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Revisão do Gênero *Neoxyphinus* Birabén 1953 (Araneae, Oonopidae)

NAIARA ABRAHIM DOS SANTOS

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

Orientador: Dr. Alexandre Bragio Bonaldo

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“Eu poderia suportar,
embora não sem dor,
que tivessem morrido
todos os meus amores...
mas enlouqueceria
se morressem
todos os meus amigos!”

Vinícius de Moraes

Dedico este trabalho
à José Augusto Pereira Barreiros,
o querido Guto,
por todo ensinamento, apoio e amor
que recebi em sua breve passagem pela Terra.

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Introdução Geral

O presente projeto se insere no contexto de uma grande iniciativa internacional, o Inventário Planetário da Família Oonopidae (Planetary Biodiversity Inventory (PBI) – The Megadiverse, Microdistributed Spider Family Oonopidae) (http://research.amnh.org/oonopidae/). Este projeto, coordenado pelo American Museum of Natural History e financiado pela National Science Foundation (EUA) com recursos garantidos até 2010, parte do princípio de que o inventário da biodiversidade pode ser feito em escala mundial através da escolha de grupos-alvo de organismos, em oposição à visão corrente de que os inventários biológicos devem ser baseados em uma determinada área geográfica, ecossistema ou bioma. As vantagens de tal abordagem em relação aos inventários tradicionais foram listadas por Platnick (1999), com destaque para o fato de que a caracterização da biodiversidade de um determinado grupo biológico em uma escala global fornece um contexto ideal para a compreensão da história evolutiva dos organismos. O PBI - Oonopidae reúne equipes de cientistas de 19 instituições na África do Sul, Alemanha, Argentina, Austrália, Bélgica, Brasil, China, Estados Unidos, Suíça, Finlândia e Holanda, com o objetivo de revisar a taxonomia da família Oonopidae Simon, 1890 em uma escala planetária, promovendo revisões de gêneros baseadas em preceitos modernos, descrevendo o maior número possível de espécies novas, propondo hipóteses robustas de relacionamento filogenético e procurando compreender padrões biogeográficos.

A família Oonopidae Simon 1890 é composta por aranhas distribuídas em todo o globo, atingindo sua maior diversidade nos trópicos. São animais cursoriais noturnos, com até quatro milímetros de comprimento total, encontrados tanto na serapilheira quanto no dossel (Jocqué and Dippenaar-Schoeman, 2006). Atualmente são conhecidas 512 espécies distribuídas em 75 gêneros (Platnick, 2009). Entretanto, dados preliminares do projeto PBI Oonopidae indicam que as espécies atualmente conhecidas representam apenas cerca de 20% da diversidade real da família. Os oonopídeos podem ser reconhecidos pela combinação dos seguintes caracteres: olhos ausentes ou em número de dois ou seis; duas unhas tarsais denteadas biserialmente, onychium conspícuo; genitália haplógina, cribelo ausente e aberturas traqueais posteriores posicionadas anteriormente (Dippenaar-Schoeman & Jocqué, 1997). A presença de escudos ventral e dorsal sustenta a divisão da família nas subfamílias Oonopinae, onde estes escudos estão ausentes, e Gamasomorphinae, na qual pelo menos o escudo ventral está presente. No entanto, o monofiletismo destas subfamílias ainda não foi testado (Platnick, 2000). A classificação mais antiga, de Simon (1893), dividia a família em dois grupos, Molles e Loricatæ, os quais são aproximadamente correspondentes às subfamílias atuais Oonopinae e Gamasomorphinae, respectivamente.

A taxonomia de Oonopidae é notoriamente repleta de erros e confusões acerca da validade e posicionamento de seus táxons, tanto em nível específico como genérico. Diversos gêneros descritos originalmente nesta família foram transferidos para outras, como por exemplo, *Ascuta* Forster 1956, *Cornifalx*

Hickman 1979, *Duripelta* Forster 1956, *Pounamua* Forster 1956, *Subantarctia* Forster 1955 e *Tasmanoonops* Hickman 1930, transferidos para Orsolobidae (Foster and Platnick, 1985); *Gmogala* Keyserling 1890 e *Hadrotarsus* Thorell 1881, transferidos para Hadrotarsidae por Roewer (1963), família depois considerada um sinônimo júnior de Theridiidae (Foster et al., 1990). Um caso extremo foi o do gênero *Brucharachne* Mello-Leitão 1925, descrito como um Oonopidae mirmecófilo e removido da ordem Araneae por se tratar de um ácaro (Krantz and Platnick, 1995).

Birabén (1953) estabeleceu o gênero *Neoxyphinus*, que foi assim denominado por estar, para o autor, claramente vinculado ao gênero asiático *Xyphinus* Simon 1893, pela presença de características somáticas semelhantes, como os quatro grandes tubérculos localizados na região posterior do cefalotórax (Simon, 1893; Deeleman-Reinhold, 1987). A espécie-tipo *N. ogloblini* Birabén 1953 foi descrita com base em material proveniente de Loreto, Misiones, Argentina. Estas aranhas são facilmente reconhecíveis pela presença de quatro curtos e robustos tubérculos posteriores na carapaça. Birabén (1953) transferiu para *Neoxyphinus* a espécie *Dysderina xyphinoides* Chamberlain and Ivie 1942 que apresenta 6 tubérculos na região posterior da carapaça. Outra espécie descrita em *Dysderina, D. termitophila* Bristowe 1938, apresenta também 4 destes tubérculos, porém, não foi mencionada pelo autor. No entanto, Brignoli (1983) levantou a suspeita de que *N. ogloblini* seja um sinônimo júnior de *D. termitophila*, já que as duas espécies têm distribuição geográfica semelhante e possuem igual ornamentação na carapaça, sendo os tubérculos em mesmo número e tamanho.

Esta suposição não foi tratada como uma proposição formal de sinonímia no catálogo de Platnick (2009).

O gênero *Decuana* foi proposto por Dumitrescu and Georgescu (1987) para abrigar a espécie-tipo (por monotipia) *D. hispida* Dumitrescu and Georgescu 1987, descrita com base em machos e fêmeas de Rancho Grande, Venezuela. *D. hispida* possui minúsculos tubérculos na região posterior da carapaça e espinhos na região anterior do escudo dorsal do abdômen. Estes processos são mais robustos nos machos que nas fêmeas (Dumitrescu and Georgescu, 1987).

No decorrer deste trabalho, foram encontradas espécies não descritas de *Neoxyphinus* cujos espécimes apresentam tanto os robustos tubérculos da carapaça quanto os espinhos do dorso do abdômen, características de *Neoxyphinus* e *Decuana*, respectivamente. Esta evidência levou a constatação de que os minúsculos tubérculos na região torácica de *D*. *hyspida* são homólogos aos grandes tubérculos em formato de espinho presentes em espécies de *Neoxyphinus*, Adicionalmente, *D*. *hyspida* apresenta outras características somáticas compartilhadas por espécies de *Neoxyphinus*: pedicelo longo e profundamente corrugado; enditos com uma escavação apical retrolateral que apresenta uma apófise curvada em formato de dente subapical, acompanhados de uma cerda simples e um sensor tegumentar em fenda; palpo do macho com tégulo fusionado ao címbio e extremamente inflado; êmbolo em forma de S, sendo compacto com base escavada e uma projeção apical. Estas características sustentam a hipótese de que *Decuana* é um sinônimo júnior de *Neoxyphinus* e a sinonímia destes gêneros é proposta no capítulo seguinte.

Apresenta-se a revisão taxonômica do gênero *Neoxyphinus*, formatada de acordo com as normas do periódico “American Museum Novitates”, com a redescrição das três espécies conhecidas e a descrição de seis espécies novas, procedendo-se à transferência de *Decuana hyspida* e *Dysderina termitophila* para *Neoxyphinus* e a sinonímia de *Neoxyphinus ogloblini* com *N. termitophilus*.

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“Clap! Snap! The black crack!

Grip, grab! Pinch, nab!

And down down to goblin-town

You go, my lad!”

From J. R. R. Tolkien’s “The Hobbit”

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

ABSTRACT

The Neotropical genus *Neoxyphinus* Birabén 1953 is revised, comprising nine species found from Venezuela to northern Argentina. The monotypic genus *Decuana* Dumitrescu and Georgescu 1987 is synonymized with *Neoxyphinus* and its type species, *D. hyspida* Dumitrescu and Georgescu 1987, is transferred to this genera. Confirming suspicions rose in literature, *Dysderina termitophila* Bristowe 1938 is transferred to *Neoxyphinus* and recognized as senior synonym of *N. ogloblini* Birabén 1953. Six new species are described, all of which known from both sexes: *N. petrogoblin*, from Amazonas, Brazil and Huanuco, Peru; *N. gregoblin,* from Andres Bello, Venezuela; *N. axe*, from Bahia, Brazil; *N. barreirosi*, from north Brazil; *N. brega*, from Brazil, Colombia, Guyana and Venezuela and *N. caterete*, from São Paulo, Brazil.

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 in a world-wide basis (http://research.amnh.org/oonopidae/; see also Platnick, 1999, for an account of the advantages of the PBI approach over traditional area-based multi-taxonomic inventories).

Perhaps because their small size (up to 4 mm in length; Tong and Li, 2008) oonopids are among the poorest known spiders and are often difficult to identify to the species level. This is especially true for South American oonopids, which are currently known by only 75 species (see Platnick, 2009). A quick review of recent papers reporting area-based inventories of Brazilian spiders (e. g. Bonaldo et al., 2007; Dias and Bonaldo, in press; Brescovit, et al., 2004), shows that the current level of taxonomic understanding of South American oonopids is particularly poor. The faunistic lists provided by these papers have extremely low taxonomic resolution regarding Oonopidae, which are at best identified to genus. One of the few genera which are readily identified and almost always present in such lists is *Neoxyphinus*, proposed by Birabén (1953) to include two South American Gamasomorphinae species, both with a striking set of large posterior spine-like tubercles (spikes) in 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 in 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 Oonopidae genera are yet unavailable, these two groups might not be closely related since the genitalic structures are completely different.

The phylogenetic knowledge of Oonopidae is still superficial and despite the recent findings supporting monophyly of the family (Burger and Michalik, in press), the monophyly of the two classical oonopid subfamilies (Oonopinae and Gamasomorphinae) is yet to be tested (Platnick and Dupérré, in press). This scenario prevents accurate statements about the placement of *Neoxyphinus*. However, the genitalic morphology and even the posterior ornamentation of the carapace suggest a close relationship to another neotropical genus, *Dysderina* Simon 1891.

The type species of *Neoxyphinus*, *N. ogloblini* Birabén 1953, from Loreto (Misiones, Argentina), has four similarly sized spikes in 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 assumption was not treated as a formal synonymy proposition (Platnick, 2009). The single additional species described in the genus so far, *N. xyphinoides* (Chamberlin and Ivie, 1942), from Kartabo (British Guyana) transferred from

Dysderina by Birabén (1953), has six spikes: two pairs of marginal ones joined together by the base and one additional pair at the middle of the posterior surface.

An additional generic name is also relevant to the present study. 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 has small, undeveloped posterior carapace tubercles and the anterior half of the abdominal dorsal scutum has several projecting denticles, features which lead the authors to propose the genus. These denticles are more robust in males than in females (Dumitrescu and Georgescu, 1987) and, just as the carapace tubercles, are modifications of hair sockets.

In the course of this study, specimens presenting both large carapace spikes and projected abdominal denticles were found (Figs. 1 - 4). This is a 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 its development level (small, low, as in Figs 5 - 8 or large, spine-like, as in Fig. 9 - 12). Besides, scanning electronic microscope surveys showed that most forms of *Neoxyphinus*, including its type species, present more or less modified hair sockets on anterior half of the abdominal dorsal scutum (Figs. 78, 143, 205). On the other hand, some of the species newly described below do not present either abdominal dorsal denticles or carapace spikes and are assigned to *Neoxyphinus* based solely in genitalic and male endites characters.

The posterior carapace ornamentation, represented by a procurve arch of hair-bearing tubercles, appears to be consistent across all *Neoxyphinus* species, but it is not restricted to the genus. At least some species of *Dysderina* present a similar arched set of hair-bearing tubercles. This feature, in addition to the inflated, completely fused bulbus and the large epigynal atrium, could even support a claim for the synonymy of *Neoxyphinus* with *Dysderina*. However, the genitalic morphology of *Dysderina*, including that of its type species, *D. principalis* (Keyserling 1881) (see Chickering, 1968), is different from that presented by *Neoxyphinus* species. In *Dysderina*, the embolus is prominent, often bearing additional pieces, and the epigynal atrium has rounded laterals, while in *Neoxyphinus* the embolus is a compact single piece, with a large ejaculatory opening, and the epigynal atrium has angled laterals. Notwithstanding, it is not clear at this point if the maintenance of *Neoxyphinus* turns *Dysderina*, as presently constituted, a paraphyletic group. This is a question to be addressed in the context of a yet to be done phylogenetic analysis of Gamasomorphinae genera.

In the present paper, the genus *Neoxyphinus* is revised and diagnosed based mostly on genitalic morphology. *Neoxyphinus* is considered the senior synonym of *Decuana* and nine species are included, six of them newly described.

MATERIAL AND METHODS

Specimens were examined using a Zeiss Stemi SV 11 and LEICA MZ16 stereomicroscopes at Museu Paraense Emílio Goeldi, Belém (MPEG). Compound photographic images of body parts were produced using a Leica MZ16A motorized stereomicroscope with a DFC500 camera and assembled with the Leica Application Suite software package at Instituto Butantan, São Paulo (IBSP). Female genitalia were prepared following the digesting protocol by Álvarez-Padilla and Hormiga (2007). Detached male palpi and female genitalia were observed in temporary slide-mounts (Coddington, 1983), with a compound microscope. 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 exposed to gently warm light for drying. 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. Total body length variation was taken from up to ten specimens of both sexes whenever possible. The specimens examined for this study belong to the following collections: American Museum of Natural History, New York (AMNH, N. I. Platnick); Instituto Butantan, São Paulo (IBSP, A. D. Brescovit); Museo Argentino de Ciencias Naturales "Bernardino

Rivadavia", Buenos Aires (MACN-Ar, C.L. Scioscia); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (MCN, E. H. Buckup); Museu de Ciência e Tecnologia da PUCRS, Porto Alegre (MCTP, A. A. Lise); Museu Paraense Emílio Goeldi, Belém (MPEG, A. B. Bonaldo); Museo de La Plata (MLP, L. A. Pereira); Museu de Zoologia, Universidade de São Paulo, São Paulo (MZSP, R. Pinto da Rocha) and Staatliches Museum für Naturkunde Karlsruhe, Karlsruhe (SMNK, H. Höefer).

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.

DIAGNOSIS: Species of *Neoxyphinus* differ from all other Gamasomorphinae genera by the combination of the following features: carapace posterior surface with a procurve set of hairs, which are originated from small, low tubercles (Figs. 5 – 8) or from large spikes (Figs. 9 -12); ribbed pedicel tube (Figs. 13 – 18); male

endites with an apical, retrolateral excavation bearing a sub-apical teeth-like, curved apophysis, accompanied by a single hair and a slit sensilla (Figs. 25 – 30); males with unarmed femora (Fig. 32); palpal bulb strongly inflated, completely fused to cymbium (Figs. 37 – 44); embolus a compact, “s”-shaped sclerite, with an excavated basis and an apical projection (Figs. 45 – 53); ejaculatory opening large, round, located prolaterally (Fig. 53, 68, 233, 270), or apically (Fig. 303); epyginal atrium large, ellipsoid, strongly rebordered, with angular laterals (Fig. 54, 181, 217, 288).

DESCRIPTION: Total length 1.49-3.33. CEPHALOTHORAX: Carapace without any color pattern, ovoid in dorsal view (Fig. 11, 309), pars cephalica slightly elevated in lateral view (Fig. 1, 3, 124), narrowed to between 0.5 and 0.75 times its maximum width, with rounded posterolateral corners (Figs. 57, 155, 275), posterolateral edge without pits, posterior margin not bulging below posterior rim, anterolateral corners without extension or projections, posterolateral surface without spikes (*N. hispidus, N. barreirosi, N. brega, N. caterete,* Figs. 5 – 8, 102, 260, 294); 2 pairs of spikes (*N. termitophilus, N. petrogoblin, N. gregoblin,* Figs. 9 – 11, 61, 149, 177) or 3 pairs of spikes (*N. xyphinoides, N. axe,* Figs. 12, 89, 186, 187, 207), surface and sides of elevated portion of pars cephalica smooth (*N. hispidus, N. petrogoblin, N. gregoblin, N. axe, N. brega,* Figs. 116, 140, 170, 209, 275), reticulate (*N. barreirosi,* Fig. 240) or granulate (*N. termitophilus, N. caterete,* Fig. 74, 309), carapace without depressions, fovea absent, without radiating rows of pits; lateral margin straight, rebordered, generally with blunt denticles (Figs. 139, 170, 203), except in *N. barreirosi* and *N. caterete* (Figs. 240, 308); plumose setae

near posterior margin of pars thoracica absent; non-marginal pars cephalica setae light, needle-like, scattered; non-marginal pars thoracica setae light, needle-like; marginal setae light, needle-like. Clypeus margin unmodified (*N. hispidus, N. brega, N. caterete*, Figs. 101, 276, 293) or slightly rebordered, high, straight in front view (Fig. 171), vertical in lateral view (Fig. 210); ALE separated from edge of carapace by their radius or more, median projection absent; setae present, light, needle-like. Chilum absent. Six eyes, well developed, ALE largest, circular, PME squared, PLE circular, posterior eye row straight from above, recurved from front; ALE separated by less than their radius (but by their radius to diameter in *N. axe* and *N. caterete*), ALE-PLE juxtaposed, PME touching throughout most of their length, PLE-PME juxtaposed. Sternum generally as long as wide, longer than wide in *N. xyphinoides, N. petrogoblin, N. gregoblin* and *N. axe*, color uniform, fused to carapace, median concavity generally absent (present only in *N. xyphinoides,* Fig. 90), with radial furrows between coxae I-II, II-III, III-IV, furrows generally smooth (wrinkled in *N. caterete,* Fig. 310 and with row of large pits in *N. gregoblin,* Fig. 156), radial furrow opposite coxae III absent, surface smooth, without pits, microsculpture generally absent (present medially and on furrows in *N. caterete* and *N. gregoblin*), sickle-shaped structures absent, anterior margin with continuous transverse groove or unmodified (as in *N. hispidus, N. barreirosi* and *N. brega*, Figs. 117, 244, 277), posterior margin not extending posteriorly of coxae IV, anterior corner unmodified, lateral margin without infra-coxal grooves, distance between coxae approximately equal, extensions of pre-coxal triangles present, lateral margins unmodified, without posterior hump; setae sparse, light, needle-like,

evenly scattered, originating from small pits, 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, 173), laminate groove absent, setae light, needle-like, evenly scattered, also with some plumose setae; fang without tooth-like 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 6 or more setae on anterior margin, subdistal portion with unmodified setae (Fig. 31, 208). Labrum triangular (Fig. 171). Endites distally excavated in males (Figs. 25 – 30), with single slit sensilla on the base of distal excavation and a retrolateral sub-apical teeth-like, curved apophysis; a single modified hair generally inserted in the base of apophysis (but in the middle of apophysis in *N. axe* and *N. caterete*, 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. 62, 191, 227, 252, 296), inter-scutal membrane rows of small sclerotized platelets absent posteriorly; dorsum soft portions pale orange, without color pattern. Book lung covers large, generally ovoid (elliptical in *N. termitophilus* and *N. xyphinoides*), without setae, anterolateral edge unmodified. Posterior spiracles connected by groove. Pedicel tube medium to long, 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. barreirosi*, Figs. 241, 242); anterior half projecting denticles present in *N. termitophilus, N. hispidus, N. petrogoblin* and *N. gregoblin* (Figs. 78, 120, 143, 174). In *N. axe*, anterior hair sockets blunt (Fig. 205). Epigastric scutum strongly sclerotized, surrounding pedicel, not protruding, small lateral sclerites absent. Postepigastric scutum strongly sclerotized, orange-brown, long, semicircular, covering nearly full length of abdominal length, fused to epigastric scutum, often with blunt hair sockets (Figs. 78, 121, 206), anterior margin unmodified, with posteriorly directed lateral apodemes. Spinneret and supra-anal scuta absent. Dorsum, epigastric and postepigastric setae present, light, needle-like. Dense patch of setae anterior to spinnerets absent. Interscutal membrane with setae. Colulus absent. 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 near 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 meso-apical comb absent, metatarsi III and IV ventral scopula absent. Spines legs present on tibia and metatarsus, but present on femur only in females of *N. barreirosi* and *N. hispidus* (one and two prolateral spines, respectively). 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. barreirosi* ; leg IV without spines. All metatarsi with one apical trichobothrium, hood covered by numerous low, closely spaced ridges (Fig. 33, only *N. hyspidus* surveyed). Tarsal organ a rounded, rebordered sub-apical depression, with four visible sensilla: two large, well separated, posteriorly positioned and two small contiguous, anteriorly positioned (Fig. 34, only *N. hyspidus* surveyed). GENITALIA: Male epigastric region with sperm pore small, oval, unmodified, situated between anterior and posterior spiracles (*N. termitophilus, N. hispidus, N. barreirosi, N. gregoblin*) or at level of anterior spiracles; furrow without omega-shaped insertions, without setae. Palp normal size, not strongly sclerotized, right and left palps symmetrical (Fig. 256); trochanter normal size, unmodified; femur normal size, two or more times as long as 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; bulb shorter than cymbium, stout, tapering apically, embolus dark, compact, with a ventral excavation and apical projection (Figs. 45 – 53); male ejaculatory opening large, round, generally located prolaterally (Fig. 53, 270), but located apically in *N. caterete* (Fig. 303). Sperm duct wide (Figs. 137, 168, 201, 237). Female genitalia with a large elliptical atrium with angled laterals. Atrial margins strongly rebordered (Fig. 54). Internally with a median elongated piece and long lateral apodemes (Figs. 87, 152, 181, 217, 255, 288, 320).

NATURAL HISTORY: *Neoxyphinus* specimens are mostly found in forest litter, being collected with pitfall traps and winkler extraction. *N. termitophilus* was reported to be found in termite nest galleries of *Nasutitermes arenarius* (Hagen and Bates) and *N. gregoblin* was collected with carrion traps.

DISTRIBUTION: South America, from Venezuela to Northwestern Argentina and South Brazil (Map 1).

Neoxyphinus termitophilus (Bristowe), new combination

Figures 9, 25, 31, 32, 36, 37, 45, 53 – 87; Map 1

Dysderina termitophila Bristowe 1938: 67, f. 1-3 (male holotype from Santa Catarina, Brazil, The Natural History Museum, London, not examined, probably lost).

Neoxyphinus ogloblini Birabén 1953: 454, f. 1-9 (female holotype and male paratype from Loreto, Missiones, Argentina, A. Ogloblin col., 1953, in MLP, examined); Burger and Michalik, in press: figs. 1 – 4 (male genital system). NEW SYNONYMY.

DIAGNOSIS: Males resemble those of *N. hispidus* and *N. barreirosi* by the short, rounded embolus (Figs. 45, 68 – 70); differs from both by the presence of four relatively short posterior spikes in the carapace (Figs. 9, 55, 61). Males differ from other species with four spikes by the anterior end of abdominal dorsal scutum

with tiny, undeveloped denticles (Figs. 64, 78). Females can be recognized by the combination of four relatively short spikes, smooth carapace (Figs. 81, 83) and wide epigynal atrium, with a posteriorly or centrally positioned conical median piece (Fig. 87).

DESCRIPTION: MALE (PBI_OON 14616). Total length 2.05. Carapace orange-brown, anteriorly narrowed to 0.49 times its maximum width or less, posterolateral surface with 2 pairs of similarly sized small spikes, surface of elevated portion of pars cephalica and sides finely granulated, lateral margin straight, rebordered, with blunt denticles. Clypeus margin slightly rebordered, straight in front view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, furrow smooth, microsculpture absent, anterior margin with continuous transverse groove, lateral margin without infra-coxal grooves, evenly scattered, originating from small pits. 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. Legs I and II spines present. 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 small, oval, situated between anterior and posterior spiracles. Palp proximal segments pale orange, cymbium and bulb yellow. Embolus without prolateral lamella and with a small, rounded prolateral prong (fig. 69).

FEMALE (PBI_OON 14615). Total length 2.37. Pedicel tube medium. Dorsal scutum anterior half without projecting denticles. Leg I and II spines present. Spine

formula: tibia I v4-4-2, metatarsus I v2-2-2; tibia II v4-2-2, metatarsus II v2-1-1. Epigynal median piece conical, placed posteriorly or centrally in our preparations (Fig. 87).

VARIATION: Specimens from Piauí, Brazil, are darker than those from other localities and the female anterior pair of spikes is larger than the posterior one (Fig. 81). The carapace granulation may be inconspicuous or even absent, being completely smooth in some specimens. In few males, the abdominal dorsal scutum is completely devoid of denticles and others may present a small embolar prolateral lamella (Fig. 68).

DISTRIBUTION: Known from north Brazil to north Argentina.

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), 06-12 Dec 2007, B. V. B. Rodrigues & 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♀. **Piauí:** Brasileira e Piracuruca (Parque Nacional de Sete Cidades, 04°05'56.3"S 41°05'56.3"W), 22

Nov 2003, E. B. O. Marques (PBI_OON 14378, MPEG 10193) 1♀, 28 Mar 2005, F. M. Oliveira-Neto (PBI_OON 14377, MPEG 10190) 1♀, 28 Oct 2005 (PBI_OON 14367, MPEG 10192) 1♀, 25 Jun 2005, F. N. Oliveira-Marques (PBI_OON 14354, MPEG 13410) 1♂, 04 Dec 2006, L. S. Carvalho, D. F. Candiani & N. F. Lo Man Hung (PBI_OON 14376, MPEG 13406) 1♂, 1♀, 06 Dec 2006 (PBI_OON 14365, MPEG 13423; PBI_OON 14368, MPEG 13427; PBI_OON 14369, MPEG 13431) 3♀, 13 Dec 2006 (PBI_OON 14346, MPEG 13430; PBI_OON 14347, MPEG 13413; PBI_OON 14351, MPEG 13420) 1♂, 3♀, 15 Dec 2006 (PBI_OON 14364, MPEG 13422) 1♂, 24 Jan 2007, L. S. Carvalho, M. P. Albuquerque & M. T. L. Avelino (PBI_OON 14355, MPEG 13409; PBI_OON 14360, MPEG 13408; PBI_OON 14374, MPEG 13429) 1♂, 2♀, 26 Jan 2007 (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♀, 02 Feb 2007, (PBI_OON 14363, MPEG 13432) 1♀, 29 Jul 2007 (PBI_OON 14375, MPEG 13405) 1♂, 1♀, 03 Feb 2007, L. S. Carvalho, E. B. O. Marques & M. T. L. Avelino (PBI_OON 14381, MPEG 13414) 2♀, 01 Jun 2007, L. S. Carvalho, F. M. Oliveira-Neto & M. T. L. Avelino (PBI_OON 14345, MPEG 13433; PBI_OON 14353, MPEG 13424; PBI_OON 14380, MPEG 13434) 4♂, 1♀, 29 Jun 2007 (PBI_OON 14350, MPEG 13428; PBI_OON 14379, MPEG 13435) 3♂, 24 Jun 2007, L. S. Carvalho, M. P. Albuquerque & F. M. Oliveira-Neto (PBI_OON 14349, MPEG 13411; PBI_OON 14356, MPEG 13417; PBI_OON 14370, MPEG 13418) 1♂, 2♀, 27 Jun 2007 (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), Sep 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), 31 Jan 2004, V. O. Costa (PBI_OON 14352, MPEG 10194) 1♂. **Bahia:** Central, 11°01' S 41°47'W, 15-31 Jul 2002, E. Ramos & F. Cunha (PBI_OON 14598, IB 67377; PBI_OON 14724, IB 67408; PBI_OON 14725, IB 67413; PBI_OON 14726, IB 67382) 2♂, 3♀. **Mato Grosso:** Três Lagoas (Três Lagoas), Jun 1964, D. Z. (PBI_OON 14629, MZUSP 12053) 1♂. **Mato Grosso do Sul:** Brasilandia, (Fazenda Cisalpina, Usina Hidroelétrica Sergio Motta), 2000, Equipe IBSP (PBI_OON 14586, IB 30458; PBI_OON 14587, IB 30470; PBI_OON 14588, IB 30469) 5♂, 2♀, Equipe Biota (PBI_OON 14613, IB 30480) 1♀, 08-12 Aug 2000, Equipe IBSP (PBI_OON 14584, IB 30649; PBI_OON 14585, IB 30625) 2♂, 15-19 Aug 2000, J. P. Guadanucci & C. Fukushima (PBI_OON 14589, IB 35397; PBI_OON 14590, IB 35402; PBI_OON 14591, IB 35540; PBI_OON 14592, IB 35550) 3♂, 1♀; (Usina Hidroelétrica Sergio Motta, 22°30'00" S 53°00'59" W), 16-24 Jul 2000, Equipe IBSP (PBI_OON 14594, IB 30651) 1♂, 31 Jul-07 Aug 2000 (PBI_OON 14582, IB 30852; PBI_OON 14583, IB 30828) 2♀, 08-12 Aug 2000 (PBI_OON 14577, IB 30917; PBI_OON 14578, IB 30929; PBI_OON 14579, IB 30919; PBI_OON 14580, IB 30920; PBI_OON 14581, IB 30902; PBI_OON 14593, IB 30916; PBI_OON 40116, IB 30900) 7♂. Corumbá (Pantanal, próximo ao Rio Vermelho), Apr 1999, J. Raizer (PBI_OON 14611, IB 68038) 1♀; (Passo do Lontra, 19°00'34" S 57°39'11" W), Jan 1998-Nov 1999, J. Raizer (PBI_OON 14695, IB 69526; PBI_OON 14696, IB 69551; PBI_OON 14697, IB 69540; PBI_OON 14698, IB 69543; PBI_OON 14699, IB 69530; PBI_OON

14700, IB 69529; PBI_OON 14701, IB 69557; PBI_OON 14709, IB 69523; PBI_OON 14710, IB 69527; PBI_OON 14711, IB 69528; PBI_OON 14712, IB 69532; PBI_OON 14713, IB 69536; PBI_OON 14714, IB 69537; PBI_OON 14715, IB 69539; PBI_OON 14716, IB 69547; PBI_OON 14717, IB 69550; PBI_OON 14718, IB 69556; PBI_OON 14719, IB 69559; PBI_OON 14720, IB 69560) 5♂, 20♀. Dois Irmãos do Buriti, (Piratupanga, 20°27' S 55°30' W), 30 Jun 1999-06 Jul 1999, A.D. Brescovit et al. (PBI_OON 14595, IB 67457; PBI_OON 14596, IB 67428; PBI_OON 14702, IB 67419; PBI_OON 14703, IB 67432; PBI_OON 14704, IB 67444; PBI_OON 14705, IB 67445; PBI_OON 14706, IB 67449; PBI_OON 14707, IB 67451; PBI_OON 14708, IB 67460) 7♂, 5♀. **Goiás:** Campinaçu (Serra da Mesa, 13°52'S 48°23'W), 18 Feb-02 Mar 1996, Silvestre, Brandao & Yamamoto (PBI_OON 40128, MZUSP 15676) 3♂. Niquelandia, 14°01'S 48°18'W, 24 Sep-06 Oct 1995, Silvestre, Dietz & Brandao (PBI_OON 14632, MZUSP 15710) 2♂. **São Paulo:** Teodoro Sampaio (Parque Estadual Morro do Diabo, 22°31'S 52°18'W), 24-31 Mar 2003, Equipe Biota (PBI_OON 14599, IB 60187; PBI_OON 14600, IB 60194; PBI_OON 14601, IB 60193) 2♂, 1♀. **Paraná:** Capitão Leônidas Marques (Salto Caxias, Rio Iguaçu, 25°30'00"S 53°42'00"W), 23 Feb-23 Mar 1993, A. B. Bonaldo (PBI_OON 14622, MCN 23460) 1♂, 2♀, 20-28 Mar 1993 (PBI_OON 14626, MCN 23467) 2♂, 1♀. Dois Vizinhos (Foz do Chopin, Cruzeiro do Iguaçu, 25°34'28"S 53°05'48"W), 08-15 Oct 1998, Equipe Biota (PBI_OON 14610, IB 21219) 1♀. Foz do Iguaçu (Parque Nacional de Foz do Iguaçu, 25°36'S 54°25'W), 03-12 Mar 2002, Equipe Biota (PBI_OON 14603, IB 60247; PBI_OON 14604, IB 60257; PBI_OON 14605, IB 60254; PBI_OON 14606, IB 60252; PBI_OON 14607,

IB 60255) 8♂, 2♀; (Refúgio Biológico de Bela Vista, 25°24'59"S 54°31'59"W), 09-11 Nov 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), 11 Dec 1998, J. Lopes (PBI_OON 14602, IB 38191) 1♂; 05 Jan 1999 (PBI_OON 14609, IB 38188) 1♀; 17 Feb 1999 (PBI_OON 14608, IB 38255) 1♂; 08 Sep 1999 (PBI_OON 14612, IB 38196) 1♂. Pinhão (Usina Hidrelétrica Segredo, Rio da Divisa, 25°47'27"S 52°6'50"W), 21 Nov 1991, R. Pinto-da-Rocha & 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), 20-26 Feb 1993, A. B. Bonaldo (PBI_OON 14625, MCN 23189; PBI_OON 14627, MCN 23142) 1♂, 2♀; 24 Feb-24 Mar 1993 (PBI_OON 14623, MCN 23413) 6♂, 2♀. **Santa Catarina:** Ita (Rodovia Nova Teutonia, 27°11'00"S 52°29'01"W), 01 Feb 1996, A. B. Bonaldo, A. Kury & Rocha (PBI_OON 14628, MCN 27143) 1♀. Nova Teutonia, Aug 1968, F. Plaumann (PBI_OON 14614, AMNH) 3♂, 2♀. **Rio Grande do Sul:** Canela (Barragem dos Bugres, 29°20'35"S 50°41'44"W), 13 Dec 1999, A. B. Bonaldo (PBI_OON 14619, MCN 32088) 1♀. Eldorado do Sul (Fazenda KRAMM, Parque Estadual Delta do Jacui, 29°58'59"S 51°18'58"W), 29 Oct 1998, L. A. Moura (PBI_OON 14621, MCN 30303) 1♂, 2♀, 01 Jul 1999, A. B. Bonaldo (PBI_OON 14618, MCN 31316) 4♂, 1♀. São Francisco de Paula (Barragem dos Bugres), 06 Nov 1998, L. A. Moura (PBI_OON 14620, MCN 31075) 1♀. Viamão (Morro do Coco, 30°04'59"S 51°01'59"W), 25 Jul 1985, A.A. Lise (PBI_OON 14624, MCN 13380) 3♂, 3♀. PERU: **Junin:** Chanchamayo (Estancia Naranjal San Ramon, 1000 m), 20-27 Jul 1965, P., B. Wygodzinsky (PBI_OON 40131, AMNH) 1♂. Satipo (San Ramon de

Pangoa, 40 km SE Satipo, 750 m), 07 Jun 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), 11-12 Jan 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), 19-20 Jan 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), Jul 1983, P. Goloboff (PBI_OON 40099, MACN-AR 15313) 1♂, 08-15 Feb 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♀, 23-26 Oct 1995, M. Ramírez (PBI_OON 40129, MACN-AR 15328) 4♂, 6♀; (Saltos del Uruguai, 10 km M Puerto Libertad), 23-25 Feb 1997, M. Ramírez (PBI_OON 40098, MACN-Ar 15318) 1♂; (Sendero Macuco y Picadas Aledañas, Parque Nacional Iguazú, 25°40'43"S 54°26'57"W), 18-21 Jan 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), 15 Feb 1995, M. Ramírez (PBI_OON 40104, MACN-AR 15331) 3♂, 1♀.

Neoxyphinus xyphinoides (Chamberlin and Ivie 1942)

Figures 88 -97; Map 1

Dysderina xyphinoides Chamberlin and Ivie 1942: 7, f. 5-7 (male holotype from Kartabo, British Guyana, 1924, 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 (Figs. 88, 89) and a strongly modified sternum that resembles those of *Simonoonops* Harvey and some *Dysderina* Simon species, with a small concave pit in posterior half, well developed radial furrows and anterior margin with continuous transverse groove (Fig. 90).

DESCRIPTION: MALE (PBI_OON 14576). Total length 2.05. Carapace dark red-brown, anteriorly narrowed to between 0.5 and 0.75 times its maximum width, posterolateral surface with 3 pairs of spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin straight, rebordered, with blunt denticles; non-marginal pars thoracica setae light, needle-like. Clypeus margin unmodified, straight in front view. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown; median concavity present, a small concave pit in posterior half of sternum; furrow smooth, microsculpture absent; anterior margin with continuous transverse groove; setae evenly scattered, originating from surface. 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 dark red-brown. Legs orange-brown; patella plus tibia I near as long as carapace. Legs I and II spines present. 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. Palp proximal segments, cymbium and bulb yellow. Embolus with both prolateral prong and prolateral lamella (Fig. 96).

DISTRIBUTION: Know only from type locality.

MATERIAL EXAMINED: Only the holotype.

Neoxyphinus hispidus (Dumitrescu and Georgescu), new combination

Figures 7, 13, 22, 26, 33, 34, 38, 46, 98 – 121; Map 1.

Decuana hispida (Dumitrescu and Georgescu 1987): 92, pl. 2-3 (two males, one female syntypes from Rancho Grande, Venezuela, XI.11.1982, T. Orguidan & V, Decu col., in "Grigore Antipa" National Museum of Natural History, Bucharest, not examined).

DIAGNOSIS: Males differ from those of other species without developed carapace spikes by the combination of smooth carapace (Fig. 100), well developed denticles on anterior end of dorsal scutum (Fig. 103, 195) and rounded embolus (Figs. 111) (not elongated as in *N. brega*). Females differ from those of *N. barreirosi* and *N. caterete* by the smooth carapace and from those of *N. brega* by

the epigynal atrium strongly rebordered anteriorly and median piece with long accessory prongs (Dumitrescu and Georgescu, 1987: Figs. 3, 4). Females can be further distinguished by the presence of two prolateral spines on femur I.

DESCRIPTION: MALE (PBI_OON 14295). Total length 1.88. Carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin straight, rebordered, without denticles; non-marginal pars cephalica setae light, needle-like, present in u-shaped row. Clypeus margin unmodified, straight in front view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, furrow smooth, microsculpture absent, anterior margin unmodified; setae evenly scattered, originating from small pits. 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, without posteriorly directed lateral apodemes. Legs pale orange. Leg I spines present. 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, slit-like, situated between anterior and posterior spiracles. Palp proximal segments pale orange, cymbium and bulb yellow. Embolus rounded, without both prolateral prong and prolateral lamella (fig. 46, 111).

Female. Described by Dumitrescu and Georgescu (1987): 92, Figs. 3 – 6.

DISTRIBUTION: known from the type locality, Rancho Grande, Venezuela, and from Serra do Cachimbo, Pará State, Brazil.

MATERIAL EXAMINED: BRAZIL: **Pará:** Novo Progresso (Campo de Provas Brigadeiro Velloso, Serra do Cachimbo, 09°21'39"S 55°02'01"W), 07-17 Sep 2003, A. B. Bonaldo, D. R. Santos-Souza & D. D. Guimarães (PBI_OON 14295, MPEG 13671; PBI_OON 14538, MPEG 13674; PBI_OON 14540, MPEG 13676; PBI_OON 14541, MPEG 13677) 4♂, 16-26 Mar 2004, J. Ricetti, D. D. Guimarães & J. A. P. Barreiros (PBI_OON 14537, MPEG 13673; PBI_OON 14539, MPEG 13675; PBI_OON 14543, MPEG 13672) 3♂, 22-25 Mar 2004, J. Ricetti, D. D. Guimarães & J. A. P. Barreiros (PBI_OON 14542, MPEG 14145) 1♂.

Neoxyphinus petrogoblin, new species

Figures 3, 4, 10, 15, 19, 20, 40, 48, 122 – 152; Map 1.

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, 11-20 Jul 2003, A. B. Bonaldo, J. D. Dias & D. D. Guimarães (PBI_OON 14296, MPEG 10181). Female allotype from same locality except (04°51'54"S 65°20'02"W), S. C. Dias, D. F. Candiani & 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: The presence of four long carapace spikes (Figs. 124, 140, 147) and few, well developed denticles on anterior end of abdominal dorsal scutum

(Figs. 141-144) separate this species from most other *Neoxyphinus* species. Both males and females differ from those of *N. gregoblin* by the absence of large blunt tubercles on dorsal and lateral surfaces of carapace (Fig. 139, 140, 146, 147). Males are further recognized by the upright embolus, with large prolateral lamella and without prolateral prong (Fig. 133, 134).

DESCRIPTION: MALE (PBI_OON 14296). 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 straight, rebordered, with blunt denticles. Clypeus margin slightly rebordered, straight in front view. Eyes: ALE separated by less than their radius. Sternum longer than wide, orange-brown, median concavity absent, furrow smooth, microsculpture absent, anterior margin with continuous transverse groove, setae evenly scattered, originating from small pits. 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. Leg I and II spines present. 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. Upright embolus with large prolateral lamella and without prolateral prong (Fig. 134).

FEMALE (PBI_OON 14297). Total length 2.41. Carapace lateral margin with sharply pointed denticles. Book lung covers elliptical. Dorsal scutum anterior half without projecting denticles. Leg I, II and III spines present. 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 piece (Fig. 152).

DISTRIBUTION: Know from Brazilian Central Amazonia and Huanuco, Peru.

OTHER MATERIAL EXAMINED: BRAZIL: **Amazonas:** Coari (Base de Operações Geólogo Pedro de Moura, Urucu, 4°51'36"S 65°06'23"W), 29 Sep 2006, S. C. Dias, D. F. Candiani, N. F. Lo Man Hung & C. A. C. Santos-Jr (PBI_OON 14528, MPEG 13811) 1♀, 11-20 Jul 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♀, 12-20 Jul 2003 (PBI_OON 14535, MPEG 10168) 1♂, 19-22 Jul 2003 (PBI_OON 14527, MPEG 10162) 1♂, Sep 2006, S. C. Dias et al. (PBI_OON 14532, MPEG 13812) 1♂; (04°48'23"S 65°02'05"W), 08 Jul 2006, S. C. Dias, L. T. Miglio & C. A. C. Santos Jr (PBI_OON 14533, MPEG 13813) 2♂. Manaus (Igarape Taruma Mirim, 03°06'00"S 60°01'48"W), 13 Apr 1983, J. Adis (PBI_OON 40122, SMNK ARA 220) 1♀, 13 May 1983 (PBI_OON 40121, SMNK ARA 221) 2♂; (Reserva Florestal Adolpho Ducke, 02°55'12"S 59°58'48"W, 100 m), 21 Aug 1991, H. Hofer & T. Gasnier (PBI_OON 40120, SMNK ARA 4576) 1♂, 04 Sep 1991 (PBI_OON 40118, SMNK ARA 4572) 1♀. PERU: **Huanuco:** Huanuco (Panguana Biological Station, 09°37'S 74°56'W), 30 Jul-13 Aug 1984, M. Verhaagh (PBI_OON 40123, SMNK 4647A) 1♂.

Neoxyphinus gregoblin, new species

Figures 1, 2, 11, 21, 41, 49, 153 – 181; Map 1.

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, Peck, S., Peck, J. (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 “The Hobbit”, in reference to the body size of the specimens, the biggest known in the genus.

DIAGNOSIS: As in *N. petroglobin*, this species has four long carapace spikes (Figs. 154, 176, 178) and few long abdominal dorsal denticles (Figs. 158, 174), but differs 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; these denticles are also present in carapace lateral margins (Figs. 155, 170, 177).

DESCRIPTION: MALE (PBI_OON 14298). Total length 3.15. Carapace brown, posterolateral surface with 2 pairs of spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin straight, rebordered, with blunt denticles. Clypeus margin slightly rebordered, sinuous in front view. Eyes: ALE separated by less than their radius. Sternum longer than wide, dark red-brown, median concavity absent, furrow with row of large pits, microsculpture medially and in furrows, anterior margin with continuous transverse groove; setae evenly

scattered, originating from small pits. Chelicerae, endites and labium dark red-brown. Book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum dark red-brown, surface of middle and sides smooth, anterior half with projecting denticles. Postepigastric scutum dark red-brown. Legs orange-brown. Leg I and II spines present. Spine formula: tibia I v4-4-1, metatarsus I v2-2-1; 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 tooth-like apical process (Figs. 163 – 165).

FEMALE (PBI_OON 14299). Total length 3.33. Clypeus margin strongly rebordered. Book lung covers elliptical. Dorsal scutum anterior half without projecting denticles. Legs I and II spines present. 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 piece (Fig. 181).

DISTRIBUTION: Known only from Mérida, Venezuela.

OTHER MATERIAL EXAMINED: VENEZUELA: **Mérida:** Andres Bello, 28 Jun-27 Jul 1989, Peck, S., Peck, J. (PBI_OON 14302, AMNH) 1♂; 27 Jul 1989 (PBI_OON 14300, AMNH) 1♂; (La Azulita, Jaji Road ESE of Merida; nr San Eusebio, Maricaibo Basin side, 2250 m), 10 Apr 1994, L. Herman (PBI_OON 14303, AMNH) 1♀; (25 km NW Merida, Jaji Road, Chorrera Gonzales, 1800 m), 28 Jun 1989, Peck, S., Peck, J. (PBI_OON 14573, AMNH) 1♂; (El Valle, 15 km NE Merida, 2400 m), 21-24 Jul 1989, Peck, S., Peck, J. (PBI_OON 14301, AMNH) 1♂.

Neoxyphinus axe, new species

Figures 12, 16, 28, 35, 42, 50, 182 – 217; Map 1.

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, IB 18418). Female allotype same locality, Oct 1999-Sep 2000, M. F. Dias (PBI_OON 14305, IB 64390).

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

DIAGNOSIS: Both males and females can be recognized by the combined presence of six long carapace spikes and small blunt tubercles in carapace lateral margins as well as in three transversal rows (Figs. 186-188, 212).

DESCRIPTION: MALE (PBI_OON 14304). Total length 2.44. Carapace dark red-brown, posterolateral surface with 3 pairs of spikes, surface of elevated portion of pars cephalica and sides smooth, with radiating rows of blunt denticles; lateral margin straight, rebordered, with blunt denticles. Clypeus margin slightly rebordered, straight in front view. Eyes: ALE separated by their radius to diameter. Sternum longer than wide, dark red-brown, median concavity absent, furrow smooth, microsculpture absent, anterior margin with continuous transverse groove, evenly scattered, originating from small pits. 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 (Fig. 205). Postepigastric scutum dark red-brown, with blunt denticles (Fig. 206). Legs orange-brown. Leg I and II spines present. Spine formula: tibia I v5-3-1, metatarsus I v2-3-0; tibia II v2-3-1, metatarsus II 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. 50, 197 – 199).

FEMALE (PBI_OON 14305). Total length 2.65. Book lung covers elliptical, anterolateral edge with tubercle. Dorsal scutum anterior half without projecting denticles. Legs I, II and III spines present. 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 piece, placed anteriorly in our preparations (Fig. 217).

DISTRIBUTION: Known only from western State of Bahia, Brazil.

OTHER MATERIAL EXAMINED: BRAZIL: **Bahia:** Itabuna (CEPLAC, 14°38'S 39°18'W, 100 m), 26 Jan 1995, D. Agosti (PBI_OON 14575, AMNH) 1♂. Ilhéus (CEPLAC, 14°47'22" S 39°02'57" W), 07 Apr 1998, A.D. Brescovit et al. (PBI_OON 14306, IB 19377) 1♂, 11 Apr 1998 (PBI_OON 14307, IB 19210) 1♀, 12 Apr 1998 (PBI_OON 14338, IB 18887) 1♀; Una (Estação Ecológica do Una, 15°11'46"S 39°3'34"W), 31 Jan 1995, D. Agosti (PBI_OON 14574, AMNH) 1♂; (Estação Ecológica do Una, 15°17'48"S 39°04'28"W), Oct 1999-Sep 2000, M. F. Dias (PBI_OON 14308, IB 64345; PBI_OON 14309, IB 64269; PBI_OON 14310, IB 65177; PBI_OON 14311, IB 65427; PBI_OON 14312, IB 65362; PBI_OON 14313,

IB 65124; PBI_OON 14314, IB 64508; PBI_OON 14315, IB 64429; PBI_OON 14327, IB 65203; PBI_OON 14544, IB 64242; PBI_OON 14339, IB 18106; PBI_OON 14316, IB 64321; PBI_OON 14317, IB 65258; PBI_OON 14318, IB 64381; PBI_OON 14319, IB 65224; PBI_OON 14320, IB 66815; PBI_OON 14321, IB 64336; PBI_OON 14322, IB 64474; PBI_OON 14323, IB 65208; PBI_OON 14324, IB 64391; PBI_OON 14325, IB 64529; PBI_OON 14326, IB 65325; PBI_OON 14328, IB 65259; PBI_OON 14329, IB 64433; PBI_OON 14330, IB 65166; PBI_OON 14331, IB 65254; PBI_OON 14332, IB 64296; PBI_OON 14333, IB 64436; PBI_OON 14334, IB 64500; PBI_OON 14335, IB 64502; PBI_OON 14336, IB 65491; PBI_OON 14337, IB 65109; PBI_OON 14341, IB 63933; PBI_OON 14342, IB 64446; PBI_OON 14344, IB 65161; PBI_OON 14545, IB 64344) 32♂, 19♀, 2003 (PBI_OON 14340, IB 62540; PBI_OON 14343, IB 62532) 1♂, 1♀.

Neoxyphinus barreirosi, new species

Figures 5, 17, 23, 29, 43, 51, 218 – 255; Map 1.

TYPES: Male holotype from Bosque Rodrigues Alves - Jardim Botânico da Amazônia (01°25'49.0"S 48°27'22.3"W), Belém, Pará, Brazil, 08 Nov 2001, J. A. P. Barreiros (PBI_OON 14382, MPEG 10506). Female allotype, same data (PBI_OON 14383, MPEG 13670).

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

DIAGNOSIS: As in *N. brega* and *N. caterete*, the specimens of *N. barreirosi* are devoid of 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. 219, 226, 239 – 242, 248, 251). Males differ from all other species by presence of a small prolatero-apical lamella (Figs. 233, 234, 237). Females can 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.

DESCRIPTION: MALE (PBI_OON 14382). Total length 1.98. Carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides strongly reticulate, lateral margin straight, rebordered, without denticles. Clypeus margin slightly rebordered, straight in front view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, microsculpture absent, setae evenly scattered, originating from surface. Book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum orange-brown, surface of middle and sides reticulate, anterior half without projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Leg I spines present. 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 a prolatero-apical lamella (Fig. 51, 233, 234).

FEMALE (PBI_OON 14383). Total length 1.93. Carapace surface of elevated portion of pars cephalica and sides finely reticulate. Clypeus margin unmodified. Book lung covers round. Dorsal scutum middle and sides surface finely reticulate. Epigastric and postepigastric area needle-like. Legs I, II and III spines present. 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 piece conical, placed anteriorly in our preparations (Fig. 255).

DISTRIBUTION: Know from north Brazil.

OTHER MATERIAL EXAMINED: BRAZIL: **Roraima:** Amajari (Reserva Biológica Ilha de Maracá, 03°22'01"N 61°25'00"W), 31 Jan-14 Feb 1992, A. B. Bonaldo (PBI_OON 40125, MCTP 1836) 1♀. **Amazonas:** Manaus, 03°06'07"S 60°01'30"W, 28 Jan 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), 01 Apr 2001, J. A. P. Barreiros (PBI_OON 14412, MPEG 10501) 1♀, 08 Apr 2001 (PBI_OON 14402, MPEG 10503) 1♀, 12 May 2001 (PBI_OON 14417, MPEG 10490) 1♀, 16 Apr 2001 (PBI_OON 14418, MPEG 10500) 1♀, 22 Apr 2001 (PBI_OON 14387, MPEG 10498; PBI_OON 14401, MPEG 10497; PBI_OON 14416, MPEG 10499) 3♀, 27 Sep 2001 (PBI_OON 14419, MPEG 10495) 1♀, 18 Oct 2001 (PBI_OON 14404, MPEG 10491; PBI_OON 14428, MPEG 10496) 2♀, 25 Oct 2001 (PBI_OON 14391, MPEG 10483; PBI_OON 14392, MPEG 10480; PBI_OON 14400, MPEG 10504; PBI_OON 14434, MPEG

10482) 7♀, 08 Nov 2001 (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) 9♀, 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, 06-12 Dec 2007, B. V. B. Rodrigues & 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♀, 13-15 Dec 2007 (PBI_OON 14634, MPEG 14014) 1♀, 07 May 2008, B. V. B. Rodrigues, J. M. B. Pereira-Filho, N. Abrahim & N. C. Bastos (PBI_OON 14639, MPEG 14019) 1♀. Goianésia (Fazenda Rio Capim, 03°18'50" S 48°28'54" W), 30 Jul 2002, Equipe IPAN (PBI_OON 14388, MPEG 10742, PBI_OON 14398, MPEG 10741; PBI_OON 14421, MPEG 10732) 2♂, 1♀, 30 Aug 2002 (PBI_OON 14409, MPEG 10739) 1♀, 15-29 Jun 2003 (PBI_OON 14394, MPEG 10735, PBI_OON 14439, MPEG 10727) 2♂, 17 Jun 2003 (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 Caxiuana, 01°44'15.5"S 51°26'42.0"W), 17 Aug 2003, J. A. P. Barreiros (PBI_OON 14755, MPEG 10372)

1♀, 25 Oct 2003 (PBI_OON 14405, MPEG 10345) 1♀, 28 Oct 2003 (PBI_OON 14754, MPEG 10374) 1♂. Novo Repartimento (Fazenda Arataú, 04°19'51" S 49°47'47)" W, 19 Jun-12 Aug 2003, Equipe IPAN (PBI_OON 14423, MPEG 10724) 1♀, 25-26 Jun 2003 (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♀, 11 Aug 2006 (PBI_OON 14425, MPEG 10745) 1♀. Tailândia (Fazenda Santa Marta), 13-14 May 2003, Equipe IPAN (PBI_OON 14396, MPEG 10733; PBI_OON 14422, MPEG 10738; PBI_OON 14432, MPEG 10731) 3♀; 10-30 Jul 2003 (PBI_OON 14433, MPEG 10714) 1♀, 19-30 Jul 2003 (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 brega, new species

Figures 8, 14, 27, 39, 47, 256 – 288; Map 1.

TYPES: male holotype from Estação Cientifica Ferreira Penna, FLONA Caxiuana, (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 refers to the Brega Music, a popular genre autochthonous to State of Pará, Brazil. In other parts of the country the word brega is used as an adjective, meaning tasteless.

DIAGNOSIS: Males resemble *N. hispidus* by the smooth carapace surface, without developed posterior spikes (Figs.259, 260, 275), but differ by the long and slender embolus, with pointed apical projection (Figs. 47, 267, 273), and by the absence of abdominal anterior denticles (Fig. 263, 265, 278). Females resemble those of *N. termitophilus*, *N. hispidus*, *N. barreirosi* and *N. caterete* by the wide epigynal atrium, differing by the unique combination of the posteriorly positioned median piece (Fig. 288) and absence of carapace spikes (Fig. 282, 283).

DESCRIPTION: MALE (PBI_OON 14441). Total length 1.49. Carapace orange-brown, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides smooth, lateral margin straight, rebordered, with blunt denticles. Clypeus margin unmodified, straight in front view. Eyes: ALE separated by less than their radius. Sternum as long as wide, orange-brown, median concavity absent, furrow smooth, microsculpture absent, anterior margin unmodified, setae evenly scattered, originating from small pits. Book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum orange-brown, middle and sides surface smooth, anterior half without projecting denticles. Postepigastric scutum orange-brown. Legs pale orange. Leg I spines present. 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 (Fig. 269, 270), and without prolateral prong and prolateral lamella (Fig. 47).

FEMALE (PBI_OON 14442). Total length 1.58. Clypeus margin slightly rebordered. Legs I and II spines present. 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 piece (Fig. 288).

DISTRIBUTION: This species is known from north of South America.

OTHER MATERIAL EXAMINED: VENEZUELA. **Bolivar:** Gran Sabana (12 Km N Luepa, 1500 m), 01-11 Jun 1987, Peck, S., Peck, J. (PBI_OON 14571, AMNH) 1♂. COLOMBIA. **Amazonas:** (18 km of Leticia), 24-28 Feb 1974, Peck, S., Peck, J. (PBI_OON 14570, AMNH) 1♂. GUYANA. **Potaro-Siparuni:** Tukeit, 21 Jul 1911, F. Lutz (PBI_OON 14572, AMNH) 1♂. BRAZIL. **Amazonas:** Manaus (Reserva Florestal Adolpho Ducke, 02°55'12"S 59°58'48"W, 100 m), 13 Jun 1998, R. Ott (PBI_OON 40126, MCTP 12628) 2♀. **Pará:** Juruti (Platô Capiranga, 02°28'22.1"S 56°12'29.4"W), 09-11 Feb 2007, J. A. P. Barreiros & N. F. Lo-Man-Hung (PBI_OON 14554, MPEG 10056) 1♂; (Sitio Três Irmãos, 02°27'51.4"S 56°00'08.6"W), 08-15 Aug 2006, D. F. Candiani & 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♀, 06-13 Feb 2007, J. A. P. Barreiros & 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), 08-15 Aug 2006, D. F. Candiani & N. F. Lo-Man-Hung (PBI_OON 14449, MPEG 10883 (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♀, 13 Aug 2006 (PBI_OON 14470, MPEG 10888) 1♂, 06-13 Feb 2007, J. A. P. Barreiros & 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♀, 08-16 Jul 2002 (PBI_OON 14665, MPEG 14047) 1♂, 09 Jul 2002 (PBI_OON 14662, MPEG 14042) 1♂, 11 Jul 2002 (PBI_OON 14664, MPEG 14045) 1♂, Nov 2002 (PBI_OON 14663, MPEG 14043) 1♂, 26 Dec 2002, A. B. Bonaldo & L. F. Montag (PBI_OON 14730, MPEG 9639) 1♂, 09 Mar

2003, J. A. P. Barreiros (PBI_OON 14463, MPEG 10392) 1♂, 12 Mar 2003 (PBI_OON 14446, MPEG 10380) 1♀, 19 May 2003 (PBI_OON 14444, MPEG 10376; PBI_OON 14457, MPEG 10391; PBI_OON 14465, MPEG 10395) 2♀, 1♂, 25 May 2003 (PBI_OON 14447, MPEG 10381) 1♂, 28 May 2003 (PBI_OON 14462, MPEG 10389; PBI_OON 14738, MPEG 10343) 2♂, 08 Aug 2003 (PBI_OON 14443, MPEG 10373; PBI_OON 14458, MPEG 10394; PBI_OON 14461, MPEG 10388; PBI_OON 14741, MPEG 10299) 3♂, 1♀, 11 Aug 2003 (PBI_OON 14454, MPEG 10378) 1♂, 14 Aug 2003 (PBI_OON 14464, MPEG 10393) 1♂, 17 Aug 2003 (PBI_OON 14451, MPEG 10382; PBI_OON 14445, MPEG 10377) 2♂, 20 Aug 2003 (PBI_OON 14460, MPEG 10387) 1♂, 16 Oct 2003 (PBI_OON 14453, MPEG 10386) 1♀, 19 Oct 2003 (PBI_OON 14452, MPEG 10375) 1♂, 21-31 Oct 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♀, 22 Oct 2003, J. A. P. Barreiros (PBI_OON 14455, MPEG 10390; PBI_OON 14549, MPEG 10396) 1♂, 3♀, 24 Oct-03 Nov 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♂, 25 Oct 2003, J. A. P. Barreiros, (PBI_OON 14550, MPEG 10371; PBI_OON 14448, MPEG 10368) 1♂, 1♀, 27-30 Oct 2003, Equipe MPEG (PBI_OON 14670, MPEG

14053) 1♀, 28 Oct 2003, J. A. P. Barreiros (PBI_OON 14459, MPEG 10385) 1♂, 31 Oct-03 Nov 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), 08-13 May 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♀.

Neoxyphinus caterete, new species

Figures 6, 18, 24, 30, 44, 52, 289 – 320; Map 1.

TYPES: male holotype from Parque Ilha dos Eucaliptos, Reservatório Guarapiranga (23°44'1"S 46°44'1"W), 07 Apr 2004 - 13 Apr 2004, I. Cizauskas & C. R. M. Garcia (PBI_OON 14482, IB 62132). Female allotype, same data (PBI_OON 14483, IB 62115).

ETYMOLOGY: Cateretê is a rural music genre, popular in State of São Paulo countryside.

DIAGNOSIS: This species is readily recognized by the evenly granulated carapace surface (Figs. 291, 309, 314) and by the wrinkled sternal furrows (Fig. 315) in both males and females. Males are unique by the embolus with a prolateral sulcus and apical copulatory opening (Figs. 52, 303). Females resemble those of

N. *hispidus* and *N*. *barreirosi* by the wide epigynal atrium, with an anteriorly positioned median piece (Fig. 320), differing by the carapace micro-sculpture and by the bilobated epigynal median piece (Fig. 320).

DESCRIPTION: MALE (PBI_OON 14482). Total length 2.16. Carapace dark red-brown, broadly oval in dorsal view, pars cephalica slightly elevated in lateral view, posterolateral surface without spikes, surface of elevated portion of pars cephalica and sides granulate, lateral margin straight, rebordered, without denticles. Clypeus margin unmodified, straight in front view. Eyes: ALE separated by their radius to diameter. Sternum as long as wide, dark red-brown, median concavity absent, furrow wrinkled, microsculpture medially and in furrows, anterior margin with continuous transverse groove, setae evenly scattered, originating from small pits. Book lung covers large, ovoid. Pedicel tube medium. Dorsal scutum dark red-brown, middle and sides surface smooth, anterior half without projecting denticles. Postepigastric scutum dark red-brown. Legs orange-brown. Leg I and II spines present. 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 and prolateral lamella (Figs. 52, 306).

FEMALE (PBI_OON 14483). Total length 2.33. Legs I and II spines present. 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 piece (Fig. 320).

DISTRIBUTION: Known from Southeastern Brazil.

MATERIAL EXAMINED: Paratypes. BRAZIL. **Espirito Santo:** Linhares (Reserva Florestal Vale do Rio Doce, 19°23'30" S 40°04'20" W), Jun 1997, J. Raizer (PBI_OON 14692, IB 14881) 1♂. **São Paulo:** Iporanga (PETAR - Parque Estadual Turístico do Alto Ribeira, 24°28'30" S 48°39'30" W), 02 May 2002, R. Andrade (PBI_OON 14690, IB 44806) 1♂. Itapevi (Condomínio Residencial TransUrb, 23°32'57" S 46°56'02" W), 25 Jun 1999, V. C. Onofrio (PBI_OON 14694, IB 67608) 1♂, 1♀. Peruibe (Estação Ecológica de Juréia - Itatins, 24°18'47" S 47°00'03" W), 17-21 Mar 1997, A.D. Brescovit et al. (PBI_OON 14693, IB 9605) 1♂, 2♀. São Paulo (CUASO, Universidade de São Paulo), 16-23 Aug 1999, D. F. Candiani (PBI_OON 14691, IB 42180; PBI_OON 14509, IB 42192) 2♂; (Mata da Biologia, Universidade de São Paulo), 1999, D. F. Candiani (PBI_OON 14485, IB 69007; PBI_OON 14490, IB 69018; PBI_OON 14516, IB 69010; PBI_OON 14522, IB 69006; PBI_OON 14552, IB 68987) 2♂, 5♀, 11-18 Jun 1999, D. F. Candiani (PBI_OON 14489, IB 69004; PBI_OON 14502, IB 69019) 1♂, 1♀, 12-19 Dec 1999, D. F. Candiani (PBI_OON 14521, IB 68998) 2♂; (Parque Ilha dos Eucaliptos, Reservatório Guarapiranga, 23°44'1"S 46°44'1"W), 07-13 Oct 2003, I. Cizauskas & C. R. M. Garcia (PBI_OON 14553, IB62152) 1♀, 07-13 Apr 2004 (PBI_OON 14484, IB 62155; PBI_OON 14486, IB 62151; PBI_OON 14487, IB 62105; PBI_OON 14488, IB 62112; PBI_OON 14491, IB 62131; PBI_OON 14492, IB 62150; PBI_OON 14493, IB 62129; PBI_OON 14508, IB 62149; PBI_OON 14518, IB 62123; PBI_OON 14520, IB 62107, PBI_OON 14495, IB 62110; PBI_OON 14496, IB 62134; PBI_OON 14497, IB 62158; PBI_OON 14498, IB 62124;

PBI_OON 14499, IB 62114; PBI_OON 14500, IB 62142; PBI_OON 14501, IB 62099; PBI_OON 14503, IB 62121; PBI_OON 14504, IB 62162; PBI_OON 14506, IB 62120; PBI_OON 14507, IB 62104; PBI_OON 14511, IB 62106; PBI_OON 14512, IB 62101; PBI_OON 14513, IB 62130; PBI_OON 14514, IB 62109; PBI_OON 14515, IB 62156; PBI_OON 14517, IB 62135; PBI_OON 14519, IB 62111; PBI_OON 14523, IB 62139; PBI_OON 14524, IB 62126; PBI_OON 14551, IB 62113) 23♂, 20♀. São Luis do Paraitinga (Núcleo Santa Virginia, Parque Estadual Serra do Mar, 23°20'28"S 45°08'49"W), 10 Apr 2005, M. U. Prado (PBI_OON 14688, IB 58438) 1♀; 22 May 2005 (PBI_OON 14687, IB 58436; PBI_OON 14689, IB 58439) 2♀.

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LEGENDS

Figs. 1-4. Carapace spikes and abdominal denticles, males, lateral view. **1, 2.** *Neoxyphinus gregoblin* new species **3, 4.** *N. petroglobin* new species.

Figs. 5-12. Carapace, posterior view, males. **5.** *Neoxyphinus barreirosi* new species. **6.** *N. caterete* new species. **7.** *N. hispidus* (Dumitresco and Georgesco). **8.** *N. brega* new species. **9.** *N. termitophilus* (Bristowe). **10.** *N. petrogoblin* new species. **11.** *N. gregoblin* new species. **12.** *N. axe* new species.

Figs. 13-18. Pedicel, lateral view, males. **13.** *Neoxyphinus hispidus* (Dumitresco and Georgesco). **14.** *N. brega* new species **15.** *N. petrogoblin* new species. **16.** *N. axe* new species. **17.** *N. barreirosi* new species. **18.** *N. caterete* new species.

Figs. 19-24. Chelicerae, posterior view. **19, 20.** *Neoxyphinus petrogoblin* new species. **21.** *N. gregoblin* new species. **22.** *N. hispidus* (Dumitresco and Georgesco). **23.** *N. barreirosi* new species. **24.** *N. caterete* new species.

Figs. 25-30. Male endites, ventral view. **25.** *Neoxyphinus termitophilus* (bristowe). **26.** *N. hispidus* (Dumitresco and Georgesco). **27.** *N. brega* new species.

28. *N. axe* new species. **29.** *N. barreirosi* new species. **30.** *Neoxyphinus caterete* new species.

Figs. 31-36. 31, 32, 36: *Neoxyphinus termitophilus* (Bristowe); 33, 34: *N. hyspidus* (Dumitresco and Georgesco); 35: *Neoxyphinus axe* new species. **31.** Labium, ventral view. **32.** Leg I, prolateral view. **33.** Metatarsus I, apical Trichobothrium, dorsal view. **34.** tarsus II, claw, lateral view. **35.** Tarsus I, Tarsal organ, dorsal view. **36.** Spinnerets, posterior view.

Figs. 37-44. Male palpus. **37.** *Neoxyphinus termitophilus* (Bristowe), left palp, ventral view. **38.** *N. hispidus* (Dumitresco and Georgesco), right palp, ventral view. **39.** *N. brega* new species, left palp, ventral view. **40.** *N. petrogoblin* new species, same, retrolateral view. **41.** *N. gregoblin* new species, same, prolateral view. **42.** *N. axe* new species, same, ventral view. **43.** *N. barreirosi* new species, same, ventral view. **44.** *N. caterete* new species, same, ventral view.

Figs. 45-50. Left embolus, ventral view. **45.** *Neoxyphinus termitophilus* (Bristowe) **46.** *N. hispidus* (Dumitresco and Georgesco). **47.** *N. brega* new species. **48.** *N. petrogoblin* new species. **49.** *N. gregoblin* new species. **50.** *N. axe* new species.

Figs. 51 - 54. **51.** *Neoxyphinus barreirosi* new species, left embolus, ventral view. **52.** *N. caterete* new species, same. 53, 54, *Neoxyphinus termitophilus* (Bristowe). **53.** Left embolus, apical view. **54.** Female epigynum, ventral view.

Figs. 55-64. *Neoxyphinus termitophilus* (Bristowe), male. **55.** Habitus, dorsal view. **56.** Same, lateral view. **57.** Carapace, dorsal view. **58.** Cephalothorax, ventral view. **59.** Carapace, anterior view. **60.** Same, lateral view. **61.** Same, posterior view. **62.** Abdomen, dorsal view. **63.** Same, ventral view. **64.** Same, lateral view.

Figs. 65--73. *Neoxyphinus termitophilus* (Bristowe), male, **65.** Left palp, prolateral view. **66.** Same, ventral view. **67.** Same, retrolateral view. **68, 71.** Embolus, prolateral view. **69, 72.** Same, ventral view. **70, 73.** Same, retrolateral view.

Figs. 74-79. *Neoxyphinus termitophilus* (Bristowe), male. **74.** Habitus, lateral view. **75.** Carapace, dorsal view. **76.** Cephalothorax, ventral view. **77, 78.** Abdomen, lateral view. **79.** Mouthparts, posterior view.

Figs. 80-87. *Neoxyphinus termitophilus* (Bristowe), female. **80.** Habitus, dorsal view. **81.** Same, lateral view. **82.** Carapace, anterior view. **83.** Same, posterior view. **84.** Abdomen, dorsal view. **85.** Same, ventral view. **86.** Cephalothorax, ventral view. **87.** Epigynum, dorsal view.

Figs. 88-97. *Neoxyphinus xyphinoides* (Chamberlin and Ivie), male. **88.** Habitus, dorsal view. **89.** Same, lateral view. **90.** Cephalothorax, ventral view. **91.** Abdomen, ventral view. **92.** Left palp, prolateral view. **93.** Same, ventral view. **94.** Same, retrolateral view. **95.** Left palp, embolus, prolateral view. **96.** Same, ventral view. **97.** Same, retrolateral view.

Figs. 98-106. *Neoxyphinus hispidus* (Dumitresco and Georgesco), male. **98.** Habitus, dorsal view. **99.** Same, same view. **100.** Same, lateral view. **101.** Carapace, anterior view. **102.** Same, posterior view. **103.** Abdomen, lateral view. **104.** Same, ventral view. **105.** Same, anterior view. **106.** Cephalothorax, ventral view.

Figs. 107-115. *Neoxyphinus hispidus* (Dumitresco and Georgesco), male, **107.** Right palp, prolateral view. **108.** Same, ventral view. **109.** Same, retrolateral view. **110.** Left palp, prolateral view. **111.** Right palp, ventral view. **112.** Left palp, retrolateral view. **113.** Left palp, embolus, prolateral view. **114.** Same, ventral view. **115.** Same, retrolateral view.

Figs. 116-121. *Neoxyphinus hispidus* (Dumitresco and Georgesco), male. **116.** Carapace, lateral view. **117.** Cephalothorax, ventral view. **118.** Mouthparts, posterior view. **119, 120.** Abdomen, lateral view. **121.** Same, anterior view.

Figs. 122-129. *Neoxyphinus petrogoblin* new species, male. **122, 123.** Habitus, dorsal view. **124.** Same, lateral view. **125.** Abdomen, ventral view. **126.** Same, lateral view. **127.** Same, anterior view. **128.** Cephalothorax, ventral view. **129.** Carapace, posterior view.

Figs. 130-138. *Neoxyphinus petrogoblin* new species, male, **130.** Left palp, prolateral view. **131.** Same, ventral view. **132.** Same, retrolateral view. **133.** Right palp, embolus, prolateral view. **134.** Left palp, embolus, ventral view. **135.** Same, retrolateral view. **136.** same, embolus, prolateral view. **137.** Same, ventral view. **138.** Same, retrolateral view.

Figs. 139-144. *Neoxyphinus petrogoblin* new species, male. **139.** Cephalothorax, lateral view. **140.** same, dorsal view. **141.** abdomen, lateral view. **142.** same, antero-lateral view. **143, 144.** Same, lateral view.

Figs. 145-152. *Neoxyphinus petrogoblin* new species, female. **145, 146.** Habitus, dorsal view. **147.** Same, lateral view. **148.** Abdomen, anterior view. **149.** Carapace, posterior view. **150.** Abdomen, ventral view. **151.** Same, lateral view. **152.** Epigynum, dorsal view.

Figs. 153-159. *Neoxyphinus gregoblin* new species, male. **153.** Habitus, dorsal view. **154.** Same, lateral view. **155.** Carapace, dorsal view. **156.**

Cephalothorax, ventral view. **157.** Abdomen, ventral view. **158.** Same, lateral view. **159.** Leg I, prolateral view.

Figs. 160-169. *Neoxyphinus gregoblin* new species, male. **160.** Right palp, prolateral view. **161.** Same, ventral view. **162.** Same, retrolateral view. **163.** Same, embolus, ventral view. **164.** Left palp, same. **165.** Same, prolateral view. **166.** Compound microscope, same, embolus, prolateral view. **167.** Same, ventral view, apices in focus. **168.** Same, basis in focus. **169.** Same, retrolateral view.

Figs. 170-175. *Neoxyphinus gregoblin* new species, male. **170.** Cephalothorax, lateral view. **171.** Same, frontal view. **172.** Carapace spike, lateral view. **173.** Chelicerae, posterior view. **174.** Abdomen, lateral view. **175.** Epigastric scutum, ventral view.

Figs. 176-181. *Neoxyphinus gregoblin* new species, female. **176, 177.** Habitus, dorsal view. **178.** Same, lateral view. **179.** Abdomen, ventral view. **180.** Same, anterior view. **181.** Epigynum, dorsal view.

Figs. 182-193. *Neoxyphinus axe* new species, male. **182, 183.** Habitus, dorsal view. **184.** Same, lateral view. **185.** Cephalothorax, anterior view. **186.** Same, lateral view. **187.** Same, posterior view. **188.** Same, dorsal view. **189.**

same, ventral view. **190.** Abdomen, anterior view. **191.** Same, dorsal view. **192.** Same, lateral view. **193.** Same, ventral view.

Figs. 194-202. *Neoxyphinus axe* new species, male, **194.** Right palp, prolateral view. **195.** Same, ventral view. **196.** Same, retrolateral view. **197.** Left palp, embolus, prolateral view. **198.** Same, apical view. **199.** Same, retrolateral view. **200.** Left palp, embolus, prolateral view. **201.** Same, ventral view. **202.** Same, retrolateral view.

Figs. 203-208. *Neoxyphinus axe* new species, male. **203, 207.** Cephalothorax, latero-posterior view. **204 – 206.** Abdomen, lateral view. **208.** Mouthparts, posterior view.

Figs. 209-217. *Neoxyphinus axe* new species, female. **209.** Habitus, dorsal view. **210.** Same, lateral view. **211.** cephalothorax, anterior view. **212.** Same, lateral view. **213.** Same, posterior view. **214.** Abdomen, ventral view. **215.** Same, lateral view. **216.** Same, anterior view. **217.** Epigynum, dorsal view.

Figs. 218-229. *Neoxyphinus barreirosi* new species, male. **218, 219.** Habitus, dorsal view. **220.** Same, lateral view. **221.** Cephalothorax, anterior view. **222.** Same, lateral view. **223.** Same, posterior view. **224.** Same, dorsal view. **225.** Same, ventral view. **226.** Abdomen, anterior view. **227.** Same, dorsal view. **228.** Same, lateral view. **229.** Same, ventral view.

Figs. 230-238. *Neoxyphinus barreirosi* new species, male, **230.** Left palp, prolateral view. **231.** Same, ventral view. **232.** Same, retrolateral view. **323, 236.** Left palp, embolus, prolateral view. **234, 237.** Same, ventral view. **235, 238.** Same, retrolateral view.

Figs. 239-244. *Neoxyphinus barreirosi* new species. **239, 240.** Male habitus and carapace, dorsal view. **241.** Female Abdomen, frontal view. **242.** Male abdomen, lateral view. **243.** Male endite, posterior view. **244.** Male cephalotorax, ventral view.

Figs. 245-255. *Neoxyphinus barreirosi* new species, female. **245, 246.** Habitus, dorsal view. **247.** Same, lateral view. **248.** Cephalothorax, dorsal view. **249.** same ventral view. **250.** same, anterior view. **251.** Same, posterior view. **252.** Abdomen, dorsal view. **253.** Same, ventral view. **254.** Same, lateral view. **255.** Epigynum, dorsal view.

Figs. 256-265. *Neoxyphinus brega* new species, male. **256, 257.** Habitus, dorsal view. **258.** Cephalothorax, anterior view. **259.** Same, lateral view. **260.** Same, posterior view. **261.** Abdomen, dorsal view. **262.** Same, ventral view. **263.** Same, lateral view. **264.** Cephalothorax, ventral view. **265.** Abdomen, anterior view.

Figs. 266-274. *Neoxyphinus brega* new species, male, **266.** Left palp, prolateral view. **267.** Same, ventral view. **268.** Same, retrolateral view. **269.** Right palp, embolus, prolateral view. **270.** Left palp, embolus, ventral view. **271.** Same, retrolateral view. **272.** Left palp, embolus, prolateral view. **273.** Same, ventral view. **274.** Same, retrolateral view.

Figs. 275-278. *Neoxyphinus brega* new species, male. **275.** cephalothorax, dorsal view. **276.** Same, lateral view. **277.** Sternum, ventral view. **278.** Abdomen, lateral view.

Figs. 279-288. *Neoxyphinus brega* new species, female. **279.** Habitus, dorsal view. **280.** Same, lateral view. **281.** Cephalothorax, anterior view. **282.** Same, lateral view. **283.** Same, posterior view. **284.** Abdomen, dorsal view. **285.** Same, ventral view. **286.** Same, lateral view. **287.** Cephalothorax, ventral view. **288.** Epigynum, dorsal view.

Figs. 289-298. *Neoxyphinus caterete* new species, male. **289, 290.** Habitus, dorsal view. **291.** Cephalothorax, dorsal view. **292.** same, ventral view. **293.** same, anterior view. **294.** Same, posterior view. **295.** Abdomen, anterior view. **296.** Same, dorsal view. **297.** Same, ventral view. **298.** Same, lateral view.

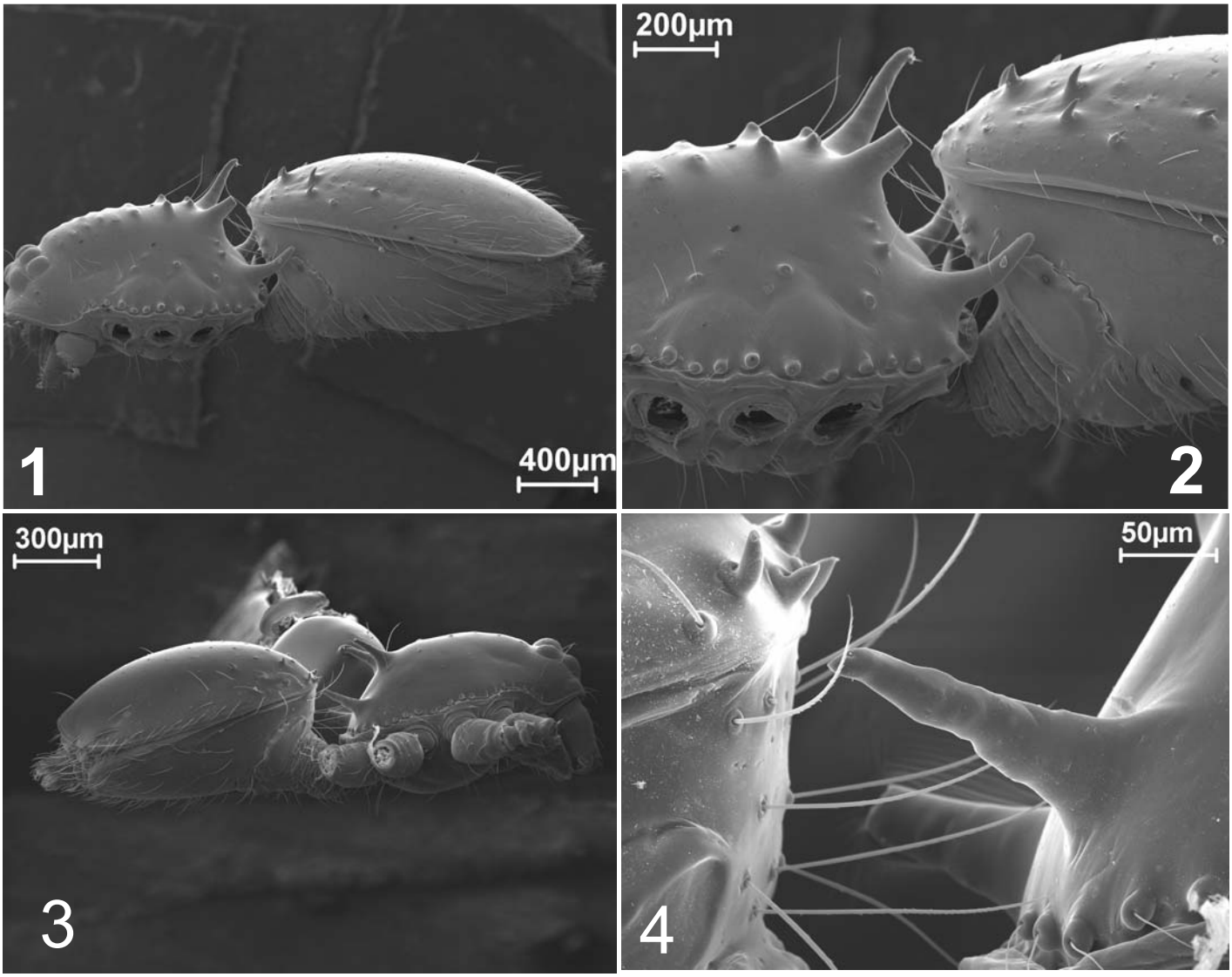
Figs. 299-307. *Neoxyphinus caterete* new species, male, **299.** Left male palp, prolateral view. **300.** Same, ventral view. **301.** Same, retrolateral view. **302.**

Left palp, embolus, prolateral view. **303.** Right palp, apical view. **304.** Left palp, retrolateral view. **305.** Left palp, embolus, prolateral view. **306.** Same, ventral view. **307.** Same, retrolateral view.

Figs. 308-311. *Neoxyphinus caterete* new species, male. **308.** Habitus, lateral view. **309.** Cephalothorax, dorsal view. **310.** same, ventral view. **311.** Mouthparts, posterior view.

Figs. 312-320. *Neoxyphinus caterete* new species, female. **312.** Habitus, dorsal view. **313.** Same, lateral view. **314.** Cephalothorax, dorsal view. **315.** same, ventral view. **316.** Abdomen, dorsal view. **317.** Same, lateral view. **318.** Same, ventral view. **319.** Cephalothorax, anterior view. **320.** Epigynum, dorsal view.

Map 1. Known distribution of *Neoxyphinus* species.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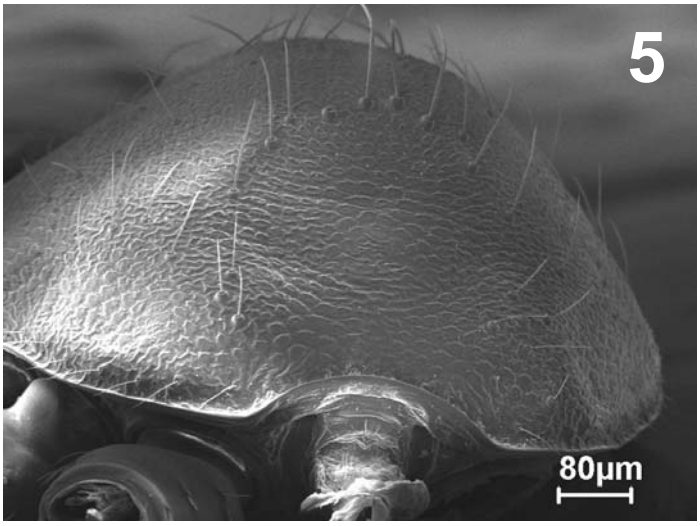
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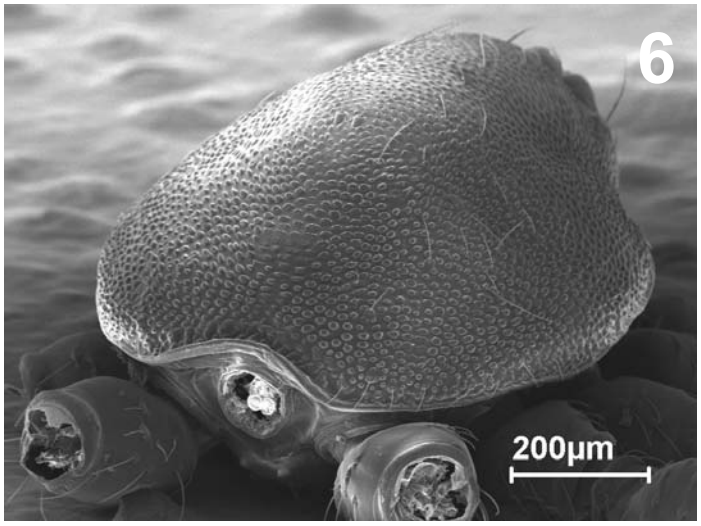
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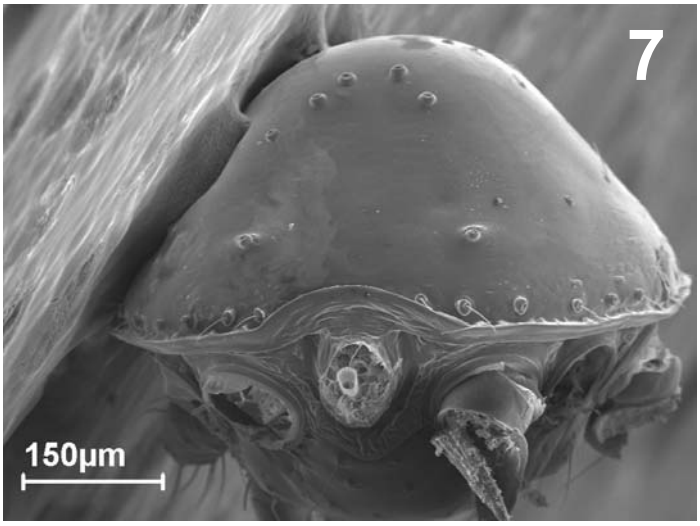
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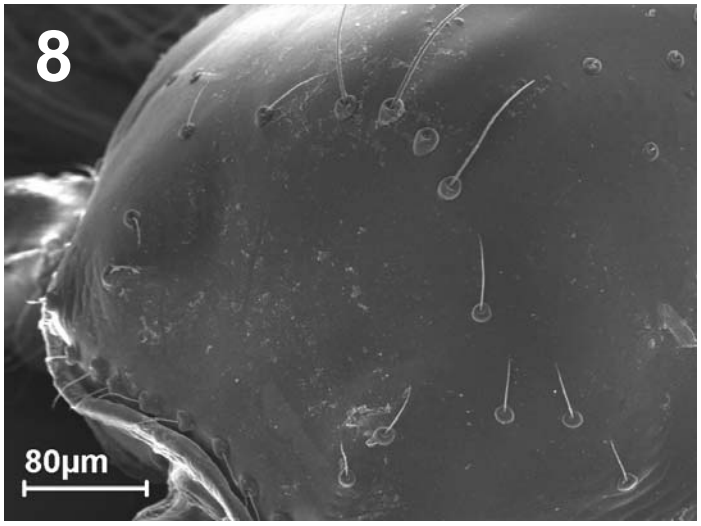
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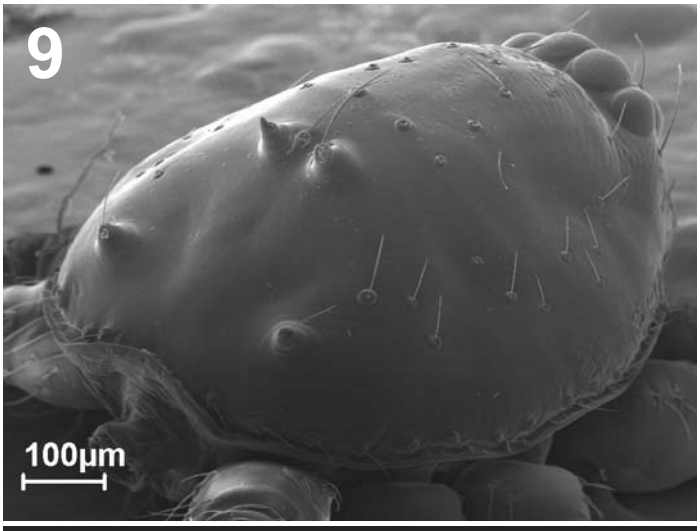
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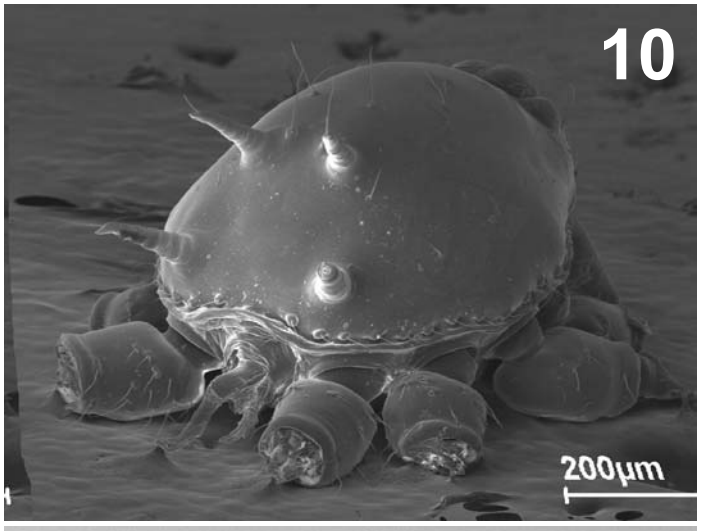
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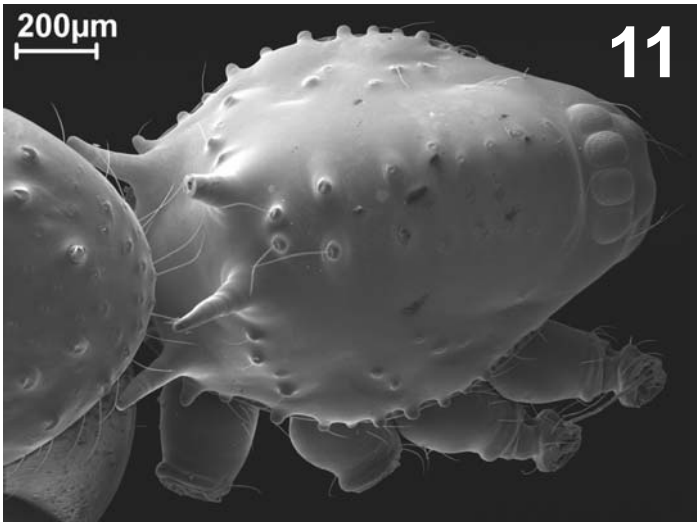
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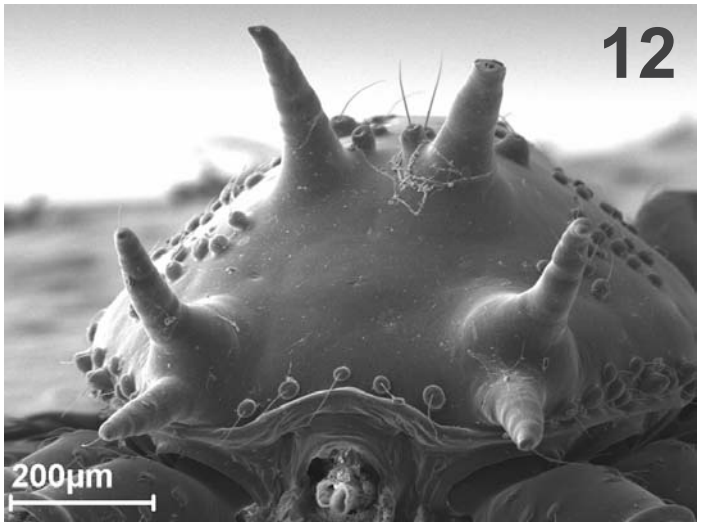
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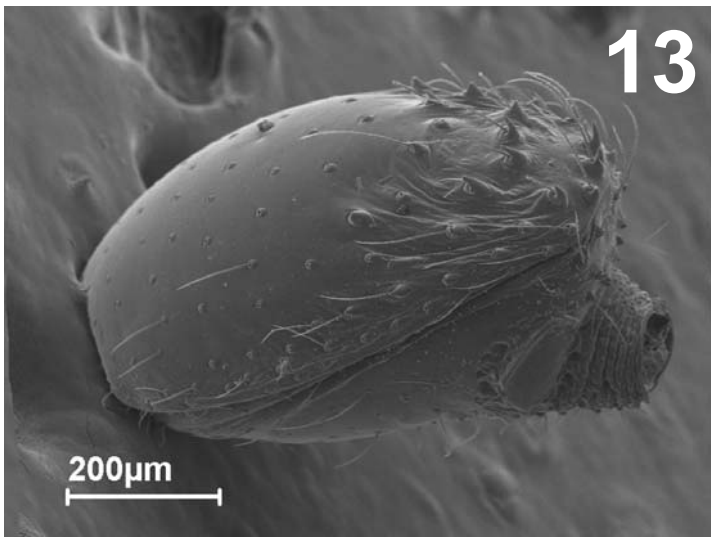
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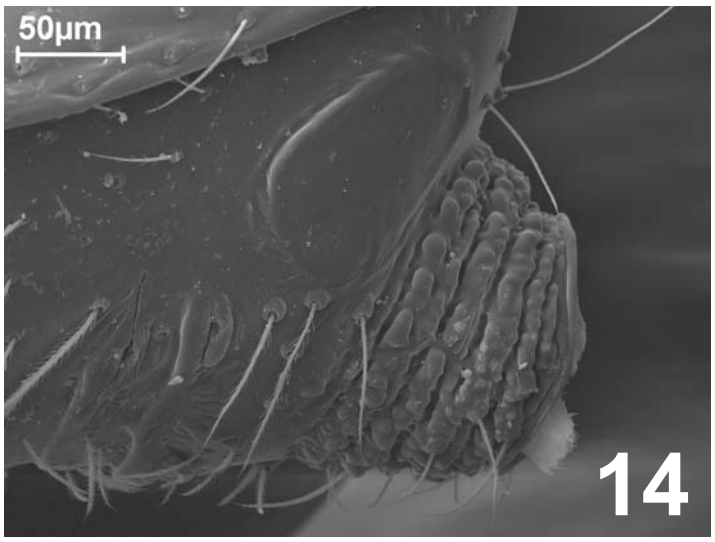
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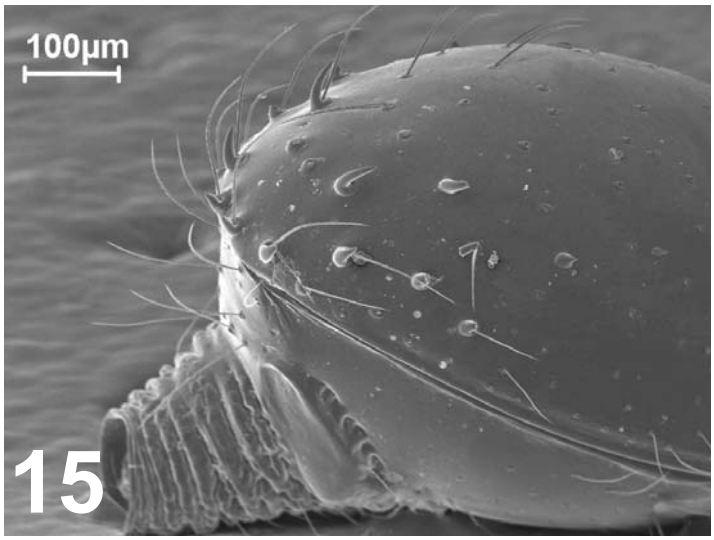
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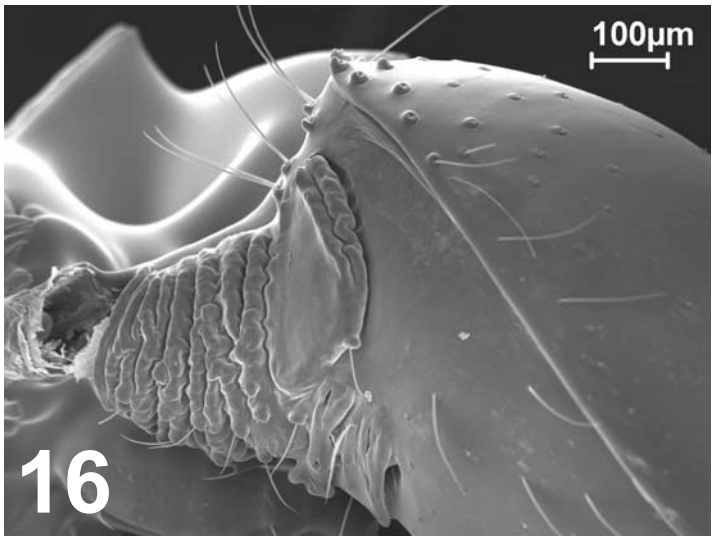
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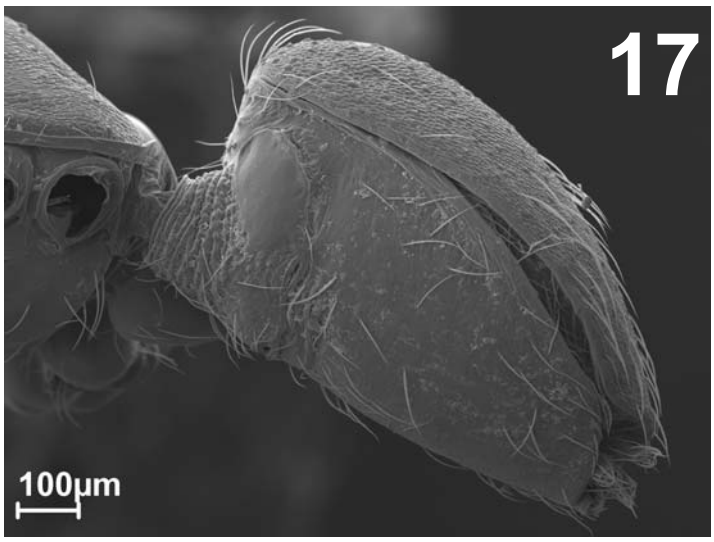
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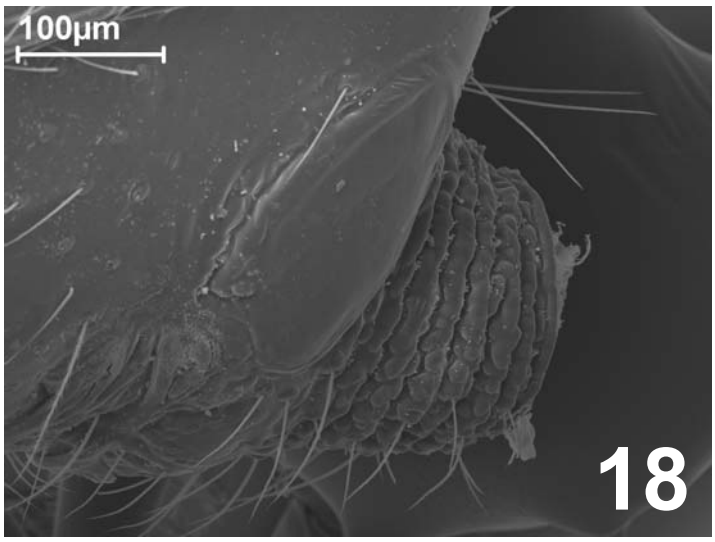
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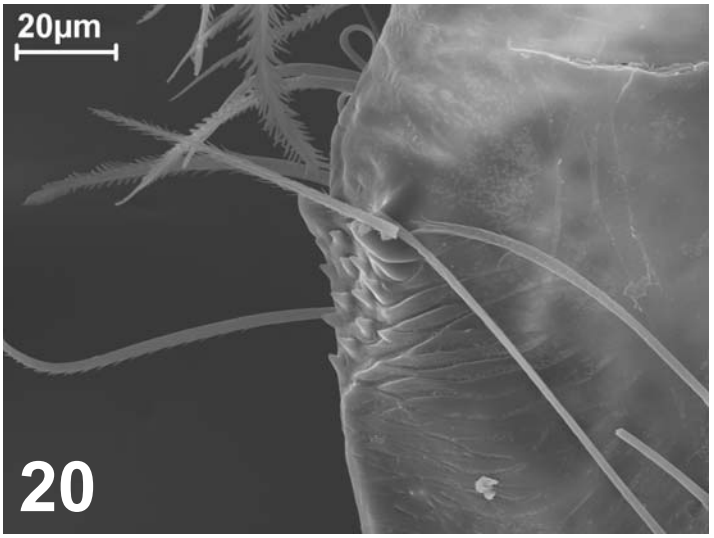
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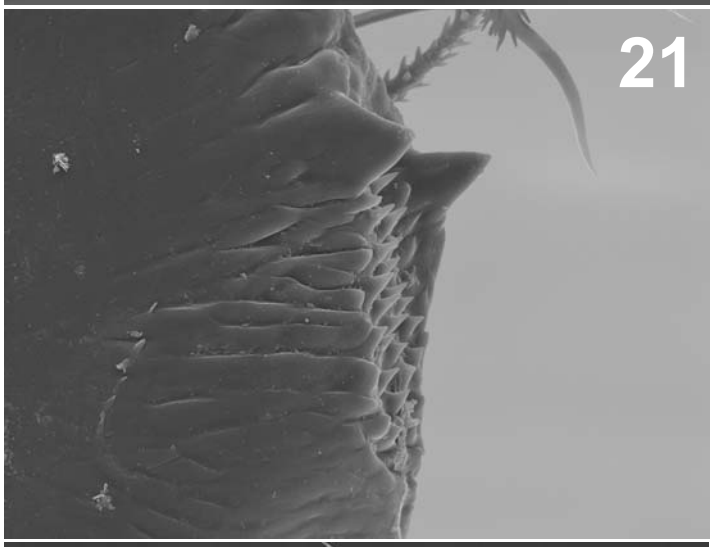
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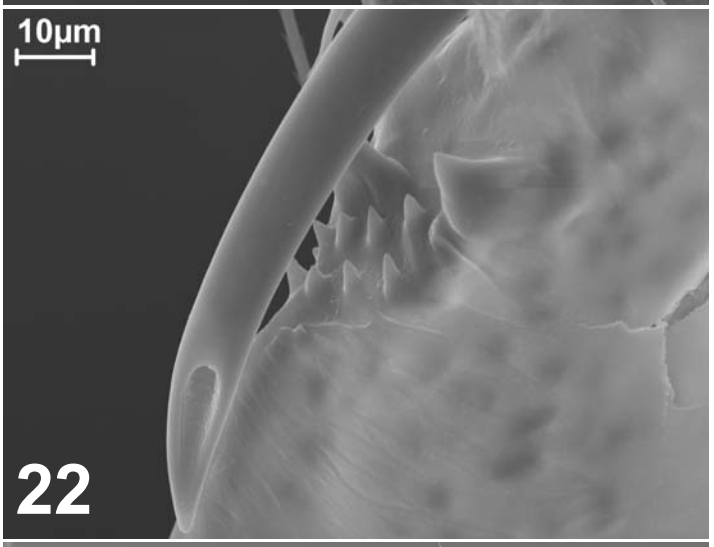
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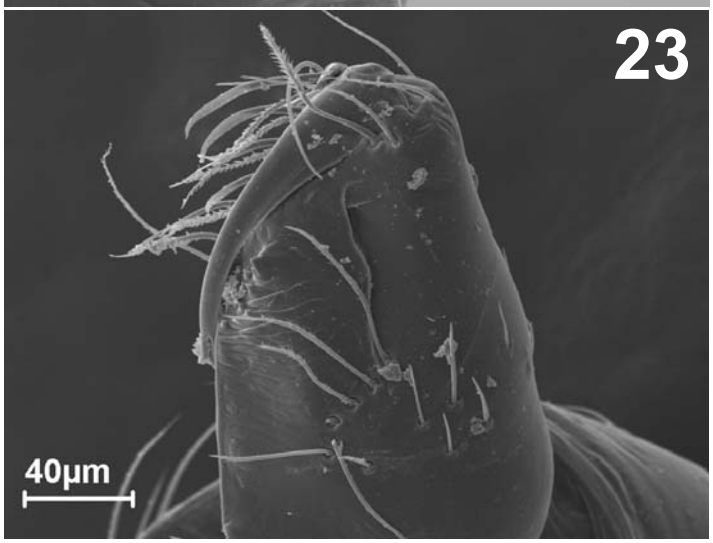
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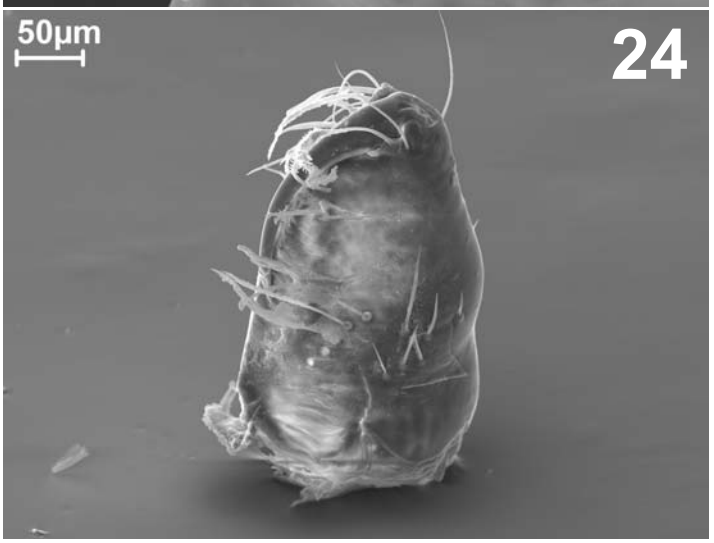
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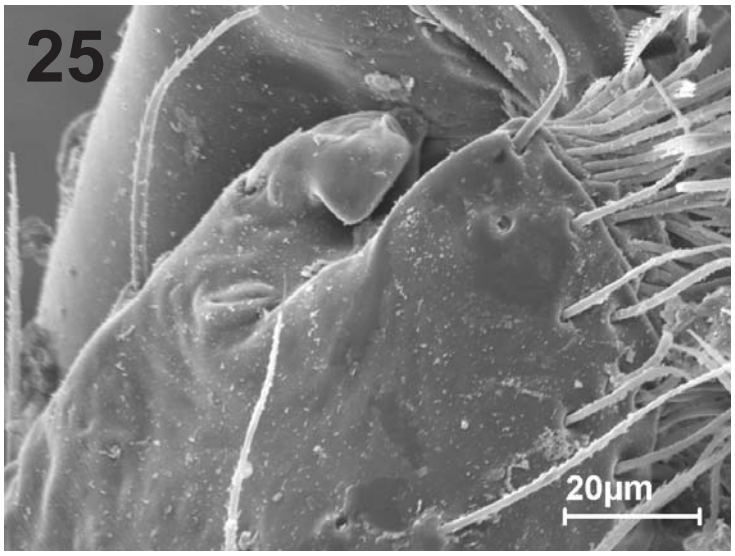
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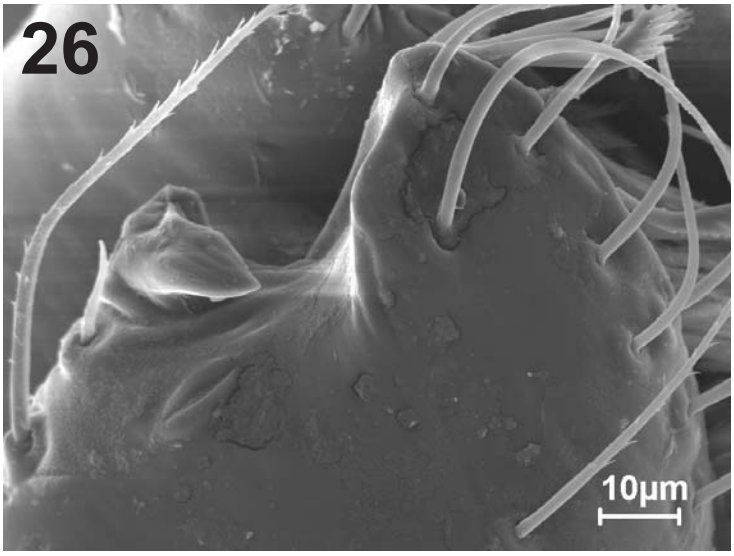
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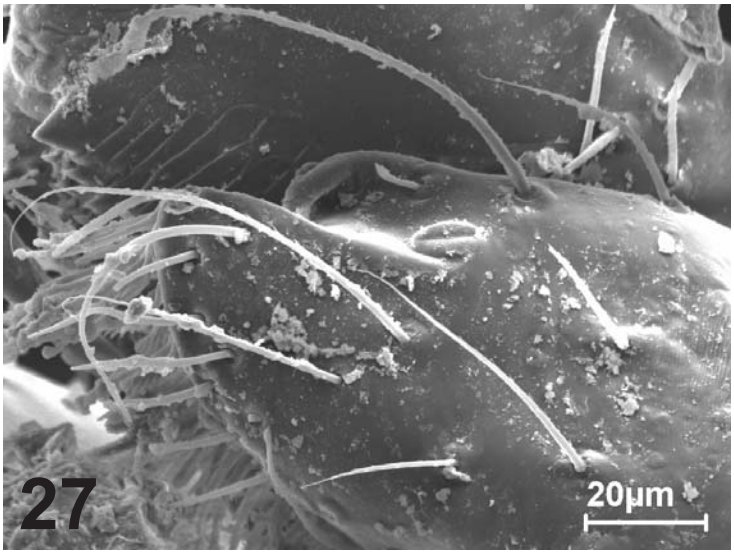
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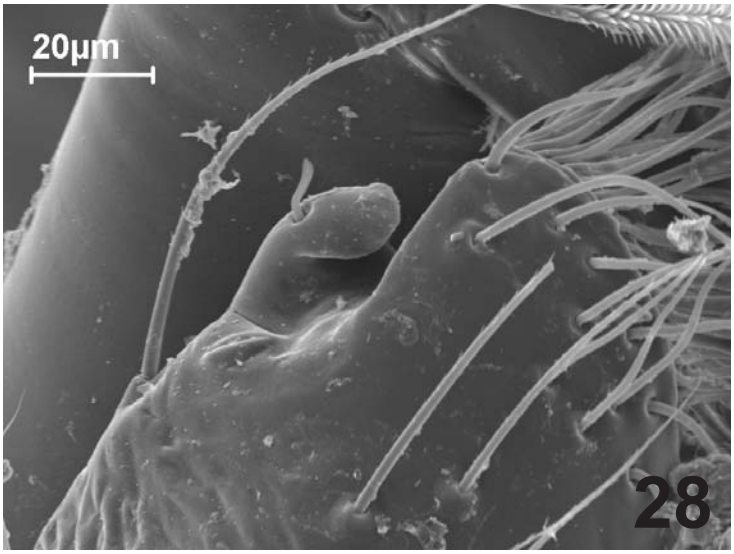
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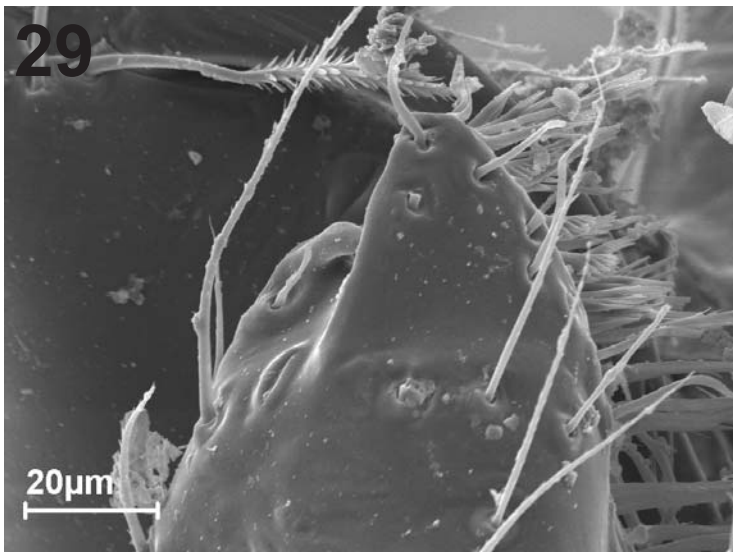
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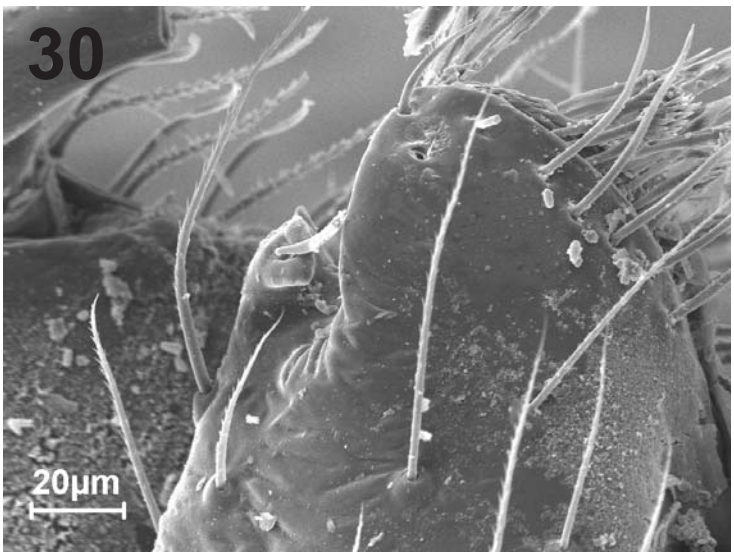
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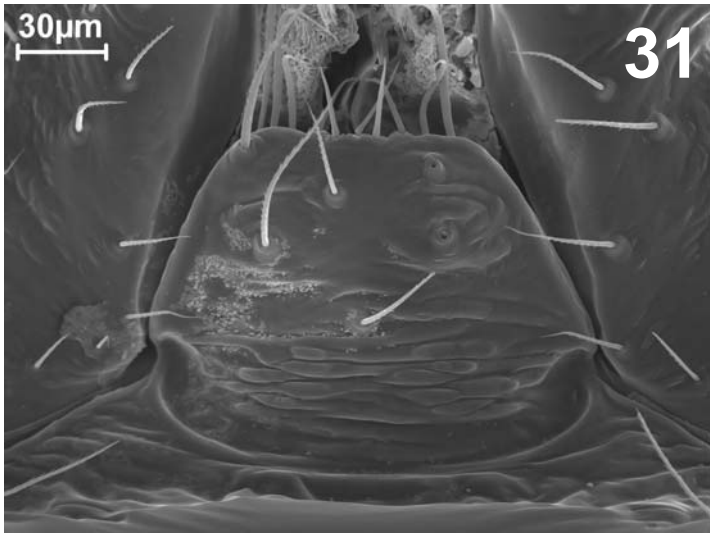
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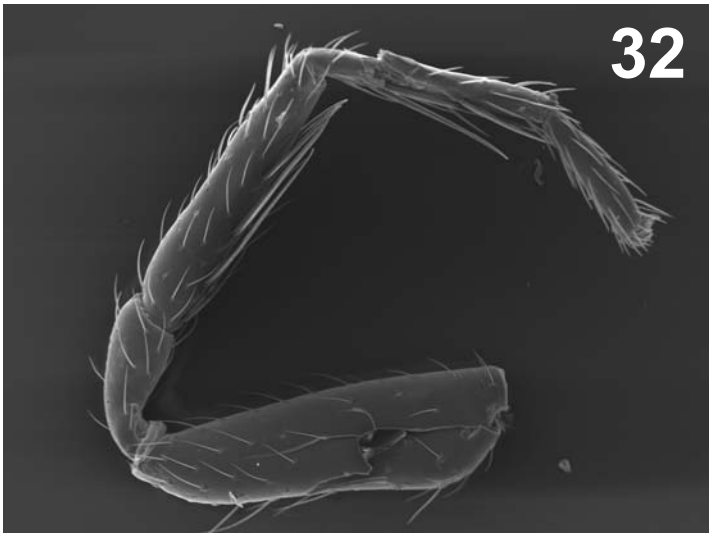
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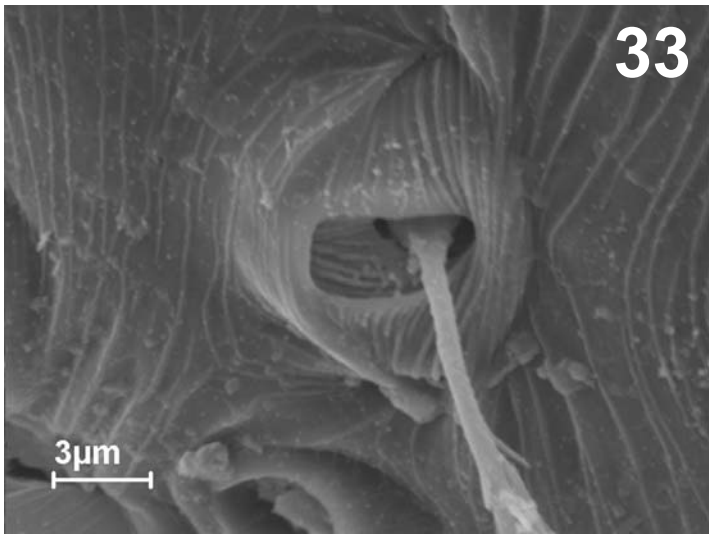
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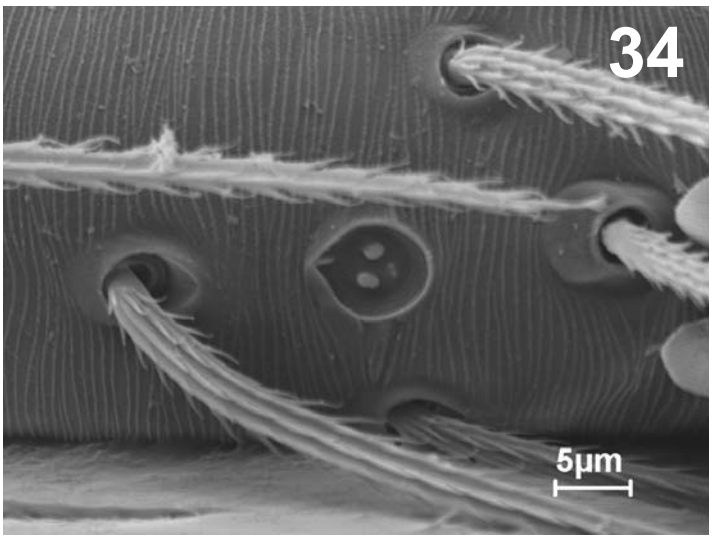
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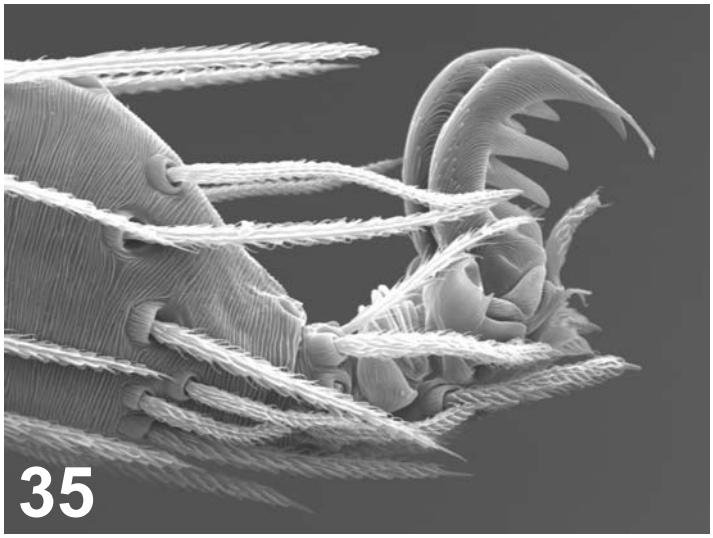
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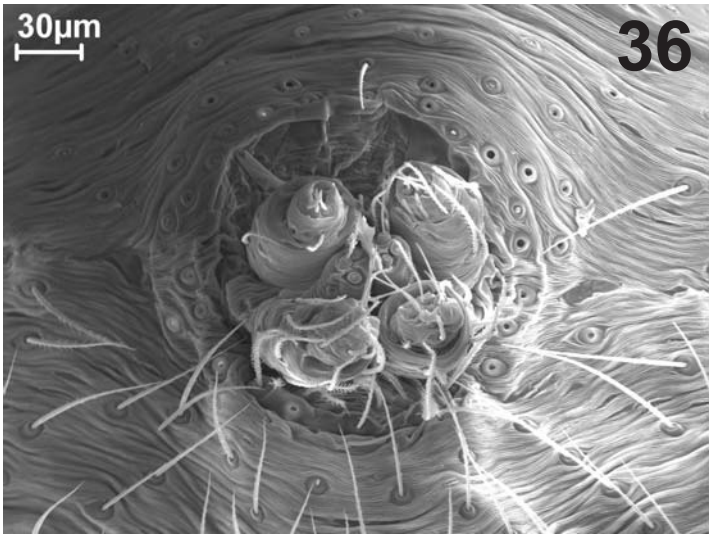
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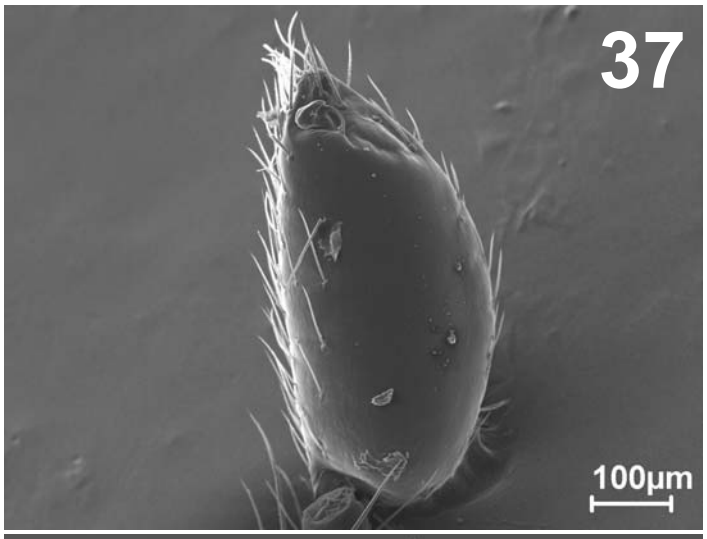
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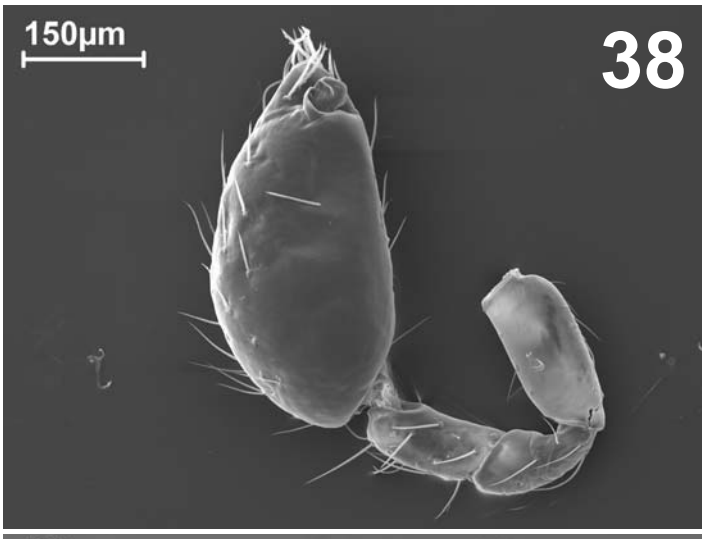
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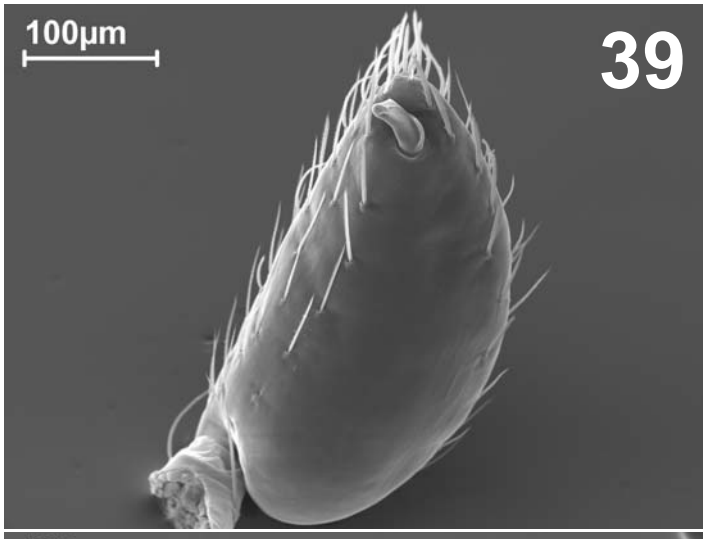
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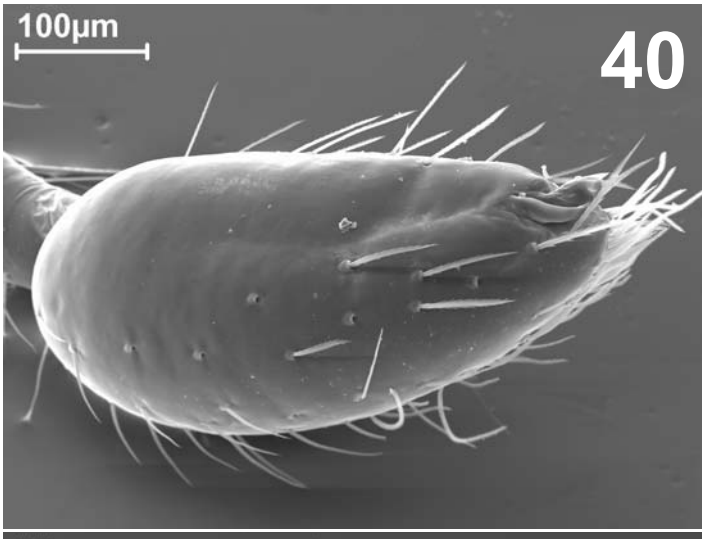
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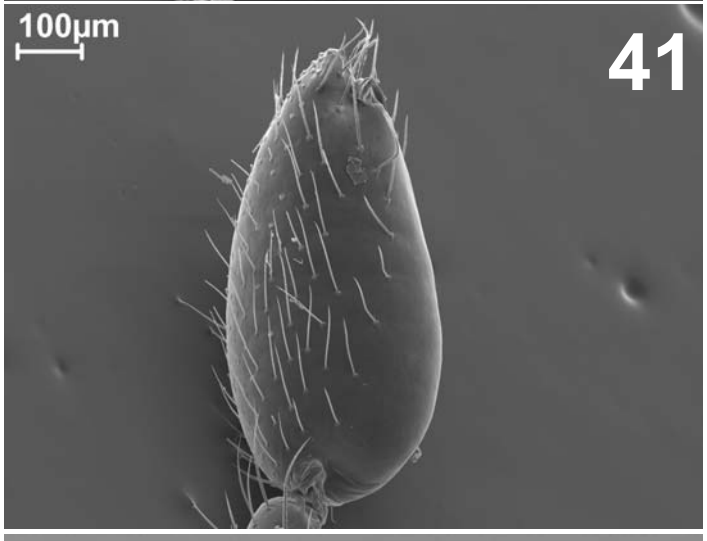
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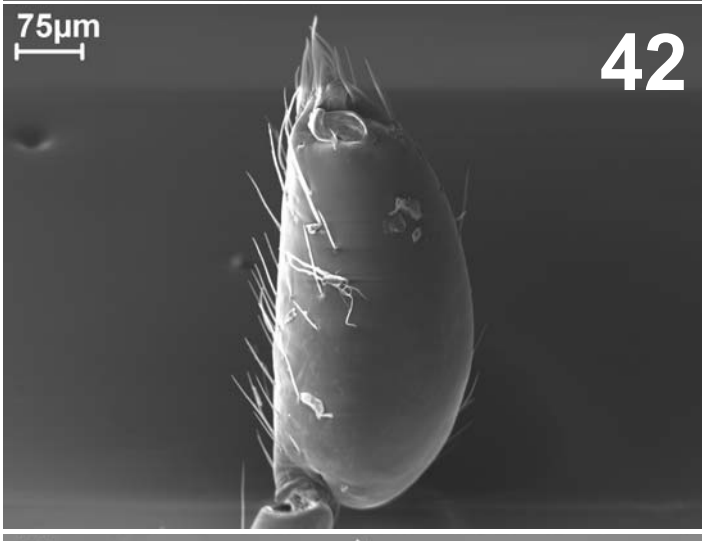
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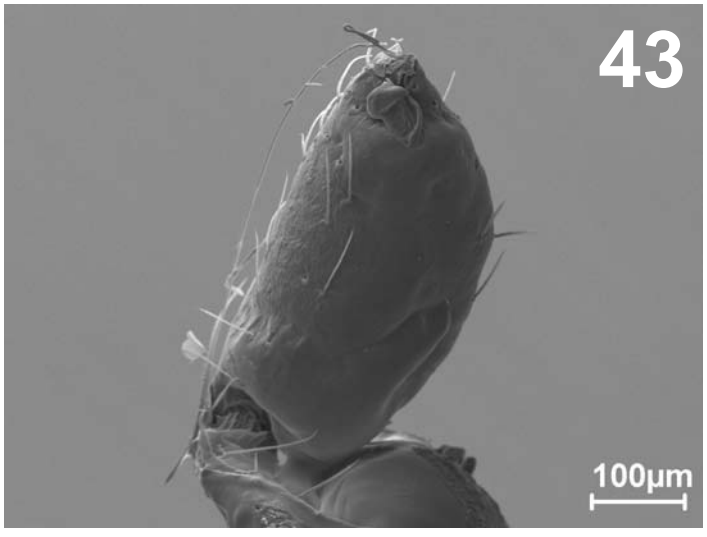
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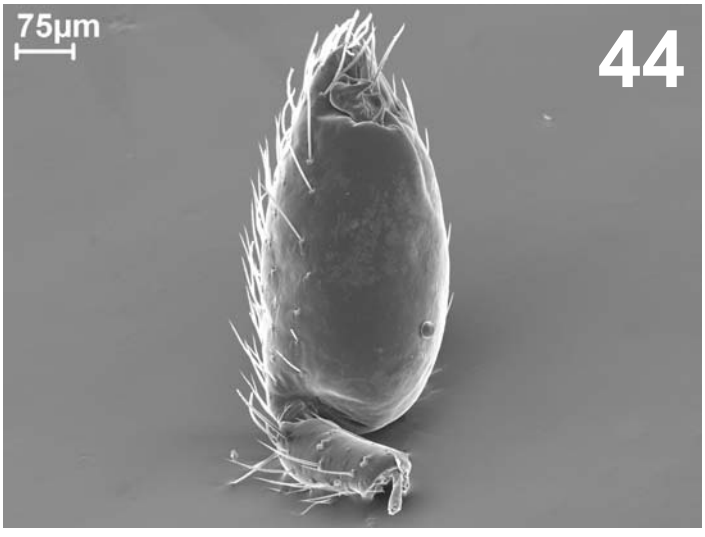
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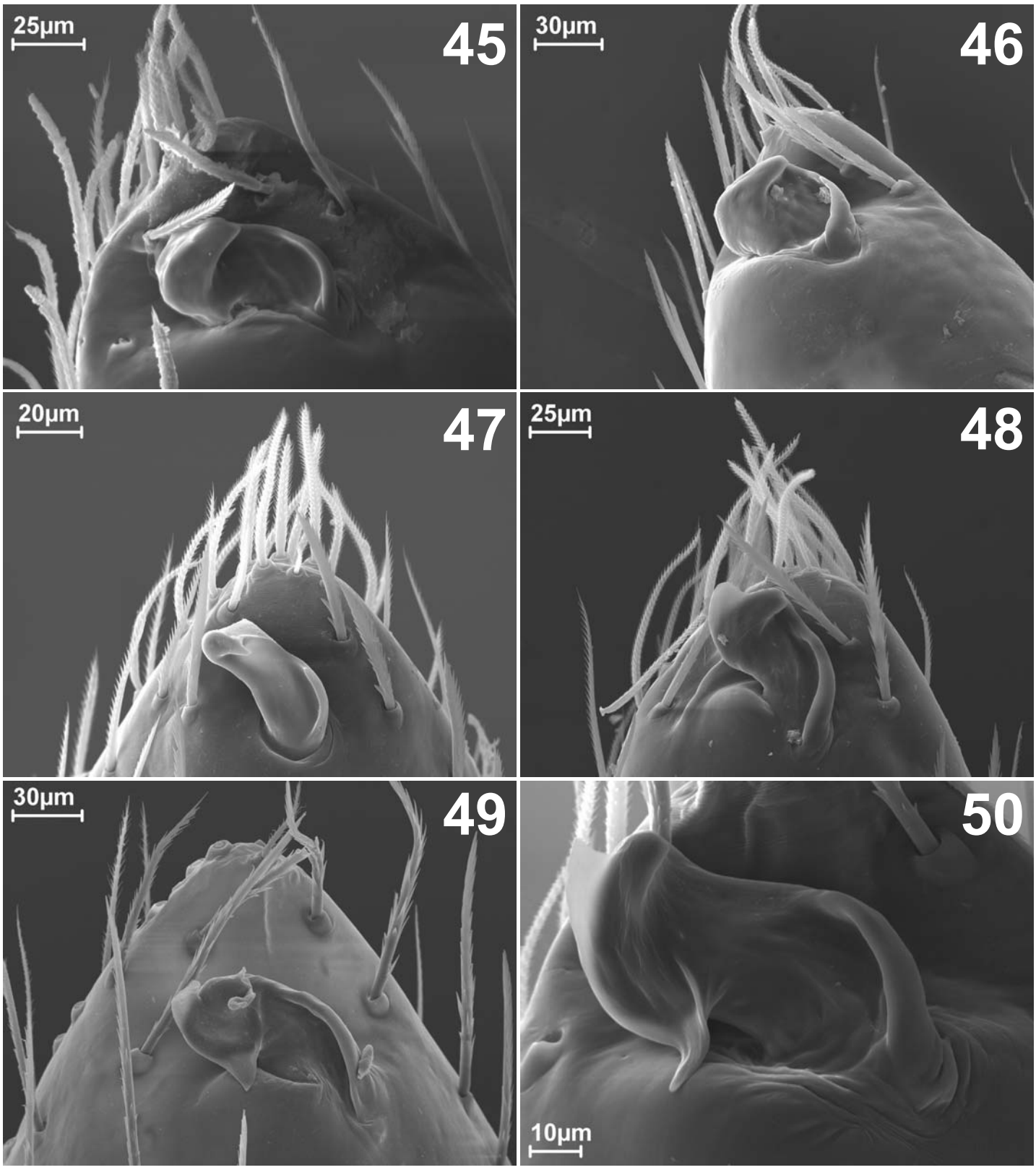
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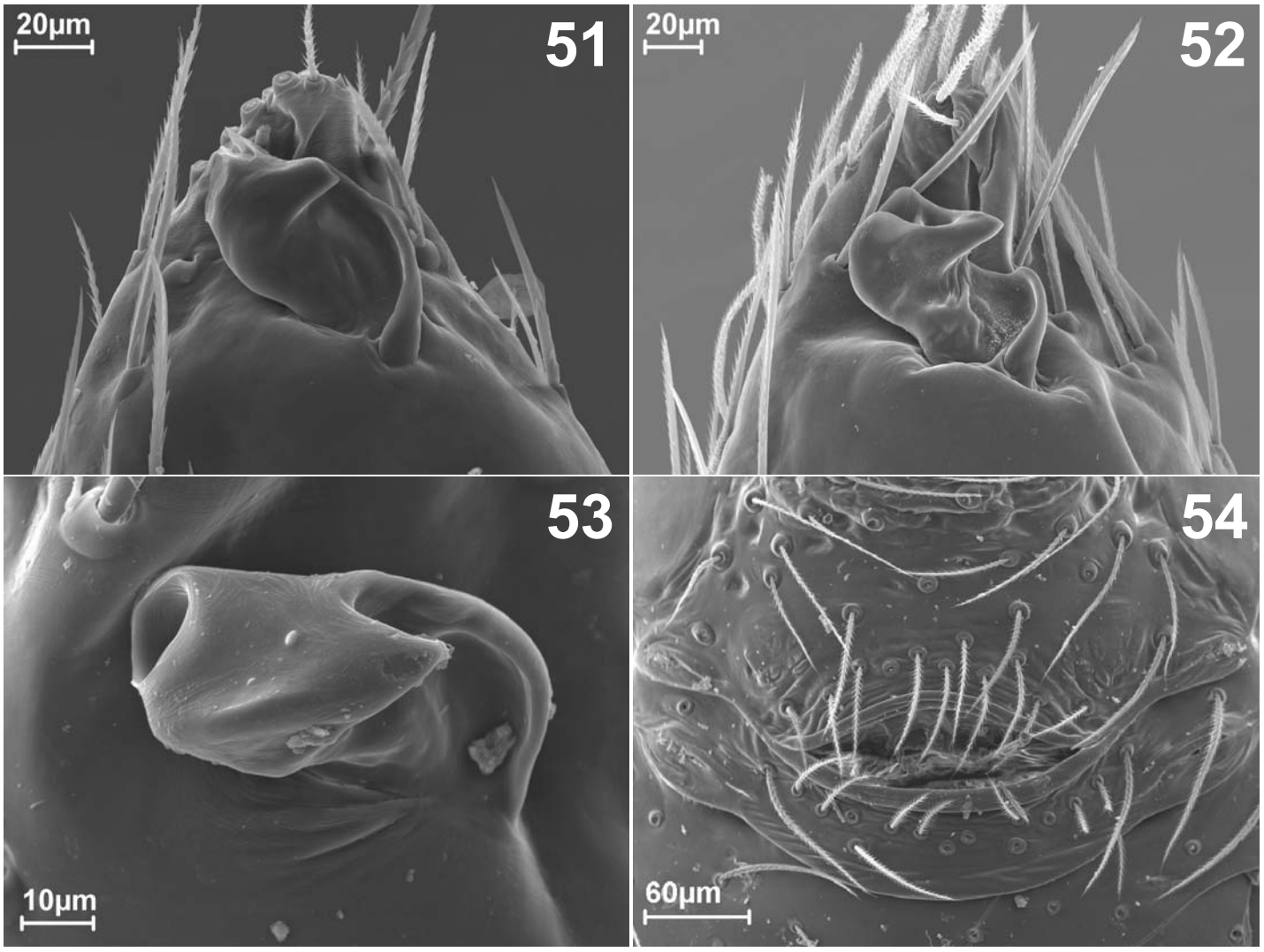
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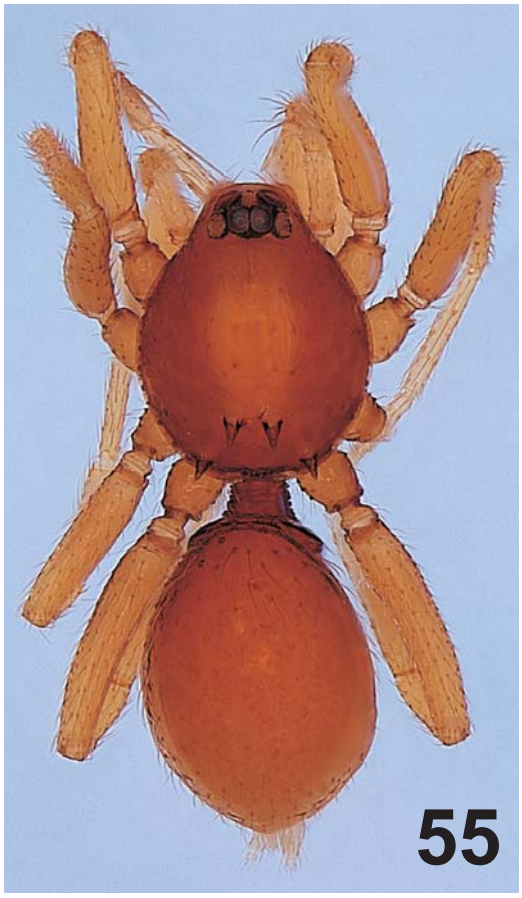
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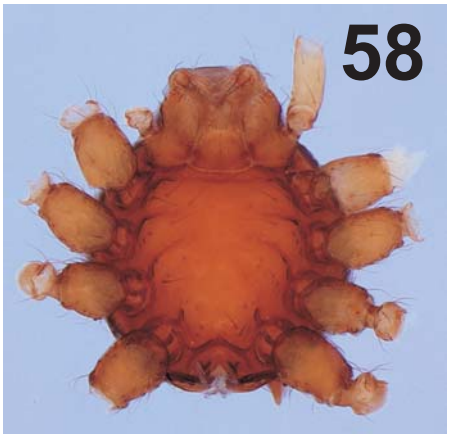
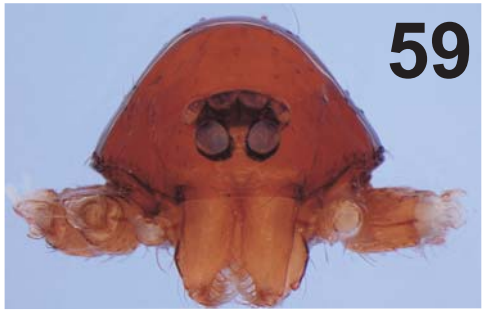
56


57


58


59

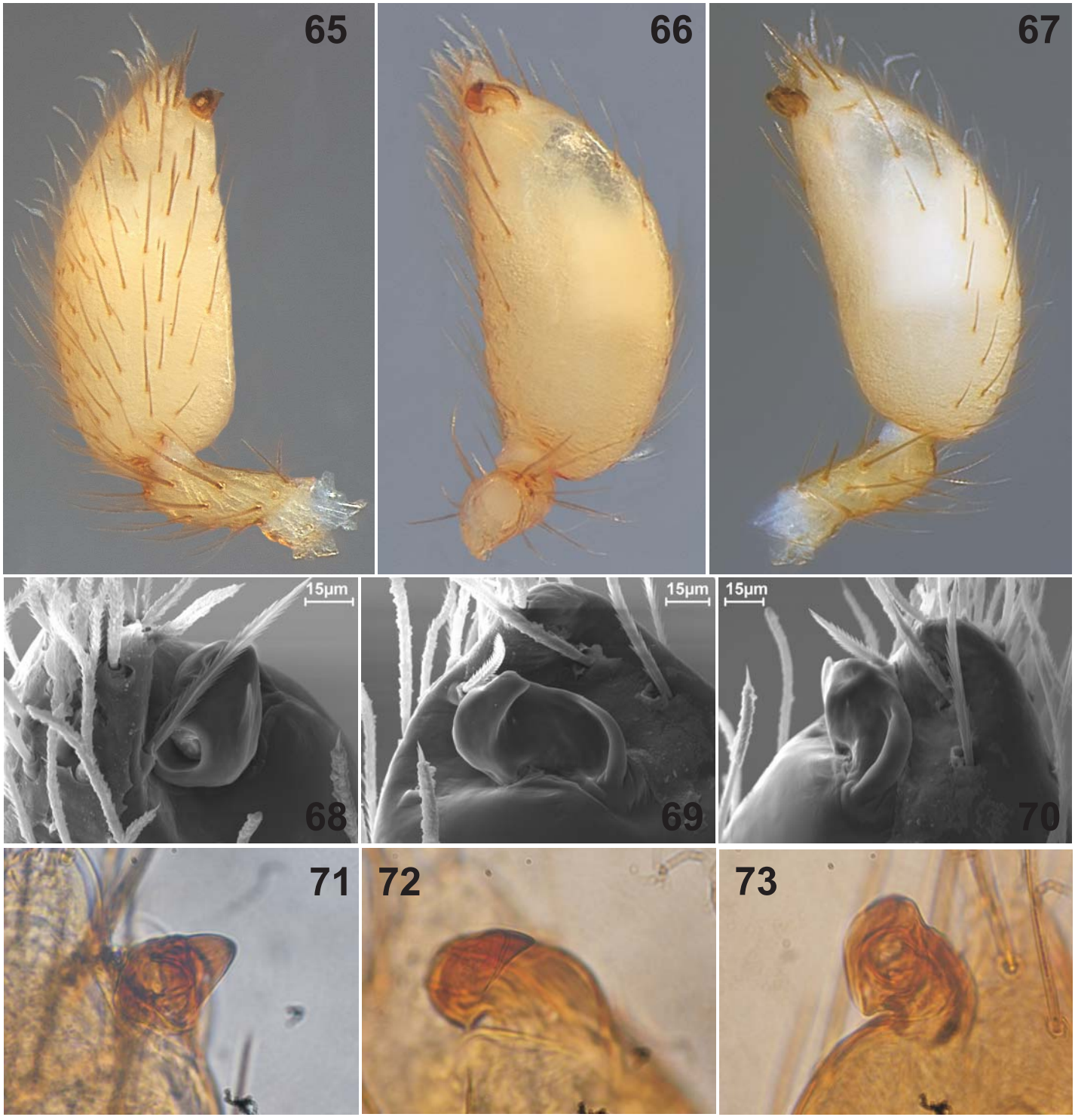

60

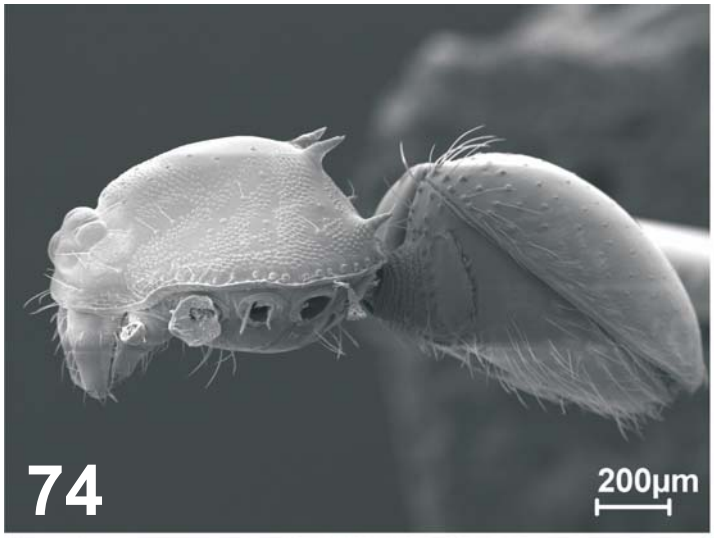

61

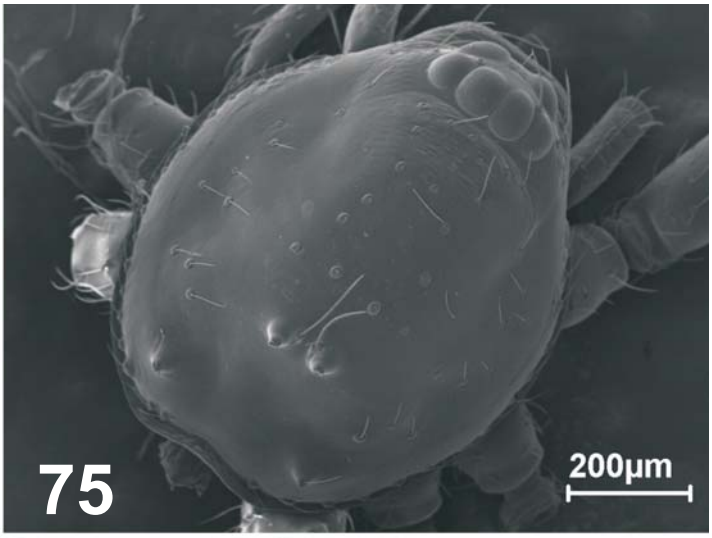

62

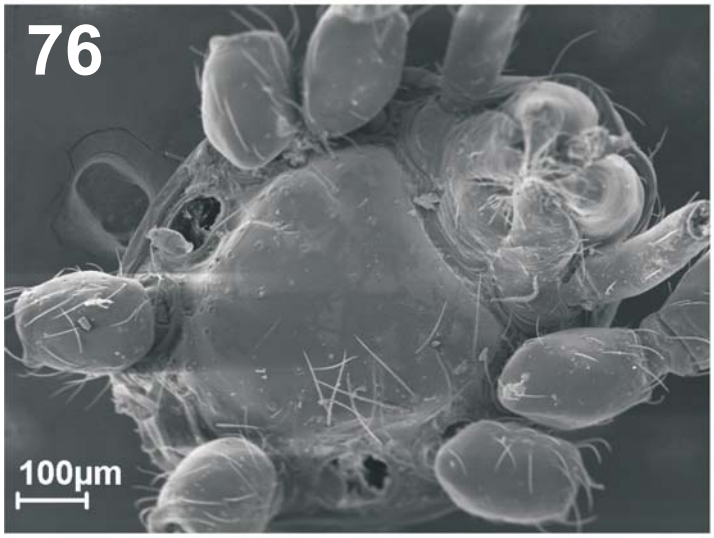

63

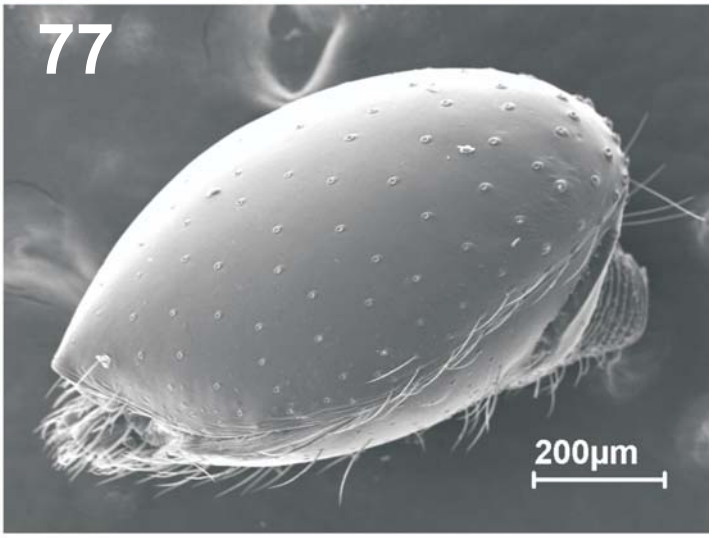

64

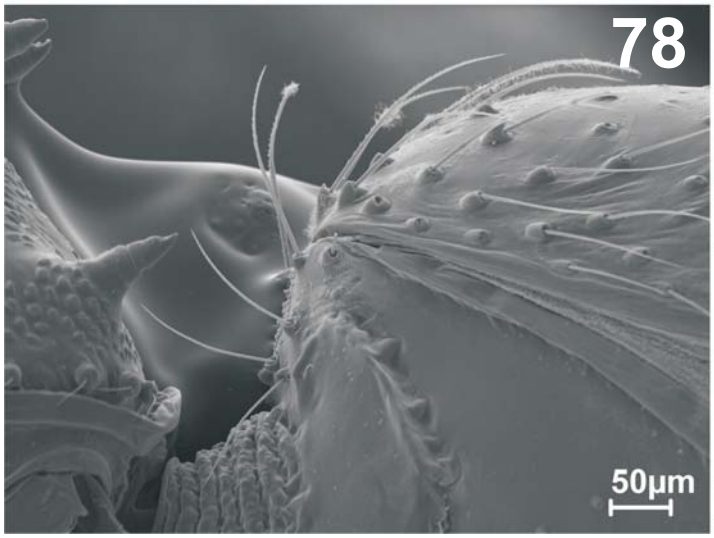

65
66
67
15µm
68
15µm
69
15µm
70
71
72
73

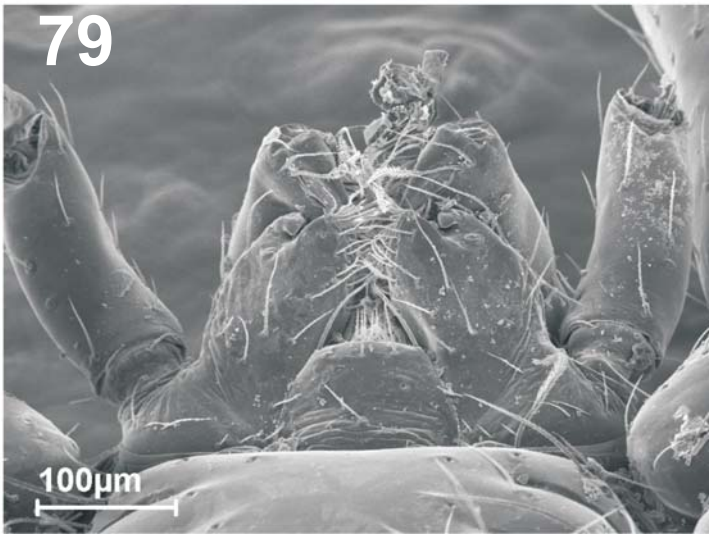

74
200µm


75
200µm


76
100µm

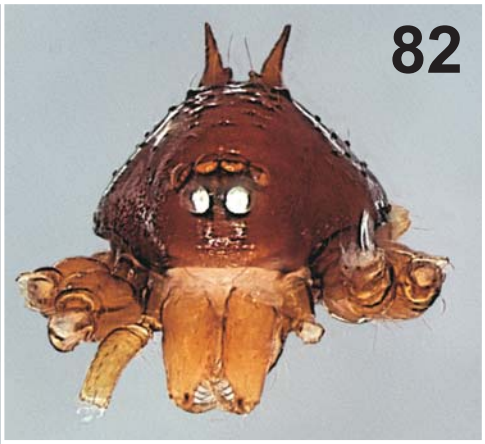

77
200µm


78
50µm


79
100µm

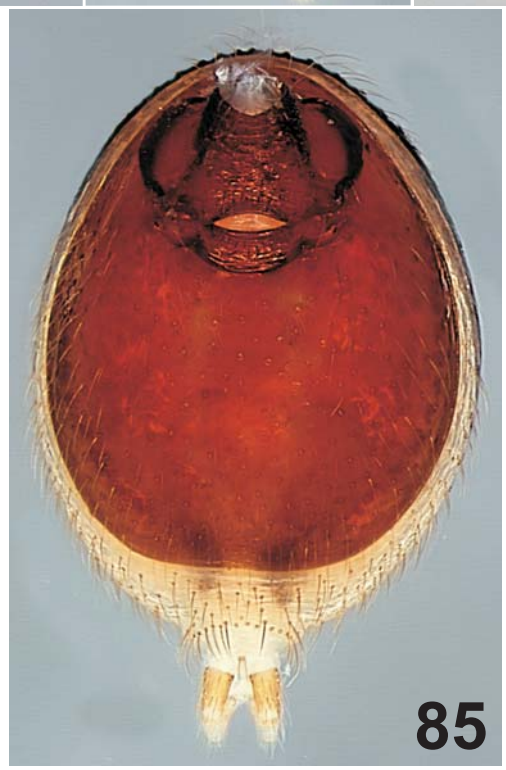

80

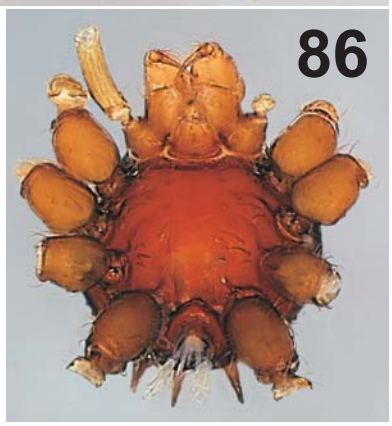

81

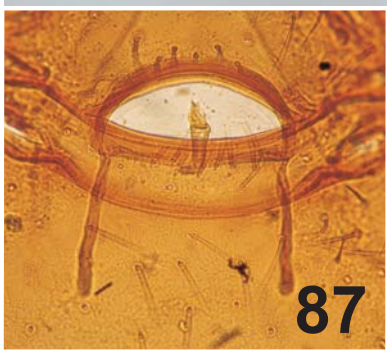

82


83


84


85


86


87


88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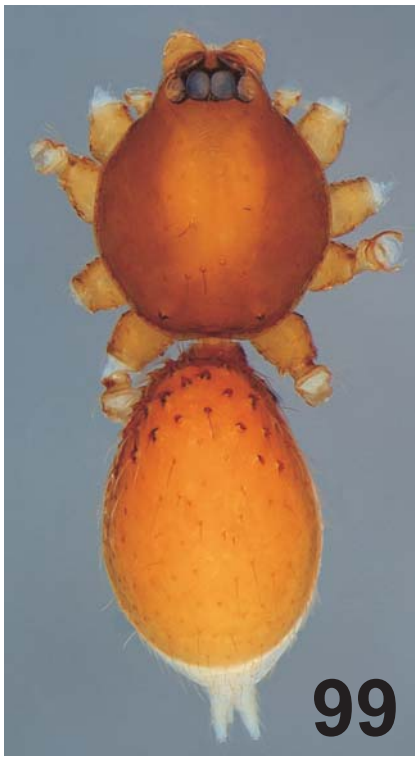
97


98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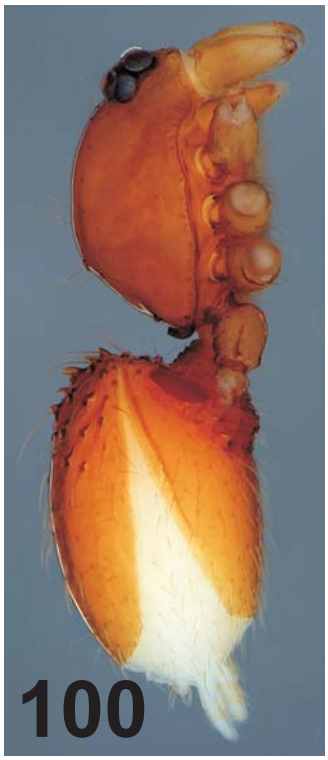
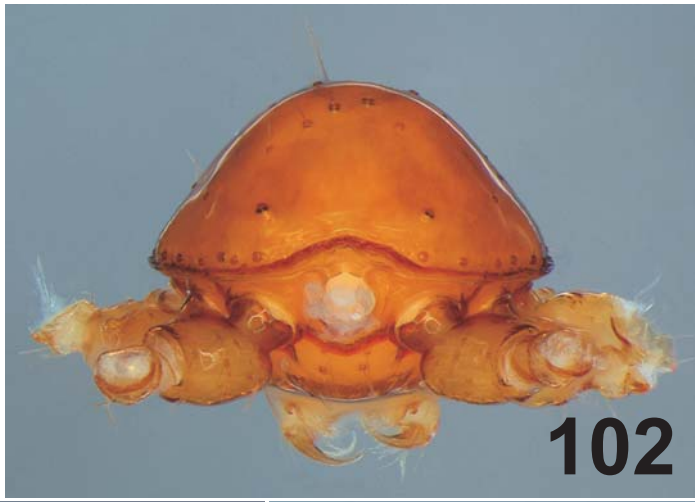

100

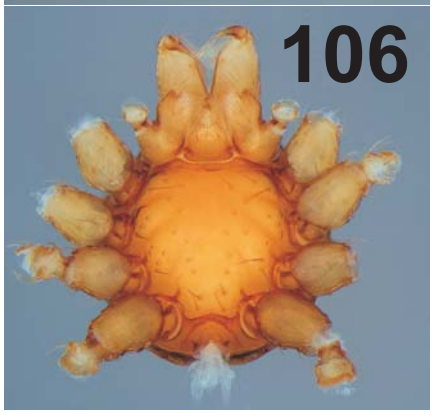

101

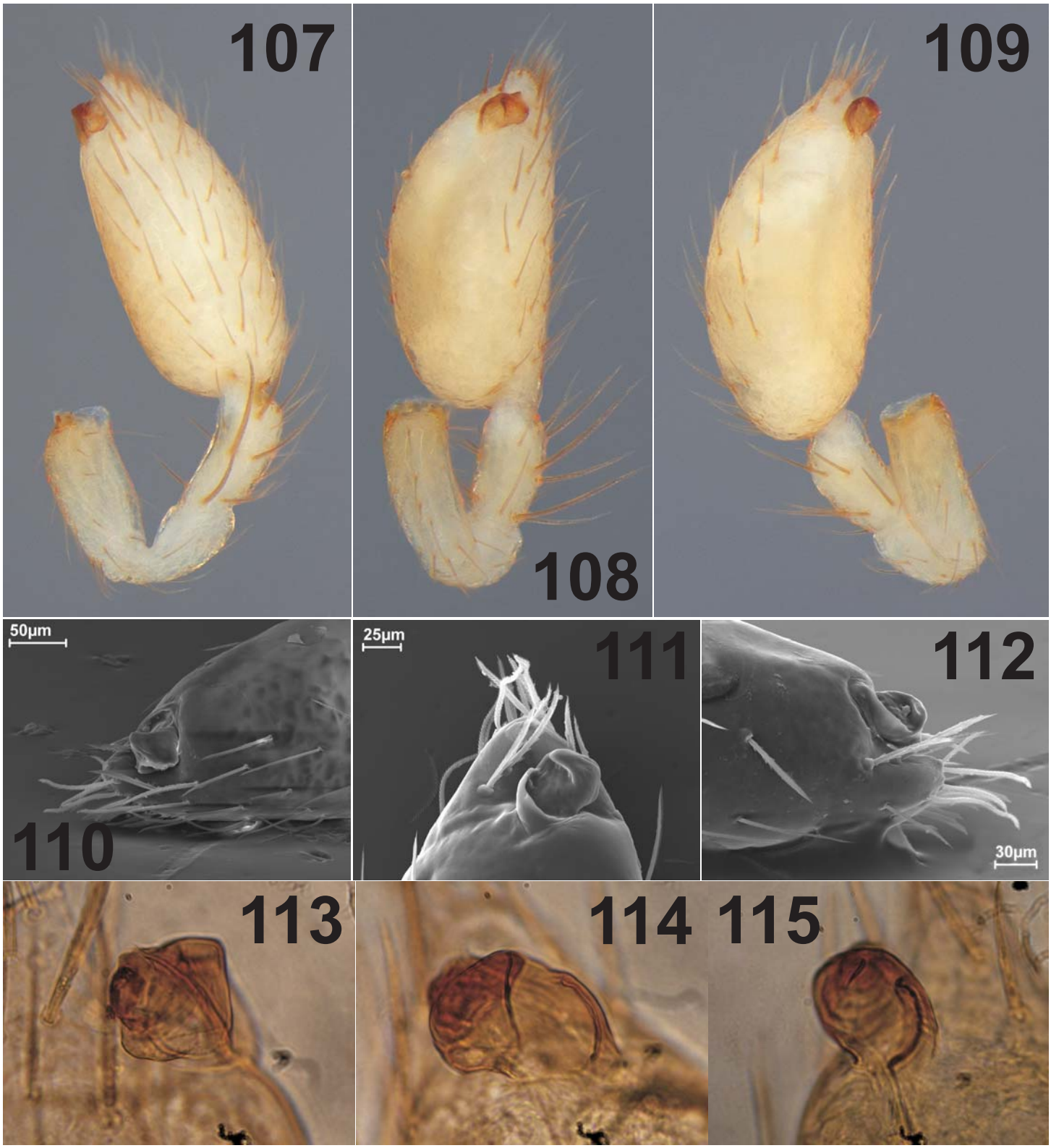

102

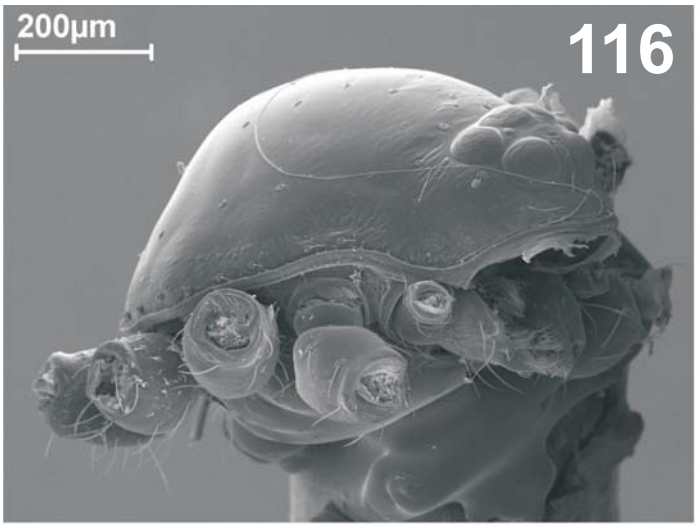

103

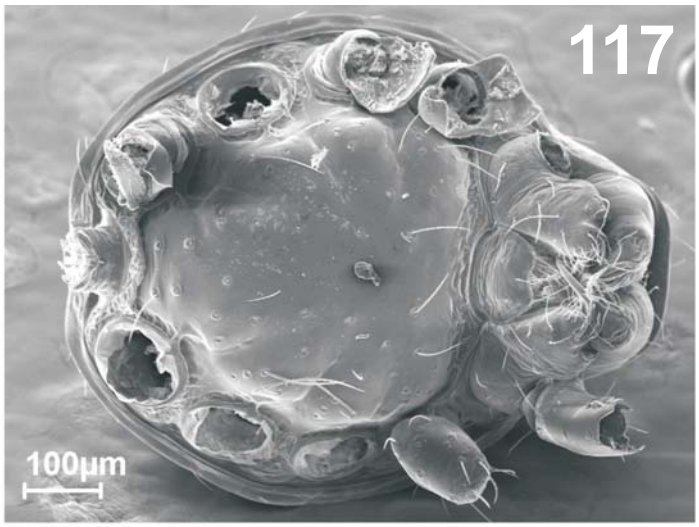

104

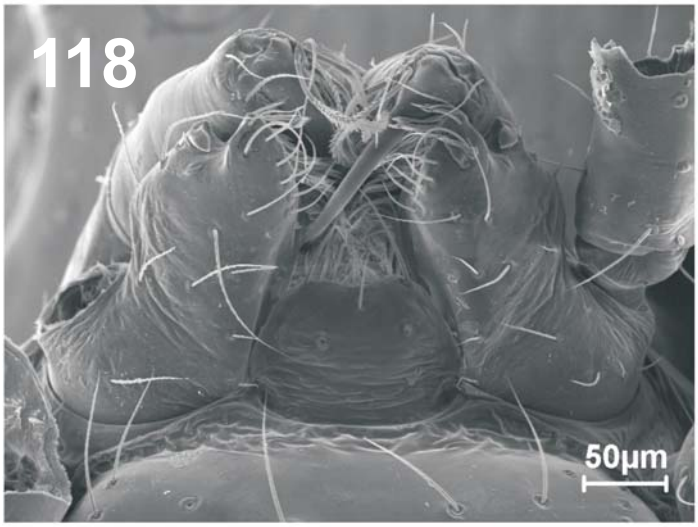

105

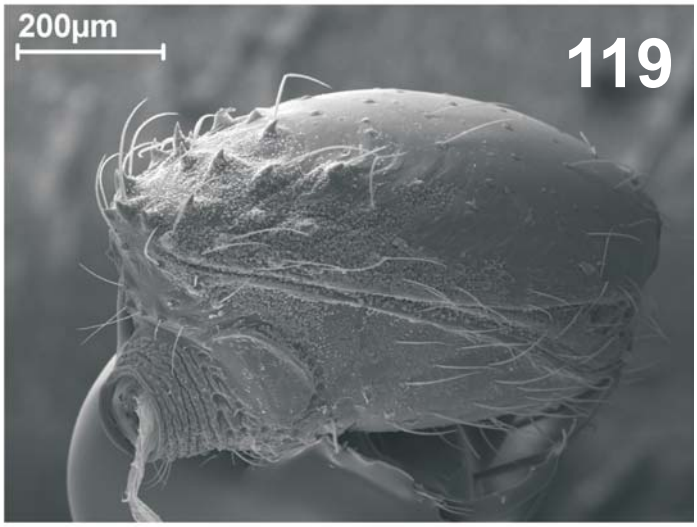

106

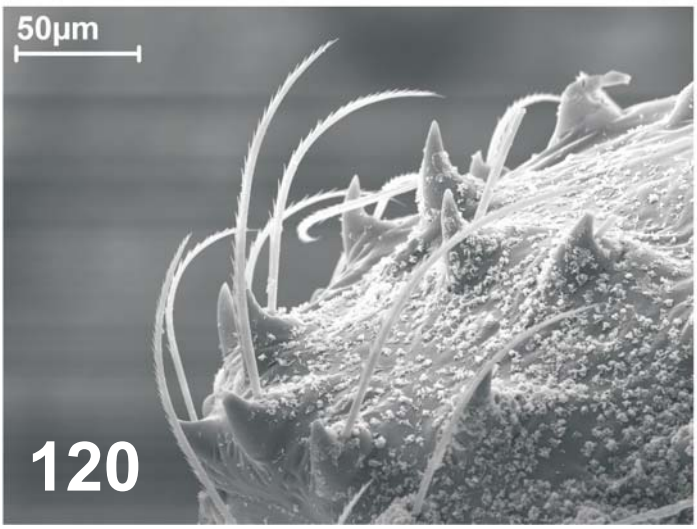

107
108
109
50µm
110
25µm
111
112
30µm
113
114
115

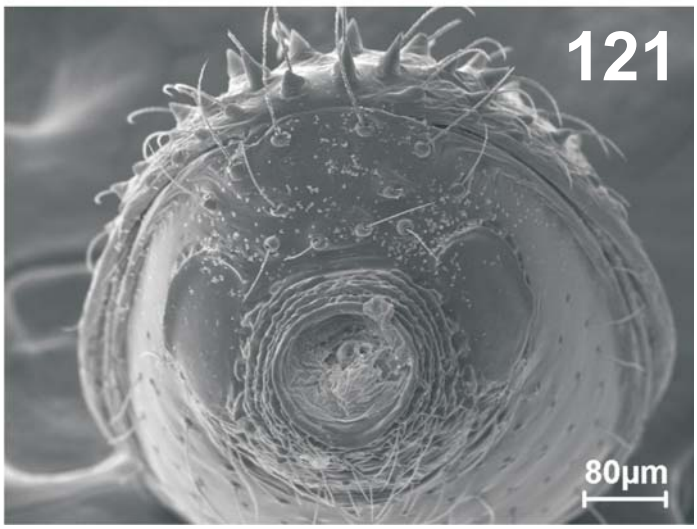

200µm
116


117
100µm


118
50µm


200µm
119


50µm
120


121
80µm


122

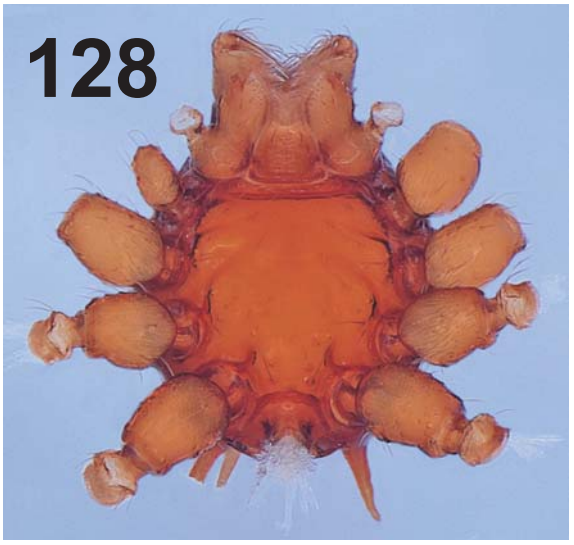

123


124

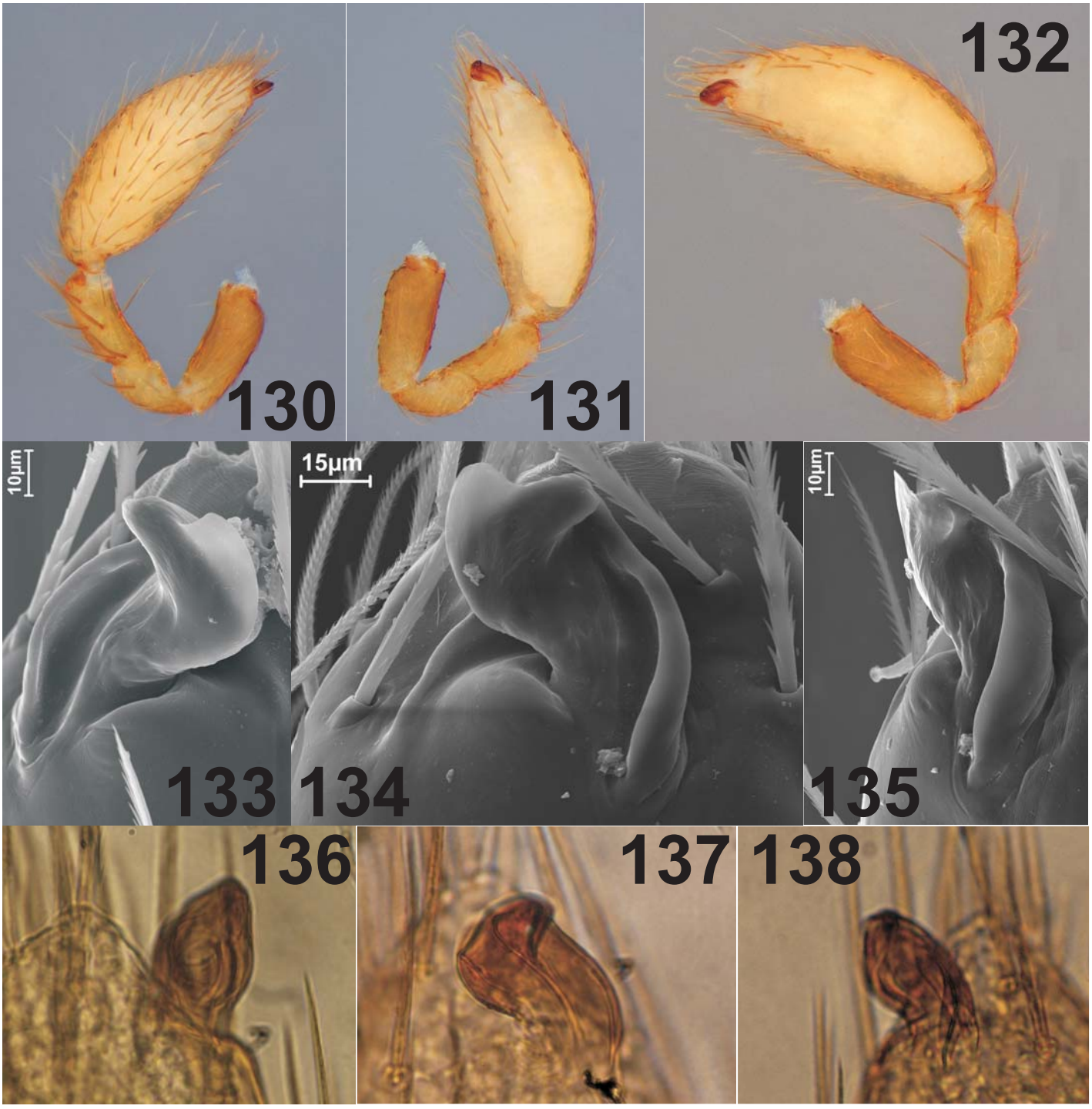

125

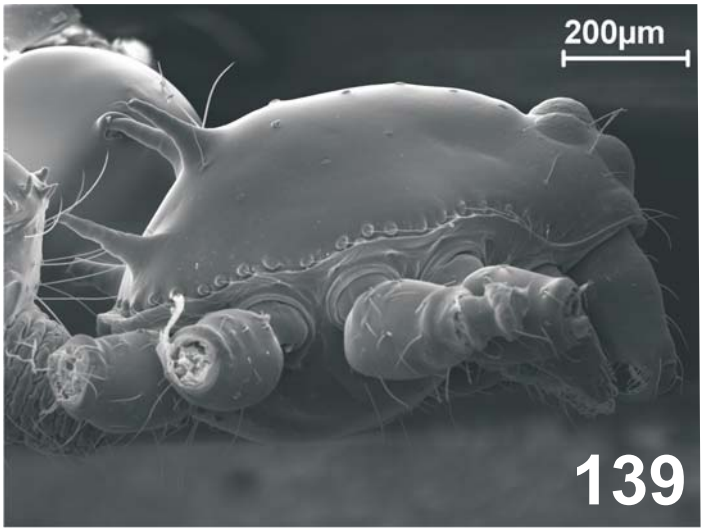

126

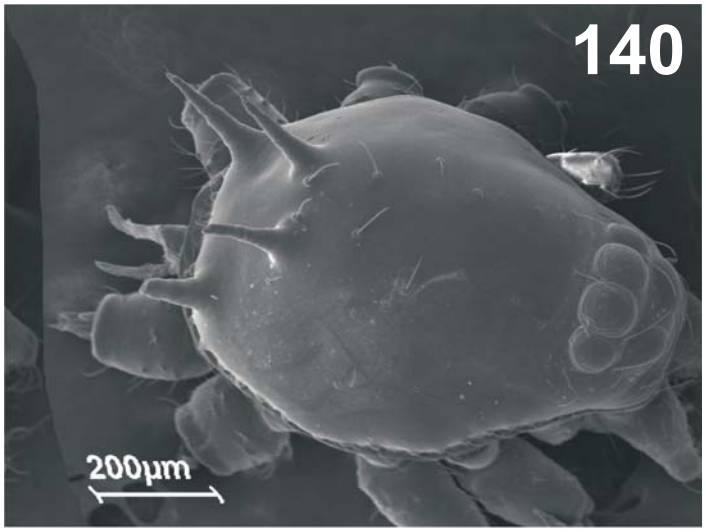

127

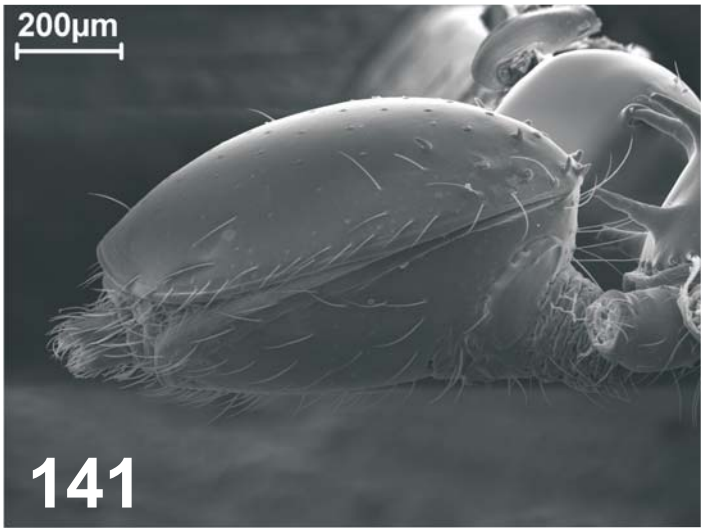

128

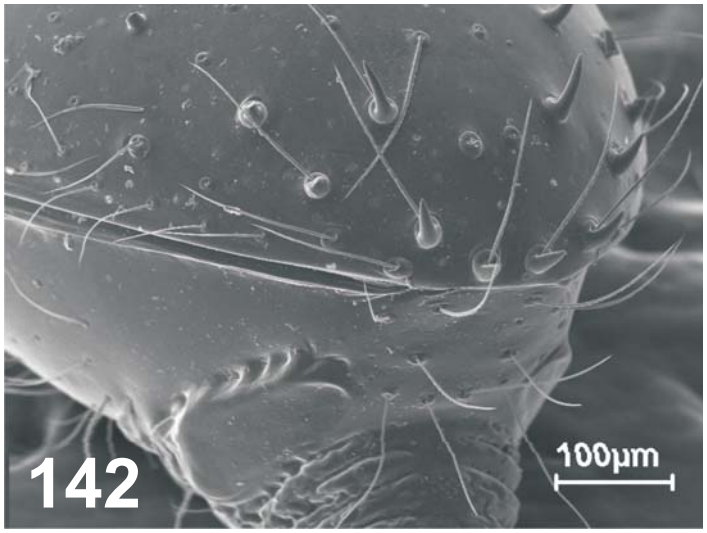

129

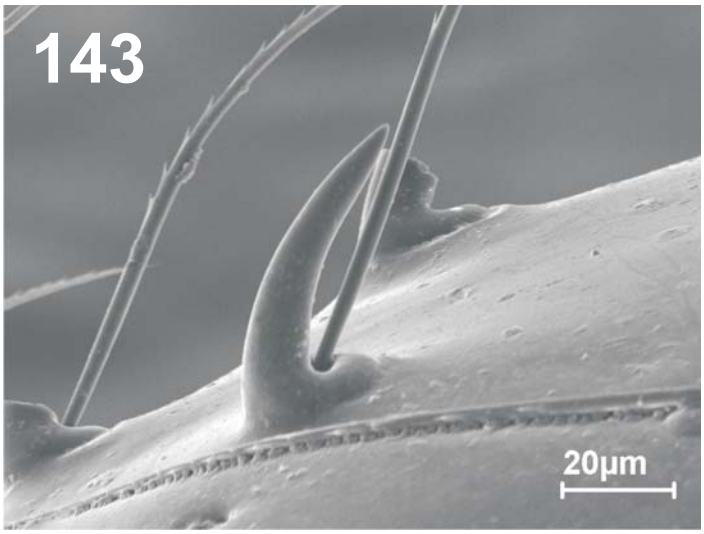

130
131
132
10µm
15µm
10µm
133
134
135
136
137
138

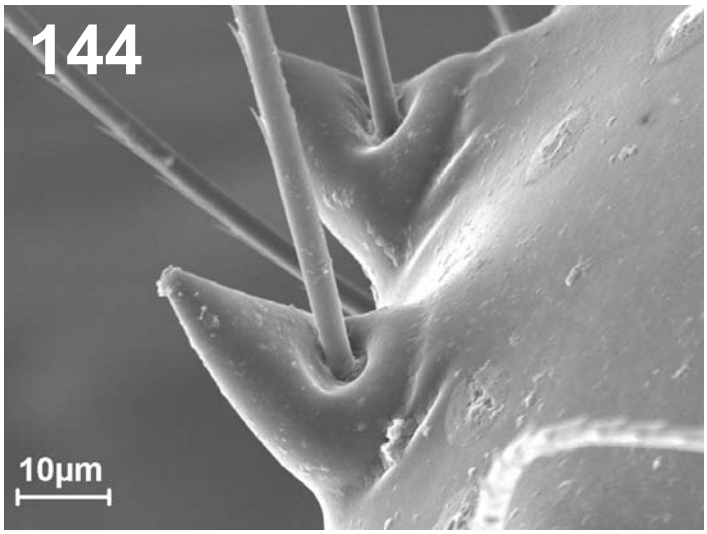

200µm
139


140
200µm


200µm
141


142
100µm


143
20µm


144
10µm


145

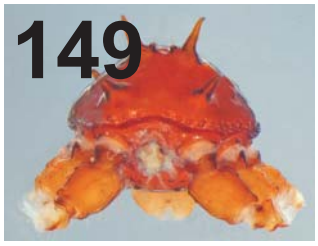

146

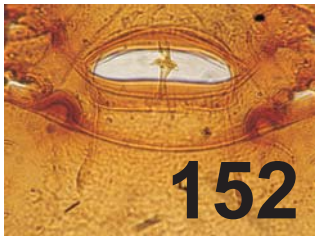

147


150


151


148


149


152


153


154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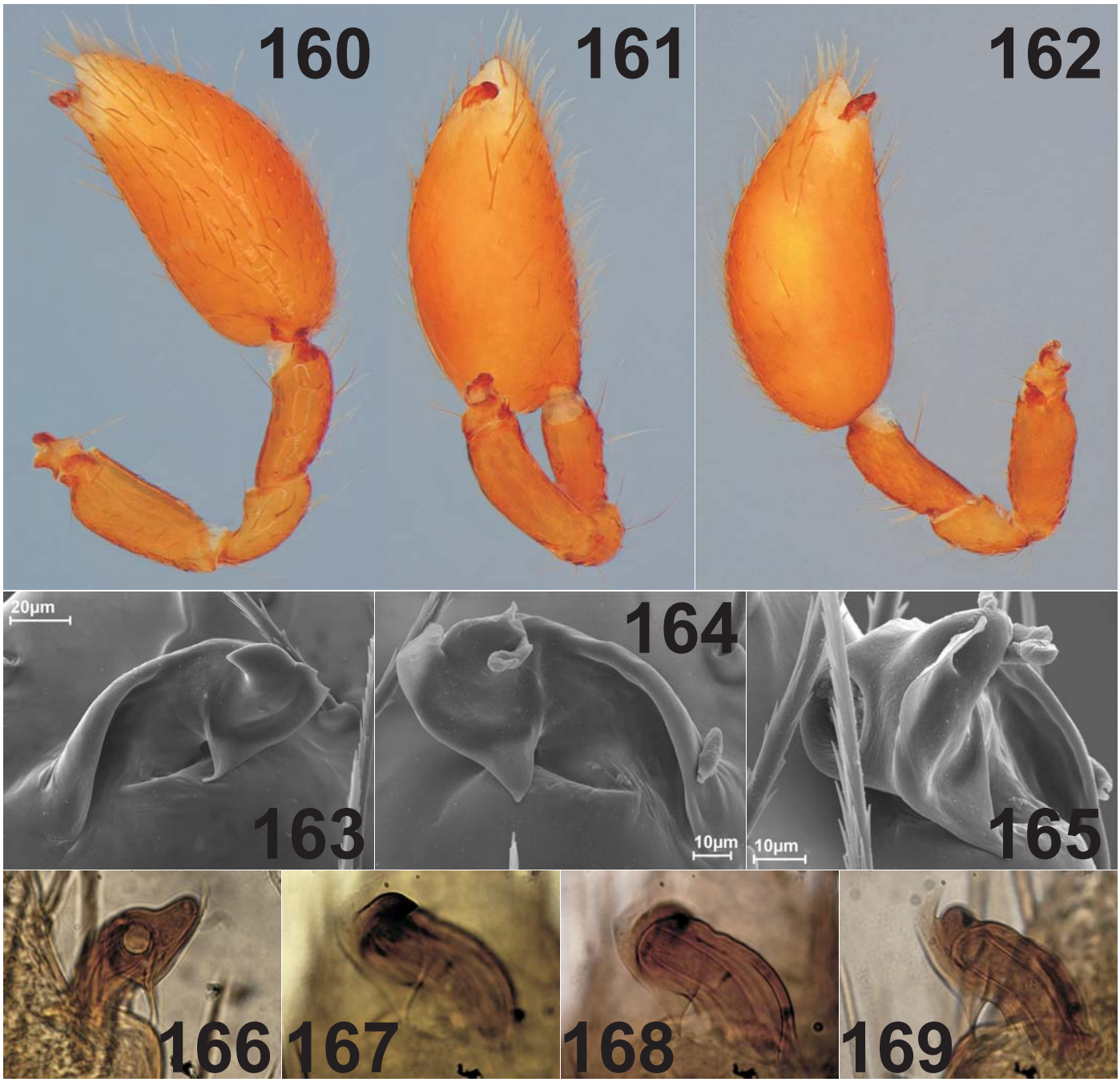
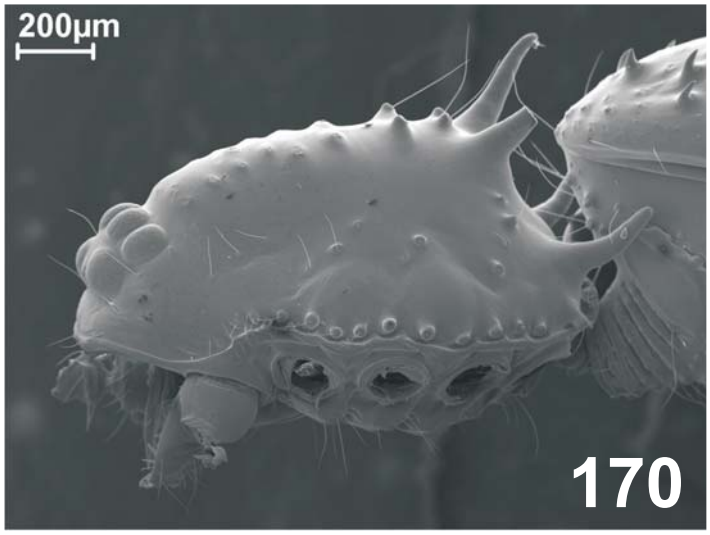
156

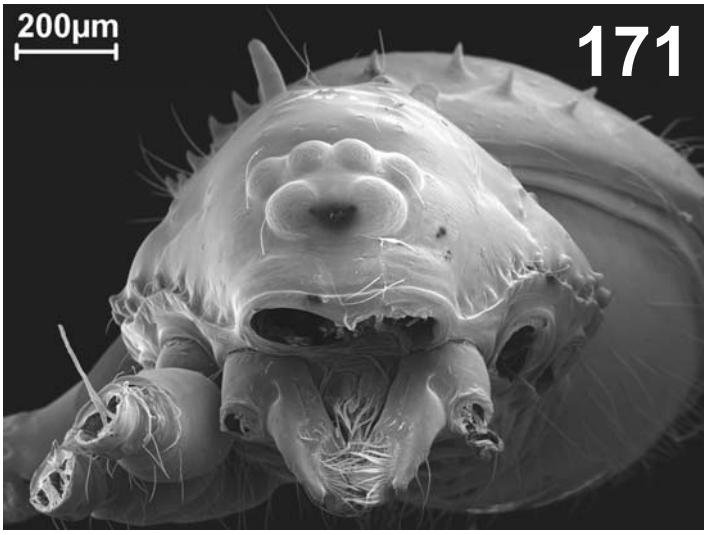

157

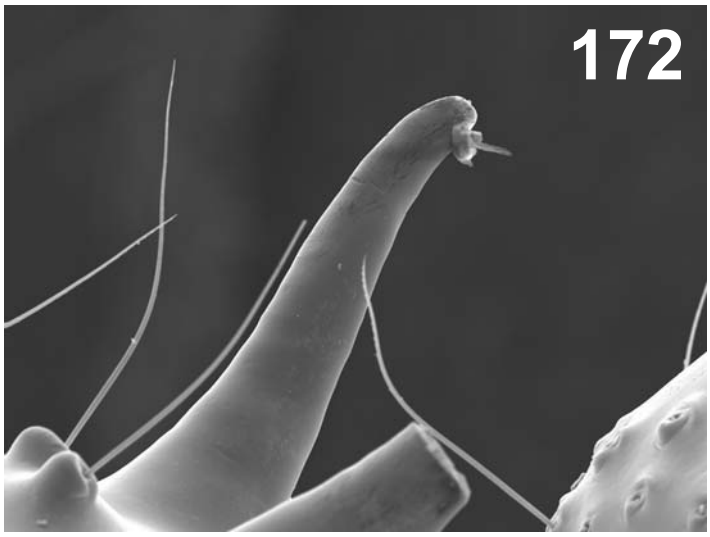

158

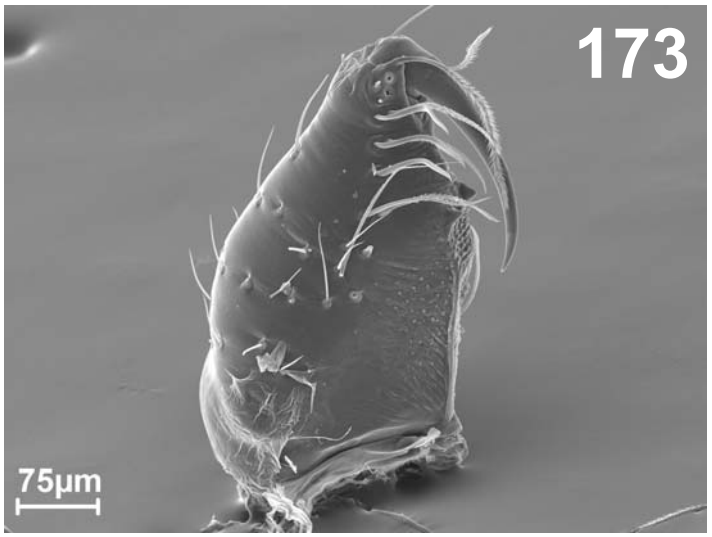

159

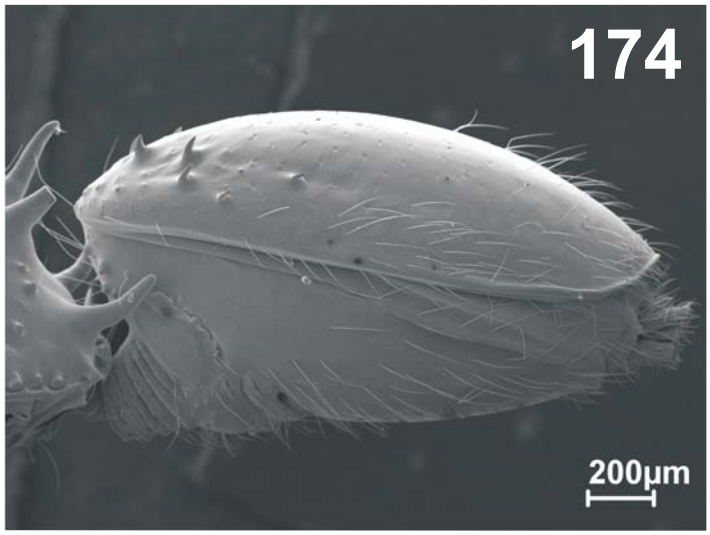

160
161
162
20µm
163
164
10µm
10µm
165
166
167
168
169

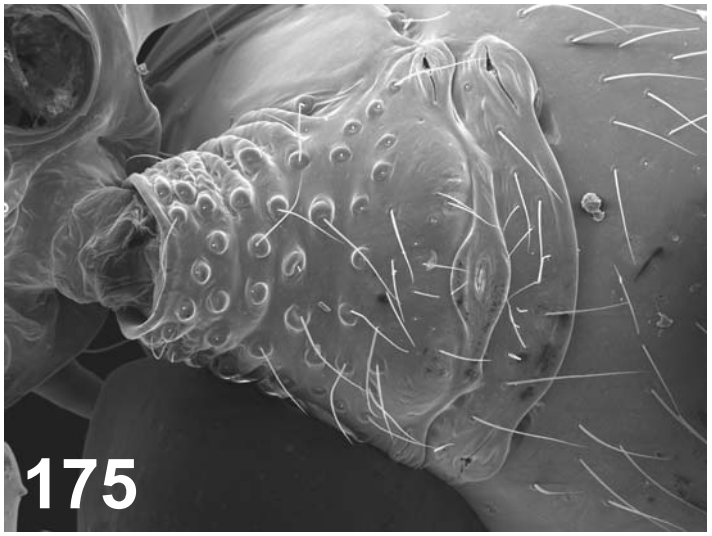

200µm
170


200µm
171


172


173
75µm

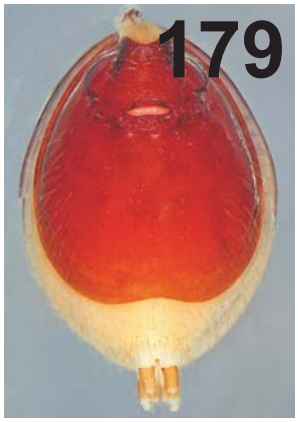

174
200µm

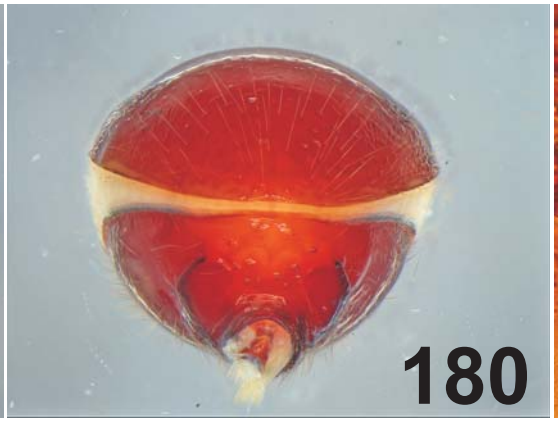

175


176


177


178


179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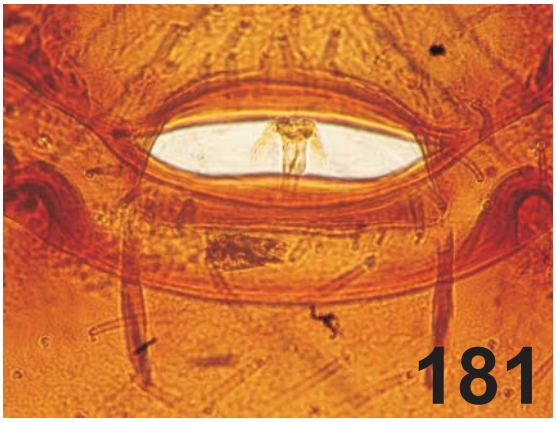
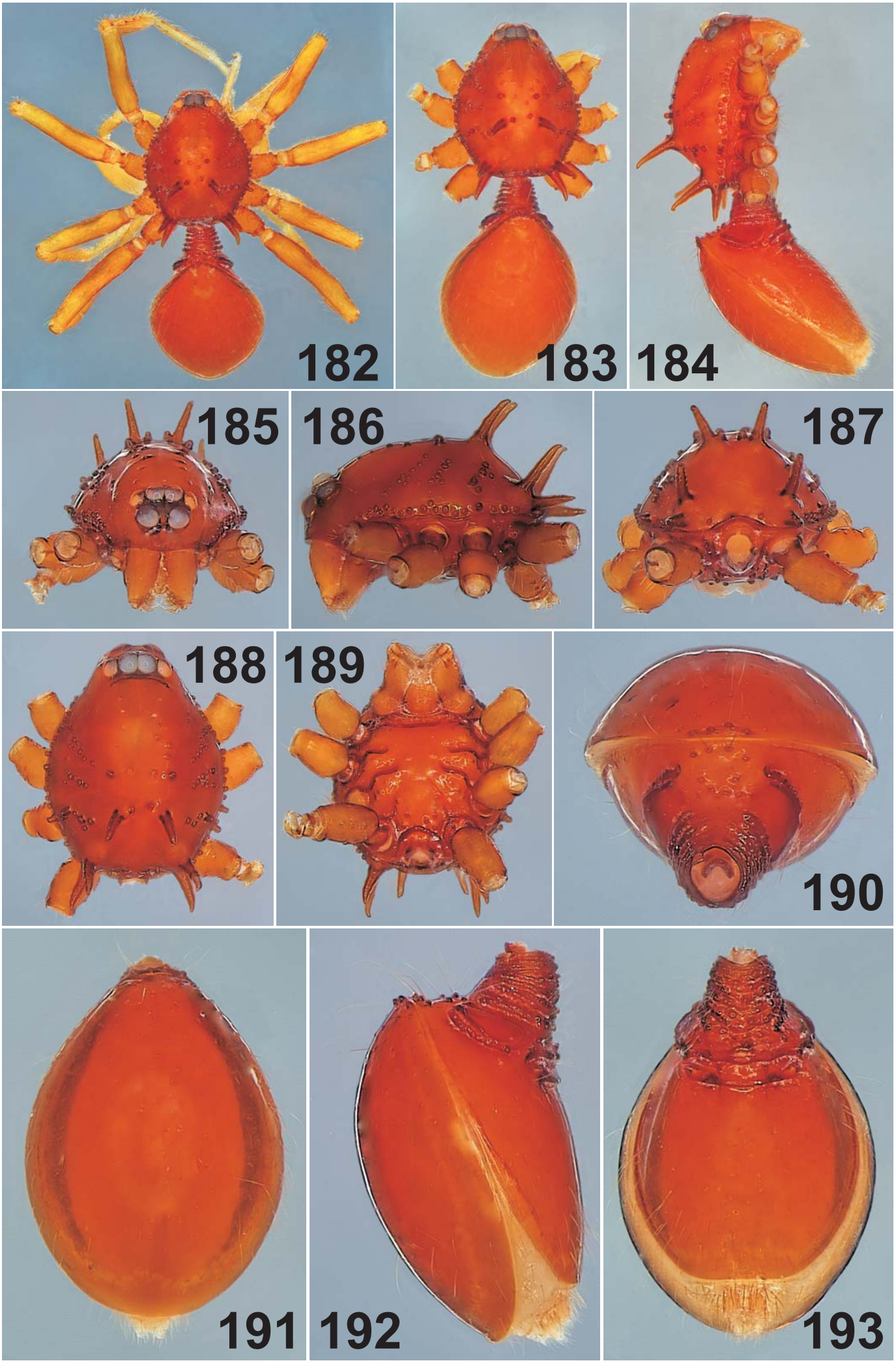

181


182
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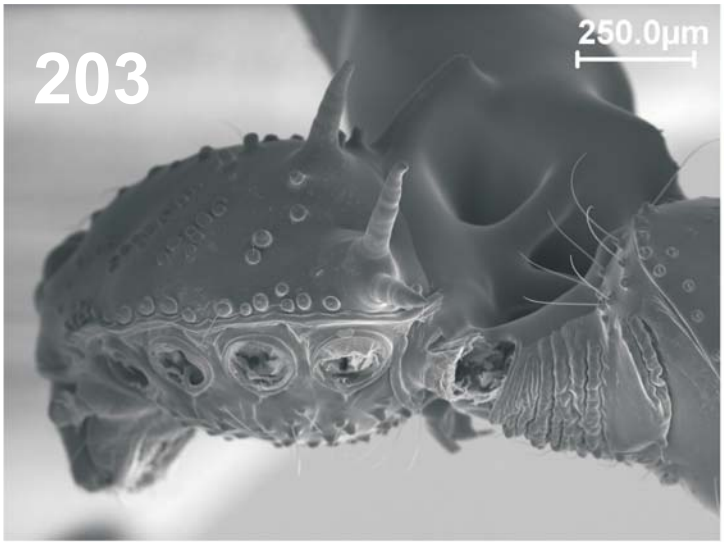
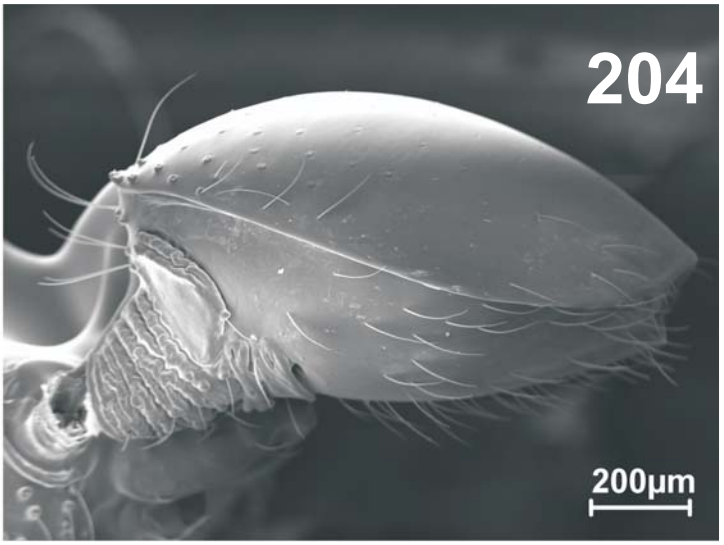
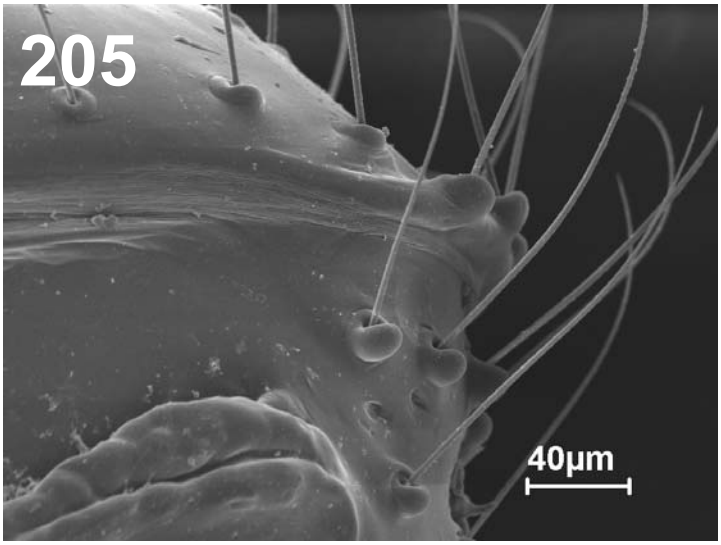
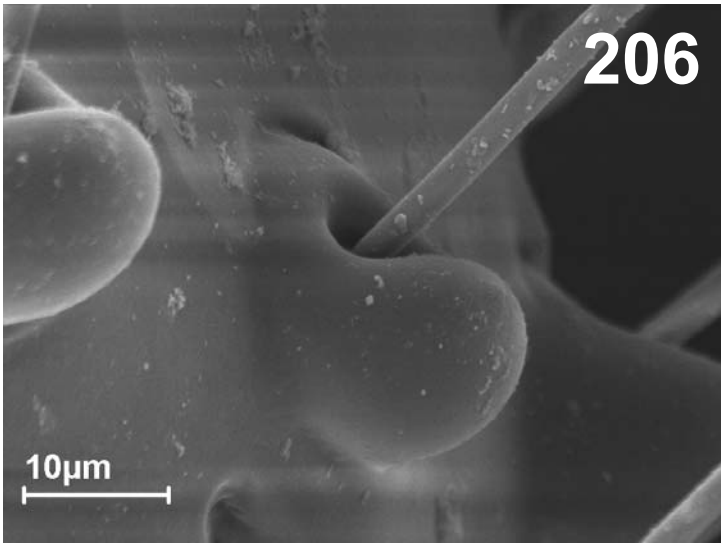
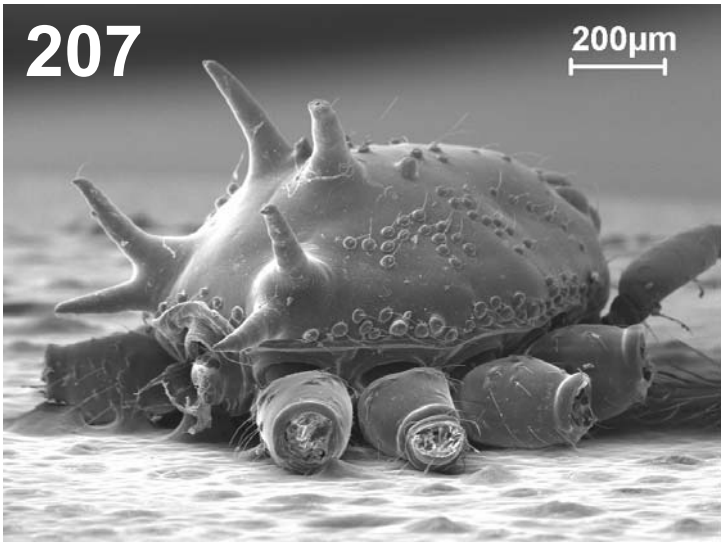
194
195
196
10µm
197
198
15µm
199
200
201
202

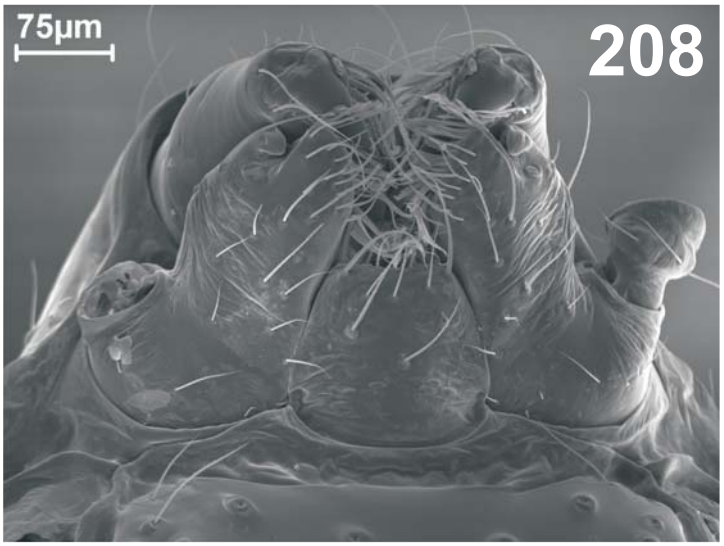

203
250.0µm


204
200µm


205
40µm


206
10µm

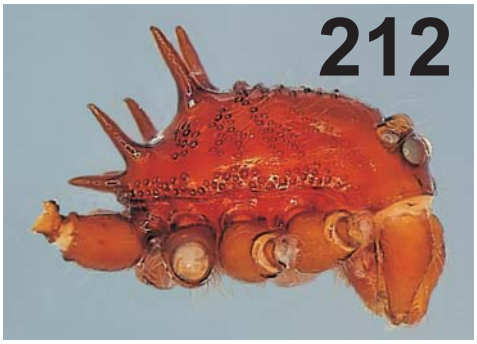

207
200µm


75µm
208


209


210


211


212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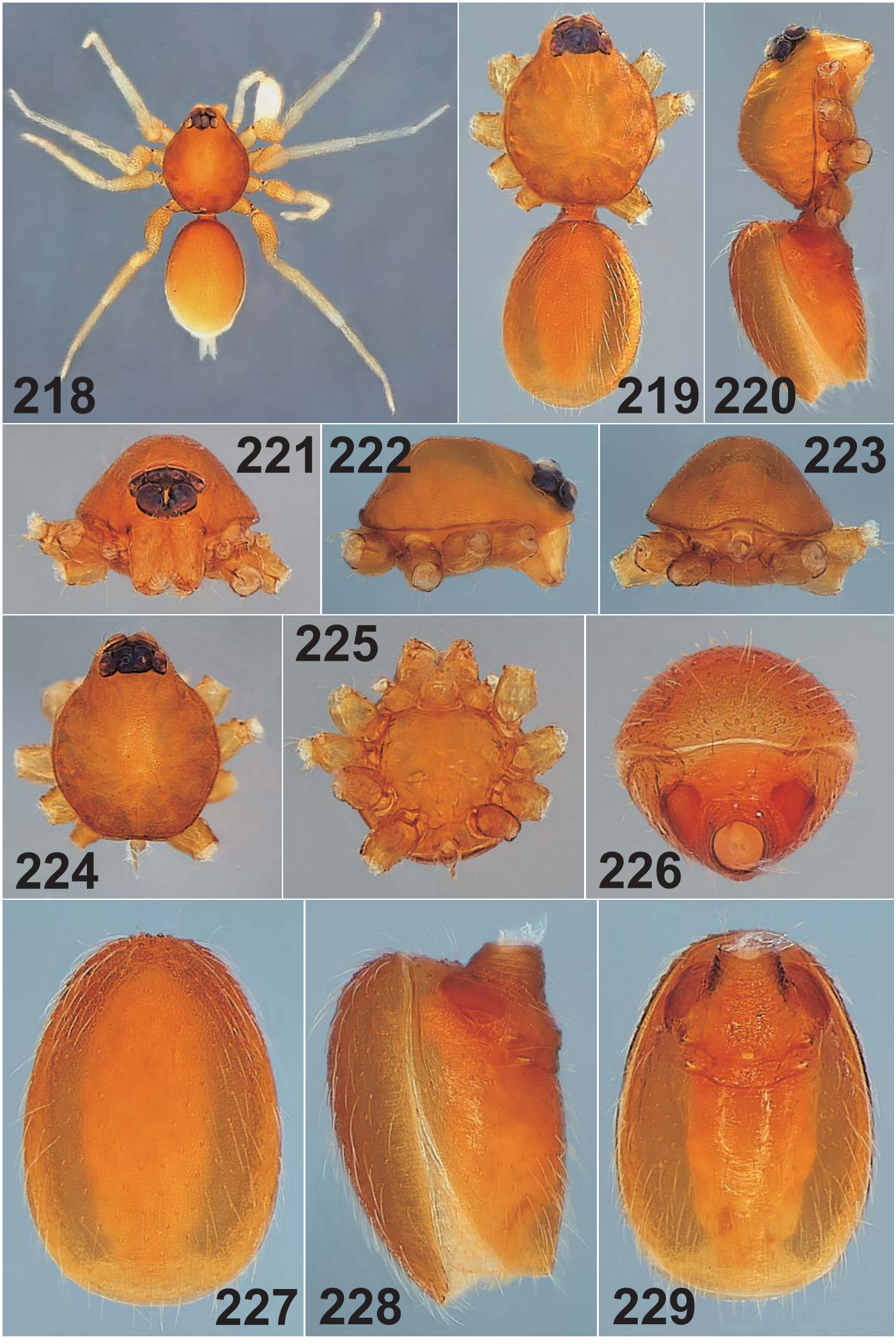
217


218
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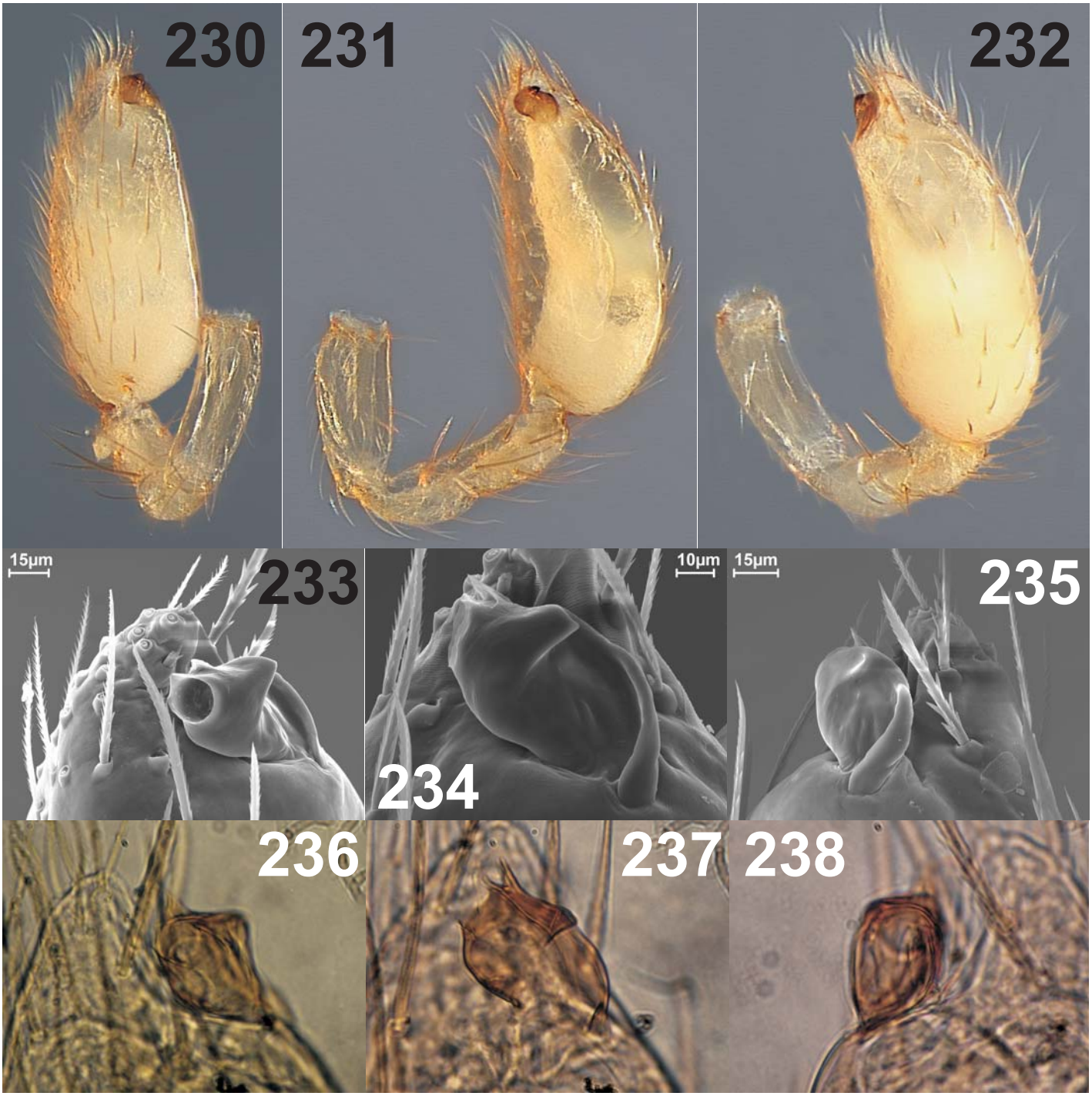
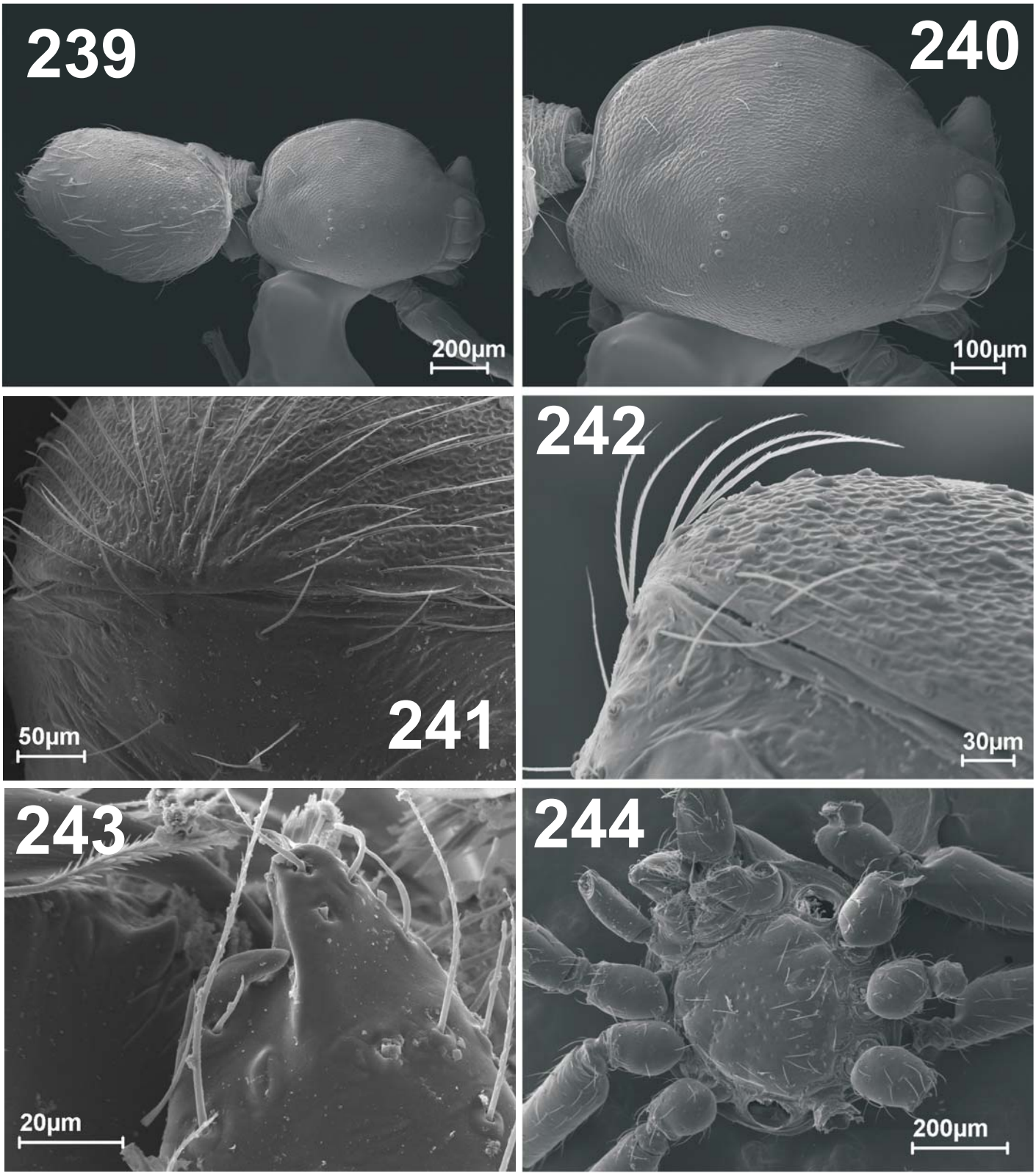
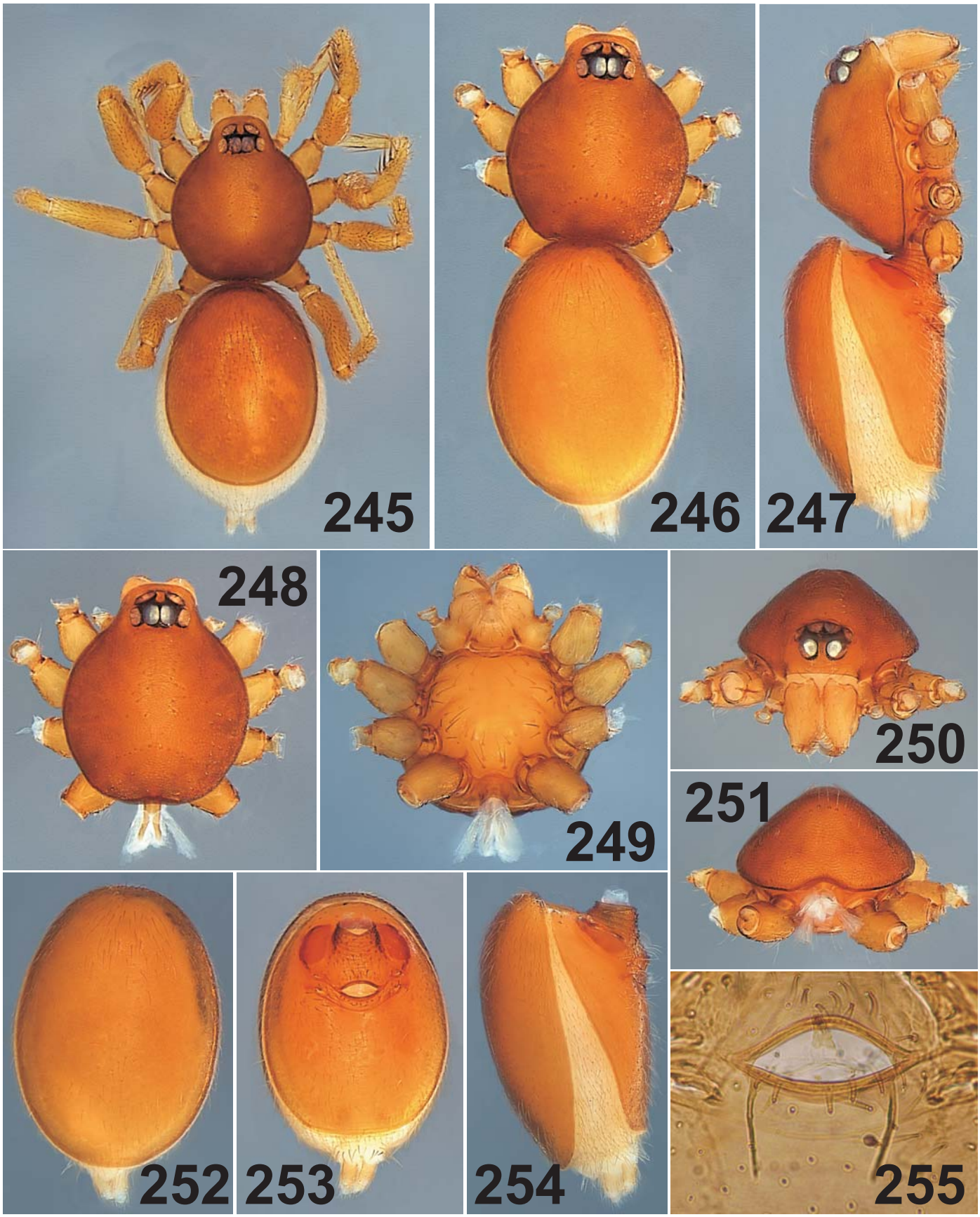

230
231
232
15µm
233
10µm
234
15µm
235
236
237
238


239
200µm
240
100µm
241
50µm
242
30µm
243
20µm
244
200µm


245
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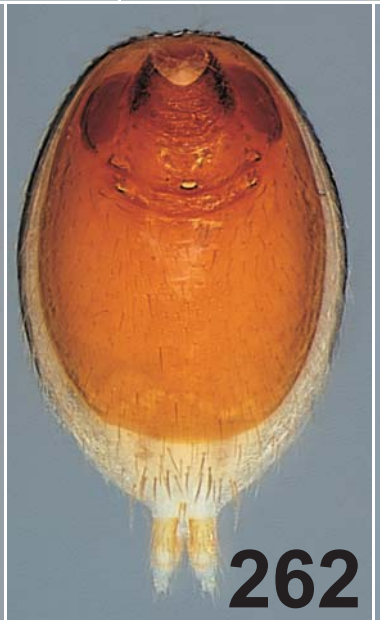
259


260


261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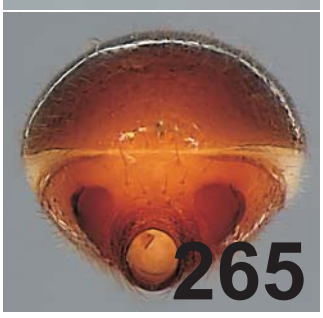
263


264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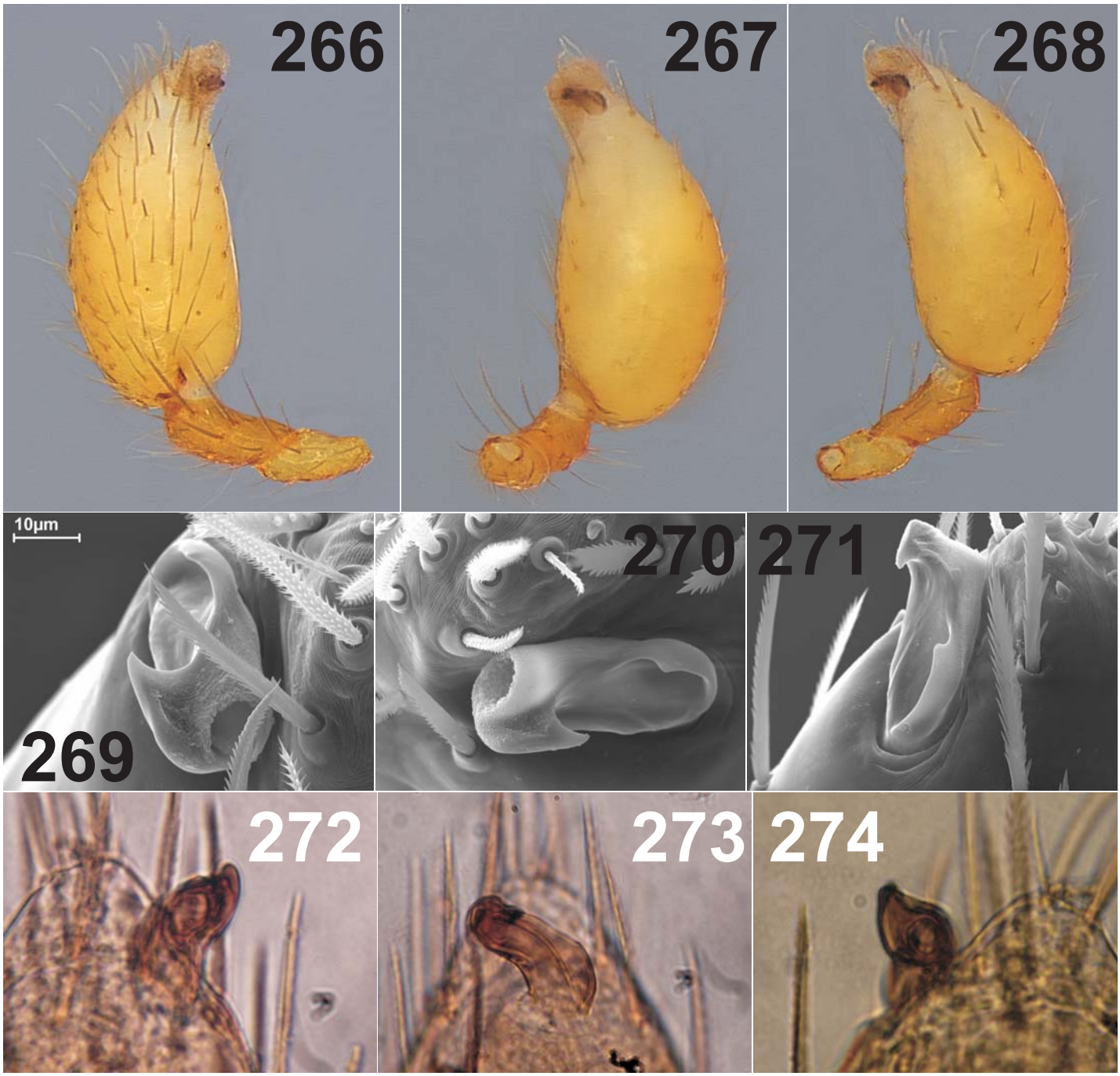
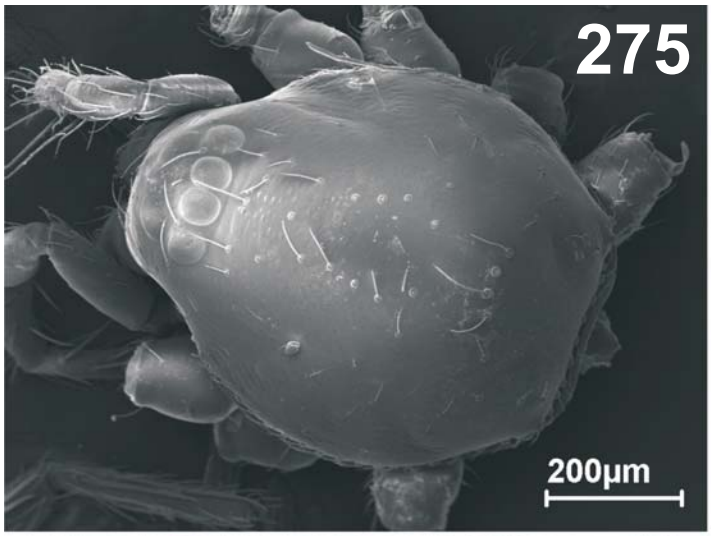
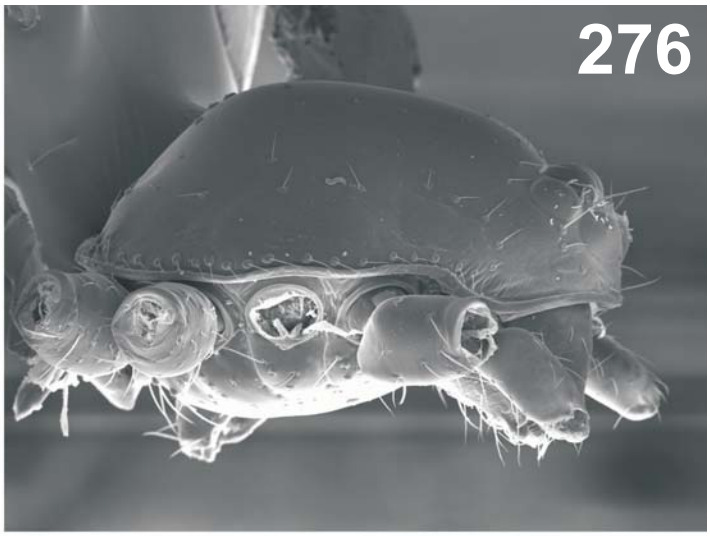

266
267
268
10µm
269
270
271
272
273
274


275
200µm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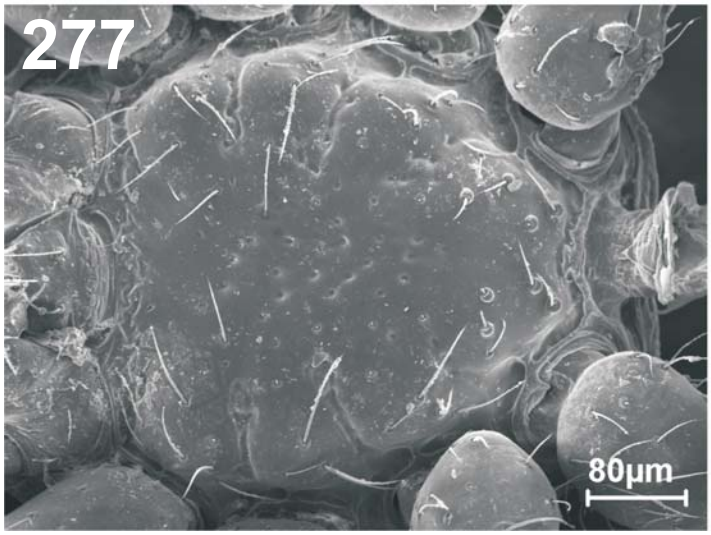
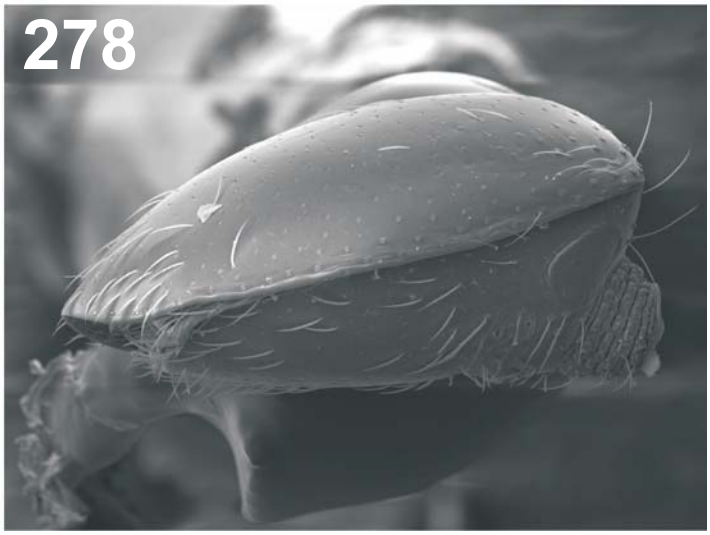

277
80µm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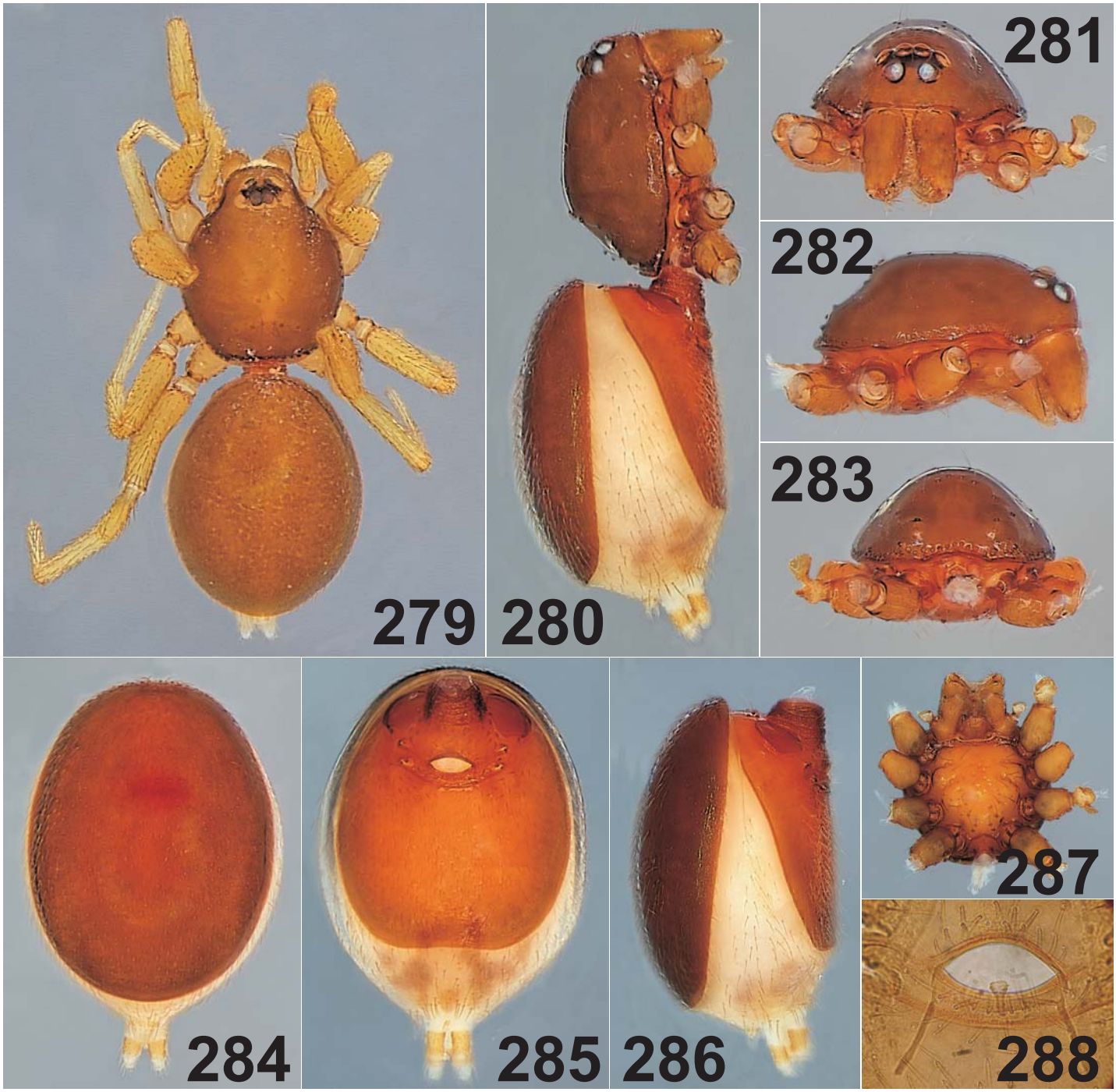
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280
281
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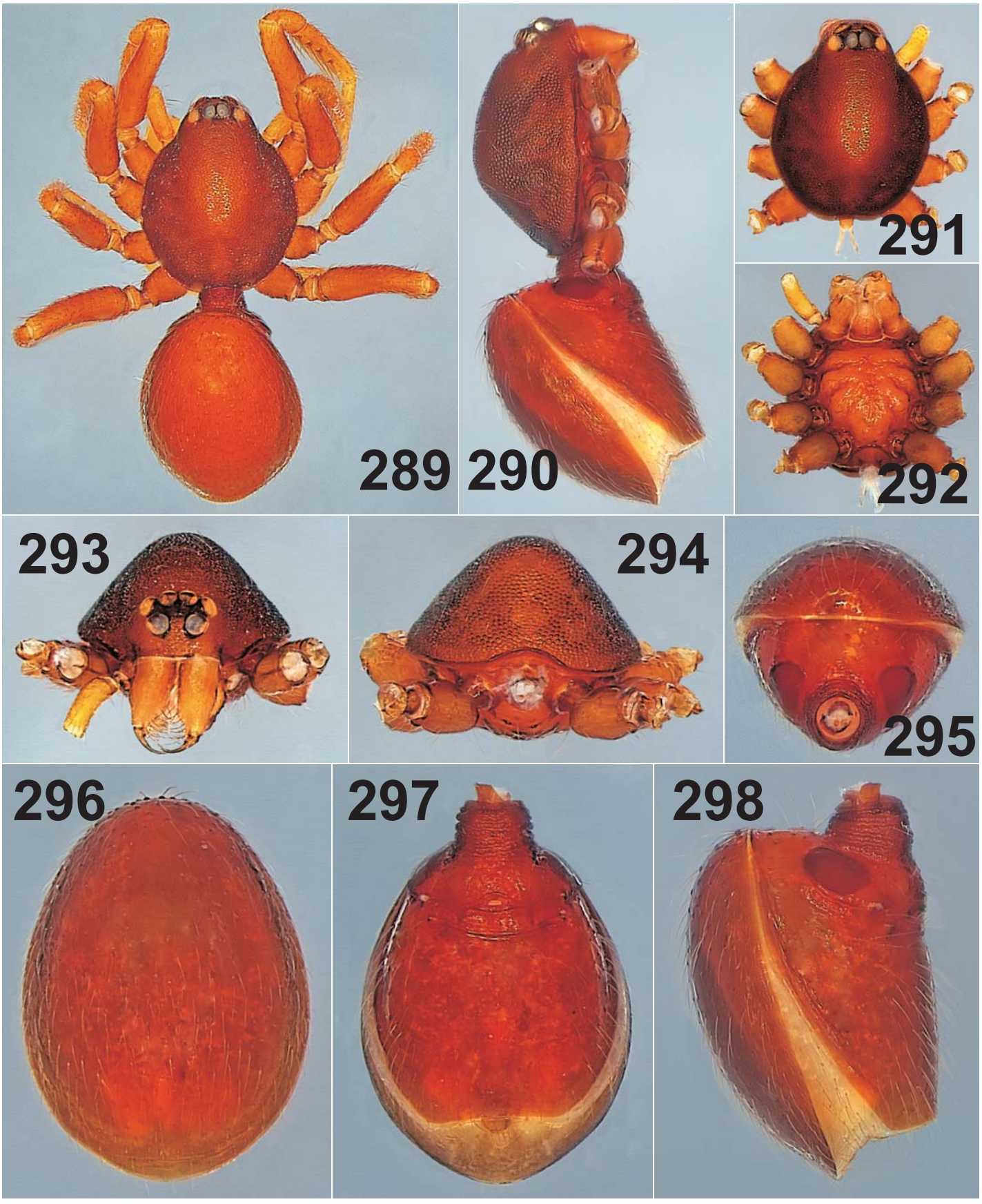
287
288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290
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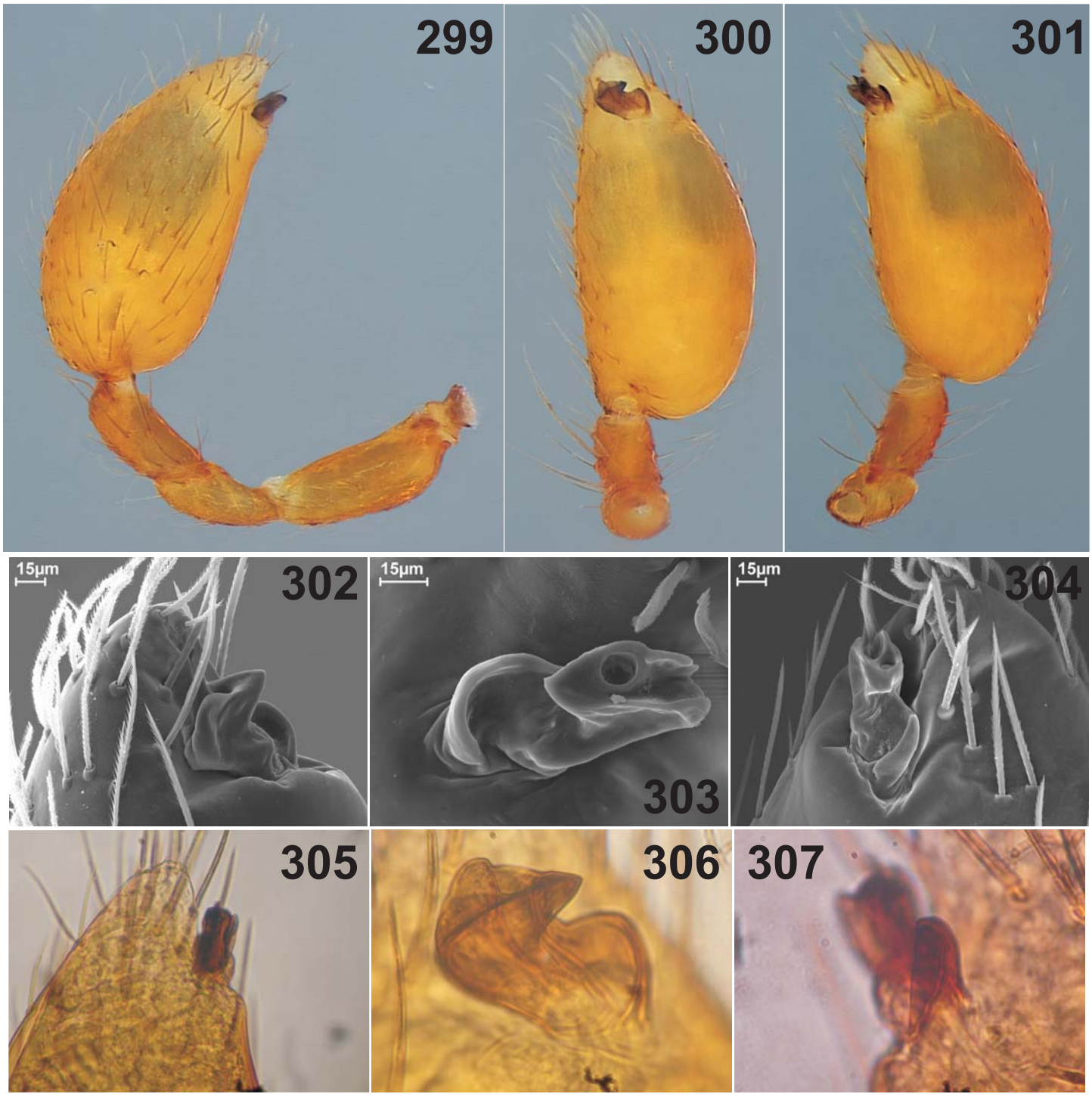
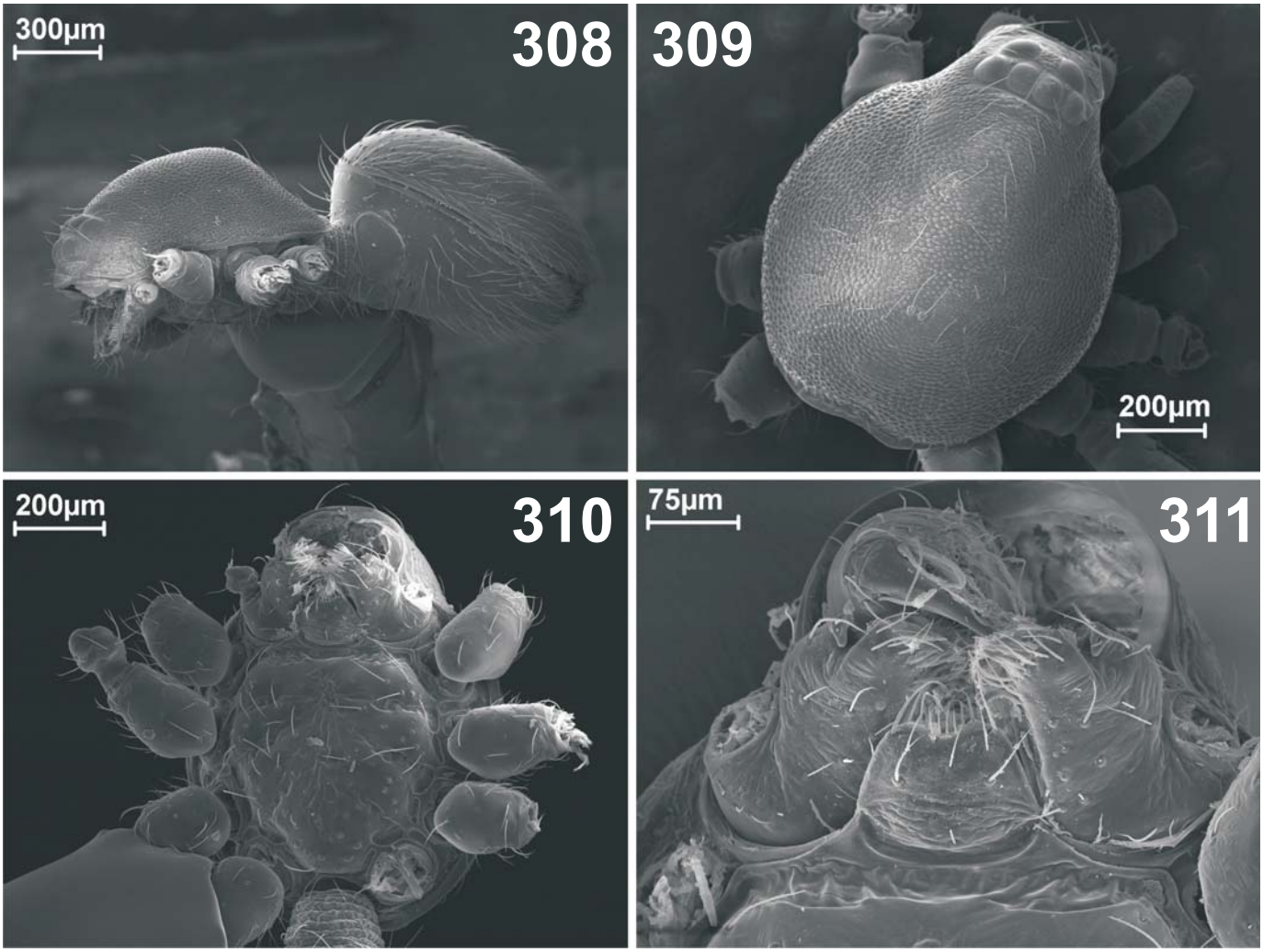
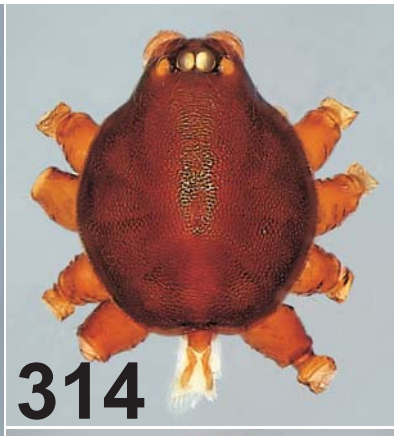
297
298


299
300
301
15µm
302
15µm
303
15µm
304
305
306
307


300µm
308
309
200µm
200µm
310
75µm
311


312


313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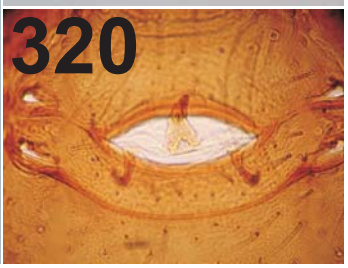
315


316


317


318


319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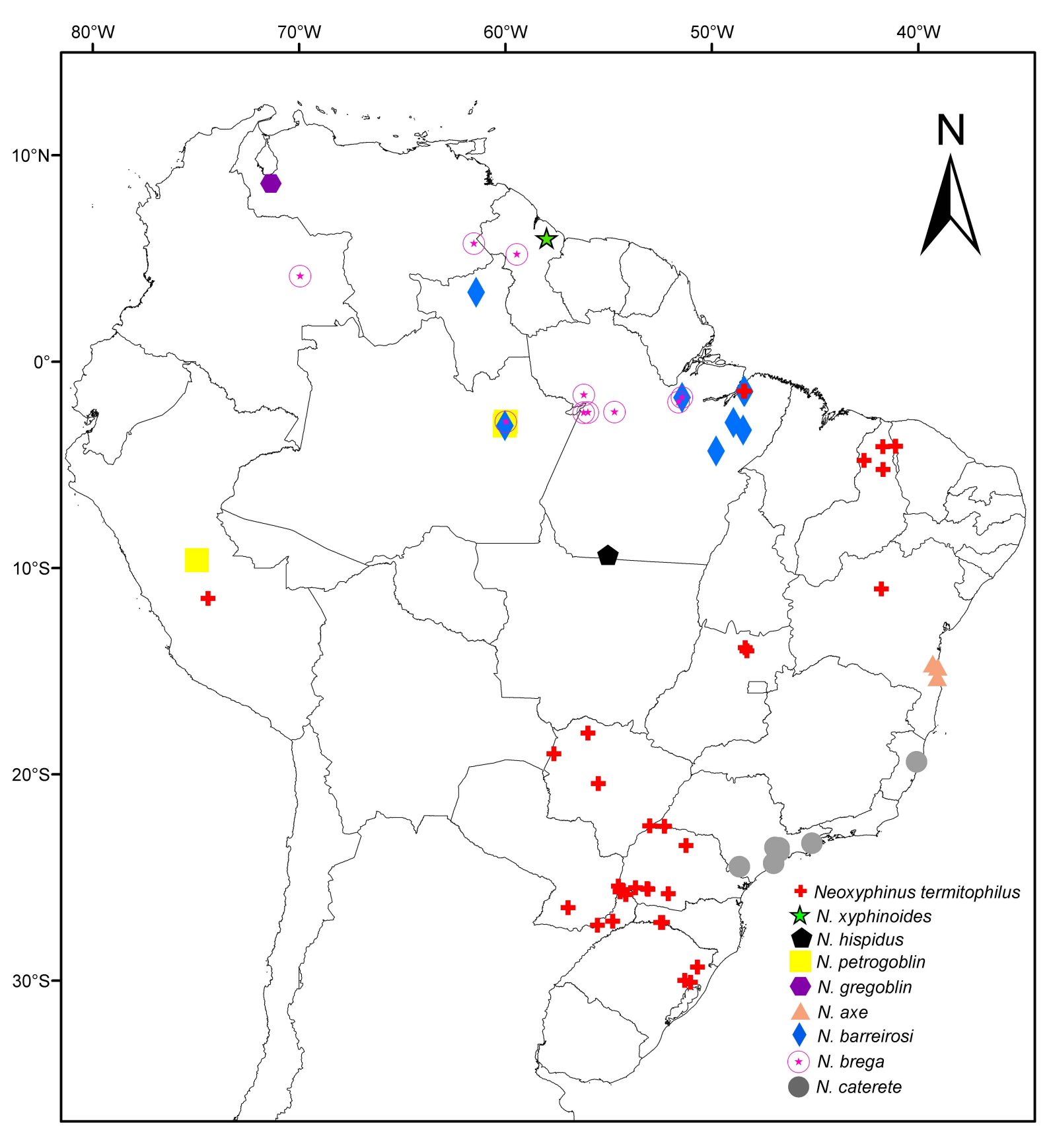
80°W
70°W
60°W
50°W
40°W
10°N
0°
10°S
20°S
30°S
N
Neoxyphinus termitophilus
N. xyphinoides
N. hispidus
N. petrogoblin
N. gregoblin
N. axe
N. barreirosi
N. brega
N. caterete