

Got Males?: The Enigmatic Goblin Spider Genus *Triaeris* (Araneae, Oonopidae)

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ABSTRACT

The type species of the goblin spider genus *Triaeris* Simon, *T. stenaspis* Simon, was originally described from Saint Vincent in the Lesser Antilles, but has attained a pantropical distribution and even has introduced populations living in European greenhouses. At least one of those European populations is parthenogenetic, and no males of the species have ever been found. Simon later assigned one additional species to the genus, *T. equestris*, from Príncipe; that species is also known only from females, but resembles *T. stenaspis* in having an unusually elongated, ventrally spinose patella on leg I. Numerous other species, from both the Old and New worlds, have subsequently been assigned to *Triaeris*; all those taxa seem to be either synonyms (including *T. berlandi* Lawrence from the Democratic Republic of the Congo, *T. lepus* Suman from Hawaii, and *T. lacandonus* Brignoli from Guatemala, which are newly synonymized with *T. stenaspis*) or misplaced in the genus. The modified patella I occurs in four new West African species (*T. moca* from Bioko and *T. fako*, *T. oku*, and *T. menchum* from Cameroon); unfortunately, those species are also represented only by females. Few other gamasomorphines have patellar spines, and most of those that do have such spines belong to a group of genera in which the males have heavily sclerotized endites, suggesting that *Triaeris* might belong to that group. Searching West African collections of such taxa revealed two additional new species, *T. togo* and *T. ibadan*, that are each represented by both sexes. Female genitalic structure suggests that *T. togo* is the closest relative of *T. stenaspis*.

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INTRODUCTION

The goblin spider genus *Triaeris* Simon (1891) has been an enigma wrapped around a mystery. It was initially described for *Triaeris stenaspis* Simon (1891), which was based on females from St. Vincent in the Lesser Antilles, and which Simon had also collected in Venezuela. Within a few years, additional specimens were found in the greenhouses of the Muséum National d'Histoire Naturelle in Paris (Simon, 1896), and also in greenhouses in Ireland (Jackson, 1909; O. P.-Cambridge, 1909). Today, numerous greenhouse populations of the species appear to be well established in various European countries, including Finland (Koponen, 1997) and Germany (Kielhorn, 2008), and a population found in Brno, Czech Republic, has been shown to be parthenogenetic (Korenko et al., 2009). It is possible that all the populations of the species are parthenogenetic, as no males appear ever to have been taken together with any of the 1,600 female specimens recorded below.

Very few spider species are known to be parthenogenetic. Only one other case has been reported in goblin spiders, where *Heteroonops spinimanus* (Simon) has been considered to be parthenogenetic by some authors (Saaristo, 2001). That species resembles *T. stenaspis* in that, even though it was originally described from St. Vincent, it currently has a pantropical distribution and has also been found in European greenhouses (Kielhorn, 2008). Although many populations of *H. spinimanus* may be parthenogenetic, apparently conspecific males have been taken together with females twice, once in the Seychelle Islands and once in Florida (Platnick and Dupérré, 2009b).

The female genitalia of *T. stenaspis* are extremely complex. The internal structures were first illustrated by Brignoli (1974: fig. 4A) and Miller and Žitňanská (1976: pl. II, fig. 6). Although Brignoli's figure was based on a female from Guatemala he described as a new species, it is almost identical to Miller and Žitňanská's illustration of a Slovakian female they correctly attributed to *T. stenaspis*; in both cases, those authors drew only the posterior genitalic elements. Much more detailed figures and descriptions have since been provided by Dumitresco and Georgesco (1983: pl. 19, fig. 4, pl. 20, figs. 1–3) and especially by Burger (2009: figs. 6–10, 23A–B). Our scanning electron micrographs show that even the external elements are anomalously complex (figs. 31, 32). Why a parthenogenetic species has genitalia that are so complex, if they have no copulatory or sperm storage function, remains a mystery.

Equally mysterious has been the question of whether *T. stenaspis* is natively an Old or New World species. Although ground-dwelling oonopids typically have very small geographic ranges (perhaps the smallest, per species, of any spider group), there are about a dozen species within the family that have anomalously managed to attain pantropical distributions. For example, two other species that were initially described by Simon (1891) from St. Vincent, *Opopaea deserticola* and *Pelcinus marmoratus*, are pantropical taxa whose New World populations are now considered to be introduced rather than native (Platnick and Dupérré, 2009a; Platnick et al., 2012b).

One should be able to answer the question by finding the closest relative of *T. stenaspis*, but the existing taxonomy of the genus is as problematic as is *T. stenaspis* itself. Currently, there are 17 other species assigned to the genus (Platnick, 2012), including both Old and New World taxa. Only one of those 17 species was described by Simon: *Triaeris equestris* Simon (1907),

based on a single female from the island of Príncipe. Simon's association of that species with *T. stenaspis* was apparently based on what he considered the most salient character of the genus, the presence of an elongated patella, bearing ventral spines, on leg I (figs. 17, 37). Simon (1893: 297) used that character to separate *Triaeris* in his key to gamasomorphine genera, and his account (1896: 93) of *T. stenaspis* stressed that “ses pattes antérieures, également armées de fines épines sériées, sont remarquables par la grande longueur de leur article patellaire.” Why most of the 16 taxa added by subsequent workers were placed in the genus is an enigma. Aside from three names placed below as synonyms of *T. stenaspis*, none of those taxa seem to share the patellar characters emphasized by Simon, and they all seem to be misplaced.

For example, Chickering (1968) reviewed the specimens of *Triaeris* in his extensive collections from Central America and the West Indies. His generic description omitted any mention of the highly modified patella I, and provided no diagnostic characters whatever for the genus. Aside from *T. stenaspis*, he described two new species. One, *Triaeris reticulatus*, from the Virgin Islands and Nevis, has been shown to be a junior synonym of *Pellicinus marmoratus* Simon (Platnick et al., 2012b); the other, *Triaeris bodanus* from Trinidad, belongs to a different genus currently being studied by Alexandre Bonaldo and his colleagues.

Workers on Old World taxa have not fared any better. Simon's colleagues Berland (1914) and Fage (1946) added species from Kenya and India, respectively, but they are also misplaced (Fannes, in prep.; Grismado, in prep.). Many additional Indian species established by more recent authors are so poorly described and illustrated that one can say little about them other than they are clearly not members of *Triaeris* (indeed, at least one of them is probably not even an oonopid).

Triaeris has typically been considered to be a close relative of *Ischnothyreus* Simon (1893), sharing with that genus a somewhat reduced dorsal abdominal scutum and a characteristically “squiggled” posterior receptaculum in the female genitalia (figs. 38, 39). Indeed, Dumitresco and Georgesco (1983) even attempted to establish a subfamily containing only these two genera, but because they did not designate a type genus, and did not base the subfamily name on an existing genus, their “Pseudogamasomorphinae” is a nomen nudum that is not available.

There are characters that might support such a relationship. For example, in *Ischnothyreus peltifer* (Simon), the pantropical type species of that genus, the postepigastric scutum bears an external slit (D. Ubick, unpublished scans) similar to that found in *T. stenaspis* (figs. 31, 32), although the slit in *I. peltifer* is much smaller and is situated anteriorly on the scutum, rather than posteriorly. Also, in both type species the claws on legs III and IV are accompanied by “false claws”—highly modified setae on which the tips lack the microsetae found more proximally and have become hardened and clawlike (figs. 21, 22, 25, 26). The claw character, however, is also shared with other, presumably more distantly related taxa, including the Asian genus *Aprusia* Simon (see Grismado et al., 2011: figs. 60–66) and the Malagasy genus *Malagiella* Ubick and Griswold (2011: frontispiece and figs. 77, 78, 82–84).

If *Triaeris* is the sister group of *Ischnothyreus*, its geographic origins remain obscure, as *Ischnothyreus* also occurs in both the Old and New worlds. The vast majority of *Ischnothyreus* species are Old World taxa, and it is possible that, as with *Opopaea* and *Pellicinus*, all the New World populations are introduced, but that has not yet been established.

However, Simon's primary character for the genus, the modified patella I, suggests an alternative hypothesis. Very few gamasomorphine oonopids are known to have patellar spines, and most of those that do have such spines belong to a group of genera that are united by the presence of highly modified, heavily sclerotized endites in males. That group, which has been studied in detail by Wouter Fannes (in prep.), includes taxa such as *Zyngoonops* Benoit (1977), *Coxapopha* Platnick (2000), and *Antoonops* Fannes and Jocqué (2008). Although this alternative hypothesis seems to be supported in preliminary molecular analyses by Eva Gaublomme (in litt.), in which *Triaeris* typically falls out close to or within this group of genera, it is equally uninformative geographically. The taxa with heavily sclerotized male endites are known from both the Neotropics and Africa.

Nevertheless, Simon's association of *T. equestris* with *T. stenaspis* suggested that other close relatives of *T. stenaspis* might be found in West Africa, and searches of West African collections in the California Academy of Sciences by Darrell Ubick turned up four seemingly congeneric species, one from Bioko and three from Cameroon. Each of those species shares the modified patella I, but unfortunately they are also each known only from females. Luckily, Wouter Fannes' thorough sorting of the massive African collections available in the Royal Museum for Central Africa revealed two additional species, from Togo and Nigeria, that are each represented by both sexes. The genitalia of the females of *T. togo*, new species, have the same kind of external, longitudinal slit, situated along the midline of the posterior portion of the postepigastric scutum, that is found in *T. stenaspis* (compare figs. 31 and 78), and those taxa thus seem likely to be sister species.

The males of these two new species show the highly modified, heavily sclerotized endites typical of genera in the *Zyngoonops* group. These results suggest that *Triaeris* is natively a West African genus, belonging to the *Zyngoonops* group, one species of which has attained a pan-tropical distribution. They also suggest that, if males of *T. stenaspis* do exist anywhere, they would likely have been sorted into other groups in collections, as males of the *Zyngoonops* group typically have an elevated, domed carapace with heavily sclerotized anterolateral corners, as well as the highly modified endites, and thus often look quite different from the females.

In the New World, at least one such misplaced male member of the *Zyngoonops* group has been described: *Xestaspis reimoseri* Fage (1938), taken in a termite nest in Costa Rica; Fage's excellent illustration of the modified endites shows clearly that the species does not belong to *Xestaspis*, but his description also indicates that this male lacks leg spines, and it is thus equally unlikely to belong to *Triaeris*. It presumably belongs instead to *Coxapopha* or a related, new genus.

Several undescribed West African species resemble those we discuss below in having an elongated, ventrally spinose patella I, but differ in genitalic and other characters. We therefore consider Simon's classical character to be a synapomorphy not of *Triaeris*, but rather of a subgroup of about four genera belonging to the *Zyngoonops* group. If our hypothesis is correct, then "*Triaeris* subgroup" might be an appropriate informal name for the set of genera belonging to the *Zyngoonops* group that also share the elongated, spinose patella I.

Thus, among the African species that have been misplaced in *Triaeris*, the specimens of *T. equestris* belong to an undescribed genus in the *Triaeris* subgroup, whereas those from Kenya

and Zanzibar described by Berland (1914) as *Triaeris macrophthalmus* do not belong to the *Triaeris* subgroup, but do have heavily sclerotized endites and are thus members of the *Zyngoonops* group. At least the male of *Xestaspis sertata* Simon (1907) from Bioko is also apparently a member of the *Zyngoonops* group (but not the *Triaeris* subgroup). The poorly known genus *Kijabe* Berland (1914) from Kenya may also belong to the *Zyngoonops* group.

The two species described below that are known from males show a number of distinctive features. The male palpal patella bears a prolateral series of leaf-shaped setae (figs. 74, 107) that have not been detected, to date, in any other oonopids. The same is true for an enlarged seta situated subdistally on the male labium (figs. 70, 86), and a pair of enlarged setae situated anterolaterally on the male sternum (figs. 70, 89, 90, 126). As expected, at least *T. ibadan* shares with *T. stenaspis* the presence of “false claws” on the posterior legs (figs. 98, 99), and at least those two species also share a distinctive seta, on the anterior surface of each cheliceral paturon, that is greatly elongated and extends at least half the length of the paturon (figs. 4, 6, 83, 84, 110, 111).

Our methods follow those of Platnick and Dupérré (2009a); all measurements are in mm. High-resolution versions of the images, a sortable version of the geocoded locality data, and a distribution map for each species will be available on the goblin spider Planetary Biodiversity Inventory (PBI) project’s website (<http://research.amnh.org/oonopidae>).

COLLECTIONS EXAMINED

AMNH	American Museum of Natural History, New York, NY
BSC	Centro Oriental de Ecosistemas y Biodiversidad, Santiago de Cuba
CAS	California Academy of Sciences, San Francisco, CA
CDU	Darrell Ubick collection, San Francisco, CA
CNC	Canadian National Collection, Ottawa, Canada
FMNH	Field Museum of Natural History, Chicago, IL
IBSP	Instituto Butantan, São Paulo, Brazil
INBIO	Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica
KBIN	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels, Belgium
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, MA
MHNG	Muséum d’Histoire Naturelle, Geneva, Switzerland
MNH	Museo Nacional de Historia Natural, Havana, Cuba
MNHN	Muséum National d’Histoire Naturelle, Paris, France
MRAC	Musée Royal de l’Afrique Centrale, Tervuren, Belgium
NML	Nationaal Natuurhistorisch Museum, Leiden, Netherlands
QMB	Queensland Museum, Brisbane, Australia
TMM	Texas Memorial Museum, Lubbock, TX
UAM	University of Alaska Museum, Fairbanks, AK
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC
ZMUC	Zoological Museum, University of Copenhagen, Denmark

Triaeris Simon

Triaeris Simon, 1891: 561 (type species by monotypy *T. stenaspis* Simon).

DIAGNOSIS: Members of this genus have notably elongated, ventrally spinose patellae on leg I (figs. 17, 37), a feature that is shared with a group of undescribed genera from West Africa. The males assigned below to *Triaeris* can easily be separated from those of the undescribed groups by several unique modifications, including the leaf-shaped setae on the palpal patella (figs. 74, 107), the enlarged, subdistal seta on the labium (figs. 70, 86), and the pair of enlarged setae near the anterolateral corners of the sternum (figs. 70, 89, 90, 126); they also differ in having a simple embolus without accessory structures (figs. 73, 105). The females assigned below to *Triaeris* show a wide range of genitalic structures, but differ from those of the undescribed genera in having hypertrophied posterior genitalic elements, which occupy most of the postepigastric scutal area and involve external modifications of that scutum (figs. 31, 32). The notably elongated seta found in both sexes on the anterior surface of each cheliceral paturon (figs. 4, 6, 83, 84, 110, 111) may also be unique to *Triaeris*.

GENDER: The gender of the name *Triaeris* has been controversial; Bonnet (1959), for example, regarded the name as masculine. That view was disputed by Brignoli (1974: 209), who indicated that:

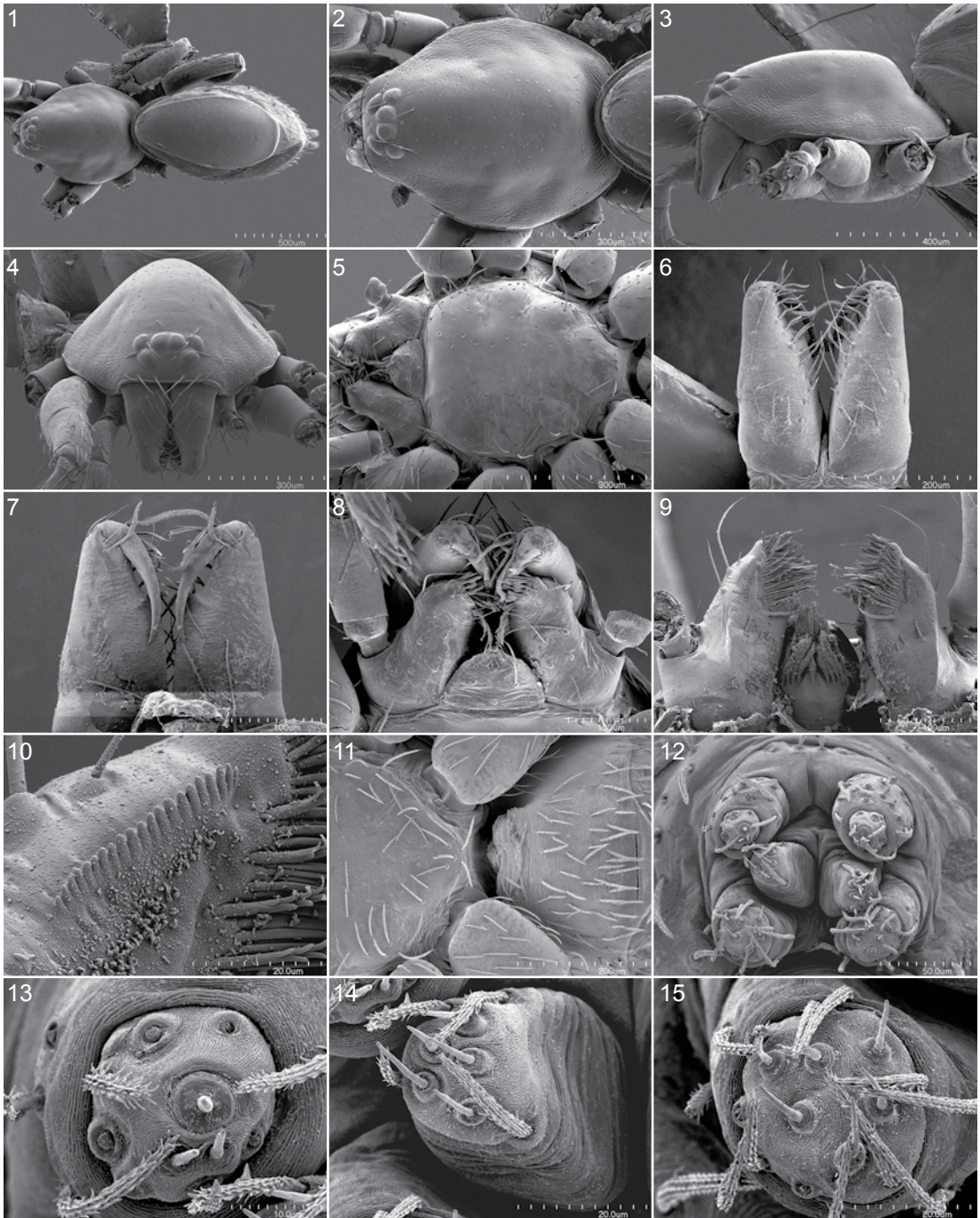
Some doubt may arise concerning the genus [sic, lapsus for gender] to be attributed to the name *Triaeris*; in my opinion, the etymology is clear: *Tris* + *aeris* i.e. "with three parts of copper"; in practice, an apposition. Berland has taken it as masculine and has described *T. macrophthalmus*; according to me, by analogy with other names again created by Simon, such as *Xestaspis*, *Anasaspis*, *Coryssocnemis*, etc., it sounds better in the feminine (the noun *aranea* being understood).

Our colleague H. Don Cameron has kindly indicated that Brignoli's etymology is erroneous, reflecting an accidental similarity. Simon consistently followed a 19th-century grammar school convention to differentiate a long "e" from a short "e" by spelling the long "e" as "ae." To distinguish the Latin words *levis* ("light," short e) from *lēvis* ("smooth," long e), for example, Simon spelled smooth as *laevis*. Thus, *Triaeris* is properly spelled *Triēris* in standard Latin (and without the macron, to accord with the Code, *Trieris*). Simon's original spelling of the generic name is of course protected by the Code, but the gender is determined by the correct Latin spelling. The word *triēris* is a two-ending Latin adjective meaning "having three banks of oars" (e.g., the spelling is *triēris* for masculine or feminine, *triēre* for neuter). Simon's type species, *T. stenaspis*, does not solve the problem since *stenaspis* is also a two-ending adjective (meaning "having a narrow carapace"). So *Triaeris* should be treated as masculine under ICZN Art. 30.1.4.2, which specifies masculine as the default gender in such cases.

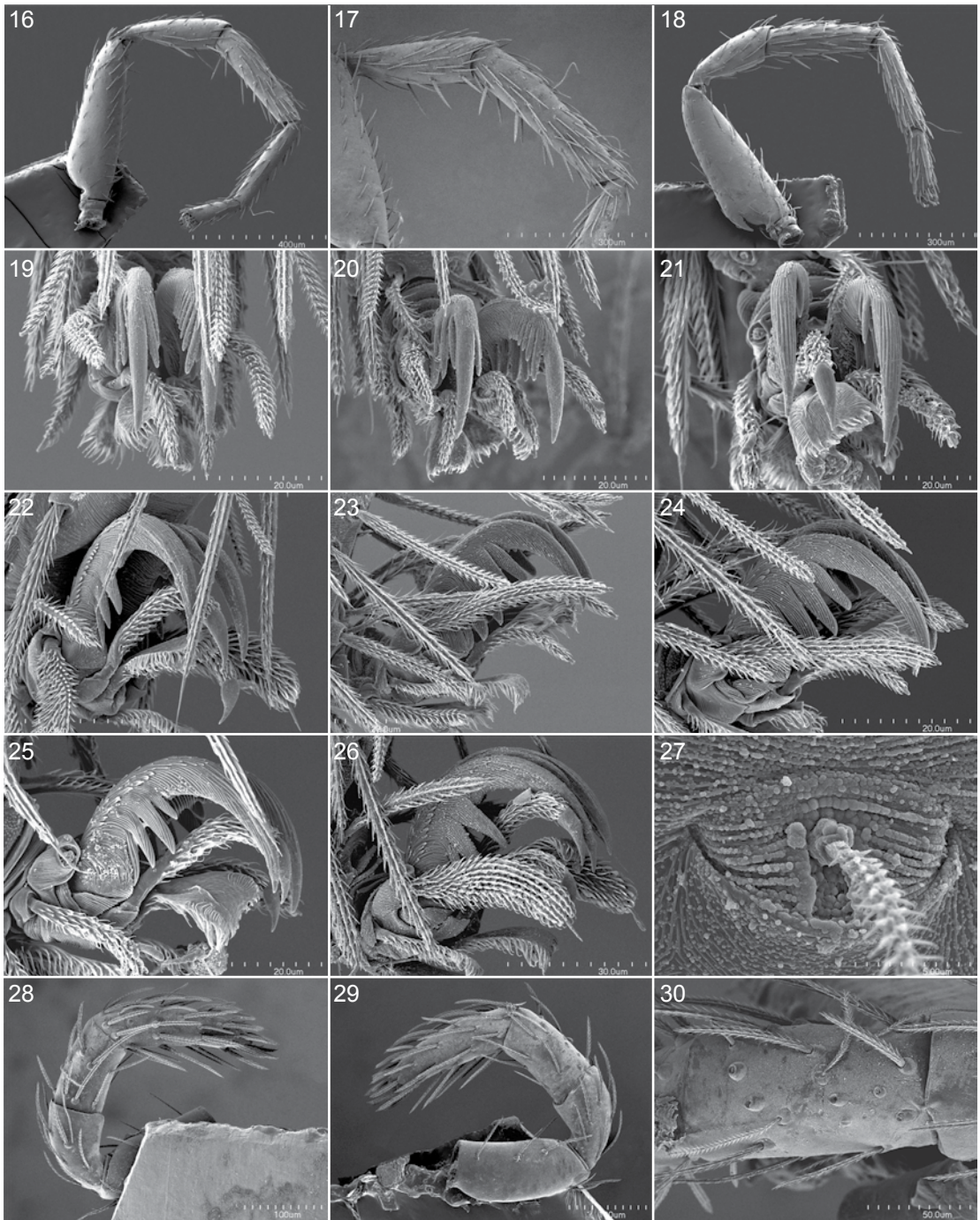
DESCRIPTION: Total length of males 1.3–1.6, of females 1.2–2.3. **Cephalothorax:** Carapace broadly oval in dorsal view, anteriorly narrowed to about half its maximum width, pars cephalica domed in lateral view in males, strongly elevated in females, anterolateral corners with strongly sclerotized, triangular extension in males, surface of elevated portion smooth (figs. 2,

81, 108), surface of sides smooth (fig. 82, 109) or finely reticulate (fig. 3), pars thoracica with rounded posterolateral corners, posterolateral edge without pits, posterior margin not bulging below posterior rim, posterolateral surface without spikes, depressions, radiating rows of pits, or fovea (but longitudinal dark stripe sometimes present on foveal area), lateral margin straight, rebordered, without denticles; plumose setae near posterior margin of pars thoracica absent; marginal, nonmarginal pars cephalica, pars thoracica setae all dark, needlelike. Clypeus low, ALE separated from edge of carapace by their diameter or less, often by their radius or less; margin slightly to strongly rebordered (figs. 4, 83, 110), curved downwards in front view, vertical in lateral view, median projection absent; setae dark, needlelike; chilum absent. Eyes six, well developed, ALE oval, PME squared, PLE oval; posterior eye row recurved from above, usually procurved from front; ALE usually separated by their radius to diameter, ALE-PLE separated by less than ALE radius, PME touching throughout most of their length, PLE-PME separated by less than PME radius. Sternum longer than wide, uniform, not fused to carapace, median concavity absent, with radial furrows between coxae I–II, II–III, III–IV (figs. 5, 117), furrow smooth, radial furrow opposite coxae III absent, surface smooth, without pits, microsculpture absent, sickle-shaped structures absent, anterior margin with continuous transverse groove in males, posterior margin extending posteriorly beyond anterior edges of coxae IV as single extension, anterior corner with strongly sclerotized triangle in males, lateral margin with infracoxal grooves bearing anterior, posterior openings, distance between coxae approximately equal, extensions of precoxal triangles present, lateral margins with narrow extensions between coxae, without posterior hump; setae sparse, dark, needlelike, densest laterally, originating from surface, without hair tufts; males with pair of enlarged, posteromedially directed setae situated near anterolateral corners (figs. 89, 90, 126). Chelicerae straight, anterior face unmodified; promargin with one broad tooth, retromargin at least sometimes with numerous denticles (fig. 113); fangs without toothlike projections, directed medially, shape normal, without prominent basal process, tip unmodified (figs. 7, 85, 112); setae dark, needlelike, densest medially; paturon inner margin with scattered setae, distal region unmodified, posterior surface unmodified, promargin with row of flattened setae, inner margin unmodified, laminate groove absent; at least in *T. stenaspis* and *T. ibadan*, one seta on anterior surface of paturon greatly elongated, reaching more than half of paturon length (figs. 4, 6, 83, 84, 110, 111). Labium in males rectangular, not fused to sternum, posterior margin with unsclerotized area around midline, anterior margin indented at middle, much more heavily sclerotized than sternum, subdistal portion with enlarged seta (fig. 86); in females more triangular, slightly indented at middle, with few distal setae (figs. 8, 114). Endites in males distally excavated, serrula absent (figs. 87, 88), much more heavily sclerotized than sternum, with narrow translucent band separating greatly enlarged anterior portion from short posterior portion, posterior portion fused with labium at its posterolateral corners (figs. 86, 87); in females distally not excavated, serrula present in single row (figs. 9, 10, 115, 116). Female palp without claw or spines; patella without prolateral row of ridges; tibia with two or three trichobothria (figs. 30, 121); tarsus not expanded (figs. 28, 29, 119, 120). **Abdomen:** Cylindrical, without long posterior extension, rounded posteriorly, interscutal membrane without rows of small sclerotized platelets; dorsum soft portions

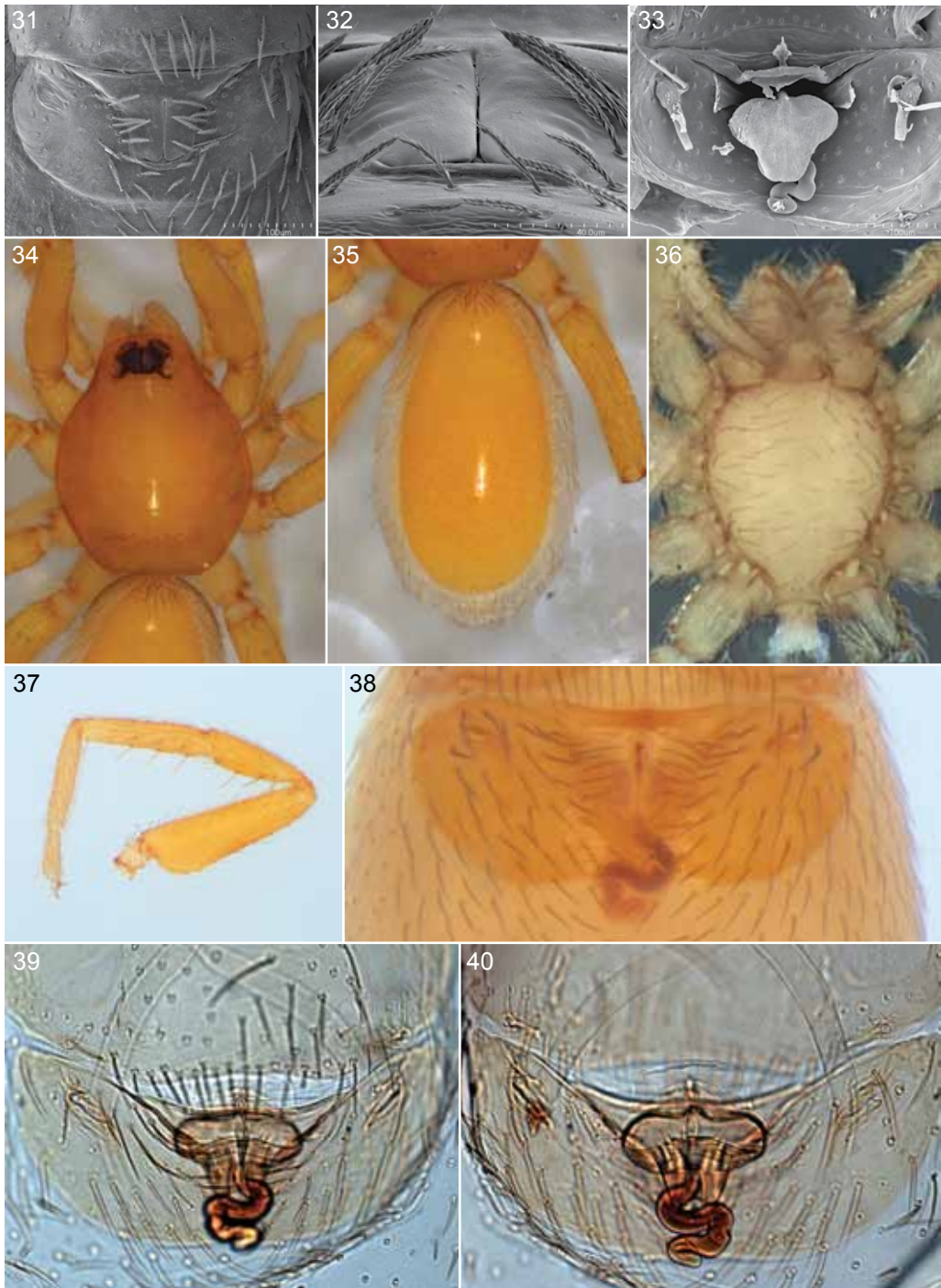
white, without color pattern. Book lung covers large, ovoid, without setae, anterolateral edge unmodified; posterior spiracles not connected by groove. Pedicel tube short, unmodified (fig. 11), scutopedicel region unmodified, scutum extending far dorsal of pedicel, plumose hairs, matted setae on pedicel area absent, cuticular outgrowths near pedicel all absent. Dorsal scutum strongly sclerotized, without color pattern, usually covering most of abdomen length, more than half of abdomen width, not fused to epigastric scutum (fig. 1), middle surface smooth, sides smooth, anterior half without projecting denticles. Epigastric scutum weakly sclerotized, surrounding pedicel, not protruding, small lateral sclerites absent, without lateral joints in females. Postepigastric scutum weakly sclerotized, short, only around epigastric furrow in females, longer, fused to epigastric scutum in males, anterior margin unmodified, with posteriorly directed lateral apodemes only in some females. Spinneret scutum present, incomplete ring, with fringe of stout setae. Supraanal scutum absent. Dorsal, epigastric, postepigastric setae dark, needlelike. Dense patch of setae anterior to spinnerets absent; interscutal membrane with setae. Spinnerets (scanned in *T. stenaspis* and *T. ibadan*): anterior, posterior laterals bisegmented, PMS unisegmented (figs. 12, 92, 122); anterior laterals with one major ampullate gland and three piriform gland spigots in males (fig. 93), two or three in females (figs. 13, 123), posterior medians with two spigots in males (fig. 94), five in females (figs. 14, 124), posterior laterals with four spigots in males (fig. 95), six or seven in females (figs. 15, 125); colulus represented at least by pair of setae. **Legs:** Femur IV not thickened, same size as femora I–III; patella I elongated, measured dorsally, almost as long as tibia I (figs. 16, 17), other patellae also elongated but less dramatically (fig. 18); patella plus tibia I about as long as carapace; tibia I unmodified, tibia IV without ventral scopula or specialized hairs on ventral apex, metatarsi I, II mesoapical comb absent, metatarsi III, IV weak ventral scopula absent. Leg spines present on patella I (and sometimes II), tibia I, II, IV, spines longer than segment width. Superior tarsal claws (scanned in *T. stenaspis* and *T. ibadan*) with three or four large, basally situated teeth on outer surface, those of legs I, II with several smaller, distally situated teeth on inner surface, those of legs III with fewer, larger teeth on inner surface, those of legs IV elongated, with only one large tooth (or none) on inner surface (figs. 19–26, 96–99); claws on legs III, IV accompanied by modified setae with clawlike tips (figs. 21, 22, 25, 26, 98, 99); inferior claw absent. Trichobothrial base ridged (fig. 27). Tarsal organ with three receptors on legs I, II, two receptors on legs III, IV, palps (figs. 100–104; Platnick et al., 2012a: figs. 11–15). **Genitalia:** Male epigastric region with sperm pore small, oval, situated between anterior and posterior spiracles, unmodified (fig. 91); furrow without Ω -shaped insertions or setae. Male palp of normal size, not strongly sclerotized, right and left palps symmetrical; embolus light, prolateral excavation absent; 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, with group of prolateral leaf-shaped setae (figs. 74, 107); tibial trichobothria not examined; cymbium narrow in dorsal view, fused with bulb proximally but with clearly defined seam between, extending beyond distal tip of bulb, plumose, stout setae absent but distal patch of setae present; bulb shorter than cymbium, slender, elongated; embolus a short, simple process (figs. 105, 106). Female genitalia



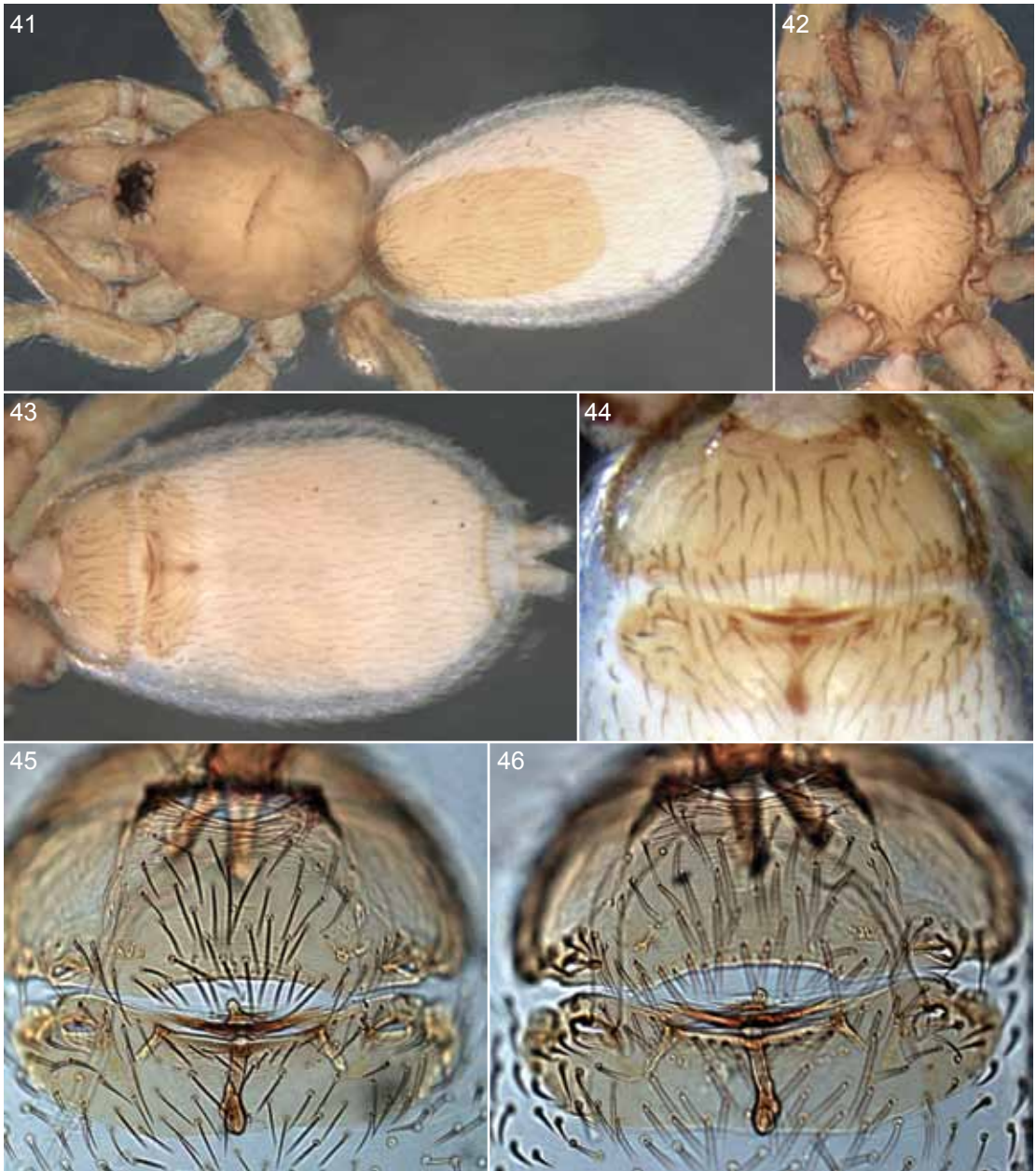
FIGURES 1–15. *Triaeris stenaspis* Simon, female. 1. Habitus, dorsal view. 2. Carapace, dorsal view. 3. Same, lateral view. 4. Same, anterior view. 5. Sternum, ventral view. 6. Chelicerae, anterior view. 7. Same, posterior view. 8. Mouthparts, ventral view. 9. Labrum and endites, dorsal view. 10. Serrula, dorsal view. 11. Pedicel area, ventral view. 12. Spinnerets, apical view. 13. Anterior lateral spinneret, same. 14. Posterior median spinneret, same. 15. Posterior lateral spinneret, same.



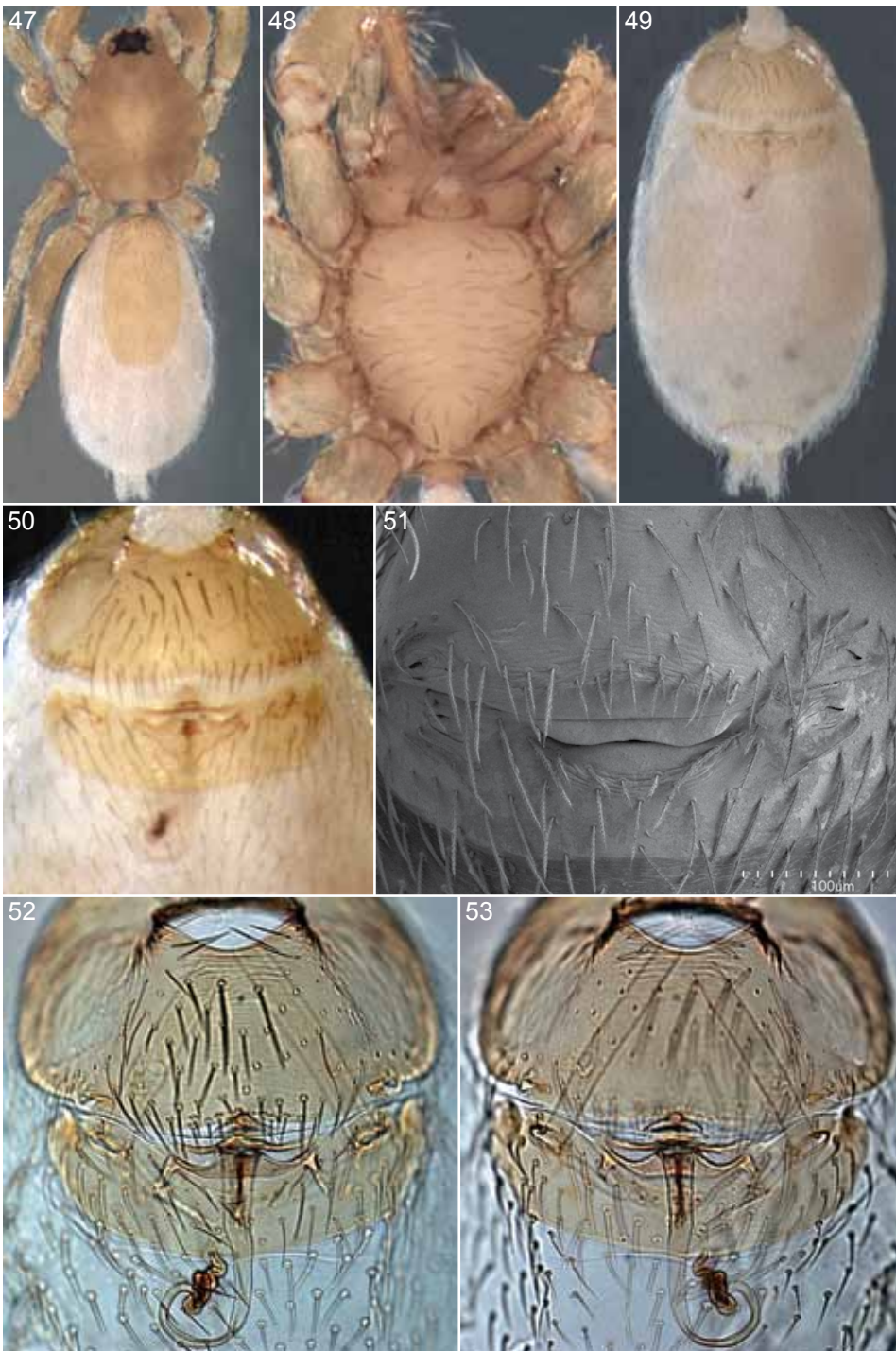
FIGURES 16–30. *Triaeris stenaspis* Simon, female. **16.** Leg I, prolateral view. **17.** Patella and tibia I, same. **18.** Leg II, same. **19.** Claws of leg I, distal view. **20.** Same, leg II. **21.** Same, leg III. **22.** Same, leg IV. **23.** Claws of leg I, lateral view. **24.** Same, leg II. **25.** Same, leg III. **26.** Same, leg IV. **27.** Trichobothrial base from metatarsus I, dorsal view. **28.** Palp, prolateral view. **29.** Same, retrolateral view. **30.** Palpal tibia, dorsal view.



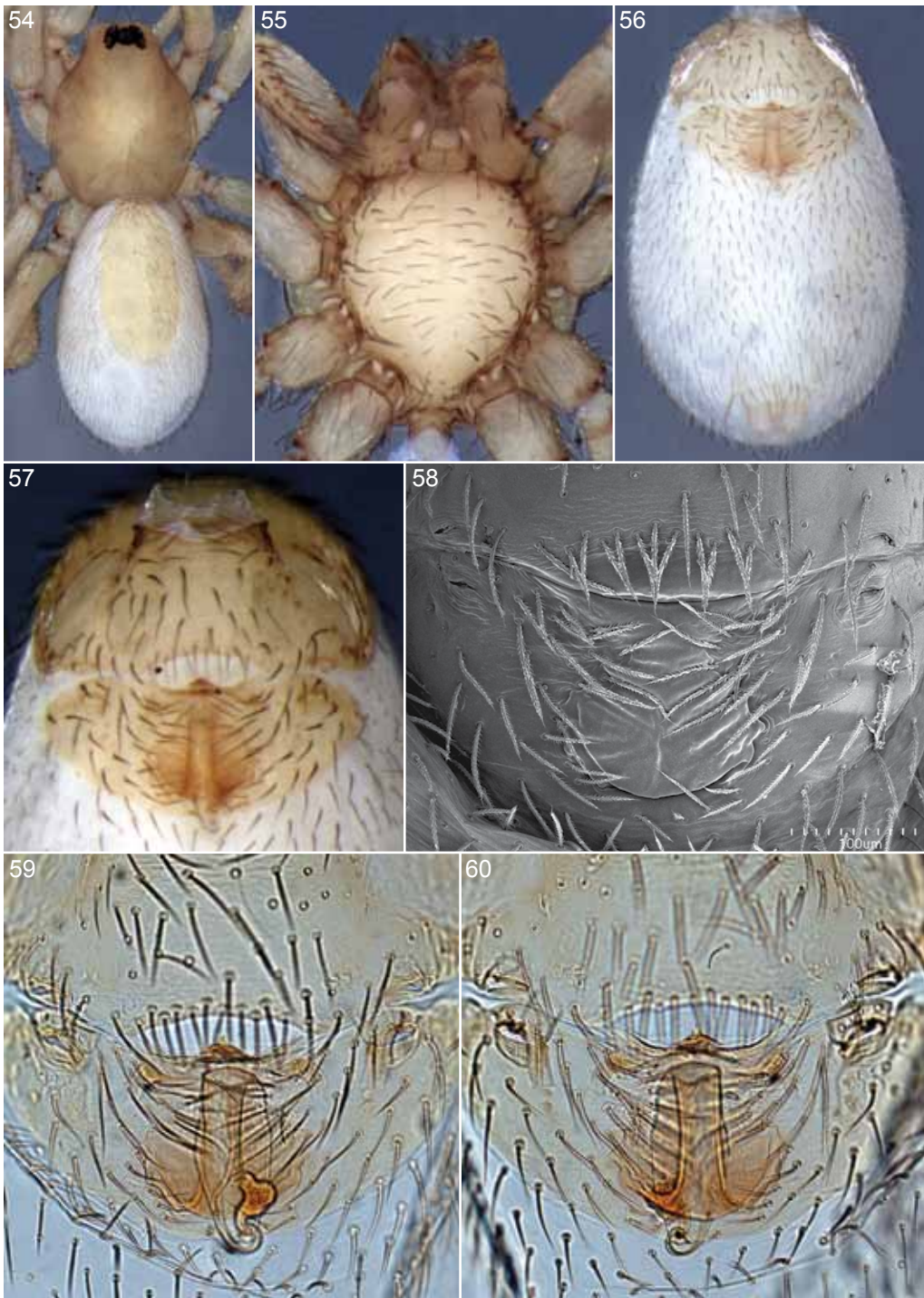
FIGURES 31–40. *Triaeris stenaspis* Simon, female. 31. Postepigastric scutum, ventral view. 32. Same, posterior view. 33. Internal female genitalia, dorsal view. 34. Carapace, dorsal view. 35. Abdomen, dorsal view. 36. Sternum, ventral view. 37. Leg I, prolateral view. 38, 39. Genital area, ventral view. 40. Same, dorsal view (figs. 37, 38 taken by Cristina Rheims).



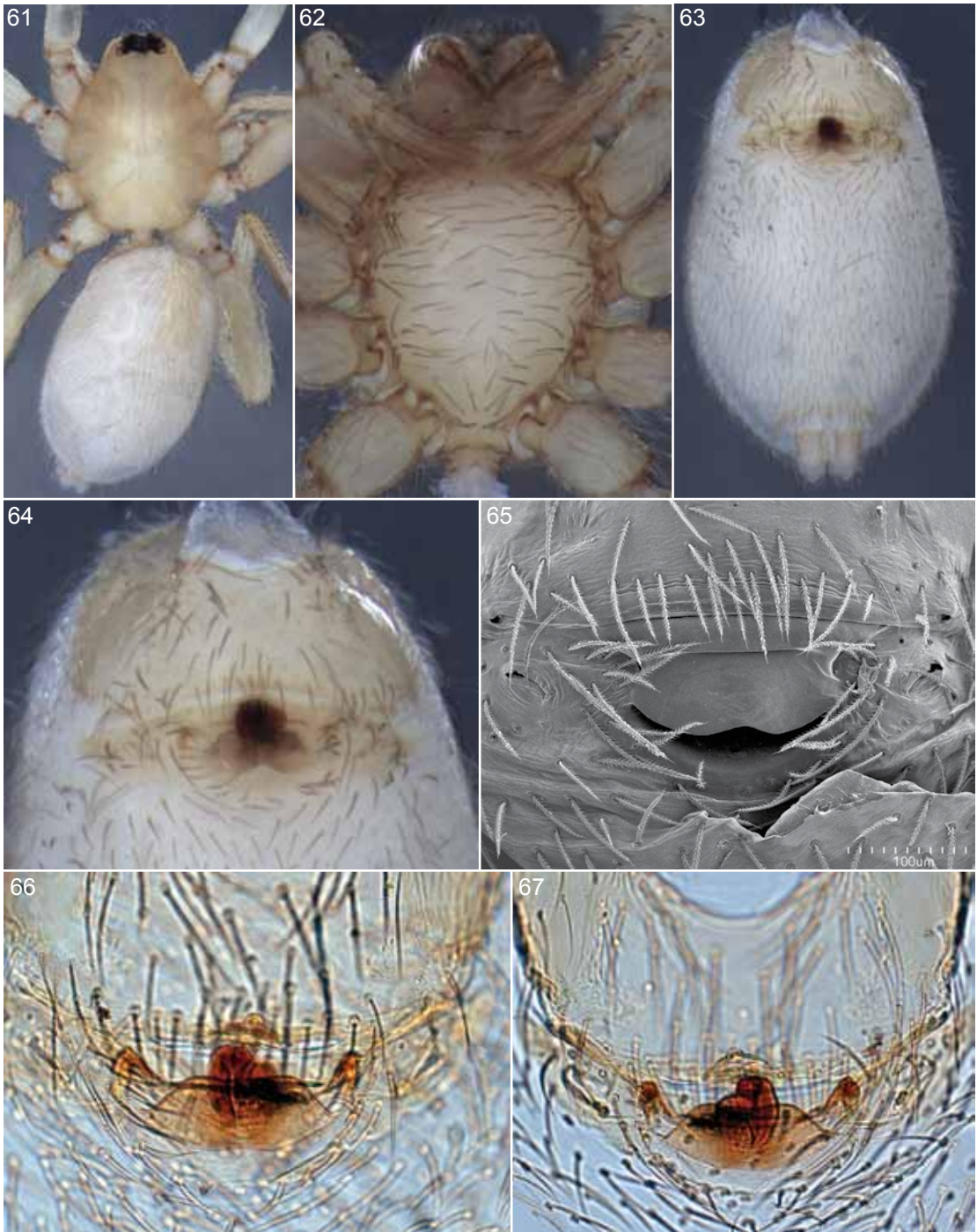
FIGURES 41–46. *Triaeris moca*, new species, female. 41. Habitus, dorsal view. 42. Sternum and mouthparts, ventral view. 43. Abdomen, ventral view. 44, 45. Epigastric area, ventral view. 46. Same, dorsal view.



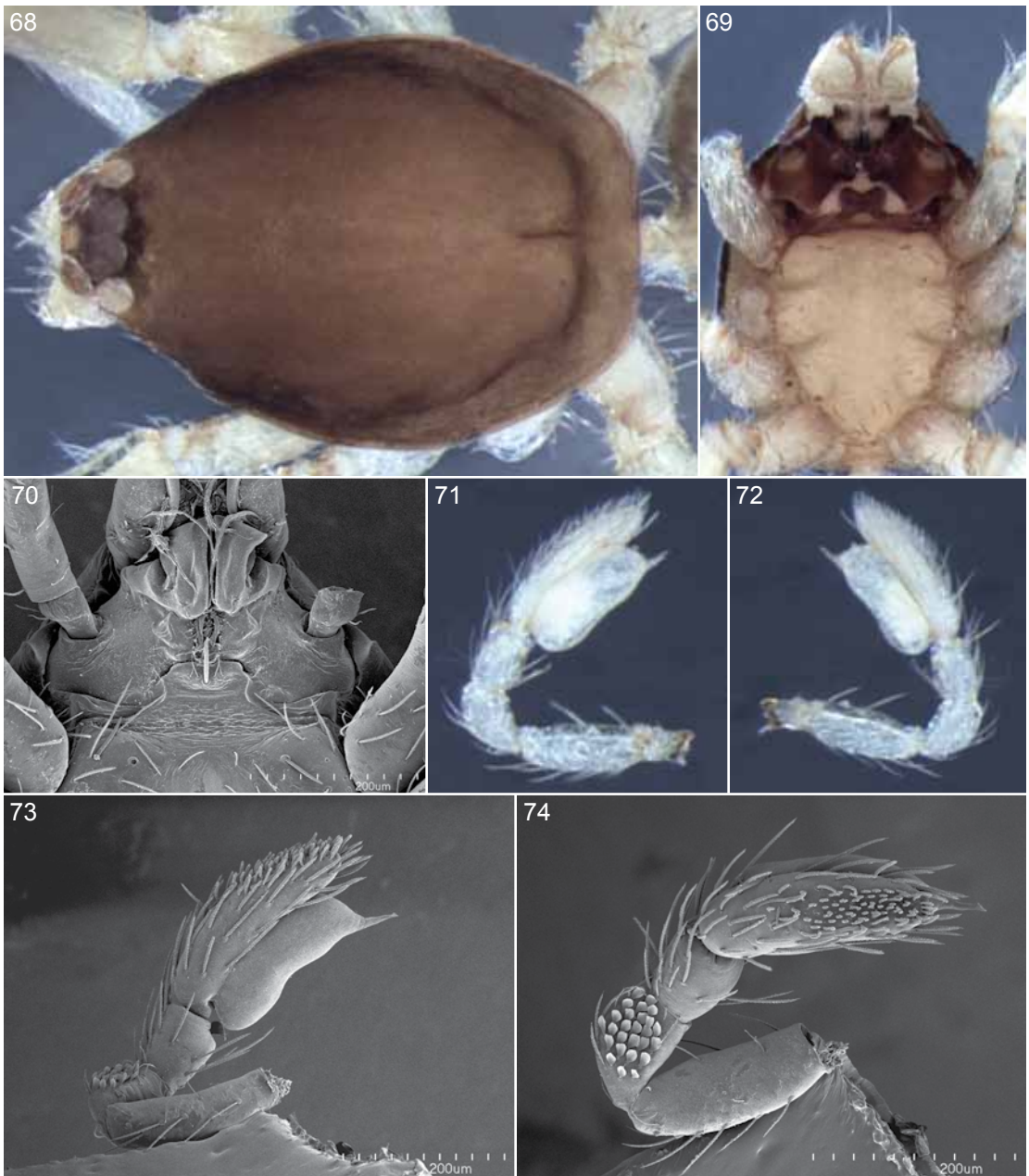
FIGURES 47–53. *Triaeris fako*, new species, female. 47. Habitus, dorsal view. 48. Sternum and mouthparts, ventral view. 49. Abdomen, ventral view. 50–52. Epigastric area, ventral view. 53. Same, dorsal view.



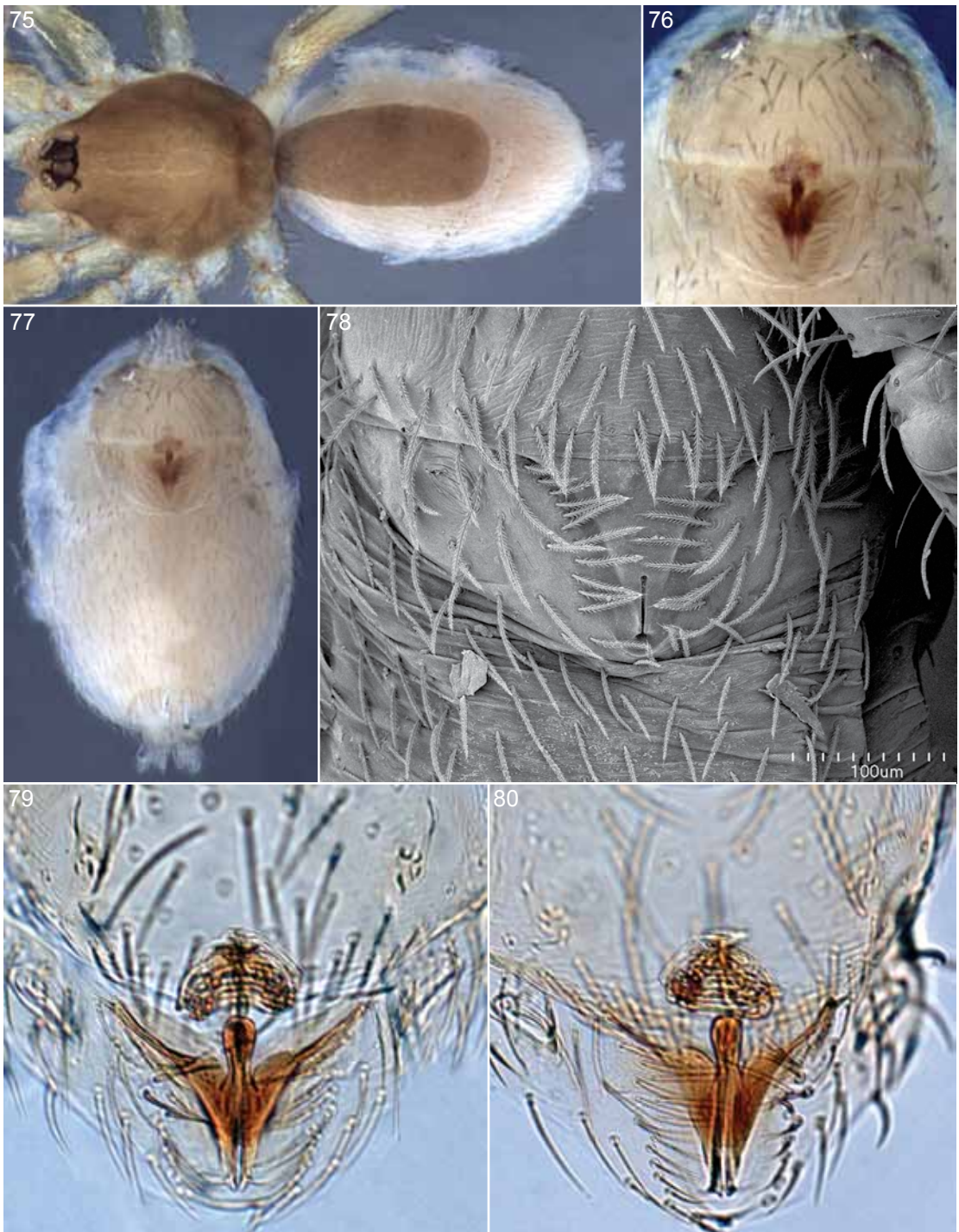
FIGURES 54–60. *Triaeris oku*, new species, female. 54. Habitus, dorsal view. 55. Sternum and mouthparts, ventral view. 56. Abdomen, ventral view. 57–59. Epigastric area, ventral view. 60. Same, dorsal view.



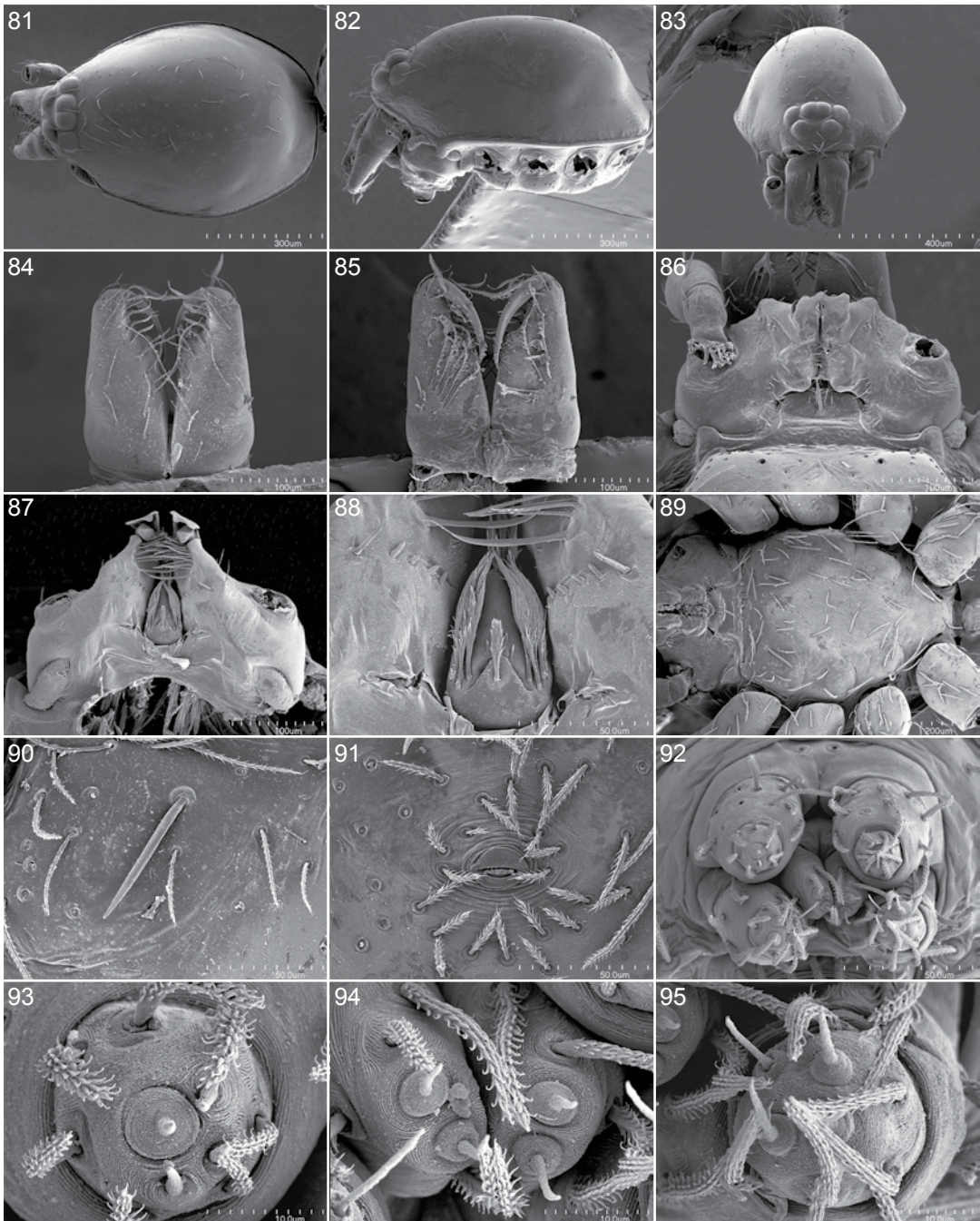
FIGURES 61–67. *Triaeris menchum*, new species, female. **61.** Habitus, dorsal view. **62.** Sternum and mouth-parts, ventral view. **63.** Abdomen, ventral view. **64–66.** Epigastric area, ventral view. **67.** Same, dorsal view.



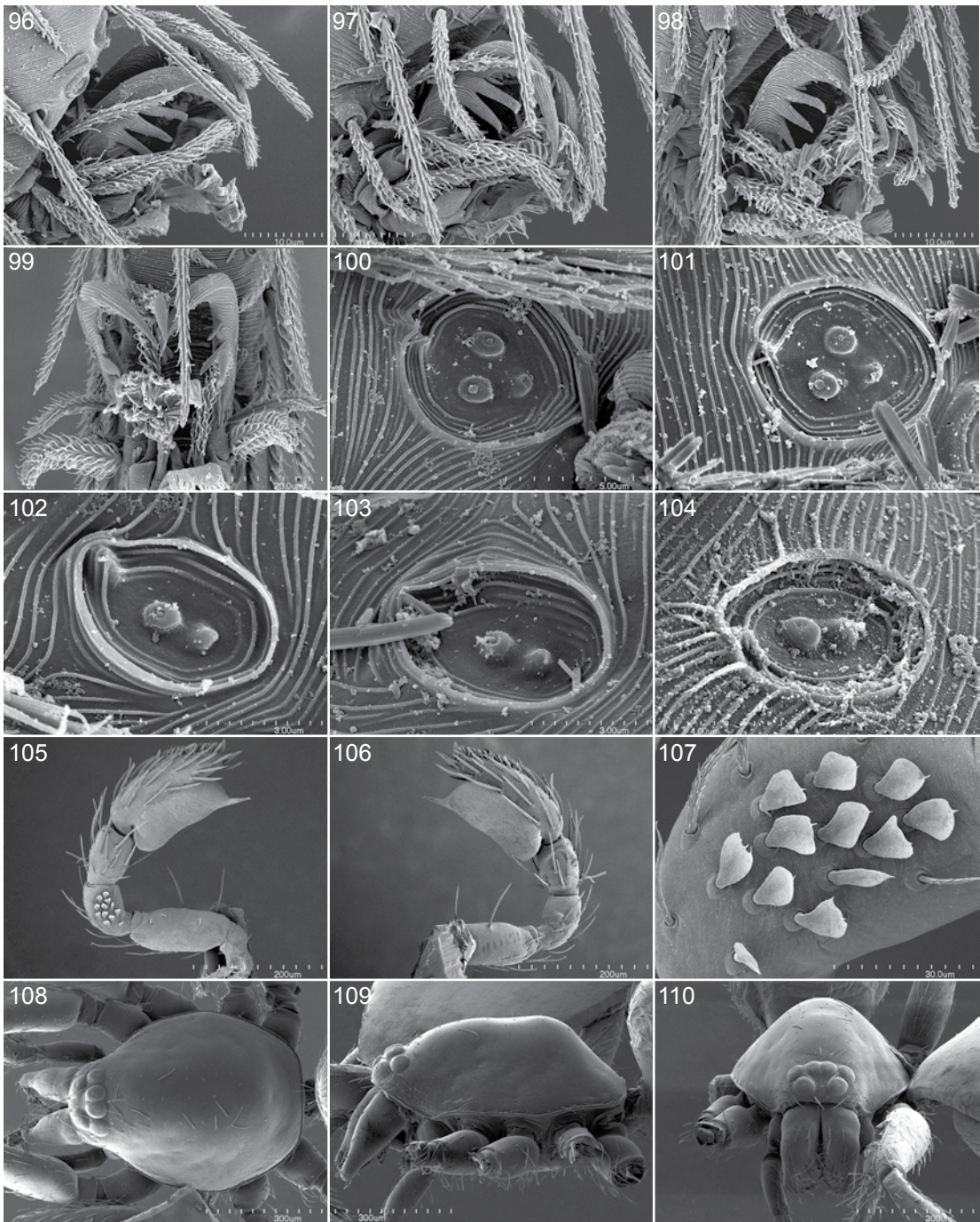
FIGURES 68–74. *Triaeris togo*, new species, male. **68.** Carapace, dorsal view. **69.** Sternum and mouthparts, ventral view. **70.** Labium and endites, ventral view. **71, 73, 74.** Left palp, prolateral view. **72.** Same, retrolateral view.



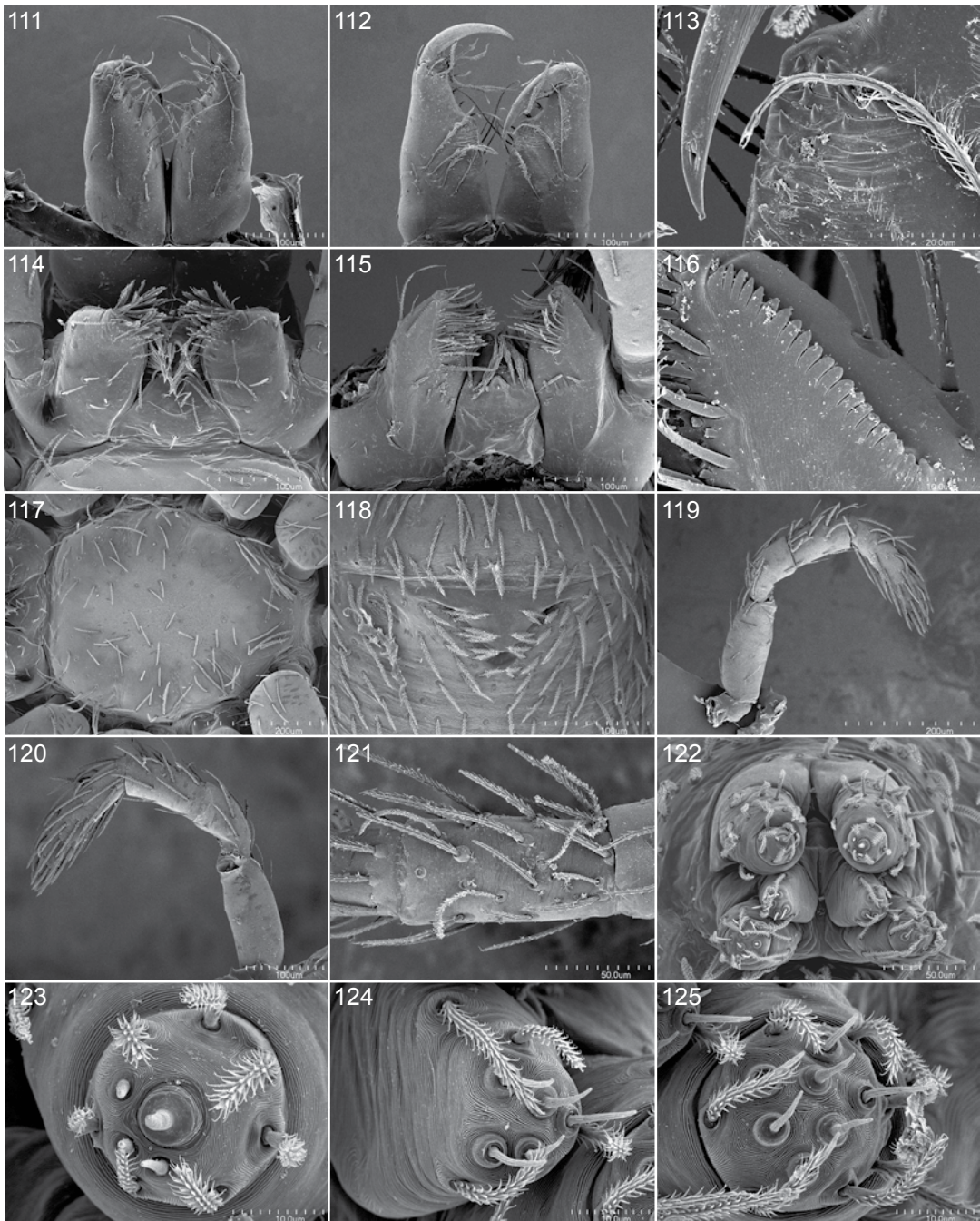
FIGURES 75–80. *Triaeris togo*, new species, female. 75. Habitus, dorsal view. 76, 78, 79. Epigastric area, ventral view. 77. Abdomen, ventral view. 80. Epigastric area, dorsal view.



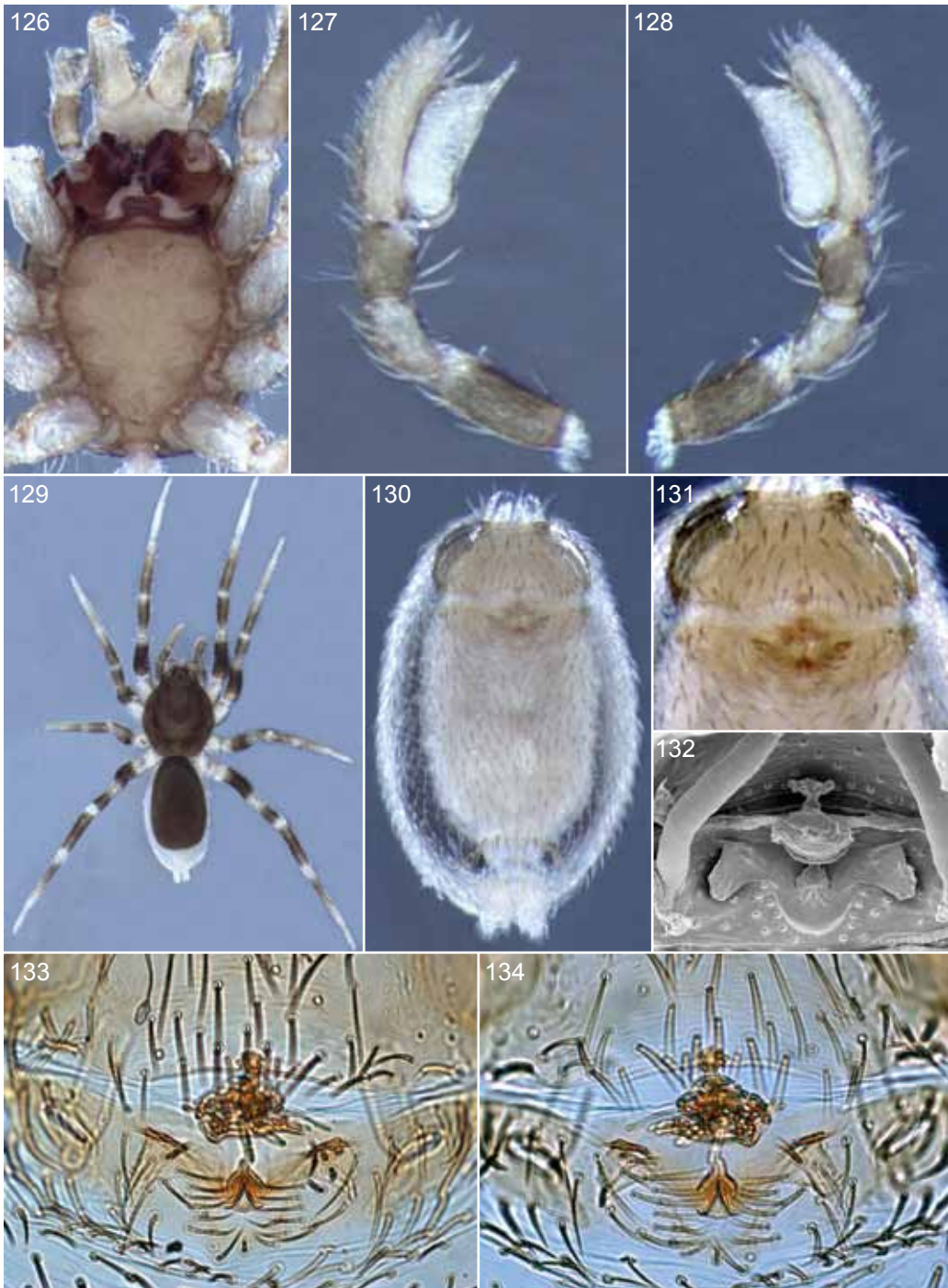
FIGURES 81–95. *Triaeris ibadan*, new species, male. **81.** Carapace, dorsal view. **82.** Same, lateral view. **83.** Same, anterior view. **84.** Chelicerae, anterior view. **85.** Same, posterior view. **86.** Labium and endites, ventral view. **87.** Labrum and endites, dorsal view. **88.** Labrum, dorsal view. **89.** Sternum, ventral view. **90.** Enlarged seta on sternum, ventral view. **91.** Sperm pore, ventral view. **92.** Spinnerets, apical view. **93.** Anterior lateral spinneret, same. **94.** Posterior median spinneret, same. **95.** Posterior lateral spinneret, same.



FIGURES 96–110. *Triaeris ibadan*, new species, male (96–107) and female (108–110). **96.** Claws of leg I, lateral view. **97.** Same, leg II. **98.** Same, leg III. **99.** Claws of leg IV, distal view. **100.** Tarsal organ from leg I, dorsal view. **101.** Same, leg II. **102.** Same, leg III. **103.** Same, leg IV. **104.** Same, palp. **105.** Left palp, proteral view. **106.** Same, retrolateral view. **107.** Palpal patella, proteral view. **108.** Carapace, dorsal view. **109.** Same, lateral view. **110.** Same, anterior view.



FIGURES 111–125. *Triaeris ibadan*, new species, female. 111. Chelicerae, anterior view. 112. Same, posterior view. 113. Cheliceral retromargin, posterior view. 114. Labium and endites, ventral view. 115. Labrum and endites, dorsal view. 116. Serrula, dorsal view. 117. Sternum, ventral view. 118. Epigastric area, ventral view. 119. Palp, prolateral view. 120. Same, retrolateral view. 121. Palpal tibia, dorsal view. 122. Spinnerets, apical view. 123. Anterior lateral spinneret, same. 124. Posterior median spinneret, same. 125. Posterior lateral spinneret, same.



FIGURES 126–134. *Triaeris ibadan*, new species, male (126–128) and female (129–134). **126.** Sternum and mouthparts, ventral view. **127.** Left palp, prolateral view. **128.** Same, retrolateral view. **129.** Habitus, dorsal view. **130.** Abdomen, ventral view. **131, 133.** Epigastric area, ventral view. **132, 134.** Internal genitalia, dorsal view.

complex, posterior elements hypertrophied, involving external modifications of postepigastric scutum (figs. 31, 32, 118), anterior receptaculum relatively small (fig. 33).

DISTRIBUTION: Aside from the pantropical type species, the genus is known only from West Africa.

INCLUDED SPECIES: Of the various names currently assigned to *Triaeris* (see Platnick, 2012, for a listing), only *T. stenaspis* and its synonyms actually belong to the genus. Of the other African species, *T. equestris* (from Príncipe) belongs to a different genus in the *Triaeris* subgroup, whereas *T. macrophthalmus* (from Kenya and Zanzibar) belongs to a different genus in the *Zyngoonops* group. The various taxa from outside of Africa are wildly misplaced.

Key to Species

1. Males (known only in *T. togo* and *T. ibadan*).....2
 - Females.....3
2. Legs and palps patterned (fig. 129); palpal patella with relatively few leaf-shaped setae (fig. 107).....*ibadan*
 - Legs and palps without color pattern; palpal patella with many leaf-shaped setae (fig. 74).
.....*togo*
3. Posterior receptaculum a wide triangle (figs. 33, 39, 40).....*stenaspis*
 - Posterior receptaculum otherwise.....4
4. Posterior receptaculum long, narrow throughout its length (figs. 46, 53).....5
 - Posterior receptaculum otherwise.....6
5. Posterior receptaculum with long, squiggled posterior duct (figs. 52, 53).....*fako*
 - Posterior receptaculum with short posterior duct (figs. 45, 46).....*moca*
6. Posterior receptaculum with darkened, parallel sides (figs. 57, 59).....*oku*
 - Posterior receptaculum otherwise.....7
7. Posterior receptaculum with leaf-shaped sides (figs. 64, 66).....*menchum*
 - Posterior receptaculum otherwise.....8
8. Legs patterned (fig. 129); posterior receptaculum with triangular posterior invagination (figs. 133, 134).....*ibadan*
 - Legs without color pattern; posterior receptaculum with median, external slit (figs. 76–80)..
.....*togo*

Triaeris stenaspis Simon

Figures 1–40

Triaeris stenaspis Simon, 1891: 561 (female syntype from Saint Vincent, in MNHN, examined; other female syntypes in Natural History Museum, London, examined by A. Chickering). – Jackson, 1909: 419, pl. 10, figs. 12, 12a, b. – O. P.-Cambridge, 1909: 100, pl. A, figs. 1–3. – Bristowe, 1948: 890, figs. 10–14. – Chickering, 1968: 358, figs. 14–18. – Miller and Žitňanská, 1976: 82, pl. II, f. 1–6. – Dumitresco and Georgesco, 1983: 99, pl. 19, 20. – Heimer and Nentwig, 1991: 52, fig. 111. – Korenko et al., 2007: 6, figs. 4–8. – Burger, 2009: 343, figs. 6–10, 23A, B.

Triaeris patellaris Bryant, 1940: 268, fig. 4 (female holotype from Soledad, Cienfuegos, Cuba, in MCZ; examined). – Chickering, 1951: 243, fig. 31. First synonymized by Chickering, 1968.

Triaeris berlandi Lawrence, 1952: 5, figs. 3a–f (female holotype from Thysville [= Mbanza-Ngungu], DR Congo, in MRAC; examined). NEW SYNONYMY.

Triaeris lepus Suman, 1965: 235, figs. 27–31 (female holotype from Puu Papaa Peak, Kaneohe, Oahu, Hawaii, in Bishop Museum; not examined). NEW SYNONYMY.

Triaeris lacandona Brignoli, 1974: 208, figs. 4A–F (female holotype from Cueva de Yaxchilán, Petén, Guatemala, depository unknown; not examined). – Brignoli, 1975: 34, figs. 1H, J. NEW SYNONYMY.

DIAGNOSIS: Females can easily be recognized by their complex genitalia, which occupy most of the postepigastric scutum; externally there is a median longitudinal slit (figs. 31, 32), internally there is a large, triangular posterior receptaculum with a distally squiggled duct (figs. 33, 38–40).

MALE: Unknown.

FEMALE (PBI_OON 10511, figs. 1–40): Total length 1.47. Carapace pale orange, sides finely reticulate. ALE largest, separated by their radius to diameter; posterior eye row procurved from front. Sternum, mouthparts pale orange. Dorsal scutum pale orange, covering more than 3/4 of abdomen, more than half to most of abdomen width. Postepigastric scutum pale orange, with posteriorly directed lateral apodemes represented only by wide flanges. Legs pale orange, without color pattern. Leg spination: patella I v1p-1r-1p; tibiae: I v2-4-0; II v1p-1p-0; IV v0-0-1p. Ovoid atrium present between medially invaginated edges of epigastric and postepigastric scuta, that atrium with transverse sclerotization anterior of narrower, longitudinal sclerotization; posterior receptaculum squiggled.

MATERIAL EXAMINED: NORTH AMERICA: **United States:** *Florida:* Dade Co.: Chekika State Recreation Area, 50 km SW Miami, July 28, 1985, hammock forest litter (S., J. Peck, AMNH PBI_OON 1033), 4 ♀; Deering Estate Park, SW 167 Street and SW 72 Ave., South Miami, July 26–Dec. 11, 1986, old hammock, malaise flight intercept trap (S., J. Peck, AMNH PBI_OON 1042), 1 ♀, Dec. 9, 1986, forest litter (Klimaszewski, S. Peck, AMNH PBI_OON 1031), 1 ♀; Everglades National Park, Aug. 27, 1965, swamp with gumbo-limbo (W. Suter, FMNH 34794, PBI_OON 10511), 22 ♀; Key Biscayne, Aug. 15, 1974 (V. Brach, MCZ 70477, PBI_OON 27401), 3 ♀; Matheson Hammock, S Miami, Aug. 27, 1986, Berlese, oak hammock forest litter (S., J. Peck, AMNH PBI_OON 1037), 1 ♀; Palma Vista Hammock, Everglades National Park, Mar. 29, 1967, Berlese, dry litter at log (W. Suter, FMNH 71720, PBI_OON 43488), 2 ♀; July 1981, malaise trough (S. Peck, CNC PBI_OON 38174), 17 ♀; Royal Palm Hammock, Everglades National Park, July 28, 1985, hammock forest litter (S., J. Peck, AMNH PBI_OON 1030), 13 ♀; 1.5 km NW Royal Palm, Nov. 15, 1985–Feb. 24, 1986, malaise flight intercept trap, trough, hardwood hammock forest (S., J. Peck, AMNH PBI_OON 37299), 3 ♀. Highlands Co.: Archbold Biological Station, Dec. 19, 1962 (W. Ivie, AMNH PBI_OON 1035), 12 ♀, June 28, 1978, pine litter, elev. 20 m (J., F. Murphy, AMNH PBI_OON 36798), 3 ♀, July 3, 1978, litter, elev. 20 m (J., F. Murphy, AMNH PBI_OON 36800), 10 ♀, July 4, 1978, litter, hilltop, elev. 40 m (J., F. Murphy, AMNH PBI_OON 36799), 1 ♀, Oct. 30, 1982, base of dead laurel oak (M. Deyrup, AMNH PBI_OON 27513), 2 ♀. Lee Co.: Fort Myers, Jan. 26, 1934 (W. Barrows, AMNH PBI_OON 37305), 1 ♀, winter 1934 (W. Barrows, AMNH PBI_OON 37310), 1 ♀. Monroe Co.: Stock Island, Dec. 17, 1986, botanical garden leaf litter (Klimaszewski, S. Peck, AMNH PBI_OON 1029), 1 ♀. **Mexico:** *Campeche:* El Tormento, 6 km W Escárcega, July 23, 1983, Berlese, fungi and litter, evergreen tropical forest, elev. 110 m (S., J. Peck, AMNH PBI_OON 1010), 1 ♀; Grutas de San Antonio, 10 km ENE Bolonchen, Nov. 23–24, 1974 (J. Reddell, D. McKenzie, S. Wiley, AMNH PBI_OON 49420), 1 ♀; Grutas Xtachumbilxunán, Bolonchenticul, Dec. 24, 1994 (P. Sprouse,

TMM 31334, PBI_OON 49429), 1 ♀. *Chiapas*: Finca Santa Marta, near Huehuetán, July 31–Aug. 1, 1950 (C., M. Goodnight, AMNH PBI_OON 127, 130), 2 ♀; Palenque, Mar. 2–24, 1975, Berlese (C. Alteri, AMNH PBI_OON 37309), 1 ♀; Tecoja, July 2, 1950 (C., M. Goodnight, L. Stannard, AMNH PBI_OON 146), 2 ♀. *Colima*: Las Humedades, Armería, Jan. 19, 1943 (F. Bonet, AMNH PBI_OON 164), 1 ♀. *Guerro*: Río Blanco, Colotlipa, Jan. 18, 1941 (F. Bonet, AMNH PBI_OON 166), 1 ♀; Cerro Ayotzinapa, Jan. 12, 1941, litter (AMNH PBI_OON 162), 1 ♀; Grutas de Cacahuamilpa, Apr. 16, 1981 (P. Strinati, MHNG PBI_OON 15599), 1 ♀; La Azul, 18°35'N, 99°33'W, May 3, 1963 (W. Gertsch, W. Ivie, AMNH PBI_OON 159, 163), 3 ♀; Petaquillas, Dec. 29, 1943 (F. Bonet, AMNH PBI_OON 152), 3 ♀; km 100, road to Taxco, Aug. 10, 1946 (C. Goodnight, Bolívar, F. Bonet, AMNH PBI_OON 185), 1 ♀. *Oaxaca*: Cueva del Lencho Virgen, 10 km SW Acatlán, June 2–3, 1974 (J. Reddell, R. Jameson, D. McKenzie, W. Elliott, AMNH PBI_OON 1011), 1 ♀. *San Luis Potosí*: Covadonga, WSW Valles, 21°57'N, 99°05'W, Aug. 16, 1964 (J., W. Ivie, AMNH PBI_OON 183), 1 ♀; Cueva de Los Sabinos, 8 mi N Valles, Jan. 27, 1969 (J. Reddell, R. Smith, T. Mollhagen, T. Albert, AMNH PBI_OON 37313), 1 ♀; 3 mi W El Naranjo, 22°31'N, 99°21'W, June 25, 1973, external refuse deposit from ant nest, tropical subevergreen forest, elev. 1100 ft (A. Newton, FMNH 43139, PBI_OON 10682), 1 ♀; Route 70, 44 mi W Valles, Feb. 19, 1970, under stone by roadside (J. Cooke, AMNH PBI_OON 1013), 1 ♀; Sótano de Pichijumo, 7 mi NE Valles, Jan. 26, 1969 (J. Reddell, T. Mollhagen, T. Alvert, R. Smith, AMNH PBI_OON 37308), 1 ♀; Tamazunchale, 21°15'N, 98°47'W, July 8, 1944 (L. Davis, AMNH PBI_OON 157), 2 ♀, Apr. 19, 1963 (W. Gertsch, W. Ivie, AMNH PBI_OON 145), 1 ♀, Aug. 17, 1964 (J., W. Ivie, AMNH PBI_OON 129, 161, 29468), 7 ♀; 1 mi SW Tamazunchale, 21°15'N, 98°49'W, July 25, 1966 (J., W. Ivie, AMNH PBI_OON 155), 15 ♀; 8 mi NNW Tamazunchale, 21°20'N, 98°50'W, Apr. 19, 1963 (W. Gertsch, W. Ivie, AMNH PBI_OON 184), 1 ♀; 7.2 km NE Xilitla, 21.42821°N, 98.94101°W, Aug. 19, 2009, sifted leaf litter, disturbed tropical moist forest, elev. 180 m (M. Branstetter, MCZ 95378, PBI_OON 49418), 1 ♀. *Tabasco*: Grutas del Cocona, Teapa, July 24, 1973 (J. Reddell, J. Rowland, AMNH PBI_OON 137), 4 ♀; surface near Grutas del Cocona, Aug. 25, 1972 (J. Cooke, R. Mitchell, Russell, AMNH PBI_OON 189), 1 ♀; Villahermosa, Nov. 23, 1944 (D. Pelaez, AMNH PBI_OON 150), 1 ♀. *Veracruz*: Atoyac, May 30, 1941 (F. Bonet, AMNH PBI_OON 21066), 1 ♀, Nov. 12, 1941 (F. Bonet, AMNH PBI_OON 21097), 1 ♀; Catemaco, Playa Azul, 18°25'N, 95°04'W, Aug. 9, 1966 (J., W. Ivie, AMNH PBI_OON 148, 153), 9 ♀; Cueva del Cabrito, La Palma, Mar. 2, 2001 (P. Sprouse, T. Whitfield, TMM 34501, PBI_OON 49430), 2 ♀; Cueva de Sala de Agua Grande, 6 mi E Yanga, Aug. 9, 1967 (J. Reddell, J. Fish, T. Evans, AMNH PBI_OON 49419), 1 ♀; Cueva de Ungurria, 20 km WSW Tezonapa, Dec. 25, 1972 (J. Reddell, D., M. McKenzie, S. Murphy, AMNH PBI_OON 37311), 1 ♀; Lago Catemaco, 18°26'N, 95°06'W, Dec. 28, 1983 (V., B. Roth, CAS 9026332, 9026334, PBI_OON 2740, 2743), 6 ♀, Feb. 12, 1984 (V., B. Roth, CAS 9026300, PBI_OON 2590), 19 ♀; Peñuela, 18°53'N, 96°48'W, Apr. 26, 1963 (W. Gertsch, W. Ivie, AMNH PBI_OON 186), 2 ♀; Potrero, June 24, 1936 (L. Davis, AMNH PBI_OON 188), 3 ♀; San Juan, 20 mi E Córdoba, July 13, 1941 (D. Bergstrom, FMNH 33614, PBI_OON 10121), 1 ♀; Tecolutla, June 1947 (M. Johnston, A. Davis, AMNH PBI_OON 136), 1 ♀; Veracruz, June 22, 1936 (L. Davis, AMNH PBI_OON 142), 3 ♀, May 31, 1941, leaf litter (AMNH PBI_OON 128), 1 ♀; 9 mi SSW Veracruz, 19°02'N, 96°12'W, Aug. 7, 1966 (J., W. Ivie, AMNH PBI_OON 143, 1014), 5 ♀. *Yucatán*: Chichén-Itzá, July 10, 1948 (C., M. Goodnight, AMNH PBI_OON 139), 2 ♀, 20°41'N, 88°33'W, Jan. 11, 1984 (V., B. Roth, CAS 9026293, PBI_OON 2583), 1 ♀. **CENTRAL AMERICA: Guatemala**: *Alta Verapaz*: Cueva Lanquín, Lanquín, Aug. 28, 1969 (S., J. Peck, AMNH PBI_OON 156), 2 ♀. *Petén*: Tikal, Jan. 9, 1974, in nest of *Eciton hamatum* (Fabricius) (D., A. Kistner, AMNH PBI_OON 1015), 1 ♀. *Retalhuleu*: Retalhuleu, June 1, 1976 (C., M. Goodnight, AMNH PBI_OON 1009), 1 ♀. **Belize**: *Cayo*: Roaring Creek, Aug. 1, 1972 (C., M. Goodnight, AMNH PBI_OON 1017), 1 ♀. **El Salvador**: *La Libertad*: 4 mi N Quezaltepeque, July 7, 1961, ant nest under trees (M. Irwin, AMNH PBI_OON 149), 1 ♀. **Honduras**: *Copán*: El Cedro, Mar. 8, 1939 (AMNH PBI_OON 1023), 1 ♀. *Lempira*: La Telegrafía, 14.76599°N, 88.24193°W, Sept. 28, 2008, under rocks in oak forest, elev. 465 m (C. Viquez, M. Branstetter, AMNH PBI_OON 38433), 4 ♀; San Marcos de Caiquín, 14.42548°N, 88.61245°W, Sept.

29, 2008, Winkler, sifted leaf litter in pine forest, elev. 1315 m (C. Viquez, M. Branstetter, AMNH PBI_OON 38436), 3 ♀. *Santa Bárbara*: San Antonio, 1 km NE Río Grande de Otoro, 14,77435°N, 88.17076°W, Sept. 28, 2008, under rocks in corn field, elev. 355 m (C. Viquez, M. Branstetter, AMNH PBI_OON 38434), 1 ♀. **Nicaragua**: *Atlántico Norte*: Musawas, Río Waspuk, Oct. 10–31, 1955 (B. Malkin, AMNH PBI_OON 37306), 1 ♀. *Estelí*: Canta Gallo, 21 km NE Condega, 13.41816°N, 86.25397°W, Aug. 10, 2008, log and leaf litter, elev. 1225 m (C. Viquez, M. Branstetter, AMNH PBI_OON 38435), 1 ♀. *Granada*: 5.5 mi NE Nandaime, Aug. 24, 1962 (G., S. Hevel, USNM PBI_OON 27901), 1 ♀; Volcán Mombacho, 11.83333°N, 85.98027°W, Dec. 6, 2007, Winkler, elev. 1130 m (C. Viquez, J. Mata, AMNH PBI_OON 37029), 1 ♀. *Matagalpa*: Finca Alvares, near bridge over Ríp Bopal, 12.7425°N, 85.82916°W, Dec. 1, 2007, riparian forest, elev. 350 m (C. Viquez, J. Mata, AMNH PBI_OON 37028), 11 ♀. **Costa Rica**: *Alajuela*: Upala, Montecristo, Apr. 13, 2007, humus (C. Viquez, INBIO PBI_OON 36982), 1 ♀. *Cartago*: Puricil, road to Parque Nacional Tapantí, 9°45'33"N, 83°49'11"W, May 8–11, 2002, coffee plantation, elev. 1500 m (M. Ramírez, INBIO PBI_OON 29677), 1 ♀; Turrialba, Aug. 13, 1965 (A. Chickering, MCZ 66841, PBI_OON 26514), 3 ♀, Mar. 25, 1967, leaf litter (W. Peck, CAS 9026299, PBI_OON 2589), 2 ♀. *Guanaacaste*: Cañas, Aug. 15, 1983, forest leaf litter, elev. 90 m (J., F. Murphy, AMNH PBI_OON 36828), 1 ♀; Parque Nacional Santa Rosa, Feb. 2009 (C. Viquez, INBIO PBI_OON 49431), 3 ♀. *Heredia*: Estación Biológico La Selva, 10°26'N, 83°59'W, Mar. 5–8, 1973, Berlese, buttress litter, dry emergent tree in cacao grove, old grass clippings, under plantings (J. Wagner, J. Kethley, FMNH 33524, 33534, 34769, 56579, PBI_OON 10031, 10041, 10486, 10794), 7 ♀; Estación Biológico La Selva, 10°26'N, 84°01'W, Nov. 1, 1993, secondary forest, elev. 50–150 m (INBIO PBI_OON 29676), 1 ♀, Mar. 1, 2002 (C. Viquez, INBIO PBI_OON 36980), 1 ♀; 11 km ESE La Virgen, 10°21'N, 84°03'W, Feb. 16–18, 2004, elev. 250–350 m (INBIO PBI_OON 31126–31128), 3 ♀; Finca La Tigre, near La Virgen, 10°24'N, 84°70'W, Nov. 2, 1980 (A. Young, AMNH PBI_OON 49437), 1 ♀; Horente, Sept. 2010, in house (C. Viquez, INBIO PBI_OON 49433), 2 ♀; Parque Municipal Nacimiento, 9°58'57"N, 84°10'48"W, Jan. 27–28, 2010, humus, elev. 950 m (C. Viquez, B. Hernandez, A. Solis, INBIO PBI_OON 49432), 1 ♀; San Joaquín, July 6, 1997, humus (C. Viquez, INBIO PBI_OON 36981), 1 ♀. *Limón*: 5.5 km E Guápiles, May 14–16, 1987, tropical wet forest litter, elev. 200 m (D. Ubick, CDU PBI_OON 3607), 2 ♀; 9.5 km E Guápiles, May 9, 1987, tropical wet forest litter, elev. 200 m (D. Ubick, CDU PBI_OON 3608), 1 ♀; Parque Nacional Tortuguero, wet secondary forest (Apr. 17–23, 1983, CDU PBI_OON 3606), 11 ♀. *Puntarenas*: Estación Biológico Las Cruces, Aug. 3, 2005, under trunks in forest (L. Armas, C. Viquez, AMNH PBI_OON 38418), 1 ♀; Bahía Chatham, Isla del Coco, Mar. 8, 1964 (R. Schuster, CAS 9026295, PBI_OON 2585), 3 ♀; Quizarrá, 6 km E San Isidro, May 1989, elev. 750 m (W. Eberhard, MCZ 72954, PBI_OON 29422), 1 ♀. *San José*: San José (E. Schmidt, AMNH PBI_OON 165), 3 ♀. **Panama**: *Bocas del Toro*: Almirante, trail to dam on Nigua Creek, Mar. 25, 1959, Berlese, slit tree hole six ft from ground (H. Dybas, FMNH 33897, PBI_OON 10399), 1 ♀, Berlese, bark from log (H. Dybas, FMNH 33883, PBI_OON 10385), 1 ♀. *Chiriquí*: 2 km S Cuernavaca camp, Rincón valley, Jan. 16, 1981, damp litter between rock and log, elev. 750 m (W. Suter, FMNH 33625, PBI_OON 10133), 2 ♀, treehole-like litter, base of riddled tree (W. Suter, FMNH 33628, PBI_OON 10136), 2 ♀; W Cuernavaca camp, Quebrada Laguna headwaters, Jan. 25, 1981, core, rotted century plant, elev. 875 m (W. Suter, FMNH 33694, PBI_OON 10196), 4 ♀; SW Escopeta along Río San Félix, Jan. 19, 1981, litter of downed banana core, elev. 730 m (W. Suter, FMNH 33636, PBI_OON 10138), 4 ♀. *Colón*: Gamboa, Jan. 28, 1958 (A. Chickering, MCZ 71470, PBI_OON 26520), 1 ♀; Parque Nacional Soberania, Pipeline Road, 0.5 km S Río Frijolito, 9.14792°N, 79.72908°W, Jan. 1, 2008, rainforest litter (M. Draney et al., FMNH 34883, PBI_OON 10596. 37842), 3 ♀; Río Frijoles, 4 mi NW Gamboa, Feb. 19, 1976, Berlese, wet leaves and flood debris along river (A. Newton, MCZ 72904, PBI_OON 29419), 2 ♀; Santa Rosa, June 1945 (C. Michener, AMNH PBI_OON 1019), 1 ♀. *Panamá*: Cerro Campana, June 17, 1976, Berlese, cloud forest leaf litter, elev. 3200 ft (A. Newton, MCZ 72910, PBI_OON 29423), 1 ♀; Cerro Galero, July 15, 1985 (W. Eberhard, MCZ 72898, PBI_OON 29417), 1 ♀; Chilibrillo Cave, Chilibre, Feb. 7, 1959, drifted along stream in cave (H. Dybas, FMNH PBI_OON 37840), 1 ♀;

Forest Preserve, Aug. 1939 (A. Chickering, MCZ 71474, PBI_OON 26548), 1 ♀, Jan. 1958 (A. Chickering, MCZ 71473, PBI_OON 26528), 9 ♀; Isla Barro Colorado, no date (AMNH PBI_OON 1021), 1 ♀, K. Cooper (AMNH PBI_OON 37292), 1 ♀, June–Aug., no year, Berlese (J. Zetek, MCZ 71469, PBI_OON 26518), 1 ♀, July 19, 1938 (AMNH PBI_OON 37293), 1 ♀, summer 1938 (MCZ 71459, PBI_OON 27395), 1 ♀, July 1943–Mar. 1944, Berlese (J. Zetek, MCZ 71461, PBI_OON 27394), 5 ♀, June–Oct. 1946 (MCZ 71460, PBI_OON 27397), 5 ♀, July 1950 (A. Chickering, MCZ 71465, PBI_OON 26526), 1 ♀, Aug. 1950 (A. Chickering, MCZ 71468, PBI_OON 26531), 1 ♀, Nov. 1952–Mar. 1953, Berlese (J. Zetek, AMNH PBI_OON 37294), 1 ♀, July 1954 (A. Chickering, MCZ 71464, PBI_OON 26527), 4 ♀, Aug. 16, 1954 (A. Chickering, MCZ 71463, PBI_OON 26529), 3 ♀, Mar. 9, 1956, from ant colony (N. Weber, MCZ 71458, PBI_OON 27396), 1 ♀, Feb. 6, 1958 (A. Chickering, MCZ 71462, PBI_OON 26524), 1 ♀, Jan. 15, 1958 (A. Chickering, MCZ 71466, PBI_OON 26534), 1 ♀, Jan. 13, 1959, in fibrous moss on ground (H. Dybas, FMNH 33656, PBI_OON 10158), 1 ♀, Jan. 21, 1959, Berlese, debris under bark of large stump (H. Dybas, FMNH 33881, PBI_OON 10383), 1 ♀, Jan. 22, 1959, Berlese, compost (H. Dybas, FMNH PBI_OON 10430), 1 ♀, Feb. 1, 1959, Berlese, seven day old tapir dung (H. Dybas, FMNH 56499, PBI_OON 10740), 2 ♀, May 18–21, 1964 (A. Chickering, MCZ 71467, PBI_OON 26535), 7 ♀, July 1969 (T. Hlavac, J. Lawrence, AMNH PBI_OON 37075), 2 ♀, Feb. 19–Mar. 9, 1975, Berlese, leaf litter (J. Lawrence, S. Levings, MCZ 72890, PBI_OON 29420), 2 ♀, Aug. 17, 1975, Berlese, leaf litter (S. Levings, USNM PBI_OON 27896), 2 ♀, Feb. 6, 1976, Berlese, litter around rotting logs (A. Newton, MCZ 72888, 72893, PBI_OON 29424, 29425), 2 ♀, Feb. 22, 1976, Berlese, leaf litter (S. Levings, USNM PBI_OON 27894, 27900), 2 ♀, Feb. 26, 1976, *Pseudobombax* flowers (A. Newton, AMNH PBI_OON 1020), 1 ♀, May 23–30, 1976, Berlese, leaf litter (S. Levings, USNM PBI_OON 27895, 27899), 2 ♀, Jan. 30, 1977, Berlese, leaf litter (S. Levings, USNM PBI_OON 27898), 1 ♀, June 4–12, 1977, Berlese, leaf litter (S. Levings, USNM PBI_OON 27893, 27897), 3 ♀, Aug. 9–13, 1983 (NML PBI_OON 31685), 4 ♀, Dec. 31, 2007, rainforest leaf litter (M. Draney, M. Olemos, FMNH 34881, PBI_OON 10594), 1 ♀, Sept. 30, 2008, litter (A. McKenna-Foster, FMNH 44217, PBI_OON 10695), 1 ♀; Madden Dam, Feb. 12, 1958 (A. Chickering, MCZ 71472, PBI_OON 26549), 1 ♀; Pedro Miguel, Aug. 26, 1954 (A. Chickering, MCZ 71471, PBI_OON 26550), 1 ♀; Summit Park, 9°03'54"N, 79°38'57"W, Sept. 25, 2009, elev. 80 m (C. Viquez, INBIO PBI_OON 49434), 1 ♀. **WEST INDIES: Bahama Islands:** South Bimini, May 1951 (W. Gertsch, M. Cazier, AMNH PBI_OON 27491), 54 ♀, July 1951 (C., P. Vaurie, AMNH PBI_OON 37304), 2 ♀, Mar. 22–28, 1953 (A. Nadler, AMNH PBI_OON 37291, 37300), 2 ♀. **Cuba:** *Camagüey:* Hoyo de Bonet, Sierra de Cubitas, Feb. 2009 (Y. Martínez, MNH PBI_OON 49427), 5 ♀; Limones de Tuabaquey, Sierra de Cubitas, Feb. 2010, semideciduous forest, dry season (Y. Martínez, MNH PBI_OON 49428), 1 ♀. *Cienfuegos:* Soledad, Aug. 1–11, 1934 (P. Darlington, MCZ PBI_OON 190), 1 ♀ (holotype), same (MCZ 26204, PBI_OON 49413), 2 ♀ (paratypes). *Guantánamo:* Valle del Río Jojo, 20°07'35"N, 74°28'42"W, May 11, 2010, litter (N. Platnick, A. Pérez, A. Sánchez, G. Alayón, AMNH PBI_OON 49424), 2 ♀. *La Habana:* San Antonio de los Baños, May 23, 2003, humus (L. Armas, AMNH PBI_OON 38417), 2 ♀. *Pinar del Río:* Gramales, Caja de Francisco, Sierra de Masa, Oct. 29, 1999, pine forest (B. Huber, A. Pérez, AMNH PBI_OON 49411), 1 ♀, litter and under rocks (B. Huber, A. Pérez, AMNH PBI_OON 49412), 6 ♀; N Viñales, Sept. 16–22, 1913 (AMNH PBI_OON 37314), 1 ♀. *Santiago de Cuba:* Arroyo Grovert, 10 km NE Caney, 1995, leaf and log litter, elev. 300 m (S. Peck, AMNH PBI_OON 49421), 2 ♀; km 7.5, road to La Gran Piedra, 20°00'23"N, 75°40'31"W, May 8, 2010, litter (N. Platnick, A. Pérez, A. Sánchez, G. Alayón, AMNH PBI_OON 49423), 5 ♀; Providencia, Apr. 29, 2004 (A. Sánchez, BSC PBI_OON 49426), 1 ♀; 2 km W Providencia, 20°05'16"N, 75°39'33"W, May 10, 2010, litter (N. Platnick, A. Pérez, A. Sánchez, G. Alayón, AMNH PBI_OON 49425), 1 ♀; Río Juruguá, 6 km NW Siboney, Dec. 7, 1995, tree base litter, elev. 150 m (S. Peck, AMNH PBI_OON 49422), 1 ♀, Dec. 16, 1995, log and leaf litter, elev. 150 m (S. Peck, AMNH PBI_OON 71), 4 ♀. **Jamaica:** *Hanover:* Cousins Cove Cave, Oct. 28, 1973 (R. Norton, AMNH PBI_OON 154, 37295), 3 ♀. *St. Andrew:* Cane River Falls, E Kingston, May 9, 1956 (C. Hoff, MCZ 71482, PBI_OON 26519), 2 ♀; Cooper's Hill, Feb. 10, 1955 (P. Bellinger, MCZ 71481,

PBI_OON 26523), 1 ♀; Jack's Hill Road, Dec. 6, 1967 (A. Chickering, MCZ 71478, PBI_OON 26532), 1 ♀; Long Mountain, May 5, 1956 (C. Hoff, MCZ 71477, PBI_OON 26545), 3 ♀; Mona, Oct. 5, 1957 (A. Chickering, MCZ 71480, PBI_OON 26536), 1 ♀; Richards Reservoir, Mona, Nov. 27, 1957 (A. Chickering, MCZ 71479, PBI_OON 26516), 1 ♀. *St. Ann*: 3 mi S Moneague, Nov. 7, 1957 (A. Chickering, MCZ 71476, PBI_OON 26530), 1 ♀; Mt. Plenty Cave, Goshen, Aug. 20, 1974 (S. Peck, AMNH PBI_OON 37302), 1 ♀. *St. Catherine*: near August Town, May 29, 1956 (C. Hoff, MCZ 71475, PBI_OON 26543), 1 ♀; 1 mi NE Ferry, May 17, 1956, in pile of leaves (C. Hoff, MCZ 71488, PBI_OON 26552), 2 ♀; Guanaboa Vale, Nov. 28, 1957 (A. Chickering, MCZ 71484, PBI_OON 26539), 3 ♀; 2 mi W junction Red Hills Road and road to Spanishtown, Nov. 1957 (A. Chickering, MCZ 71483, PBI_OON 26546), 1 ♀; Worthy Park Cave #2, Apr. 6, 1968 (S. Peck, A. Fiske, AMNH PBI_OON 27490), 8 ♀. *Westmoreland*: Roaring River Cave, 7 mi NE Savanna-la-Mar, Aug. 29, 1974 (S. Peck, AMNH PBI_OON 37303), 4 ♀. **Hispaniola (Haiti)**: *Artibonite*: Ennery, Sept. 7, 1934 (P. Darlington, MCZ 71491, PBI_OON 26551), 2 ♀. **Hispaniola (Dominican Republic)**: *San Cristóbal*: Cuevas Ponier, Borbón, July 12, 1995 (S., J. Peck, AMNH PBI_OON 1022), 1 ♀. **Puerto Rico**: *Luquillo*: El Yunque Biological Station, Jan. 25, 1964, elev. 2100 ft (A. Chickering, MCZ 71492, PBI_OON 26544), 1 ♀. *Mayagüez*: Mayagüez, Jan. 21, 1964, leaf litter among coffee trees, Jan. 21, 1964 (A. Chickering, MCZ 71498, PBI_OON 26522), 6 ♀; Mayagüez, just E Nuclear Center, Jan. 13, 1964 (A. Chickering, MCZ 71494, PBI_OON 26537), 1 ♀; Mayagüez, University campus, Jan. 20, 1964 (A. Chickering, MCZ 71497, PBI_OON 26525), 1 ♀; Mayagüez, University farm N campus, Jan. 17, 1964 (A. Chickering, MCZ 71496, PBI_OON 26541), 3 ♀; 4.6 km E Mayagüez on Rt. 106, Jan. 19, 1964 (A. Chickering, MCZ 71495, PBI_OON 26547), 1 ♀; 5 km from Mayagüez on Rt. 106, Jan. 30, 1964 (A. Chickering, MCZ 71493, PBI_OON 26542), 7 ♀. *San Sebastián*: San Sebastián, Apr. 1963 (S. Aceuedo, AMNH PBI_OON 133), 1 ♀. **Virgin Islands**: *St. John*: Cinnamon Bay, loop trail, July 30, 1975, along wall of old bay oil still (W. Muchmore, AMNH PBI_OON 1794), 1 ♀. *St. Thomas*: no specific locality, July 1941 (C. Parsons, MCZ 71490, PBI_OON 26515), 1 ♀. *Tortola*: no specific locality, Aug. 22, 1966 (A. Chickering, MCZ 71489, PBI_OON 26517), 1 ♀. **Leeward Islands**: *Montserrat*: Spring Ghaut, May 28, 2003, leaf litter in ghaut bottom (A. Marske, AMNH PBI_OON 37074), 1 ♀. *Saba*: junction, Mt. Scenery and Bud's Hills trails, 17.6327°N, 63.2398°W, Mar. 14, 2008, beating, sifting, shrubs, elev. 670 m (J. Slowik, UAM 15561, PBI_OON 35945), 1 ♀. **Windward Islands**: *Barbados*: Turners Hall Woods, Feb. 23, 1979, Berlese, rotted logs of cabbage palm (S. Peck, FMNH PBI_OON 49441), 1 ♀. *St. Vincent*: no specific locality (MNHN 5655, PBI_OON 4741), 1 ♀ (syntype). **Trinidad and Tobago**: *Trinidad*: no specific locality (N. Weber, MCZ 71485, PBI_OON 26538), 1 ♀; Blanchisseuse, beach area, Apr. 12, 1964 (A. Chickering, MCZ 71486, PBI_OON 26540), 1 ♀; Lopinat (East) Cave (P. Brunet, AMNH PBI_OON 37307), 1 ♀; Simla, Arima Valley, Apr. 1964 (A. Chickering, MCZ 71487, PBI_OON 26533), 3 ♀. SOUTH AMERICA: **Colombia**: *Cundinamarca*: Finca Bella Vista, near Sasaima, Apr. 7, 1965, under rocks and leaves (P., D. Craig, CAS 9026298, PBI_OON 2588), 2 ♀, on highway below Finca Bella Vista, Apr. 17, 1965, under stones on steep cliff (P., D. Craig, CAS 9026294, PBI_OON 2584), 1 ♀. *Magdalena*: Tayrona Park, ca. 40 km E Santa Marta, leaf litter, Aug. 11, 1985 (H. Müller, MHNG PBI_OON 15681), 3 ♀. *Meta*: Lomalinda, Puerto Lleras, 3°18'N, 72°22'W, Mar. 1988, leaf litter (V. Roth, CAS 9026333, PBI_OON 2742), 1 ♀; Villavicencio, June 29, 1965, elev. 500 m (P., B. Wygodzinsky, AMNH PBI_OON 37315), 1 ♀. *Valle del Cauca*: 6 km SW Cali, Mar. 5, 1973, forest, elev. 1300 m (H. Levi, W. Eberhard, MCZ 72947, PBI_OON 29416), 1 ♀. **Venezuela**: *Aragua*: Cuyagua, 10 km E Ocumare, Feb. 20, 1971, Berlese, cacao pod litter (S. Peck, AMNH PBI_OON 37076), 2 ♀. *Distrito Capital*: Caracas (E. Simon, MNHN 14184, PBI_OON 4739), 8 ♀. *Guárico*: Parque Nacional Guatopo, south border, 24 km N Altigracia, June 13, 1987, leaf litter under mangos, elev. 300 m (S., J. Peck, AMNH PBI_OON 37297), 3 ♀. *Mérida*: road from La Victoria to El Vigía, Feb. 22, 1968, elev. 1100 m (P., B. Wygodzinsky, M. Cormons, AMNH PBI_OON 37301), 1 ♀. *Miranda*: Agua Blanco, Parque Nacional Guatopo, 35 km N Altigracia, May 31, 1987, ravine litter, elev. 400 m (S., J. Peck, AMNH PBI_OON 37298), 1 ♀; El Lucero, Parque Nacional Guatopo, 28 km N Altigracia, May 31–June 7, 1987, flight

intercept, ravine (S., J. Peck, AMNH PBI_OON 131), 1 ♀, June 8, 1987, rotted log litter, elev. 700 m (S., J. Peck, AMNH PBI_OON 37296), 3 ♀. **Ecuador:** *Guayas:* Milagro (H. Exline, D. Frizell, CAS 29506, PBI_OON 3631), 2 ♀. *Sucumbios:* Limoncocha, near Río Negro, Dec. 18, 1984, sifting rainforest litter 20–30 yards from edge of lake (S. Marshall, AMNH PBI_OON 144), 6 ♀. **Galápagos Islands:** *Española:* Gardner, Feb. 13, 1977, around lava blocks, elev. 20 m (W. Reeder, TMM 59883, PBI_OON 36921), 1 ♀. *Floreana:* Wittmer Well, Apr. 9, 1991, elev. 350 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16875), 3 ♀. *Isabela:* humid forest 17 km from coast, Nov. 1964, humus, elev. 250 m (N. Leleup, KBIN 16903), 6 ♀; Alemania, Jan. 22, 1977, sifted litter, from dead wood, elev. 370 m (W. Reeder, TMM 57839, 59896, PBI_OON 36915, 36924), 8 ♀, Jan. 22, 1978, sifted litter, elev. 350 m (W. Reeder, TMM 61194, PBI_OON 36917), 11 ♀; Cueva de Zuera, near Santo Tomás, May 29, 1975 (Franz, KBIN PBI_OON 16905), 1 ♀; Jaboncilla forest, Mar. 6, 1989, elev. 150 m (S. Peck, KBIN PBI_OON 16881) 1 ♀; La Torre, near Santo Tomás, May 28, 1975 (Franz, KBIN PBI_OON 16904), 1 ♀; Santo Tomás, Feb. 18–21, 1986, elev. 350 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16849, 16858), 15 ♀, Mar. 3, 1989, guava-moss litter, elev. 300 m (S. Peck, KBIN PBI_OON 16885, 16892), 12 ♀; above Santo Tomás, Jan. 19, 1978, litter of scalesia and fern, under small lava rocks, sifted from epiphytic moss, debris at base of fern clumps, elev. 480 m (W. Reeder, TMM 57841, 57850, 57867, 59879, 59881, PBI_OON 36910, 36913, 36914, 36920, 36929), 10 ♀; between Santo Tomás and El Mango, Jan. 15, 1978, sifted from decaying banana trunk, litter between mango buttresses, elev. 250 m (W. Reeder, TMM 57860, 59914, PBI_OON 36925, 36911), 4 ♀; 3 km N Santo Tomás, Mar. 11, 1989, elev. 380 m (S. Peck, KBIN PBI_OON 16894), 4 ♀; 4 km NW Santo Tomás, Mar. 14, 1989, elev. 500 m (S. Peck, KBIN PBI_OON 16891), 1 ♀; 5.5 km W Santo Tomás, Mar. 8, 1989, elev. 550 m (S. Peck, KBIN PBI_OON 16884), 15 ♀; 4 km from Villamil, Nov. 1964, swampy area (N. Leleup, KBIN 16901), 1 ♀; Volcán Cerro Azul, Feb. 24, 1986, elev. 200 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16897), 1 ♀. *Pinta:* no specific locality, July 18, 1977, sweeping, beating, dry perennial grass pampa, elev. 400 m (W. Reeder, TMM 73293, PBI_OON 49438), 2 ♀. *San Cristóbal:* no specific locality, 1974 (S. Jacquemart, KBIN 16850), 7 ♀, Mar. 31, 1985, elev. 350 m (H., I. Schatz, KBIN PBI_OON 16906), 1 ♀, Mar. 27–28, 1986, elev. 225–570 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16845, 16847, 16861–16863), 15 ♀, Mar. 2–5, 1988, highland, elev. 540 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16872), 3 ♀; Cerro San Joaquín, 12 km E Wreck Bay, Mar. 16, 1996, miconia/fern litter, elev. 550 m (S. Peck, KBIN PBI_OON 16888), 1 ♀; El Junco, Feb. 21, 1989, miconia ravine, elev. 620 m (S. Peck, KBIN PBI_OON 16910), 10 ♀; 1 km E El Junco, Feb. 14, 1989, elev. 550 m (S. Peck, KBIN PBI_OON 16890), 6 ♀, Mar. 17, 1996, miconia/tree fern litter, elev. 540 m (S. Peck, FMNH 43141, PBI_OON 10684), 17 ♀; 1 km NW El Junco, Mar. 17, 1996, miconia-tree fern litter, elev. 540 m (S. Peck, KBIN PBI_OON 16886), 8 ♀; 2 km NW El Junco, Feb. 21, 1989, miconia ravine, elev. 620 m (S. Peck, KBIN PBI_OON 16895), 9 ♀; 1 km E El Progreso, Feb. 19, 1989, elev. 370 m (S. Peck, KBIN PBI_OON 16883), 8 ♀; 1 km W El Progreso, Feb. 18, 1989, elev. 300 m (S. Peck, KBIN PBI_OON 16889), 5 ♀; 5 km E El Progreso, Mar. 13, 1989, elev. 590 m (S. Peck, KBIN PBI_OON 16896), 2 ♀; between Puerto Baquerizo and El Progreso, Mar. 4, 1982 (L. Baert, J. Maelfait, KBIN 16852), 5 ♀; La Toma, Feb. 15, 1989, miconia/tree fern litter, elev. 530 m (S. Peck, KBIN PBI_OON 16882), 5 ♀; Tres Palos area, Feb. 11, 1978, sweeping, sifting litter, dry fruits, beneath large wood chips in trail, beneath loose bark, elev. 110 m (W. Reeder, TMM 59882, 59892, 59907, 59912, PBI_OON 36916, 36919, 36922, 36926, 36928), 7 ♀, Feb. 12, 1978, from new finch nest dropped on trail, elev. 160 m (W. Reeder, TMM 57843, PBI_OON 36912), 4 ♀, Feb. 13, 1978, sifting litter, under decaying wood, elev. 150 m (W. Reeder, TMM 59891, 59895, 36927, PBI_OON 36918), 11 ♀. *Santa Cruz:* no specific locality, July 30, 1970, litter (S. Riechert, TMM 30397, PBI_OON 36923), 1 ♀, cottage, Dec. 28, 1981 (Y. Lubin, KBIN PBI_OON 16909), 1 ♀, Mar. 9, 1982, scalesia, elev. 570 m, pampa (L. Baert, J. Maelfait, KBIN 16851, 16856), 2 ♀, Feb. 15–Mar. 25, 1986, elev. 140–500 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16843, 16848, 16857, 16859, 16860, 16864, 16867–16869, 16879), 67 ♀; 2 km N Bellavista, May 14, 1985, avocado grove, elev. 360 m (S. Peck, KBIN PBI_OON 16893), 7 ♀; 4 km N Bellavista, May 3, 1996, rotted

avocado logs, elev. 350 m (S. Peck, KBIN PBI_OON 16887), 1 ♀; Caseta Occidente, Feb. 11, 1982, elev. 170 m (L. Baert, J. Maelfait, KBIN PBI_OON 16853, 16855), 47 ♀; Caseta Tortuga, Mar. 20, 1982, elev. 180 m (L. Baert, J. Maelfait, KBIN PBI_OON 16854), 18 ♀; Charles Darwin Research Station, Mar. 3, 1985 (H., I. Schatz, KBIN PBI_OON 16898), 1 ♀; Cuevas de Vargas, 5 km NE Santa Rosa, May 30, 1985, elev. 500 m (S. Peck, KBIN 16900), 1 ♀; El Mirador, June 1992, elev. 640 m (J. Palacios, KBIN PBI_OON 16899, 16907), 2 ♀; La Caseta, Tortoise Reserve, Jan. 22, 1982 (L. Endara, KBIN PBI_OON 16911), 4 ♀; Los Gemelos, Jan. 12–Apr. 4, 1988, pampa, elev. 580 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16877, 16880), 8 ♀; Media Luna, Feb. 28–Mar. 13, 1986, elev. 600 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16865), 2 ♀; Media Luna trail, Feb. 16, 1986, miconia, elev. 500 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16846), 2 ♀, Feb. 28–Mar. 13, 1986, elev. 350 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16844), 7 ♀, Feb. 15–Mar. 8, 1988, miconia, elev. 500–550 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16876, 16878, 16879), 116 ♀, Mar. 3–Apr. 4, 1989, same (KBIN PBI_OON 16873, 16874), 347 ♀; between Media Luna and Cerro Puntudo, Feb. 15–Mar. 8, 1988, elev. 750 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16871), 1 ♀. **Santiago:** no specific locality, Mar. 7, 1986, highland, elev. 870 m (L. Baert, J. Maelfait, K. Desender, KBIN PBI_OON 16908), 1 ♀. **Brazil:** *São Paulo:* Mata de Previdência, 23°34'S, 45°43'W, Dec. 12–19, 1999 (D. Candiani, IBSP 69083, PBI_OON 10912), 6 ♀ (identified by A. Brescovit and C. Rheims, confirmed from photographs). **Argentina:** *Jujuy:* Parque Nacional Calilegua, 23°44'34"S, 64°51'13"W, Oct. 20, 1994, Winkler, leaf litter around decaying trunk, transitional forest with lianas, elev. 850 m (J. Carpenter, D. Agosti, AMNH PBI_OON 37312), 3 ♀. **OLD WORLD:** **France:** *Île-de-France:* Paris, greenhouses of MNHN, 1896 (MNHN 5659, PBI_OON 49414), 3 ♀, 1914 (L. Berland, MNHN 5654, PBI_OON 49415), 1 ♀. **Ivory Coast:** *Marahoué:* Bouaflé, Jan.–Mar. 1981, pitfalls (J. Everts, MRAC 166411, 174113, 220028, PBI_OON 29149, 29180, 29182), 9 ♀; Pakodji, near Degbézéré, 15 km E Bouaflé, Jan. 15–Feb. 13, 1984, pitfalls (R. Schouten, J. Buysen, MRAC 166013, 220027, PBI_OON 29160, 29167), 2 ♀. **Ghana:** *Ashanti:* Fumesva, Oct. 1971–Oct. 1972, litter, partially cleared forest scrub (M. Usher, MRAC 223910, PBI_OON 9362), 2 ♀; Kwamekyemkrom, 6°34'N, 1°58'W, July 12, 1975, herbaceous vegetation (M. Usher, MRAC 164345, PBI_OON 9156), 1 ♀. **Nigeria:** *Borno:* Ibadan, Oct. 18, 1973, 10-year regrowth (A. Russell-Smith, MRAC 160329, PBI_OON 9256), 1 ♀, Mar. 23, 1974, riverine woodland (A. Russell-Smith, MRAC 223919, PBI_OON 9213), 1 ♀, Apr. 15, 1974, pitfall, riverine forest (A. Russell-Smith, MRAC 160327, PBI_OON 9291), 1 ♀. **Equatorial Guinea:** Micomeseng, July 8–13, 1989, pitfall (M. Alderweireldt, MRAC 170189, PBI_OON 29133), 1 ♀. **Gabon:** *Estuaire:* Ntoum, July 1985, forest litter (A. Pauly, MRAC 220029, PBI_OON 29075), 1 ♀. **DR Congo:** Fuko River, near Rutshuru, Jan. 12, 1955, elev. 1300 m (G. De Witte, MRAC 220024, PBI_OON 29189), 2 ♀; Kibali, Ituri, Epulu, 1954, subterranean ant nest (N. Leleup, MRAC 224172, PBI_OON 9193), 4 ♀; Kivu, valley of Upper Semliki, Aug. 16, 1968, humus (M. Lejeune, MRAC 135615, PBI_OON 29184), 2 ♀; Nyabikere, near Rutshuru, June 13, 1955, elev. 1160 m (G. De Witte, MRAC 220025, PBI_OON 29158), 1 ♀; Thysville [= Mbanza-Ngungu], Aug. 18, 1949, cave entrance (N. Leleup, MRAC 81210, PBI_OON 29129), 1 ♀ (holotype). **Uganda:** Busaga district, Feb. 1967, gallery forest (J. Ruabunesa, MRAC 131622, PBI_OON 9560), 1 ♀; Masindi, Nov. 28, 1959, under stone (MRAC PBI_OON 49436), 1 ♀. **Rwanda:** Butare, INRS campus, Nov. 6, 1985 (R. Jocqué, Nsengimana, Michiels, MRAC 165801, PBI_OON 29095), 1 ♀. **Tanzania:** *Mbeya:* Kyela, Nov. 11, 1991, sieved litter, garden (R. Jocqué, MRAC 173519, PBI_OON 29172), 1 ♀, Nov. 27, 1991, litter, garden with cashew trees (R. Jocqué, MRAC 220109, PBI_OON 29089), 4 ♀. *Tanga:* Amani, E Usambara Mtns., July 20, 1980, elev. 1000 m (M. Stoltze, N. Scharff, ZMUC PBI_OON 9749), 1 ♀, 5°5.7'S, 38°38'E, Oct. 27–Nov. 9, 1995, around buildings, elev. 950 m (C. Griswold, N. Scharff, D. Ubick, ZMUC PBI_OON 9748), 1 ♀. **Angola:** *Uíge:* Dundo, Jan. 11, 1955 (A. Barros Machado, MRAC 212434, PBI_OON 29067), 1 ♀. **Comoros:** *Anjouan:* Boungouéni, Dec. 5, 1983, mango litter, elev. 300 m (R. Jocqué, MRAC PBI_OON 160743, PBI_OON 29099), 1 ♀; Mutsamudu, May 20, 2003, mango litter, hospital garden (R. Jocqué, D. Van den Spiegel, MRAC 220147, PBI_OON 29074), 1 ♀. *Grande Comore:* La Grille, E Maoueni, Aug. 18–19, 1981, soil,

elev. 800 m (R. Jocqué, MRAC 156972, 158495, PBI_OON 29084, 29118), 2♀, May 28, 2003, sieving forest litter, elev. 880 m (R. Jocqué, D. Van den Spiegel, MRAC 213176, PBI_OON 29069), 1♀; Nioumbadjou, Aug. 20, 1981 (R. Jocqué, MRAC 158455, PBI_OON 29187), 1♀. **Madagascar:** *Toamasina:* Ambatovy, 12.4 km NE Moramanga, 18°50'22"S, 48°18'30"E, Mar. 4–7, 2007, pitfall, elev. 1080 m (B. Fisher et al., CAS 9036074, PBI_OON 3850), 18♀; Tamatave, Foulpointe, Sept. 1994, forest on clay (A. Pauly, MRAC 202107, PBI_OON 9784), 1♀. *Toliara:* Mandena, 8.4 km NNE Tôlagnaro, 24°57.14'S, 47°00.06'E, Nov. 20, 1998, littoral rainforest litter, elev. 20 m (B. Fisher, CAS 9029656, PBI_OON 3222), 2♀. **Taiwan:** *Taitung Co.:* Route 20, km. 202, after Chulai, Apr. 8, 2007, forest litter, elev. ca. 200 m (S. Vit, MHNG PBI_OON 16079), 1♀. **Hawaii:** *Hawaii:* Route 190, mile marker 29.5, Feb. 17, 1995, roadside grass litter (J. Berry, AMNH PBI_OON 38298), 1♀. *Kauai:* Eleele, Jan. 25, 1998, scrub in abandoned lot (J., E. Berry, AMNH PBI_OON 38296), 1♀; National Tropical Botanical Garden, Lawai, near Poipu, Jan. 21, 1998 (J. Berry, AMNH PBI_OON 38295), 3♀. **Marquesas Islands:** *Hiva Oa:* above Atuona, Feb. 12, 1987, forest litter, elev. 500 m (J. Berry, AMNH PBI_OON 38535), 1♀; Hanamenu, Feb. 4, 1987, on banana leaf (J. Berry, AMNH PBI_OON 38527), 1♀, tree shaking (J. Berry, AMNH PBI_OON 38536), 1♀, hibiscus litter (J. Berry, AMNH PBI_OON 38539), 18♀, Feb. 5, 1987, litter under banyan tree, elev. 10 m (J. Berry, AMNH PBI_OON 38299), 5♀, top of east ridge, litter, elev. 100 m (J. Berry, AMNH PBI_OON 38537), 6♀. *Nuku Hiva:* Hakau Bay, forest litter on sand near ocean, Jan. 25, 1987 (J. Berry, AMNH PBI_OON 38530), 6♀; W Taiohae, Jan. 23, 1987, pine forest litter, elev. ca. 800 m (J. Berry, AMNH PBI_OON 38528), 3♀, Jan. 30, 1987, litter from sea cove (J. Berry, AMNH PBI_OON 38541), 5♀; Taipivai Village, Jan. 27, 1987, litter (J. Berry, AMNH PBI_OON 38538), 6♀; Toovii, Jan. 29, 1987, garden litter, in grass clump, elev. ca. 600 m (J. Berry, AMNH PBI_OON 38532, 38540), 5♀. **Cook Islands:** *Rarotonga:* no specific locality, 21°14'S, 159°46'W, Jan. 15–18, 1996 (J. Boutin, CAS 9026331, PBI_OON 2739), 2♀; Muri, Mar. 25, 1987, in litter (J. Berry, AMNH PBI_OON 38531), 1♀; Muri Beach, Mar. 4, 1987, litter near inland stream (J. Berry, AMNH PBI_OON 38534), 1♀; Raemaru, Arorangi Village, Mar. 24, 1987, litter, elev. 350 m (J., E. Berry, AMNH PBI_OON 38533), 5♀; Te Rua Manga, The Needle, Mar. 15, 1987, forest litter, elev. 400 m (J. Berry, AMNH PBI_OON 38297), 4♀; Tupapa Valley, Apr. 2, 1987, litter (J., E. Berry, AMNH PBI_OON 38529), 1♀. **Australia:** *Queensland* (all material collected by A. Nakamura, identified by B. Baehr, confirmed from photographs): Lady Elliot Island, Mar. 31–May 6, 2008, casuarina litter (QMB 87436, 87543, 87545, PBI_OON 23493, 23512, 23514), 10♀; Masthead Island, Oct. 7, 2008, beach, pisonia forest, litter, casuarina litter, elev. 5 m (QMB 87232, 87239, 87241, 87244, 87249, 87462, PBI_OON 23492, 23494, 23508, 23509, 23511, 23521), 11♀.

DISTRIBUTION: Pantropical, and introduced in European greenhouses.

SYNONYMY: It appears that neither Lawrence, Suman, nor Brignoli compared the holotypes of their putatively new species with specimens of *T. stenaspis*.

Triaeris moca, new species

Figures 41–46

TYPE: Female holotype taken by sifting leaf litter at an elevation of 1400 m at Moca, 3°21'46"N, 8°39'52"E, Bioko, Equatorial Guinea (Oct. 3–6, 1998; D. Dabney, D. Ubick), deposited in CAS (9029516, PBI_OON 2495).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Female can be recognized by the long, straight posterior receptaculum, which has only a tiny “squiggle” at its posterior end (figs. 45, 46).

MALE: Unknown.

FEMALE (PBI_OON 2495, figs. 41–46): Total length 1.86. Carapace pale orange, sides finely reticulate. ALE largest; separated by their radius to diameter; posterior eye row procurved from front. Sternum, mouthparts pale orange. Dorsal scutum pale orange, covering half to 3/4 of abdomen length, more than half to most of abdomen width. Postepigastric scutum pale orange, with short, posteriorly directed lateral apodemes. Legs pale orange, without color pattern. Leg spination: patella I v1p-1r-1r; tibiae: I v1p-2-2; II v1r-1r-0; IV v0-0-2. Ovoid atrium present between medially invaginated edges of epigastric and postepigastric scuta, that atrium with transverse sclerotization; anterior receptaculum short, distally rounded, posterior receptaculum long, with tiny distal squiggle.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Bioko.

Tri aeris fako, new species

Figures 47–53

TYPE: Female holotype taken at an elevation of 400 m at a site 1.4 km NE of Etome, 4°02'58.58"N, 9°07'31.43"E, Limbe Subdivision, Fako Division, South-West Province, Cameroon (Jan. 13–19, 1992; S. Larcher, G. Hormiga, J. Coddington, C. Griswold, C. Wanzie), deposited in CAS (9046579, PBI_OON 3483).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Female can be recognized by the extremely long, distally curled posterior receptaculum, which has a substantial “squiggle” at its posterior end (figs. 52, 53).

MALE: Unknown.

FEMALE (PBI_OON 3483, figs. 47–53): Total length 1.97. Carapace pale orange, sides finely reticulate. ALE largest, separated by their radius to diameter; posterior eye row procurved from front. Sternum, mouthparts pale orange. Dorsal scutum pale orange, covering half to 3/4 of abdomen length, more than half to most of abdomen width. Postepigastric scutum pale orange, with short, posteriorly directed lateral apodemes. Legs pale orange, without color pattern. Leg spination: patella I v1p-1r-2; tibiae: I, II v2-4-0; IV v0-0-1p. Genital atrium small, triangular, with transverse sclerotization; anterior receptaculum short, wide, with rounded tip; posterior receptaculum elongated, distally curled, with substantial terminal squiggle.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Cameroon.

Tri aeris oku, new species

Figures 54–60

TYPES: Female holotype and female paratype taken in a forest at an elevation of 2150 m at Lake Oku, 6°12'N, 10°27'E, Menchum Division, North-West Province, Cameroon (Feb. 7–13, 1992; C. Griswold, S. Larcher, N. Scharff, C. Wanzie), deposited in CAS (PBI_OON 3485).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Female can be recognized by the darkened, almost parallel lateral margins of the posterior receptaculum, which has a simple curl at its posterior end (figs. 59, 60).

MALE: Unknown.

FEMALE (PBI_OON 3485, figs. 54–60): Total length 1.99. Carapace pale orange, sides finely reticulate. Eyes subequal, ALE separated by more than their diameter; posterior eye row straight from front. Sternum, mouthparts pale orange. Dorsal scutum pale orange, covering half to 3/4 of abdomen length, more than half to most of abdomen width. Postepigastric scutum pale orange, without posteriorly directed lateral apodemes. Legs pale orange, without color pattern. Leg spination: patella I v0-1p-1r; tibiae: I v2-4-0; II v1r-2-0; IV v0-0-2. Ovoid atrium present between weakly invaginated edges of epigastric and postepigastric scuta, no transverse sclerotization obvious, sides of posterior receptaculum darkened, almost parallel.

OTHER MATERIAL EXAMINED: None.

DISTRIBUTION: Cameroon.

Triaeris menchum, new species

Figures 61–67

TYPE: Female holotype taken in a forest at an elevation of 2150 m at Lake Oku, 6°12'N, 10°27'E, Menchum Division, North-West Province, Cameroon (Feb. 7–13, 1992; C. Griswold, S. Larcher, N. Scharff, C. Wanzie), deposited in CAS (PBI_OON 3486).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Females can be recognized by the leaf-shaped sclerotizations at the sides of the posterior receptaculum (figs. 66, 67).

MALE: Unknown.

FEMALE (PBI_OON 3486, figs. 61–67): Total length 2.29. Carapace pale orange, sides finely reticulate. Eyes subequal, ALE separated by more than their diameter; posterior eye row procurved from front. Sternum, mouthparts pale orange. Dorsal scutum pale orange, covering less than half of abdomen length, less than 1/4 of abdomen width. Postepigastric scutum pale orange, without posteriorly directed lateral apodemes. Legs pale orange, without color pattern. Leg spination: patella I v0-1p-1r; tibiae: I v2-4-0; II v1r-1r-0; IV v0-0-2. Genital atrium represented only as narrow slit; posterior receptaculum globular, with leaf-shaped lateral sclerotizations.

OTHER MATERIAL EXAMINED: One female with the same data as the holotype, “beneath rocks and logs” (CAS PBI_OON 3482).

DISTRIBUTION: Cameroon.

Triaeris togo, new species

Figures 68–80

TYPE: Male holotype taken in pitfall trap at Bassari, Kara, Togo (May–July 1984; P. Douben), deposited in MRAC (174124, PBI_OON 9396).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Males resemble those of *T. ibadan* but have an unpatterned palp and legs, and more leaf-shaped setae on the palpal patella (fig. 74); females resemble those of *T. stenaspis* in

having genitalia with an external slit along the midline (fig. 78), but that slit is shorter and situated on a more acutely pointed elevated plate.

MALE (PBI_OON 9396, figs. 68–74): Total length 1.54. Carapace orange-brown, sides finely reticulate, with submarginal dark stripe extending almost as far anterior as coxa I; dark longitudinal stripe present along midline. ALE largest, separated by their radius to diameter; posterior eye row procurved from front. Sternum pale orange. Chelicerae yellow, labium, endites dark red-brown. Dorsal scutum yellow-brown, covering most of abdomen length, more than half of abdomen width. Postepigastric scutum yellow-brown, long, almost rectangular, covering about 2/3 of abdomen length. Legs yellow, without color pattern. Leg spination: patellae: I v0-1p-1r; II v0-1p-0; tibiae: I v2-4-0; II v1p-1p-0; IV v0-0-2. Palp proximal segments, cymbium, bulb all white; embolus simple, single projection.

FEMALE (PBI_OON 9301, figs. 75–80): Total length 1.67. Carapace pale orange, with vague indications of submarginal dark stripe but dark longitudinal stripe distinct. Mouthparts pale orange. Dorsal scutum pale orange. Postepigastric scutum pale orange, without posteriorly directed lateral apodemes. Leg spination: patellae: I v0-1p-1r; II v0-0-1r; tibiae: I v2-4-0; II v1r-1r-0; IV v0-0-2. Postepigastric scutum externally with median, triangular elevation, posterior margin of elevation over circular opening continued as slit along midline for about 1/3 of process length; anterior receptaculum bell shaped, posterior receptaculum long, narrow.

OTHER MATERIAL EXAMINED: **Togo:** *Kara:* Bassari, May–July 1984, pitfalls (P. Douben, MRAC 174125, 223908, PBI_OON 9301, 9385), 1 ♂, 1 ♀; between Bassari and Sokodé, 1°01'N, 9°01'E, May–July 1984, wooded savanna (P. Douben, MRAC 166213, 166215, 223889, PBI_OON 9302, 9371, 9382), 3 ♂, 2 ♀.

DISTRIBUTION: Togo.

Triaeris ibadan, new species

Figures 81–134

TYPE: Male holotype taken in pitfall trap in fallow bush plot at the International Institute of Tropical Agriculture, Ibadan, Oyo, Nigeria (Nov. 1974; A. Russell-Smith), deposited in MRAC (177439, PBI_OON 9629).

ETYMOLOGY: The specific name is a noun in apposition taken from the type locality.

DIAGNOSIS: Members of this species can easily be distinguished from all their congeners by the highly patterned legs (fig. 129).

MALE (PBI_OON 9629, figs. 81–107, 126–128): Total length 1.32. Carapace brown, sides smooth, with indistinct longitudinal dark stripe, extending from opposite coxae II to opposite coxae IV; dark longitudinal stripe present along midline. ALE, PLE subequal, larger than PME; ALE separated by their radius to diameter; posterior eye row procurved from front. Sternum, chelicerae yellow. Labium, endites dark red-brown. Endites medially with protuberances over sides of labium, distally elaborate. Dorsal scutum brown, covering most of abdomen length, more than half of abdomen width. Postepigastric scutum yellow, short, almost rectangular, covering about 1/3 of abdomen length. Legs with femora, basal portions of tibiae, patellae darkened. Leg spination: patellae: I v0-1p-1r; II v0-0-1p; tibiae: I v2-4-0; II v1p-1p-0; IV v0-0-2.

Palp with proximal segments yellow-brown; cymbium yellow; bulb yellow; embolus simple, straight process.

FEMALE (PBI_OON 32995, figs. 108–125, 129–134): Total length 1.28. Labium and endites yellow. Postepigastric scutum without posteriorly directed lateral apodemes. Leg spination: patellae: I v0-1p-1r; II v0-0-1p; tibiae: I v2-4-0; II v2-2-0; IV v0-0-2. Posterior receptaculum with triangular posterior invagination, anterior receptaculum elaborate.

OTHER MATERIAL EXAMINED: **Nigeria:** *Oyo:* International Institute of Tropical Agriculture, Ibadan (all collected by A. Russell-Smith, pitfall traps), Jan. 26–Mar. 28, 1973 (MRAC 223940, 224053, PBI_OON 9133, 9637), 1 ♂, 1 ♀, Feb. 3, 1973, fallow bush plot (MRAC 237790, PBI_OON 32996), 1 ♀, Apr. 23, 1973 (MRAC 160360, 224057, PBI_OON 9077, 9597), 2 ♂, 4 ♀, May 11, 1973, C.O.P.R. site (MRAC 223930, 224058, PBI_OON 9155, 9538), 1 ♂, 2 ♀, Oct. 10–18, 1973, 10-year regrowth (MRAC 223924, 224055, PBI_OON 9161, 9962), 1 ♂, 1 ♀, Nov. 1973, bush fallow (MRAC 223922, 224054, PBI_OON 9127, 9604), 1 ♂, 2 ♀, Feb. 24–May 5, 1974, riverine woodland (MRAC 160356, 223920, 223923, 223925, 224052, 224059, PBI_OON 9078, 9249, 9672, 9911, 9912), 4 ♂, 3 ♀, June 9, 1974 (MRAC 223921, PBI_OON 9966), 1 ♀, Nov. 1974, fallow bush plots (MRAC 223926, PBI_OON 9084), 2 ♀, Apr. 3–10, 1981, forest (MRAC 235824, PBI_OON 32995), 7 ♂, 5 ♀, Feb. 24, 1982, in bush fallow near golf course (MRAC 177246, PBI_OON 9325), 1 ♀.

DISTRIBUTION: Nigeria.

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