (575 dorsal, 576 ventral, 577 lateral).

FIGURES 578–588. *Neoxyphinus paraiba* **sp**. **nov**., male: 578 habitus, dorsal; 579–583 cephalothorax (579 dorsal, 580 anterior, 581 posterior, 582 lateral, 583 ventral); 584 mouth parts, ventral; 585–588 abdomen (585 anterior, 586 dorsal, 587 lateral, 588 ventral).

FIGURES 589–595. *Neoxyphinus paraiba* **sp**. **nov**., male: 589–591 left bulb (589 ventral, 590 retrolateral, 591 prolateral); 592–595 left bulb, detail of embolus (592 ventral, 593 retrolateral, 594 prolateral, 595 apical). Arrows on embolar prolateral distal lamella.

FIGURES 596–606. *Neoxyphinus crasto* **sp**. **nov**., male: 596 habitus, dorsal; 597–601 cephalothorax (597 dorsal, 598 anterior, 599 posterior, 600 lateral, 601 ventral); 602 mouth parts, ventral; 603–606 abdomen (603 anterior, 604 dorsal, 605 lateral, 606 ventral).

FIGURES 607–617. *Neoxyphinus crasto* **sp**. **nov**., male: 607–609 left bulb (607 ventral, 608 retrolateral, 609 prolateral); 610–617 left bulb, detail of embolus (610 ventral, 611 retrolateral, 612 prolateral, 613 apical, 614 ventral, 615 retrolateral, 616 prolateral, 617 apical).

FIGURES 618–629. *Neoxyphinus crasto* **sp**. **nov**., female: 618 habitus, dorsal; 619–623 cephalothorax (619 dorsal, 620 anterior, 621 posterior, 622 lateral, 623 ventral); 624 mouth parts, ventral; 625–628 abdomen (625 anterior, 626 dorsal, 627 ventral, 628

lateral); 629 epigastric area, ventral.

FIGURES 630–638. *Neoxyphinus crasto* **sp**. **nov**., male: 630–631 cephalothorax (630 lateral, 631 ventral); 632–633 abdomen (632 ventral, 633 lateral); 634 tarsus I, claw, lateral; 635 leg I, lateral; female: 636 andomen, ventral; 637 epigastric area; male: 638 tibia I, lateral.

FIGURES 639–648. *Neoxyphinus cavus* **sp**. **nov**., male: 639–640 habitus (639 dorsal, 640 lateral); 641–643 cephalothorax (641 anterior, 642 lateral, 643 dorsal); 644 mouth parts, ventral; 645 cephalothorax, ventral; 646–648 abdomen (646 dorsal, 647 lateral, 648 ventral).

FIGURES 649–655. *Neoxyphinus cavus* **sp**. **nov**., male: 649–651 left bulb (649 ventral, 650 retrolateral, 651 prolateral); 652–655 left bulb, detail of embolus (652 ventral, 653 retrolateral, 654 prolateral, 655 apical).

FIGURES 656–666. *Neoxyphinus stigmatus* **sp**. **nov**., male: 656 habitus, dorsal; 657–661 cephalothorax (657 dorsal, 658 anterior, 659 posterior, 660 lateral, 661 ventral); 662 mouth parts, ventral; 663–666 abdomen (663 anterior, 664 dorsal, 665 lateral, 666 ventral).

FIGURES 667–677. *Neoxyphinus stigmatus* **sp**. **nov**., male: 667–669 left bulb (667 ventral, 668 retrolateral, 669 prolateral); 670–677 left bulb, detail of embolus (670 ventral, 671 retrolateral, 672 prolateral, 673 apical, 674 ventral, 675 retrolateral, 676 prolateral, 677 apical).

FIGURES 678–686. *Neoxyphinus stigmatus* **sp**. **nov**., male: 678 abdomen, lateral; 679 cephalothorax, lateral; 680 ventral abdominal scutum, detail of incisions cross-shaped; 681 abdomen, ventral; 682 cephalothorax, ventral; 683 sternum, ventral; 684 left bulb, apical; 685 tarsus I, claw, lateral; 686 leg I, lateral.

FIGURES 687–695. *Neoxyphinus celluliticus* **sp**. **nov**., male: 687 habitus, dorsal; 688–690 cephalothorax (688 anterior, 689 lateral, 690 ventral); 691 chelicerae, ventral; 692 endite, ventral; 693–695 abdomen (693 dorsal, 694 lateral, 695 ventral).

FIGURES 696–702. *Neoxyphinus celluliticus* **sp**. **nov**., male: 696–698 left bulb (696 ventral, 697 retrolateral, 698 prolateral); 699–702 left bulb, detail of embolus (699 ventral, 700 retrolateral, 701 prolateral, 702 apical).

FIGURES 703–713. *Neoxyphinus simsinho* **sp**. **nov**., male: 703 habitus, dorsal; 704–708 cephalothorax (704 dorsal, 705 anterior, 706 posterior, 707 lateral, 708 ventral); 709 mouth parts, ventral; 710–713 abdomen (710 anterior, 711 dorsal, 712 lateral, 713 ventral).

FIGURES 714–724. *Neoxyphinus simsinho* **sp**. **nov**., male: 714–716 left bulb (714 ventral, 715 retrolateral, 716 prolateral); 717–724 left bulb, detail of embolus (717 ventral, arrow on embolar tip, 718 retrolateral, 719 prolateral, 720 apical, 721 ventral, 722 retrolateral, 723 prolateral, 724 apical).

FIGURES 725–736. *Neoxyphinus simsinho* **sp**. **nov**., female: 725 habitus, dorsal; 726–

730 cephalothorax (726 dorsal, 727 anterior, 728 posterior, 729 lateral, 730 ventral); 731 mouth parts, ventral; 732–735 abdomen (732 anterior, 733 dorsal, 734 ventral, 735 lateral); 736 epigastric area, ventral.

FIGURES 737–745. *Neoxyphinus simsinho* **sp**. **nov**., male: 737 habitus, lateral; 738–739 cephalothorax (738 lateral, 739 ventral); 740–742 abdomen (740 lateral, 741 ventral, 742 dorsal); 743 ventral abdominal scutum, detail of incisions slit-shaped, arrow on tegumental incision; 744 tarsus I, tarsal organ, dorsal; female: 745 epigastric area, ventral.

FIGURES 746–756. *Neoxyphinus murici* **sp**. **nov**., male: 746 habitus, dorsal; 747–751 cephalothorax (747 dorsal, 748 anterior, 749 posterior, 750 lateral, 751 ventral); 752 mouth parts, ventral; 753–756 abdomen (753 anterior, 754 dorsal, 755 lateral, 756 ventral).

FIGURES 757–767. *Neoxyphinus murici* **sp**. **nov**., male: 757–759 left bulb (757 ventral, 758 retrolateral, 759 prolateral); 760–767 left bulb, detail of embolus (760 ventral, arrow on embolar tip, 761 retrolateral, 762 prolateral, 763 apical, 764 ventral, 765 retrolateral, 766 prolateral, 767 apical).

FIGURES 768–779. *Neoxyphinus murici* **sp**. **nov**., female: 768 habitus, dorsal; 769–773 cephalothorax (769 dorsal, 770 anterior, 771 posterior, 772 lateral, 773 ventral); 774 mouth parts, ventral; 775–778 abdomen (775 anterior, 776 dorsal, 777 ventral, 778 lateral); 779 epigastric area, ventral.

FIGURES 780–788. *Neoxyphinus murici* **sp**. **nov**., male: 780 habitus, lateral; 781–782 cephalothorax (781 dorsal, 782 ventral); 783–785 abdomen (783 lateral, 784 ventral, 785 dorsal); 786 ventral abdominal scutum, detail of incisions slit-shaped, arrow on tegumental incision; 787 epigastric area, ventral; 788 left bulb, apical.

FIGURES 789–799. *Neoxyphinus jacareacanga* **sp**. **nov**., female: 789 habitus, dorsal; 790–793 cephalothorax (790 dorsal, 791 anterior, 792 lateral, 793 ventral); 794 mouth parts, ventral; 795 leg I, lateral; 796 epigastric area, ventral; 797–799 abdomen (797 dorsal, 798 ventral, 799 lateral, arrow on book lung covers sculptured).

FIGURES 800–809. *Neoxyphinus carigoblin* **sp**. **nov**., female: 800–801 habitus (800 dorsal, 801 lateral); 802–805 cephalothorax (802 anterior, 803 lateral, 804 dorsal, 805 ventral); 806 epigastric area, ventral; 807–809 abdomen (807 dorsal, 808 ventral, 809 lateral, arrow on book lung covers sculptured).

FIGURES 810–821. *Neoxyphinus meurei* **sp**. **nov**., female: 810 habitus, dorsal; 811–815 cephalothorax (811 dorsal, 812 anterior, 813 posterior, arrow on carapace posterior modified setal sockets, 814 lateral, 815 ventral); 816 mouth parts, ventral; 817–820 abdomen (817 anterior, 818 dorsal, 819 ventral, 820 lateral); 821 epigastric area, ventral.

FIGURES 822–829. *Neoxyphinus* spp., female, epigastric area, dorsal: 822 *N. ornithogoblin* **sp**. **nov**.; 823 *N. sax* **sp**. **nov**., arrow on anterior border; 824 *N. belterra* **sp**. **nov**.; 825 *N. tucuma* **sp**. **nov**.; 826 *N. coari* **sp**. **nov**.; 827 *N. caprichoso* **sp**. **nov**. arrow on groove pocket; 828 *N. capiranga* **sp**. **nov**.; 829 *N. garantido* **sp**. **nov**.

FIGURES 830–835. *Neoxyphinus* spp., female, epigastric area, dorsal: 830 *N. mutum* **sp**. **nov**.; 831 *N. paraty* **sp**. **nov**., arrow on groove pocket; 832 *N. novalima* **sp**. **nov**., arrow on median element; 833 *N. crasto* **sp**. **nov**.; 834 *N. simsinho* **sp**. **nov**.; 835 *N. murici* **sp**. **nov**.

MAP 1. Records of *Neoxyphinus ornithogoblin* **sp**. **nov**. (red), *Neoxyphinus sax* **sp**. **nov**. (yellow), *Neoxyphinus belterra* **sp**. **nov**. (green) and *Neoxyphinus tucuma* **sp**. **nov**. (blue).

MAP 2. Records of *Neoxyphinus coari* **sp**. **nov**. (red), *Neoxyphinus caprichoso* **sp**. **nov**. (yellow), *Neoxyphinus almerim* **sp**. **nov**. (green) and *Neoxyphinus ducke* **sp**. **nov**. (blue).

MAP 3. Records of *Neoxyphinus capiranga* **sp**. **nov**. (red), *Neoxyphinus garantido* **sp**. **nov**. (yellow), *Neoxyphinus mutum* **sp**. **nov**. (green) and *Neoxyphinus caxiuana* **sp**. **nov**. (blue).

MAP 4. Records of *Neoxyphinus cachimbo* **sp**. **nov**. (red), *Neoxyphinus cantareira* **sp**. **nov**. (yellow), *Neoxyphinus paraty* **sp**. **nov**. (green) and *Neoxyphinus novalima* **sp**. **nov**. (blue).

MAP 5. Records of *Neoxyphinus rio* **sp**. **nov**. (red), *Neoxyphinus paraiba* **sp**. **nov**. (yellow), *Neoxyphinus crasto* **sp**. **nov**. (green) and *Neoxyphinus cavus* **sp**. **nov**. (blue).

MAP 6. Records of *Neoxyphinus stigmatus* **sp**. **nov**. (red), *Neoxyphinus celluliticus* **sp**. **nov**. (yellow), *Neoxyphinus simsinho* **sp**. **nov**. (green) and *Neoxyphinus murici* **sp**. **nov**. (blue).

MAP 7. Records of *Neoxyphinus jacareacanga* **sp**. **nov**. (red), *Neoxyphinus carigoblin* **sp**. **nov**. (yellow) and *Neoxyphinus meurei* **sp**. **nov**. (green).