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Source: American Museum Novitates, 2012(3743) : 1-75

Published By: American Museum of Natural History

URL: <https://doi.org/10.1206/3743.2>

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## A Revision of the Neotropical Goblin Spider Genus *Neoxyphinus* Birabén, 1953 (Araneae, Oonopidae)

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### ABSTRACT

The Neotropical spider genus *Neoxyphinus* Birabén, 1953, is revised, comprising 10 species found from the West Indies to northern Argentina. The genus is characterized by a unique combination of characters, which include the presence of a set of low tubercles or large spikes on the posterior surface of carapace; male endites with an apical, retrolateral excavation bearing a subapical toothlike apophysis; palpal bulb strongly inflated; embolus compact, S-shaped, with large, round ejaculatory opening; epigynal atrium large, with angular lateral corners. The large, round ejaculatory duct may be a synapomorphy of the genus. The genus *Hawkeswoodoonops* Makhan and Ezzatpanah, 2011, is synonymized with *Neoxyphinus* and the two species included in that genus are considered as nomina dubia. The monotypic genus *Decuana* Dumitrescu and Georgescu, 1987, is also synonymized with *Neoxyphinus* and its type species, *D. hispida* Dumitrescu and Georgescu, 1987, is transferred to the genus and redescribed. Confirming a hypothesis raised in the literature, *Dysderina termitophila* Bristowe, 1938, is transferred to *Neoxyphinus* and recognized as the senior synonym of the type species *N. ogloblini* Birabén, 1953. Two other

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species are transferred from *Dysderina* to *Neoxyphinus*: *D. keyserlingi* Simon, 1907, here recognized as the senior synonym of *D. rugosa* Bristowe, 1938, and *D. furtiva* Chickering, 1968, of which the male is described for the first time. In addition to the redescription of *N. termitophilus*, n. comb., *N. hispidus*, n. comb., *N. xyphinoides* (Chamberlin and Ivie, 1942), *N. keyserlingi*, n. comb., and *N. furtivus*, n. comb., five new species are described: *N. petrogoblin* Abraham and Ott, from the Amazon basin in Brazil, Colombia, Ecuador, and Peru; *N. gregoblin* Abraham and Santos, from Venezuela; *N. axe* Abraham and Brescovit, from Bahia, Brazil; *N. boibumba* Abraham and Rheims, from Pará, Brazil; and *N. barreirosi* Abraham and Bonaldo, from Brazil, Colombia, Guyana, and Venezuela. With the exception of *N. boibumba*, known only from males, all new species are described from both sexes.

## INTRODUCTION

The present contribution is part of the Goblin Spider Planetary Biodiversity Inventory (PBI Oonopidae), which aims to advance the taxonomic and phylogenetic knowledge of the family Oonopidae on a worldwide basis (<http://research.amnh.oonopidae/>). The general PBI approach was addressed by Platnick (1999), who enumerated several advantages of taxon-based, area-free inventories over the traditional area-based, multitaxonomic inventories. The most obvious of these advantages are that the benefits of a PBI are planet-wide, targeting intensive, coordinated study of poorly known megadiverse groups. Perhaps because of their small size, oonopids are among the poorest-known spiders and are often difficult to identify to the species or even genus level. In fact, the taxonomy of these tiny animals was almost neglected during the 20th century when compared to the advances achieved in other spider groups in the same period. This is especially true for South American oonopids. A quick review of recent papers reporting area-based inventories of Brazilian spiders (e.g., Brescovit et al., 2004; Bonaldo et al., 2009) depicts a particularly poor level of taxonomic understanding of this group. The faunistic lists provided by these papers have extremely low taxonomic resolution regarding Oonopidae, which are at best (and with a great degree of uncertainty) identified to genus. However, since oonopids are now the subject of a PBI, the next Neotropical area-based inventories will certainly present a great improvement on the identification levels of this family: nearly 35% of the species known to occur in the Neotropical Region were described during 2009 and 2010 (Gris-mado, 2010; Platnick and Dupérré, 2009a, 2009b, 2010a, 2010b, 2010c; Reyes et al., 2010).

Due to the odd somatic morphology presented by at least some of its species, *Neoxyphinus* is one of the few readily identified Oonopidae genera and is almost always present in Brazilian faunistic lists that deal with litter fauna. This genus was established by Birabén (1953) to include two South American gamasomorphine species, both with a striking set of posterior spinelike tubercles (spikes) on the carapace. The generic name is a reference to the Asian genus *Xyphinus* Simon, 1893, which presents similarly modified tubercles. In *X. hystrix* Simon, 1893, for instance, there are two long, curved spikes on the posterior margin of the carapace and two shorter ones at the middle of the posterior surface (Simon, 1893; Deeleman-Reinhold, 1987). Although hypotheses of phylogenetic relationship between oonopid genera are yet unavailable, these two groups are probably not closely related since the genitalic structures are completely different.

The type species of *Neoxyphinus*, *N. ogloblini* Birabén, 1953, from Loreto (Misiones, Argentina), has two pairs of similarly sized spikes on the posterior surface of the carapace. *Dysderina termitophila* Bristowe, 1938, a species found in termite nest galleries of *Nasutitermes arenarius* (Hagen and Bates), in Santa Catarina (Brazil), also has four carapace spikes, but was overlooked by Birabén. Brignoli (1983) suspected that *N. ogloblini* could be a synonym of *D. termitophila*, probably due to the geographic proximity of the type localities and by the similar carapace spikes. This conjecture was not treated as a formal synonymy proposition (see Platnick, 2012). The single additional species described in the genus so far, *N. xyphinoides* (Chamberlin and Ivie, 1942), known from Kartabo (British Guyana) and transferred from *Dysderina* Simon, 1891, by Birabén (1953), has six spikes: two pairs of marginal ones joined at the base and one additional pair in the middle of the posterior surface.

The presence of carapace spikes has been traditionally regarded as crucial to a positive identification of *Neoxyphinus*. However, while examining nearly 1000 specimens, evidence appeared that the genus also includes spikeless forms and that an additional generic name is relevant to the problem. The monotypic genus *Decuana* was proposed by Dumitrescu and Georgescu (1987) to include *D. hispida* Dumitrescu and Georgescu, 1987, described from males and females from Rancho Grande (Venezuela). This species is devoid of spikes on the carapace posterior, having instead a pair of small, slightly protruding posterior carapace tubercles (figs. 201, 211). However, it was the presence of several projecting denticles on the anterior half of the male abdominal dorsal scutum (fig. 205) that led the authors to propose a new genus. These denticles are more robust in males than in females (Dumitrescu and Georgescu, 1987) and are, as in the case of carapace tubercles, modifications of setae sockets.

In the course of this study, specimens presenting both large carapace spikes and projected abdominal denticles were found (figs. 1–4), providing strong evidence that *Decuana* is a junior synonym of *Neoxyphinus*. The carapace tubercles are clearly homologous in *D. hispida* and in the typical *Neoxyphinus* species, regardless of their size (small, low, as in figs. 5–8; or large, spinelike, as in figs. 9–12). In addition, scanning electronic microscope surveys showed that most forms of *Neoxyphinus*, including its type species, present more or less modified setae sockets on the anterior half of the abdominal dorsal scutum (figs. 91, 157, 188). On the other hand, some of the species documented below do not present either abdominal dorsal denticles or carapace spikes and are assigned to *Neoxyphinus* based mostly on genitalic and male endites characters. Thus, the genus is herein characterized by a unique combination of characters, which include the presence of a set of low tubercles or large spikes on posterior surface of carapace; male endites with an apical, retrolateral excavation bearing a subapical toothlike, curved apophysis; both anterior and posterior pairs of spiracles connected by grooves; palpal bulb strongly inflated; embolus compact, S-shaped, with a basal excavation and a large, round ejaculatory opening; epigynal atrium large, with angular lateral corners. From these characters, at least the embolar morphology provides a set of putative synapomorphies that may support the monophyly of *Neoxyphinus*. In most spiders, the ejaculatory opening is small, reflecting a narrowing of the distal section of the ejaculatory duct. However, in all known male forms of *Neoxyphinus*, such narrowing is absent, resulting in a large ejaculatory opening that presents

the same width of the ejaculatory duct (figs. 147, 151, 290, 294, 327, 330), an obvious derived character that may represent a synapomorphy of the genus. The presence of a conspicuous basal excavation and a retrolateral distal projection (as described by Burger, 2011: fig. 3D, for *N. oglobini*) are additional putative synapomorphies of *Neoxyphinus*.

As a result of the above findings on the identity of *Neoxyphinus*, another junior synonym of the genus must be brought to light. In a recent paper addressing oonopids from Suriname, Makhan and Ezzatpanah (2011) proposed the new genus *Hawkeswoodoonops*. The genus description is so short that it can be reproduced here in full: "Small species, 1.5–2.0 mm long. Male palp with a small projection at the apex and with numerous large setae." Fortunately, the photographs of the two poorly described species in that paper are a little more informative, depicting specimens without developed spikes in the carapace, but indicating that the so called "small projection" is actually a typical embolus of *Neoxyphinus*.

The phylogenetic knowledge of Oonopidae was recently increased by findings supporting the monophyly of the family (Burger and Michalik, 2010; Platnick et al., 2012) and by the recognition of basal groups, such as Orchestinae and Sulsulinae (Platnick et al., 2012). However, the relationships among the higher Oonopinae, an informal group that harbors the bulk of Oonopid genera including those formerly placed in Gamasomorphinae, are still unclear. This scenario prevents accurate statements about the suprageneric assignment of *Neoxyphinus*. However, as pointed out by Platnick and Dupérré (2011), the genitalic morphology suggests a hypothesis of relationship. Those authors recognized a putatively monophyletic group of Neotropical genera, the *Dysderina* complex, which include *Dysderina*, *Neoxyphinus*, *Simoonoonops* Harvey, *Scaphidysderina* Platnick and Dupérré, and *Costarina* Platnick and Dupérré, as well as a number of still undescribed lineages. This complex was characterized by the presence of an inflated male palpal bulb, completely fused to the cymbium, with no traces of a seam, bearing a subdistal embolus. Additionally, the evidence gathered by Platnick and Dupérré (2011) indicated that sternal morphology is critical to addressing the relationships among *Dysderina* and its relatives, pointing to one informative character that could define a monophyletic group composed at least of *Simoonoonops*, *Costarina*, and *Dysderina*: sternum with conspicuous transverse raised ridges (see Chickering, 1968: figs. 3, 33; Platnick and Dupérré, 2011: fig. 3). *Scaphidysderina* presents a crenulated pattern of sternal ridges (see Platnick and Dupérré, 2011: figs. 60, 84, 116) and, interestingly, harbors two species with independently developed carapace posterior spikes (see Platnick and Dupérré, 2011: figs. 66, 67, 230, 231). Species of *Neoxyphinus* exhibit several modifications of the surface of the sternum, such as conspicuous setae-bearing tubercles, radial depressions and even integument ornamentations, but none present raised ridges. The absence of such ridges is a putative symplesiomorphy shared by a number of new genera that are presently being described by the PBI team. As far as we know, *Neoxyphinus* could be further distinguished from those undescribed lineages by the leg armature. In most *Dysderina*-like groups, the femora of the first legs of both sexes are heavily armed with strong spines. By contrast, in *Neoxyphinus*, femora I spines are known to occur only in females of two species, while all known males of the genus are devoid of such spines (figs. 32, 109, 212). It is not clear at this point whether this condition represents a loss, and therefore an additional

putative synapomorphy for the genus, or merely a symplesiomorphic absence shared by several unrelated groups of armored oonopids. The relationships of *Neoxyphinus* with other representatives of the *Dysderina* complex will be better understood only after all lineages involved are properly described.

In this paper, the genus *Neoxyphinus* is revised and diagnosed based mostly on genitalic morphology. *Neoxyphinus* is considered the senior synonym of both *Decuana* and *Hawkeswoodoonops*, comprising 10 species, five of them newly described. The two species described by Makhan and Ezzatpanah (2011) are transferred to *Neoxyphinus* but not treated further. The original descriptions are uninformative to the point that no secure identification is possible without direct comparison with the types. Furthermore, the authors declined to make the relevant material available, vaguely suggesting that borrowing duplicates would be possible when eventually collected (D. Makhan, in litt.). This statement strongly suggests that those types will never be available and, since it would not be advisable to trust Makhan's identification of duplicates, we consider both specific names to be nomina dubia.

Besides *N. termitophilus*, two additional species are newly transferred from *Dysderina* to *Neoxyphinus*, *D. keyserlingi* Simon, 1907 (here considered the senior synonym of *D. rugosa* Bristowe, 1938) and *Dysderina furtiva* Chickering, 1968. The male of Chickering's species is described for the first time. This species was described from females collected in Central America and Caribbean localities, marking the northernmost records of the genus, but several females and a few males are recorded here from Brazilian Amazonia. Thus, *N. furtivus* proved to be one of the most widely distributed species of the genus. Another species with a wide distribution range is *N. termitophilus*, which carries the southernmost records of the genus, from northern Argentina to northeastern Brazil. Five other species, including *N. keyserlingi*, are known to have relatively wide distribution ranges and only three are known solely from their type localities. These findings indicate that most of the species described in this paper do not present the microdistribution patterns that are apparently common to several members of the family (Platnick and Dupérré, 2009c). In this case, even the distribution of the three species known from single localities could be better explained by the lack of samplings across large areas in South America.

## METHODS

Specimens were examined using Zeiss Stemi SV 11 and LEICA MZ16 stereomicroscopes at Museu Paraense Emílio Goeldi, Belém (MPEG) and LEICA MZ12 at Instituto Butantan (IBSP). Compound photographic images of body parts were produced using a Leica MZ16A motorized stereomicroscope with a DFC500 camera at Instituto Butantan, São Paulo (IBSP), or a Leica M205A stereomicroscope with a DFC420 camera at MPEG. The images were assembled using the Leica application suite software package. Female genitalia were prepared following the digesting protocol by Álvarez-Padilla and Hormiga (2007). Detached male palps and female genitalia were observed in temporary slide mounts (Grandjean, 1949; Coddington, 1983), with a compound microscope Zeiss Axiostar Plus at MPEG. Specimen parts were prepared for

scanning electron microscopy (SEM) by cleaning in an ultrasonic digital washer SoniClean 2P for few seconds, dehydrated through stages of 80% to 100% ethanol, and air-dried beneath a warm light. SEM images were taken with a LEO 1450VP scanning electronic microscope at MPEG. Descriptions were generated through the goblin spider PBI descriptive database and shortened where possible. Maps were generated with ArcMap version 9.2 from ArcGis 9. All measurements are in millimeters and were made upon photographs taken at MPEG with a DFC420 camera in a Leica MZ16 stereomicroscope, using the Leica IM50 software. Spination was described by dividing each leg segment into dorsal, prolateral, ventral and retrolateral surfaces, indicating the number of spines in the proximal, middle, and distal one-third of each segment. Only surfaces bearing spines were reported. Total body-length variation was determined from up to 10 specimens of both sexes whenever possible. To facilitate the identification routine, the sequence of the species in the text follows the order they appear in the key.

### COLLECTIONS EXAMINED

|      |                                                                                                   |
|------|---------------------------------------------------------------------------------------------------|
| AMNH | American Museum of Natural History, New York (N.I. Platnick)                                      |
| FMNH | Field Museum of Natural History, Chicago (P. Sierwald)                                            |
| IBSP | Instituto Butantan, São Paulo (D. Battesti)                                                       |
| ICN  | Instituto de Ciencias Naturales, Universidad Nacional, Bogotá (E. Florez)                         |
| INPA | Instituto Nacional de Pesquisas da Amazônia, Manaus (C. Magalhães)                                |
| MACN | Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires (C.L. Scioscia)        |
| MCN  | Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (E.H. Buckup) |
| MCTP | Museu de Ciência e Tecnologia da PUCRS, Porto Alegre (A.A. Lise)                                  |
| MCZ  | Museum of Comparative Zoology, Harvard University (L. Leibensperger; G. Giribet)                  |
| MLP  | Museo de La Plata, La Plata (L.A. Pereira)                                                        |
| MNRJ | Museu Nacional do Rio de Janeiro, Rio de Janeiro (A.B. Kury)                                      |
| MPEG | Museu Paraense Emílio Goeldi, Belém (A.B. Bonaldo)                                                |
| MUSM | Museo de Historia Natural, Universidade Nacional de San Marcos, Lima (D. Silva)                   |
| MZSP | Museu de Zoologia, Universidade de São Paulo, São Paulo (R. Pinto da Rocha)                       |
| SMNK | Staatliches Museum für Naturkunde Karlsruhe, Karlsruhe (H. Höfer)                                 |

### SYSTEMATICS

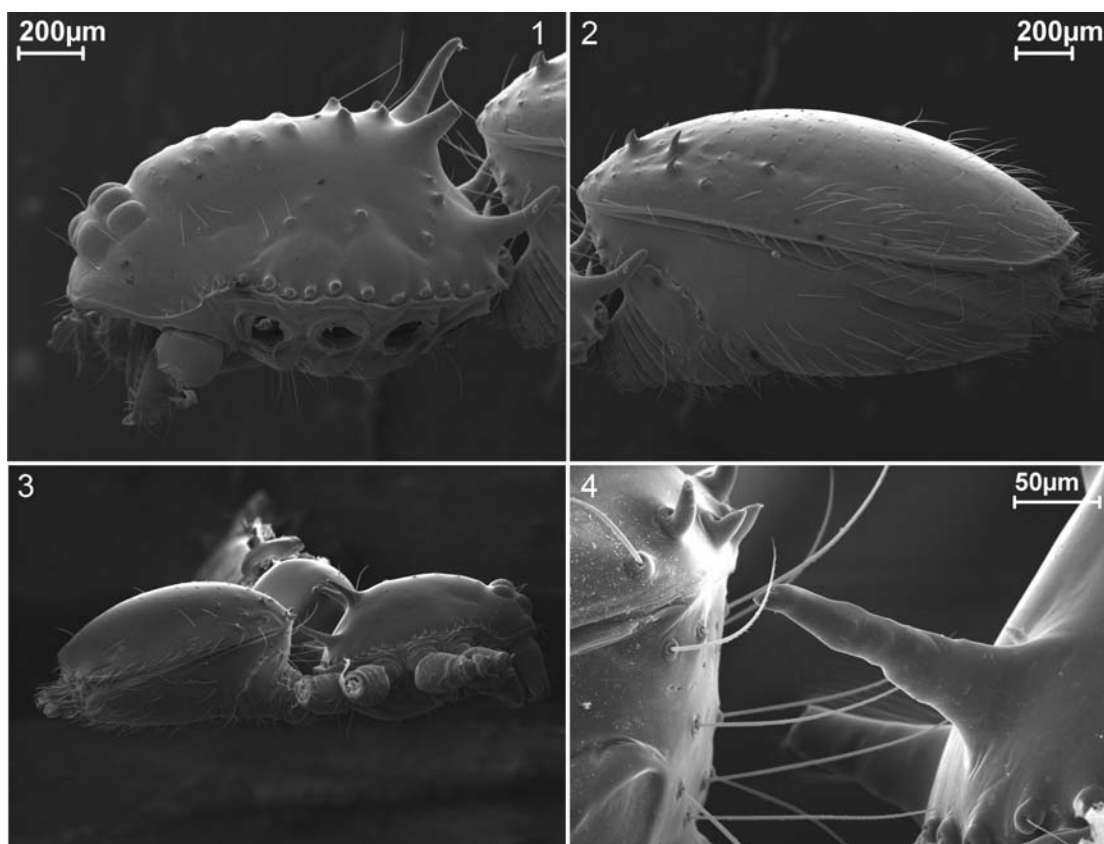
#### *Neoxyphinus* Birabén

*Neoxyphinus* Birabén, 1953: 454 (type species by original designation, *Neoxyphinus ogloblini* Birabén, 1953).

*Decuana* Dumitrescu and Georgescu, 1987: 92 (type species by original designation, *Decuana hispida* Dumitrescu and Georgescu, 1987). NEW SYNONYMY.

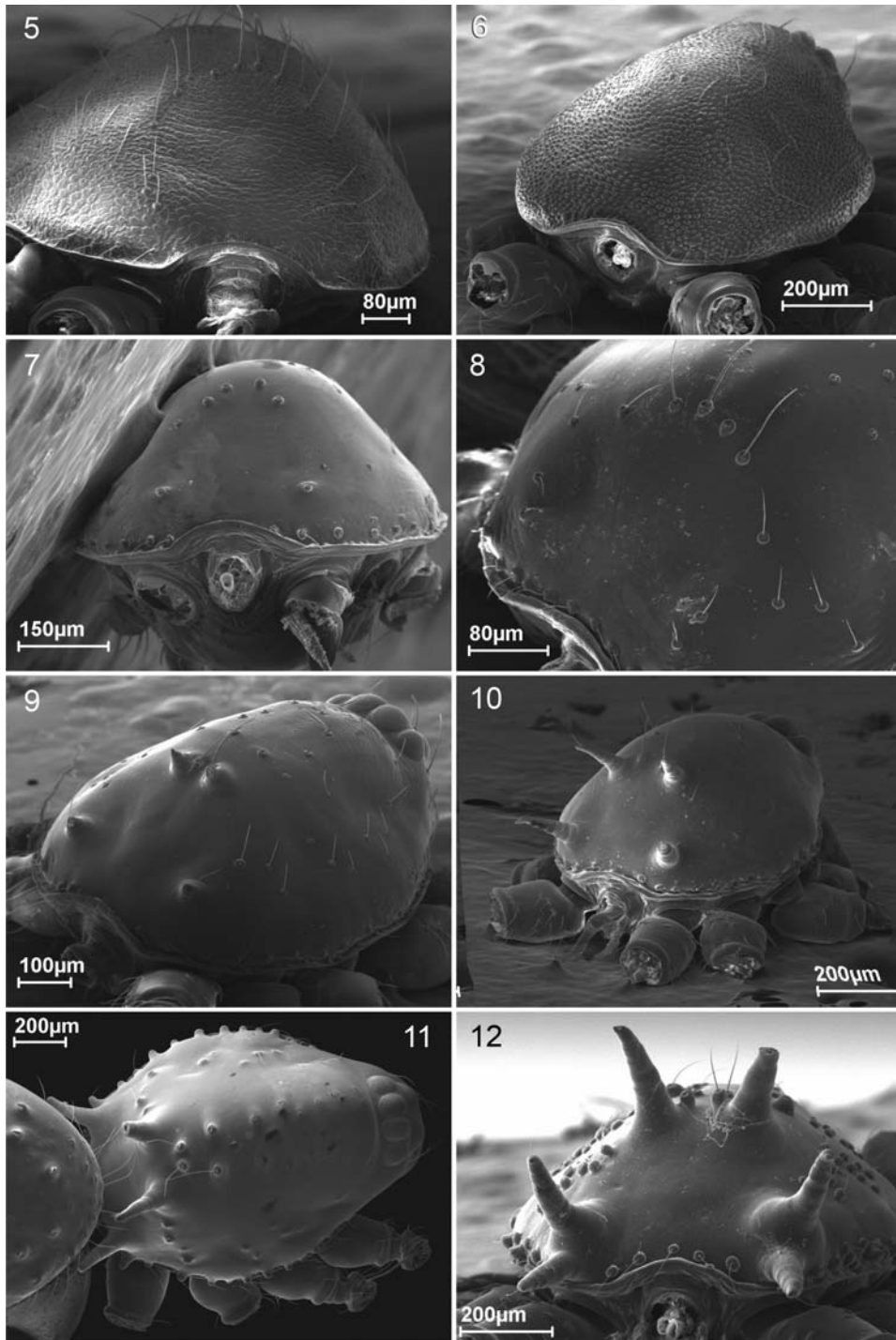
*Hawkeswoodoonops* Makhan and Ezzatpanah, 2011: 1 (type species by original designation, *Hawkeswoodoonops trevori* Makhan and Ezzatpanah, 2011). NEW SYNONYMY.

**DIAGNOSIS:** Species of *Neoxyphinus* differ from other members of the *Dysderina* complex, with which they share the palpal bulb strongly inflated, completely fused to cymbium (figs. 37–40), by the absence of femur I spines in males (figs. 32, 109, 199) and the presence of at most two such spines in females (fig. 212); embolus a compact, S-shaped subapical sclerite, with an excavated base and an apical projection (figs. 41–48); ejaculatory opening large, round, located prolaterally (figs. 49, 147, 256, 290) or apically (fig. 327). They further differ from those of *Scaphidysderina* by the absence of a crenulated sternum and from those of *Dysderina*, *Simonoonops*, and *Costarina* by the absence of sternal transversal raised ridges (figs. 124, 155, 237, 263, 334). Along with the above characters, *Neoxyphinus* can be recognized by the presence of a procurved set of setae on carapace posterior surface, which originate from small, low tubercles (figs. 5–8) or from large spikes (figs. 9–12); male endites with an apical, retrolateral excavation bearing a subapical toothlike, curved apophysis, accompanied by a single modified setae and a slit sensillum (figs. 25–30); epigynal atrium large, ellipsoid, strongly rebordered, with angular lateral margins (figs. 50, 102, 133, 274).



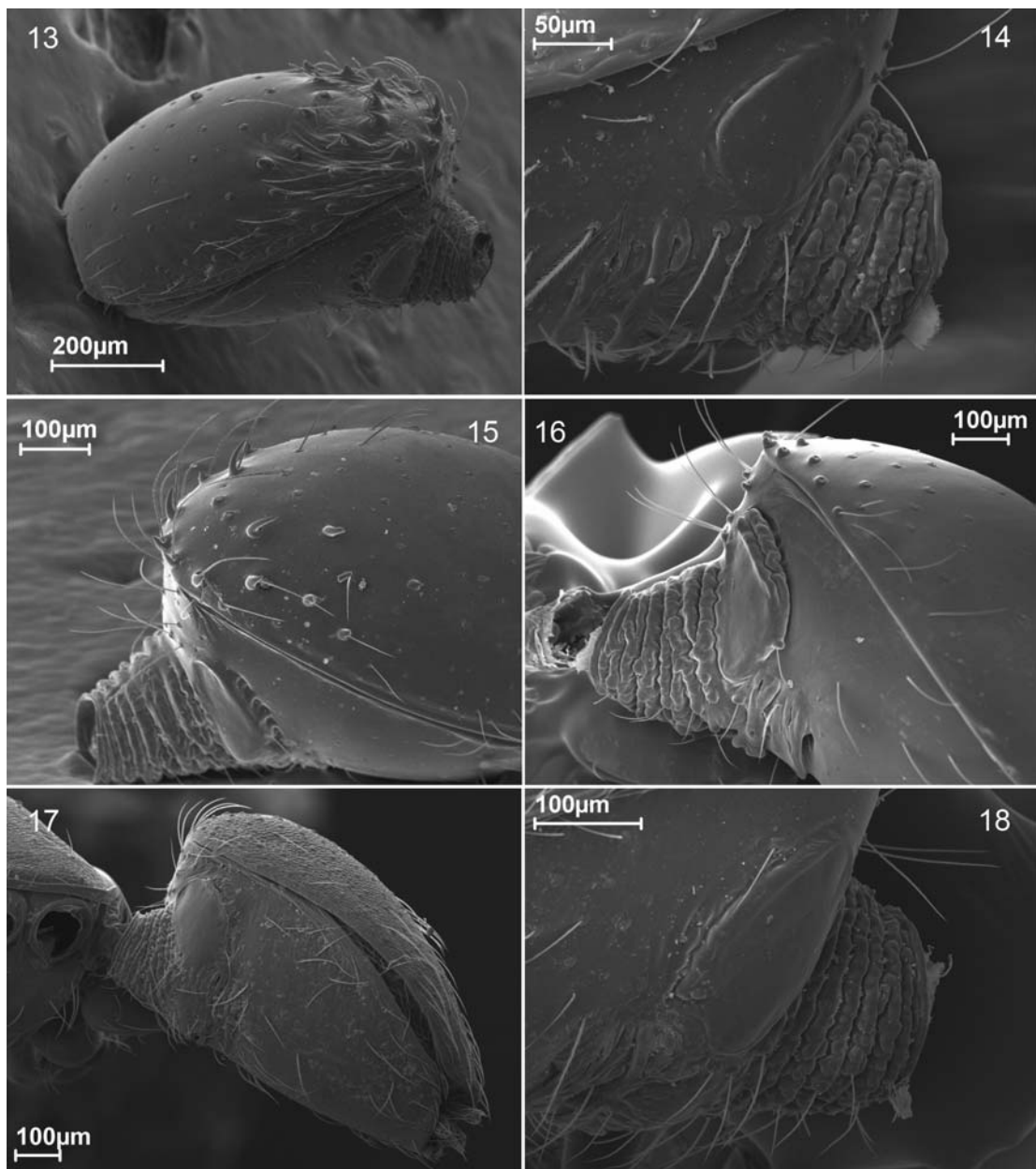
Figs. 1–4. *Neoxyphinus* and *Dysderina*, males. 1, 2. *Neoxyphinus gregoblin*, new species; carapace spikes and abdominal denticles, lateral view. 3, 4. *N. petroglobin*, new species; same.

**DESCRIPTION:** Total length 1.49–3.33. **Cephalothorax:** Carapace without any color pattern, ovoid in dorsal view (figs. 11, 333), pars cephalica slightly elevated in lateral view (figs. 1, 3, 169), narrowed anteriorly between 0.5 and 0.75 times its maximum width, with rounded posterolateral corners (figs. 105, 136, 261), posterolateral edge without pits, posterior margin not bulging below posterior rim, anterolateral corners without extension or projections, posterolateral surface without spikes (*N. hispidus*, *N. furtivus*, *N. boibumba*, *N. barreirosi*, *N. keyserlingi*, figs. 5–8, 222, 246, 318); with two pairs of spikes (*N. termitophilus*, *N. petrogoblin*, *N. gregoblin*, figs. 9–11, 130, 140, 193) or three pairs of spikes (*N. xyphinoidea*, *N. axe*, figs. 12, 56, 69, 70, 87), surface and sides of elevated portion of pars cephalica smooth (*N. axe*, *N. gregoblin*, *N. petrogoblin*, *N. hispidus*, *N. boibumba*, *N. barreirosi*, figs. 94, 120, 185, 198, 219, 236, 261), reticulate (*N. furtivus*, fig. 297) or granulate (*N. termitophilus*, *N. keyserlingi*, figs. 153, 333), carapace without depressions, fovea absent, without radiating rows of pits; lateral margin straight, rebordered, generally with a line of blunt tubercles (figs. 87, 120, 184, 262), except in *N. furtivus* and *N. keyserlingi* (figs. 297, 332); plumose setae near posterior margin of pars thoracica absent; marginal and nonmarginal setae light colored, needlelike, scattered, in both pars cephalica and pars thoracica regions. Clypeus margin unmodified (figs. 221, 262, 317) or rebordered (fig. 122); high, straight (fig. 96) or sinuous (fig. 122) in frontal view, vertical in lateral view (fig. 95), setae present, light colored, needlelike; ALE separated from edge of carapace by their radius or more, median projection absent. Chilum absent. Six eyes, well developed, ALE largest, circular, PME squared, PLE circular, posterior eye row straight from above, procurved from front; ALE separated by less than their radius (except by their radius to diameter in *N. keyserlingi*), ALE-PLE juxtaposed, PME touching throughout most of their length, PLE-PME juxtaposed. Sternum uniformly colored, generally as long as wide, longer than wide in *N. xyphinoidea*, *N. petrogoblin*, *N. gregoblin*, and *N. axe*; fused to carapace, median concavity generally absent (present only in *N. xyphinoidea*, fig. 57), with radial furrows between coxae I–II, II–III, III–IV; surface generally smooth (medially wrinkled in *N. keyserlingi*, fig. 334; with median row of large shallow pits in *N. gregoblin*, fig. 124; with a median field of small pits in *N. barreirosi*, fig. 263, and *N. furtivus*, fig. 301), sickle-shaped structures absent, anterior margin with continuous transverse groove or unmodified, posterior margin not extending posteriorly of coxae IV, anterior corners unmodified, lateral margin without infracoxal grooves, distance between coxae approximately equal, precoxal triangles present, lateral margins unmodified, without posterior hump; almost glabrous, setae sparse, light colored, needlelike, evenly scattered or marginal, originating from small tubercles, without hair tufts. Chelicerae slightly divergent, anterior face unmodified; with one tooth on both promargin and retromargin, distal region unmodified, posterior surface unmodified, promargin with row of flattened setae, paturon inner margin with a field of medial denticles (figs. 20–22, 123), laminate groove absent, setae light colored, needlelike, evenly scattered, also with some plumose setae; fang without toothlike projections, directed medially, shape normal, without prominent basal process, tip unmodified (figs. 19, 23, 24). Labium rectangular, not fused to sternum, anterior margin not indented at middle, same as sternum in sclerotization; with six or more setae on anterior

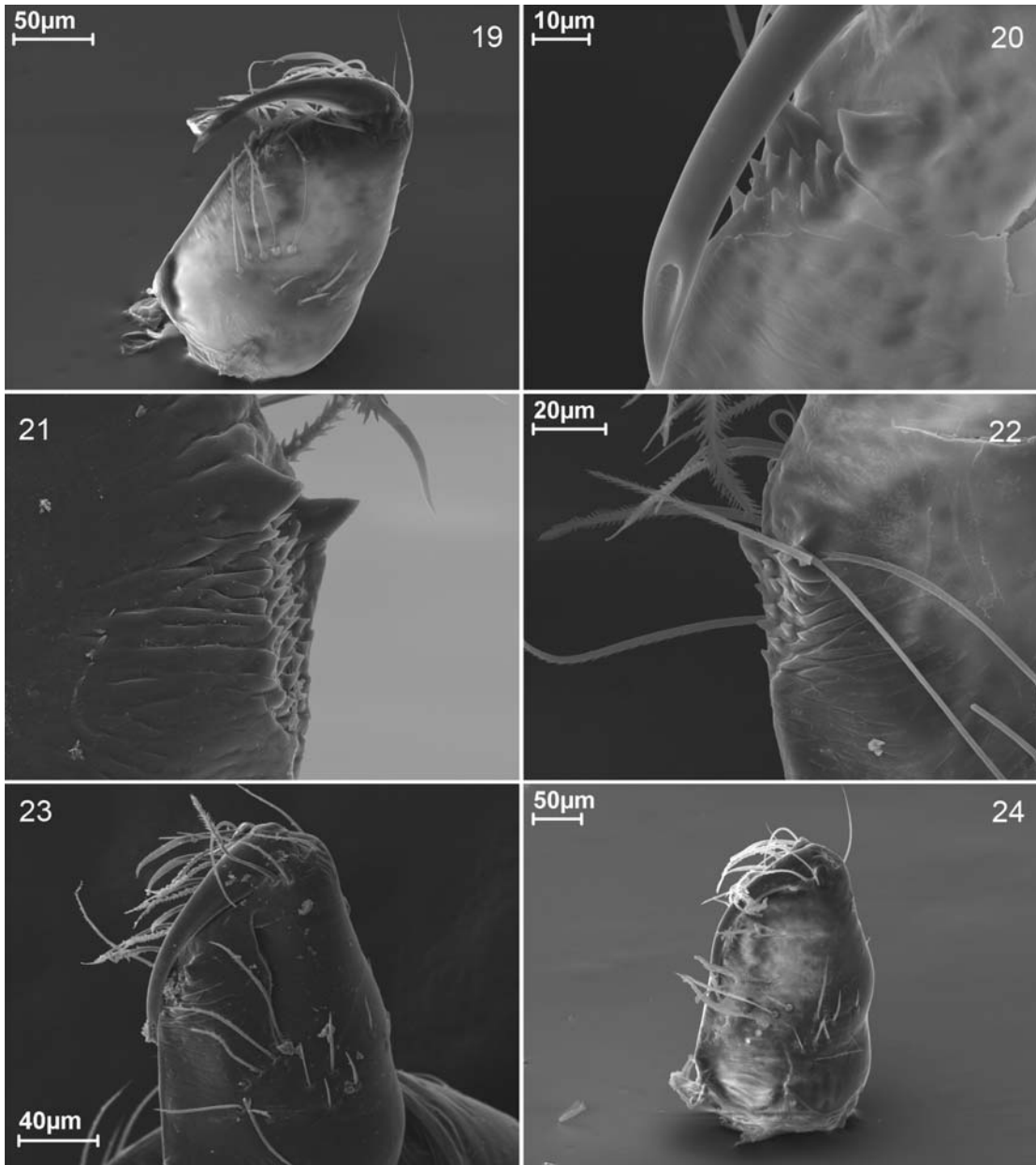


Figs. 5–12. Carapace, posterior view, males. 5. *Neoxyphinus furtivus* (Chickering). 6. *N. keyserlingi* (Simon). 7. *N. boibumba*, new species. 8. *N. barreirosi*, new species. 9. *N. termitophilus* (Bristowe). 10. *N. petrogoblin*, new species. 11. *N. gregoblin*, new species. 12. *N. axe*, new species.

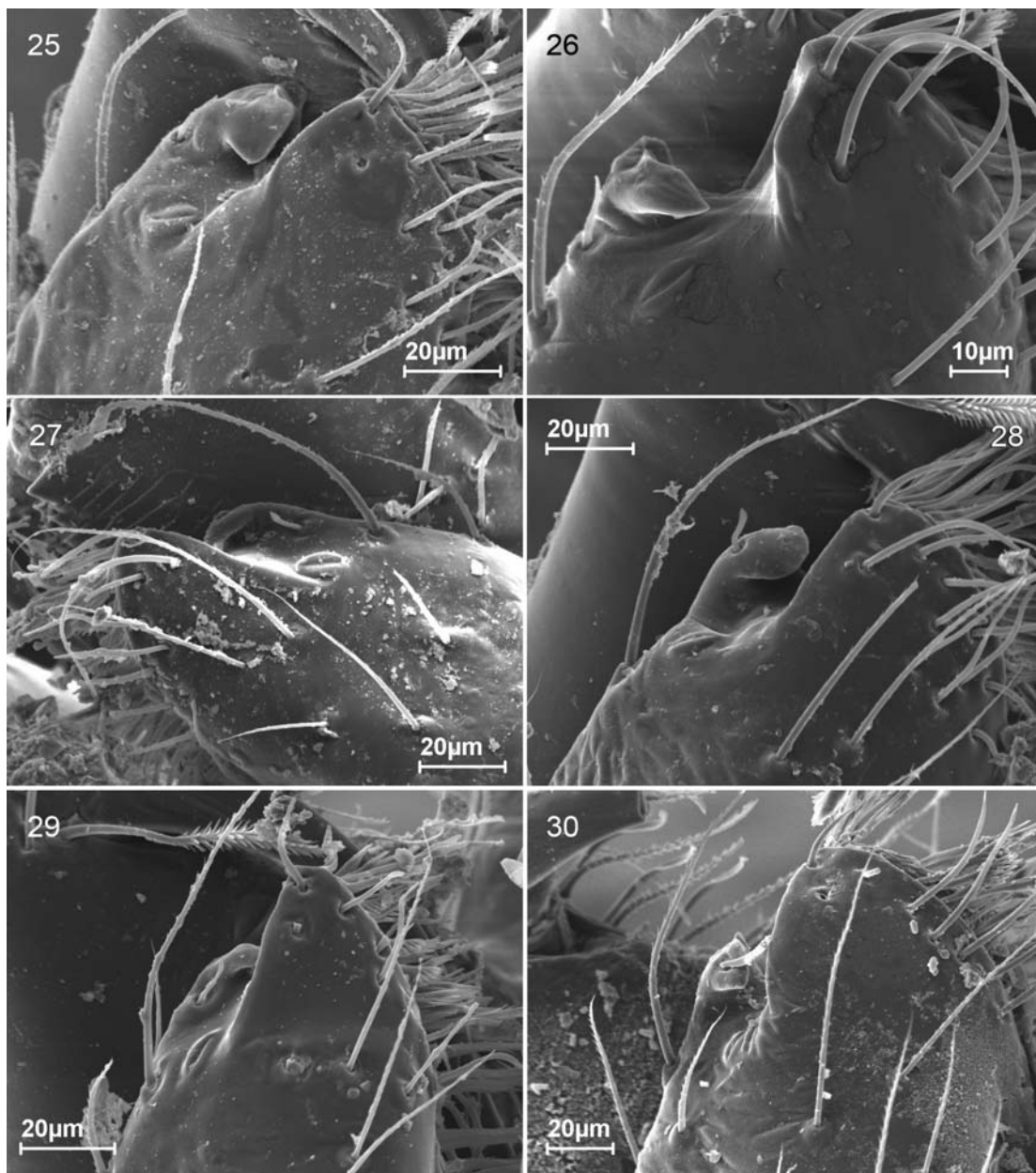
margin, subdistal portion with unmodified setae (figs. 31, 89). Labrum triangular (fig. 122). Endites distally excavated in males (figs. 25–30), with single-slit sensilla on the base of distal excavation and a retrolateral subapical toothlike, curved apophysis; a single modified setae generally inserted in the base of apophysis (but in the body of apophysis in *N. axe* and *N. keyserlingi*, figs. 28, 30), serrula absent, anteromedian tip and posteromedian part unmodified, same as sternum in sclerotization. **Abdomen:** Ovoid, without long posterior extension, rounded posteriorly (figs. 74, 141, 202, 284, 309, 320), interscutal membrane without sclerotized platelets; dorsum soft portions pale orange, without color pattern. Book lung covers large, ovoid or elliptical, without setae, anterolateral edge unmodified or with small tubercles. Both anterior and posterior pairs of spiracles connected by grooves (figs. 93, 112, 127). Internally, anterior spiracles leading to reduced booklungs; posterior spiracles leading to large tracheal trunks directed anteriorly toward pedicel; base of tracheal trunk with short extension directed posteriorly, branching to many long tracheoles (figs. 51–54, 216). Pedicel tube medium sized (nearly as long as high), ribbed (figs. 13–18), scuto-pedicel region unmodified, scutum extending far dorsal of pedicel, plumose hairs absent, matted setae on anterior ventral abdomen in pedicel area absent, cuticular outgrowths near pedicel absent. Dorsal scutum strongly sclerotized, without color pattern, covering full length of abdomen, no soft tissue visible from above, not fused to epigastric scutum, middle surface and sides smooth (but reticulate in *N. furtivus*, figs. 298, 299); anterior half projecting denticles present in males of *N. gregoblin*, *N. termitophilus*, *N. petrogoblin*, *N. hispidus*, and *N. boibumba* (figs. 126, 157, 187, 203, 240); strong projecting denticles absent in females. In *N. axe*, anterior setae sockets blunt (fig. 91). Epigastric scutum strongly sclerotized, surrounding pedicel, not protruding, small lateral sclerites absent, often with blunt setae sockets in anterior surface (figs. 92, 157, 241). Postepigastric scutum strongly sclerotized, orange-brown, long, semicircular, covering nearly full length of abdomen, fused to epigastric scutum, anterior margin unmodified, with posteriorly directed lateral apodemes. Spinneret and supraanal scuta absent. Dorsal, epigastric, and postepigastric setae present, light colored, needlelike. Dense patch of setae anterior to spinnerets absent. Interscutal membrane with setae. Spinneret: ALS with three or four spigots, PMS with three spigots, PLS with at least six spigots (only male of *N. termitophilus* surveyed, fig. 36). **Legs:** Without color pattern; femur IV not thickened, same size as femora I–III, patella plus tibia I shorter than carapace (or nearly as long as carapace in *N. xyphinoides*), tibia I unmodified, tibia IV specialized hairs on ventral apex absent, tibia IV ventral scopula absent, metatarsi I and II mesoapical comb absent, metatarsi III and IV ventral scopula absent. Leg spines present on tibia and metatarsus, also on femur I in females of *N. furtivus* and *N. hispidus* (one and two prolateral spines, respectively, fig. 212). Legs I and II with spines longer than leg segment width (fig. 32); leg III with spines shorter and thinner than those of legs I and II, present only in females of *N. petrogoblin*, *N. axe*, and *N. furtivus*; leg IV without spines. All metatarsi with one apical trichobothrium, hood covered by numerous low, closely spaced ridges (fig. 33, only *N. boibumba* surveyed). Tarsal organ a rounded, rebordered subapical depression, with four visible sensilla: Two large, well separated, posteriorly positioned and two small contiguous, anteriorly positioned (fig. 34, only



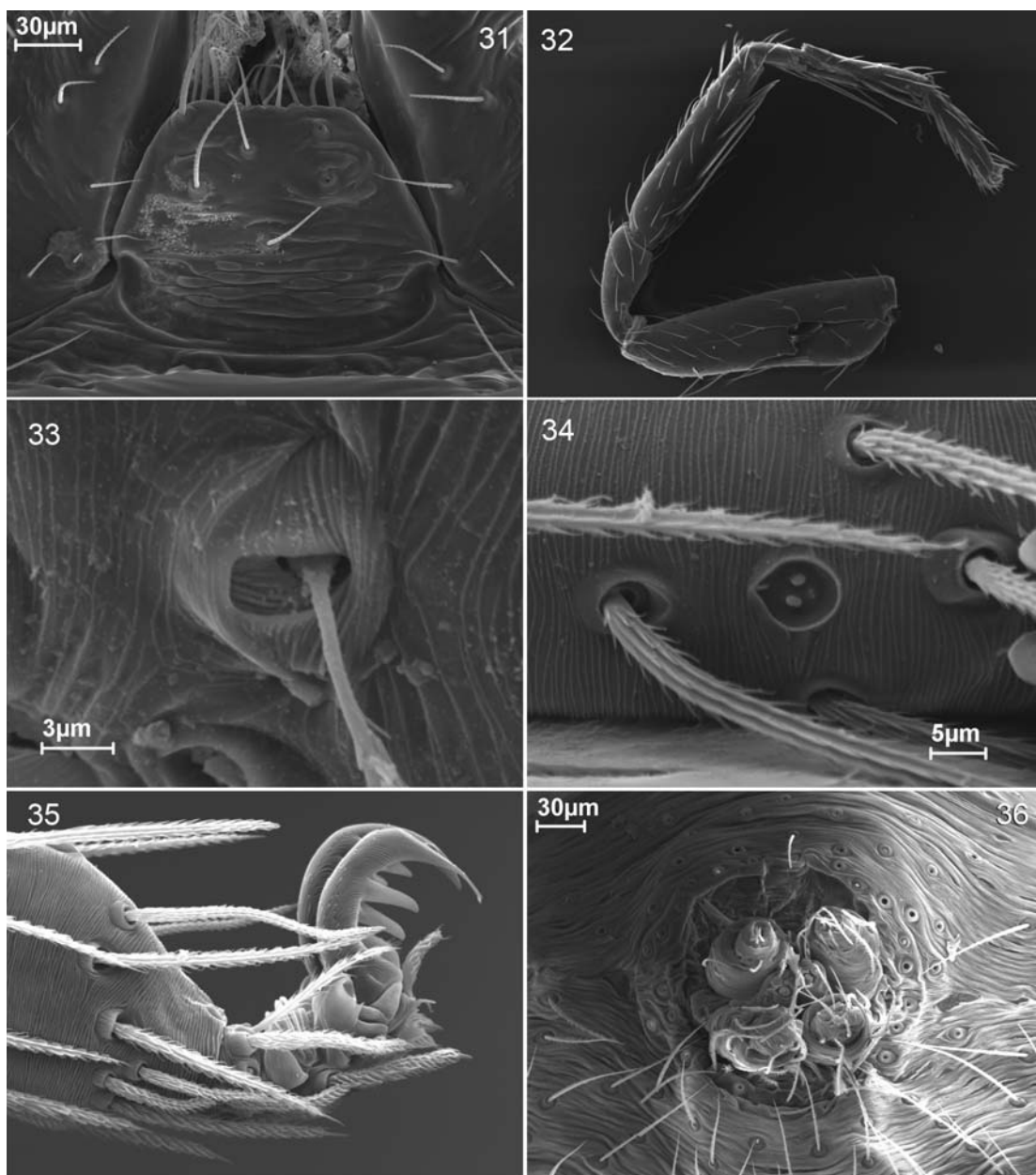
Figs. 13–18. Abdomen and pedicel, lateral view, males. 13. *Neoxyphinus boibumba*, new species. 14. *N. barreirosi*, new species. 15. *N. petrogoblin*, new species. 16. *N. axe*, new species. 17. *N. furtivus* (Chickering). 18. *N. keyserlingi* (Simon).



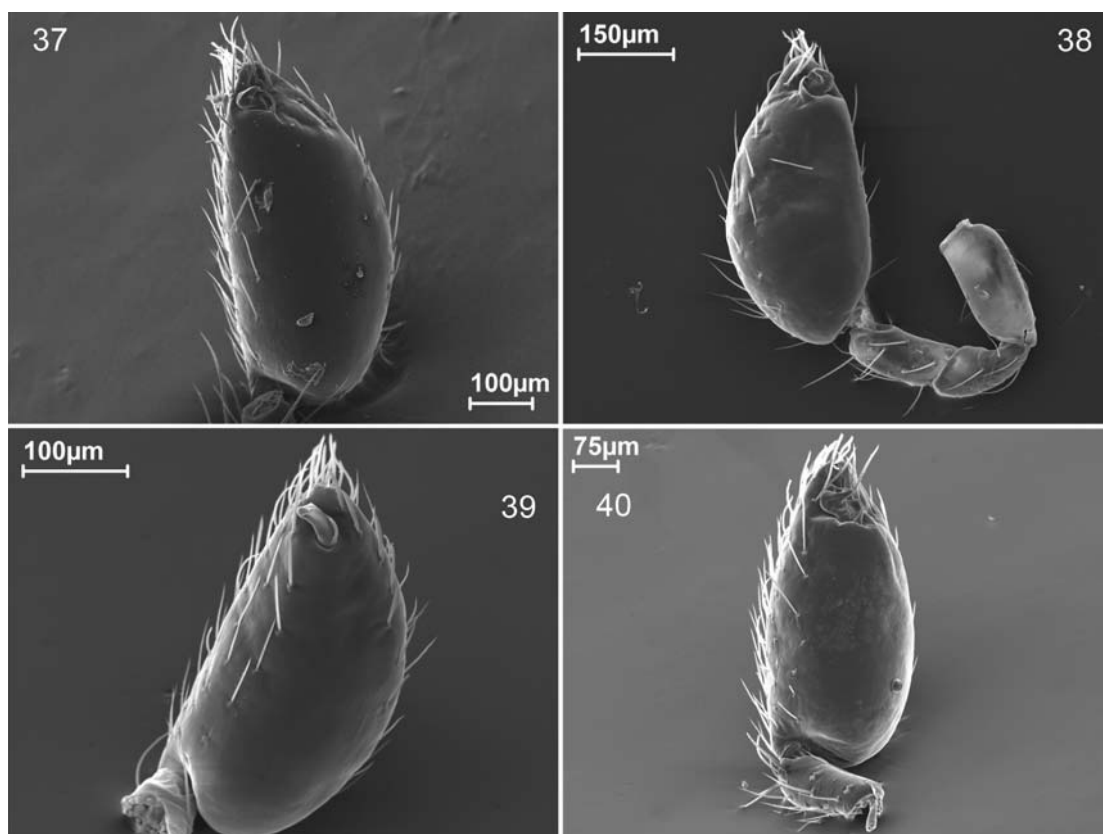
Figs. 19–24. Chelicerae, posterior view. **19, 20.** *Neoxyphinus petrogoblin*, new species. **21.** *N. gregoblin*, new species. **22.** *N. boibumba*, new species. **23.** *N. furtivus* (Chickering). **24.** *N. keyserlingi* (Simon).



Figs. 25–30. Male endites, ventral view. 25. *Neoxyphinus termitophilus* (Bristowe). 26. *N. boibumba*, new species. 27. *N. barreirosi*, new species. 28. *N. axe*, new species. 29. *N. furtivus* (Chickering). 30. *Neoxyphinus keyserlingi* (Simon).

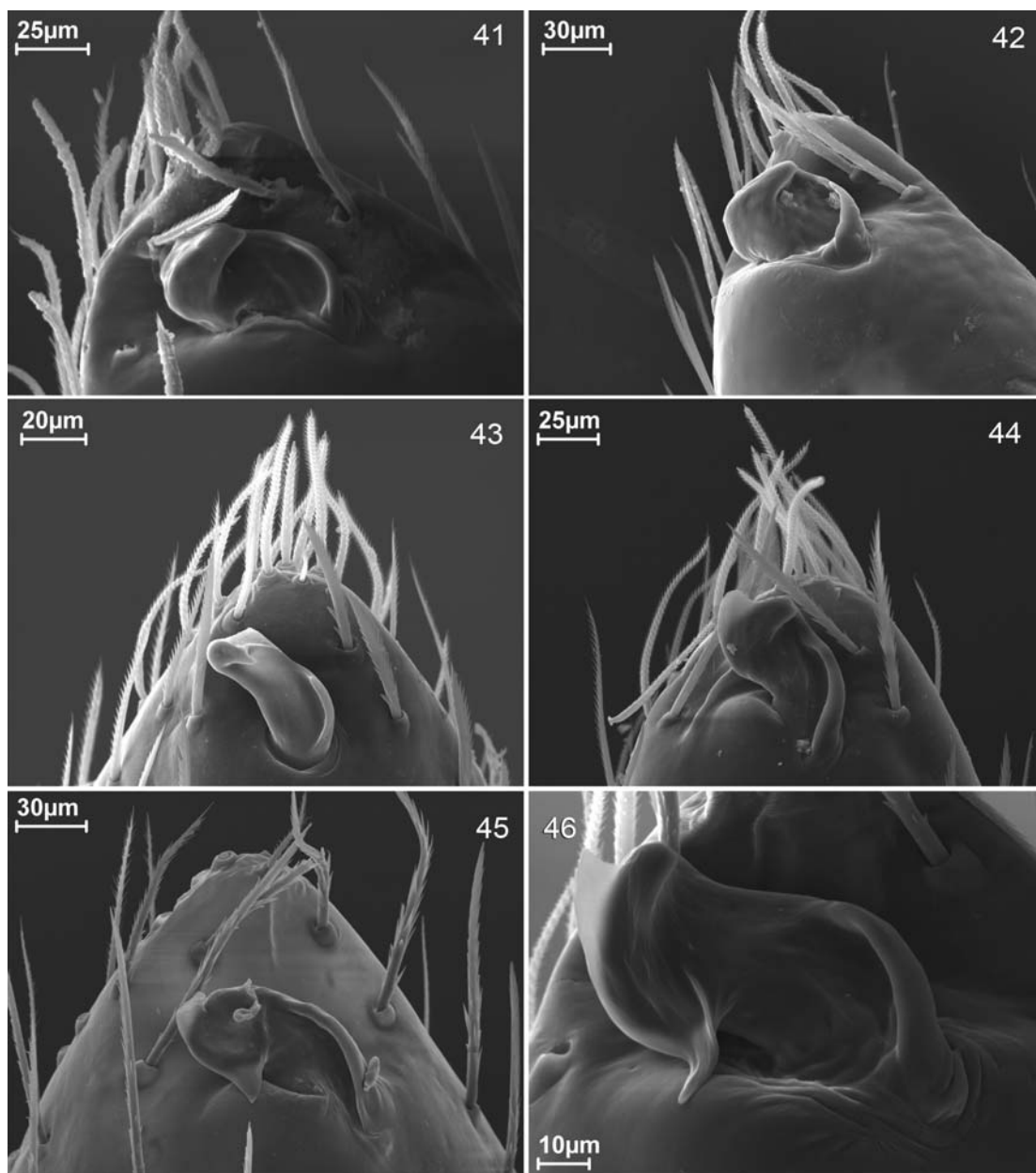


Figs. 31–36. **31, 32, 36:** *Neoxyphinus termitophilus* (Bristowe); **33, 34:** *N. boibumba*, new species; **35:** *Neoxyphinus axe*, new species. **31.** Labium, ventral view. **32.** Leg I, prolateral view. **33.** Metatarsus I, apical trichobothrium, dorsal view. **34.** Tarsus I, tarsal organ, dorsal view. **35.** Tarsus II, claw, lateral view. **36.** Spinnerets, posterior view.

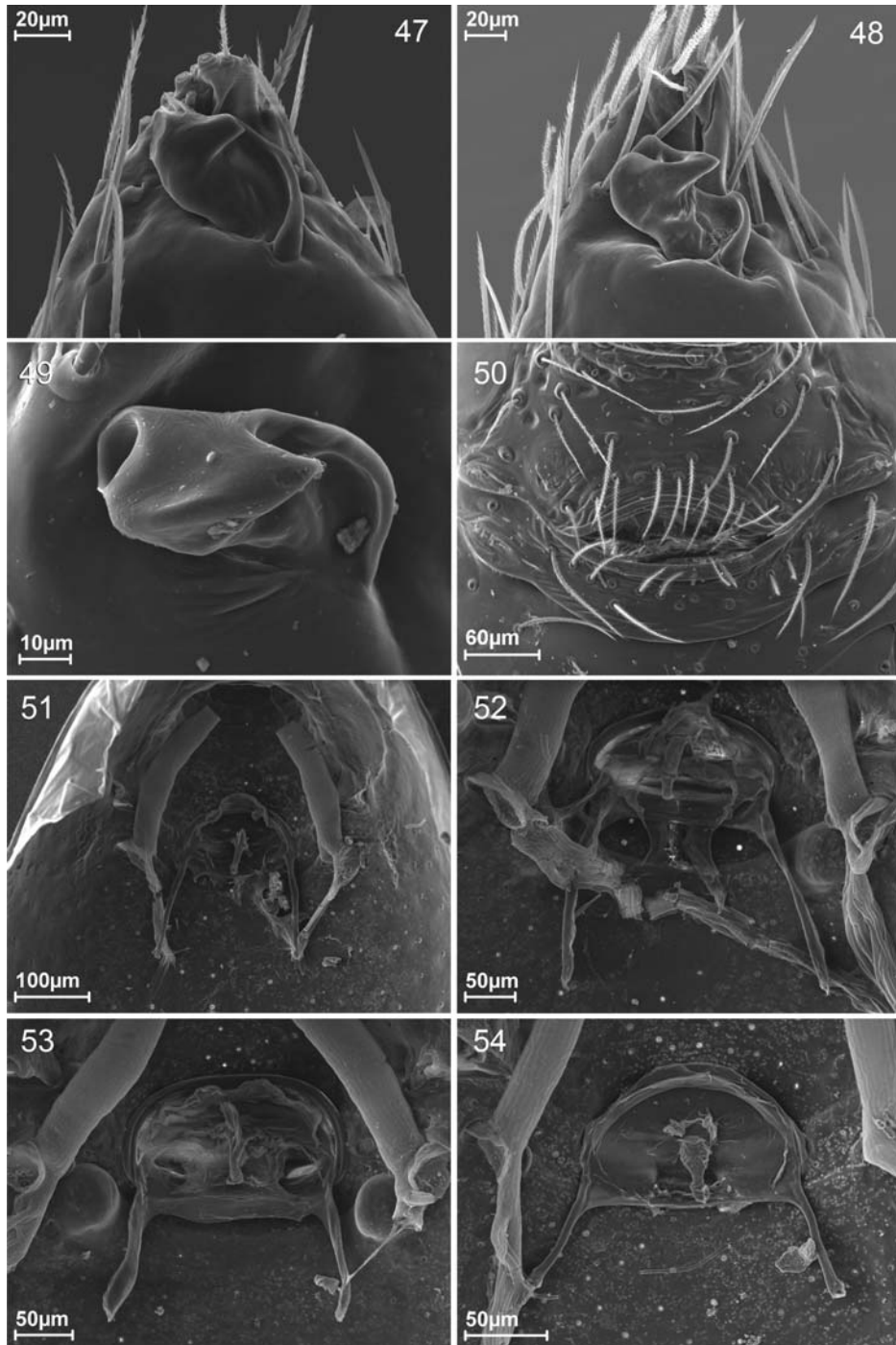


Figs. 37–40. Male palpus. 37. *Neoxyphinus termitophilus* (Bristowe), left palp, ventral view. 38. *N. boibumba*, new species, right palp, ventral view. 39. *N. barreirosi*, new species, left palp, ventral view. 40. *N. keyserlingi* (Simon), same, ventral view.

*N. boibumba* surveyed). **Genitalia:** Male epigastric region with sperm pore small, oval, unmodified, situated between anterior and posterior spiracles (*N. termitophilus*, *N. boibumba*, *N. furtivus*, *N. gregoblin*) or at level of anterior spiracles; furrow without  $\Omega$ -shaped insertions, without setae. Palp not strongly sclerotized, right and left palps symmetrical (fig. 242); trochanter normal size, unmodified; femur twice as long or longer than trochanter, without posteriorly rounded lateral dilation, attaching to patella basally; patella shorter than femur, not enlarged, without prolateral row of ridges, setae unmodified; cymbium ovoid in dorsal view, completely fused with bulb, no seam visible, extending beyond distal tip of bulb, plumose and stout setae absent, with distal patch of setae (figs. 37–40); embolus dark, compact, with a ventral excavation and apical projection (figs. 41–48), accessory prolateral lamellae well developed in *N. petrogoblin*, *N. gregoblin*, *N. axe* (figs. 44–46) and *N. xyphinoides* (fig. 63), less developed in *N. termitophilus* and *N. furtivus* (figs. 41, 47), absent in *N. keyserlingi*, *N. boibumba*, *N. barreirosi* (figs. 42, 43, 48), and *N. hispidus*. Male ejaculatory opening large, round, generally located



Figs. 41–46. Left embolus, ventral view. 41. *Noxyphinus termitophilus* (Bristowe). 42. *N. boibumba*, new species. 43. *N. barreirosi*, new species. 44. *N. petrogoblin*, new species. 45. *N. gregoblin*, new species. 46. *N. axe*, new species.



Figs. 47–54. 47. *Neoxyphinus furtivus* (Chickering), left embolus, ventral view. 48. *N. keyserlingi* (Simon), same. 49–51. *Neoxyphinus termitophilus* (Bristowe). 49. Left embolus, apical view. 50. Female epigynum, ventral view. 51. Internal female genitalia, dorsal view. 52. *N. axe*, new species, same. 53. *N. petrogoblin*, new species, same. 54. *N. barreirosi*, new species, same.

prolaterally (figs. 49, 256), but located apically in *N. keyserlingi* (fig. 327). Sperm duct wide (figs. 84, 118, 182, 294). Female genitalia with a large elliptical atrium with angled laterals. Atrial margins strongly rebordered (fig. 50). Internally with a median elongated element (anterior sclerite, in Burger, 2011) and long lateral apodemes (figs. 51–54, 102, 133, 166, 197, 274, 312, 344). According to Burger (2011; *N. termitophilus* sub *N. ogloblini*), genital opening slitlike, placed anteriorly to posterior border of atrium; atrium covered by a thin sclerotized plate; anterior sclerite emerging internally from the plate, through thick chitin layer, serving as attachment surface for muscles but with lumen connected to uterus externus; uterus externus leading, through long insertion duct, to large, single receptaculum (fig. 216; see Burger, 2011: 125, figs. 1A, B, 3A, B, 4A, B, for complete description).

**NATURAL HISTORY:** Specimens of *Neoxyphinus* are found in forest litter and are collected mostly with pitfall traps, Berlese funnels and Winkler extractors. Some specimens of *N. gregoblin* were collected with carrion traps (baited pitfall traps). Bristowe (1938), dealing with termitophilous spiders, reported that the type series of *Neoxyphinus termitophilus* was collected in nest galleries of *Nasutitermes arenarius* (Hagen and Bates), while the holotype of *Dysderina rugosa* (here synonymized with *N. keyserlingi* Simon) was found in nest galleries of *Neocapritermes opacus* (Hagen). Additionally, one female (PBI\_OON 11979) of *N. axe*, n. sp., was labeled as having been collected in a nest of *Nasutitermes* sp., at Ilhéus, Bahia, Brazil. However, several specimens of these three species are here recorded from the leaf litter, suggesting that these spiders are capable of occupying termite nests but are not restricted to that microhabitat.

**DISTRIBUTION:** Caribbean and South America, from Jamaica, Trinidad, and Venezuela to northwestern Argentina and southern Brazil (map 1).

**UNRECOGNIZABLE SPECIES:** *Neoxyphinus trevori* (Makhan and Ezzatpanah, 2011), new combination, and *Neoxyphinus rishwani* (Makhan and Ezzatpanah, 2011), new combination, are here considered nomina dubia.

#### KEY TO SPECIES

1. Carapace with well-developed posterior spikes (figs. 1, 3, 9–12) ..... 2
  - Carapace without spikes (figs. 5–8) ..... 6
2. Carapace with six spikes (figs. 12, 56, 67) ..... 3
  - Carapace with four spikes (figs. 9–11, 130, 140, 171) ..... 4
3. Carapace smooth, spikes short (figs. 55, 56) ..... *xyphinoides*
  - Carapace with blunt dorsal tubercles, spikes long (figs. 69, 70) ..... *axe*
4. Carapace with large dorsal blunt tubercles (figs. 105, 120, 129) ..... *gregoblin*
  - Carapace without such tubercles (figs. 136, 168) ..... 5
5. Carapace spikes short, similar sized (figs. 135, 161) or anterior pair larger than posterior one (fig. 164) ..... *termitophilus*
  - Carapace spikes long, similar sized (figs. 169, 192) ..... *petrogoblin*



Map 1. Records of 10 *Neoxyphinus* species, combined.

|                                                                                                      |                    |
|------------------------------------------------------------------------------------------------------|--------------------|
| 6. Males .....                                                                                       | 7                  |
| – Females (those of <i>N. boibumba</i> , unknown) .....                                              | 11                 |
| 7. Abdominal anterior denticles present (figs. 203, 205, 224, 226) .....                             | 8                  |
| – Abdominal anterior denticles absent (figs. 250, 285, 322) .....                                    | 9                  |
| 8. Pedicel relatively long, inserted obliquely in relation to postepigastric scutum (fig. 203) ..... | <i>hispidus</i>    |
| – Pedicel relatively short, inserted in parallel to postepigastric scutum (fig. 224) ..              | <i>boibumba</i>    |
| 9. Carapace smooth (figs. 243, 262) .....                                                            | <i>barreirosi</i>  |
| – Carapace texturized (figs. 280, 297, 314, 333) .....                                               | 10                 |
| 10. Embolus with ejaculatory opening located prolaterally (figs. 288, 290, 293) .....                | <i>furtivus</i>    |
| – Embolus with ejaculatory opening located apically (figs. 324, 327, 330) .....                      | <i>keyserlingi</i> |
| 11. Carapace smooth (figs. 268, 269) .....                                                           | 12                 |
| – Carapace texturized (figs. 303, 308, 337, 340) .....                                               | 13                 |
| 12. Epigynal median element small, placed posteriorly (fig. 274) .....                               | <i>barreirosi</i>  |
| – Epigynal median element large, placed anteriorly (fig. 217) .....                                  | <i>hispidus</i>    |
| 13. Carapace finely reticulated (figs. 305, 308) .....                                               | <i>furtivus</i>    |
| – Carapace conspicuously granulated (figs. 338, 340) .....                                           | <i>keyserlingi</i> |

*Neoxyphinus xyphinoides* (Chamberlin and Ivie, 1942)

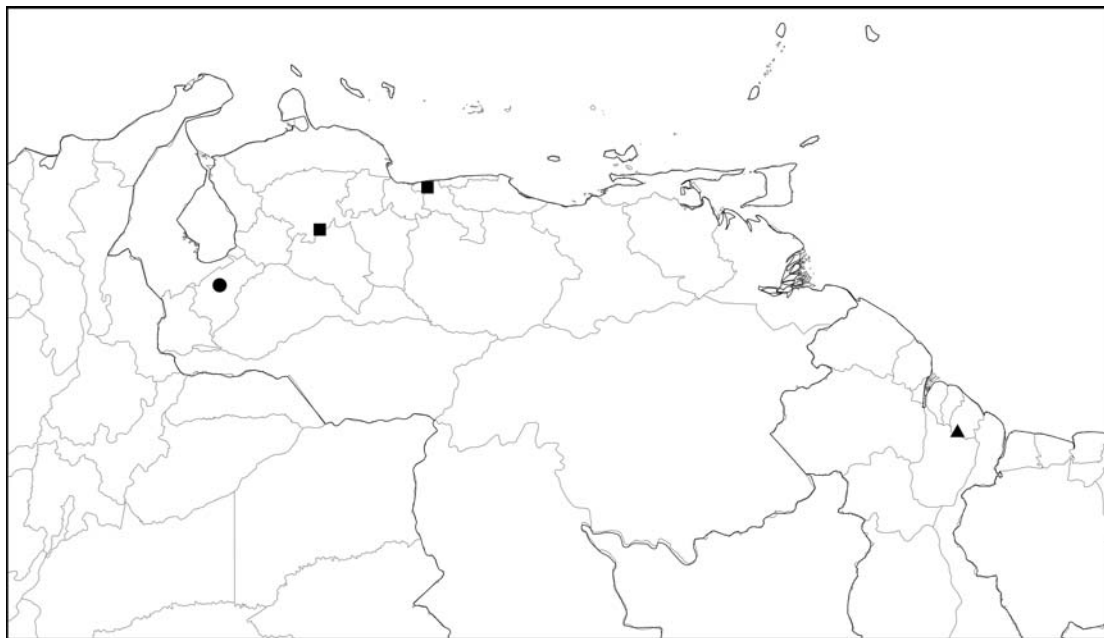
Figures 55–64; map 2

*Dysderina xyphinoides* Chamberlin and Ivie, 1942: 7, figs. 5–7 (male holotype from Kartabo, British Guyana, 1924, PBI\_OON 14576, in AMNH, examined).

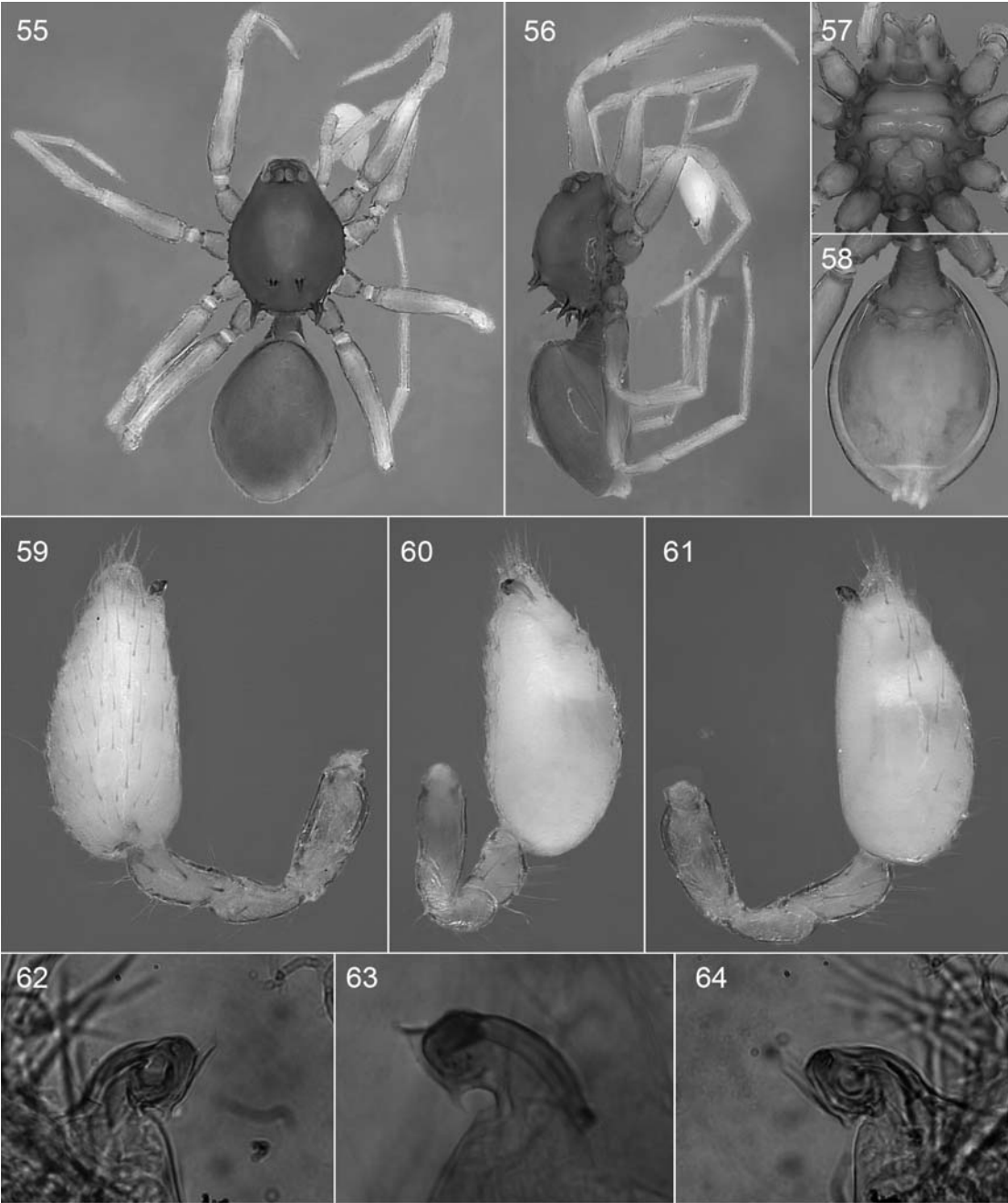
*Neoxyphinus xyphinoides*; Birabén, 1953: 458.

**DIAGNOSIS:** This species can be readily distinguished by the presence of three pairs of short carapace spikes and a strongly modified sternum, with a small concave pit in the posterior half (fig. 57). It differs from the only other known species with six spikes (*N. axe*) by the carapace devoid of blunt tubercles and with much smaller spikes (figs. 55, 56).

**MALE** (holotype): Total length 2.05. Carapace dark red-brown, posterolateral surface with 3 pairs of small spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin with blunt tubercles. Clypeus margin unmodified, straight in frontal view. ALE separated by less than their radius. Sternum longer than wide, orange-brown, median concavity a deep pit in posterior half of sternum, microsculpture absent, radial furrows deep, smooth, furrows II–III and III–IV touching median pit, anterior margin with continuous transverse groove, few marginal setae, originating from small tubercles. Chelicerae, endites, and labium orange-brown. Book lung covers large, elliptical. Pedicel tube long. Dorsal scutum dark red-brown; surface of middle and sides smooth, anterior half without projecting denticles. Postepigastric scutum red-brown. Legs orange-brown; Spine formula: tibia I v4-4-1, metatarsus I 2-2-1; tibia II v2-4-0, metatarsus II v2-0-2. Genitalia: sperm pore situated at level of anterior spiracles.



Map 2. Records of *Neoxyphinus hispidus* (squares), *N. gregoblin* (circle) and *N. xyphinoides* (triangle).



Figs. 55–64. *Neoxyphinus xyphinoides* (Chamberlin and Ivie), male. 55. Habitus, dorsal view. 56. Same, lateral view. 57. Sternum and mouthparts, ventral view. 58. Abdomen, ventral view. 59. Left palp, prolateral view. 60. Same, ventral view. 61. Same, retrolateral view. 62. Left palp, embolus, prolateral view. 63. Same, ventral view. 64. Same, retrolateral view.

Palp proximal segments, cymbium, and bulb yellow. Embolus with both prolateral prong and prolateral lamella (figs. 59–64).

FEMALE: Unknown.

DISTRIBUTION: Known only from type locality (map 2).

MATERIAL EXAMINED: Only the holotype.

***Neoxyphinus axe*** Abraham and Brescovit, new species

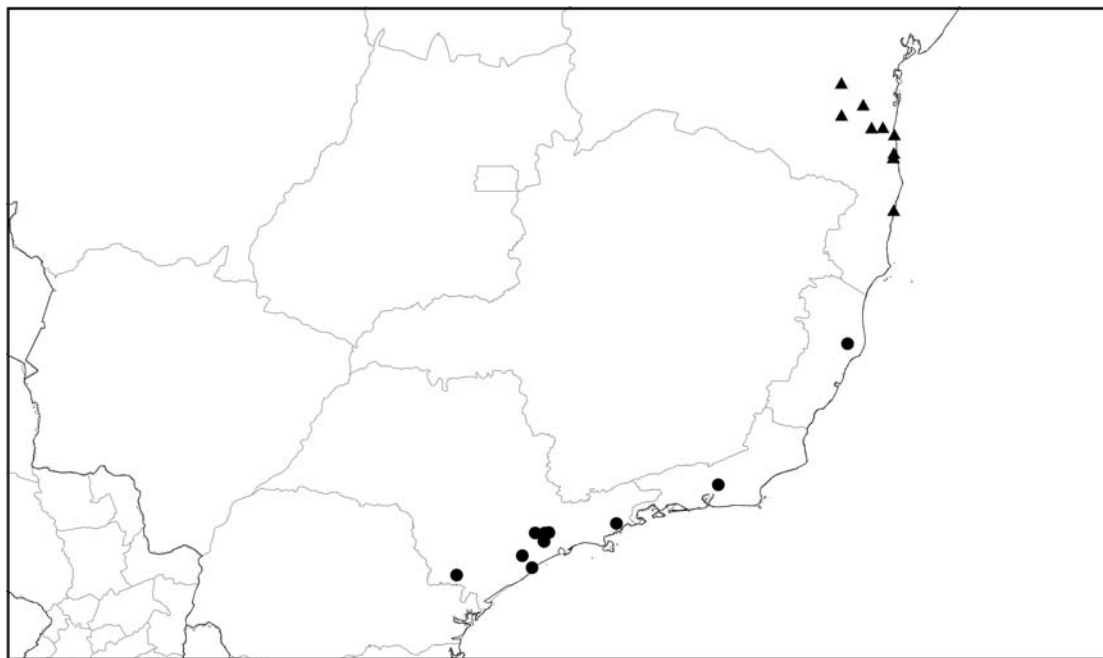
Figures 12, 16, 28, 35, 46, 52, 65–102; map 3

TYPES: Male holotype from Estação Ecológica do Una (15°17'48"S 39°04'28"W), Ilhéus, Bahia, Brazil, 14 Apr 1998, A.D. Brescovit et al. (PBI\_OON 14304, IBSP 18418). Female allotype from the same locality, Oct 1999–Sep 2000, M.F. Dias (PBI\_OON 14305, IBSP 64390).

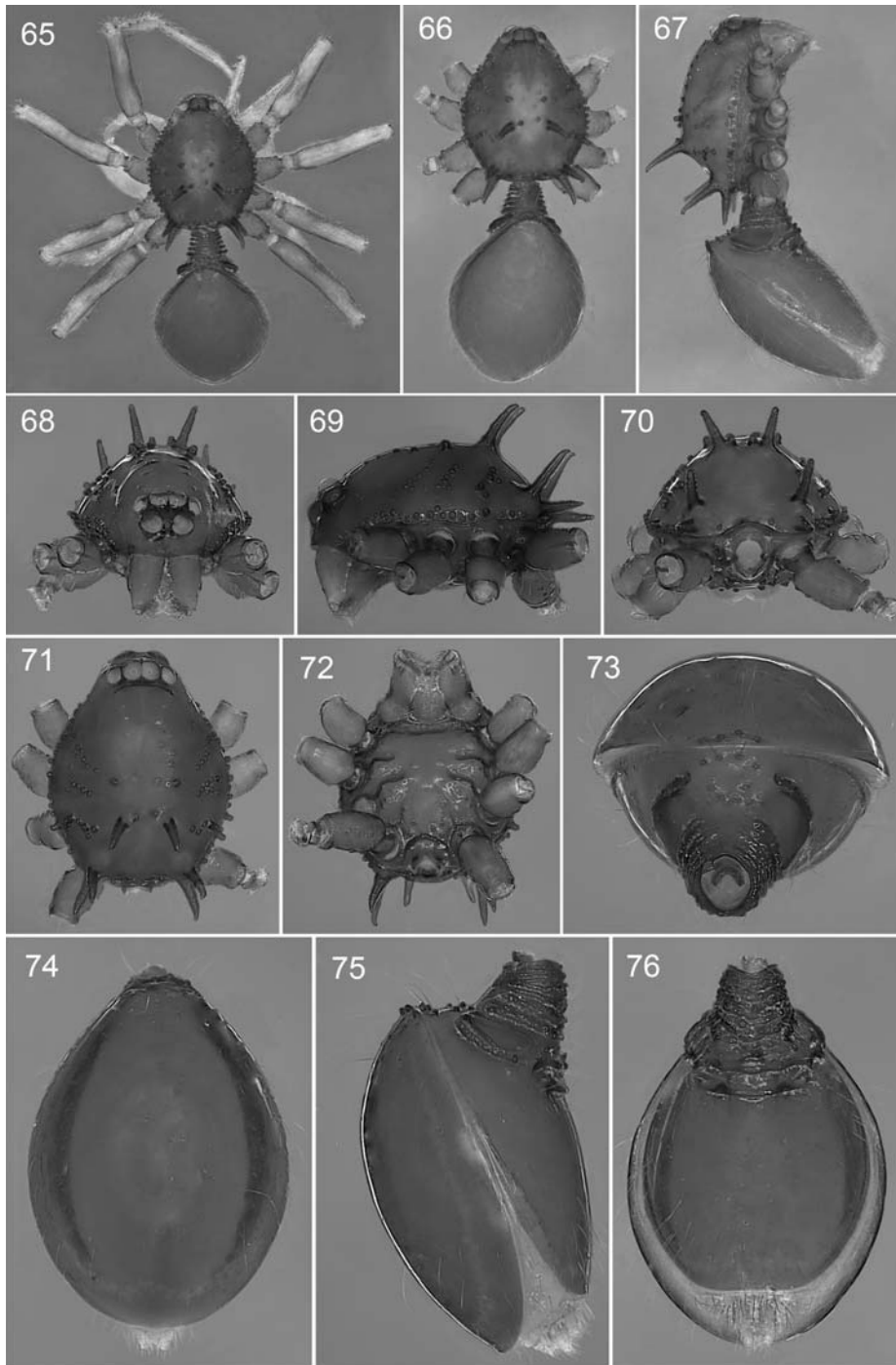
ETYMOLOGY: The specific name refers to the Axé music, a popular genre autochthonous to the Brazilian state of Bahia. Axé is originally an expression from the Afro-Brazilian religion Candomblé, meaning *sacred force of nature*.

DIAGNOSIS: Both males and females can be recognized by the carapace with six long posterior spikes and three radiating rows of blunt tubercles (figs. 69–71, 97).

MALE (holotype): Total length 2.44. Carapace dark red-brown, posterolateral surface with 3 pairs of large spikes, surface of elevated portion of pars cephalica and sides smooth, with radiating rows of blunt tubercles; lateral margin with blunt tubercles. Clypeus margin slightly

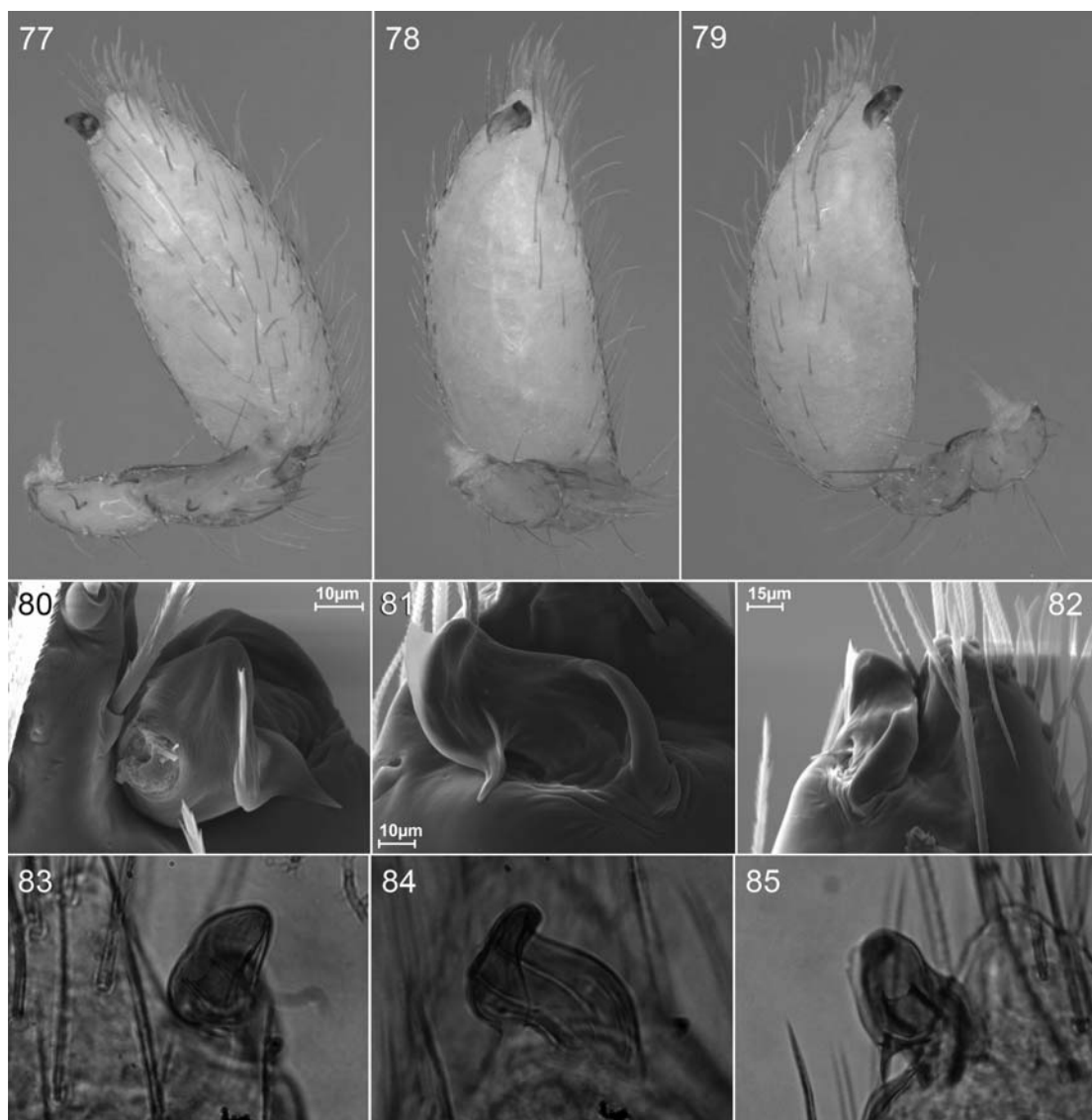


Map 3. Records of *Neoxyphinus axe* (triangles) and *N. keyserlingi* (circles).

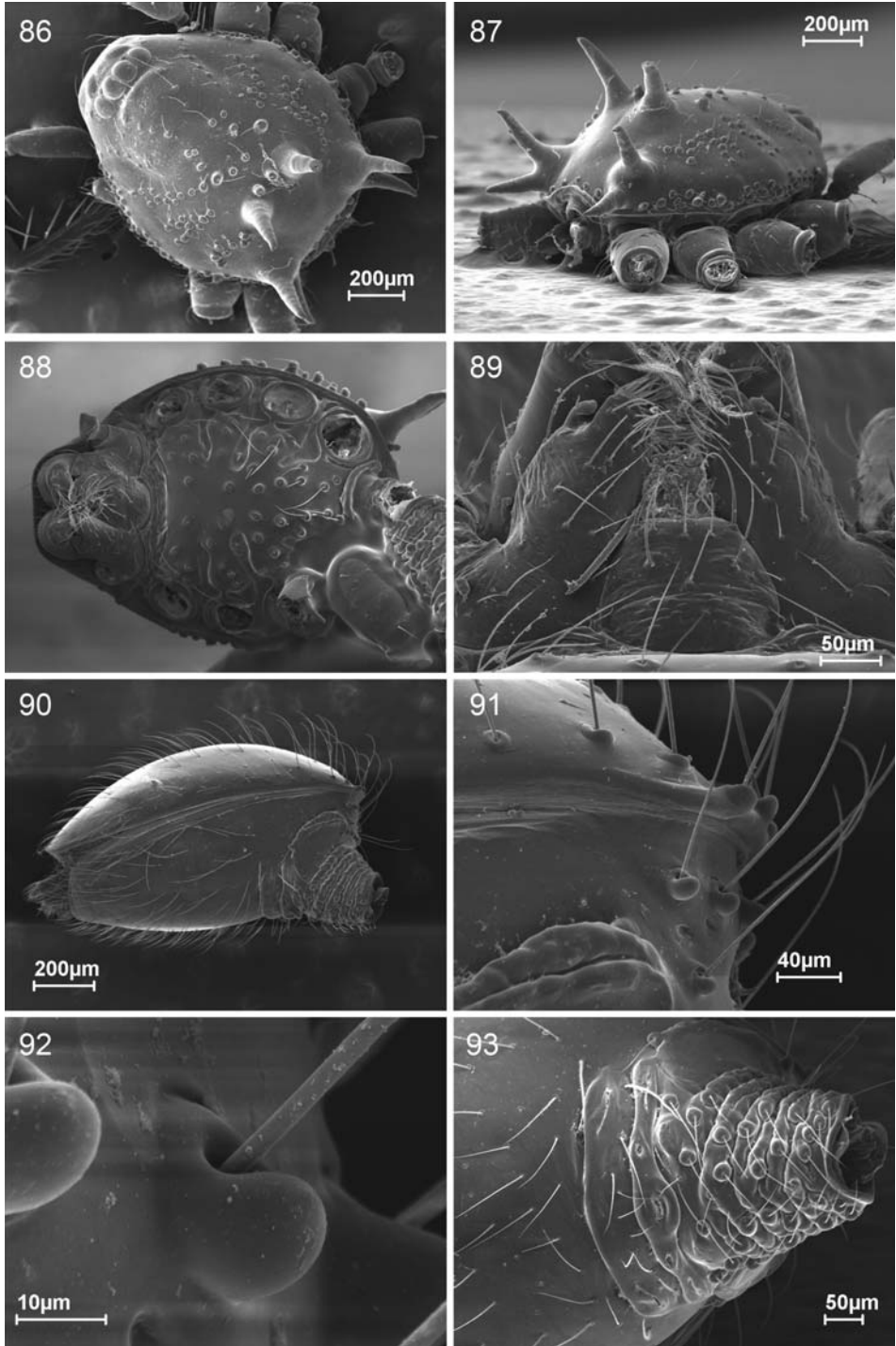


Figs. 65–76. *Neoxyphinus axe*, new species, male. 65, 66. Habitus, dorsal view. 67. Same, lateral view. 68. Carapace, anterior view. 69. Same, lateral view. 70. Same, posterior view. 71. Same, dorsal view. 72. Sternum and mouthparts, ventral view. 73. Abdomen, anterior view. 74. Same, dorsal view. 75. Same, lateral view. 76. Same, ventral view.

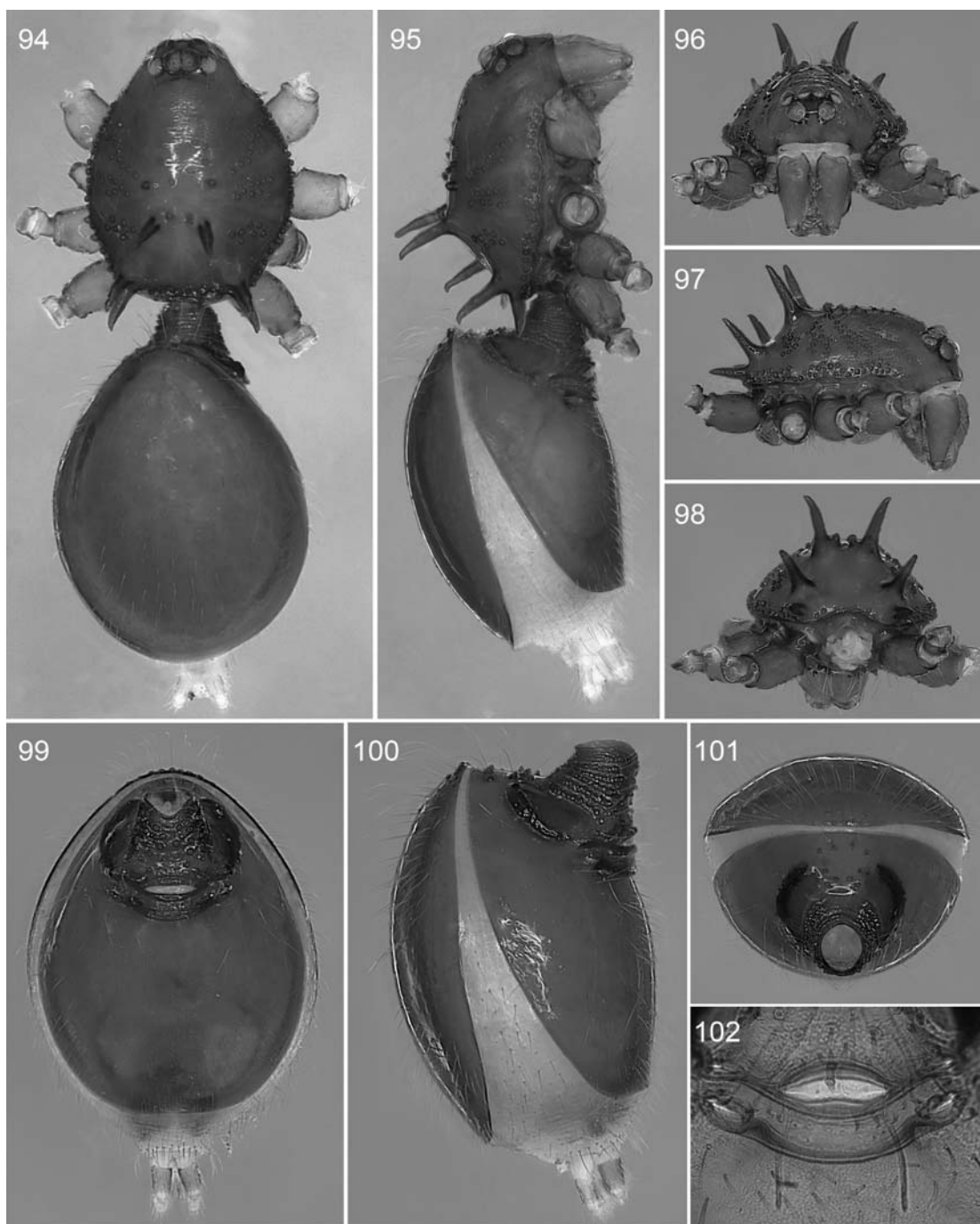
rebordered, straight in frontal view. Eyes: ALE separated by less than their ratio. Sternum longer than wide, dark red-brown, median concavity absent, microsculpture absent, furrows deep, smooth, anterior margin with continuous transverse groove, setae evenly scattered, originating from large tubercles. Chelicerae, endites, and labium orange-brown. Book lung covers large, ovoid. Pedicel tube long. Dorsal scutum dark red-brown, surface of middle and sides smooth, anterior half with very small, blunt denticles. Postepigastric scutum dark red-brown. Legs orange-brown. Spine formula: tibia I v5-3-1, metatarsus I v2-3-0; tibia II v2-3-1, metatarsus II



Figs. 77–85. *Neoxyphinus axe*, new species, male. 77. Right palp, prolateral view. 78. Same, ventral view. 79. Same, retrolateral view. 80, 83. Left palp, embolus, prolateral view. 81, 84. Same, apical view. 82, 85. Same, retrolateral view.



Figs. 86–93. *Neoxyphinus axe*, new species, male. 86. Carapace, dorsal view. 87. Same, lateroposterior view. 88. Sternum, ventral view. 89. mouthparts, posterior view. 90–92. Abdomen, lateral view. 93. Epigastric scutum, ventral view.



Figs. 94–102. *Neoxyphinus axe*, new species, female. **94.** Habitus, dorsal view. **95.** Same, lateral view. **96.** Carapace, anterior view. **97.** Same, lateral view. **98.** Same, posterior view. **99.** Abdomen, ventral view. **100.** Same, lateral view. **101.** Same, anterior view. **102.** Epigynum, dorsal view.

v1-1-2. Genitalia: sperm pore situated at level of anterior spiracles. Palp proximal segments, cymbium, and bulb pale orange. Embolus with narrow prolateral prong and sharp prolateral lamella; apical process indistinct (figs. 77–85).

**FEMALE** (allotype): Total length 2.65. Book lung covers elliptical, anterolateral edge tuberculate. Dorsal scutum anterior half without projecting denticles. Spine formula: tibia I v4-4-2, metatarsus I v2-2-2; tibia II v4-4-0, metatarsus II v3-3-0; tibia III p1-1-0, v0-1-0, metatarsus III p1-0-1, v0-1-0. Epigynal atrium narrow, with tubular median element, placed anteriorly in our preparations (fig. 102).

**DISTRIBUTION:** Known only from southeastern state of Bahia, Brazil (map 3).

**OTHER MATERIAL EXAMINED:** BRAZIL: **Bahia:** *Lafaiete Coutinho*: no specific locality, Aug. 2006–June 2007, J. Romão (PBI\_OON 11218, IBSP 92685; PBI\_OON 11974, IBSP 92712; PBI\_OON 11975, IBSP 92698; PBI\_OON 11976, IBSP 92682; PBI\_OON 11978, IBSP 92677; PBI\_OON 11981, IBSP 92690), 5♂, 1♀. *Ipiatú*: No specific locality, Jan. 2007, C. Máximo (PBI\_OON 11215, IBSP 92767; PBI\_OON 11216, IBSP 92763; PBI\_OON 11217, IBSP 92759; PBI\_OON 11219, IBSP 92765; PBI\_OON 11220, IBSP 92762; PBI\_OON 11977, IBSP 92761; PBI\_OON 11982, IBSP 92766; PBI\_OON 11983, IBSP 92760; PBI\_OON 11984, IBSP 92764), 6♂, 3♀. *Boa Nova*: No specific locality, Oct. 2003–Mar. 2004, E.M. Neto (PBI\_OON 11980, IBSP 66313), 1♂. *Coaraci*: Fazenda Boa Esperança, Jan. 28, 1971, no collector (PBI\_OON 11221, MNRJ 2092), 1♀. *Itabuna*: CEPLAC, 14°38'S 39°18'W, 100 m, Jan. 26, 1995, D. Agosti (PBI\_OON 14575, AMNH), 1♂. *Ilhéus*: CEPLAC, 14°47'22"S 39°02'57"W, Apr. 07, 1998, A.D. Brescovit et al. (PBI\_OON 11970, IBSP 19221; PBI\_OON 11972, IBSP 19297; PBI\_OON 11973, IBSP 19371; PBI\_OON 14306, IBSP 19377), 4♂, Apr. 11, 1998, same (PBI\_OON 14307, IBSP 19210), 1♀, Apr. 12, 1998, same (PBI\_OON 14338, IBSP 18887), 1♀, Feb. 27, 2007, P.P. Santos, collected in *Nasutitermes*'s nest (PBI\_OON 11979, IBSP 98034), 1♂. *Una*: Estação Ecológica do Una, Apr. 14, 1998, A.D. Brescovit (PBI\_OON 11897, IBSP 18085), 1♂; Estação Ecológica do Una, 15°11'46"S 39°3'34"W, Jan. 31, 1995, D. Agosti (PBI\_OON 14574, AMNH), 1♂; Estação Ecológica do Una, 15°17'31"S 39°04'07"W, 2003, M.F. Dias (PBI\_OON 11861, IBSP 62530; PBI\_OON 11862, IBSP 62534; PBI\_OON 11869, IBSP 62535; PBI\_OON 11878, IBSP 62522; PBI\_OON 11880, IBSP 62536; PBI\_OON 11881, IBSP 62533; PBI\_OON 11888, IBSP 62527; PBI\_OON 11892, IBSP 62542; PBI\_OON 11918, IBSP 62539; PBI\_OON 11924, IBSP 62538; PBI\_OON 11925, IBSP 62531; PBI\_OON 11928, IBSP 62524; PBI\_OON 11934, IBSP 62523; PBI\_OON 11941, IBSP 62529; PBI\_OON 11949, IBSP 62537; PBI\_OON 11964, IBSP 62528), 7♂, 9♀; Estação Ecológica do Una, 15°17'48"S 39°04'28"W, Oct. 1999–Sept. 2000, M.F. Dias (PBI\_OON 11856, IBSP 64325; PBI\_OON 11857, IBSP 64386; PBI\_OON 11858, IBSP 64343; PBI\_OON 11859, IBSP 65076; PBI\_OON 11860, IBSP 65286; PBI\_OON 11863, IBSP 65196; PBI\_OON 11864, IBSP 65506; PBI\_OON 11866, IBSP 64204; PBI\_OON 11867, IBSP 65516; PBI\_OON 11868, IBSP 65344; PBI\_OON 11870, IBSP 65497; PBI\_OON 11871, IBSP 65205; PBI\_OON 11872, IBSP 64323; PBI\_OON 11873, IBSP 65084; PBI\_OON 11874, IBSP 64227; PBI\_OON 11875, IBSP 65241; PBI\_OON 11876, IBSP 64197; PBI\_OON 11877, IBSP 64435; PBI\_OON 11879, IBSP 65108; PBI\_OON 11882, IBSP 64225; PBI\_OON 11883, IBSP 64229; PBI\_OON 11884, IBSP 65120; PBI\_OON 11885, IBSP 64222; PBI\_OON 11886, IBSP 65165; PBI\_OON 11887, IBSP 65466; PBI\_OON 11889, IBSP 65273; PBI\_OON 11890, IBSP 65488; PBI\_OON 11891, IBSP 65449; PBI\_OON 11893, IBSP 65202; PBI\_OON 11894, IBSP 65322; PBI\_OON 11895, IBSP 65227; PBI\_OON 11896, IBSP 64261; PBI\_OON 11898, IBSP 64260; PBI\_OON 11899, IBSP 64547; PBI\_OON 11900, IBSP 64314; PBI\_OON 11901, IBSP 65236; PBI\_OON 11902, IBSP 65487; PBI\_OON 11903, IBSP 65189; PBI\_OON 11904, IBSP 65097; PBI\_OON 11905, IBSP 64178; PBI\_OON 11906, IBSP 65257; PBI\_OON 11907, IBSP 64371; PBI\_OON 11908, IBSP 63909; PBI\_OON 11909, IBSP 64514; PBI\_OON 11910, IBSP 64232; PBI\_OON 11911, IBSP 65149; PBI\_OON 11912, IBSP 65444; PBI\_OON 11913, IBSP 65494; PBI\_OON 11914, IBSP 64392; PBI\_OON 11915, IBSP 64278; PBI\_OON 11916, IBSP 65102; PBI\_OON 11917, IBSP 64398; PBI\_OON 11919, IBSP 65267; PBI\_OON 11920, IBSP 64337; PBI\_OON 11921, IBSP 65122; PBI\_OON 11922, IBSP 65134; PBI\_OON 11923, IBSP 65471; PBI\_OON 11926, IBSP 65087; PBI\_OON 11927, IBSP 65245; PBI\_OON 11929, IBSP 65376; PBI\_OON 11930, IBSP 65331; PBI\_OON 11931, IBSP 65094; PBI\_OON 11932, IBSP 65381; PBI\_OON 11933, IBSP 64399; PBI\_OON 11935, IBSP 64356; PBI\_OON 11936, IBSP 65274; PBI\_OON 11937, IBSP 64444; PBI\_OON 11938, IBSP 65269; PBI\_

OON 11939, IBSP 65136; PBI\_OON 11940, IBSP 65140; PBI\_OON 11942, IBSP 64526; PBI\_OON 11943, IBSP 64439; PBI\_OON 11944, IBSP 65271; PBI\_OON 11945, IBSP 64535; PBI\_OON 11946, IBSP 64488; PBI\_OON 11947, IBSP 65456; PBI\_OON 11948, IBSP 64214; PBI\_OON 11950, IBSP 64359; PBI\_OON 11951, IBSP 64189; PBI\_OON 11952, IBSP 65250; PBI\_OON 11953, IBSP 64246; PBI\_OON 11954, IBSP 65486; PBI\_OON 11955, IBSP 64480; PBI\_OON 11956, IBSP 64513; PBI\_OON 11957, IBSP 64420; PBI\_OON 11958, IBSP 65478; PBI\_OON 11959, IBSP 64476; PBI\_OON 11960, IBSP 65513; PBI\_OON 11961, IBSP 65315; PBI\_OON 11962, IBSP 65503; PBI\_OON 11963, IBSP 64383; PBI\_OON 11965, IBSP 64421; PBI\_OON 11966, IBSP 64248; PBI\_OON 11967, IBSP 64450; PBI\_OON 11968, IBSP 65282; PBI\_OON 11969, IBSP 65451; PBI\_OON 14308, IBSP 64345; PBI\_OON 14309, IBSP 64269; PBI\_OON 14310, IBSP 65177; PBI\_OON 14311, IBSP 65427; PBI\_OON 14312, IBSP 65362; PBI\_OON 14313, IBSP 65124; PBI\_OON 14314, IBSP 64508; PBI\_OON 14315, IBSP 64429; PBI\_OON 14327, IBSP 65203; PBI\_OON 14544, IBSP 64242; PBI\_OON 14339, IBSP 18106; PBI\_OON 14316, IBSP 64321; PBI\_OON 14317, IBSP 65258; PBI\_OON 14318, IBSP 64381; PBI\_OON 14319, IBSP 65224; PBI\_OON 14320, IBSP 66815; PBI\_OON 14321, IBSP 64336; PBI\_OON 14322, IBSP 64474; PBI\_OON 14323, IBSP 65208; PBI\_OON 14324, IBSP 64391; PBI\_OON 14325, IBSP 64529; PBI\_OON 14326, IBSP 65325; PBI\_OON 14328, IBSP 65259; PBI\_OON 14329, IBSP 64433; PBI\_OON 14330, IBSP 65166; PBI\_OON 14331, IBSP 65254; PBI\_OON 14332, IBSP 64296; PBI\_OON 14333, IBSP 64436; PBI\_OON 14334, IBSP 64500; PBI\_OON 14335, IBSP 64502; PBI\_OON 14336, IBSP 65491; PBI\_OON 14337, IBSP 65109; PBI\_OON 14341, IBSP 63933; PBI\_OON 14342, IBSP 64446; PBI\_OON 14344, IBSP 65161; PBI\_OON 14545, IBSP 64344; PBI\_OON 14340, IBSP 62540; PBI\_OON 14343, IBSP 62532) 93 ♂, 60 ♀; *Porto Seguro*: No specific locality, 16°26'59"S 39°03'53"W, 1998, no collector (PBI\_OON 11971, IBSP 36904), 1 ♀.

*Neoxyphinus gregoblin* Abraham and Santos, new species

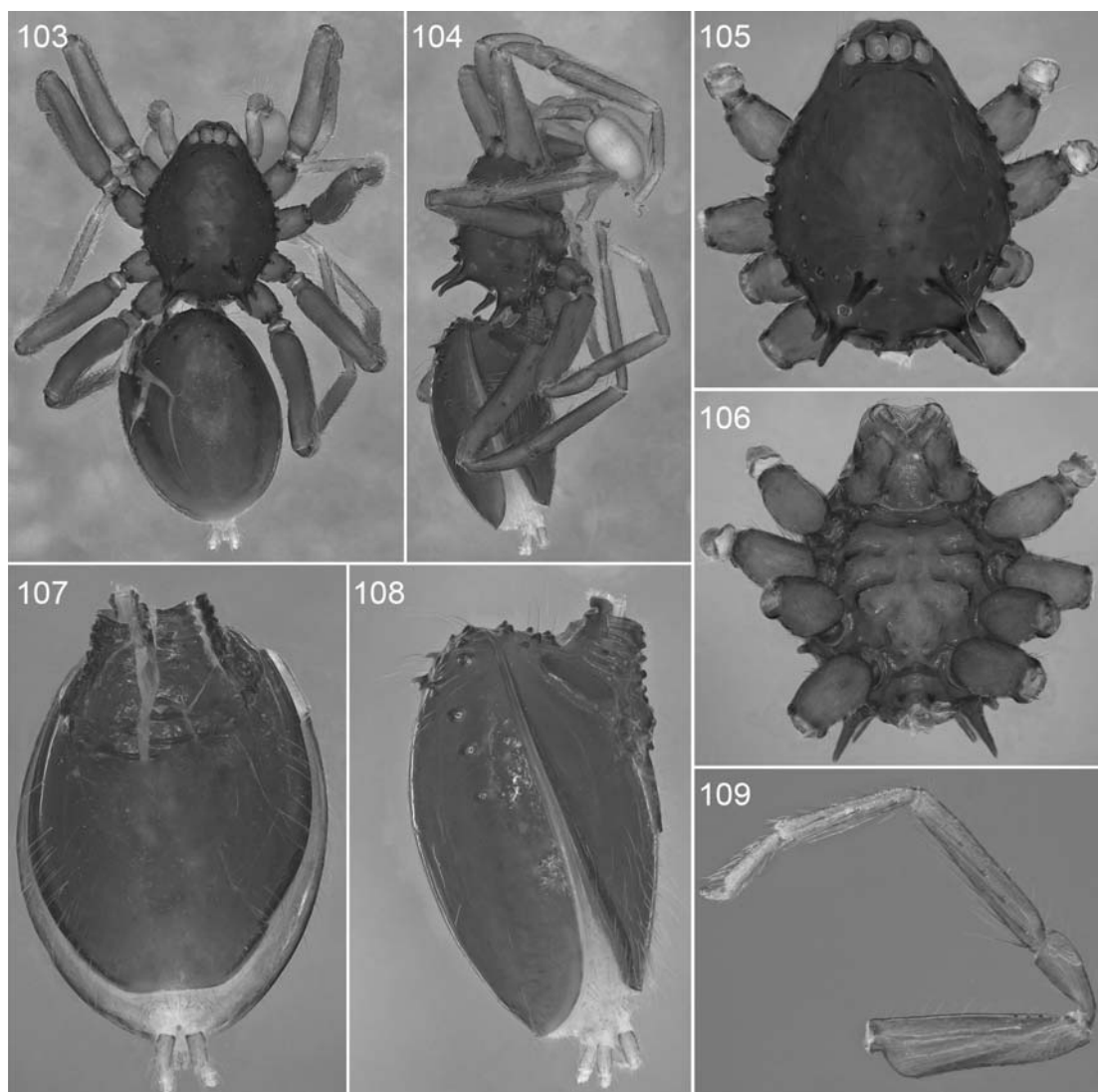
Figures 1, 2, 11, 21, 45, 103–133; map 2

**TYPES:** Male holotype from Andres Bello, Mérida, Venezuela, 20 km SE Azulita, ULA, Biological Reserve La Carbonera, 08°38'N 71°21'W, 2150 m, 28 Jun 1989, S. Peck and J. Peck (PBI\_OON 14298, AMNH). Female allotype, same locality and collector, 27 Jul 1989 (PBI\_OON 14299, AMNH).

**ETYMOLOGY:** The specific name is a contraction of “Great Goblin,” a character from J.R.R. Tolkien’s *Hobbit*, in reference to the body size of the specimens, the largest known in the genus.

**DIAGNOSIS:** As in *N. petroglobin*, *N. gregoblin* has four long carapace spikes (figs. 104, 128, 130) and, in males, few long abdominal dorsal denticles (figs. 108, 126) but differs from the latter by the presence, in both sexes, of well-developed, blunt tubercles on carapace dorsal surface, forming two longitudinal lines between eye group and first pair of carapace spikes (figs. 11, 105, 120, 129).

**MALE** (holotype): Total length 3.15. Carapace brown, posterolateral surface with two pairs of spikes, surface of elevated portion of pars cephalica smooth with two parallel lines of tubercles, sides smooth, with sparse tubercles, lateral margin with large tubercles, specially the posterior ones. Clypeus margin rebordered, sinuous in frontal view. Eyes: ALE separated by less than their radius. Sternum longer than wide, dark red-brown, median concavity absent, with median row of large, shallow pits, anterior margin with continuous transverse groove; setae evenly scattered, originating from small tubercles. Chelicerae, endites, and labium dark red-brown. Book lung covers large, ovoid. Pedicel tube medium sized. Dorsal scutum dark red-brown, surface of middle and sides smooth, anterior half with projecting denticles. Postepigastric scutum dark red-brown. Legs orange-brown. Spine formula: tibia I v4-4-1, metatarsus I v2-2-1;



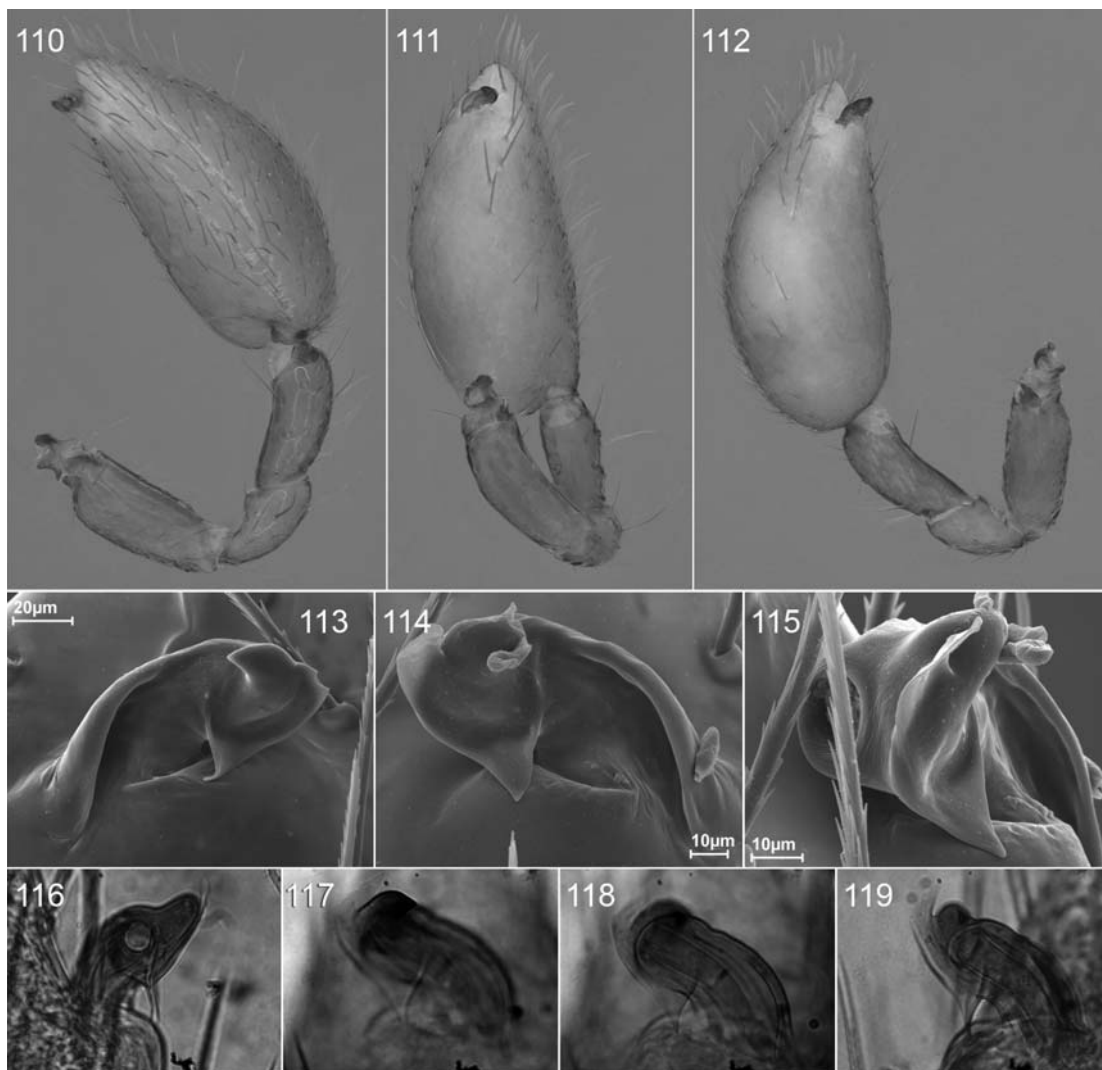
Figs. 103–109. *Neoxyphinus gregoblin*, new species, male. **103.** Habitus, dorsal view. **104.** Same, lateral view. **105.** Carapace, dorsal view. **106.** Sternum and mouthparts, ventral view. **107.** Abdomen, ventral view. **108.** Same, lateral view. **109.** Leg I, prolateral view.

tibia II v2-2-2, metatarsus II v2-0-2. Genitalia: sperm pore situated between anterior and posterior spiracles. Palp proximal segments, cymbium, and bulb pale orange. Embolus with wide prolateral prong, short prolateral lamellae and toothlike apical process (figs. 110–119).

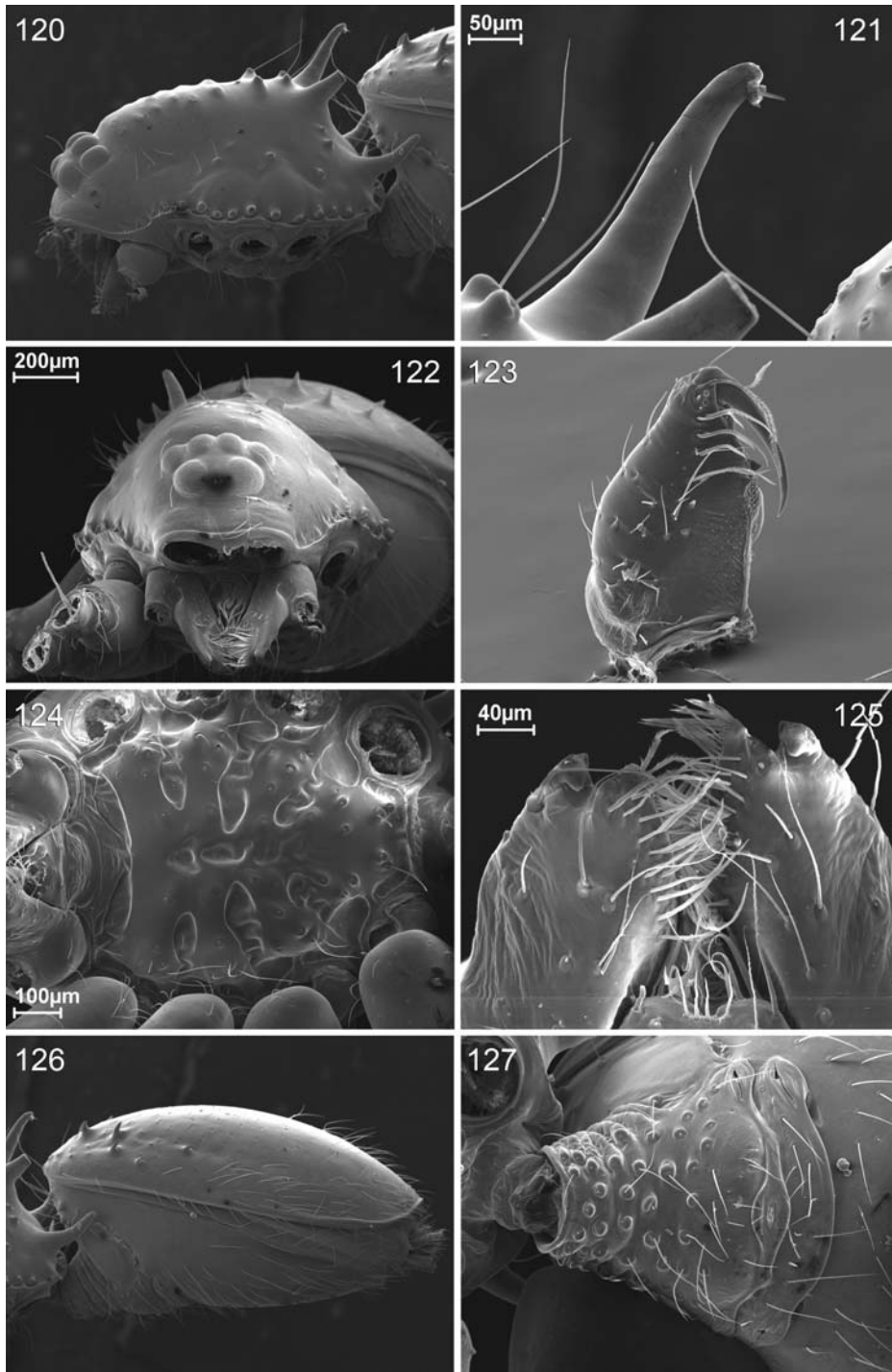
**FEMALE** (allotype): Total length 3.33. Clypeus margin strongly rebordered. Book lung covers elliptical. Dorsal scutum anterior half without projecting denticles. Spine formula: tibia I v4-4-2, metatarsus I 2-2-1; tibia II v4-4-1, metatarsus II v2-0-2. Epigynal atrium narrow, with wide tubular, centrally positioned median element (fig. 133).

**DISTRIBUTION:** Know from Merida, Venezuela (map 2).

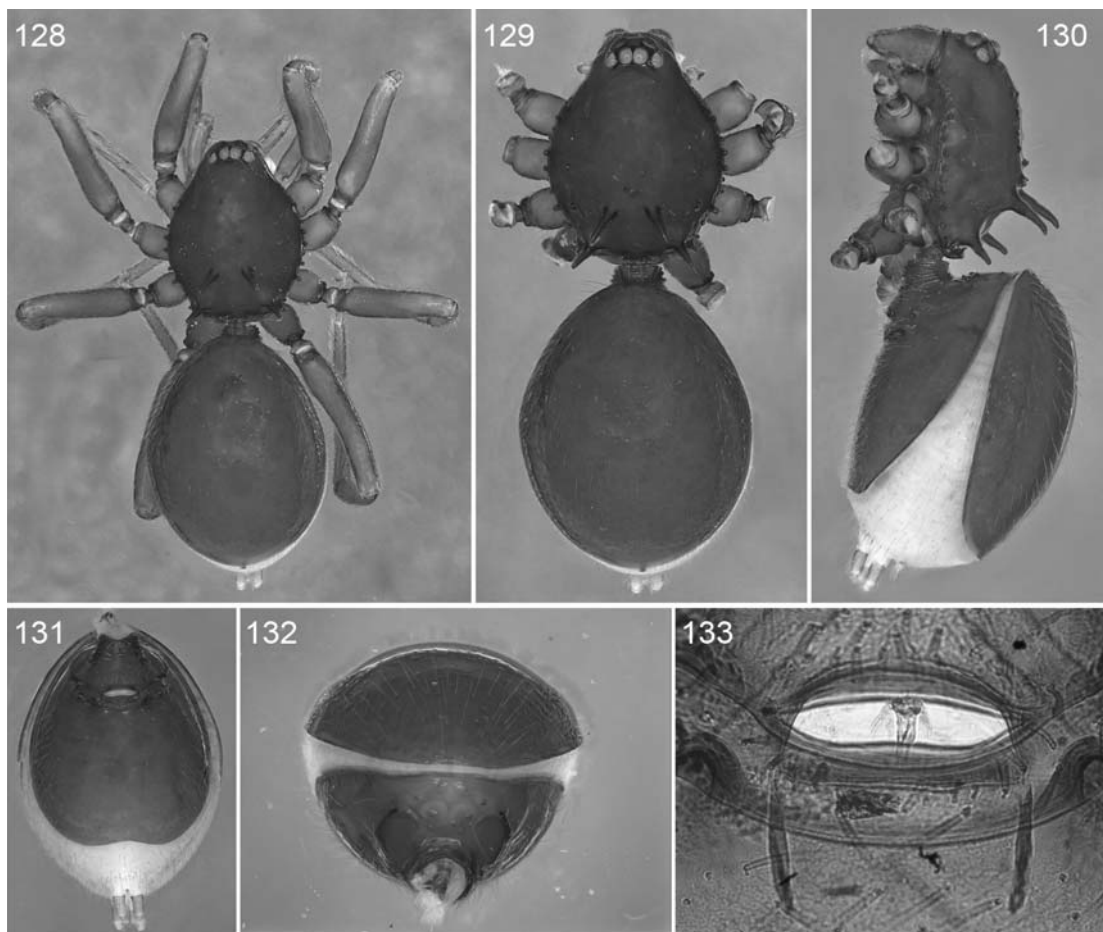
OTHER MATERIAL EXAMINED: VENEZUELA: **Mérida**: El Valle, 15 km NE Mérida, 2400 m, July 21–24, 1989, S. Peck and J. Peck, collected with carrion traps (PBI\_OON 14301, AMNH) 1 ♂; 25 km NW Mérida, Jaji Road, Chorrera Gonzales, 1800 m, June 28, 1989, S. Peck and J. Peck (PBI\_OON 14573, AMNH) 1 ♂. *Andres Bello*: La Azulita, Jaji Road ESE of Merida, nr San Eusebio, Maricaibo Basin side, 2250 m, 10 Apr 1994, L. Herman (PBI\_OON 11024, AMNH) 1 ♀; 20 km SE Azulita, ULA, Biological Reserve La Carbonera, 08°38'N 71°21'W, 2150 m, July 27, 1989, S. Peck and J. Peck (PBI\_OON 14300, AMNH), 1 ♂, June 28–July 27, 1989, same, collected with carrion traps (PBI\_OON 11023, AMNH), 1 ♂.



Figs. 110–119. *Neoxyphinus gregoblin*, new species, male. **110**. Right palp, prolateral view. **111**. Same, ventral view. **112**. Same, retrolateral view. **113**. Right embolus, ventral view. **114–119**. Left embolus. **114**, **117**, **118**. Ventral view (117, apex in focus; 118, base in focus). **115**, **116**. Prolateral view. **119**. Retrolateral view.



Figs. 120–127. *Neoxyphinus gregoblin*, new species, male. **120, 121.** Carapace, lateral view. **122.** Same, anterior view. **123.** Chelicera, posterior view. **124.** Sternum, ventral view. **125.** Endites, posterior view. **126.** Abdomen, lateral view. **127.** Epigastric scutum, ventral view.



Figs. 128–133. *Neoxyphinus gregoblin*, new species, female. **128, 129.** Habitus, dorsal view. **130.** Same, lateral view. **131.** Abdomen, ventral view. **132.** Same, anterior view. **133.** Epigynum, dorsal view.

*Neoxyphinus termitophilus* (Bristowe), new combination

Figures 9, 25, 31, 32, 36, 37, 41, 49–51, 134–166; map 4

*Dysderina termitophila* Bristowe, 1938: 67, figs. 1–3 (male holotype from Santa Catarina, Brazil, in the Natural History Museum, London, not examined, probably lost).

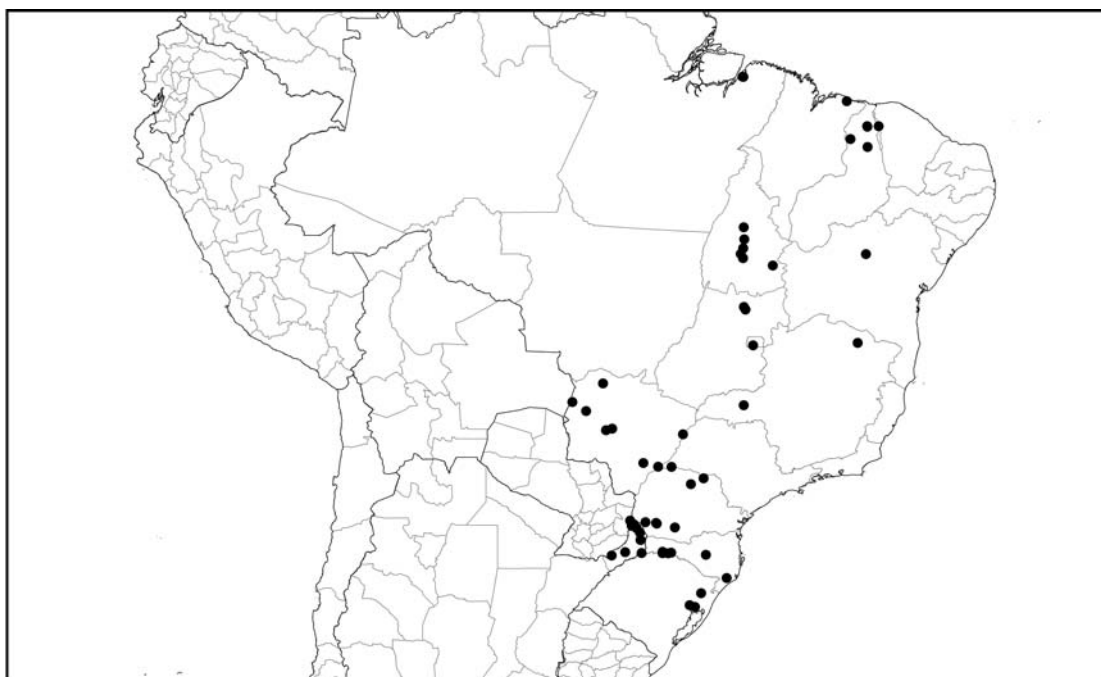
*Neoxyphinus ogloblini* Birabén, 1953: 454, figs. 1–9 (female holotype [PBI\_OON 14615] and male paratype [PBI\_OON 14616] from Loreto, Misiones, Argentina, A. Ogloblin col., 1953, in MLP, examined); Burger and Michalik, 2010: 3, figs. 1–4 (male genital system); Burger, 2011: 125, figs. 1A, B, 3A–D, 4A, B (female genitalia). NEW SYNONYMY.

**DIAGNOSIS:** Males resemble those of *N. boibumba* and *N. furtivus* by the short, rounded embolus (figs. 41, 144–146), but differ from both by the presence of four relatively short posterior spikes on the carapace (figs. 9, 135). Males differ from other species with four spikes by

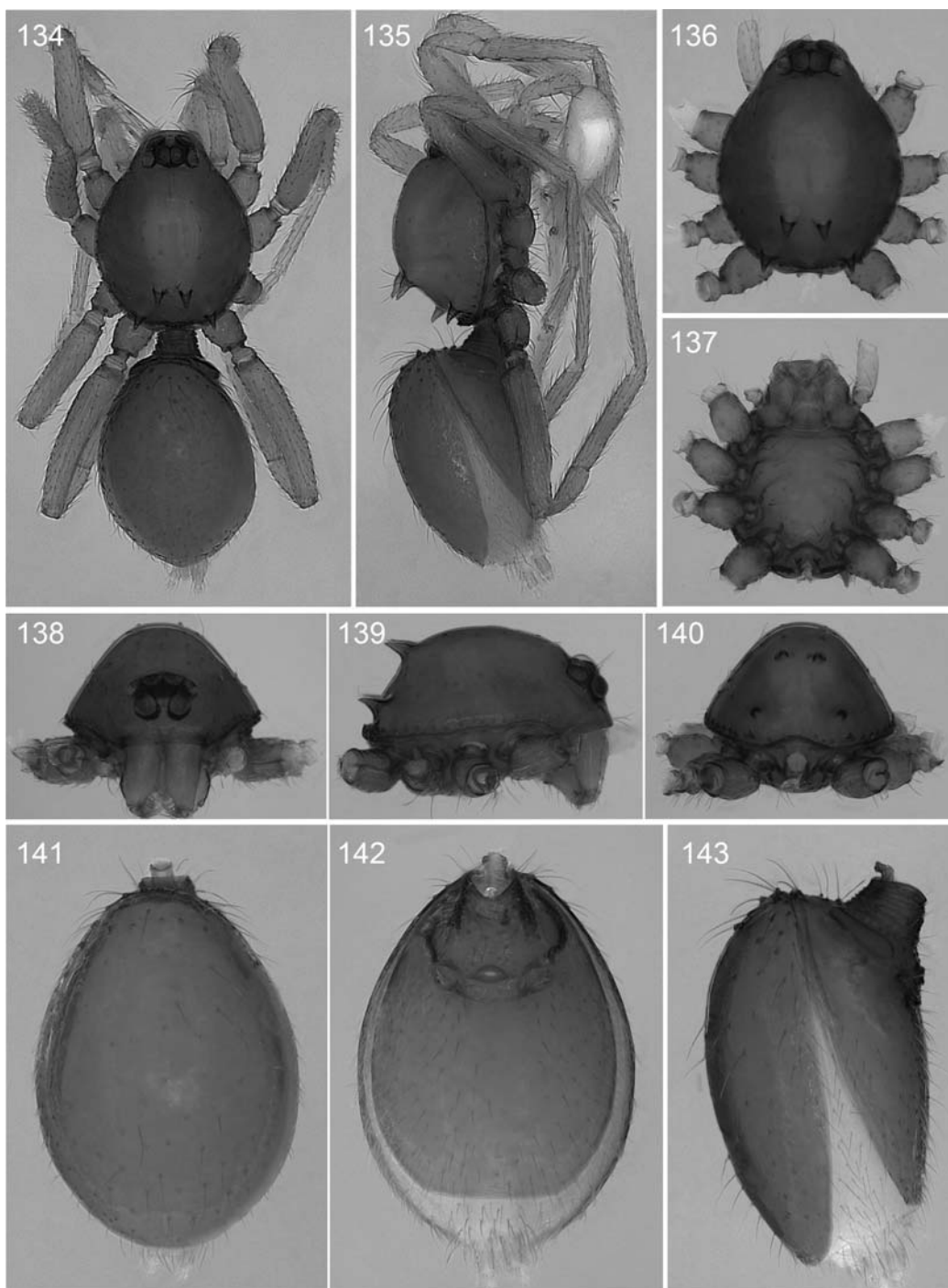
having tiny, undeveloped denticles on the anterior end of the abdominal dorsal scutum (figs. 143, 157). Females can be recognized by the combination of four spikes and wide epigynal atrium, with a posteriorly or centrally positioned conical median element (fig. 166).

**MALE** (paratype of *N. ogloblini*): Total length 2.05. Carapace orange-brown, posterolateral surface with two pairs of similar sized small spikes, surface of elevated portion of pars cephalica and sides finely granulated, lateral margin with blunt tubercles. Clypeus margin slightly rebordered, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, microsculpture absent, furrows shallow, anterior margin with continuous transverse groove, setae evenly scattered, originating from small tubercles. Chelicerae, endites, and labium orange-brown. Book lung covers large, elliptical. Pedicel tube long. Dorsal scutum orange-brown, surface of middle and sides smooth, anterior half with small, conspicuous projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Spine formula: tibia I v4-4-1, metatarsus I v2-2-1; tibia II v2-2-2, metatarsus II v2-0-1. Genitalia: sperm pore situated between anterior and posterior spiracles. Palp proximal segments pale orange, cymbium and bulb yellow. Embolus with small prolateral lamella and small, rounded prolateral prong (figs. 144–152).

**FEMALE** (holotype of *N. ogloblini*): Total length 2.37. Pedicel tube medium sized. Dorsal scutum anterior half without projecting denticles. Spine formula: tibia I v4-4-2, metatarsus I v2-2-2; tibia II v4-2-2, metatarsus II v2-1-1. Epigynal median element conical, placed posteriorly or centrally in our preparations (fig. 166).



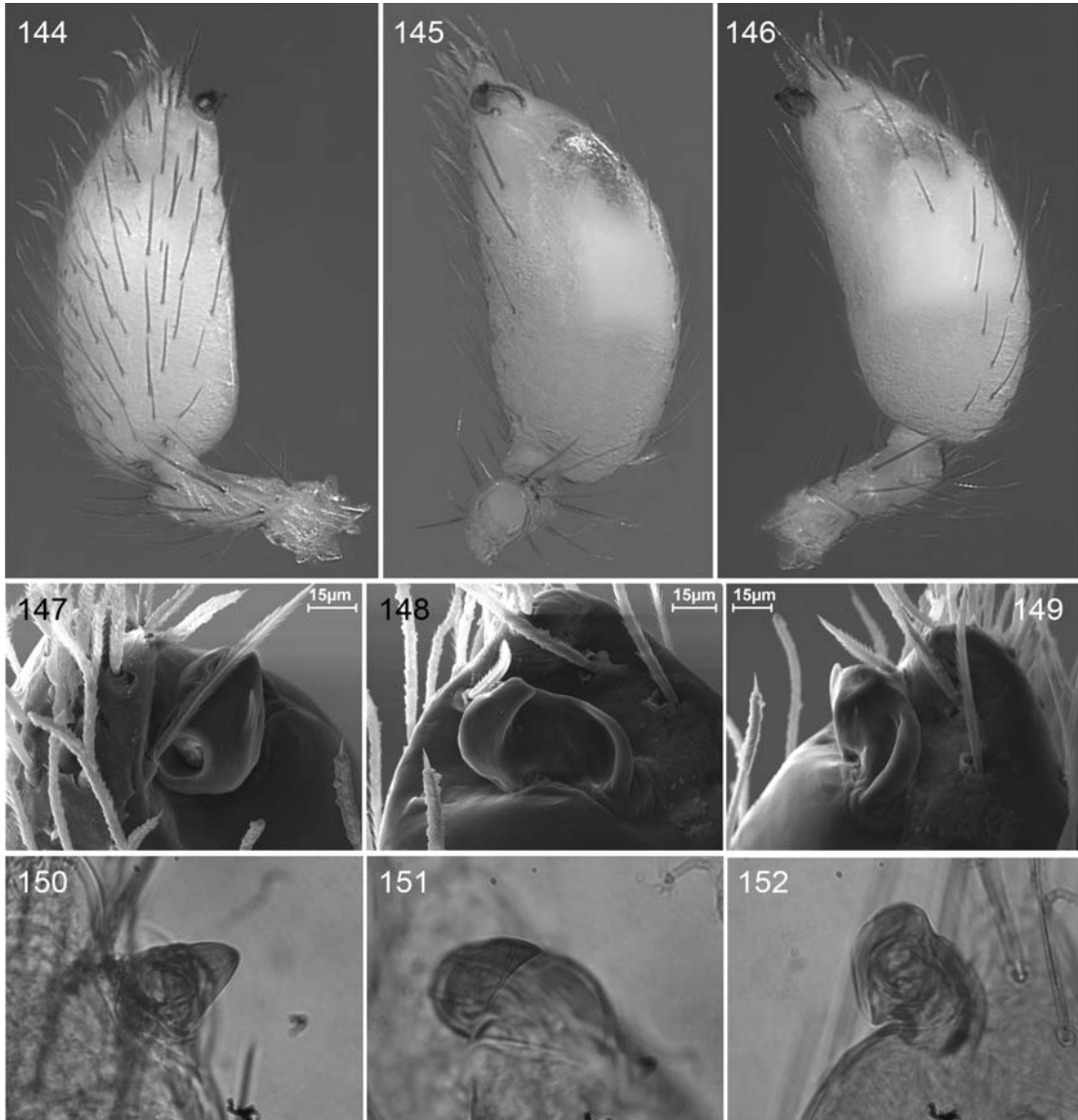
Map 4. Records of *Neoxyphinus termitophilus*.



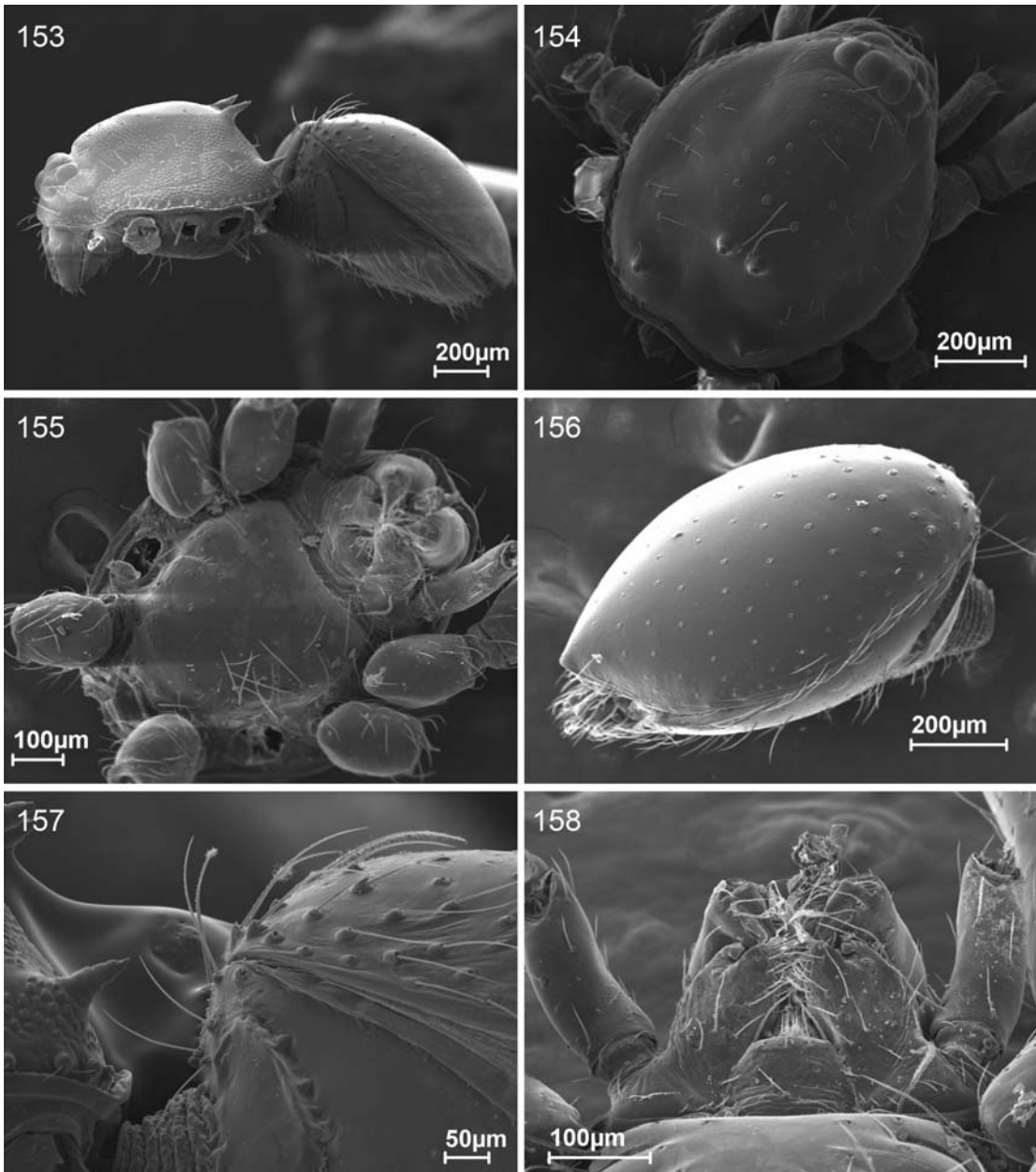
Figs. 134–143. *Neoxyphinus termitophilus* (Bristowe), male. **134.** Habitus, dorsal view. **135.** Same, lateral view. **136.** Carapace, dorsal view. **137.** Sternum and mouthparts, ventral view. **138.** Carapace, anterior view. **139.** Same, lateral view. **140.** Same, posterior view. **141.** Abdomen, dorsal view. **142.** Same, ventral view. **143.** Same, lateral view.

**VARIATION:** Specimens from Piauí, Brazil, are darker than those from other localities and females from this locality have the anterior pair of spikes larger than the posterior one (fig. 164). The carapace granulation may be inconspicuous or even absent in some specimens (fig. 154). In few males, the abdominal dorsal scutum is completely devoid of denticles and others do not have embolar accessory prolateral lamella.

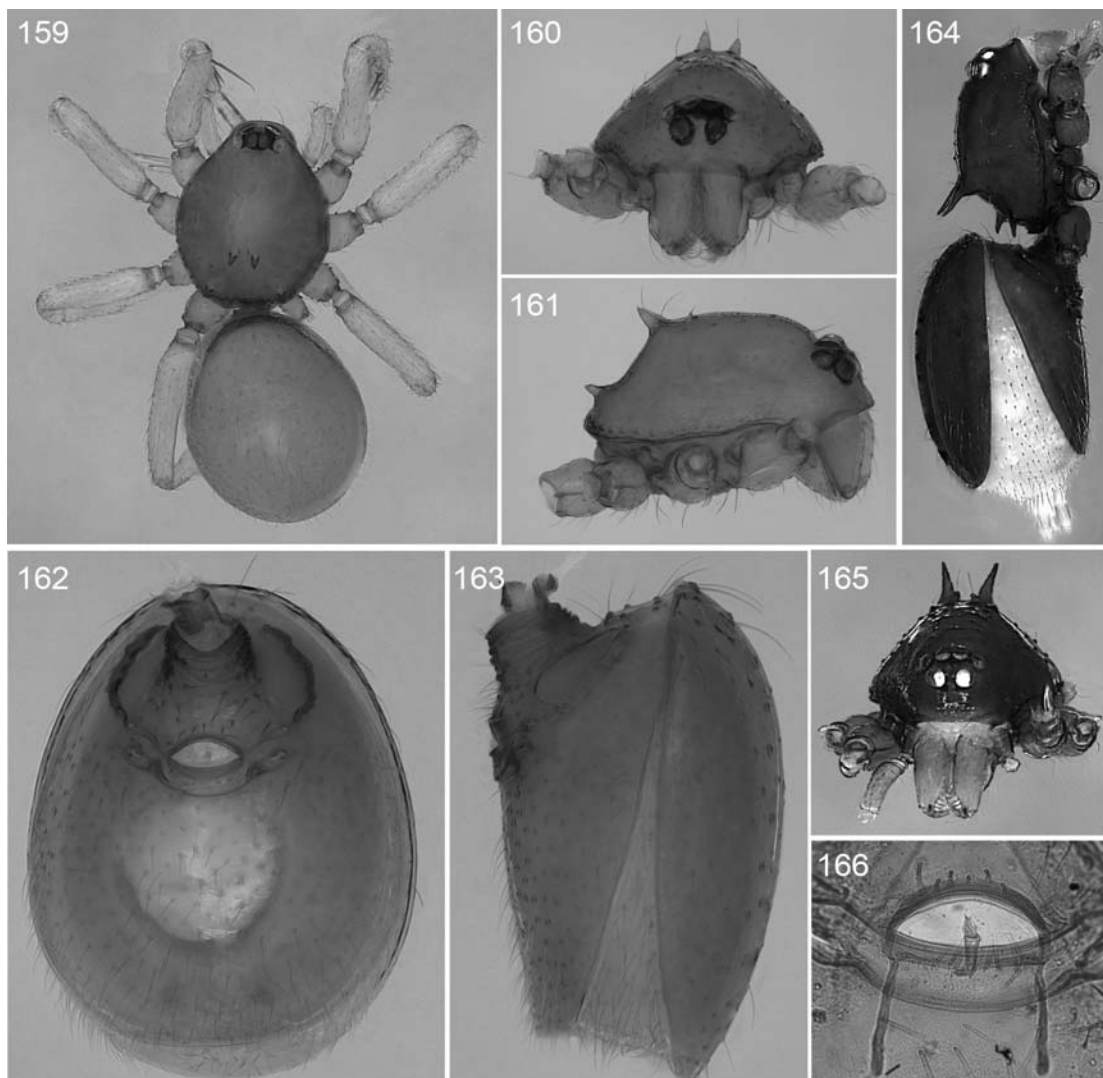
**DISTRIBUTION:** Known from northern Brazil to northern Argentina (map 4).



Figs. 144–152. *Neoxyphinus termitophilus* (Bristowe), male. **144.** Left palp, prolateral view. **145.** Same, ventral view. **146.** Same, retrolateral view. **147, 150.** Embolus, prolateral view. **148–151.** Same, ventral view. **149, 152.** Same, retrolateral view.



Figs. 153–158. *Neoxyphinus termitophilus* (Bristowe), male. **153.** Habitus, lateral view. **154.** Carapace, dorsal view. **155.** Sternum and mouthparts, ventral view. **156, 157.** Abdomen, lateral view. **158.** Mouthparts, posterior view.



Figs. 159–166. *Neoxyphinus termitophilus* (Bristowe), female. **159–163.** PBI\_OON 14617, Foz do Iguaçu, Paraná, Brazil; **164–166.** PBI\_OON 14381, Parque Nacional de Sete Cidades, Piauí, Brazil. **159.** Habitus, dorsal view. **160.** Carapace, anterior view. **161.** Same, lateral view. **162.** Abdomen, ventral view. **163.** Same, dorsal view. **164.** Habitus, lateral view. **165.** Carapace, anterior view. **166.** Epigynum, dorsal view.

OTHER MATERIAL EXAMINED: BRAZIL: **Pará:** *Belém:* Bosque Rodrigues Alves–Jardim Botânico da Amazônia, 01°25'49.0"S 48°27'22.3"W, 2001, J.A.P. Barreiros (PBI\_OON 40114, MPEG 10520; PBI\_OON 40115, MPEG 10521), 1 ♂, 1 ♀; Reserva Mocambo, 01°26'28.7"S 48°24'46.2"W, Dec. 06–12, 2007, B.V.B. Rodrigues and J.M.B. Pereira-Filho (PBI\_OON 14645, MPEG 14025; PBI\_OON 14646, MPEG 14026; PBI\_OON 14647, MPEG 14027; PBI\_OON 14648, MPEG 14028; PBI\_OON 14649, MPEG 14029; PBI\_OON 14650, MPEG 14030; PBI\_OON 14651, MPEG 14031; PBI\_OON 14652, MPEG 14032; PBI\_OON 14653, MPEG 14033; PBI\_OON 14654, MPEG 14034; PBI\_OON 14655, MPEG 14035; PBI\_OON 14656, MPEG 14036; PBI\_OON 14657, MPEG 14037; PBI\_OON 14658, MPEG 14038; PBI\_OON 14659, MPEG 14039; PBI\_OON 14660, MPEG 14040; PBI\_OON 14661, MPEG 14041), 15 ♂, 6 ♀. **Maranhão:** *Barreirinhas:* Parque Nacional dos Lençóis Maranhenses, 02°44'49"S 42°49'39"W, Oct. 12–18, 2001, Equipe Biota (PBI\_OON 40401, IBSP 67963; PBI\_OON 40403, IBSP 67962), 2 ♀. **Piauí:** *Brasileira e Piracuruca:* Parque Nacional de Sete Cidades, 04°05'56.3"S 41°05'56.3"W, Nov. 22, 2003, E.B.O. Marques (PBI\_OON 14378, MPEG 10193), 1 ♀, Mar. 28, 2005, F.M. Oliveira-Neto (PBI\_OON 14377, MPEG 10190), 1 ♀, Oct. 28, 2005 (PBI\_OON 14367, MPEG 10192), 1 ♀, June 25, 2005, F.N. Oliveira-Marques (PBI\_OON 14354, MPEG 13410), 1 ♂, Dec. 04, 2006, L.S. Carvalho, D.F. Candiani and N.F. Lo Man Hung (PBI\_OON 14376, MPEG 13406), 1 ♂, 1 ♀, Dec. 06, 2006 (PBI\_OON 14365, MPEG 13423; PBI\_OON 14368, MPEG 13427; PBI\_OON 14369, MPEG 13431), 3 ♀, Dec. 13, 2006 (PBI\_OON 14346, MPEG 13430; PBI\_OON 14347, MPEG 13413; PBI\_OON 14351, MPEG 13420), 1 ♂, 3 ♀, Dec. 15, 2006 (PBI\_OON 14364, MPEG 13422), 1 ♂, Jan. 24, 2007, L.S. Carvalho, M.P. Albuquerque and M.T.L. Avelino (PBI\_OON 14355, MPEG 13409; PBI\_OON 14360, MPEG 13408; PBI\_OON 14374, MPEG 13429), 1 ♂, 2 ♀, Jan. 26, 2007, same (PBI\_OON 14357, MPEG 13426; PBI\_OON 14358, MPEG 13407; PBI\_OON 14359, MPEG 13415; PBI\_OON 14361, MPEG 13416; PBI\_OON 14371, MPEG 13425; PBI\_OON 14373, MPEG 13419), 1 ♂, 5 ♀, Feb. 02, 2007, same (PBI\_OON 14363, MPEG 13432), 1 ♀, July 29, 2007, same (PBI\_OON 14375, MPEG 13405), 1 ♂, 1 ♀, Feb. 03, 2007, L.S. Carvalho, E.B.O. Marques and M.T.L. Avelino (PBI\_OON 14381, MPEG 13414), 2 ♀, June 01, 2007, L.S. Carvalho, F.M. Oliveira-Neto and M.T.L. Avelino (PBI\_OON 14345, MPEG 13433; PBI\_OON 14353, MPEG 13424; PBI\_OON 14380, MPEG 13434), 4 ♂, 1 ♀, June 29, 2007, same (PBI\_OON 14350, MPEG 13428; PBI\_OON 14379, MPEG 13435), 3 ♂, June 24, 2007, L.S. Carvalho, M.P. Albuquerque and F.M. Oliveira-Neto (PBI\_OON 14349, MPEG 13411; PBI\_OON 14356, MPEG 13417; PBI\_OON 14370, MPEG 13418), 1 ♂, 2 ♀, June 27, 2007, same (PBI\_OON 14348, MPEG 13412; PBI\_OON 14372, MPEG 13421), 1 ♂, 1 ♀. *Castelo do Piauí:* ECB Rochas Ornamentais LTDA, Fazenda Bonito, 05°13'50.8"S 41°42'01.1"W, Sept. 2006, L.S. Carvalho (PBI\_OON 14366, MPEG 10191), 1 ♀. *José de Freitas:* Fazenda Nazareth, 04°47'38.38"S 42°37'21.59"W, Jan. 31, 2004, V.O. Costa (PBI\_OON 14352, MPEG 10194), 1 ♂. **Tocantins:** *Miracema do Tocantins:* No specific locality, Apr. 18–21, 2002, Equipe IBSP (PBI\_OON 11375, IBSP 123797), 1 ♀, Apr. 12–25, 2002, I. Knysak and R. Martins (PBI\_OON 11372, IBSP 90013; PBI\_OON 11373, IBSP 90012; PBI\_OON 11374, IBSP 90018; PBI\_OON 11376, IBSP 90014; PBI\_OON 11377, IBSP 90007; PBI\_OON 11378, IBSP 90020; PBI\_OON 11379, IBSP 90019; PBI\_OON 11380, IBSP 90017; PBI\_OON 11381, IBSP 90015; PBI\_OON 11382, IBSP 90021; PBI\_OON 11383, IBSP 90022), 6 ♂, 7 ♀. *Palmas:* No specific locality, Mar. 18–23, 2001, I. Knysak and R. Martins (PBI\_OON 11389, IBSP 92733; PBI\_OON 11390, IBSP 92735; PBI\_OON 11391, IBSP 92726), 3 ♀; Lageado, 2001, F.B. Reulli (PBI\_OON 11398, IBSP 124569), 1 ♂, Apr. 21–24, 2002, Equipe IBSP (PBI\_OON 11397, IBSP 123793; PBI\_OON 11399, IBSP 123795; PBI\_OON 11400, IBSP 123794; PBI\_OON 11401, IBSP 123796), 1 ♂, 5 ♀; Fazenda Pedro Hélio, Ribeirão São João, Nov. 04–10, 2002, I. Knysak (PBI\_OON 11384, IBSP 89863; PBI\_OON 11385, IBSP 89838; PBI\_OON 11386, IBSP 89810; PBI\_OON 11387, IBSP 89811; PBI\_OON 11388, IBSP 89837), 5 ♂, 1 ♀; Taquarussu, Ribeirão São João, Aug. 21–27, 2001, I. Knysak and R. Martins (PBI\_OON 11392, IBSP 123822; PBI\_OON 11393, IBSP 123823; PBI\_OON 11394, IBSP 123821), 2 ♂, 1 ♀. *Porto nacional:* No specific locality, 10°42'S 48°25'W, Feb. 14–23, 2003, I. Knysak and R. Martins (PBI\_OON 11422, IBSP 92285; PBI\_OON 11423, IBSP 92283; PBI\_OON 11424, IBSP 92271; PBI\_OON 11425, IBSP 92251; PBI\_OON 11426, IBSP 92254; PBI\_OON 11427, IBSP 92258; PBI\_OON 11428, IBSP 92276; PBI\_OON 11429, IBSP 92282; PBI\_OON 11430, IBSP 92273; PBI\_OON 11431, IBSP 92274; PBI\_OON 11432, IBSP 92245; PBI\_OON 11433, IBSP 92259; PBI\_OON 11434, IBSP 92247; PBI\_OON 11435, IBSP 92270; PBI\_OON 11436, IBSP 92257; PBI\_OON 11437, IBSP 92281; PBI\_OON 11438, IBSP 92256; PBI\_OON 11439, IBSP 92275; PBI\_OON 11440, IBSP 92265; PBI\_OON 11441, IBSP 92277; PBI\_OON 11442, IBSP 92248; PBI\_OON 11443, IBSP 92260; PBI\_OON 11444, IBSP 92262; PBI\_OON 11445, IBSP 92272; PBI\_OON 11446, IBSP 92263; PBI\_

OON 11447, IBSP 92266; PBI\_OON 11448, IBSP 92286; PBI\_OON 11449, IBSP 92279; PBI\_OON 11450, IBSP 92233; PBI\_OON 11451, IBSP 92269; PBI\_OON 11452, IBSP 92252; PBI\_OON 11453, IBSP 92253; PBI\_OON 11454, IBSP 92261; PBI\_OON 11455, IBSP 92246; PBI\_OON 11456, IBSP 92268; PBI\_OON 11457, IBSP 92250; PBI\_OON 11458, IBSP 92267; PBI\_OON 11459, IBSP 92264; PBI\_OON 11460, IBSP 92284; PBI\_OON 11461, IBSP 92280; PBI\_OON 11462, IBSP 92255; PBI\_OON 11463, IBSP 92249; PBI\_OON 11464, IBSP 92278), 45♂, 16♀. *Ipueiras*: Área Verde, 11°14'S 48°26'W, July 02–09, 2002, I. Knysak and R. Martins (PBI\_OON 11402, IBSP 90586; PBI\_OON 11403, IBSP 90580; PBI\_OON 11404, IBSP 80588; PBI\_OON 11405, IBSP 90583; PBI\_OON 11406, IBSP 90579; PBI\_OON 11407, IBSP 90575; PBI\_OON 11408, IBSP 90574; PBI\_OON 11409, IBSP 90587; PBI\_OON 11410, IBSP 90584; PBI\_OON 11411, IBSP 90585; PBI\_OON 11412, IBSP 90578; PBI\_OON 11413, IBSP 90582; PBI\_OON 11414, IBSP 155753; PBI\_OON 11415, IBSP 90581), 5♂, 9♀. *Brejinho do Nazaré*: Fazenda Santa Amélia, 11°00'S 48°33'W, Oct. 25–Nov. 01, 2001, I. Knysak and R. Martins (PBI\_OON 11416, IBSP 90797; PBI\_OON 11417, IBSP 90794; PBI\_OON 11418, IBSP 90798; PBI\_OON 11419, IBSP 90796; PBI\_OON 11420, IBSP 90799; PBI\_OON 11421, IBSP 90795), 2♂, 4♀. *Dianópolis*: Gruta Fenda FF, May 21–29, 2008, F. Pelegatti-Franco et al. (PBI\_OON 11570, IBSP 134312), 1♂; Gruta Grande, Mar. 04–12, 2008, F. Pellegatti-Franco (PBI\_OON 11395, IBSP 97602), 1♀; Gruta NA, Mar. 04–12, 2008, F. Pellegatti-Franco (PBI\_OON 11396, IBSP 97607), 1♂. **Bahia**: *Central*: No specific locality, 11°01'–11°19'S 41°47'–42°10'W, July 15–31, 2002, E. Ramos and F. Cunha (PBI\_OON 11511, IBSP 67398; PBI\_OON 11512, IBSP 67415; PBI\_OON 14598, IBSP 67377; PBI\_OON 14724, IBSP 67408; PBI\_OON 14725, IBSP 67413; PBI\_OON 14726, IBSP 67382), 2♂, 5♀. **Mato Grosso**: *Três Lagoas*: Três Lagoas, June 1964, D.Z. (PBI\_OON 14629, MZUSP 12053), 1♂. **Goiás**: *Campinaçu*: Serra da Mesa, 13°52'S 48°23'W, Feb. 18–Mar. 02, 1996, Silvestre, Brandão and Yamamoto (PBI\_OON 40128, MZUSP 15676), 3♂. *Niquelândia*: No specific locality, 14°01'S 48°18'W, Sept. 24–Oct. 06, 1995, Silvestre, Dietz and Brandão (PBI\_OON 14632, MZUSP 15710), 2♂. **Distrito Federal**: *Brasília*: Reserva Ecológica IBGE, 15°56'41"S 47°53'07"W, Feb.–Apr., D. Briani (PBI\_OON 14597, IBSP 28393), 1♂; Parque Nacional de Brasília, May 13–14, 1971, W.L. and De Brown (PBI\_OON 40632, MCZ), 1♀. **Mato Grosso do Sul**: *Corumbá*: Pantanal, próximo ao Rio Vermelho, Apr. 1999, J. Raizer (PBI\_OON 14611, IBSP 68038), 1♀, Mar. 1999, same (PBI\_OON 11513, IBSP 68036), 1♂; Passo do Lontra, 19°00'34"S 57°39'11"W, Jan. 1998–Nov. 1999, J. Raizer et al. (PBI\_OON 11337, IBSP 69554; PBI\_OON 11338, IBSP 69535; PBI\_OON 11339, IBSP 69531; PBI\_OON 11340, IBSP 69558; PBI\_OON 11341, IBSP 69521; PBI\_OON 11342, IBSP 69549; PBI\_OON 11343, IBSP 69553; PBI\_OON 11344, IBSP 69525; PBI\_OON 11345, IBSP 69524; PBI\_OON 11346, IBSP 69534; PBI\_OON 11347, IBSP 69552; PBI\_OON 11348, IBSP 69555; PBI\_OON 11349, IBSP 69544; PBI\_OON 11350, IBSP 69546; PBI\_OON 11351, IBSP 69538; PBI\_OON 11352, IBSP 69533; PBI\_OON 11353, IBSP 69522; PBI\_OON 11354, IBSP 69545; PBI\_OON 11355, IBSP 69561; PBI\_OON 11356, IBSP 69520; PBI\_OON 11357, IBSP 69542; PBI\_OON 11358, IBSP 69541; PBI\_OON 11359, IBSP 69548; PBI\_OON 14695, IBSP 69526; PBI\_OON 14696, IBSP 69551; PBI\_OON 14697, IBSP 69540; PBI\_OON 14698, IBSP 69543; PBI\_OON 14699, IBSP 69530; PBI\_OON 14700, IBSP 69529; PBI\_OON 14701, IBSP 69557; PBI\_OON 14709, IBSP 69523; PBI\_OON 14710, IBSP 69527; PBI\_OON 14711, IBSP 69528; PBI\_OON 14712, IBSP 69532; PBI\_OON 14713, IBSP 69536; PBI\_OON 14714, IBSP 69537; PBI\_OON 14715, IBSP 69539; PBI\_OON 14716, IBSP 69547; PBI\_OON 14717, IBSP 69550; PBI\_OON 14718, IBSP 69556; PBI\_OON 14719, IBSP 69559; PBI\_OON 14720, IBSP 69560), 15♂, 35♀; Miranda e Abobral, Passo do Lontra, 19°30'–19°35'S 56°55'–57°00'W, J. Raizer et al., Jan. 1998–Nov. 1999 (PBI\_OON 11360, IBSP 92899; PBI\_OON 11361, IBSP 92905; PBI\_OON 11362, IBSP 93002; PBI\_OON 11363, IBSP 90088; PBI\_OON 11364, IBSP 92892; PBI\_OON 11365, IBSP 92889; PBI\_OON 11366, IBSP 92898; PBI\_OON 11367, IBSP 92890; PBI\_OON 11368, IBSP 90109; PBI\_OON 11369, IBSP 92982; PBI\_OON 11370, IBSP 92893; PBI\_OON 11371, IBSP 92900), 8♂, 4♀. *Brasilândia*: Fazenda Cisalpina, Usina Hidrelétrica Sergio Motta, 2000, Equipe IBSP (PBI\_OON 11473, IBSP 30465; PBI\_OON 11476, IBSP 30451; PBI\_OON 11478, IBSP 30466; PBI\_OON 11487, IBSP 30450; PBI\_OON 11488, IBSP 30455; PBI\_OON 11489, IBSP 30461; PBI\_OON 11490, IBSP 30464; PBI\_OON 11491, IBSP 30467; PBI\_OON 11492, IBSP 30472; PBI\_OON 11493, IBSP 30476; PBI\_OON 14586, IBSP 30458; PBI\_OON 14587, IBSP 30470; PBI\_OON 14588, IBSP 30469; PBI\_OON 14613, IBSP 30480), 11♂, 9♀, July 29, 2000, I. Knysak and R. Martins (PBI\_OON 11486, IBSP 35724), 1♂, Aug. 08–12, 2000, Equipe IBSP (PBI\_OON 11477, IBSP 30641; PBI\_OON 11483, IBSP 30615; PBI\_OON 11484, IBSP 30613; PBI\_OON 11485, IBSP 30614; PBI\_OON 14584, IBSP 30649; PBI\_OON 14585, IBSP 30625), 4♂, 3♀, Aug. 15–19, 2000, J.P. Guadanucci and

C. Fukushima (PBI\_OON 11474, IBSP 35547; PBI\_OON 11475, IBSP 35399; PBI\_OON 11494, IBSP 35401; PBI\_OON 11495, IBSP 35409; PBI\_OON 11496, IBSP 35537; PBI\_OON 11497, IBSP 35539; PBI\_OON 11498, IBSP 35398; PBI\_OON 11499, IBSP 35400; PBI\_OON 11500, IBSP 35412; PBI\_OON 11501, IBSP 35552; PBI\_OON 11502, IBSP 35553; PBI\_OON 14589, IBSP 35397; PBI\_OON 14590, IBSP 35402; PBI\_OON 14591, IBSP 35540; PBI\_OON 14592, IBSP 35550), 10♂, 5♀; Usina Hidrelétrica Sergio Motta, 22°30'00"S 53°00'59"W, all collected by Equipe IBSP, July 16–24, 2000 (PBI\_OON 14594, IBSP 30651), 1♂, July 31–Aug. 07, 2000 (PBI\_OON 11468, IBSP 30848; PBI\_OON 11469, IBSP 30923; PBI\_OON 11470, IBSP 30928; PBI\_OON 11471, IBSP 30658; PBI\_OON 11472, 30851; PBI\_OON 14582, IBSP 30852; PBI\_OON 14583, IBSP 30828), 5♂, 4♀, Aug. 08–12, 2000 (PBI\_OON 11479, IBSP 30918; PBI\_OON 11480, IBSP 30909; PBI\_OON 11481, IBSP 30921; PBI\_OON 11482, IBSP 30905; PBI\_OON 14577, IBSP 30917; PBI\_OON 14578, IBSP 30929; PBI\_OON 14579, IBSP 30919; PBI\_OON 14580, IBSP 30920; PBI\_OON 14581, IBSP 30902; PBI\_OON 14593, IBSP 30916; PBI\_OON 40116, IBSP 30900; PBI\_OON 40116, IBSP 30900), 10♂, 2♀. *Dois Irmãos do Buriti*: Fazenda Vó Florindo, 20°27'S 55°30'W, Feb. 16–26, 2008, R. Bessi (PBI\_OON 11556, IBSP 128794), 1♀; Piratupanga, 20°27'S 55°30'W, 30 Jun 1999–06 Jul 1999, A.D. Brescovit et al. (PBI\_OON 11503, IBSP 67425; PBI\_OON 11504, IBSP 67429; PBI\_OON 11505, IBSP 67435; PBI\_OON 11506, IBSP 67439; PBI\_OON 11507, IBSP 67442; PBI\_OON 11508, IBSP 67455; PBI\_OON 14595, IBSP 67457; PBI\_OON 14596, IBSP 67428; PBI\_OON 14702, IBSP 67419; PBI\_OON 14703, IBSP 67432; PBI\_OON 14704, IBSP 67444; PBI\_OON 14705, IBSP 67445; PBI\_OON 14706, IBSP 67449; PBI\_OON 14707, IBSP 67451; PBI\_OON 14708, IBSP 67460), 9♂, 9♀; Fazenda Correntes II, Piraputanga, 20°27'S 55°30'W, Feb. 16–26, 2008, R. Bessi (PBI\_OON 11553, IBSP 128752; PBI\_OON 11554, IBSP 128733; PBI\_OON 11555, IBSP 128734), 11♂, 11♀. *Anastácio*: Fazenda Jatuica, 20°27'S 55°30'W, Feb. 16–26, 2008, R. Bessi (PBI\_OON 11552, IBSP 128764), 1♂; Fazenda Jatuica, 20°31'54"S 55°50'27"W, Feb. 16–26, 2008, R. Brasil (PBI\_OON 11549, IBSP 127633), 1♂. *Ivinhema*: Gruta Fenda FF, Oct. 2004–Dec. 2006, K. Anjos (PBI\_OON 11571, IBSP 92822; PBI\_OON 11572, IBSP 92824; PBI\_OON 11573, IBSP 92820; PBI\_OON 11574, IBSP 92807; PBI\_OON 11575, IBSP 92815; PBI\_OON 11576, IBSP 92812; PBI\_OON 11577, IBSP 92825; PBI\_OON 11578, IBSP 92810; PBI\_OON 11579, IBSP 92814; PBI\_OON 11580, IBSP 92817; PBI\_OON 11581, IBSP 92819; PBI\_OON 11582, IBSP 92827; PBI\_OON 11583, IBSP 91821; PBI\_OON 11584, IBSP 92823; PBI\_OON 11585, IBSP 92808; PBI\_OON 11586, IBSP 92809; PBI\_OON 11587, IBSP 92818; PBI\_OON 11588, IBSP 92813; PBI\_OON 11589, IBSP 92811; PBI\_OON 11590, IBSP 92816; PBI\_OON 11591, IBSP 92828; PBI\_OON 11592, IBSP 92806; PBI\_OON 11593, IBSP 92826), 13♂, 12♀. **Minas Gerais**: *Taiobeiras*: No specific locality, Feb. 08–16, 2002, Equipe Biota (PBI\_OON 11548, IBSP 136798), 1♂. *Uberlândia*: Estação Ecológica do Panga, 19°11'00"S 48°23'30"W, Apr. 2005–Feb. 2006, M.F. Mineco (PBI\_OON 11465, IBSP 92662; PBI\_OON 11466, IBSP 92660), 2♀. **São Paulo**: *Teodoro Sampaio*: Parque Estadual Morro do Diabo, 22°31'S 52°18'W, Mar. 24–31, 2003, Equipe Biota (PBI\_OON 11514, IBSP 60190; PBI\_OON 14599, IBSP 60187; PBI\_OON 14600, IBSP 60194; PBI\_OON 14601, IBSP 60193), 2♂, 2♀. **Paraná**: *Cornélio Procópio*: Parque Estadual Mata de São Francisco, May 08, 2009, N.G. Cipola (PBI\_OON 11558, IBSP 150298), 1♂. *Capitão Leônidas Marques*: Salto Caxias, Rio Iguaçu, 25°30'00"S 53°42'00"W, Feb. 23–Mar. 23, 1993, A.B. Bonaldo (PBI\_OON 14622, MCN 23460), 1♂, 2♀, Mar. 20–28, 1993, same (PBI\_OON 14626, MCN 23467), 2♂, 1♀. *Dois Vizinhos*: Foz do Chopin, Cruzeiro do Iguaçu, 25°34'28"S 53°05'48"W, Oct. 08–15, 1998, Equipe Biota (PBI\_OON 14610, IBSP 21219), 1♀. *Foz do Iguaçu*: Parque Nacional de Foz do Iguaçu, 25°36'S 54°25'W, Mar. 03–12, 2002, Equipe Biota (PBI\_OON 11509, IBSP 60253; PBI\_OON 11510, IBSP 60251; PBI\_OON 14603, IBSP 60247; PBI\_OON 14604, IBSP 60257; PBI\_OON 14605, IBSP 60254; PBI\_OON 14606, IBSP 60252; PBI\_OON 14607, IBSP 60255), 10♂, 2♀; Refúgio Biológico de Bela Vista, 25°24'59"S 54°31'59"W, Nov. 09–11, 1991, A.B. Bonaldo (PBI\_OON 14617, MCN 21642), 5♂, 2♀. *Londrina*: Parque Estadual Mata dos Godoy, 23°27'S 51°15'W, 700 m, Dec. 11, 1998, J. Lopes (PBI\_OON 14602, IBSP 38191), 1♂; Jan. 05, 1999, same (PBI\_OON 14609, IBSP 38188), 1♀; Feb. 17, 1999, same (PBI\_OON 14608, IBSP 38255), 1♂; Sept. 08, 1999, same (PBI\_OON 14612, IBSP 38196), 1♂. *Pinhão*: Usina Hidrelétrica Segredo, Rio da Divisa, 25°47'27"S 52°6'50"W, Nov. 21, 1991, R. Pinto-da-Rocha and A.P. Barreto (PBI\_OON 14631, MZUSP 14626), 1♀. *Três Barras do Paraná*: Foz do Córrego Três Barras, Rio Guarani, 25°32'30"S 53°08'11"W, Feb. 20–26, 1993, A.B. Bonaldo (PBI\_OON 14625, MCN 23189; PBI\_OON 14627, MCN 23142), 1♂, 2♀; Feb. 24–Mar. 24, 1993, same (PBI\_OON 14623, MCN 23413) 6♂, 2♀. **Santa Catarina**: *Chapecó*: No specific locality, 2008, R. Fran-

cisco (PBI\_OON 11537, IBSP 122353; PBI\_OON 11538, IBSP 122365), 1 ♂, 1 ♀; Floresta Nacional de Chapecó, 27°06'10.5"S 52°46'48.8"W, 580 meters of elevation, all collected by M. Scartezini, Dec. 27, 2003 (PBI\_OON 11533, IBSP 90326), 1 ♀, Dec. 30, 2003 (PBI\_OON 11542, IBSP 90320), 2 ♂, 1 ♀, Jan. 03, 2004 (PBI\_OON 11531, IBSP 90311), 1 ♂, Feb. 07, 2004 (PBI\_OON 11523, IBSP 90308), 1 ♀, Feb. 14, 2004 (PBI\_OON 11516, IBSP 90296; PBI\_OON 11517, IBSP 90304; PBI\_OON 11518, IBSP 90323; PBI\_OON 11519, IBSP 90302), 1 ♂, 3 ♀, Feb. 27, 2004 (PBI\_OON 11527, IBSP 90305), 1 ♀, Feb. 28, 2004 (PBI\_OON 11515, IBSP 90321), 1 ♀, Mar. 06, 2004 (PBI\_OON 11520, IBSP 90303; PBI\_OON 11521, IBSP 90307; PBI\_OON 11522, IBSP 90310), 1 ♂, 2 ♀, Mar. 20, 2004 (PBI\_OON 11539, IBSP 90300), 1 ♂, Mar. 27, 2004 (PBI\_OON 11526, IBSP 90297), 1 ♀, Apr. 03, 2004 (PBI\_OON 11524, IBSP 90299), 1 ♀, Sep. 18, 2004 (PBI\_OON 11535, IBSP 90353), 1 ♀, Sep. 24, 2004 (PBI\_OON 11536, IBSP 90358), 1 ♂, Sep. 25, 2004 (PBI\_OON 11541, IBSP 90334), 1 ♂, Oct. 02, 2004 (PBI\_OON 11529, IBSP 90301), 1 ♀, Oct. 16, 2004 (PBI\_OON 11532, IBSP 90306), 1 ♀, Oct. 23, 2004 (PBI\_OON 11530, IBSP 90354), 1 ♂, Nov. 06, 2004 (PBI\_OON 11540, IBSP 90294), 1 ♀, Dec. 11, 2004 (PBI\_OON 11525, IBSP 90314), 1 ♂, Jan. 09, 2005 (PBI\_OON 11528, IBSP 90309), 1 ♀, Jan. 21, 2005 (PBI\_OON 11534, IBSP 90345), 1 ♀; Rio Monte Alegre, 27°10'52.07"S 52°46'42.03"W, Feb. 2008, R.C. Francisco (PBI\_OON 11550, IBSP 126549; PBI\_OON 11551, 126548), 1 ♂, 1 ♀. *Seara*: Nova Teutônia, 27°11'S 52°23'W, Aug. 1968, F. Plaumann (PBI\_OON 14614, AMNH), 3 ♂, 2 ♀, Nov. 1975, same (PBI\_OON 40631, FM(HD) 75-519 FMNH), 1 ♂, 1 ♀. *Itá*: Rodovia Nova Teutônia, 27°11'00"S 52°29'01"W, Feb. 01, 1996, A.B. Bonaldo, A. Kury and Rocha (PBI\_OON 14628, MCN 27143), 1 ♀. *São Cristovão do Sul*: Monte Alegre, 2001–2002, J.M. Moreira (PBI\_OON 11557, IBSP 141478), 1 ♂. *Urussanga*: Rio Molha, Sep. 23, 2006, R.A. Teixeira (PBI\_OON 11467, IBSP 79825), 1 ♀. **Rio Grande do Sul**: *Derrubadas*: Parque Estadual do Turvo, Jan. 11–17, 2002, Equipe Biota (PBI\_OON 11543, IBSP 136478; PBI\_OON 11544, IBSP 136476; PBI\_OON 11545, IBSP 136474; PBI\_OON 11546, IBSP 136477; PBI\_OON 11547, IBSP 136475), 4 ♂, 3 ♀. *São Francisco de Paula*: Barragem dos Bugres, Nov. 06, 1998, L.A. Moura (PBI\_OON 14620, MCN 31075), 1 ♀. *Canela*: Barragem dos Bugres, 29°20'35"S 50°41'44"W, Dec. 13, 1999, A.B. Bonaldo (PBI\_OON 14619, MCN 32088), 1 ♀. *Santa Cruz do Sul*: No specific locality, all collected by R. Ott (PBI\_OON 40249, MCTP 14827; PBI\_OON 40251, MCTP 14825), 1 ♂, 2 ♀, Apr. 30, 1995 (PBI\_OON 40252, MCTP 14828), 2 ♀, July 08, 1995 (PBI\_OON 40250, MCTP 14824), 1 ♂. *Eldorado do Sul*: Fazenda KRAMM, Parque Estadual Delta do Jacuí, 29°58'59"S 51°18'58"W, Oct. 29, 1998, L.A. Moura (PBI\_OON 14621, MCN 30303), 1 ♂, 2 ♀, July 01, 1999, A.B. Bonaldo (PBI\_OON 14618, MCN 31316), 4 ♂, 1 ♀. *Viamão*: Morro do Côco, 30°04'59"S 51°01'59"W, July 25, 1985, A.A. Lise (PBI\_OON 14624, MCN 13380), 3 ♂, 3 ♀; Fitotécnica, all collected by R. Ott, June 08, 1995 (PBI\_OON 40241, MCTP 15081), 2 ♀, June 23, 1995 (PBI\_OON 40243, MCTP 15082; PBI\_OON 40246, MCTP 15083), 2 ♀, Oct. 10, 1995 (PBI\_OON 40239, MCTP 15084; PBI\_OON 40244, MCTP 15086; PBI\_OON 40245, MCTP 15085), 4 ♀, Feb. 14, 1996 (PBI\_OON 40238, MCTP 15078; PBI\_OON 40248, MCTP 15077), 2 ♀, May 10, 1996 (PBI\_OON 40242, MCTP 15079; PBI\_OON 40247, MCTP 15080), 2 ♀; no specific locality, Mar. 21, 1995, A.A. Lise (PBI\_OON 40237, MCTP 12291), 1 ♂, 3 ♀. **PERU**: **Junin**: *Chanchamayo*: Estancia Naranjal San Ramon, 1000 m, July 20–27, 1965, P.B. Wygodzinsky (PBI\_OON 40131, AMNH), 1 ♂. *Satipo*: San Ramon de Pangao, 40 km SE Satipo, 750 m, June 07, 1972, R. Schuh (PBI\_OON 40132, AMNH), 1 ♂. **ARGENTINA**: **Misiones**: *Cainguas*: Sendero al Salto Escondido, Parque Provincial Salto Encantado, 27°07'S 54°48'W, Jan. 11–12, 2005, C. Grismado, L. Lopardo, L. Piacentini, A. Quaglino, G. Rubio (PBI\_OON 40105, MACN-AR 15326), 1 ♀. *General Manuel Belgrano*: Parque Provincial Yacuy, 25°50'S 54°10'W, Dec. 1972, M. Galiano (PBI\_OON 40113, MACN-AR 15317), 1 ♀. *Iguazú*: Area de la Garganta del Diablo, Parque Nacional de Iguazú, 25°42'S 54°27'W, Jan. 19–20, 2005, C. Grismado, L. Lopardo, L. Piacentini, A. Quaglino, G. Rubio (PBI\_OON 40103, MACN-AR 15324; PBI\_OON 40130, MACN-AR 15316), 8 ♂, 9 ♀; Parque Nacional Iguazú, 25°37'S 54°20'W, July 1983, P. Goloboff (PBI\_OON 40099, MACN-AR 15313), 1 ♂, Feb. 08–15, 1995, M. Ramírez (PBI\_OON 40101, MACN-AR 15329; PBI\_OON 40106, MACN-AR 15319; PBI\_OON 40111, MACN-AR 15330; PBI\_OON 40112, MACN-AR 15315), 5 ♂, 3 ♀, Oct. 23–26, 1995, M. Ramírez (PBI\_OON 40129, MACN-AR 15328), 4 ♂, 6 ♀; Saltos del Urugua-í, 10 km M Puerto Libertad, Feb. 23–25, 1997, M. Ramírez (PBI\_OON 40098, MACN-AR 15318), 1 ♂; Sendero Macuco y picadas plectrañas, Parque Nacional Iguazú, 25°40'43"S 54°26'57"W, Jan. 18–21, 2005, C. Grismado, L. Lopardo, L. Piacentini, A. Quaglino, G. Rubio (PBI\_OON 40108, MACN-AR 15323; PBI\_OON 40109, MACN-AR 15320; PBI\_OON 40110, MACN-AR 15321), 2 ♂, 4 ♀; Parque Provincial Urugua-í Refugio Caa-Porá, 3 km W Deseado, Feb. 15, 1995, M. Ramírez (PBI\_OON 40104, MACN-AR 15331), 3 ♂, 1 ♀.

*Neoxyphinus petrogoblin* Abraham and Ott, new species

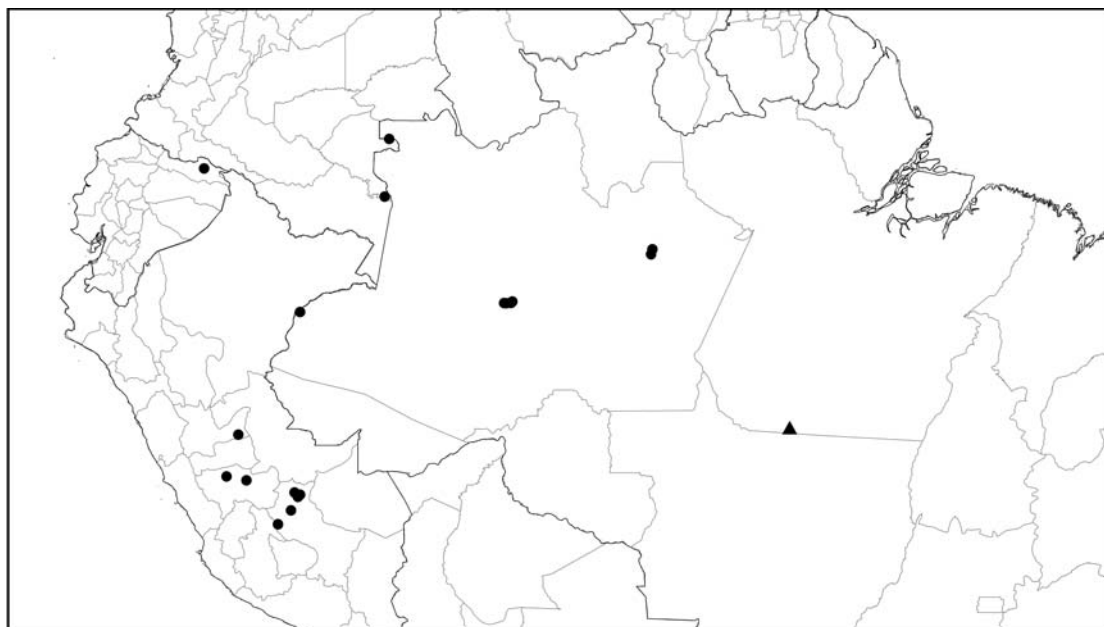
Figures 3, 4, 10, 15, 19, 20, 44, 53, 167–197; map 5

**TYPES:** Male holotype from Base de Operações Geólogo Pedro de Moura, Coari (Porto Urucu, Urucu River, 04°52'07.6"S 65°15'53.6"W), Amazonas, Brazil, 11–20 Jul 2003, A.B. Bonaldo, J.D. Dias, and D.D. Guimarães (PBI\_OON 14296, MPEG 10181). Female allotype from same locality (04°51'54"S 65°20'02"W), S.C. Dias, D.F. Candiani, and N.F. Lo Man Hung (PBI\_OON 14297, MPEG 13809).

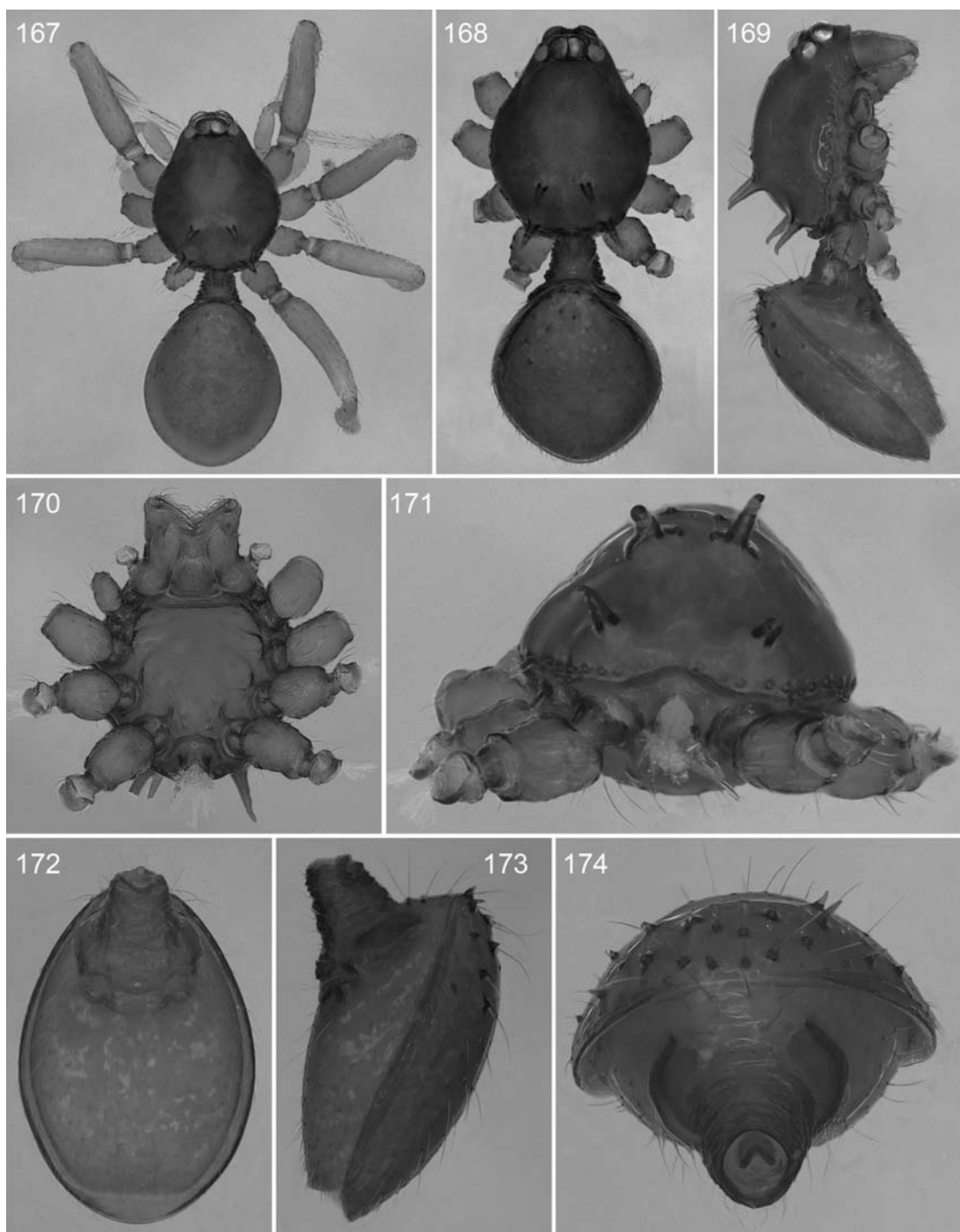
**ETYMOLOGY:** The specific name is a contraction of “Petroleum Goblin,” referring to the type locality, which harbors the largest petroleum production facility in Brazilian Amazonia.

**DIAGNOSIS:** As in *N. gregoblin*, this species has four long carapace spikes (figs. 167–169, 190–192) and, in males, conspicuous abdominal dorsal denticles (figs. 173, 174), but differs by the absence, in both sexes, of large blunt tubercles on carapace dorsal surface (figs. 168, 191). Males are further recognized by the upright embolus, with large prolateral lamella and without prolateral prong (figs. 178–183). Females can be distinguished from those of *N. termitophilus* by the larger, similarly sized carapace spikes (fig. 192) and narrower epigynal atrium (fig. 197).

**MALE (holotype):** Total length 2.11. Carapace dark red-brown, posterolateral surface with 2 pairs of spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin with blunt tubercles. Clypeus margin slightly rebordered, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown, median concavity absent, microsculpture absent, furrows shallow, anterior margin with continuous transverse

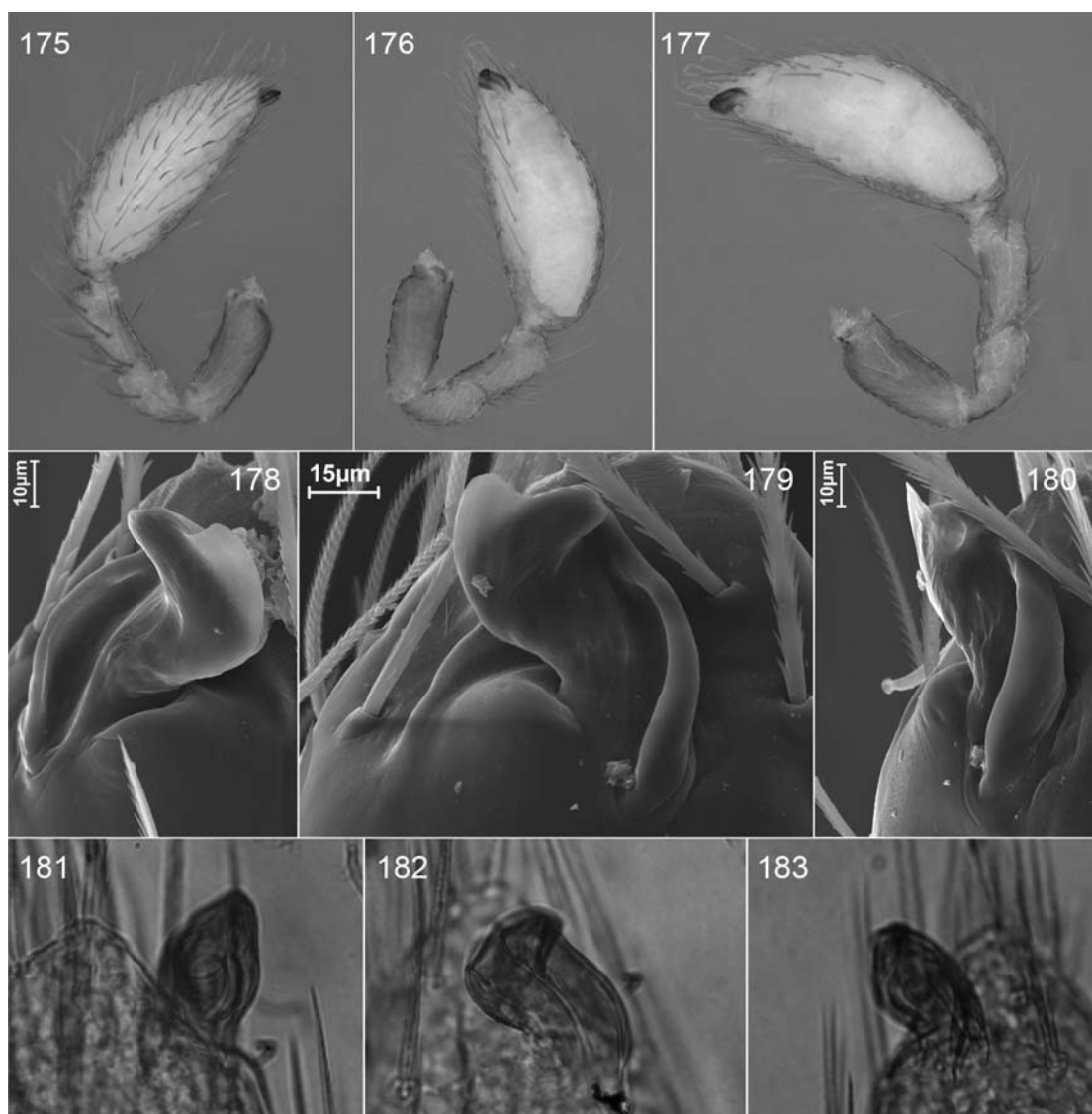


Map 5. Records of *Neoxyphinus petrogoblin* (circles) and *N. boibumba* (triangle).

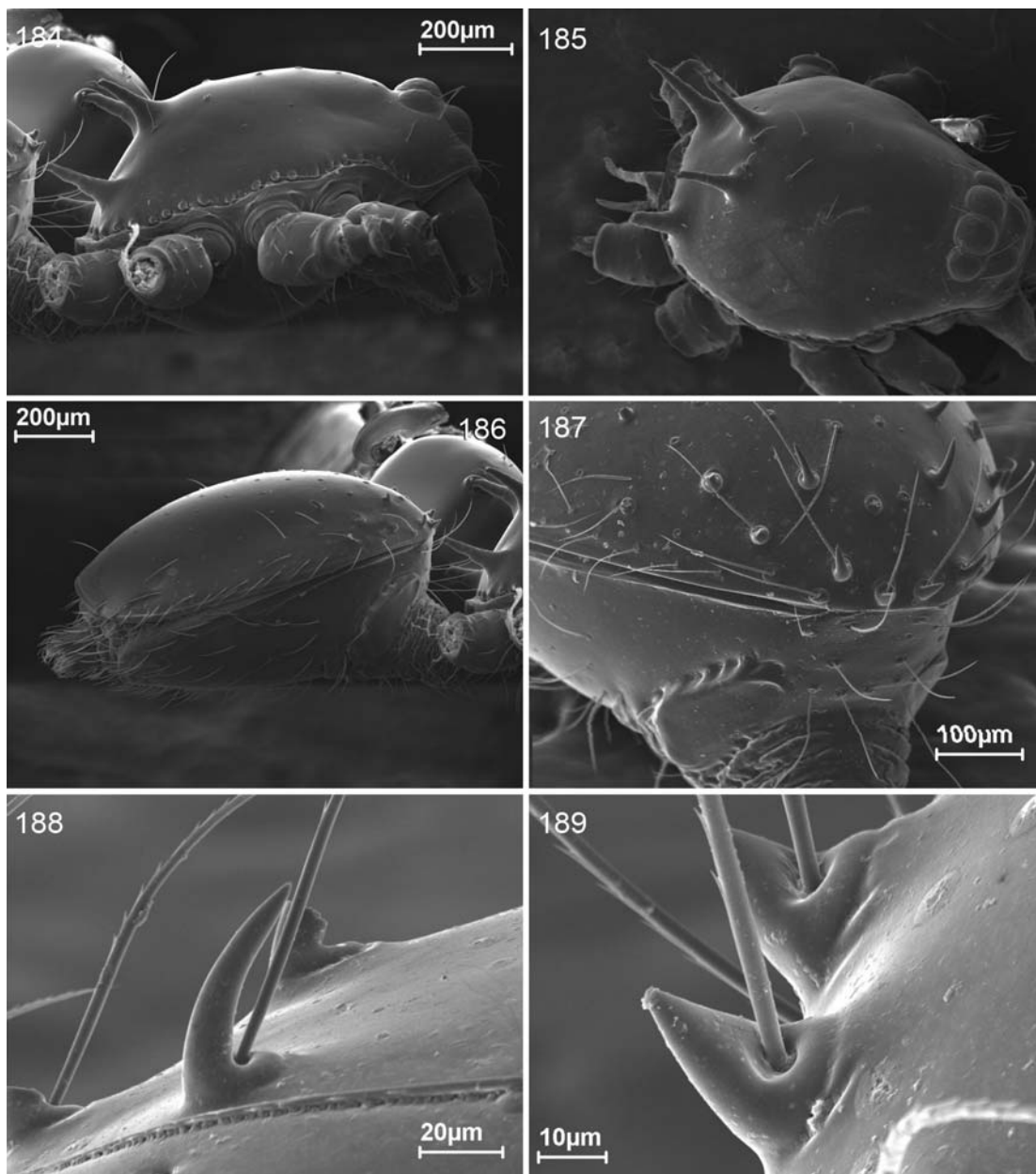


Figs. 167–174. *Neoxyphinus petrogoblin*, new species, male. **167, 168.** Habitus, dorsal view. **169.** Same, lateral view. **170.** Sternum and mouthparts, ventral view. **171.** Carapace, posterior view. **172.** Abdomen, ventral view. **173.** Same, lateral view. **174.** Same, anterior view.

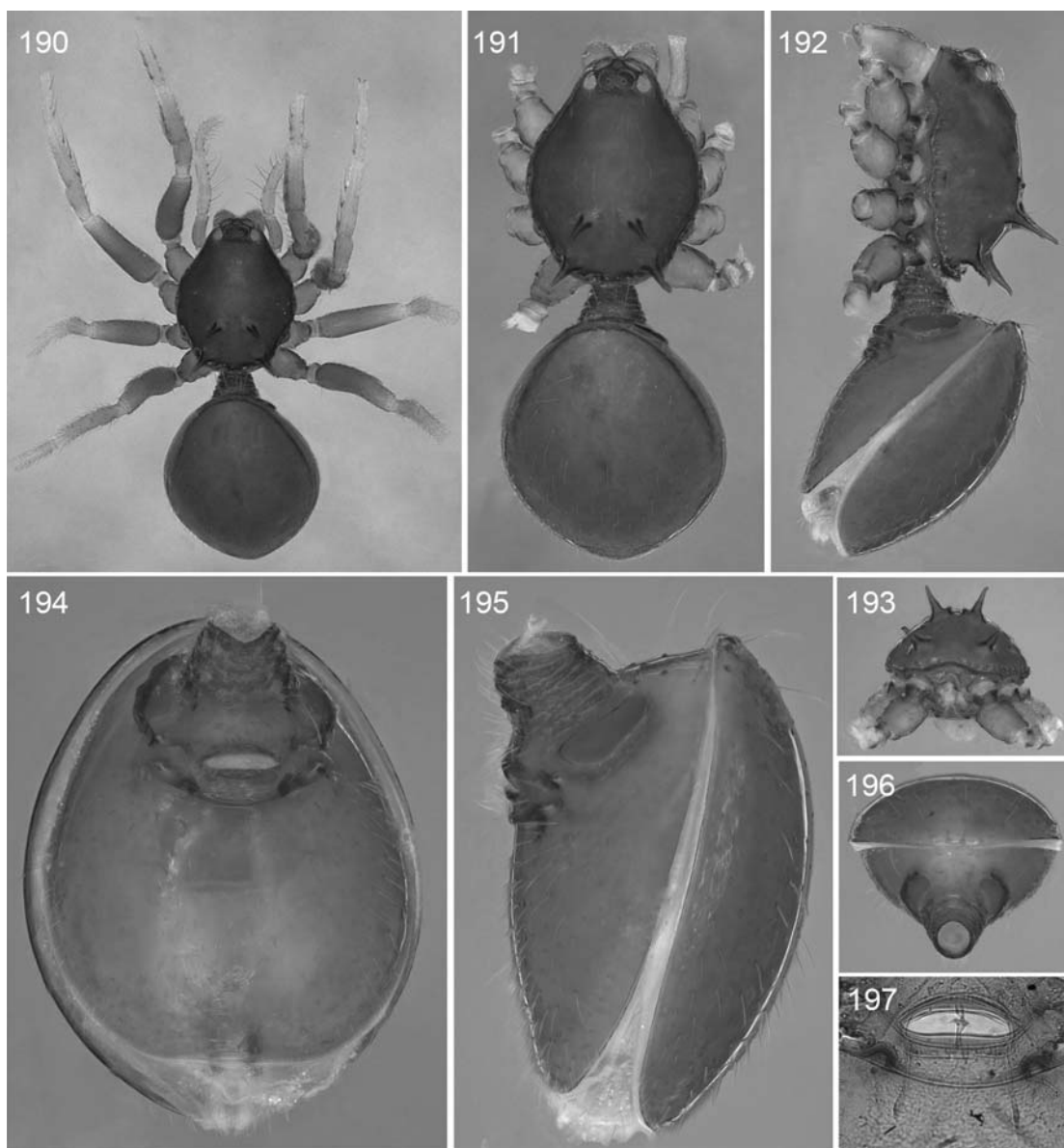
groove, setae evenly scattered, originating from small tubercles. Chelicerae, endites, and labium orange-brown. Book lung covers large, ovoid. Pedicel tube long. Dorsal scutum orange-brown, surface of middle and sides smooth, anterior half with projecting denticles. Postepigastric scutum orange-brown. Legs orange-brown. Spine formula: tibia I v4-4-1, metatarsus I v2-3-0; tibia II v2-3-0, metatarsus II v2-2-0. Genitalia: sperm pore situated at level of anterior spiracles. Palp proximal segments pale orange, cymbium and bulb yellow. Embolus upright with large prolateral lamella and without prolateral prong (figs. 175–183).



Figs. 175–183. *Neoxyphinus petrogoblin*, new species, male. 175. Left palp, prolateral view. 176. Same, ventral view. 177. Same, retrolateral view. 178. Right embolus, prolateral view. 179–183. Left embolus. 179, 182. Ventral view. 180, 183. Retrolateral view. 181. Prolateral view.



Figs. 184–189. *Neoxyphinus petrogoblin*, new species, male. 184. Carapace, lateral view. 185. Same, dorsal view. 186. Abdomen, lateral view. 187. Same, oblique anterior view. 188, 189. Same, lateral view.



Figs. 190–197. *Neoxyphinus petrogoblin*, new species, female. **190, 191.** Habitus, dorsal view. **192.** Same, lateral view. **193.** Carapace, posterior view. **194.** Abdomen, ventral view. **195.** Abdomen, lateral view. **196.** Same, anterior view. **197.** Epigynum, dorsal view.

**FEMALE (allotype):** Total length 2.41. Book lung covers elliptical. Dorsal scutum anterior half without projecting denticles. Spine formula: tibia I v6-2-2, metatarsus I v3-2-1; tibia II v4-4-0, metatarsus II v3-2-0; tibia III p1-1-0, v0-1-0, metatarsus III p1-1-0, r0-1-0. Epigynal atrium narrow, with tubular median element (fig. 197).

**VARIATION:** Some males from Huanuco and Cusco, Peru, present fewer, inconspicuous projecting denticles on the anterior half of abdominal dorsal scutum.

**DISTRIBUTION:** Known from the Amazon Basin, from Brazilian Central Amazonia to eastern Colombia, Ecuador, and Peru (map 5).

**OTHER MATERIAL EXAMINED:** COLOMBIA: **Vaupés:** *Taraira*: Taraira Lake, low Apaporis River, Caparu Biological Station 01°04'N 69°29'W, Apr. 02, 2004, J. Pinzón (PBI\_OON 40630, ICN), 20♂, 17♀; Serrania Taraira, Caño Pintadillo, 01°01'S 69°39'W, Apr. 2002, J. Pinzón (PBI\_OON 40629, ICN-Ar 4102), 1♀. ECUADOR: **Sucumbios:** Cuyabeno, Jan.–May 1994, L. Vitt et al. (PBI\_OON 11597, MCTP 9822), 1♂. BRAZIL: **Amazonas:** *Coari*: Base de Operações Geólogo Pedro de Moura, Urucu, 4°51'36"S 65°06'23"W, Sept. 29, 2006, S.C. Dias, D.F. Candiani, N.F. Lo Man Hung and C.A.C. Santos, Jr. (PBI\_OON 14528, MPEG 13811), 1♀, July 11–20, 2003, A.B. Bonaldo, J.D. Dias, D.D. Guimarães (PBI\_OON 14525, MPEG 10164; PBI\_OON 14529, MPEG 10185; PBI\_OON 14531, MPEG 10159; PBI\_OON 14534, MPEG 10187; PBI\_OON 14536, MPEG 10156; PBI\_OON 14530, MPEG 10170), 6♂, 1♀, July 12–20, 2003, same (PBI\_OON 14535, MPEG 10168), 1♂, July 19–22, 2003, same (PBI\_OON 14527, MPEG 10162), 1♂, Sept. 2006, S.C. Dias et al. (PBI\_OON 14532, MPEG 13812), 1♂; Base de Operações Geólogo Pedro de Moura, Urucu, 04°48'23"S 65°02'05"W, July 08, 2006, S.C. Dias, L.T. Miglio and C.A.C. Santos, Jr. (PBI\_OON 14533, MPEG 13813), 2♂. *Manaus:* Igarapé Tarumã Mirim, Igarapé, 03°06'00"S 60°01'48"W, Apr. 20, 1977, H. Höfer (PBI\_OON 11606, IBSP 73233), 1♂, Apr. 13, 1983, J. Adis (PBI\_OON 40122, SMNK ARA 220), 1♀, May 13, 1983 (PBI\_OON 40121, SMNK ARA 221), 2♂, May 13, 1983, H. Höfer (PBI\_OON 11594, INPA 1523), 1♂, 1♀, Reserva Florestal Adolpho Ducke, 02°55'12"S 59°58'48"W, 100 m, Aug. 21, 1991, H. Höfer and T. Gasnier (PBI\_OON 40120, SMNK ARA 4576), 1♂, Sept. 04, 1991 (PBI\_OON 40118, SMNK ARA 4572), 1♀; Reserva Florestal Adolpho Ducke, Aug. 31, 1992, H. Höfer (PBI\_OON 40402, IBSP 10715), 1♂, 1♀, Sep. 20, 1997, R. Ott (PBI\_OON 11598, MCTP 12615), 2♂, Sep. 23, 1997, R. Ott (PBI\_OON 11599, MCTP ex 12616), 1♂; Reservas PBDFE, Reserva Cabo Frio, Nov. 26, 2001, F.N.N. Rego (PBI\_OON 11605, IBSP 92796), 1♂. PERU: **Loreto:** *Pithecia*, 05°11'S 72°42'W, May–June, 1990, T. Erwin and D. Silva (PBI\_OON 40605, MUSM), 1♀. **Huanuco:** *Huánuco*: Panguana Biological Station, 09°37'S 74°56'W, 260 m elevation, all collected by M. Verhaagh, Oct. 29–Nov. 26, 1983 (PBI\_OON 11604, IBSP 73223), 1♂, Dec. 24, 1983–Jan. 21, 1984 (PBI\_OON 11600, IBSP 73221), 1♀, Feb. 18, 1984 (PBI\_OON 11596, SMNK), 1♂, Feb. 18–Mar. 17, 1984 (PBI\_OON 11603, IBSP 91373), 1♂, July 30–Aug. 13, 1984 (PBI\_OON 11601, IBSP 73321; PBI\_OON 11602, IBSP 73230; PBI\_OON 40123, SMNK 4647A), 1♂, 2♀, May 21, 1985 (PBI\_OON 11595, SMNK), 1♂. **Cusco:** *Camisea* River, Pagoreni, 11°42'22.5"S 72°54'10.7"W, 465 m elevation, May 07–28, 1998, S. Córdova (PBI\_OON 40591, MUSM-ENT 0501424; PBI\_OON 40594, MUSM-ENT 0501415; PBI\_OON 40598, MUSM-ENT 0501437), 13♂, 3♀; *Camisea* River, San Martín, 11°47'09.8"S 72°42'05.3"W, 474 m elevation, Mar.–Apr. 1997, S. Córdova (PBI\_OON 40593, MUSM-ENT 0501415), 1♀, Nov. 08, 1997 (PBI\_OON 40589, MUSM-ENT 05001464), 1♀; *Camisea* River, Armihuari, 11°51'S 72°46'W, 560 m elevation, Oct. 14–19, 1997, S. Córdova (PBI\_OON 40599, MUSM-ENT 05001456), 1♂, 2♀; *Camisea*, Cashiri, 11°51'51.3"S 72°46'45.6"W, 579 m elevation, Sep. 02, 1997, S. Córdova (PBI\_OON 40600, MUSM-ENT 05001460), 2♀. *Urubamba:* Mangoriar, 12°21'S 73°02'W, 1500 m elevation, Dec. 11, 2002, J. Grados (PBI\_OON 40606, MUSM-ENT 0501593), 1♂, 4♀. Rio Apurímac, Lactahuaman, 12°51'S 73°30'W, 1710 m elevation, Aug. 11–29, 1998, J. Duarez and S. Córdova (PBI\_OON 40602, MUSM-ENT 0501449), 3♀; Rio Apurímac, Wayrapata, 12°51.3'S 73°30.1'W, 2320 m elevation, Aug. 29, 1998, J. Duarez and S. Córdova (PBI\_OON 40603, MUSM-ENT 0501450), 1♂.

*Neoxyphinus hispidus* (Dumitrescu and Georgescu), new combination

Figures 198–209; map 2

*Decuana hispida* Dumitrescu and Georgescu, 1987: 92, pl. 2, 3 (two males, one female syntypes from Rancho Grande [probably Parque Nacional Henri Pittier, Aragua], Venezuela, XI.11.1982, T. Orguidan and V. Decu col., in “Grigore Antipa” National Museum of Natural History, Bucharest, not available).

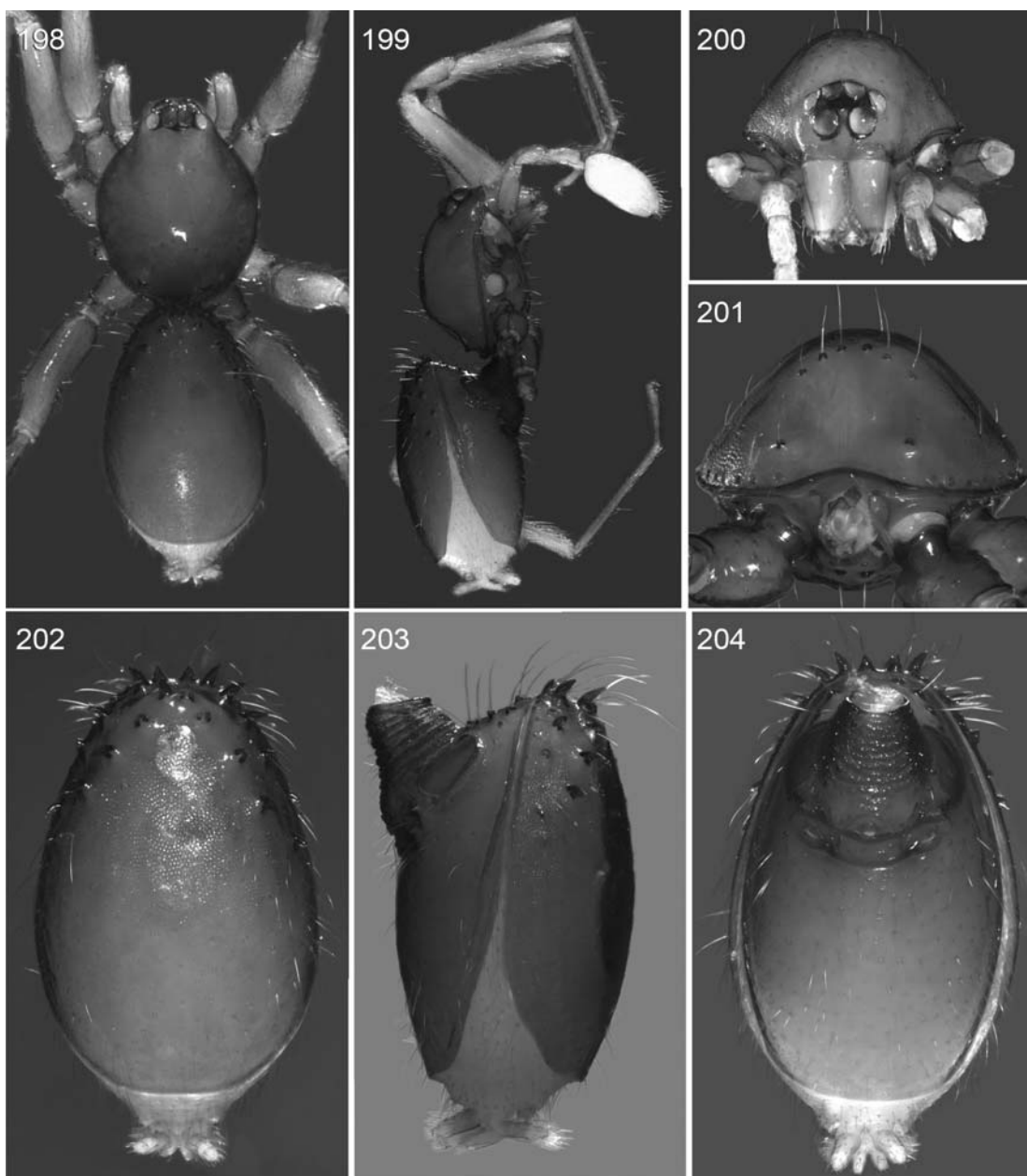
**DIAGNOSIS:** Males resemble those of *N. boibumba* in having abdominal anterior denticles and lacking carapace spikes, but differ by the longer pedicel, inserted obliquely in relation to the postepigastric scutum (fig. 203). Females differ from those of *N. furtivus* and *N. keyserlingi* by the smooth carapace, epigynal atrium strongly rebordered anteriorly and median element with long accessory prongs (figs. 216, 217). Females may be further distinguished by the presence of two prolateral spines on femur I (fig. 212), contrasting with those of *N. furtivus*, with one and with those of all remaining species, devoid of spines.

**MALE** (PBI\_OON 40608, MNRJ): Total length 2.61. Carapace orange-brown, posterolateral surface without spikes, with a pair of raised blunt tubercles near the posterior margin (fig. 203), surface of elevated portion of pars cephalica smooth, sides finely reticulate, lateral margin with small, inconspicuous tubercles. Clypeus margin unmodified, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum as long as wide, pale orange, median concavity absent, microsculpture absent, furrows shallow, setae evenly scattered, originating from small tubercles. Chelicerae, endites, and labium pale orange. Book lung covers large, ovoid. Pedicel tube medium sized. Dorsal scutum orange-brown, surface of middle and sides reticulate, anterior half with projecting denticles. Postepigastric scutum orange-brown. Legs yellow. Spine formula: tibia I v2-4-2, metatarsus I v2-2-2; tibia II v2-4-2, metatarsus II v2-2-2. Genitalia: sperm pore situated between anterior and posterior spiracles. Palp proximal segments yellow, cymbium and bulb white. Embolus with well-developed apical projection, without prolateral prong or prolateral prong, with a prolateral basal notch (figs. 209–211).

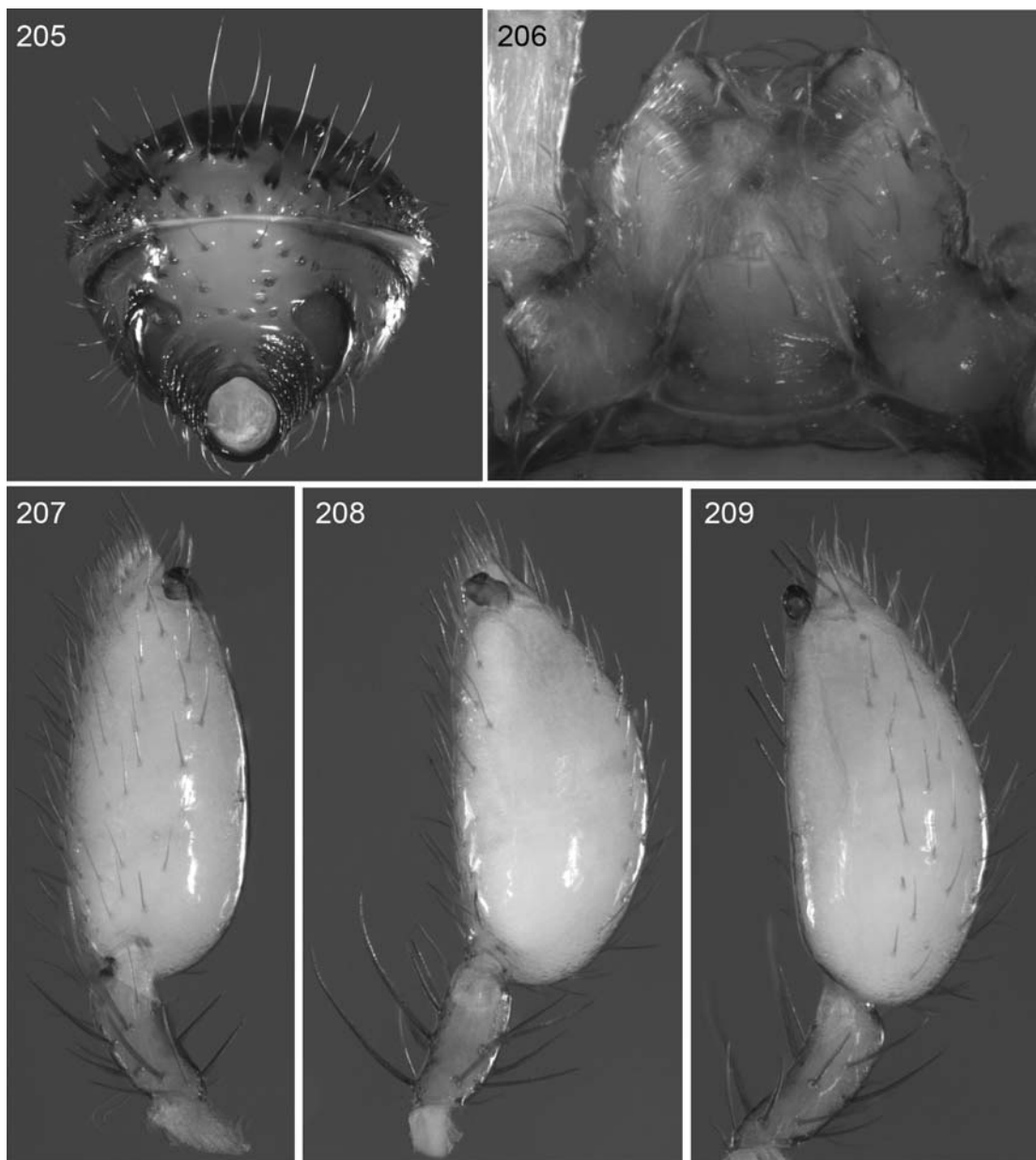
**FEMALE** (PBI\_OON 40626): Total length 2.84. Dorsal scutum anterior half without projecting denticles. Carapace posterior surface with additional retrolateral protruded tubercle. Leg spination femora: I v0-0-2; tibiae: I, II v4-4-2; metatarsi: I, II v2-2-2. Epigynal median element large, curved, with conspicuous accessory prongs (figs. 216, 217).

**DISTRIBUTION:** Known from the type locality and from Lara Department, Venezuela (map 2).

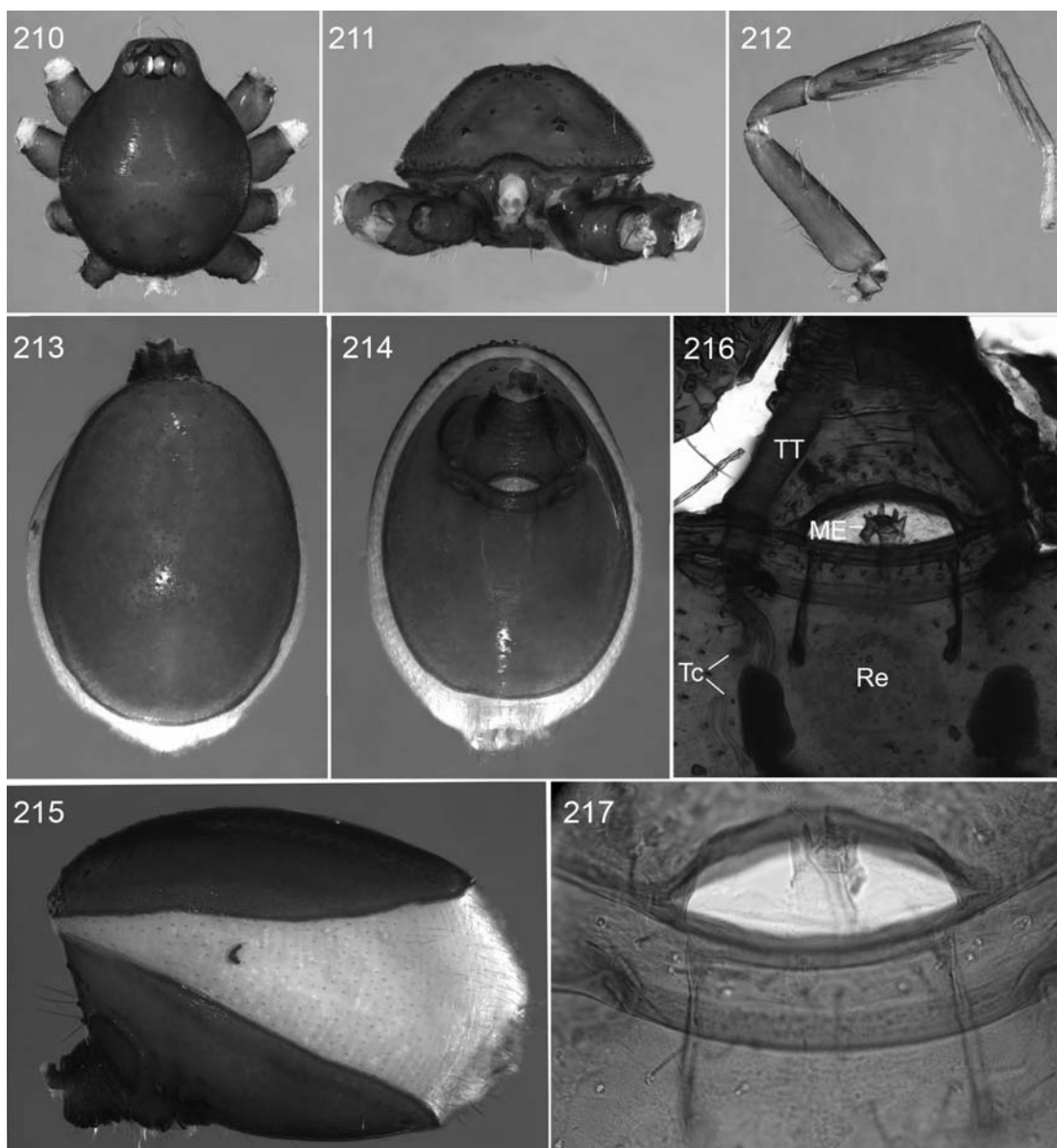
**MATERIAL EXAMINED:** VENEZUELA: **Lara:** Parque Nacional Yacambu, Dec. 2002, A. Pérez and A. Giupponi, 1 ♂ (PBI\_OON 40608, MNRJ). **Aragua:** Rancho Grande–Maracy Road (First stream SE of Rancho Grande), May 01, 1992, L. Herman, 1 ♀ (PBI\_OON 40626, AMNH).



Figs. 198–204. *Neoxyphinus hispidus* (Dumitresco and Georgesco), male. **198.** Habitus, dorsal view. **199.** Same, lateral view. **200.** Carapace, anterior view. **201.** Same, posterior view. **202.** Abdomen, dorsal view. **203.** Same, lateral view. **204.** Same, ventral view.



Figs. 205–209. *Neoxyphinus hispidus* (Dumitresco and Georgesco), male. **205.** Abdomen, anterior view. **206.** Mouthparts, posterior view. **207.** Left palp, prolateral view. **208.** Same, ventral view. **209.** Same, retrolateral view.



Figs. 210–217. *Neoxyphinus hispidus* (Dumitresco and Georgesco), female. **210.** Carapace, dorsal view. **211.** Same, posterior view. **212.** Leg I, prolateral view. **213.** Abdomen, dorsal view. **214.** Same, ventral view. **215.** Same, lateral view. **216.** Internal female genitalia and tracheal system, dorsal view. **217.** Epigynum, ventral view. Abbreviations: ME, median element; Re, receptaculum; Tc, tracheoles; TT, tracheal trunk.

*Neoxyphinus boibumba* Abraham and Rheims, new species

Figures 7, 13, 22, 26, 33, 34, 38, 42, 218–241; map 5

TYPE: Male holotype from Campo de Provas Brigadeiro Velloso (Serra do Cachimbo, 09°21'39"S 55°02'01"W), Novo Progresso, Pará, Brazil, 07–17 Sep. 2003, A.B. Bonaldo, D.R. Santos-Souza and D.D. Guimarães (PBI OON 14295, MPEG 13671).

ETYMOLOGY: The specific name refers to the Boi-Bumbá folkloric festival, which takes place annually in north and northeastern Brazil and is especially appreciated in the state of Pará.

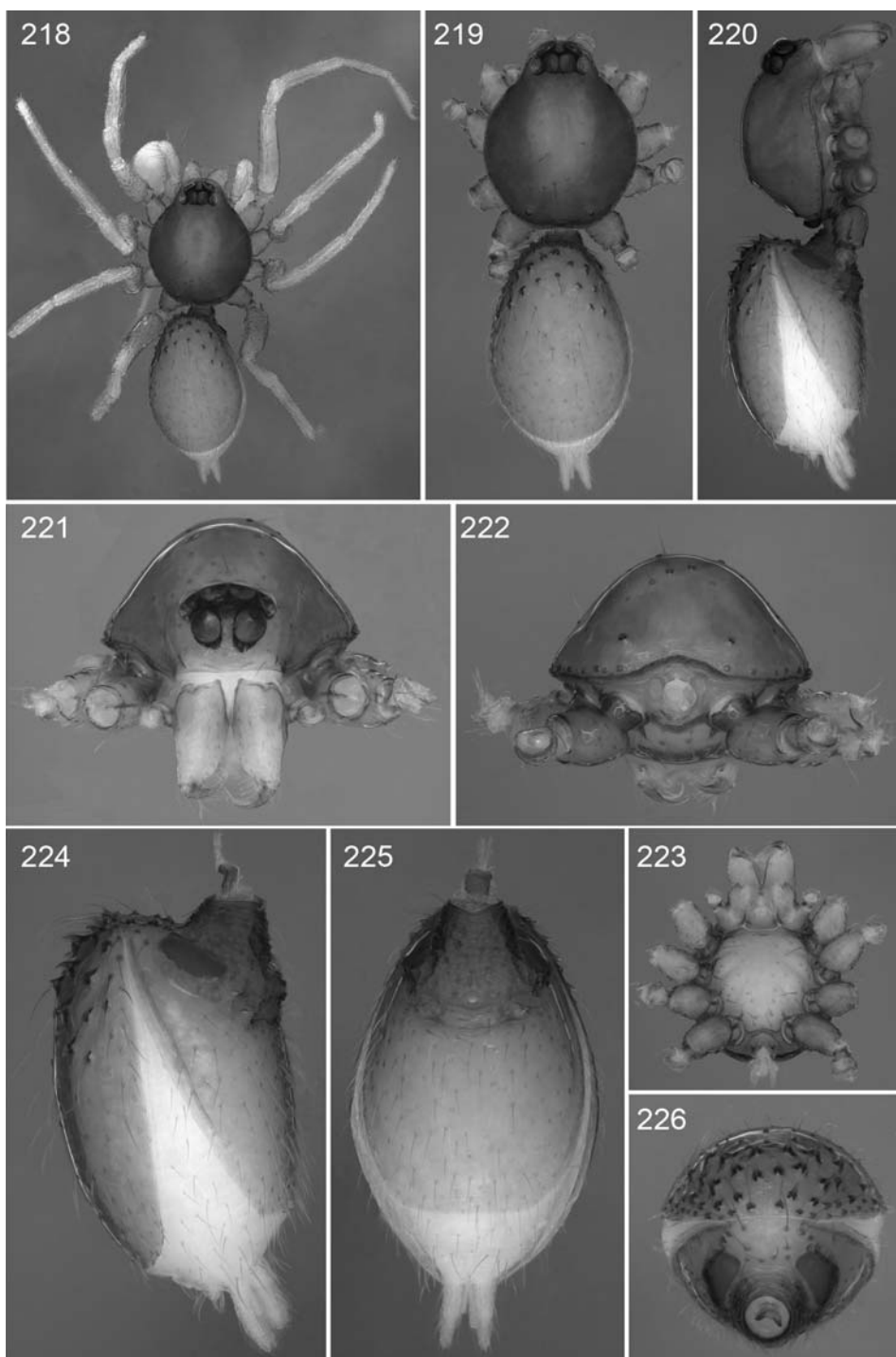
DIAGNOSIS: Males differ from those of other species without developed carapace spikes by the combination of smooth carapace (figs. 219, 222), well-developed denticles on the anterior end of dorsal scutum (figs. 224, 226) and rounded embolus (figs. 228, 231), not elongated as in *N. barreirosi*. The shorter pedicel, inserted in parallel to postepigastric scutum (fig. 224), further separates this species from *N. hispidus*.

MALE (holotype): Total length 1.88. Carapace orange-brown, posterolateral surface without spikes, with a pair of large blunt tubercles near the posterior margin, surface of elevated portion of pars cephalica and sides smooth, lateral margins with small, inconspicuous tubercles. Clypeus margin unmodified, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, microsculpture absent, furrows shallow, inconspicuous, anterior margin unmodified; setae evenly scattered, originating from small tubercles. Chelicerae, endites, and labium orange-brown. Book lung covers large, ovoid. Pedicel tube long. Dorsal scutum orange-brown, surface of middle and sides smooth, anterior half with projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Spine formula: tibia I v2-4-0, metatarsus I v2-3-0. Tarsi I to IV superior claws tooth not examined in detail. Genitalia: epigastric region with sperm pore small, narrow, slitlike, situated between anterior and posterior spiracles. Palp proximal segments pale orange, cymbium and bulb yellow. Embolus rounded, without prolateral prong or prolateral lamella (figs. 227–235).

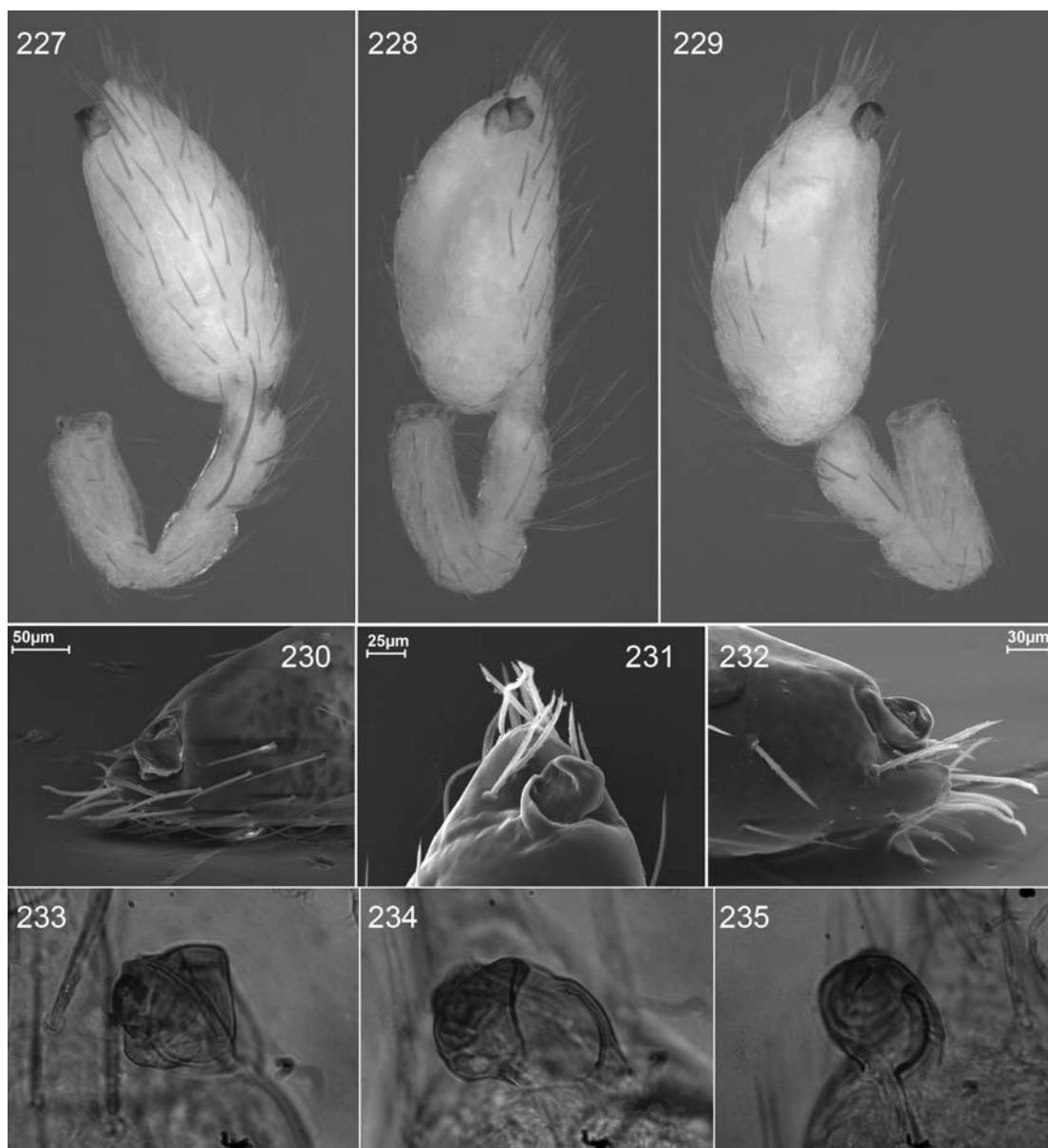
FEMALE: Unknown.

DISTRIBUTION: Known from the type locality, Serra do Cachimbo, State of Pará, Brazil (map 5).

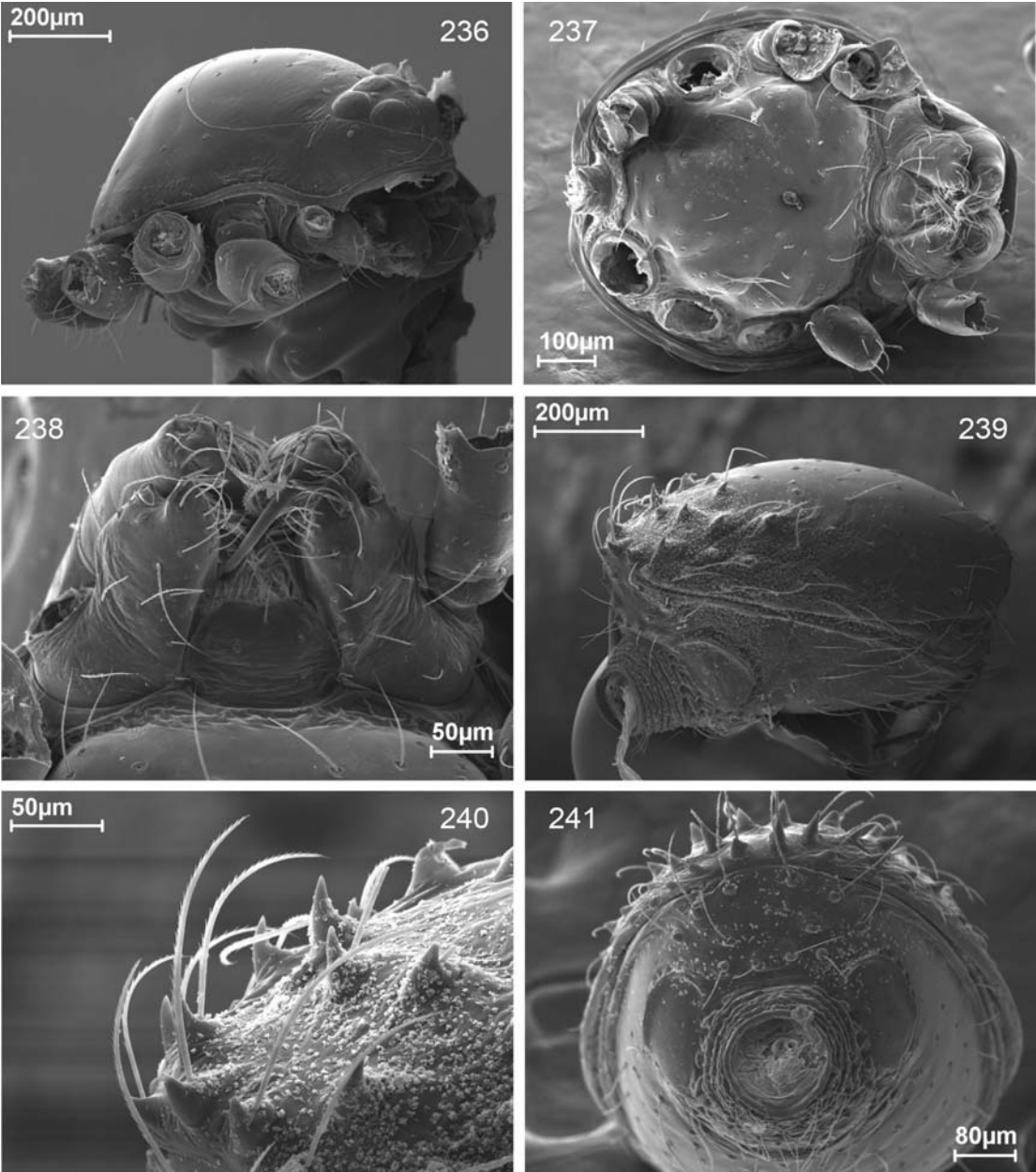
OTHER MATERIAL EXAMINED: BRAZIL: **Pará:** *Novo Progresso:* Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, 09°21'41.5"S 55°02'07.5"W, Sept. 07–17, 2003, A.B. Bonaldo, D.R. Santos-Souza and D.D. Guimarães (PBI\_OON 14540, MPEG 13676; PBI\_OON 40625, MPEG 16872; PBI\_OON 40636, MPEG 16864; PBI\_OON 40637, MPEG 16865; PBI\_OON 40638, MPEG 16866; PBI\_OON 40639, MPEG 16867; PBI\_OON 40640, MPEG 16868; PBI\_OON 40641, MPEG 16869; PBI\_OON 40642, MPEG 16870; PBI\_OON 40661, MPEG 16871; PBI\_OON 40663, MPEG 16873; PBI\_OON 40664, MPEG 16874), 16♂; Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, Olho d'água, 09°21'45.3"S 54°54'54.4"W, Sep. 07–17, 2003, A.B. Bonaldo, D.R. Santos-Souza and D.D. Guimarães (PBI\_OON 40634, MPEG 16862; PBI\_OON 40635, MPEG 16863), 2♂, Mar. 16–26, 2004, J. Ricetti, D.D. Guimarães and J.A.P. Barreiros (PBI\_OON 14537, MPEG 13673; PBI\_OON 14539, MPEG 13675; PBI\_OON 40669, MPEG 16879), 3♂, Mar. 22–25, 2004, same (PBI\_OON 14542, MPEG 14145), 3♂; Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, Rio Formiga, 09°22'02.9"S 55°01'11.9"W, Sept. 07–17, 2003, A.B. Bonaldo, D.R. Santos-Souza and D.D. Guimarães (PBI\_OON 14538, MPEG 13674; PBI\_OON 14541, MPEG 13677; PBI\_OON 40665, MPEG 16875; PBI\_OON 40666, MPEG 16876; PBI\_OON 40667, MPEG 16877; PBI\_OON 40668, MPEG 16878), 7♂, Mar. 16–26, 2004, J. Ricetti, D.D. Guimarães and J.A.P. Barreiros (PBI\_OON 14543, MPEG 13672; PBI\_OON 40670, MPEG 16880), 2♂; Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, 2004, no collector (PBI\_OON 40633, MPEG 16861), 1♂.



Figs. 218–226. *Neoxyphinus boibumba*, new species, male. **218, 219.** Habitus, dorsal view. **220.** Same, lateral view. **221.** Carapace, anterior view. **222.** Same, posterior view. **223.** Sternum and mouthparts, ventral view. **224.** Abdomen, lateral view. **225.** Same, ventral view. **226.** Same, anterior view.



Figs. 227–235. *Neoxyphinus boibumba*, new species, male. 227. Right palp, prolateral view. 228. Same, ventral view. 229. Same, retrolateral view. 230. Left embolus, prolateral view. 231. Right embolus, ventral view. 232. Left embolus, retrolateral view. 233. Same, prolateral view. 234. Same, ventral view. 235. Same, retrolateral view.



Figs. 236–241. *Neoxyphinus boibumba*, new species, male. 236. Carapace, lateral view. 237. Sternum and mouthparts, ventral view. 238. Mouthparts, posterior view. 239, 240. Abdomen, lateral view. 241. Same, anterior view.

***Neoxyphinus barreirosi*** Abraham and Bonaldo, new species

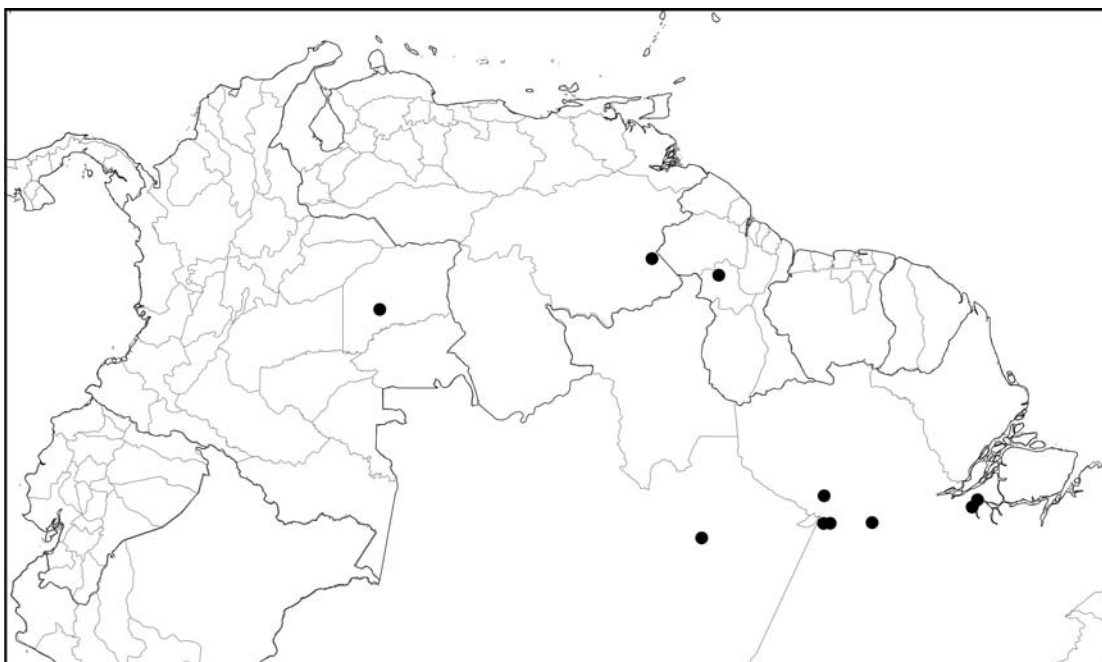
Figures 8, 14, 27, 39, 43, 54, 242–274; map 6

**Types:** Male holotype from Estação Científica Ferreira Penna, FLONA Caxiuana, Melgaço, Brazil (01°44'15.5"S 51°26'42.0"W), 25 Oct 2003, J.A.P. Barreiros (PBI\_OON 14441, MPEG 10369). Female allotype same locality and collector, 16 Oct 2003 (PBI\_OON 14442, MPEG 10383).

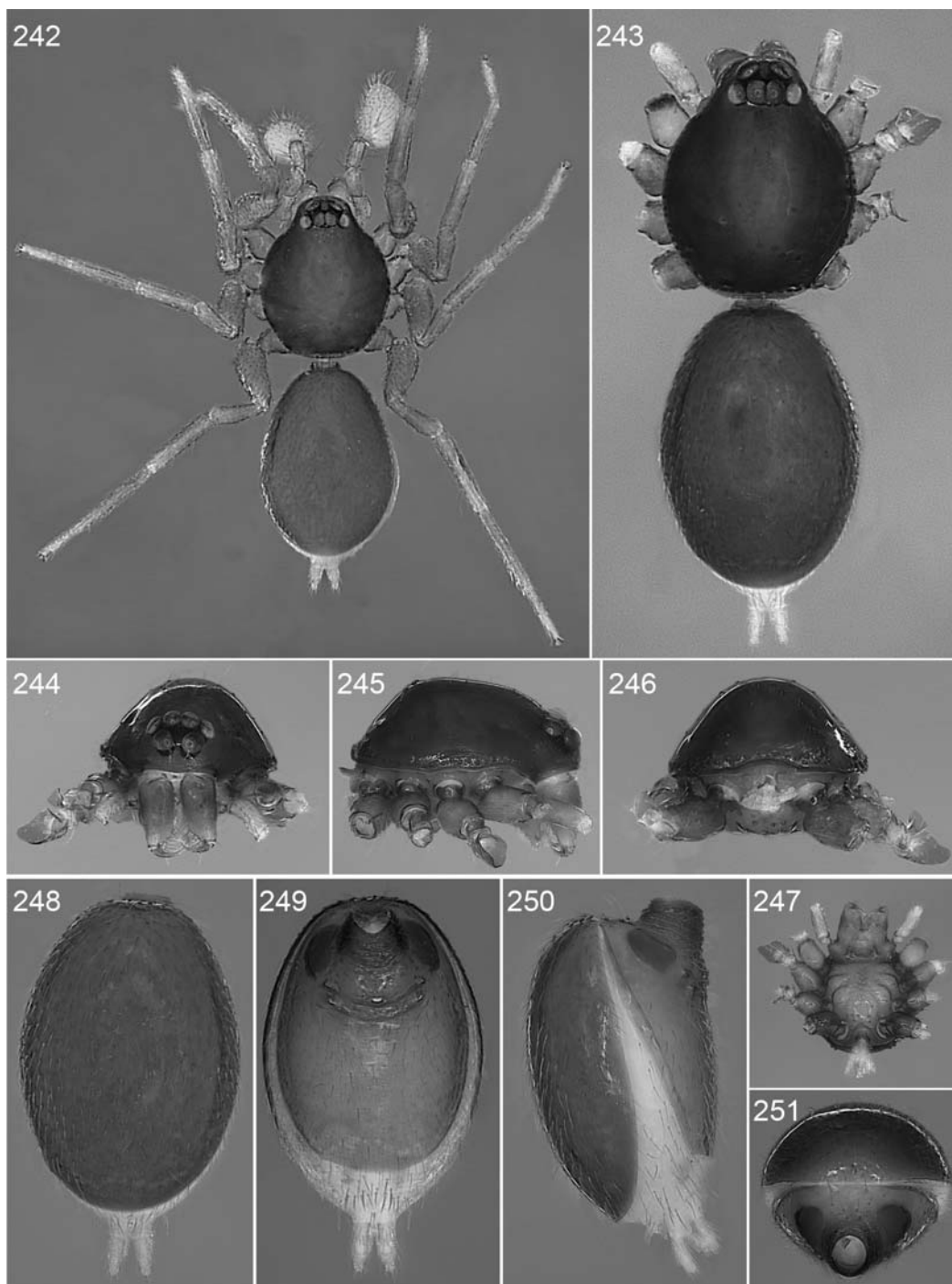
**Etymology:** The specific name is a patronym in memory of the collector of the holotype, José Augusto Pereira Barreiros, who dedicated his brief life to the study of soil spiders and was an enthusiast of the goblin spiders.

**Diagnosis:** Males resemble *N. hispidus* and *N. boibumba* by the smooth carapace surface, without developed posterior spikes (figs. 243, 246), but differ by the long and slender embolus, with pointed apical projection (figs. 43, 253, 259), and by the absence of abdominal anterior denticles (fig. 250, 251). Females resemble those of *N. termitophilus*, *N. hispidus*, *N. furtivus*, and *N. keyserlingi* by the wide epigynal atrium, differing by the unique combination of the posteriorly positioned median element (fig. 274) and absence of carapace spikes (fig. 268).

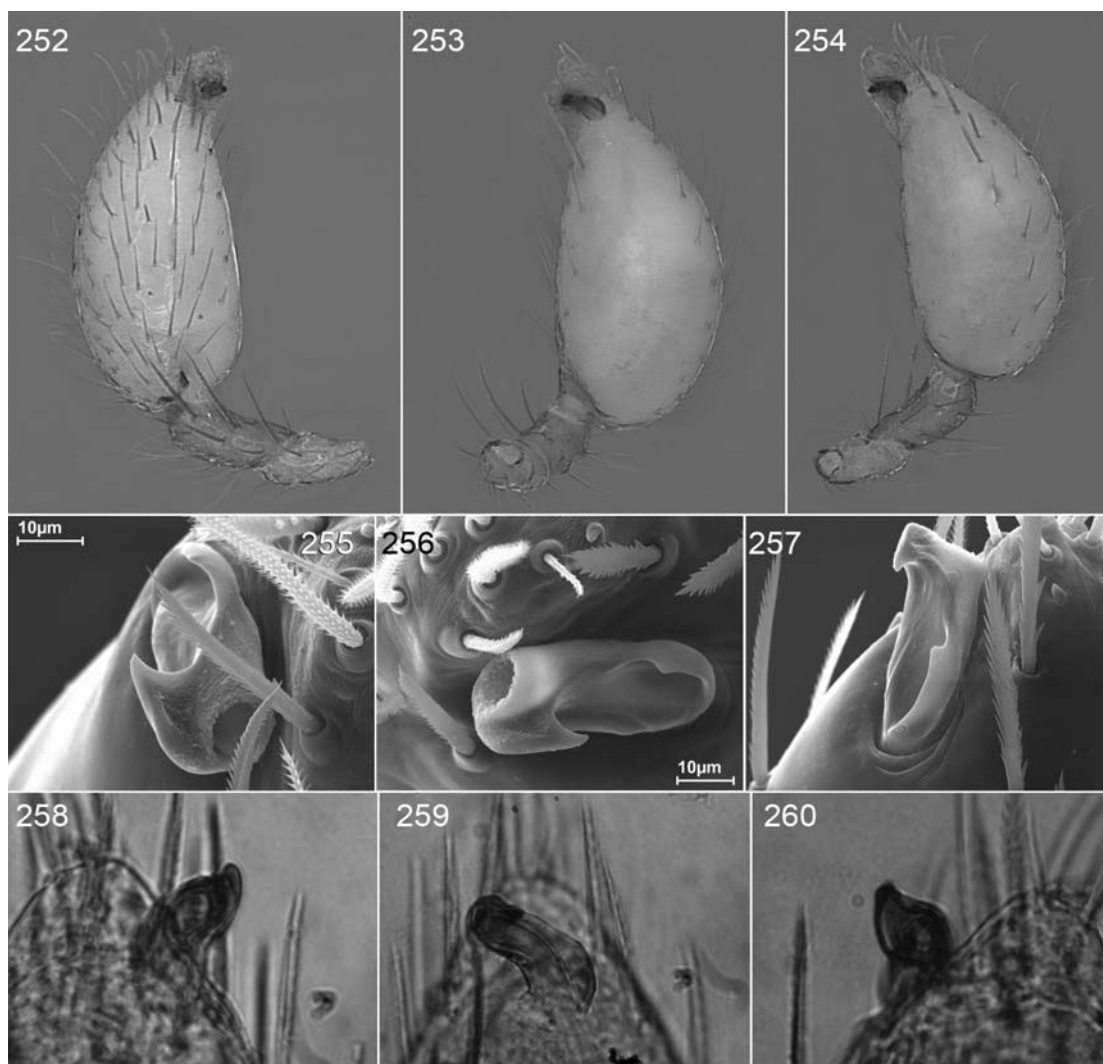
**Male (holotype):** Total length 1.49. Carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin with blunt tubercles. Clypeus margin unmodified, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, with a



Map 6. Records of *Neoxyphinus barreirosi*.

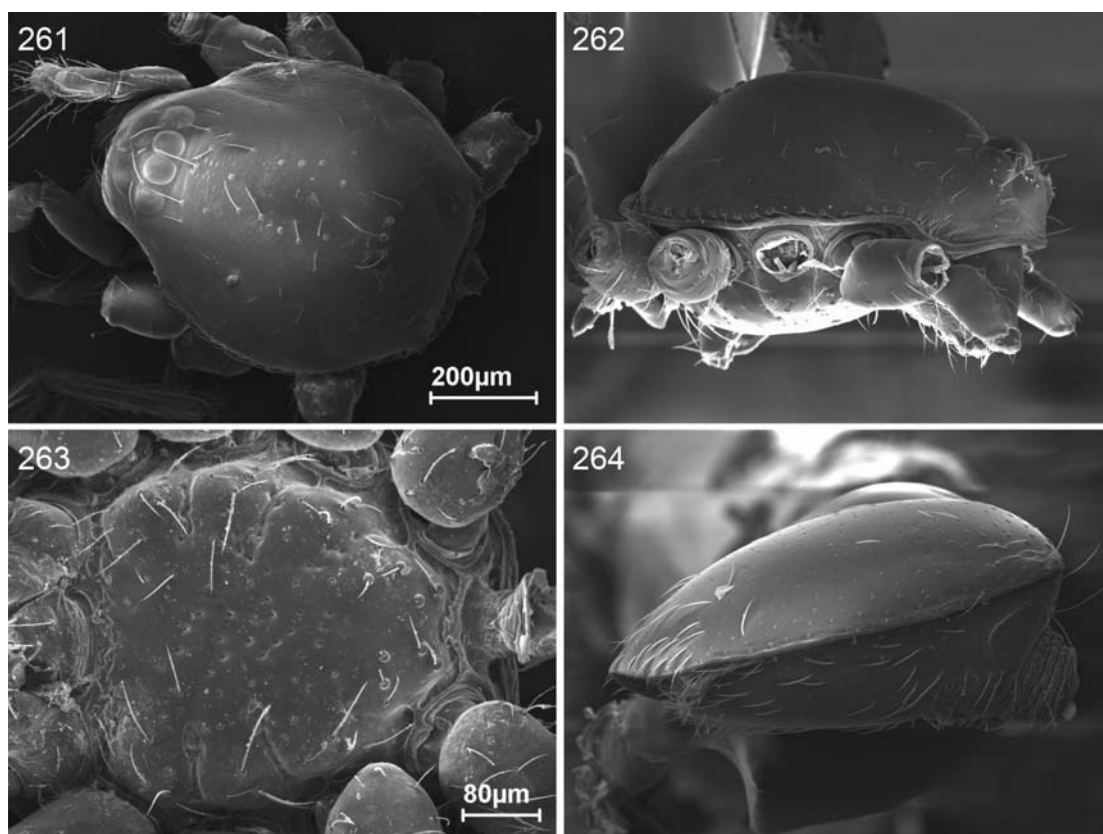


Figs. 242–251. *Neoxyphinus barreirosi*, new species, male. **242, 243.** Habitus, dorsal view. **244.** Carapace, anterior view. **245.** Same, lateral view. **246.** Same, posterior view. **247.** Sternum and mouthparts, ventral view. **248.** Abdomen, dorsal view. **249.** Same, ventral view. **250.** Same, lateral view. **251.** Abdomen, anterior view.



Figs. 252–260. *Neoxyphinus barreirosi*, new species, male, **252**. Left palp, prolateral view. **253**. Same, ventral view. **254**. Same, retrolateral view. **255**. Right embolus, prolateral view. **256**. Left embolus, apical view. **257**. Same, retrolateral view. **258**. Same, prolateral view. **259**. Same, ventral view. **260**. Same, retrolateral view.

median field of small pits, furrows deep, narrow, anterior margin unmodified, setae evenly scattered, originating from small tubercles. Book lung covers large, ovoid. Pedicel tube medium sized. Dorsal scutum orange-brown, middle and sides surface smooth, anterior half without projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Spine formula: tibia I v4-4-0, metatarsus I v2-2-1. Genitalia: sperm pore situated at level of anterior spiracles. Palp proximal segments, cymbium, and bulb yellow. Embolus long and slender, with pointed apical projection, without prolateral prong or prolateral lamella (figs. 252–260).

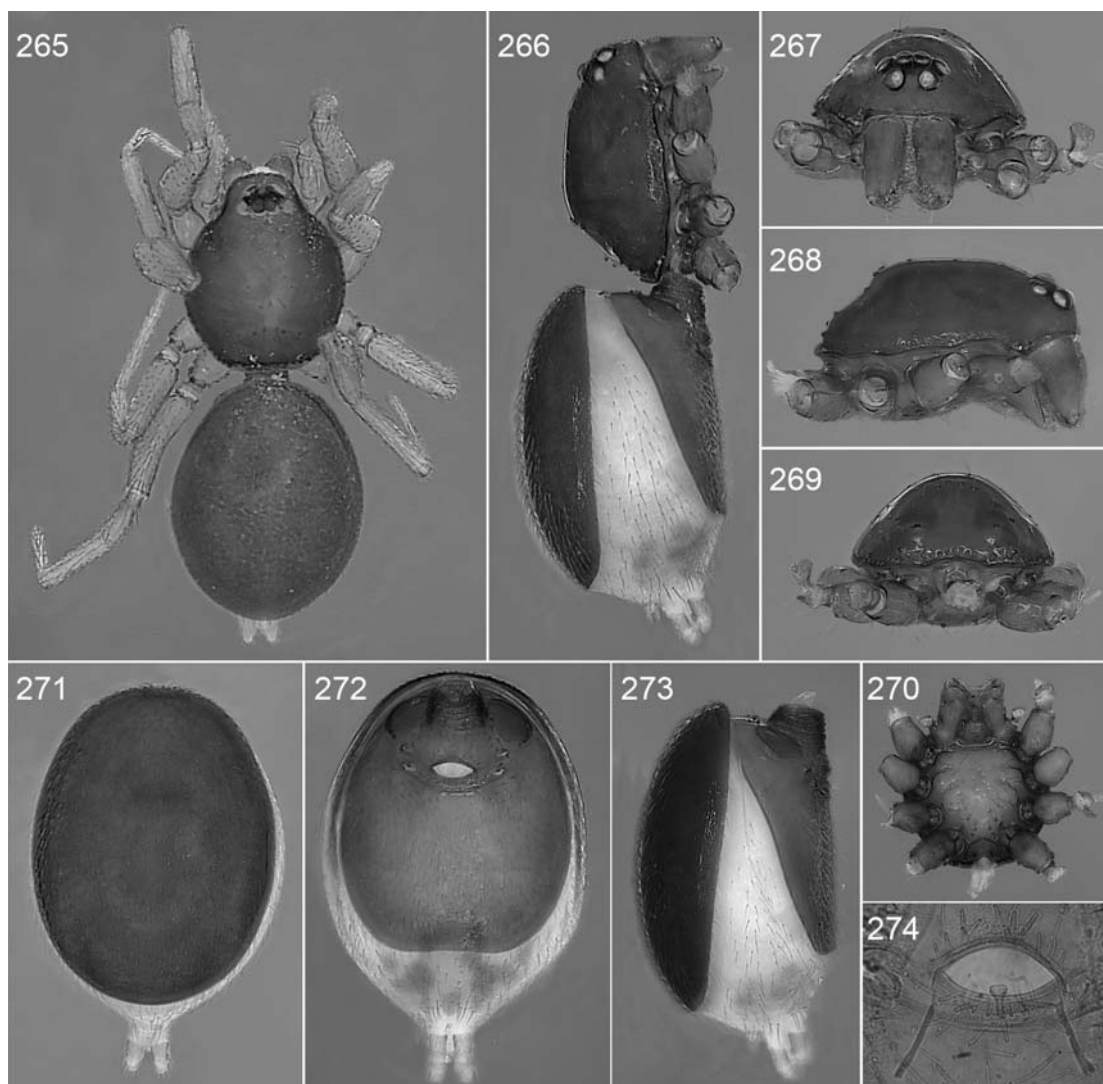


Figs. 261–264. *Neoxyphinus barreirosi*, new species, male. **261.** Carapace, dorsal view. **262.** Same, lateral view. **263.** Sternum, ventral view. **264.** Abdomen, lateral view.

**FEMALE** (allotype): Total length 1.58. Clypeus margin slightly rebordered. Spine formula: tibia I v4-4-2, metatarsus I v2-3-1; tibia II v3-4-0, metatarsus II v3-1-1. Epigynal atrium wide, with posteriorly positioned median element (fig. 274).

**DISTRIBUTION:** Known from northern South America (map 6).

**OTHER MATERIAL EXAMINED:** VENEZUELA: **Bolivar:** *Gran Sabana*: 12 km N Luepa, 1500 m, June 01–11, 1987, S. Peck and J. Peck (PBI\_OON 14571, AMNH), 1 ♂. GUYANA: **Potaro-Siparuni:** Tukeit, July 21, 1911, F. Lutz (PBI\_OON 14572, AMNH), 1 ♂. COLOMBIA: **Amazonas:** 18 km of Leticia, Feb. 24–28, 1974, S. Peck and J. Peck (PBI\_OON 14570, AMNH), 1 ♂. BRAZIL: **Pará:** *Juruti*: Platô Capiranga, 02°28'22.1"S 56°12'29.4"W, Feb. 09–11, 2007, J.A.P. Barreiros and N.F. Lo-Man-Hung (PBI\_OON 14554, MPEG 10056), 1 ♂; Sitio Três Irmãos, 02°27'51.4"S 56°00'08.6"W, Aug. 08–15, 2006, D.F. Candiani and N.F. Lo-Man-Hung (PBI\_OON 14450, MPEG 10882; PBI\_OON 14466, MPEG 10884; PBI\_OON 14468, MPEG 10886; PBI\_OON 14469, MPEG 10887; PBI\_OON 14471, MPEG 10889; PBI\_OON 14473, MPEG 10893; PBI\_OON 14475, MPEG 10895; PBI\_OON 14478, MPEG 10881; PBI\_OON 14479, MPEG 10897), 9 ♂, 2 ♀, Feb. 06–13, 2007, J.A.P. Barreiros and N.F. Lo-Man-Hung (PBI\_OON 14564, MPEG 10112; PBI\_OON 14558, MPEG 10141; PBI\_OON 14561, MPEG 10063), 3 ♂, 2 ♀; Vale do Igarapé Mutum, Platô do Rio Juruti, 01°36'44.7"S 56°11'39.2"W, Aug. 08–15, 2006, D.F. Candiani and N.F. Lo-Man-Hung (PBI\_OON 14449, MPEG 10883;



Figs. 265–274. *Neoxyphinus barreirosi*, new species, female. **265.** Habitus, dorsal view. **266.** Same, lateral view. **267.** Carapace, anterior view. **268.** Same, lateral view. **269.** Same, posterior view. **270.** Sternum and mouthparts, ventral view. **271.** Abdomen, dorsal view. **272.** Same, ventral view. **273.** Same, lateral view. **274.** Epigynum, dorsal view.

PBI\_OON 14467, MPEG 10885; PBI\_OON 14472, MPEG 10890; PBI\_OON 14474, MPEG 10894; PBI\_OON 14476, MPEG 10896; PBI\_OON 14477, MPEG 10899; PBI\_OON 14480, MPEG 10898; PBI\_OON 14481, MPEG 10891), 8♂, 1♀, Aug. 13, 2006 (PBI\_OON 14470, MPEG 10888), 1♂, Feb. 06–13, 2007, J.A.P. Barreiros and N.F. Lo-Man-Hung (PBI\_OON 14557, MPEG 10122; PBI\_OON 14568, MPEG 10115; PBI\_OON 14555, MPEG 10135; PBI\_OON 14556, MPEG 10107; PBI\_OON 14560, MPEG 10127; PBI\_OON 14562, MPEG 10061; PBI\_OON 14565, MPEG 10085; PBI\_OON 14567, MPEG 10093; PBI\_OON 14569, MPEG 10070), 9♂, 4♀. *Melgaço*: Estação Científica Ferreira Penna, FLONA Caxiuanã, 01°44'15.5"S 51°26'42.0"W, Apr. 2002, Equipe MPEG (PBI\_OON 14727, MPEG 10432; PBI\_OON 14729, MPEG 10456; PBI\_OON 14731, MPEG

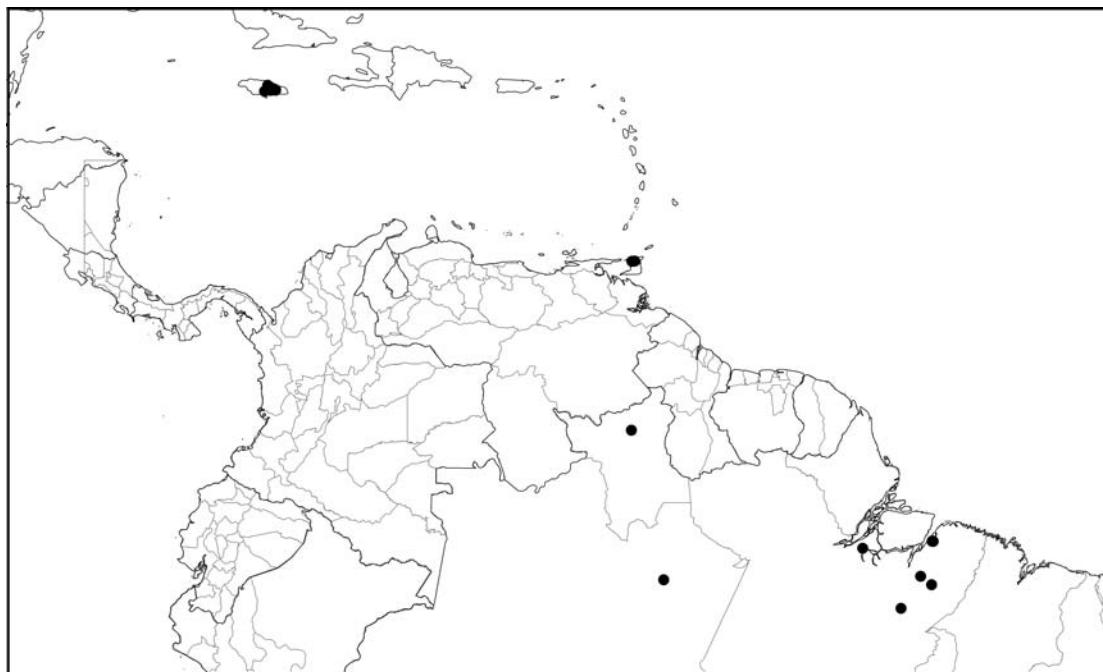
10453; PBI\_OON 14732, MPEG 10472; PBI\_OON 14734, MPEG 10459; PBI\_OON 14736, MPEG 10466; PBI\_OON 14737, MPEG 10460; PBI\_OON 14740, MPEG 10449; PBI\_OON 14742, MPEG 10469; PBI\_OON 14743, MPEG 10463; PBI\_OON 14745, MPEG 10437; PBI\_OON 14746, MPEG 10458; PBI\_OON 14748, MPEG 10465; PBI\_OON 14749, MPEG 10442; PBI\_OON 14750, MPEG 10471; PBI\_OON 14751, MPEG 10464; PBI\_OON 14752, MPEG 10433; PBI\_OON 14753, MPEG 10435), 25♂, 3♀, July 08–16, 2002, same (PBI\_OON 14665, MPEG 14047), 1♂, July 09, 2002, same (PBI\_OON 14662, MPEG 14042) 1♂, July 11, 2002, same (PBI\_OON 14664, MPEG 14045), 1♂, Nov. 2002, same (PBI\_OON 14663, MPEG 14043), 1♂, Dec. 26, 2002, A.B. Bonaldo and L.F. Montag (PBI\_OON 14730, MPEG 9639), 1♂, Mar. 09, 2003, J.A.P. Barreiros (PBI\_OON 14463, MPEG 10392), 1♂, Mar. 12, 2003, same (PBI\_OON 14446, MPEG 10380), 1♀, May 19, 2003, same (PBI\_OON 14444, MPEG 10376; PBI\_OON 14457, MPEG 10391; PBI\_OON 14465, MPEG 10395), 2♀, 1♂, May 25, 2003, same (PBI\_OON 14447, MPEG 10381), 1♂, May 28, 2003 (PBI\_OON 14462, MPEG 10389; PBI\_OON 14738, MPEG 10343), 2♂, Aug. 08, 2003, same (PBI\_OON 14443, MPEG 10373; PBI\_OON 14458, MPEG 10394; PBI\_OON 14461, MPEG 10388; PBI\_OON 14741, MPEG 10299), 3♂, 1♀, Aug. 11, 2003, same (PBI\_OON 14454, MPEG 10378), 1♂, Aug. 14, 2003, same (PBI\_OON 14464, MPEG 10393), 1♂, Aug. 17, 2003, same (PBI\_OON 14451, MPEG 10382; PBI\_OON 14445, MPEG 10377), 2♂, Aug. 20, 2003, same (PBI\_OON 14460, MPEG 10387), 1♂, Oct. 16, 2003, same (PBI\_OON 14442, MPEG 10383; PBI\_OON 14453, MPEG 10386), 2♀, Oct. 19, 2003, same (PBI\_OON 14452, MPEG 10375), 1♂, Oct. 21–31, 2003, Equipe MPEG (PBI\_OON 14673, MPEG 14057; PBI\_OON 14674, MPEG 14059; PBI\_OON 14675, MPEG 14060; PBI\_OON 14676, MPEG 14102; PBI\_OON 14678, MPEG 14104; PBI\_OON 14679, MPEG 14105; PBI\_OON 14680, MPEG 14106; PBI\_OON 14686, MPEG 14112), 10♂, 2♀, Oct. 22, 2003, J.A.P. Barreiros (PBI\_OON 14455, MPEG 10390; PBI\_OON 14549, MPEG 10396), 1♂, 3♀, Oct. 24–Nov. 03, 2003, Equipe MPEG (PBI\_OON 14666, MPEG 14048; PBI\_OON 14667, MPEG 14049; PBI\_OON 14668, MPEG 14050; PBI\_OON 14669, MPEG 14052; PBI\_OON 14671, MPEG 14054; PBI\_OON 14681, MPEG 14107; PBI\_OON 14682, MPEG 14108; PBI\_OON 14683, MPEG 14109; PBI\_OON 14684, MPEG 14110; PBI\_OON 14685, MPEG 14111), 11♂, Oct. 25, 2003, J.A.P. Barreiros (PBI\_OON 14441, MPEG 10369; PBI\_OON 14448, MPEG 10368; PBI\_OON 14550, MPEG 10371), 2♂, 1♀, Oct. 27–30, 2003, Equipe MPEG (PBI\_OON 14670, MPEG 14053), 1♀, Oct. 28, 2003, J.A.P. Barreiros (PBI\_OON 14459, MPEG 10385), 1♂, Oct. 31–Nov. 03, 2003, Equipe MPEG (PBI\_OON 14672, MPEG 14055; PBI\_OON 14677, MPEG 14103), 1♂, 1♀. *Portel*: Parcela PPBio, Igarapé Caquajó, Floresta Nacional de Caxiuanã, 01°57'38.9"S 51°36'45.3"W, May 08–13, 2005, J.A.P. Barreiros et al. (PBI\_OON 14728, MPEG 10412; PBI\_OON 14733, MPEG 10422; PBI\_OON 14735, MPEG 10430; PBI\_OON 14739, MPEG 10425; PBI\_OON 14744, MPEG 10415; PBI\_OON 14747, MPEG 10418), 5♂, 2♀. Santarém (CEMEX, 02°26'36"S 54°42'29"W), Feb.–Apr. 1995, L. Vitt et al. (PBI\_OON 40127, MCTP 9810), 1♀. **Amazonas**: Manaus: Reserva Florestal Adolpho Ducke, 02°55'12"S 59°58'48"W, 100 m, June 13, 1998, R. Ott (PBI\_OON 40126, MCTP 12628), 2♀.

*Neoxyphinus furtivus* (Chickering), new combination

Figures 5, 17, 23, 29, 47, 275–312; map 7

*Dysderina furtiva* Chickering, 1968: 13, figs. 26, 27 (female holotype from Jamaica, Saint Catherine, 3 miles north from Spanishtown, 16.Oct.1957, in MCZ, PBI\_OON 40607, examined).

**DIAGNOSIS:** As in *N. barreirosi* and *N. keyserlingi*, the specimens of *N. furtivus* are devoid of both carapace spikes and abdominal denticles. Both males and females of this species can be distinguished by the reticulate surface of carapace and dorsal scutum (figs. 279, 280, 296, 297, 305, 308). Males differ from all other species by the presence of a small embolic prolatero-apical lamella (figs. 291, 294). Females may be further distinguished by the presence of one prolateral spine on femur I, contrasting with two in *N. hispidus* and none in the remaining species.

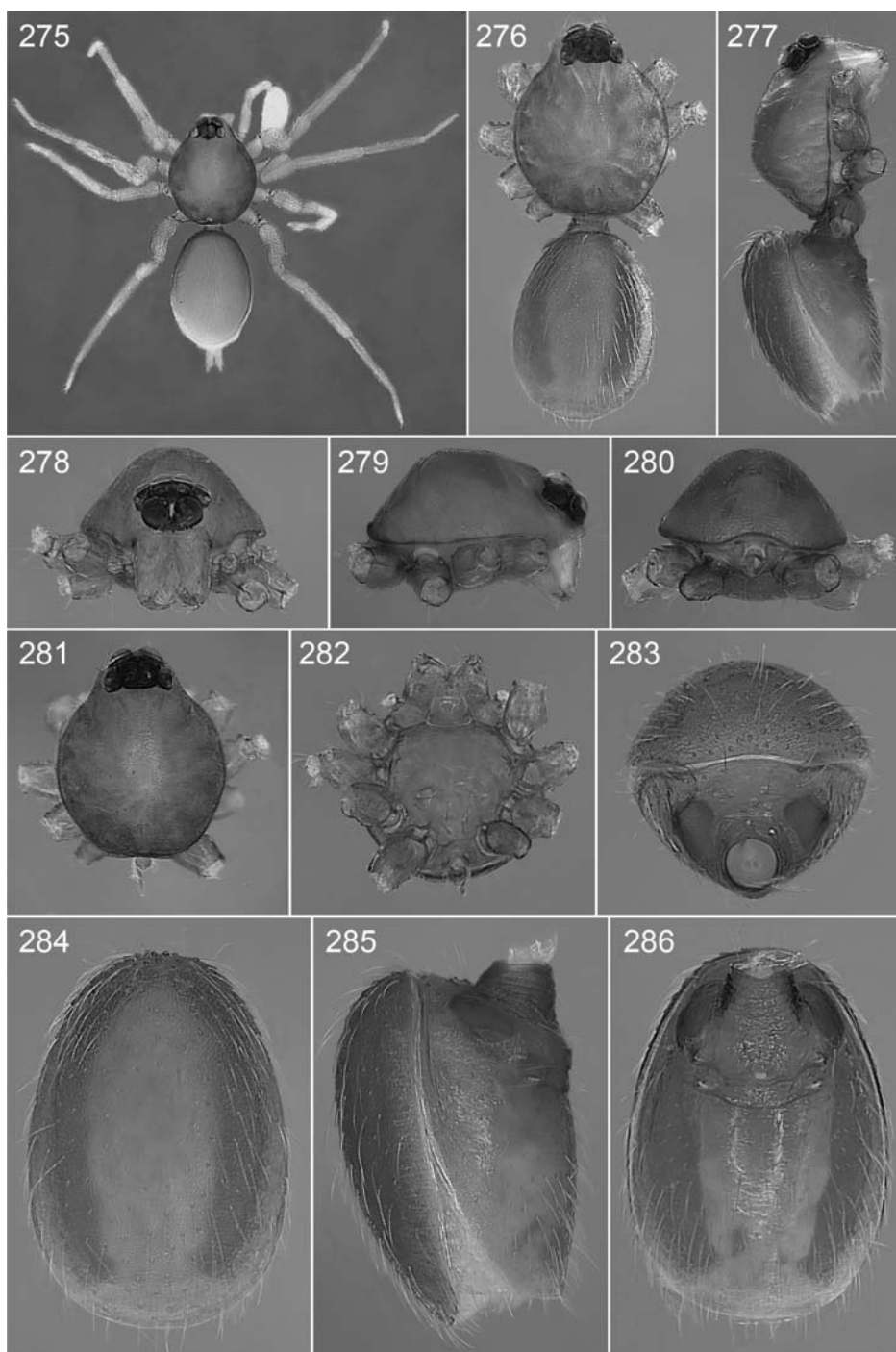


Map 7. Records of *Neoxyphinus furtivus*.

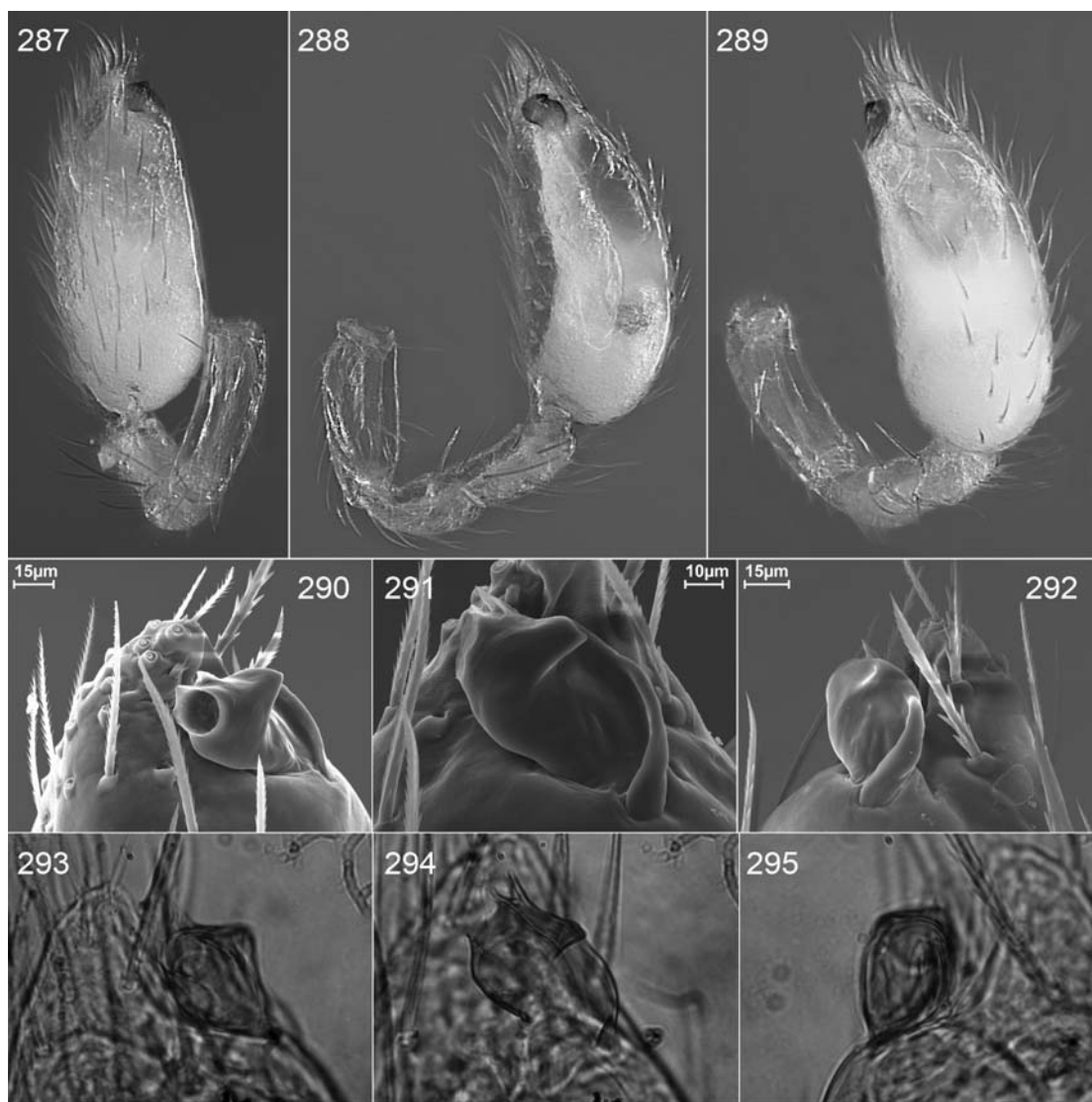
MALE (PBI\_OON 14382, MPEG 10506): Total length 1.98. Carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides strongly reticulate, lateral margin without tubercles. Clypeus margin slightly rebordered, straight in frontal view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, with a median field of small pits, setae evenly scattered, originating from surface. Book lung covers large, ovoid. Pedicel tube medium sized. Dorsal scutum orange-brown, surface of middle and sides strongly reticulate, anterior half without projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Spine formula: tibia I v2-4-0, metatarsus I v2-1-2. Genitalia: sperm pore situated between anterior and posterior spiracles. Palp proximal segments, cymbium, and bulb yellow. Embolus rounded, without both prolateral prong and prolateral lamella, but with an additional prolatero-apical lamella (figs. 287–295).

FEMALE (PBI\_OON 14383, MPEG 13670): Total length 1.93. Carapace surface of elevated portion of pars cephalica and sides finely reticulate. Clypeus margin unmodified. Book lung covers ovoid. Dorsal scutum middle and sides surface finely reticulate. Spine formula: femur I p0-1-0, tibia I v5-3-2, metatarsus I v2-2-2; tibia II v4-4-0, metatarsus II v3-2-0; tibia III v1-1-1, metatarsus III v1-1-1. Epigynal atrium wide, with median element conical, placed anteriorly in our preparations (fig. 312).

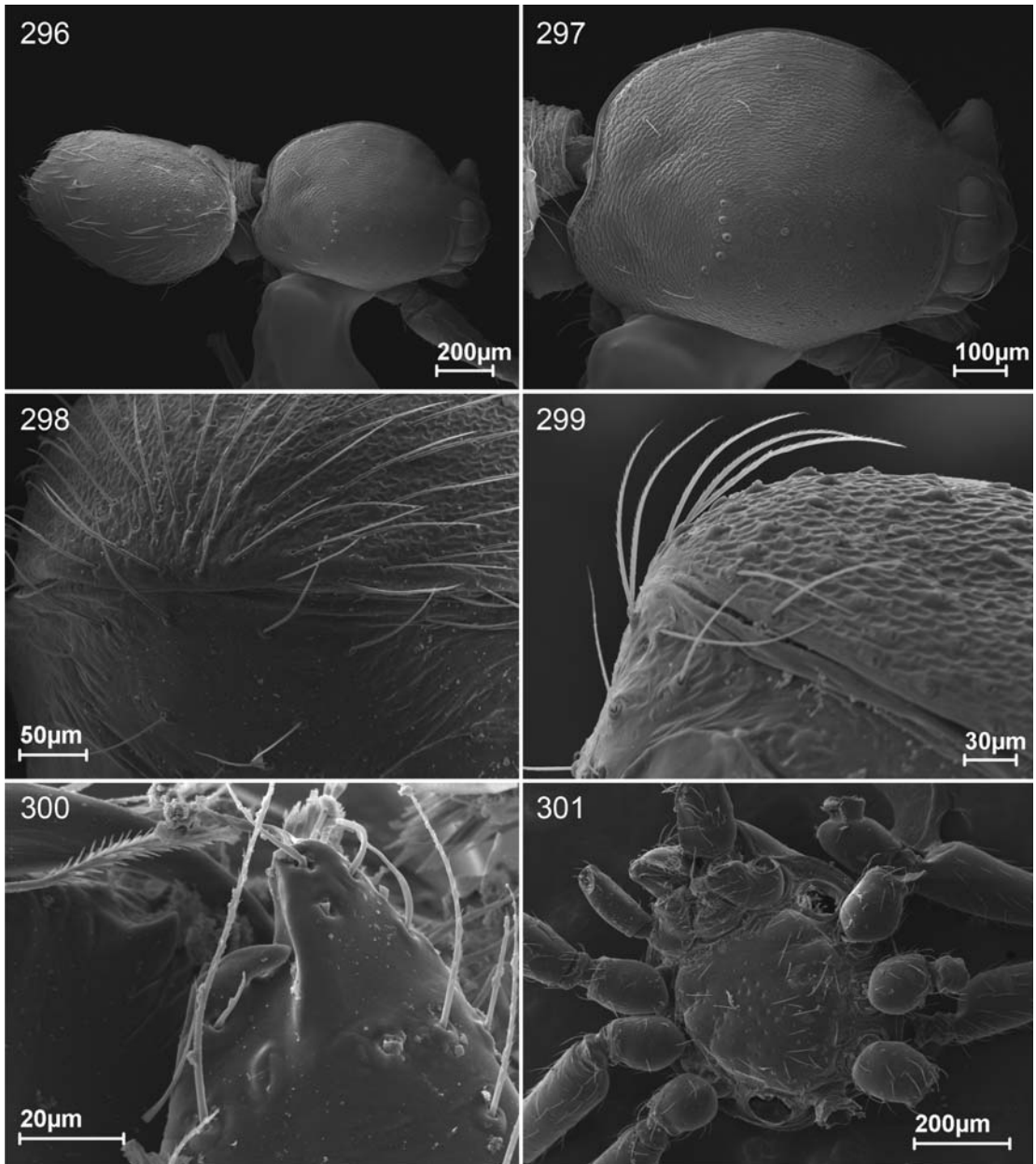
DISTRIBUTION: Known from Jamaica to northern Brazil (map 7).



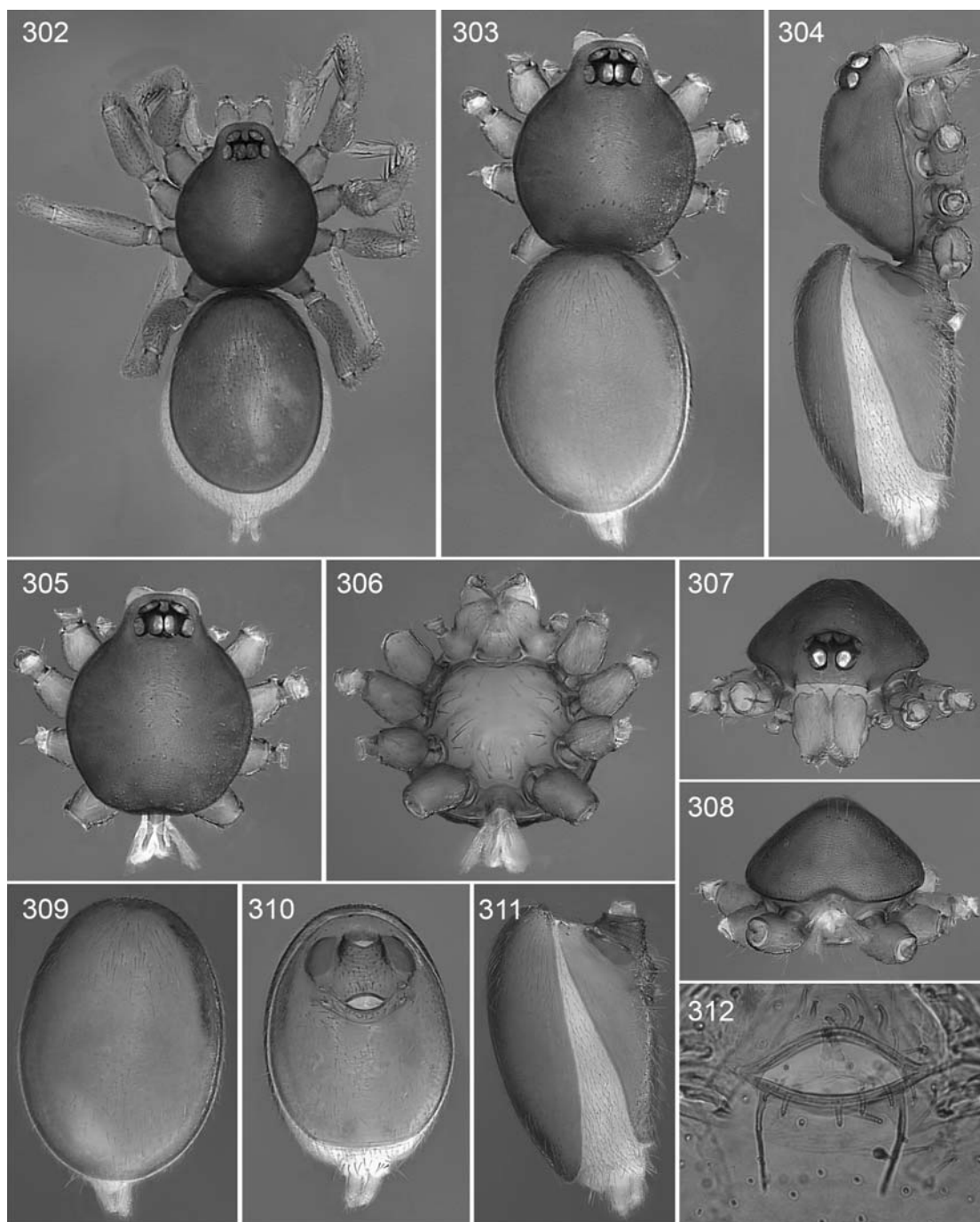
Figs. 275–286. *Neoxyphinus furtivus* (Chickering), male. 275, 276. Habitus, dorsal view. 277. Same, lateral view. 278. Carapace, anterior view. 279. Same, lateral view. 280. Same, posterior view. 281. Same, dorsal view. 282. Sternum and mouthparts, ventral view. 283. Abdomen, anterior view. 284. Same, dorsal view. 285. Same, lateral view. 286. Same, ventral view.



Figs. 287–295. *Neoxyphinus furtivus* (Chickering), male. 287. Left palp, prolateral view. 288. Same, ventral view. 289. Same, retrolateral view. 290, 293. Left palp, embolus, prolateral view. 291, 294. Same, ventral view. 292, 295. Same, retrolateral view.



Figs. 296–301. *Neoxyphinus furtivus* (Chickering). 296, 297. Male habitus and carapace, dorsal view. 298. Female abdomen, frontal view. 299. Male abdomen, lateral view. 300. Male endite, posterior view. 301. Male sternum and mouthparts, ventral view.



Figs. 302–312. *Neoxyphinus furtivus* (Chickering), female. **302, 303.** Habitus, dorsal view. **304.** Same, lateral view. **305.** Carapace, dorsal view. **306.** Sternum and mouthparts, ventral view. **307.** Carapace, anterior view. **308.** Same, posterior view. **309.** Abdomen, dorsal view. **310.** Same, ventral view. **311.** Same, lateral view. **312.** Epigynum, dorsal view.

OTHER MATERIAL EXAMINED: JAMAICA: **Clarendon**: 2.5 miles N of May Pen Rd. to Chapelton, Nov. 10, 1963, A. Chickering (PBI\_OON 27139, MCZ 66654), 1 ♀. **Saint Ann**: 3 mi S Moneague, Nov. 07, 1957, A. Chickering (PBI\_OON 27145, MCZ 71719), 2 ♀. **Saint Andrew**: Cooper's Hill, Feb. 10, 1955, P. Bellinger (PBI\_OON 27142, MCZ 71725), 1 ♀; Ferry, E Red Hills Road, Sept. 27, 1957, A. Chickering (PBI\_OON 27147, MCZ 71720), 1 ♀; Hope Gardens, 18°01'59"N 76°45'W, Nov. 27–Dec. 06, 1963, A. Chickering (PBI\_OON 27141, MCZ 71718), 2 ♀; Jack's Hill Road, 18°03'00"N 76°44'59"W, Dec. 06, 1957, A. Chickering (PBI\_OON 27146, MCZ 71723), 1 ♀; Stony Hill, 18°05'01"N 76°48'00"W, May 28, 1956, C. Hoff (PBI\_OON 27163, MCZ 71726), 1 ♀, Oct. 18, 1957, A. Chickering (PBI\_OON 27138, MCZ 71724), 1 ♀. **Saint Catherine**: 3 mi N Spanishtown, Oct. 16, 1957 (PBI\_OON 27144, MCZ 71721), 2 ♀; Ewarton, 18°10'44"N 77°05'17"W, Nov. 29, 1957, A. Chickering (PBI\_OON 27148, MCZ 71722), 1 ♀. TRINIDAD AND TOBAGO: **Arima**: *Arima Valley*: No specific locality, 800–1200 ft, Feb. 10–22, 1964, Wygodzinsky and Rosen (PBI\_OON 38046, AMNH), 2 ♀; Simla, Apr. 05–25, 1964, A. Chickering (PBI\_OON 27143, MCZ 71728), 13 ♀, Apr. 20, 1964, same (PBI\_OON 38047, AMNH), 1 ♀. **Saint George**: *St. Augustine*: University campus, 10°38'20"N 61°23'45"W, Apr. 05–07, 1964, A. Chickering (PBI\_OON 27140, MCZ 71727), 24 ♀. BRAZIL: **Roraima**: *Amajari*: Reserva Biológica Ilha de Maracá, 03°22'01"N 61°25'00"W, Jan. 31–Feb. 14, 1992, A.B. Bonaldo (PBI\_OON 40125, MCTP 1836), 1 ♀. **Amazonas**: *Manaus*: 03°06'07"S 60°01'30"W, Jan. 28, 1992, A.B. Bonaldo (PBI\_OON 40124, MCTP 1479), 2 ♀. **Pará**: *Belém*: Bosque Rodrigues Alves–Jardim Botânico da Amazônia, 01°25'49.0"S 48°27'22.3"W, all collected by J.A.P. Barreiros, Apr. 01, 2001 (PBI\_OON 14412, MPEG 10501), 1 ♀, Apr. 08, 2001 (PBI\_OON 14402, MPEG 10503), 1 ♀, May 12, 2001 (PBI\_OON 14417, MPEG 10490), 1 ♀, Apr. 16, 2001 (PBI\_OON 14418, MPEG 10500), 1 ♀, Apr. 22, 2001 (PBI\_OON 14387, MPEG 10498; PBI\_OON 14401, MPEG 10497; PBI\_OON 14416, MPEG 10499), 3 ♀, Sept. 27, 2001 (PBI\_OON 14419, MPEG 10495), 1 ♀, Oct. 18, 2001 (PBI\_OON 14404, MPEG 10491; PBI\_OON 14428, MPEG 10496), 2 ♀, Oct. 25, 2001 (PBI\_OON 14391, MPEG 10483; PBI\_OON 14392, MPEG 10480; PBI\_OON 14400, MPEG 10504; PBI\_OON 14434, MPEG 10482), 7 ♀, Nov. 08, 2001 (PBI\_OON 14382, MPEG 10506; PBI\_OON 14383, MPEG 13670; PBI\_OON 14393, MPEG 10484; PBI\_OON 14410, MPEG 10488; PBI\_OON 14429, MPEG 10505; PBI\_OON 14435, MPEG 10481; PBI\_OON 14547, MPEG 10486), 1 ♂, 10 ♀, 2001 (PBI\_OON 14385, MPEG 10507; PBI\_OON 14389, MPEG 10492; PBI\_OON 14397, MPEG 10493; PBI\_OON 14408, MPEG 10487; PBI\_OON 14413, MPEG 10502; PBI\_OON 14414, MPEG 10485; PBI\_OON 14415, MPEG 10494; PBI\_OON 14427, MPEG 10489), 8 ♀; Reserva Mocambo, 01°26'28.7"S 48°24'46.2"W, Dec. 06–12, 2007, B.V.B. Rodrigues and J.M.B. Pereira-Filho (PBI\_OON 14633, MPEG 14013; PBI\_OON 14635, MPEG 14015; PBI\_OON 14636, MPEG 14016; PBI\_OON 14637, MPEG 14017; PBI\_OON 14638, MPEG 14018; PBI\_OON 14640, MPEG 14020; PBI\_OON 14641, MPEG 14021; PBI\_OON 14642, MPEG 14022; PBI\_OON 14643, MPEG 14023; PBI\_OON 14644, MPEG 14024), 10 ♀, Dec. 13–15, 2007, same (PBI\_OON 14634, MPEG 14014), 1 ♀, May 07, 2008, B.V.B. Rodrigues, J.M.B. Pereira-Filho, N. Abraham and N.C. Bastos (PBI\_OON 14639, MPEG 14019), 1 ♀. *Goianésia*: Fazenda Rio Capim, 03°18'50"S 48°28'54"W, July 30, 2002, Equipe IPAN (PBI\_OON 14388, MPEG 10742; PBI\_OON 14398, MPEG 10741; PBI\_OON 14421, MPEG 10732), 2 ♂, 1 ♀, Aug. 30, 2002, same (PBI\_OON 14409, MPEG 10739), 1 ♀, June 15–29, 2003, same (PBI\_OON 14394, MPEG 10735; PBI\_OON 14439, MPEG 10727), 2 ♂, June 17, 2003, same (PBI\_OON 14407, MPEG 10730; PBI\_OON 14426, MPEG 10743; PBI\_OON 14440, MPEG 10715; PBI\_OON 14384, MPEG 10744; PBI\_OON 14390, MPEG 10740; PBI\_OON 14438, MPEG 10716), 2 ♀, 5 ♂. *Melgaço*: Estação Científica Ferreira Penna, FLONA Caxiua, 01°44'15.5"S 51°26'42.0"W, Aug. 17, 2003, J.A.P. Barreiros (PBI\_OON 14755, MPEG 10372), 1 ♀, Oct. 25, 2003, same (PBI\_OON 14405, MPEG 10345), 1 ♀, Oct. 28, 2003, same (PBI\_OON 14754, MPEG 10374), 1 ♂. *Novo Repartimento*: Fazenda Arataú, 04°19'51"S 49°47'47"W, June 19–Aug. 12, 2003, Equipe IPAN (PBI\_OON 14423, MPEG 10724), 1 ♀, June 25–26, 2003, same (PBI\_OON 14395, MPEG 10719; PBI\_OON 14399, MPEG 10734; PBI\_OON 14403, MPEG 10710; PBI\_OON 14406, MPEG 10726; PBI\_OON 14411, MPEG 10713; PBI\_OON 14424, MPEG 10728; PBI\_OON 14430, MPEG 10720; PBI\_OON 14431, MPEG 10721; PBI\_OON 14436, MPEG 10722; PBI\_OON 14546, MPEG 10729), 2 ♂, 9 ♀, Aug. 11, 2006, same (PBI\_OON 14425, MPEG 10745), 1 ♀. *Tailândia*: Fazenda Santa Marta, May 13–14, 2003, Equipe IPAN (PBI\_OON 14396, MPEG 10733; PBI\_OON 14422, MPEG 10738; PBI\_OON 14432, MPEG 10731), 3 ♀; July 10–30, 2003, same (PBI\_OON 14433, MPEG 10714), 1 ♀, July 19–30, 2003, same (PBI\_OON 14420, MPEG 10711; PBI\_OON 14386, MPEG 10723), 1 ♂, 1 ♀. No precise location, Mata, Varzea, Oct. 2005, L. Macambira (PBI\_OON 14548, MPEG 10708), 3 ♀.

*Neoxyphinus keyserlingi* (Simon), new combination

Figures 6, 18, 24, 30, 40, 48, 313–344; map 3

*Dysderina keyserlingi* Simon, 1907: 252 (male [reported female] holotype from Therezopolis [Teresópolis, state of Rio de Janeiro, Brazil], Brunet col., PBI\_OON 568, in Muséum d'Histoire Naturelle, Paris, AR5773, examined by N.I. Platnick).

*Dysderina rugosa* Bristowe, 1938: 69 (female holotype from Brazil [probably southeastern Brazil], W.S. Bristowe col., 1923, PBI\_OON 567, deposited in the Natural History Museum, London, examined by N.I. Platnick). NEW SYNONYMY.

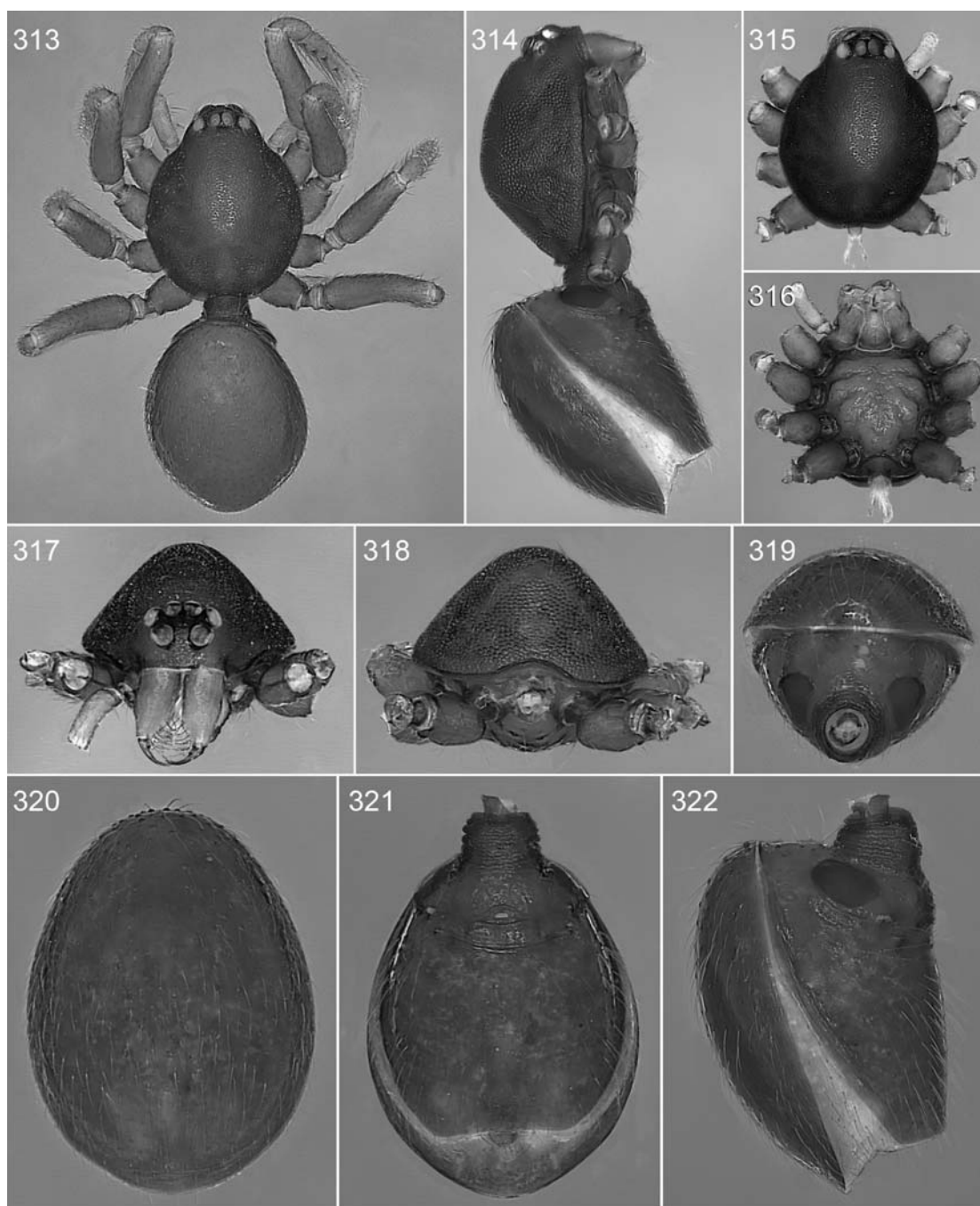
**DIAGNOSIS:** This species is readily recognized by the evenly granulated carapace surface (figs. 315, 333, 338) and by a wrinkled sternal median field (figs. 334, 339) in both males and females. Males are unique by the embolus with a prolateral sulcus and apical copulatory opening (figs. 48, 327). Females resemble those of *N. hispidus* and *N. furtivus* by the wide epigynal atrium, with an anteriorly positioned median element, differing by the carapace microsculpture and by the bilobated epigynal median element (fig. 344).

**MALE** (PBI\_OON 14482, IBSP 62132): Total length 2.16. Carapace dark red-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides strongly granulate, lateral margin without tubercles. Clypeus margin unmodified, straight in frontal view. Eyes: ALE separated by their radius to diameter. Sternum as long as wide, dark red-brown, median concavity absent, with a median wrinkled field, furrows deep, anterior margin with continuous transverse groove, setae evenly scattered, originating from small tubercles. Book lung covers large, ovoid. Pedicel tube medium sized. Dorsal scutum dark red-brown, middle and sides surface smooth, anterior half without projecting denticles. Postepigastric scutum dark red-brown. Legs orange-brown. Spine formula: tibia I v5-3-2, metatarsus I v2-2-1; tibia II v2-4-1, metatarsus II v2-2-0. Genitalia: sperm pore situated at level of anterior spiracles. Palp proximal segments, cymbium, and bulb yellow. Embolus with a prolateral sulcus and apical copulatory opening, without prolateral prong or prolateral lamella (figs. 323–331).

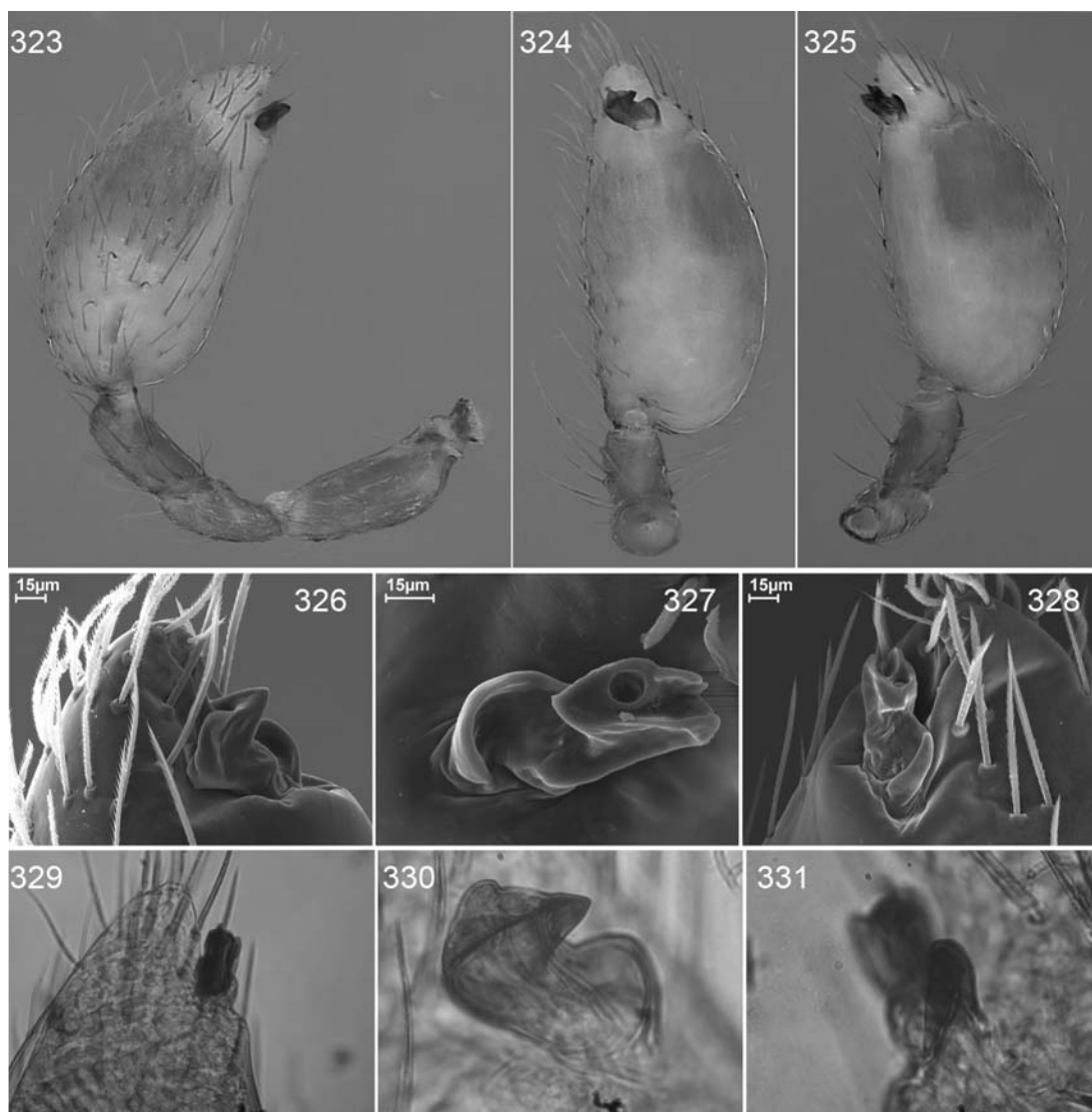
**FEMALE** (PBI\_OON 14483, IBSP 62115): Total length 2.33. Spine formula: tibia I v4-4-2, metatarsus I v2-2-1; tibia II v4-4-1, metatarsus II v3-2-0. Epigynal atrium wide, with an anteriorly positioned, bilobated median element (fig. 344).

**DISTRIBUTION:** Known from southeastern Brazil (map 3).

**OTHER MATERIAL EXAMINED:** BRAZIL: **Espírito Santo:** *Linhares:* Reserva Florestal Vale do Rio Doce, 19°23'30"S 40°04'20"W, June 1997, J. Raizer (PBI\_OON 14692, IBSP 14881) 1 ♂. **São Paulo:** *São Luis do Paraitinga:* Núcleo Santa Virginia, Parque Estadual Serra do Mar, 23°20'28"S 45°08'49"W, Apr. 10, 2005, M.U. Prado (PBI\_OON 14688, IBSP 58438) 1 ♀; May 22, 2005 (PBI\_OON 14687, IBSP 58436; PBI\_OON 14689, IBSP 58439) 2 ♀. *São Paulo:* Parque do Estado, 23°32'25"S 46°37'48"W, all collected by J.R. Valvassori, Feb. 28–Mar. 06, 2002 (PBI\_OON 11262, IBSP 59156) 1 ♂, Jan. 21–28, 2003 (PBI\_OON 11283, IBSP 68150; PBI\_OON 11306, IBSP 68132) 2 ♂, 1 ♀, Apr. 07–14, 2003 (PBI\_OON 11276, IBSP 68129; PBI\_OON 11278, IBSP 68128; PBI\_OON 11281, IBSP 68153; PBI\_OON 11284, IBSP 68134; PBI\_OON 11298, IBSP 68131; PBI\_OON 11301, IBSP 68152; PBI\_OON 11304, IBSP 68151) 8 ♂, 1 ♀, July 16–23, 2003 (PBI\_OON 11285, IBSP 68133; PBI\_OON 11293, IBSP 59166; PBI\_OON 11299, IBSP 68154; PBI\_OON 11300, IBSP 68126) 5 ♂, 1 ♀, Oct. 18–25, 2003 (PBI\_OON 11277, IBSP 68130; PBI\_OON 11279, IBSP 68125; PBI\_OON 11280, IBSP 68139; PBI\_OON 11282, IBSP 68146; PBI\_OON 11286, IBSP 68143; PBI\_OON 11287, IBSP 68144; PBI\_OON 11288, IBSP 68145; PBI\_OON 11289, IBSP 68147; PBI\_OON 11290, IBSP 68148; PBI\_OON 11291, IBSP 68149; PBI\_OON 11292, IBSP 68150; PBI\_OON 11294, IBSP 68151; PBI\_OON 11295, IBSP 68152; PBI\_OON 11296, IBSP 68153; PBI\_OON 11297, IBSP 68154; PBI\_OON 11298, IBSP 68155; PBI\_OON 11299, IBSP 68156; 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PBI\_OON 11804, IBSP 68661; PBI\_OON 11805, IBSP 68662; PBI\_OON 11806, IBSP 68663; P

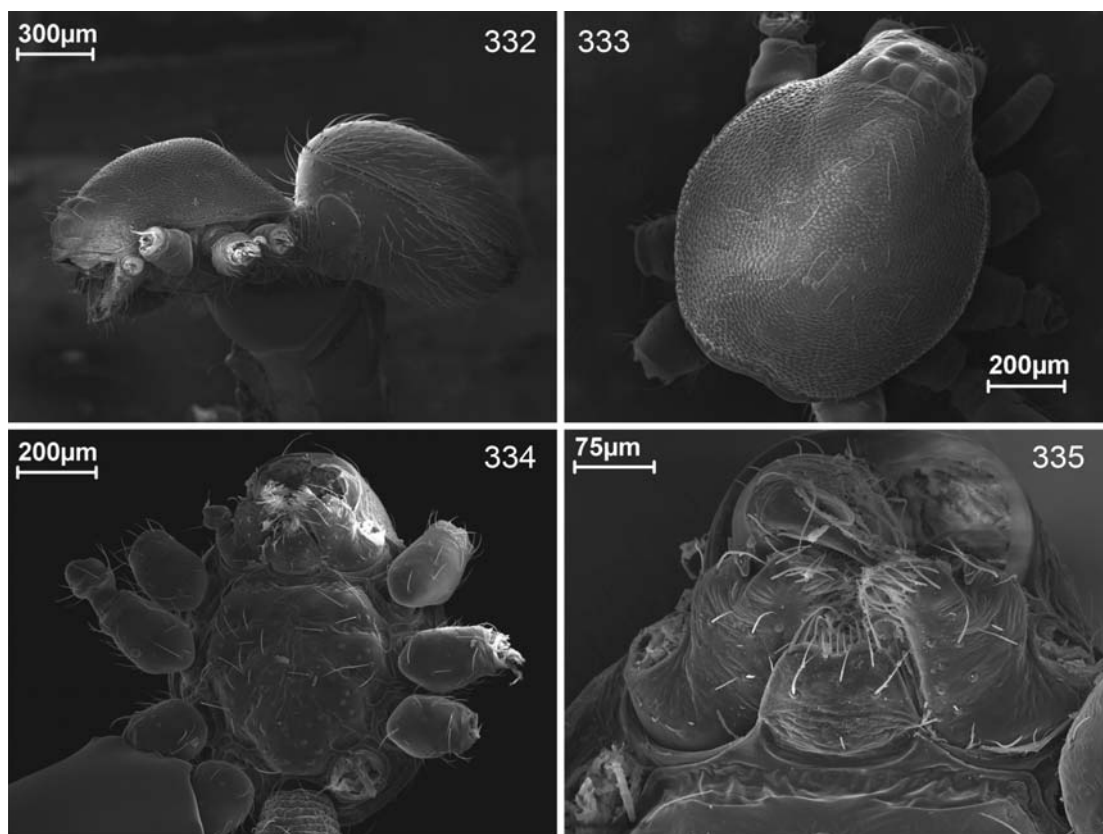


Figs. 313–322. *Neoxyphinus keyserlingi* (Simon), male. **313.** Habitus, dorsal view. **314.** Same, lateral view. **315.** Carapace, dorsal view. **316.** Sternum and mouthparts, ventral view. **317.** Carapace, anterior view. **318.** same, posterior view. **319.** Abdomen, anterior view. **320.** Same, dorsal view. **321.** Same, ventral view. **322.** Same, lateral view.



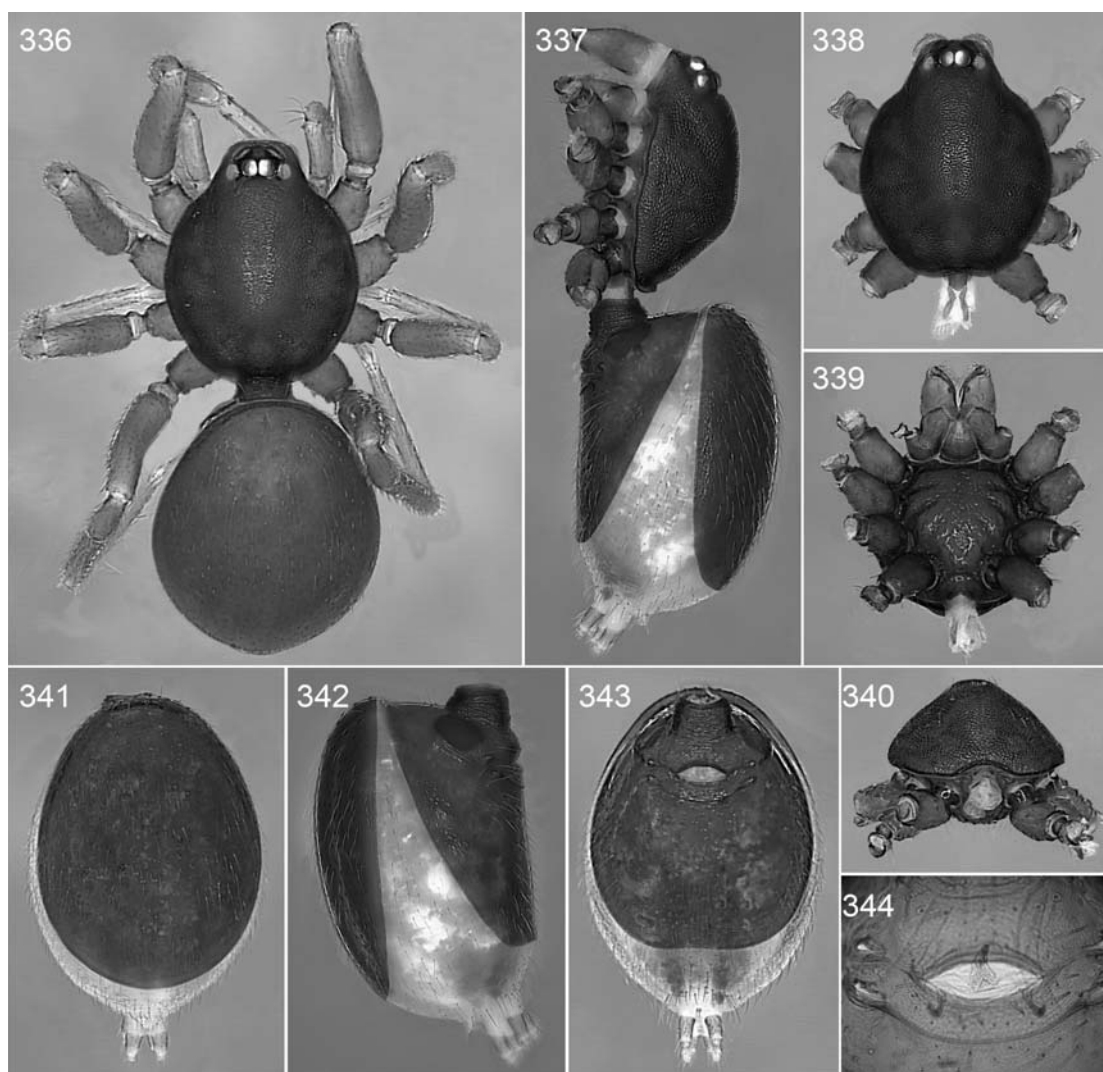
Figs. 323–331. *Neoxyphinus keyserlingi* (Simon), male. **323.** Left male palp, prolateral view. **324.** Same, ventral view. **325.** Same, retrolateral view. **326.** Left embolus, prolateral view. **327.** Right embolus, apical view. **328.** Left embolus, retrolateral view. **329.** Same, prolateral view. **330.** Same, ventral view. **331.** Same, retrolateral view.

OON 11288, IBSP 68147; PBI\_OON 11289, IBSP 68145; PBI\_OON 11290, IBSP 68138; PBI\_OON 11291, IBSP 68148; PBI\_OON 11292, IBSP 68137; PBI\_OON 11295, IBSP 68149; PBI\_OON 11296, IBSP 68127; PBI\_OON 11297, IBSP 68140; PBI\_OON 11302, IBSP 68141; PBI\_OON 11303, IBSP 68142; PBI\_OON 11305, IBSP 68135) 17♂, 4♀; Cidade Universitária Armando de Salles Oliveira–CUASO, Universidade de São Paulo, 23°33'S 46°43'W, all collected by D.F. Candiani, 1999 (PBI\_OON 11223, IBSP 69001; PBI\_OON 11224, IBSP 68990; PBI\_OON 11227, IBSP 68986; PBI\_OON 11228, IBSP 69017; PBI\_OON 11230, IBSP 68983; PBI\_OON 11232, IBSP 68994; PBI\_OON 11234, IBSP 69021; PBI\_OON 11235, IBSP 68992; PBI\_OON 11237, IBSP 69016; PBI\_OON 11238, IBSP 68988; PBI\_OON 11239, IBSP 69022; PBI\_OON 11240, IBSP



Figs. 332–335. *Neoxyphinus keyserlingi* (Simon), male. 332. Habitus, lateral view. 333. Carapace, dorsal view. 334. Sternum and mouthparts, ventral view. 335. Mouthparts, posterior view.

69005; PBI\_OON 11241, IBSP 69003; PBI\_OON 11242, IBSP 68989; PBI\_OON 11243, IBSP 69013; PBI\_OON 11244, IBSP 68985; PBI\_OON 11246, IBSP 69023; PBI\_OON 11247, IBSP 68997; PBI\_OON 11248, IBSP 69025; PBI\_OON 11249, IBSP 68996; PBI\_OON 11250, IBSP 68999; PBI\_OON 11254, IBSP 69009; PBI\_OON 11255, IBSP 69008; PBI\_OON 11256, IBSP 69026; PBI\_OON 11258, IBSP 69020) 14♂, 12♀, June 11–18, 1999 (PBI\_OON 11229, IBSP 69024; PBI\_OON 11231, IBSP 68995; PBI\_OON 11233, IBSP 69012; PBI\_OON 11245, IBSP 69015; PBI\_OON 11252, IBSP 68993) 2♂, 3♀, Aug. 16–23, 1999 (PBI\_OON 11273, IBSP 42179; PBI\_OON 11274, IBSP 42178; PBI\_OON 11275, IBSP 42181; PBI\_OON 14691, IBSP 42180) 4♂, 1♀, Nov. 16–23, 1999 (PBI\_OON 14509, IBSP 42192) 1♂, Dec. 12–19, 1999 (PBI\_OON 11222, IBSP 68982; PBI\_OON 11225, IBSP 69011; PBI\_OON 11226, IBSP 69000; PBI\_OON 11236, IBSP 68984; PBI\_OON 11251, IBSP 68991; PBI\_OON 11253, IBSP 69014; PBI\_OON 11257, IBSP 69002) 8♂; Mata da Biologia, Universidade de São Paulo, all collected by D.F. Candiani, 1999 (PBI\_OON 14485, IBSP 69007; PBI\_OON 14490, IBSP 69018; PBI\_OON 14516, IBSP 69010; PBI\_OON 14522, IBSP 69006; PBI\_OON 14552, IBSP 68987) 2♂, 5♀, Jun. 11–18, 1999 (PBI\_OON 14489, IBSP 69004; PBI\_OON 14502, IBSP 69019) 1♂, 1♀, Dec. 12–19, 1999 (PBI\_OON 14521, IBSP 68998) 2♂; Horto Oswaldo Cruz, Campus Instituto Butantan, D.F. Candiani et al., 2000–2001 (PBI\_OON 11261, IBSP 117031) 2♂, 2♀; Jardim Angela, Reservatório Guarapiranga, 23°43'51"S 46°44'23"W, R.P. Indiicatti, Sep. 09, 1999–May 12, 2000 (PBI\_OON 11259, IBSP 68041; PBI\_OON 11260, IBSP 68042) 13♂, 14♀, Nov. 06–12, 1999 (PBI\_OON 11569, IBSP 131858) 1♂, 1♀, I. Cizauskas and C.R.M. Garcia, Apr. 07–13, 2005 (PBI\_OON 11307, IBSP 62098) 1♂; Parque Ilha dos Eucaliptos, Reservatório Guarapiranga, 23°44'14"S 46°44'09"W, all collected by I. Cizauskas and C.R.M. Garcia, Oct.



Figs. 336–344. *Neoxyphinus keyserlingi* (Simon), female. **336.** Habitus, dorsal view. **337.** Same, lateral view. **338.** Carapace, dorsal view. **339.** Sternum and mouthparts, ventral view. **340.** Carapace, posterior view. **341.** Abdomen, dorsal view. **342.** Same, lateral view. **343.** Same, ventral view. **344.** Epigynum, dorsal view.

07–13, 2003 (PBI\_OON 11310, IBSP 62133; PBI\_OON 11313, IBSP 62141; PBI\_OON 11315, IBSP 62117; PBI\_OON 11318, IBSP 62119; PBI\_OON 11319, IBSP 62159; PBI\_OON 11321, IBSP 62125; PBI\_OON 11324, IBSP 62140; PBI\_OON 11325, IBSP 62161; PBI\_OON 11329, IBSP 62160; PBI\_OON 11333, IBSP 62100; PBI\_OON 11334, IBSP 62153; PBI\_OON 14553, IB62152) 4♂, 9♀, Apr. 07–13, 2004 (PBI\_OON 11309, IBSP 62144; PBI\_OON 11314, IBSP 62103; PBI\_OON 11320, IBSP 62148; PBI\_OON 11322, IBSP 62138; PBI\_OON 11323, IBSP 62137; PBI\_OON 11326, IBSP 62102; PBI\_OON 11327, IBSP 62128; PBI\_OON 11328, IBSP 62145; PBI\_OON 11330, IBSP 62146; PBI\_OON 11332, IBSP 62154; PBI\_OON 11335, IBSP 62147; PBI\_OON 14482, IBSP 62132; PBI\_OON 14483, IBSP 62115; PBI\_OON 14484, IBSP 62155; PBI\_OON 14486, IBSP 62151; PBI\_OON 14487, IBSP 62105; PBI\_OON 14488, IBSP 62112; PBI\_OON 14491, IBSP 62131; PBI\_OON 14492, IBSP 62150; PBI\_OON 14493, IBSP 62129; PBI\_OON 14508, IBSP

62149; PBI\_OON 14518, IBSP 62123; PBI\_OON 14520, IBSP 62107; PBI\_OON 14495, IBSP 62110; PBI\_OON 14496, IBSP 62134; PBI\_OON 14497, IBSP 62158; PBI\_OON 14498, IBSP 62124; PBI\_OON 14499, IBSP 62114; PBI\_OON 14500, IBSP 62142; PBI\_OON 14501, IBSP 62099; PBI\_OON 14503, IBSP 62121; PBI\_OON 14504, IBSP 62162; PBI\_OON 14506, IBSP 62120; PBI\_OON 14507, IBSP 62104; PBI\_OON 14511, IBSP 62106; PBI\_OON 14512, IBSP 62101; PBI\_OON 14513, IBSP 62130; PBI\_OON 14514, IBSP 62109; PBI\_OON 14515, IBSP 62156; PBI\_OON 14517, IBSP 62135; PBI\_OON 14519, IBSP 62111; PBI\_OON 14523, IBSP 62139; PBI\_OON 14524, IBSP 62126; PBI\_OON 14551, IBSP 62113) 35♂, 25♀, Oct. 07–13, 2004 (PBI\_OON 11311, IBSP 62118; PBI\_OON 11312, IBSP 62157; PBI\_OON 11317, IBSP 62122) 3♀, Apr. 07–13, 2005 (PBI\_OON 11316, IBSP 62163; PBI\_OON 11331, IBSP 62116; PBI\_OON 11336, IBSP 62143) 3♂. *Itapevi*: Condomínio Residencial TransUrb, 23°32'57"S 46°56'02"W, all collected by V.C. Onofrio, June 25, 1999 (PBI\_OON 11263, IBSP 67562; PBI\_OON 11264, IBSP 67594; PBI\_OON 11265, IBSP 67580; PBI\_OON 11267, IBSP 67573; PBI\_OON 14694, IBSP 67608) 3♂, 3♀, Nov. 20, 1999 (PBI\_OON 11269, IBSP 67600) 1♀, Dec. 17, 1999 (PBI\_OON 11266, IBSP 67583) 1♀. *Miracatu*: Fazenda Iterei, 24°03'S 47°13'W, Equipe Biota, Sep. 20, 2001 (PBI\_OON 11559, IBSP 136432; PBI\_OON 11560, IBSP 136433; PBI\_OON 11561, IBSP 136431; PBI\_OON 11562, IBSP 136429; PBI\_OON 11563, IBSP 136428; PBI\_OON 11564, IBSP 136427; PBI\_OON 11565, IBSP 136430) 6♂, 5♀. *Peruibe*: Estação Ecológica de Juréia-Itatins, 24°18'47"S 47°00'03"W, Mar. 17–21, 1997, A.D. Brescovit et al. (PBI\_OON 14693, IBSP 9605) 1♂, 2♀. *Iporanga*: Parque Estadual Turístico do Alto Ribeira–PETAR, 24°28'30"S 48°39'30"W, May 02, 2002, R. Andrade (PBI\_OON 14690, IBSP 44806) 1♂ (PETAR, Núcleo Santana), Equipe Biota, Dec. 08–12, 2002 (PBI\_OON 11566, IBSP 136520; PBI\_OON 11567, IBSP 136521; PBI\_OON 11568, IBSP 136519) 3♂.

## ACKNOWLEDGMENTS

This project is part of the Oonopid Spider Planetary Biodiversity Inventory, supported by the U.S. National Science Foundation (NSF grant DEB-0613754). Part of this paper was presented as a master's thesis by N.A.S., advised by A.B.B. (Programa de Pós-Graduação em Zoologia, convênio Universidade Federal do Pará/Museu Paraense Emílio Goeldi). We would like to thank the thesis committee, composed of Gustavo Hormiga, Lara Lopardo (George Washington University), Martín J. Ramírez (MACN), and Arno Antonio Lise (MCTP), for the great improvement that resulted from their suggestions on the early version of this paper presented for academic credit. A.B.B. wishes to thank to CNPq for supporting the project "Revisão de gêneros neotropicais das Subfamílias Oonopinae e Gamasomorphinae, no contexto do Inventário Planetário da Biodiversidade da Família Oonopidae (Araneae, Dysderoidea)" (Universal-Faixa C, #478667/2008-6), which allowed MPEG to obtain an imaging system compatible with PBI standards of character documentation. We also thank the support from various CNPq grants (N.A.S., Master's grant 134114/2007-8; A.B.B., PQ grant #307463/2009-5; A.D.B., PQ grant #301776/2004-0; A.J.S., PQ grants 472976/2008-7, 300498/2009-8, and INCT Hympar Sudeste) and a FAPESP grant (C.A.R., Pos-doc grant #06/61167-6). Special thanks to all curators of collections associated with PBI and other researchers that supplied specimens, especially to Norman Platnick (AMNH), Luis Pereira (MLP), Cristina Scioscia (MACN), Erica Buckup (MCN), Arno Lise (MCTP), Ricardo Pinto da Rocha (MZSP), and Hubert Höfer (SMNK). We are indebted to Darrell Ubick (CAS) who revised several early and late versions of the manuscript and to Regiane Ferreira (MPEG) for help in numbering the plates. Norman Platnick kindly warned us that both *Dysderina keyserlingi* and *D. rugosa* are actually *Neoxyphinus* species, thus preventing us from making available an unnecessary name.

## REFERENCES

- Álvarez-Padilla, F., and G. Hormiga. 2007. A protocol for digesting internal soft tissues and mounting spiders for scanning electron microscopy. *Journal of Arachnology* 35: 538–542.
- Birabén, M. 1953. *Neoxyphinus*. Nuevo género de arañas de la familia oonopidae. *Physis* (Buenos Aires) 20: 453–458.
- Bonaldo, A.B., et al. 2009. Inventário e história natural dos aracnídeos da Floresta Nacional de Caxiuanã. In P.L.B. Lisboa (organizador), Caxiuanã: desafios para a conservação de uma Floresta Nacional na Amazônia: 545–588. Belém: Museu Paraense Emílio Goeldi.
- Brescovit, A.D., R. Bertani, R. Pinto-da-Rocha, and C.A. Rheims. 2004. Aracnídeos da Estação Ecológica Juréia-Itatins: inventário preliminar e história natural. In O.A.V. Marques and W. Duleba (editors), Estação Ecológica Juréia-Itatins: ambiente físico, flora e fauna: 198–221. Ribeirão Preto, Brazil: Holos.
- Brignoli, P.M. 1983. A catalogue of the Araneae described between 1940 and 1981. Manchester: Manchester University Press, 755 pp.
- Bristowe, W.S. 1938. Some new termitophilous spiders from Brazil. *Annals and Magazine of Natural History* 2 (11): 67–73.
- Burger, M. 2011. Functional morphology of female goblin spider genitalia (Arachnida: Araneae: Oonopidae) with notes on fertilization on spiders. *Zoologischer Anzeiger* 250: 123–133.
- Burger, M., and P. Michalik. 2010. The male genital system of goblin spiders: evidence for the monophyly of Oonopidae (Arachnida, Araneae). *American Museum Novitates* 3675: 1–13.
- Chamberlin, R.V., and W. Ivie. 1942. A hundred new species of American spiders. *Bulletin of the University of Utah* 32 (13): 1–117.
- Chickering, A.M. 1968. The genus *Dysderina* (Araneae, Oonopidae) in Central America and the West Indies. *Breviora* 296: 1–37.
- Coddington, J.A. 1983. A temporary slide mount allowing precise manipulation of small structures. *Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg* 26: 291–292.
- Deeleman-Reinhold, C. 1987. Revision of the genus *Xyphinus* Simon (Araneae: Oonopidae). *Acta Arachnologica* 35 (2): 41–56.
- Dumitrescu, M., and M. Georgescu. 1987. Quelques représentants de la famille Oonopidae (Araneae) du Venezuela. In V. Decu (editor), Fauna hipogea y hemiedáfica de Venezuela y de otros países de América del Sur, Vol. 1: 89–105. Bucharest: Editura Academiei Republicii Socialiste Romania.
- Grandjean, F. 1949. Observation et conservation des très petits arthropodes. *Bulletin du Muséum National d'Histoire Naturelle* 21: 363–370.
- Grismado, J.C. 2010. Description of *Birabenella*, a new genus of goblin spiders from Argentina and Chile (Araneae: Oonopidae). *American Museum Novitates* 3693: 1–21.
- Makhan, D., and S. Ezzatpanah. 2011. *Hawkeswoodoonops trevori* gen. et sp. nov. and *Hawkeswoodoonops rishwani* sp. nov. (Araneae: Oonopidae) from Suriname. *Calodema*, 135: 1–9.
- Platnick, N.I. 1999. Dimensions of biodiversity: targeting megadiverse groups. In J. Cracraft and E.T. Grifo (editors), *The living planet: biodiversity science and policy*: 33–52. New York: Columbia University Press.
- Platnick, N.I. 2012. The world spider catalog, version 12.5. New York: American Museum of Natural History. Internet resource (<http://research.amnh.org/entomology/spiders/catalog/index.html>).
- Platnick, N.I., and N. Dupérré. 2009a. The American goblin spiders of the new genus *Escaphiella* (Araneae, Oonopidae). *Bulletin of the American Museum of Natural History* 328: 1–151.

- Platnick, N.I., and N. Dupérré. 2009b. The goblin spider genus *Heteroonops* (Araneae, Oonopidae), with notes on *Oonops*. American Museum Novitates 3672: 1–72.
- Platnick, N.I., and N. Dupérré. 2009c. The goblin spider genera *Opopaea* and *Epectris* (Araneae, Oonopidae) in the New World. American Museum Novitates 3649: 1–43.
- Platnick, N.I., and N. Dupérré. 2010a. The goblin spider genus *Scaphiella* (Araneae, Oonopidae). Bulletin of the American Museum of Natural History 332: 1–156.
- Platnick, N.I., and N. Dupérré. 2010b. The goblin spider genera *Stenoonops* and *Australoonops* (Araneae, Oonopidae), with notes on related taxa. Bulletin of the American Museum of Natural History 340: 1–111.
- Platnick, N.I., and N. Dupérré. 2010c. The Andean goblin spiders of the new genera *Niarchos* And *Scaphios* (Araneae, Oonopidae). Bulletin of the American Museum of Natural History 345: 1–120.
- Platnick, N.I., and N. Dupérré. 2011. The Andean goblin spiders of the new genus *Scaphidysderina* (Araneae, Oonopidae), with notes on *Dysderina*. American Museum Novitates 3712: 1–51.
- Platnick, N.I., et al. 2012. Tarsal organ morphology and the phylogeny of goblin spiders (Araneae, Oonopidae), with notes on basal genera. American Museum Novitates 3736: 1–52.
- Reyes, A.X.G., J.A. Corronca, and M.B. Cava. 2010. New species of *Unicorn* Platnick & Brescovit (Araneae, Oonopidae) from north-west Argentina. Munis Entomology & Zoology 5 (2): 374–379.
- Simon, E. 1893. Histoire naturelle des araignées: 1: 257–488. Paris: Roret.
- Simon, E. 1907. Etude sur les araignées de la sous-section des haplogynes. Annales de la Société Entomologique de Belgique 51: 246–264.

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