

Arachnological contributions

Two new theridiid genera from Southeast Asia (Araneae: Theridiidae, Argyrodinae): males with a nose for courtship

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Front cover: *Rhinocosmetus xiphias* (Thorell, 1887) © Rudy Jocqué

The male of *Rhinocosmetus xiphias* (Thorell, 1887) is a typical representative of the genus *Rhinocosmetus*, provided with the iconic finger-shaped clypeal protrusion, huge front legs, a peculiar placement of the spinnerets and with the cymbium on the prolateral side of the bulbus.

Content

Abstract	2
Introduction	2
Material and Methods	3
Results	3
Taxonomic part	5
Genus <i>Rhinocosmetus</i> gen. nov.	5
Key to the species of <i>Rhinocosmetus</i> gen. nov.	8
<i>Rhinocosmetus argentatus</i> sp. nov.	13
<i>Rhinocosmetus atropyga</i> sp. nov.	17
<i>Rhinocosmetus cochleatus</i> sp. nov.	21
<i>Rhinocosmetus djojosudharmoi</i> sp. nov.	25
<i>Rhinocosmetus dolichogaster</i> sp. nov.	27
<i>Rhinocosmetus dolichorhinus</i> sp. nov.	29
<i>Rhinocosmetus gretathunbergae</i> sp. nov.	34
<i>Rhinocosmetus gunungleuser</i> sp. nov.	39
<i>Rhinocosmetus lombok</i> sp. nov.	41
<i>Rhinocosmetus megarhinus</i> sp. nov.	43
<i>Rhinocosmetus nasicornis</i> sp. nov.	48
<i>Rhinocosmetus pinocchio</i> sp. nov.	52
<i>Rhinocosmetus skoliorhinus</i> sp. nov.	54
<i>Rhinocosmetus sumba</i> sp. nov.	58
<i>Rhinocosmetus xiphias</i> (Thorell, 1887) comb. nov.	60
Genus <i>Rhinoliparus</i> gen. nov.	65
<i>Rhinoliparus kulczynskii</i> (Roewer, 1942) comb. nov.	69
<i>Rhinoliparus missai</i> sp. nov.	75
<i>Rhinoliparus nafithiamae</i> sp. nov.	79
<i>Rhinoliparus platyrhinus</i> sp. nov.	84
<i>Rhinoliparus queensland</i> sp. nov.	86
Taxonomic notes	89
Species transferred to the genus <i>Rhinocosmetus</i> gen. nov.	89
Species transferred to the genus <i>Rhinoliparus</i> gen. nov.	90
Distribution maps of <i>Rhinocosmetus</i> gen. nov. and <i>Rhinoliparus</i> gen. nov.	91
Discussion	93
Acknowledgements	94
References	94

Abstract

Two new spider genera, *Rhinocosmetus* gen. nov. and *Rhinoliparus* gen. nov. belonging to the family Theridiidae are described. They share the presence in males of a clypeus protrusion of which the frontal top is provided with specialized bent setae, with swollen and recurved tip, we call cotyledonoid setae. In the males of *Rhinocosmetus* gen. nov., the clypeal protrusion is very long and finger shaped. Other characteristics are the position of the cymbium on the prolateral side of the bulbous and the distal prong of the theridiid tegular apophysis curved prolaterad. Females often have copulatory ducts with very wide stretches and two pairs of spermathecae. *Rhinocosmetus* gen. nov. contains seventeen species of which fourteen are here described as new. The newly described species are: *Rhinocosmetus argentatus* sp. nov. (♂♀) the type species of the genus, *Rhinocosmetus atropyga* sp. nov. (♂♀), *Rhinocosmetus cochleatus* sp. nov. (♂♀), *Rhinocosmetus djojosudharmoi* sp. nov. (♂), *Rhinocosmetus dolichogaster* sp. nov. (♀), *Rhinocosmetus dolichorhinus* sp. nov. (♂♀), *Rhinocosmetus gretathunbergae* sp. nov. (♂♀), *Rhinocosmetus gunungleuser* sp. nov. (♀), *Rhinocosmetus lombok* sp. nov. (♂), *Rhinocosmetus megarhinus* sp. nov. (♂♀), *Rhinocosmetus nasicornis* sp. nov. (♂♀), *Rhinocosmetus pinocchio* sp. nov. (♂), *Rhinocosmetus skolorhinus* sp. nov. (♂♀) and *Rhinocosmetus sumba* sp. nov. (♀). *Argyrodes carnicobarensis* Tikader, 1977 formerly synonymized with *Faiditus xiphias*, is revalidated and transferred here (*Rhinocosmetus carnicobarensis* (Tikader, 1977) sp. rev., comb. nov.) together with *Argyrodes nasutus* O. Pickard-Cambridge, 1880 = *Rhinocosmetus nasutus* (O. Pickard-Cambridge, 1880) comb. nov. and *Faiditus xiphias* (Thorell, 1887) = *Rhinocosmetus xiphias* (Thorell, 1887) comb. nov. Males of *Rhinoliparus* gen. nov. have a short, thick clypeal protrusion and very long first legs, whereas the cymbium is in the usual dorsal position on the bulbous and the distal prong of the theridiid tegular apophysis is curved prolaterad. Females have entrance ducts with wide stretches. *Rhinoliparus* gen. nov. contains nine species of which four are here described as new: *Rhinoliparus nafithiamae* sp. nov. (♂♀), the type species, *Rhinoliparus missai* sp. nov. (♂♀), *Rhinoliparus platyrhinus* sp. nov. (♂) and *Rhinoliparus queensland* sp. nov. (♂). The following species are transferred here: *Argyrodes kulczynskii* (Roewer, 1942) = *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov., *Argyrodes lanyuensis* Yoshida, Tso & Severinghaus, 1998 = *Rhinoliparus lanyuensis* (Yoshida, Tso & Severinghaus, 1998) comb. nov., *Argyrodes mertoni* Strand, 1911 = *Rhinoliparus mertoni* (Strand, 1911) comb. nov., *Argyrodes neocaledonicus* Berland, 1924 = *Rhinoliparus neocaledonicus* (Berland, 1924) comb. nov. and *Argyrodes rainbowi* (Roewer, 1942) = *Rhinoliparus rainbowi* (Roewer, 1942) comb. nov.

Introduction

The family Theridiidae is among the largest spider families but also among those in which a high number of undescribed species is expected (AGNARSSON et al. 2013). In tropical canopy surveys in Southeast Asia, Theridiidae tend to be the largest family and make up from a quarter to one third of all the species recorded (RUSSELL-SMITH & STORK 1994, 1995; FLOREN & DEELEMANN-REINHOLD 2005). A large proportion of the species in these samples appears to be undescribed, not in the least the representatives of the subfamily Argyrodinae, very common in these canopy collections. The subfamily contains seven genera (*Argyrodes* Simon, 1864, *Ariamnes* Thorell, 1869, *Deelemannella* Yoshida, 2003, *Faiditus* Keyserling, 1884, *Neospintharus* Exline, 1950, *Rhomphaea* L. Koch, 1872 and *Spheropistha* Yaginuma, 1957). In the major analysis of the Theridiidae (AGNARSSON 2004), the subfamily was defined on the base of five of these genera. VANUYTVEN (2021) remarked that the boundaries between the genera are not always sharp as also stated in AGNARSSON (2004: 477). It is clear that the knowledge on the systematics of the subfamily is still in its infancy concerning both the number of species it contains and the relationships within it.

The present paper reports on the discovery of two more genera in the Argyrodinae and provides new insights in the composition of the subfamily. It also defines a type of setae that had not yet been described.

Material and Methods

Specimens were examined in 70% denatured ethanol with a Leica Wild M8 stereomicroscope provided with an eyepiece micrometer for measurements. Photographs were taken with a Leica MZ16 and manipulated with the Leica Application Suite (LAS) stacking software (ver. 4.13, Leica, <https://leicacamera.com>), with a Z-stack of 15–20 images merged into a single photomontage. Some photographs were taken with a Bresser Mikrocam on a Leica Wild M8 stereomicroscope. The photographs were improved with Photoshop and Paint Shop Pro. On the photographs most setae are removed while clearing the background. Since the male palps are complex and show little contrast, sclerites were outlined on a separate copy. Maps were created with the online tool SimpleMapp (SHORTHOUSE 2010). Epigynes were cleared with methyl salicylate. For SEM photos, specimens were rapidly dried in acetone on a hot (80°C) plate, gold coated and examined and photographed with a JEOL 6480 LV scanning electron microscope.

Most descriptions are based on specimens that were preserved in ethanol for 20 to 40 years. Therefore, their colours are most likely different from those in life spiders. A note on the label in one of the tubes, with only a juvenile spider, mentioned “venter spot red”. This colour was not visible anymore. It is likely that also some adult specimens have colourful spots that fade away in ethanol.

All measurements are in millimeters.

Abbreviations

ALE – anterior lateral eyes; **AME** – anterior median eyes; **AME-ALE** – distance between AME and ALE; **AME-AME** – distance between AME; **C** – conductor; **Cd** – copulatory ducts; **Co** – copulatory openings; **Cy** – cymbium; **E** – embolus; **EB** – embolus base; **EBA** – embolus base appendage; **Fd** – fertilization ducts; **MA** – median apophysis; **PA** – proximal gutter shaped appendage of TTA; **PLE** – posterior lateral eyes; **PME** – posterior median eyes; **PME-PLE** – distance between PME and PLE; **PME-PME** – distance between PME; **S** – spermathecae; **SEM** – digital scanning electron micrographs; **ST** – subtegulum; **T** – tegulum; **TTA** – theridiid tegular apophysis.

Institutions

MCSNG – Museo Civico di Storia Naturale de Genua, Italy (M. Tavano); **Naturalis** – Department of Entomology, Naturalis Biodiversity Center, Leiden, The Netherlands (J. Goud); **NHRS** – Naturhistoriska Riksmusset, Stockholm, Sweden (G. Lindberg); **RBINS** – Royal Belgian Institute for Natural Sciences (W. Deconinck); **RMNH** – National Museum of Natural History (Naturalis), The Netherlands (J. Goud).

Results

During a study of theridiids from Papua New Guinea, some male specimens were found with remarkable bent setae at the extremity of a clypeal protrusion. Closer study with SEM showed that the top of these setae is swollen and recurved, resulting in a narrow space in which liquid might be stored by capillary forces (Fig. 1). Because of the similarity of these setae with plant germs, we have called them ‘cotyledonoid setae’.

The distribution of the cotyledonoid setae on the clypeal protrusion varies to a large extent between the species: they may be distributed along short lines on the dorsal side (Fig. 1B) or covering a large dorsal area (Fig. 1A). They stand in a wide base (Fig. 1D) and have a stalk which can vary to some degree: it may be short and straight (Fig. 1E) but most often it is long, curved (Figs. 1C-D), or even sinuous (Fig. 1F). They share the structure of the swollen tip, which is recurved, resulting in a narrow slit. The tip of the recurved flap may be rounded (Fig. 1D) or pointed (Figs. 1E-F). In one case there is a small tubular outlet at the level of the bend (Fig. 1F, arrow).

The large collection of Christa Deeleman from Southeast Asia also contains several species with the same type of setae. All together not less than twenty species proved to be provided with these similar setae, eighteen of them new to science.

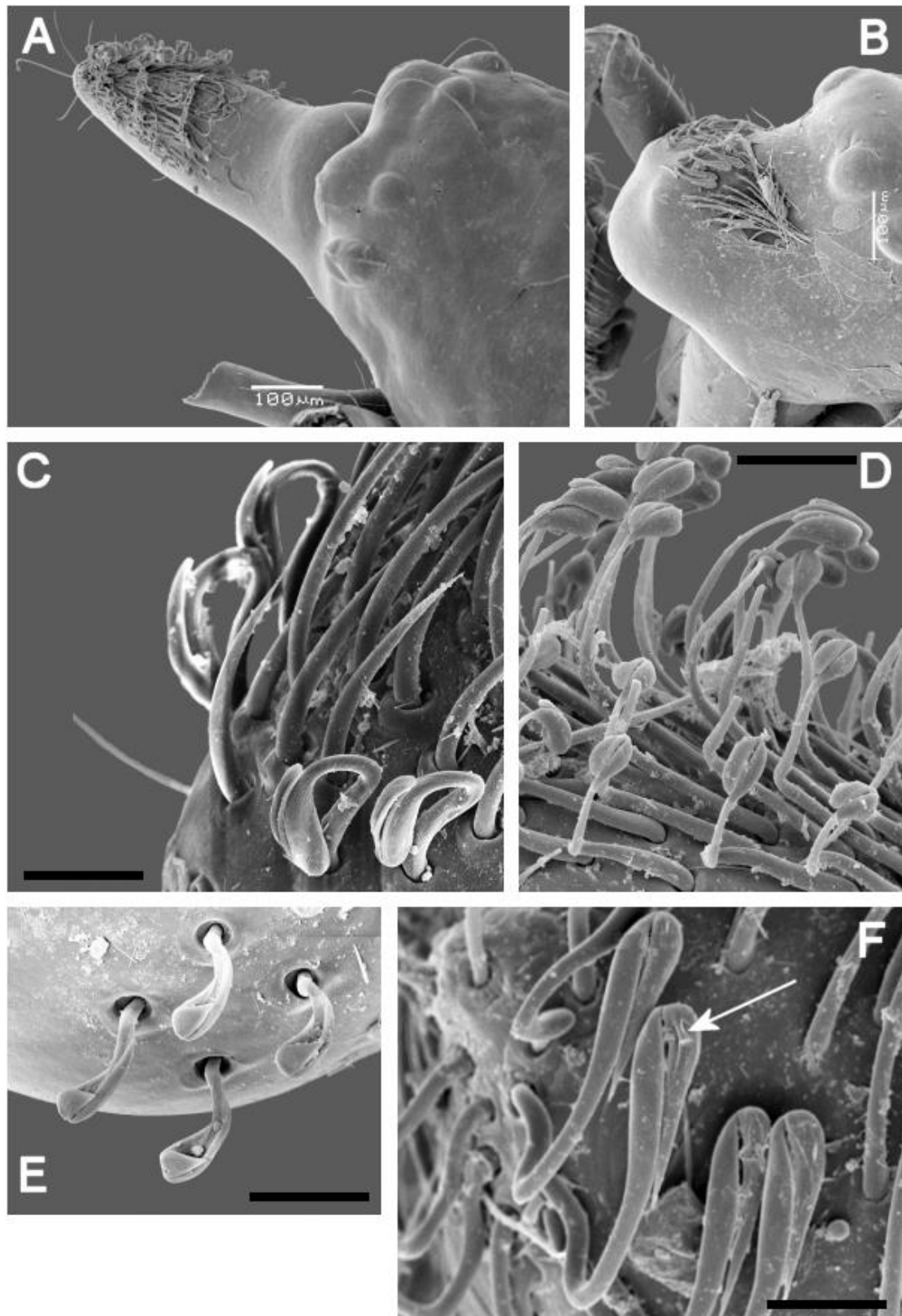


Figure 1: Cotyledonoid setae: **A.** *Rhinocosmetus xiphias*, distribution of setae on clypeal protrusion; **B.** *Rhinoliparus nafithiamae* sp. nov., paratype RBINS IG 34514/31, as previous; **C.** *Rhinocosmetus megarhinus* sp. nov., paratype RBINS IG 34514/06, detail of cotyledonoid setae. **D.** *Rhinocosmetus gretathunbergae* sp. nov., paratype RBINS IG 34514/30, as previous. **E.** *Rhinoliparus kulczynskii*, as previous. **F.** *Rhinoliparus nafithiamae* sp. nov., paratype RBINS IG 34514/31, as previous. Arrow: tubular outlet. Scale bars: C-F=25 µm.

The species apparently belong to two groups, characterized in the first place by the shape of the clypeal protrusion. In one group the protrusion is long and finger shaped, in the second one it is a large swelling. Two new genera are created according to these main characteristics which are corroborated by other features. The species of *Rhinocosmetus* gen. nov. have a long clypeal protrusion, in *Rhinoliparus* it is a short swelling. The first genus also has a particular palpal conformation in which the cymbium is situated on the prolateral side of the bulbus.

Since the majority of the specimens in this study are from canopy fogging, we are not always sure which males and females belong together. For the time being we considered it better to keep them together if from the same tree rather than to create new species for the sexes separate. The hand-collected specimens were often found, like species of *Argyrodes*, as kleptoparasites in the webs of large Araneidae.

A few species previously placed in *Argyrodes* apparently belong either in *Rhinocosmetus* or *Rhinoliparus*. Since the modified setae on the protrusion on the clypeus are difficult to observe without a strong magnification, it is not surprising that they had not been discovered earlier. However, although we did not always examine the types, the general habitus of these spiders and the conformation of the palps as derived from the drawings, convinced us most of these species belong to *Rhinoliparus*. One species that was misidentified as *Faiditus xiphias* and that species itself for which we examined the types, prove to be *Rhinocosmetus* species.

Taxonomic part

Class Arachnida Lamarck, 1801
Order Araneae Clerck, 1757
Family Theridiidae Sundevall, 1833
Subfamily Argyroquinae

Genus ***Rhinocosmetus* gen. nov.**
(Figs. 2-6, 72-73, 75)

Type species

Rhinocosmetus argentatus sp. nov.

Etymology

Rhinocosmetus is derived from the combination of the Greek ρινος (nose) and κοσμετος (decorated); the gender is masculine.

Diagnosis

Rhinocosmetus gen. nov. differs from all other Argyroquinae by the placement of the cymbium of the male palp on the prolateral side of the bulbus in combination with the long, coiled embolus. Males are further recognized by the very long clypeal protrusion provided with cotyledonoid setae at the anterior tip. *Rhinocosmetus* males differ from many Argyroquinae by the absence of a cephalic protrusion, in the other genera often bearing the AME. From the other Argyroquinae, only *Faiditus* has sometimes a projection on the clypeus but this is always much shorter than in *Rhinocosmetus* and bears no cotyledonoid setae. The TTA of *Rhinocosmetus* is unique by its size, encompassing the distal part of the bulbus, its distal appendage curved and surpassing the distal rim of the cymbium. Females differ from the other genera by the shape of the abdomen and the white markings on the dorsal, lateral and ventral sides of it. *Ariamnes* has the abdomen extremely elongated; in *Neospintharus* it is truncated and the posterior end provided with several humps; in *Rhomphaea* it is raised, tapered to a single tip and usually four to six times as long behind as anterior to the spinnerets; in *Spheropistha* the abdomen is almost globular.

Description

Small spiders, total length males 1.7-3.9 mm, females 1.7-3.8 mm.

Male with a long clypeal protrusion provided with a group of modified cotyledonoid setae on the anterior tip.

Cephalothorax (Fig. 4): light to dark brown, sometimes with paler triangular region, starting from thoracic fovea, widened towards pedicel; male clypeal protrusion paler brown than remainder of cephalothorax; AME larger than other eyes, which are subequal.

Abdomen: in male usually subcylindrical, sometimes constricted behind spinnerets; in female usually higher, sometimes slightly pointed at posterior end, extended far behind spinnerets; colour varies from light brown to black, always with dorsal, lateral and ventral silvery spots; lateral spots sometimes touching those on dorsum; venter with silvery spot between epigastric region and spinnerets, varying in size, sometimes divided forming a transverse line of three spots, those on side larger than central one; two silvery spots behind spinnerets, slightly to the side; usually with another silvery spot on posterior end of venter; colulus (Fig. 2A-B) of variable size, in most species tiny.

Legs: pale brown, sometimes annulated with darker parts; legs I much longer than others, ratio length leg I and II male 2.1-2.7, female 2.1-2.9; ratio length leg I and cephalothorax male 6.8-12.9, female 5.6-11.7.

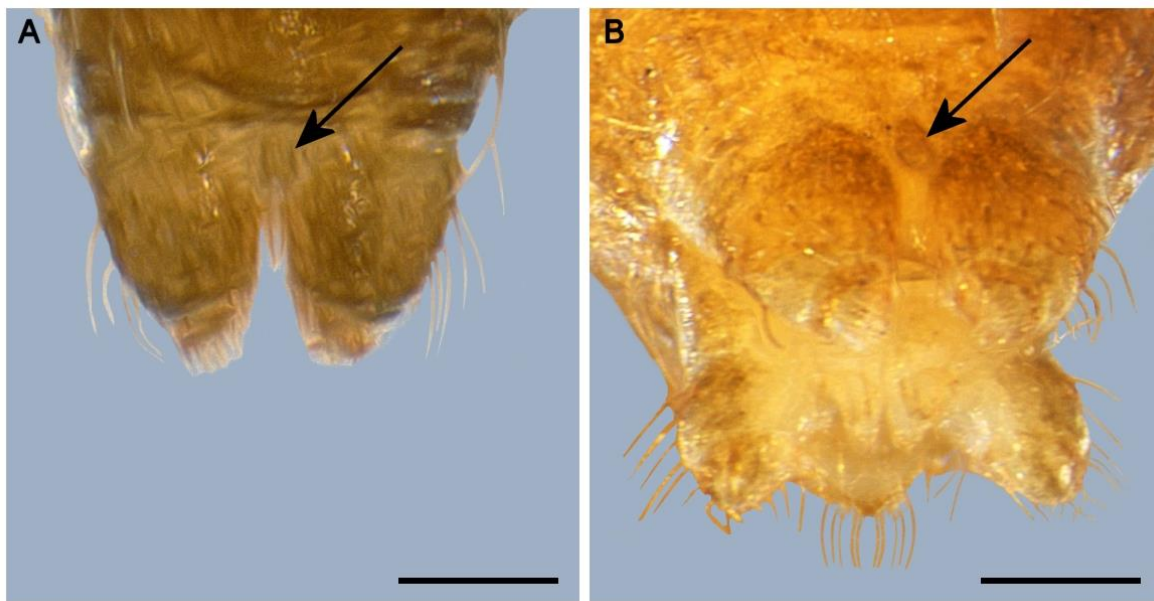


Figure 2: A. *Rhinocosmetus sumba* sp. nov., ♀, paratype RMNH ARA 18314, spinnerets, ventral view; B. *Rhinocosmetus megarhinus* sp. nov., ♀, paratype RMNH ARA 18294, ♀, spinnerets, ventral view. Arrow: colulus. Scale bars: A-B=0.1 mm.

All examined species with very similar male palp; cymbium positioned on prolateral side: in a ventral view the cymbium covers half of the bulbus whereas it is almost invisible in retrolateral view; seen from the side with prolateral lobe in distal third, sometimes with thick, modified setae; TTA with broad ventrally concave base and retrolateral distal lip, distal appendage sickle shaped, curved outward, produced beyond distal tip of cymbium; conductor long, narrow, often surpassing distal cymbial rim; embolus long, whiplike, coiled clockwise in left palp, originating on anterior prolateral side of tegulum, with transverse loop, thence curved forward, ending in front hidden by TTA.

Female epigyne (Fig. 6): poorly sclerotized, often poorly delimited, in most species with copulatory ducts of variable diameter, sometimes very wide and in some species with extra spermathecae; main spermathecae round, rather small as compared to size of copulatory ducts. Fertilization ducts short.

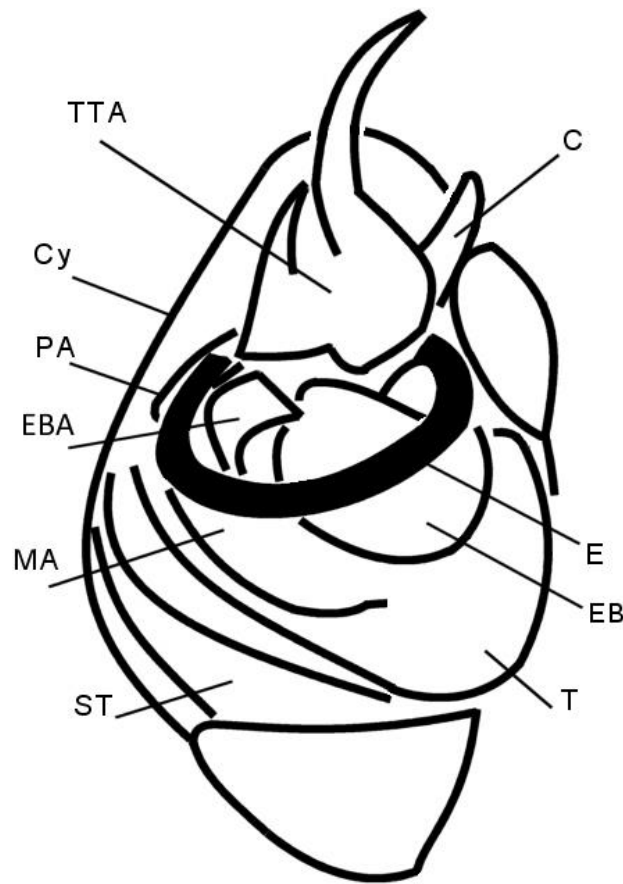


Figure 3: Schematic representation of a male left palp of a member of the genus *Rhinocosmetus*. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA: embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; T, tegulum; TTA, theridiid tegular apophysis.

Distribution

Forested areas in South Asia from Sri Lanka and Nicobar Islands in the west to Japan in the east (Figs. 72-73, 75). By lack of precise data, the eastern part of the distribution area (Japan) is not shown on the map.

Affinities

AGNARSSON (2004) removed *Faiditus* from the synonymy of *Argyrodes* and transferred 58 species to the genus, together with *Argyrodes xiphias*. However, *A. xiphias* obviously lacks the characters of *Faiditus* given in that paper (Agnarsson *l.c.*). The distal tip of the TTA is also hooked like in the other members of *Faiditus*, but it is much longer and surpassing the rim of the cymbium, it is curved prolaterad instead of retrolaterad; only the tip of the embolus is hidden by the TTA and the abdomen has no paired or multiple humps. The leg formula of *Faiditus* (1423) is different from that in the genera here described (1243) and the eyes are all subequal whereas the AME are larger in the new genera. It is clear that *A. xiphias* from Southeast Asia does not belong to *Faiditus* which until now is only known from the Americas.

Key to the species of *Rhinocosmetus* gen. nov.

(the females of *R. carnicobarensis* and *R. nasutus* are not included because of lack of illustrations of the vulva; the inclusion of the male is based on the pictures from TIKADER (1977) and O. PICKARD-CAMBRIDGE (1880))

1. Male.....**2**
- Female.....**15**
2. Cotyledonoid setae present on major part of dorsal side of clypeal protrusion (Figs. 4B, D).....**3**
- Cotyledonoid setae present only at tip of clypeal protrusion**4**
3. Clypeal protrusion about 2.2 times as long as thickest part as seen from the side (Fig. 4D); spinnerets in the middle of venter (Fig. 47A); conductor subrectangular (Fig. 7E).....
.....[*R. xiphias* comb. nov.](#)
- Clypeal protrusion about 1.5 times as long as thickest part as seen from the side (Fig. 4B); spinnerets at 2/3 of abdomen length from posterior end (Fig. 26A); conductor horn shaped (Fig. 26E)..... [*R. gretathunbergae* sp. nov.](#)
4. Clypeal protrusion with small horn at tip (Figs. 4A, 37A)..... [*R. nasicornis* sp. nov.](#)
- Clypeal protrusion without horn or not indented**5**
5. Clypeal protrusion thick; L/W less than 3**6**
- Clypeal protrusion slender: L/W 4 or more**7**
6. Widest part of clypeal protrusion at base (Fig. 4F) [*R. lombok* sp. nov.](#)
- Widest part of clypeal protrusion close to tip (Fig. 4E)..... [*R. megarhinus* sp. nov.](#)
7. Clypeal protrusion truncated at tip as seen from the side (Fig. 4I).....[*R. skoliorhinus* sp. nov.](#)
- Clypeal protrusion rounded as seen from the side (Figs. 4C, G, H, J-L)**8**
8. Clypeal protrusion wider at extremity than in the middle as seen from above (Figs. 4J, K)**9**
- Clypeal protrusion tapered or parallel-sided as seen from above.....**11**
9. Clypeal protrusion strongly constricted in the middle, width of extremity about 3x wider than its width in the middle..... [*R. nasutus*](#)
- Clypeal protrusion less strongly constricted in the middle.....**10**
10. Clypeal protrusion straight as seen from the side, slender; L/W approximately 4 (Fig. 4J); posterior part of abdomen dark (Figs. 11A-C)..... [*R. atropyga* sp. nov.](#)
- Clypeal protrusion curved up as seen from the side, less slender, L/W approximately 3 (Fig. 4K)
..... [*R. cochleatus* sp. nov.](#)
11. Clypeal protrusion slightly curved down; thick base (Fig. 4L; Fig. 7A)**12**
- Clypeal protrusion not curved down, not very thick at base (Figs. 4C, G-H)**13**
12. Cotyledonoid setae on clypeal protrusion few and restricted to tip; with small depression in front of the eyes (Figs. 4L, 41E) [*R. pinocchio* sp. nov.](#)
- Cotyledonoid setae on clypeal protrusion fairly numerous in a group just behind the tip (Fig. 7A); without small depression in front of the eyes..... [*R. carnicobarensis*](#)
13. Male palp small with embolic loop only occupying half of the bulbus width; C and TTA inconspicuous (Figs. 5I, 22E-G)..... [*R. dolichorhinus* sp. nov.](#)
- Male palp with usual size in the genus; C curved and wide; distal appendage of the TTA sharp**14**

14. Conductor thin, not curved (Figs. 5L, 19D-F, 20).....	<u><i>R. djojosudharmoi sp. nov.</i></u>
- Conductor thicker, curved to retrolateral side (Figs. 5D, 8E-G).....	<u><i>R. argentatus sp. nov.</i></u>
15. Spermathecae in centre of vulva amidst the loops of the copulatory ducts (Fig. 6F)	<u><i>R. gretathunbergae sp. nov.</i></u>
- Spermathecae in anterior part of vulva (Figs. 6A-E, G-L).....	16
16. Vulva with second pair of thick-walled spermathecae (Figs. 6G, I-K)	17
- Vulva sometimes with stretches of large copulatory ducts but without extra spermathecae (Figs. 6A-E, H, L).....	20
17. Thick-walled spermathecae globular	18
- Thick-walled spermathecae indented.....	19
18. Thick-walled spermathecae clearly separate from primary spermathecae (Fig. 6J)	<u><i>R. dolichogaster sp. nov.</i></u>
- Thick-walled spermathecae touching primary spermathecae (Fig. 6G)	<u><i>R. dolichorhinus sp. nov.</i></u>
19. Thick-walled spermathecae far apart, slightly overlapping with primary spermathecae in dorsal; copulatory ducts narrow over entire length (Fig. 6K)	<u><i>R. sumba sp. nov.</i></u>
- Thick-walled spermathecae not overlapping with primary spermathecae in dorsal view; first part of copulatory ducts with wide diameter (Fig. 6I)	<u><i>R. gunungleuser sp. nov.</i></u>
20. Copulatory ducts with narrow diameter over entire length (Fig. 6C).....	<u><i>R. argentatus sp. nov.</i></u>
- Copulatory ducts with at least one stretch with conspicuously wide diameter (Figs. 6A, B, D, E, H, L)	21
21. Thick-walled stretch of copulatory ducts transverse, near posterior margin (Fig. 6L); posterior part of abdomen dark	<u><i>R. atropyga sp. nov.</i></u>
- Thick-walled stretch of copulatory different; posterior part of abdomen pale.....	22
22. Copulatory ducts wide over entire length except last stretch before entering spermathecae, which are separated by about half their diameter (Fig. 6E)	<u><i>R. nasicornis sp. nov.</i></u>
- Copulatory ducts with narrow parts more extensive, spermathecae closer together (Figs. 6 A, B, D, H).....	23
23. Vulva with several superposed copulatory duct loops (Fig. 6A)	<u><i>R. xiphias comb. nov.</i></u>
- Vulva with fewer superposed loops (Figs. 6B, D, H)	24
24. Copulatory ducts with narrow first part, very wide recurved second part, continued in narrow straight third part running forward to enter spermathecae (Fig. 6B)	<u><i>R. megarhinus sp. nov.</i></u>
- Conformation of copulatory ducts different (Figs. 6D, H).....	25
25. Length of abdominal venter behind spinnerets about five times that before them (Fig. 18A)	<u><i>R. cochleatus sp. nov.</i></u>
- Length of abdominal venter behind spinnerets about twice that before them (Fig. 45A)	<u><i>R. skolorhinus sp. nov.</i></u>

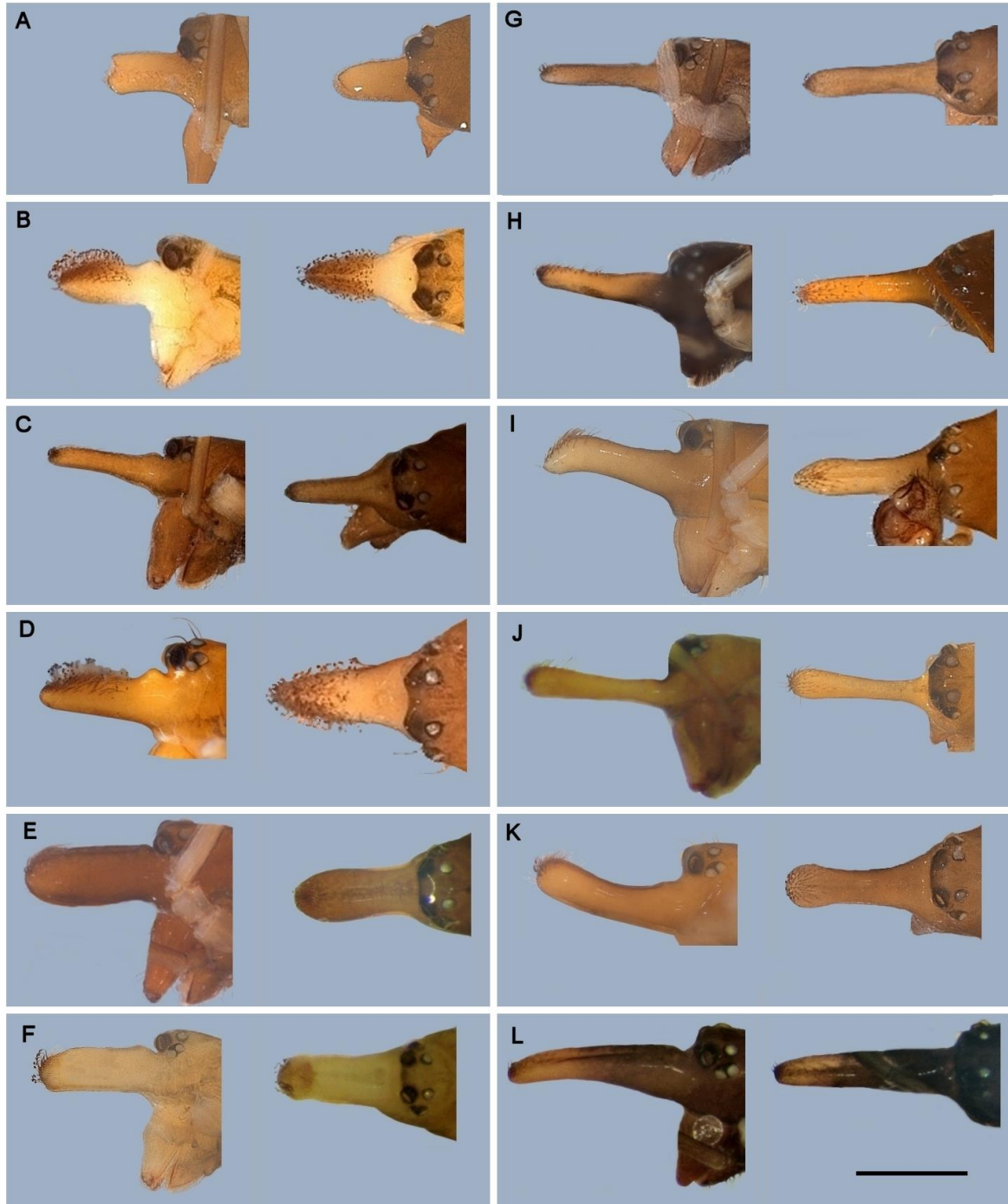


Figure 4: Overview of the clypeal protrusions of the here described *Rhinocosmetus* species, ordered by the length of it. **A.** *R. nasicornis* sp. nov., holotype; **B.** *R. gretathunbergae* sp. nov., holotype; **C.** *R. djojosudharmoi* sp. nov., holotype; **D.** *R. xiphias* comb. nov., RBINS IG 34514/04. **E.** *R. megarhinus* sp. nov., holotype; **F.** *R. lombok* sp. nov., holotype; **G.** *R. dolichorhinus* sp. nov., holotype; **H.** *R. argentatus* sp. nov., holotype; **I.** *R. skoliorhinus* sp. nov., holotype; **J.** *R. atropyga* sp. nov., holotype; **K.** *R. cochleatus* sp. nov., holotype; **L.** *R. pinocchio* sp. nov., holotype. Scale bar: 0.5 mm.

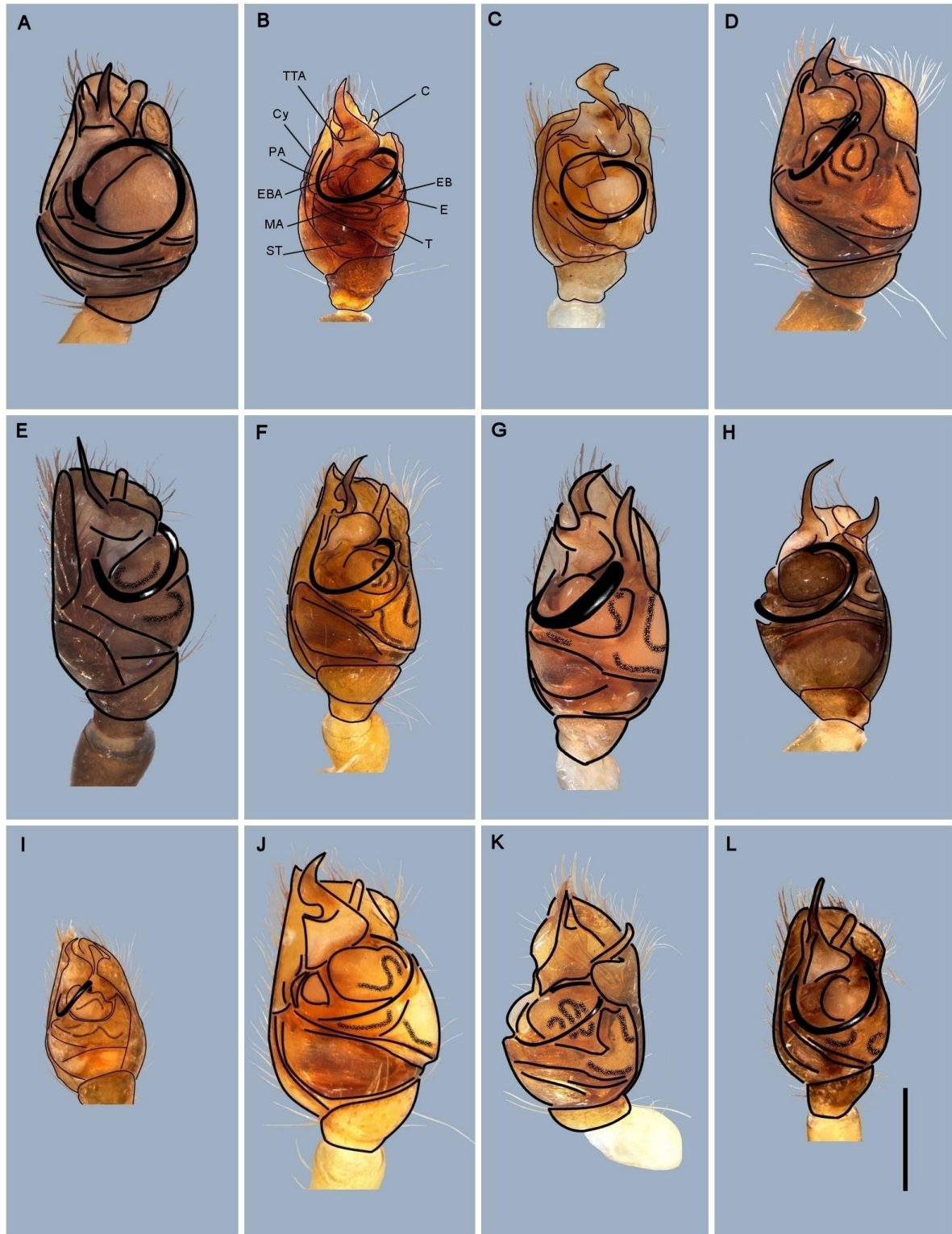


Figure 5: Overview of the male left palp of the here described *Rhinocosmetus* species, schematic presentation. **A.** *R. xiphias* comb. nov.; **B.** *R. megarhinus* sp. nov.; **C.** *R. lombok* sp. nov.; **D.** *R. argentatus* sp. nov.; **E.** *R. pinocchio* sp. nov.; **F.** *R. cochleatus* sp. nov.; **G.** *R. nasicornis* sp. nov.; **H.** *R. gretathunbergae* sp. nov.; **I.** *R. dolichorhinus* sp. nov.; **J.** *R. skolorhinus* sp. nov.; **K.** *R. atropyga* sp. nov.; **L.** *R. djojosudharmoi* sp. nov. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; T, tegulum; TTA, theridiid tegular apophysis. Scale bar: 0.2 mm.

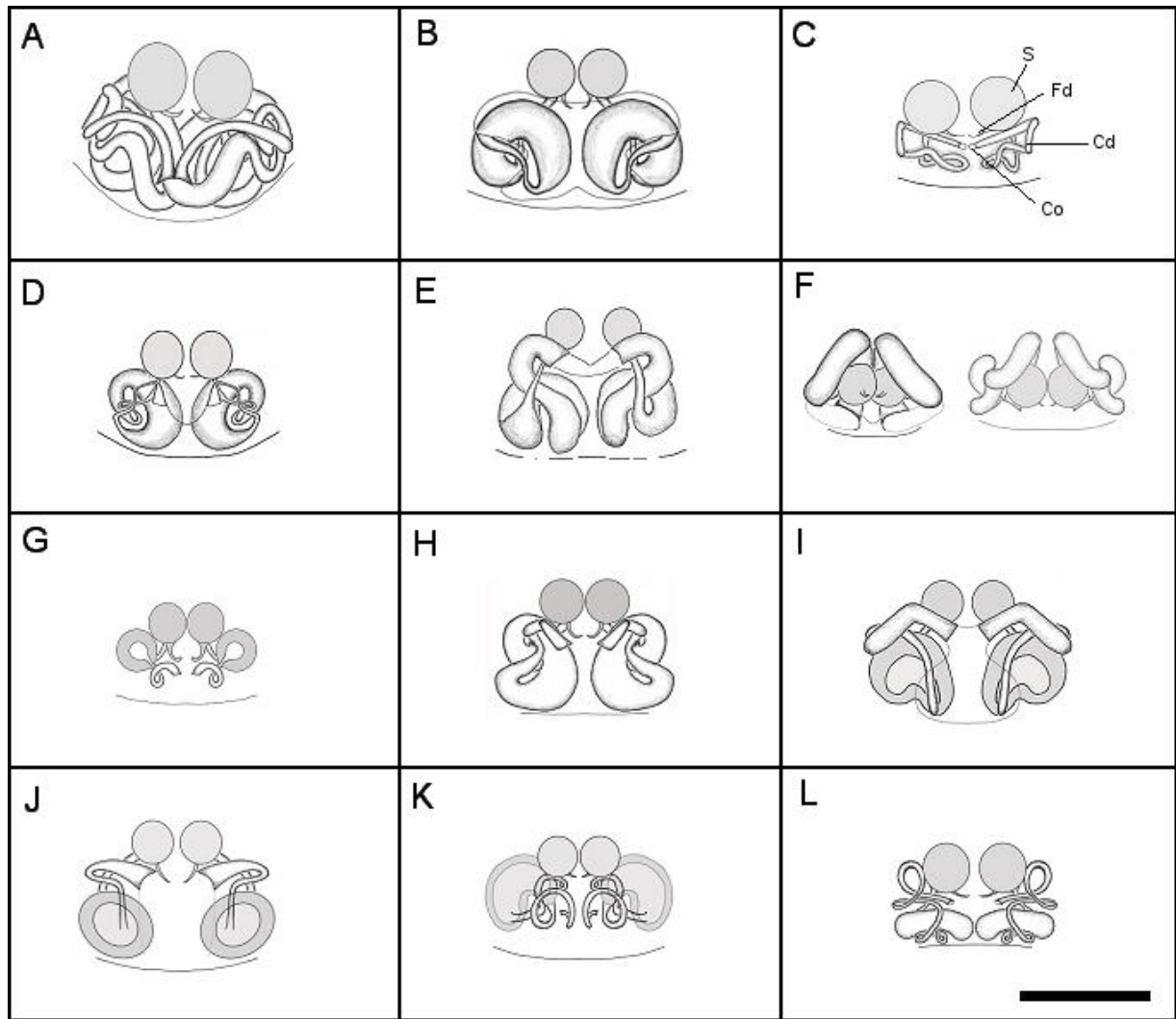


Figure 6: Overview of the female vulva of the here described *Rhinocosmetus* species. **A.** *R. xiphias* comb. nov.; **B.** *R. megarhinus* sp. nov., paratype RMNH ARA 18295; **C.** *R. argentatus* sp. nov., paratype RBINS IG 34514/07; **D.** *R. cochleatus* sp. nov., paratype RBINS IG 34514/07; **E.** *R. nasicornis* sp. nov., paratype RBINS IG 34514/08; **F.** *R. gretathunbergae* sp. nov., paratypes RMNH ARA 18305 and RMNH ARA 18326; **G.** *R. dolichorhinus* sp. nov., paratype RMNH ARA 18307; **H.** *R. skolorhinus* sp. nov., paratype RMNH ARA 18309; **I.** *R. gunungleuser* sp. nov., holotype; **J.** *R. dolichogaster* sp. nov., holotype; **K.** *R. sumba* sp. nov., holotype; **L.** *R. atropyga* sp. nov., paratype RMNH ARA 18316. Abbreviations. Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bar: 0.2 mm.

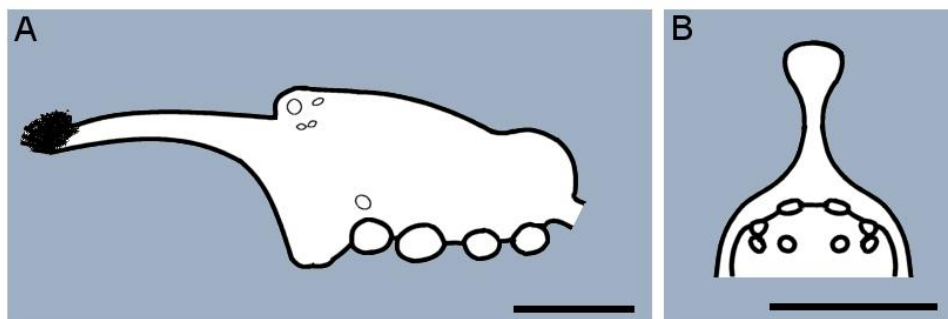


Figure 7: **A.** *Rhinocosmetus carnicobarensis* (Tikader, 1977), ♂, cephalothorax, lateral view, after TIKADER (1977), modified. **B.** *Rhinocosmetus nasutus* (O. Pickard-Cambridge, 1880) comb. nov., ♂, cephalothorax, dorsal view, after O. PICKARD-CAMBRIDGE (1880), modified. Scale bar: 0.5mm.

***Rhinoscymetulus argentatus* sp. nov.**

(Figs. 8-10, 73)

Diagnosis

Males of *R. argentatus* sp. nov. are recognized by the slender clypeal protrusion (Figs. 8A-D, 9), as in *R. djojosudharmoi* but longer (L/W 5.0 instead of 4.0), and the wide (L/W= 0.3) curved conductor, the distal part of the TTA and the obliquely looped embolus, its tip hidden by the cymbium (Figs. 8E-G); females are characterized by the epigyne with one pair, almost touching, spermathecae, copulatory openings central, close together and copulatory ducts with thick-walled stretches (Figs. 10D-E).

Etymology

The Latin adjective *argentatus* refers to the large silvery abdominal patches which are larger than in the other species.

Material examined**Holotype**

MALAYSIA •♂; N. Borneo, Sabah, Kinabalu National Park, Head Quarters (1550 m), primary rainforest; hand collected by sweeping; 6°04'N; 116°33'E; leg. C.L. Deeleman; 1 May 1991; RMNH ARA 18297.

Paratypes

MALAYSIA •1♀; N. Borneo, Sabah, Mt. Kinabalu, Mesilau, 1900 m, canopy fogging; 6°02'N; 116°35'E; leg. A. Floren; 28 Sep. 2006; RMNH ARA 18298; •3♂♂ 11♀♀; N-Borneo, Sabah, Kinabalu National Park 2000m, canopy fogging; 6°02'N; 116°35'E; leg. A. Floren; 28 Sep. 2006; RMNH ARA 18311.

Other material examined

MALAYSIA •1♂; N-Borneo, Sabah, Kinabalu National Park, HQ 1550m; 6°04'N; 116°33'E; leg. C.L. & P.R. Deeleman; 26 June 1979; RBINS; •1♀; as previous; 27 June 1979; RBINS; •3♂♂ 1♀; as previous; 1 May 1991; RMNH; •3♀♀; N-Borneo, Sabah, Kinabalu National Park, Mesilau; 6°02'N; 116°35'E; 1995m, canopy fogging; leg. A. Floren; 27 Sep. 2006; RMNH.

Description

Male (holotype, Figs. 8-9). Total length 3.10; abdomen 1.40; cephalothorax 1.10; clypeal protrusion 0.60; AME 0.07, other eyes 0.05, AME-AME 0.14, AME-ALE 0.03, PME-PME 0.12, PME-PLE 0.04.

Table 1. Leg measurements *Rhinoscymetulus argentatus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,40	0,20	3,20	2,80	1,20	10,8
II	1,40	0,20	1,10	0,80	0,65	4,2
III	0,70	0,15	0,35	0,40	0,30	1,9
IV	1,20	0,20	0,70	0,65	0,40	3,2

Ratio leg I/II 2.6; leg I/cephalothorax 10.1

Cephalothorax (Fig. 8A-D): clypeal protrusion very slender. One big spot between epigastric region and spinnerets.

Abdomen (Fig. 8A-C): dorsal and lateral with large silvery patches.

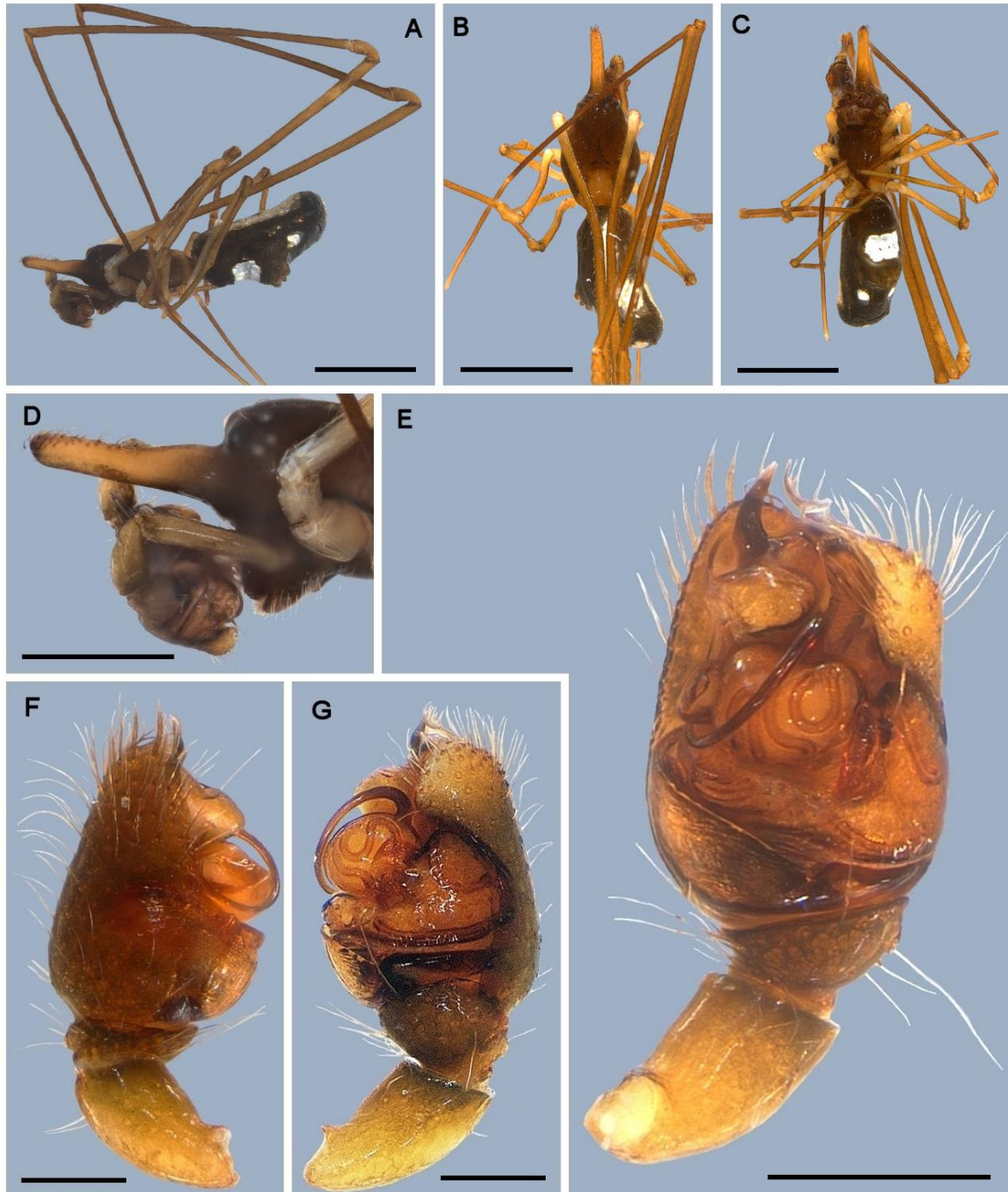


Figure 8: *Rhinocosmetus argentatus* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Cephalic part, lateral view. **E.** Left palp, ventral view. **F.** Same, prolateral view. **G.** Same, retrolateral view. Scale bars: A-C=1 mm; D=0.5 mm; E-G=0.2 mm.

Male palp (Figs. 8E-G, 9): as typical for the genus (Fig. 3) with these extra characteristics: cymbium with several thick, dentate setae on tip, curved retrodistad over bulbus; lateral lobe of cymbium large; embolus base subcircular, duct clearly visible; loop standing off tegulum, starting in distal part of bulbus, directed obliquely backwards, distal part hidden by cymbium; TTA distal appendage with sharp tip; curved 60°, produced beyond distal tip of cymbium; conductor wide, exposed part with L/W = 0.3, curved retrolaterad.

Lengths of legs are shown in Table 1.

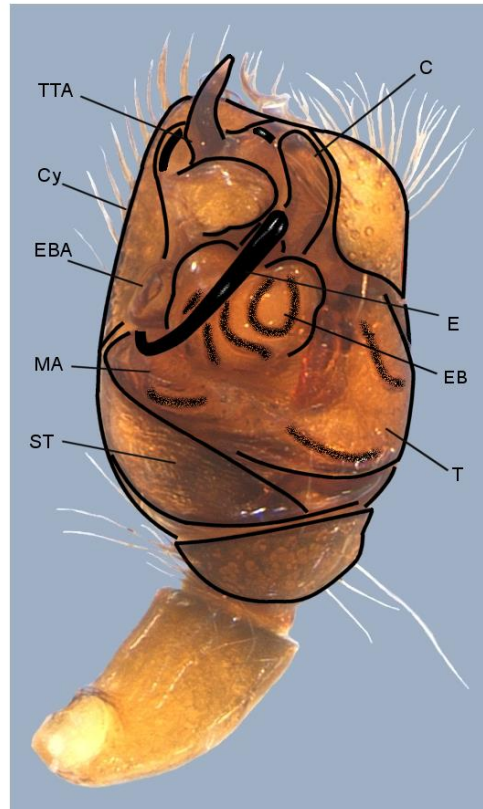


Figure 9: *Rhinocosmetus argentatus* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype RMNH ARA 18298, Fig. 10). Total length 3.20; abdomen 2.20; cephalothorax 1.00; AME 0.08, other eyes 0.05, AME-AME 0.13, AME-ALE 0.03, PME-PME 0.10, PME-PLE 0.03.

Table 2: Leg measurements *Rhinocosmetus argentatus* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,00	0,30	1,80	1,80	0,85	6,8
II	0,90	0,25	0,70	0,60	0,45	2,9
III	0,45	0,20	0,25	0,30	0,25	1,5
IV	0,85	0,20	0,45	0,45	0,35	2,3

Ratio leg I/II 2.3; leg I/cephalothorax 7.5

Abdomen (Fig. 10A-C): dorsum and sides with large silvery patches; venter with one big spot between epigastric region and spinnerets.

Epigyne (Fig. 10D-E): very poorly delimited, openings close to each other and hardly visible, left and right of the epigyne a longitudinal, long, transparent spot showing copulatory ducts; spermathecae round, rather large; copulatory ducts long, width about equal over entire length, part of ducts with walls as thick as diameter of duct lumen.

Lengths of legs are shown in Table 2.

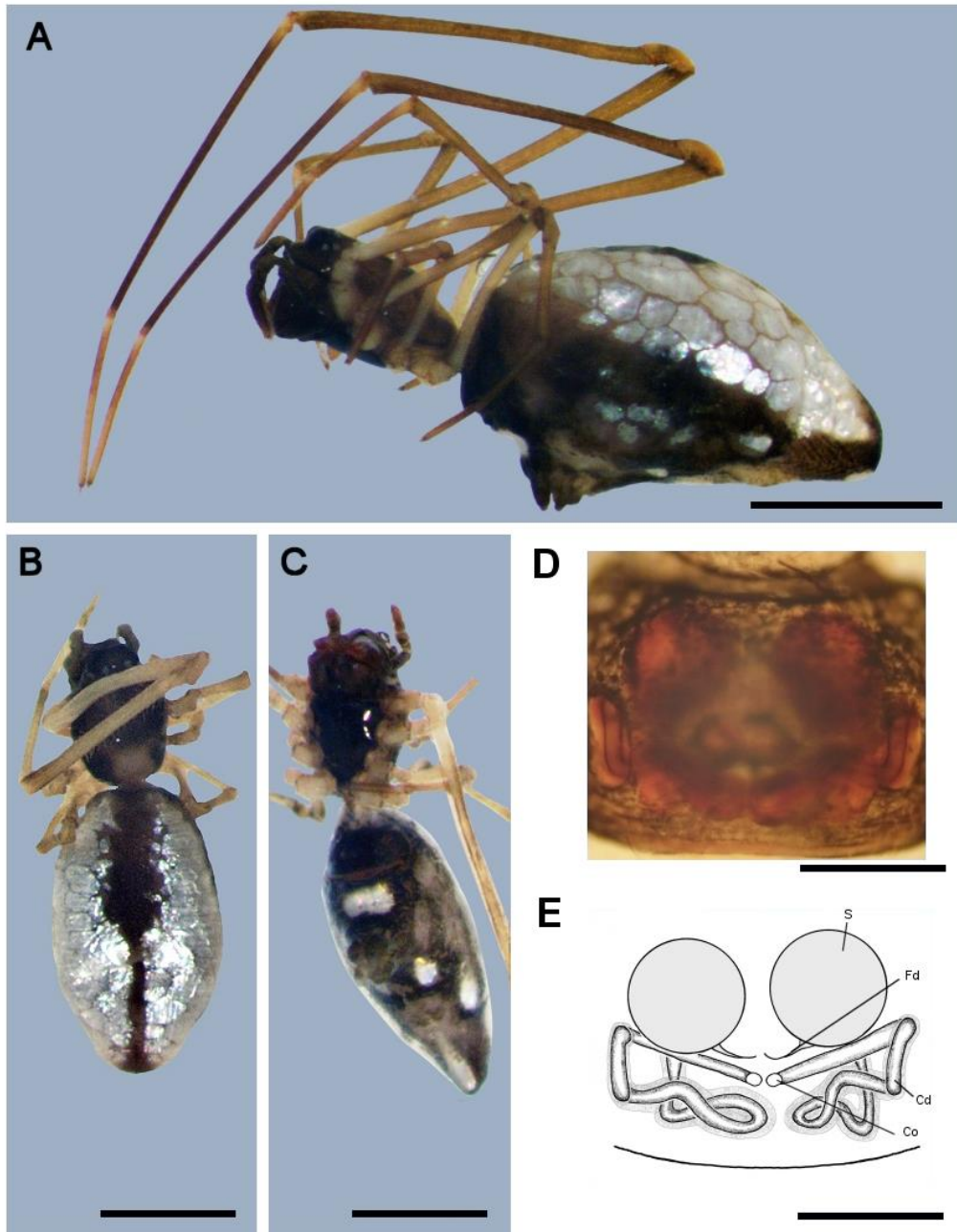


Figure 10: *Rhinocosmetus argentatus* sp. nov., ♀. **A.** Paratype RMNH ARA 18298, habitus, lateral view. **B.** Paratype RMNH ARA 18311, habitus, dorsal view. **C.** Same, ventral view. **D.** Paratype RMNH ARA 18298, epigyne, ventral view. **E.** Same, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-E=0.1 mm.

Variation

Males: n = 3: Total length 2.90-3.20; abdomen 1.35-1.50; cephalothorax 1.00-1.10; clypeal protrusion 0.55-0.60.

Females: n = 3: Total length 2.20-3.20; abdomen 1.40-2.20; cephalothorax 0.80-1.00.

Distribution

Known only from the type locality Malaysia, N-Borneo, Sabah, Kinabalu National Park, at higher altitudes only (Fig. 73).

***Rhinocosmetus atropyga* sp. nov.**

(Figs. 11-14, 72)

Diagnosis

Both sexes of this species are recognized by the unique dark posterior part of the abdomen (Figs. 11A-C); males are further characterized by the narrow, spoon-shaped clypeal protrusion and by the long conductor pointing prolaterad beyond the cymbial margin (Figs. 11, 12). Extra characteristics of the female are the sausage shaped transversely orientated posterior spermathecae and the long, thin, coiled copulatory ducts (Figs. 14D-E).

Etymology

The species name is a noun in apposition composed of the Latin *ater* (black) and the Greek *πυρη* (posterior) referring to the dark posterior part of the abdomen in both sexes.

Material examined**Holotype**

INDONESIA •♂; C. Sulawesi, Dumoga, watershed protection near Doloduo, prim. forest near border; 0°39'N; 124°03'E; leg. C.L. & P.R. Deeleman; 27 July 1982; RMNH ARA 18315.

Paratype

INDONESIA •2♂♂ 2♀♀; same as holotype; RMNH ARA 18316.

Other material examined

INDONESIA •1♂♂; N. Sulawesi (Palu), Marena, Lore Lindu Res.; 1°33'S; 120°07'E; 600m; leg. C.L. & P.R. Deeleman; 24 July 1982; RBINS.

Description

Male (holotype, Figs. 11-13). Total length 2.75; abdomen 1.20; cephalothorax 0.95; clypeal protrusion 0.60; AME 0.07, other eyes 0.05, AME-AME 0.12, AME-ALE 0.02, PME-PME 0.11, PME-PLE 0.04.

Table 3: Leg measurements *Rhinocosmetus atropygna* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,80	0,30	2,80	2,60	0,60	9,1
II	1,20	0,20	0,85	0,90	0,60	3,8
III	0,70	0,15	0,35	0,40	0,30	1,9
IV	1,20	0,20	0,60	0,60	0,45	3,1

Ratio leg I/II 2.4; leg I/cephalothorax 9.3

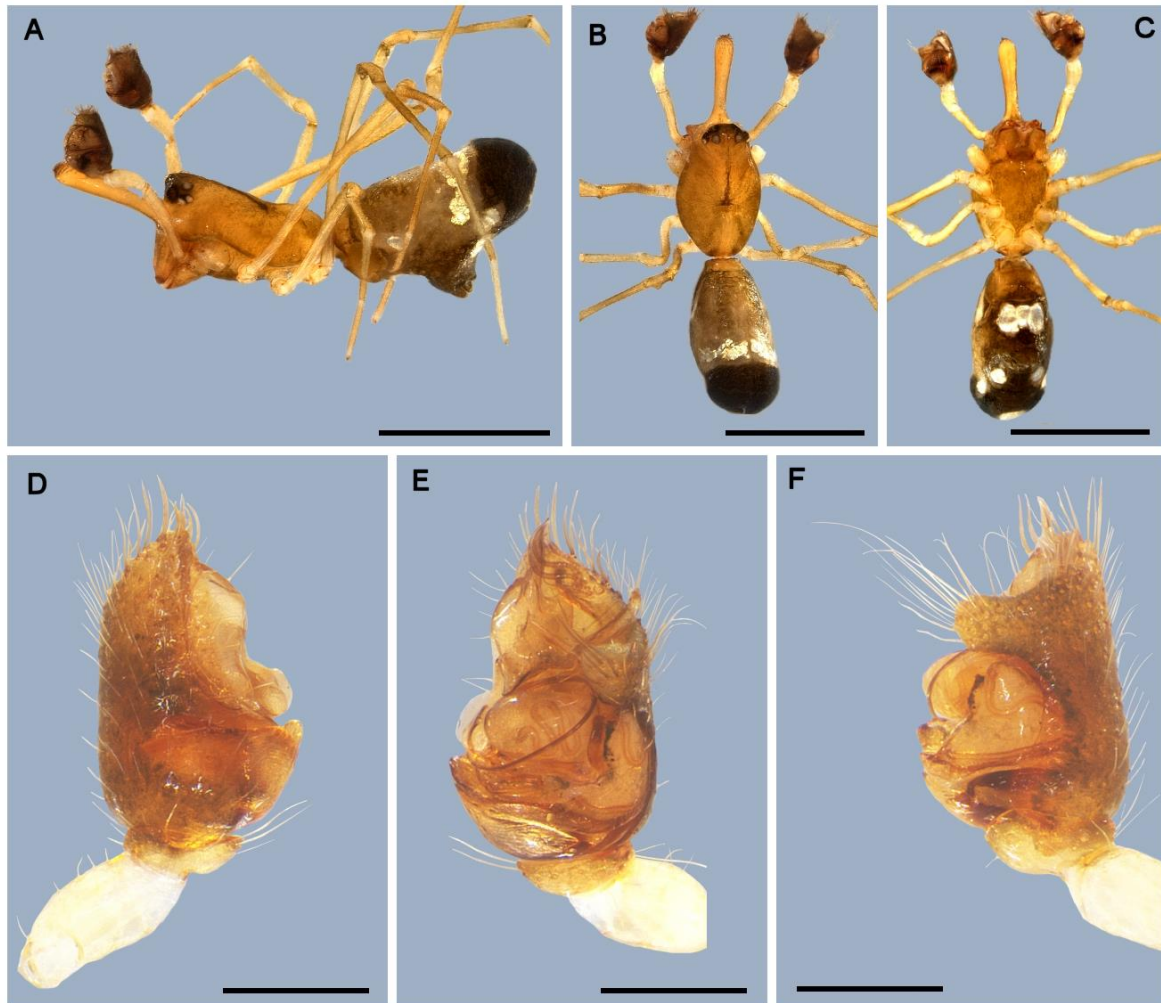


Figure 11: *Rhinocosmetus atropyga* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=1 mm; D-F=0.2 mm.

Male palp (Figs. 11D-F, 12E, 13): as typical for the genus (Fig. 3) with these extra characteristics: cymbium with two semicircular strong setae on anterior side (Fig. 12E, arrow); lateral lobe of cymbium narrow, with many large setae; embolus base large, subtriangular; origin of dark, thin, sclerotized part hidden by cymbium, loop wide, distal tip very thin; TTA triangular, distal tip thin, short, straight, just reaching rim of cymbium; conductor, narrow, long, pointing prolaterad beyond prolateral cymbial rim.

Lengths of legs are shown in Table 3.

Cephalothorax (Figs. 11A-C, 12A-D): clypeal protrusion thin, slightly widened towards distal tip; spoon shaped.

Abdomen (Fig. 11A-C): slightly constricted behind spinnerets; dorsal white patches forming almost complete ring around abdomen, just in front of black posterior end.

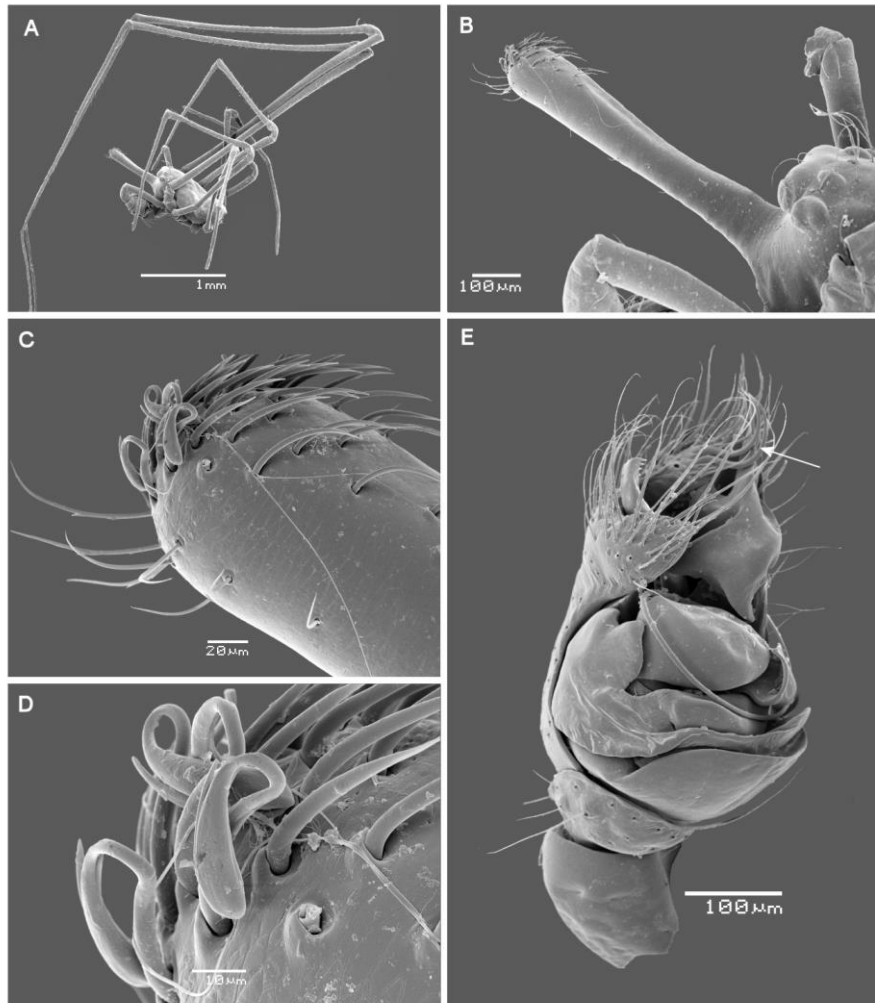


Figure 12: *Rhinocosmetus atropyga* sp. nov., ♂, paratype RMNH ARA 18316. **A.** Cephalothorax, dorsolateral view. **B.** Cephalic part, dorsolateral view. **C.** Same, detail. **D.** Setae, lateral view. **E.** Right palp, prolateral view. Arrow: curved setae.

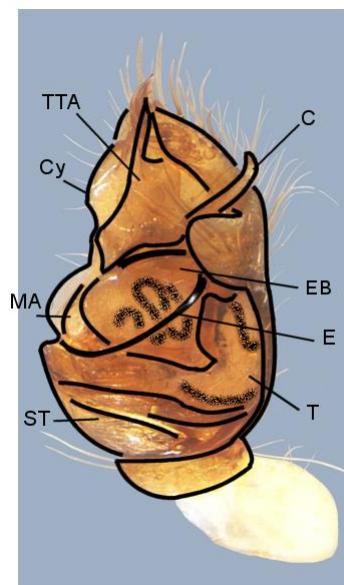


Figure 13: *Rhinocosmetus atropyga* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype, Fig. 14). Total length 2.25; abdomen 1.20; cephalothorax 0.85; AME 0.06, other eyes 0.05, AME-AME 0.10, AME-ALE 0.02, PME-PME 0.10, PME-PLE 0.03.

Table 4: Leg measurements *Rhinocosmetus atropygna* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,00	0,30	1,80	1,70	0,80	6,6
II	0,90	0,20	0,60	0,60	0,45	2,8
III	0,50	0,10	0,35	0,30	0,25	1,5
IV	0,90	0,20	0,45	0,45	0,30	2,3

Ratio leg I/II 2.4; leg I/cephalothorax 7.8

Abdomen (Fig. 14A-C): high with fine, dark brown point at rear end.

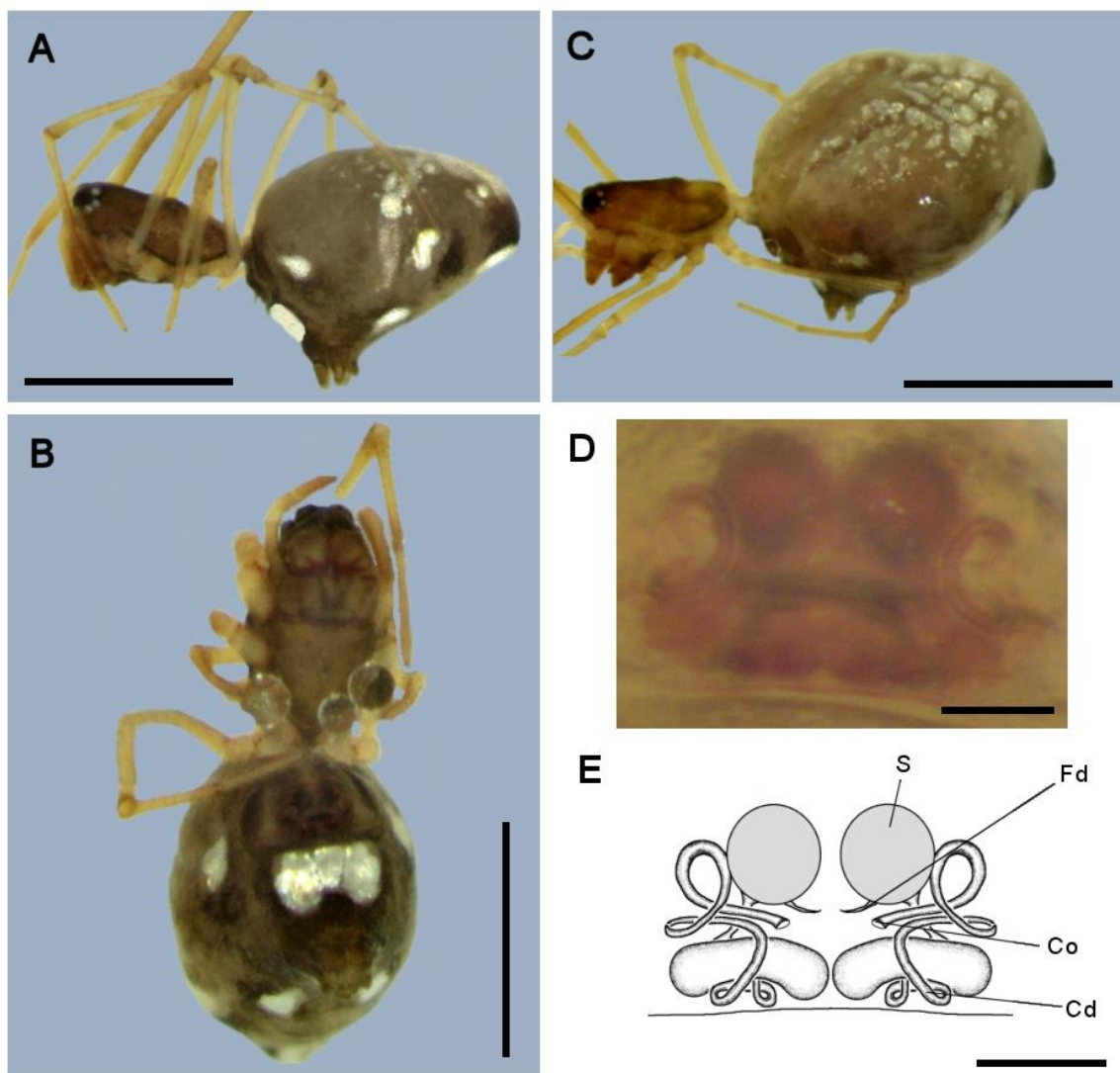


Figure 14: *Rhinocosmetus atropygna* sp. nov., ♀, paratypes RMNH ARA 18316. **A.** Habitus, lateral view. **B.** Same, ventral view. **C.** Habitus, lateral view, other specimen. **D.** Epigyne, ventral view. **E.** Vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-E=0.1 mm.

Epigyne (Fig. 14D-E): poorly delimited, with parts of the copulatory ducts and spermathecae visible in transparency; vulva with long, narrow copulatory ducts; second pair of spermathecae sausage shaped, slightly recurved, oriented transverse.

Lengths of legs are shown in Table 4.

Distribution

Indonesia, N. and C. Sulawesi (Fig. 72).

Rhinocosmetus cochleatus sp. nov.

(Figs. 15-18, 73)

Diagnosis

Males of *R. cochleatus* sp. nov. are recognized by the clypeal protrusion, which is bent upwards, narrowed in the middle in dorsal view, spoon shaped (Figs. 15A-C, 16A). Females have a vulva (Fig. 18E) which is reminiscent of that of *R. skolorhinus* sp. nov. (Fig. 45E) but the thick parts of the copulatory ducts are longitudinal instead of transverse; the part of the abdomen behind the spinnerets is about five times the anterior part whereas both parts have approximately the same length in *R. skolorhinus* sp. nov. (Fig. 43A-C).

Etymology

The species name, the Latin adjective '*cochleatus*', spoon shaped, refers to the shape of the clypeal extension.

Material examined

Holotype

INDONESIA •♂; W. Java, Cibodas Botanical gardens; 6°44'S; 107°00'E; 1300m asl; leg. S. Djojosedharmo; 6-8 Dec. 1986; RMNH ARA 18300.

Paratypes

INDONESIA •1♂ 7♀; same as holotype; RMNH ARA 18301; •2♂♂ 2♀♀; same as holotype; RBINS IG 34514/07.

Description

Male (holotype, Figs. 15-17). Total length 3.70; abdomen 1.95; cephalothorax 1.08; clypeal protrusion 0.65; AME 0.07, other eyes 0.05, AME-AME 0.13, AME-ALE 0.03, PME-PME 0.14, PME-PLE 0.05.

Table 5: Leg measurements *Rhinocosmetus cochleatus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,00	0,30	2,90	2,90	1,20	10,3
II	1,60	0,20	0,95	0,90	0,60	4,3
III	0,75	0,15	0,40	0,40	0,35	2,1
IV	1,20	0,20	0,60	0,60	0,45	3,1

Ratio leg I/II 2.4; leg I/cephalothorax 9.6



Figure 15: *Rhinocosmetus cochleatus* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Left palp partly expanded, ventral view. **G.** Same, prolateral view. Scale bars: A-C=1 mm; D-G=0.2 mm.

Cephalothorax (Fig. 15A-C): clypeal protrusion bent upwards, in dorsal view spoon-like, with groove on dorsal side; cotyledonoid setae only present at tip.

Abdomen (Fig. 15A-C): cylindrical and long, light brown with dorsal white spots large.

Male palp (Figs. 15D-G, 16C, 17): as typical for the genus (Fig. 3) with these extra characteristics: cymbium distally with short prolateral tapered extension; embolus base oval, sclerotized part thin, origin directed forward, looped over 270°, extremity pointing forwards on retrolateral side, fully visible; TTA with distal part provided with retrolateral extension and long, narrow point, bent halfway prolaterad over 45°.

Lengths of legs are shown in Table 5.

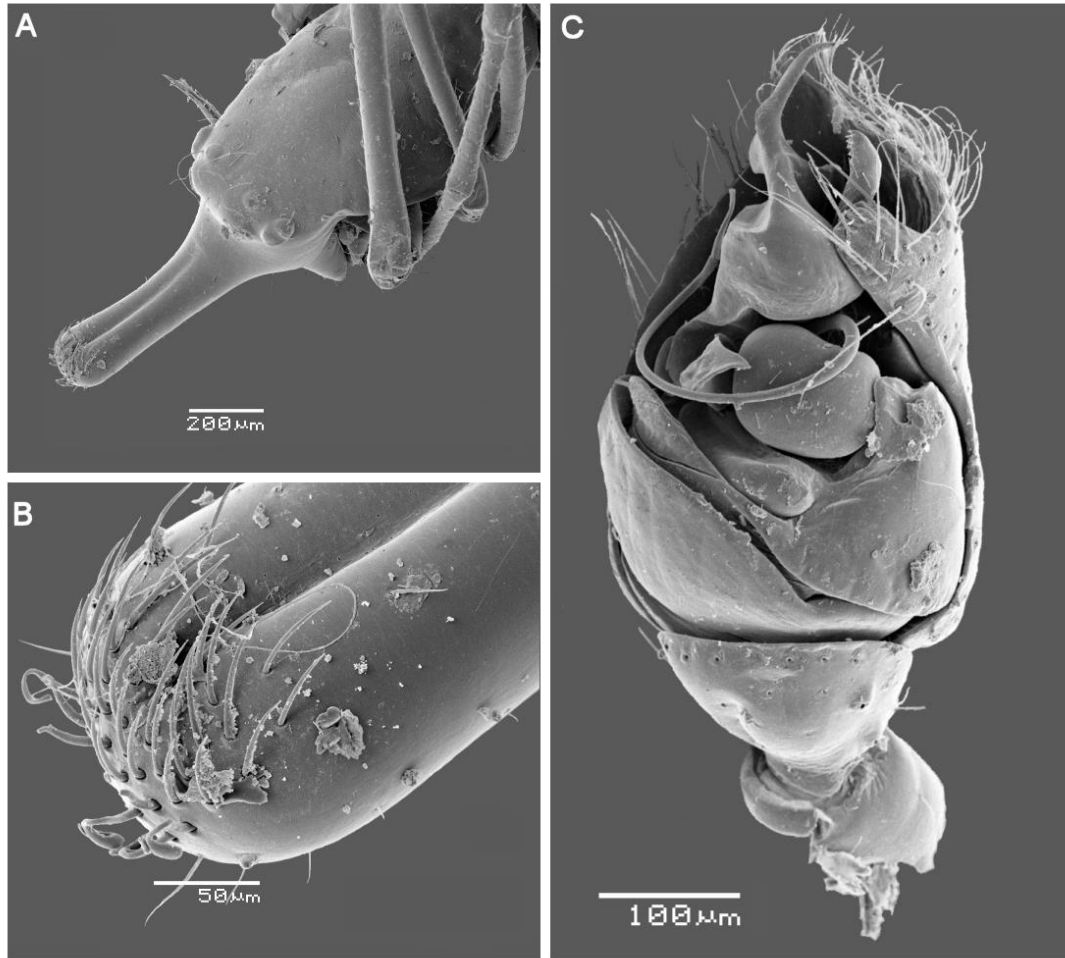


Figure 16: *Rhinocosmetus cochleatus* sp. nov., ♂, paratype RBINS IG 34514/07. **A.** Cephalic part, dorsal view. **B.** Same, detail. **C.** Left palp, ventral view.

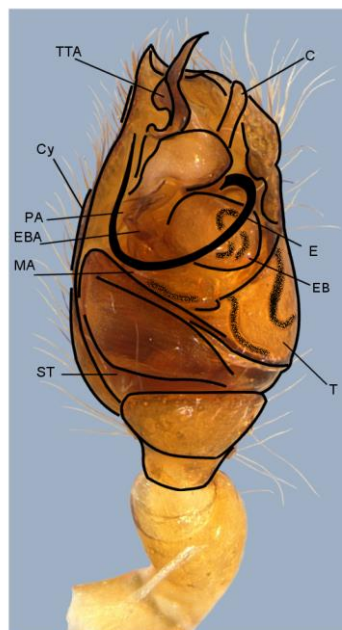


Figure 17: *Rhinocosmetus cochleatus* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype RBINS IG 34514/07, Fig. 18). Total length 3.45; abdomen 2.50; cephalothorax 0.95; AME 0.06, other eyes 0.04, AME-AME 0.11, AME-ALE 0.02, PME-PME 0.01, PME-PLE 0.04.

Table 6: Leg measurements *Rhinocosmetus cochleatus* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,20	0,25	1,80	1,90	0,80	7,0
II	1,10	0,15	0,65	0,65	0,45	3,0
III	0,55	0,10	0,30	0,25	0,20	1,4
IV	0,80	0,15	0,45	0,45	0,35	2,2

Ratio leg I/II 2.3; leg I/cephalothorax 7.5

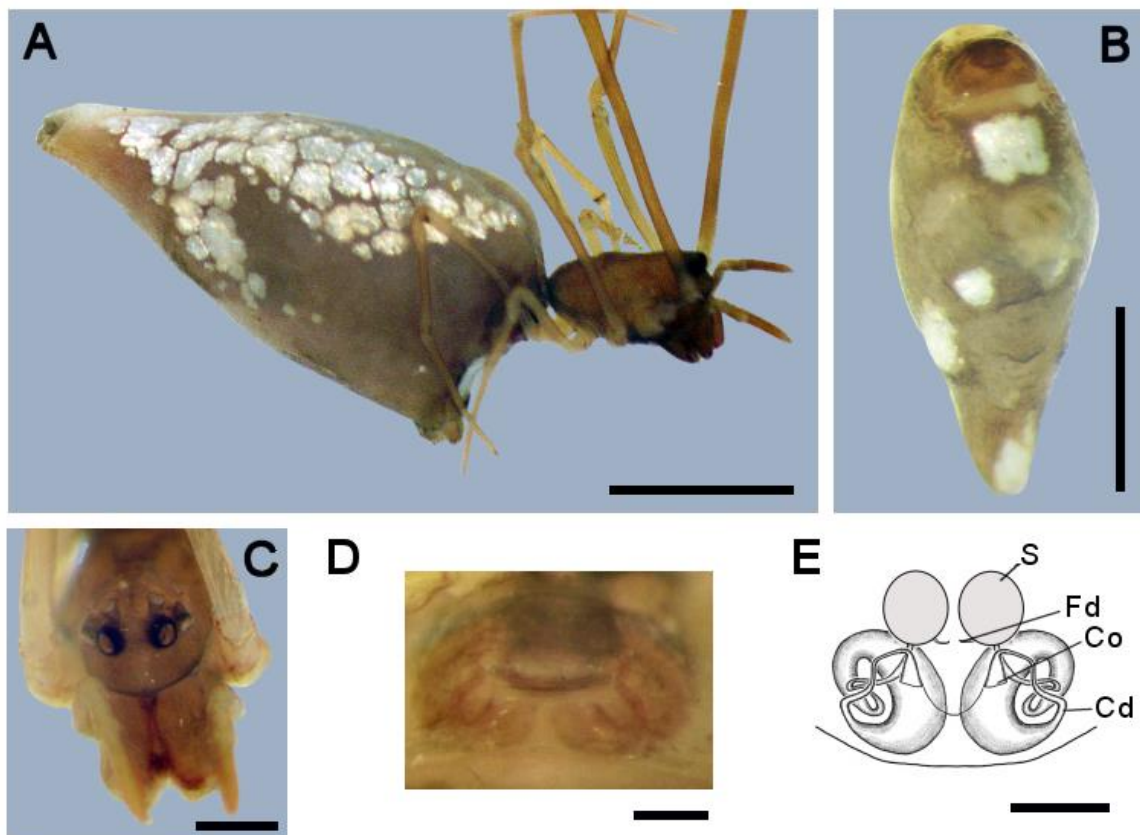


Figure 18: *Rhinocosmetus cochleatus* sp. nov., ♀, paratype RBINS IG 34514/07. **A.** Habitus, lateral view. **B.** Abdomen, ventral view. **C.** Cephalic part, frontal view. **D.** Epigyne, ventral view. **E.** Vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C=0.5 mm; D-E=0.1 mm.

Abdomen (Fig. 18A-B): much extended behind the spinnerets; spinnerets slightly pointing to the front.

Epigyne (Fig. 18D-E): only posterior margin visible, part of copulatory ducts and spermathecae noticeable; copulatory ducts start with wide opening, then very thin for about 1/4 of length, widening to very thick kidney shaped middle part, last 1/4 part very thin; thickest part of kidney shaped sections about as wide as spermathecae, almost touching each other; vulva much like *Rinocosmetus megarhinus* sp. nov. but thick part of copulatory ducts vertical directed instead of horizontal.

Lengths of legs are shown in Table 6.

Variation

Males: n = 2: Total length 3.55-3.70; abdomen 1.90-2.00; cephalothorax 1.05; clypeal protrusion 0.60-0.70.

Females: n = 9: Total length 2.40-3.80; abdomen 1.50-2.80; cephalothorax 0.90-1.00.

Distribution

Indonesia; W. Java (Fig. 73).

***Rhinocosmetus djojosudharmoi* sp. nov.**

(Figs. 19-20, 73)

Diagnosis

Males of *R. djojosudharmoi* sp. nov. are recognized by the long and slender, parallel sided, slightly bent and blunt distal prong of the TTA (Fig. 19D-F). The palp is very similar to that of *R. pinocchio* sp. nov. (Fig. 41F-H), both have a TTA with a long appendage, but in *R. pinocchio* this is slimmer and straighter. The clypeal protrusion of *R. pinocchio* has a dorsal indentation at the base, that of *R. djojosudharmoi* sp. nov. is provided with a small dorsal swelling at the base.

Etymology

The species name is a patronym in honour of the late Suharto Djojosudharmo, the collector of the type specimens.

Material examined

Holotype

INDONESIA •♂; West-Nusa Tenggara, Sumbawa, Semongkat, 20 km from Sumbawa Besar, secondary forest, 480m; 8°34'S; 117°18'E; leg. S. Djojosudharmo; 9 Jan. 1990; RMNH ARA 18317.

Paratype

INDONESIA •♂; same as holotype; RBINS IG 34514/20.

Description

Male (holotype, Figs. 19-20). Total length 3.40; abdomen 1.90; cephalothorax 1.00; clypeal protrusion 0.50; AME 0.07, other eyes 0.05, AME-AME 0.13, AME-ALE 0.03, PME-PME 0.10, PME-PL 0.05.

Table 7: Leg measurements *Rhinocosmetus djojosudharmoi* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	missing					missing
II	1,50	0,25	1,10	1,00	0,55	1,50
III	0,80	0,15	0,50	0,40	0,35	0,80
IV	1,20	0,20	0,80	0,75	0,45	1,20

Cephalothorax (Fig. 19A-C): dark brown; clypeal protrusion relative short, half the length of cephalothorax.

Abdomen (Fig. 19A-C): dark brown; dorsal white stripes in V-shape.



Figure 19: *Rhinocosmetus djojosudharmoi* sp. nov., ♂, holotype. **A.** Cephalothorax, lateral view. **B.** Habitus, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=0.5 mm; D-F=0.2 mm.

Male palp (Figs. 19D-F, 20): as typical for the genus (Fig. 3) with these extra characteristics: cymbium fairly wide in distal part; embolus base rounded, sclerotized dark part looped with distal part hidden by cymbial fold; TTA with distal appendage long and slender, parallel sided, slightly bent and blunt, produced far beyond distal tip of cymbium; conductor long, narrow, only slightly extended beyond cymbial rim.

Lengths of legs are shown in Table 7.

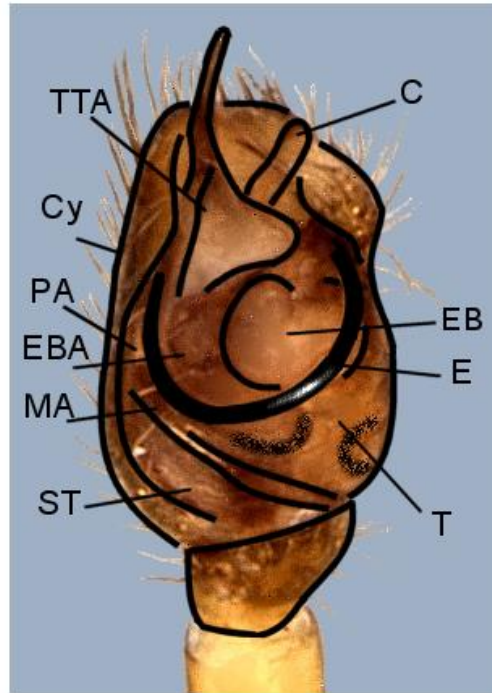


Figure 20: *Rhinocosmetus djojosudharmoi* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female: Unknown.

Variation

Males: n = 2: Total length 3.25-3.40; abdomen 1.90; cephalothorax 0.90-1.00, clypeal protrusion 0.45-0.50.

Distribution

Indonesia, Sumbawa Island (Fig. 73).

Rhinocosmetus dolichogaster sp. nov.

(Figs. 21, 72)

Diagnosis

The female of *R. dolichogaster* sp. nov. is recognized by the elongated abdomen, much longer than in other species (Fig. 21A-C), by the epigyne and vulva (Fig. 21D-E) reminiscent of that in *R. gunungleuser* sp. nov. (Fig. 30C-D) but with the posterior spermathecae elliptical and the first part of the copulatory ducts funnel-shaped.

Etymology

The species name is a noun in apposition composed of the Greek *δολιχος* (long) and the Latin *gaster* (abdomen) referring to the long abdomen of the female.

Material examined

Holotype

INDONESIA •♀; West-Nusa Tenggara, Sumbawa Island, Semongkat, 20 km from Sumbawa Besar; 8°34'S; 117°23'E; 480 m, secondary forest; leg. S. Djojosedharmo; 3 Jan. 1990; RMNH ARA 18312.

Other material examined
None.

Description

Female (holotype, Fig. 21). Total length 2.05; abdomen 1.10; cephalothorax 0.95; AME 0.07, other eyes 0.05, AME-AME 0.10, AME-ALE 0.02, PME-PME 0.10, PME-PLA 0.05.

Table 8: Leg measurements *Rhinoscmetus dolichogaster* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,60	0,30	2,40	2,40	0,90	8,6
II	1,10	0,25	0,90	0,75	0,45	3,5
III	0,55	0,20	0,40	0,40	0,30	1,9
IV	1,10	0,20	0,50	0,60	0,35	2,8

Ratio leg I/II 2.5; leg I/cephalothorax 9.1

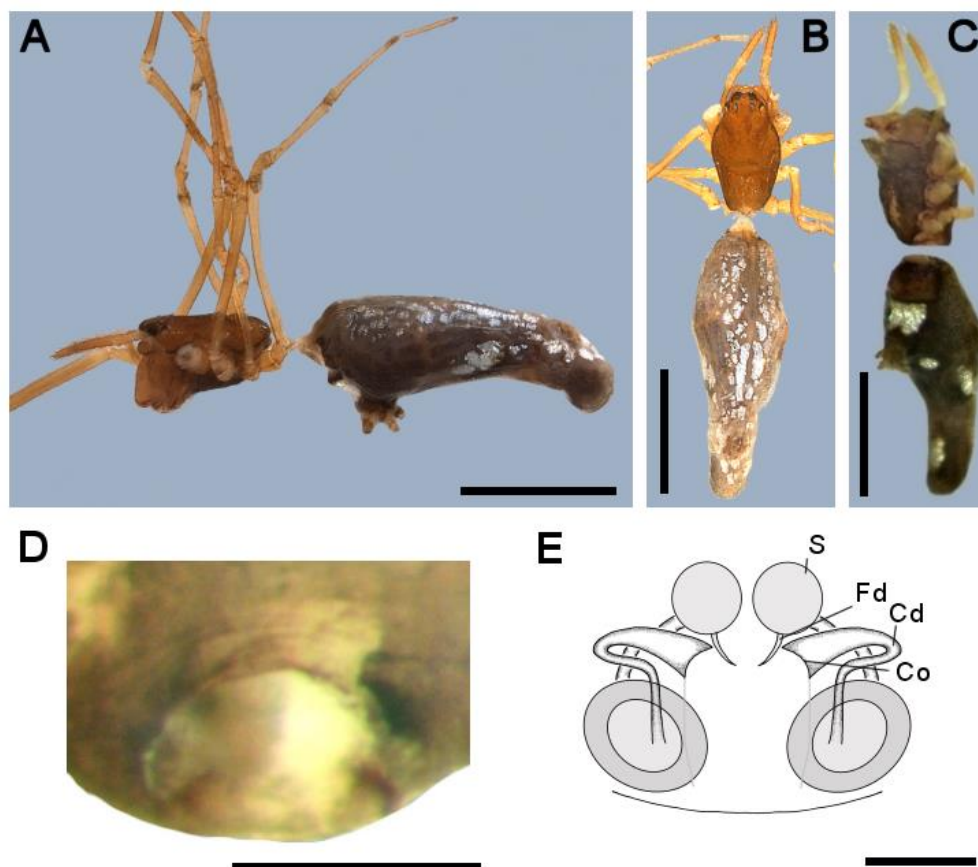


Figure 21: *Rhinoscmetus dolichogaster* sp. nov., ♀, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Epigyne, ventral view. **E.** Vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-E=0.1 mm.

Abdomen (Fig. 21A-B): very long with posterior part pointing downwards.

Epigyne (Fig. 21D-E): epigyne oval, without extra light spots in anterior part; vulva with two pairs of spermathecae: anterior pair globular close to each other but not touching; posterior pair larger, oval, thick-walled, half their largest diameter apart; copulatory openings as far apart as posterior spermathecae; copulatory ducts funnel shaped, connected to large spermathecae by narrow curved stretch; connection between large and small spermathecae a narrow-curved stretch.

Lengths of legs are shown in Table 8.

Male: Unknown.

Distribution

Indonesia, West-Nusa Tenggara, Sumbawa Island (Fig. 72).

Rhinocosmetus dolichorhinus sp. nov.

(Figs. 22-25, 72)

Diagnosis

Males of *R. dolichorhinus* sp. nov. are recognized by the mall palp, much smaller than in other species, by the small and inconspicuous conductor and TTA (Fig. 22E-G) and by the narrow embolic loop situated in the retrolateral side of the palp. Females are characterized by the vulva with two pairs of spermathecae of which the frontal pair is touching, the second pair further backwards provided with thick walls and more than their diameter apart (Fig. 25D).

Etymology

The specific name is a noun in apposition combining the Greek 'δολιχος' (long) and ρινος (nose), referring to the long clypeal extension.

Material examined

Holotype

THAILAND •♂; Khao Yai National Park; 14°24'N; 101°22'E; leg. C.L. & P.R. Deeleman; 11 Nov. 1987; RMNH ARA 18306.

Paratypes

THAILAND •1♀; same as holotype; 4 Nov. 1987; RMNH ARA 18307; •1♂ 1♀; same as holotype; 3 March 1986; RBINS IG 34514/10; •1♂; same as holotype; 12 Nov. 1987; RMNH ARA 18329.

Other material examined

INDONESIA •3♂♂1♀; W. Bali, Mekori, temple forest, 8°23'S; 115°01'S; leg. C.L. Deeleman; 31 Aug. 1992; RMNH.

THAILAND: •1♂ 1♀; Khao Yai National Park; 14°24'N; 101°22'E; leg. C.L. & P.R. Deeleman; 3 March 1986; RMNH; •1♂; as previous; 2 Dec. 1988; RBINS.

Description

Male (holotype, Figs. 22-24). Total length 2.95; abdomen 1.50; cephalothorax 0.90; clypeal protrusion 0.55; AME 0.07, other eyes 0.04, AME-AME 0.09, AME-ALE 0.02, PME-PME 0.10, PME-PLE 0.04.

Table 9: Leg measurements *Rhinocosmetus dolichorhinus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,60	0,25	2,60	2,70	1,00	9,2
II	1,25	0,20	0,90	0,80	0,40	3,6
III	0,80	0,15	0,35	0,35	0,30	2,0
IV	1,10	0,20	0,60	0,55	0,40	2,9

Ratio leg I/II 2.6; leg I/cephalothorax 10.2

Cephalothorax (Figs. 22A-C, 23): clypeal protrusion long and thin, with only a few cotyledonoid setae at the tip.



Figure 22: *Rhinocosmetus dolichorhinus* sp. nov., ♂. **A.** Holotype, habitus, lateral view. **B.** Paratype RMNH ARA 18329, cephalic part, laterodorsal view. **C.** Holotype, habitus, dorsal view. **D.** Same, ventral view. **E.** Same, right palp, prolateral view. **F.** Same, left palp, ventral view. **G.** Same, right palp, retrolateral view. Scale bars: A, C-D=0.5 mm; B, E-G=0.2 mm.

Abdomen (Fig. 22A-D): elongated behind spinnerets; white spot on ventral side between epigastric region and spinnerets very big.

Male palp (Figs. 22E-G, 24): as typical for the genus (Fig. 3) with these extra characteristics: much smaller than other species; embolus base with sinuous anterior margin, sclerotized directed forward at origin, with narrow loop positioned in retrolateral half of bulbus, shorter than in other species; TTA and conductor inconspicuous, not passing beyond cymbial rim; TTA with small distal part curved prolaterally; conductor slightly curved retrolaterally.

Lengths of legs are shown in Table 9.

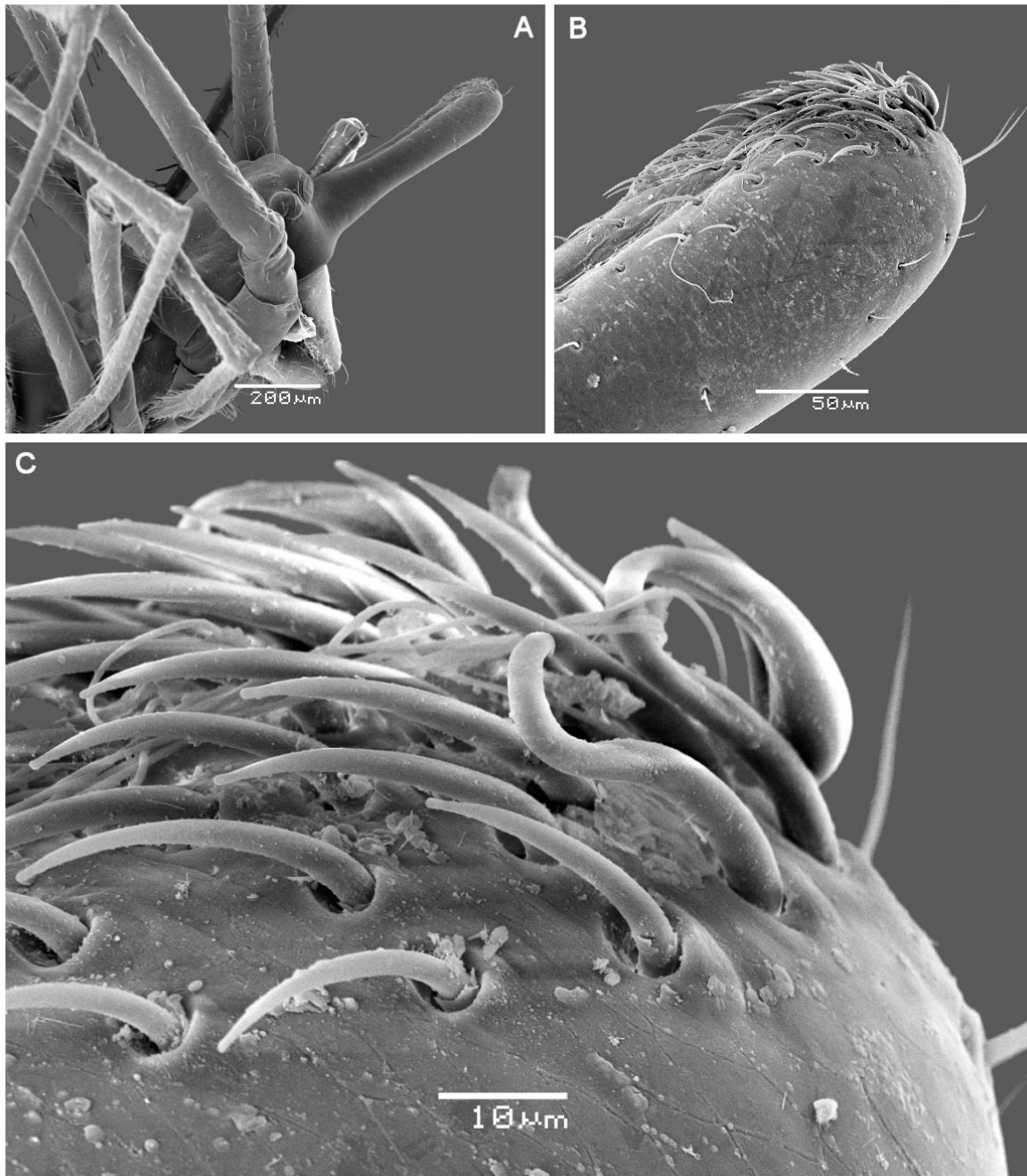


Figure 23: *Rhinocosmetes dolichorhinus* sp. nov., ♂, paratype RBINS IG 34514/10. **A.** Cephalic part, laterodorsal view. **B.** Same, detail. **C.** Setae, lateral view.

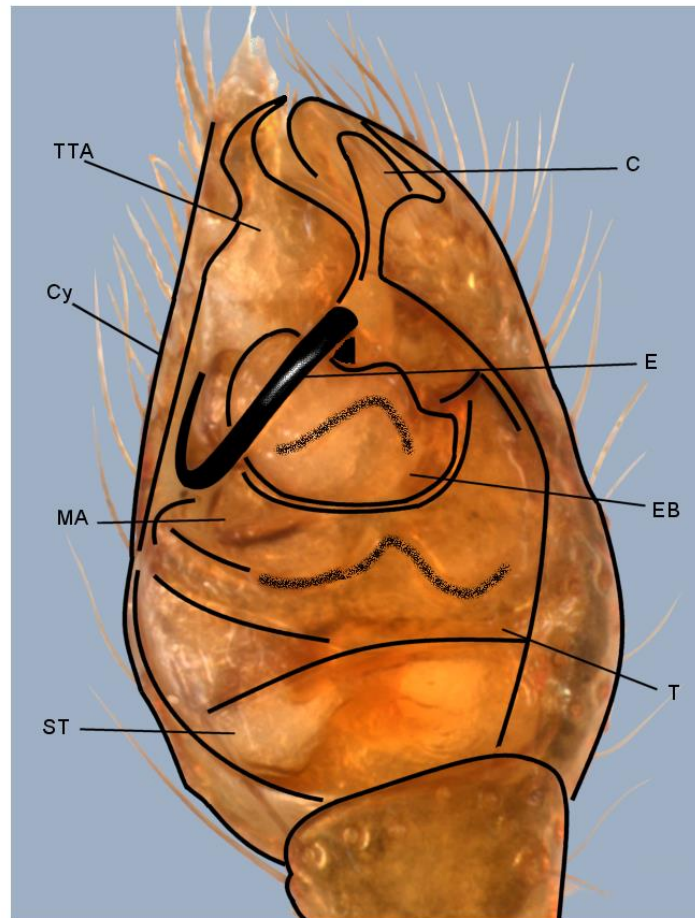


Figure 24: *Rhinocosmetus dolichorhinus* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype, RMNH ARA 18307, Fig. 25). Total length 2.15; abdomen 1.30; cephalothorax 0.85; AME 0.07, other eyes 0.05, AME-AME 0.09, AME-ALE 0.02, PME-PME 0.08, PME-PLE 0.04.

Table 10: Leg measurements *Rhinocosmetus dolichorhinus* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,40	0,25	1,90	2,00	0,90	7,5
II	0,90	0,20	0,70	0,65	0,40	2,9
III	0,50	0,15	0,25	0,30	0,20	1,4
IV	0,90	0,15	0,40	0,45	0,30	2,2

Ratio leg I/II 2.6; leg I/cephalothorax 8.8

Abdomen (Fig. 25A-B, E-F): colour variable between light and dark brown.

Epigyne (Fig. 25C-D): with wide and short dark trapezoid patch in posterior half; spermathecae slightly visible in transparency; vulva with four spermathecae, two in front, globular, touching, and two further backwards, slightly larger, with thick walls more than their diameter apart; copulatory ducts narrow.

Lengths of legs are shown in Table 10.

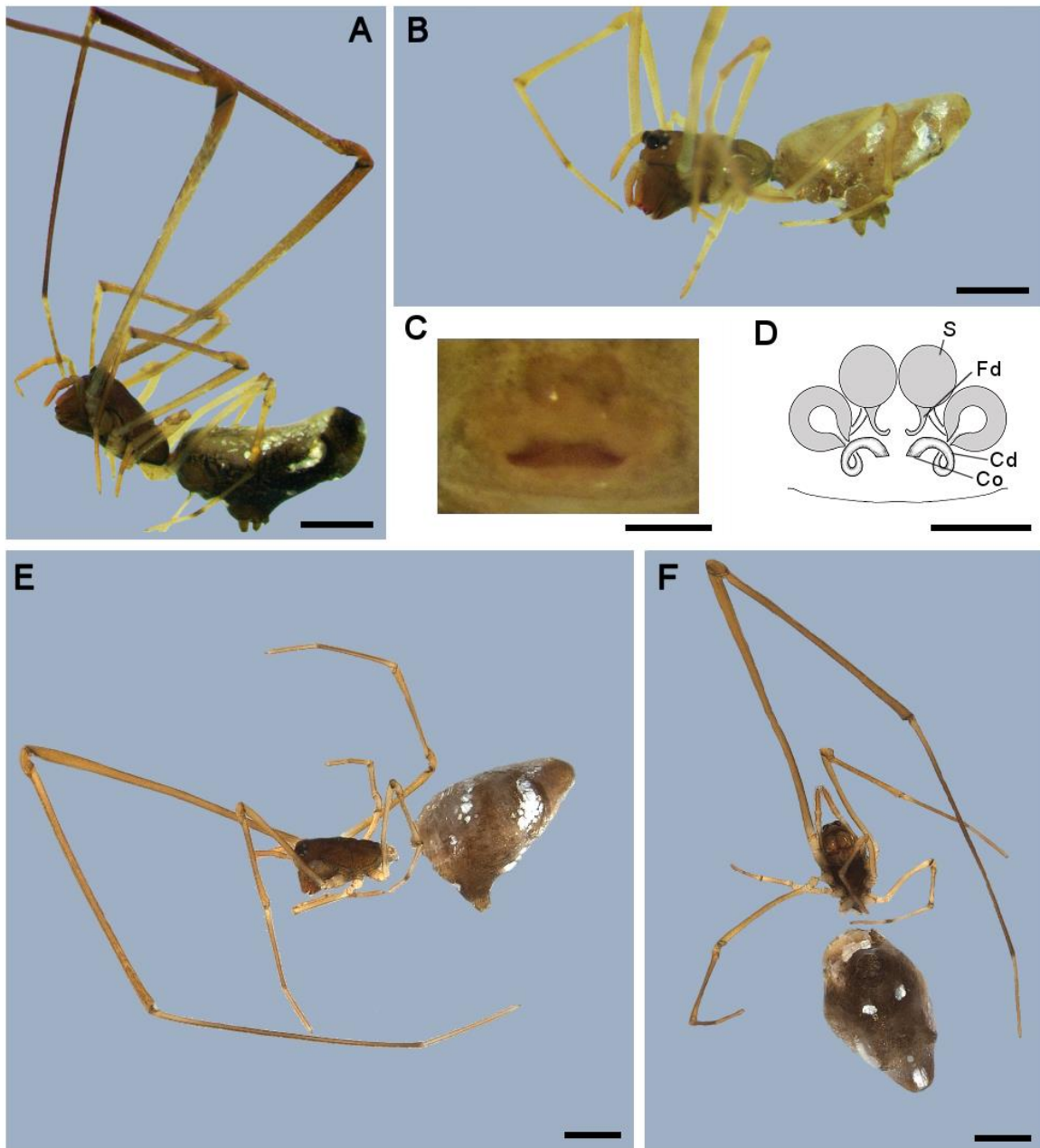


Figure 25: *Rhinocosmetus dolichorhinus* sp. nov., ♀. **A.** Paratype RBINS IG 34514/10, habitus, lateral view. **B.** Paratype RMNH ARA 18307, habitus, lateral view. **C.** Same, epigyne, ventral view. **D.** Same, vulva, ventral view. **E.** Paratype RMNH ARA 18307, habitus, lateral view. **F.** Same, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=0.5 mm; C-D=0.1 mm, E-F=1 mm.

Distribution

Indonesia, Bali; Thailand (Fig. 72).

***Rhincosmetus gretathunbergae* sp. nov.**

(Figs. 26-29, 72)

Diagnosis

Males of *R. gretathunbergae* sp. nov. are recognized by the clypeal protrusion (Figs. 26A-C, 27A,) with a large field of cotyledonoid setae, reminiscent of the one in *R. xiphias* comb. nov. (Figs. 47A-B, 47D-E, 48A), by the pointed abdomen (Fig. 26A-C) extended further behind the spinnerets and by the long hornlike conductor (Fig. 26D-F). Females are characterized by the vulva with small central spermathecae which are touching and by the copulatory ducts curved around the spermathecae (Figs. 29G-H).

Etymology

The species name is a matronym in honour of Greta Thunberg, the Swedish environmentalist known for challenging world leaders to take immediate action to mitigate the climate change.

Material examined**Holotype**

INDONESIA •♂; Borneo, C. Kalimantan, 40 km NW of Palangkaraya, secondary forest, 1°51'S 113°49'E; leg. S. Djojosedharmo; 1 Okt. 1985; RMNH ARA 18304.

Paratypes

INDONESIA •1♀; as holotype; RMNH ARA 18305; •1♂; as holotype; RBINS IG 34514/30; •2♂♂ 2♀♀; as holotype; 2-16 Sep. 1985; RBINS IG 34514/09; •1♀; Sumatra, Kerinci Seblat National Park; 2°05'S ;101°25'E; leg. S. Djojosedharmo; 20-30 July 1988; RMNH ARA 18326.

MALAYSIA •2♂♂ 1♀; Borneo, C. Kalimantan; 2°02'S, 113°40'E; leg. S. Djojosedharmo; 1 Oct. 1985; RMNH ARA 18327; •1♀; N-Borneo, W. Sarawak, Semenggoh Arboretum; 1°24'N; 110°19'E; leg. C.L. & P.R. Deeleman; 24 March 1985; RMNH ARA 18328.

Other material examined

INDONESIA •1♂; Borneo, E. Kalimantan, Sepaku; 0°54'S 116°45'E; leg. C.L. & P.R. Deeleman; 3 Aug. 1980; RMNH; •12♂♂ 6♀♀; Borneo, C. Kalimantan; 2°02'S, 113°40'E; leg. S. Djojosedharmo; 2-16 Sep. 1985; RMNH; •4♂♂ 3♀♀; as previous; 3-13 Sep. 1985; RMNH.

MALAYSIA: •1♂ 1♀; N-Borneo, W. Sarawak, Semenggoh Arboretum; 1°24'N; 110°19'E; leg. C.L. & P.R. Deeleman; 24 March 1985; RMNH; •1♂; N-Borneo, Kinabalu NP, Poring Hot Springs, canopy fogging; 6°3'50"N; 116°42'34"E; leg. A. Floren; 27 Feb. 1996; RMNH; •1♂ 1♀; N. Borneo, Tawau Hills, canopy fogging; 4°24'N; 117°53'E; 300 m a.s.l.; leg. A. Floren; 5 Sep. 2009; RMNH.

Description

Male (holotype, Figs. 26-28). Total length 2.50; abdomen 1.30; cephalothorax 0.75; clypeal protrusion 0.45; AME 0.07, other eyes 0.05, AME-AME 0.12, AME-ALE 0.02, PME-PME 0.10, PME-PLE 0.04.

Table 11: Leg measurements *Rhincosmetus gretathunbergae* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,30	0,25	1,90	2,00	0,45	6,9
II	1,00	0,20	0,80	0,70	0,45	3,2
III	0,55	0,15	0,25	0,30	0,25	1,5
IV	0,85	0,15	0,50	0,45	0,30	2,3

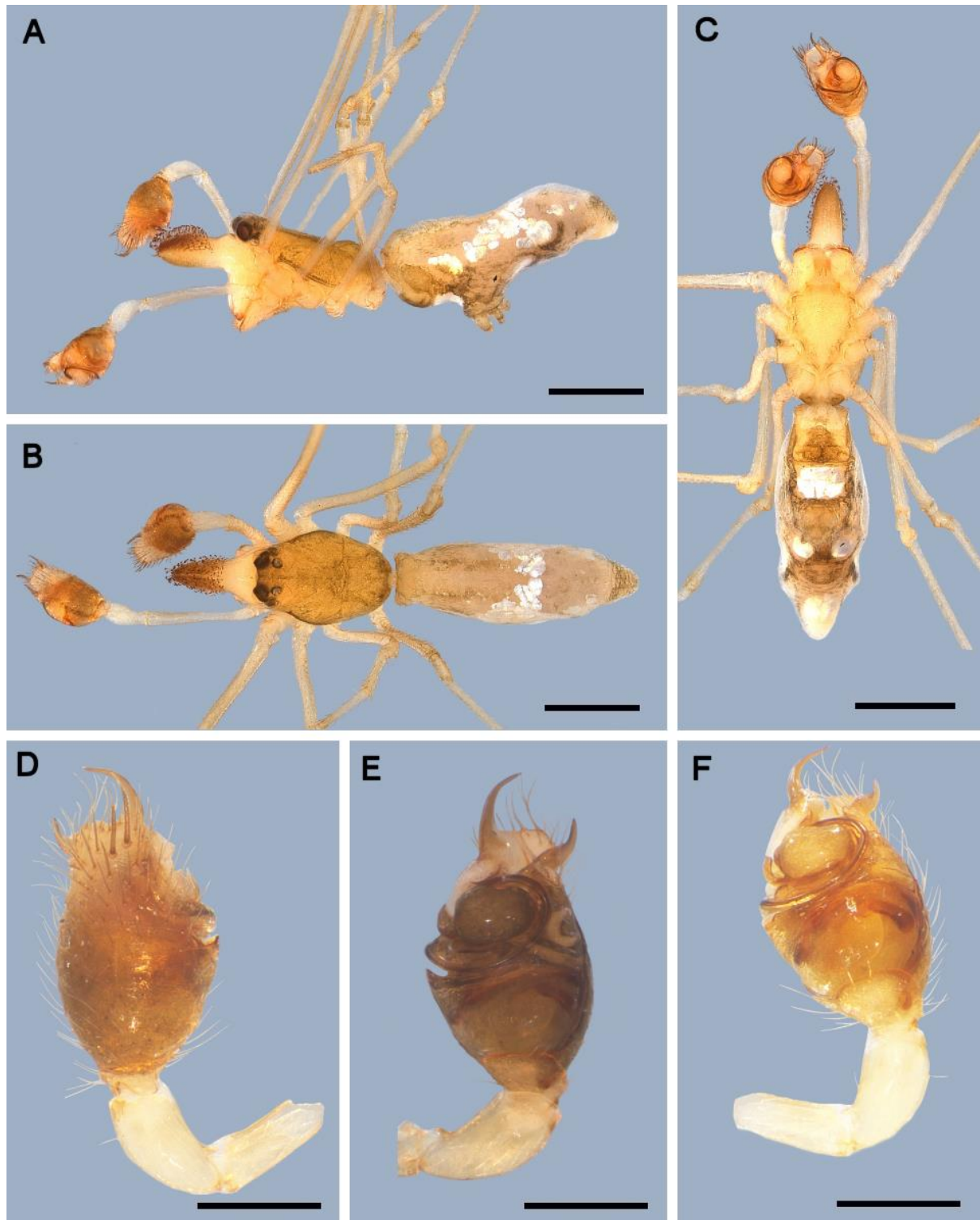


Figure 26: *Rhinocosmetus gretathunbergae* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Cephalic part, laterodorsal view. **C.** Habitus, dorsal view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=0.5 mm; D-F=0.2 mm.

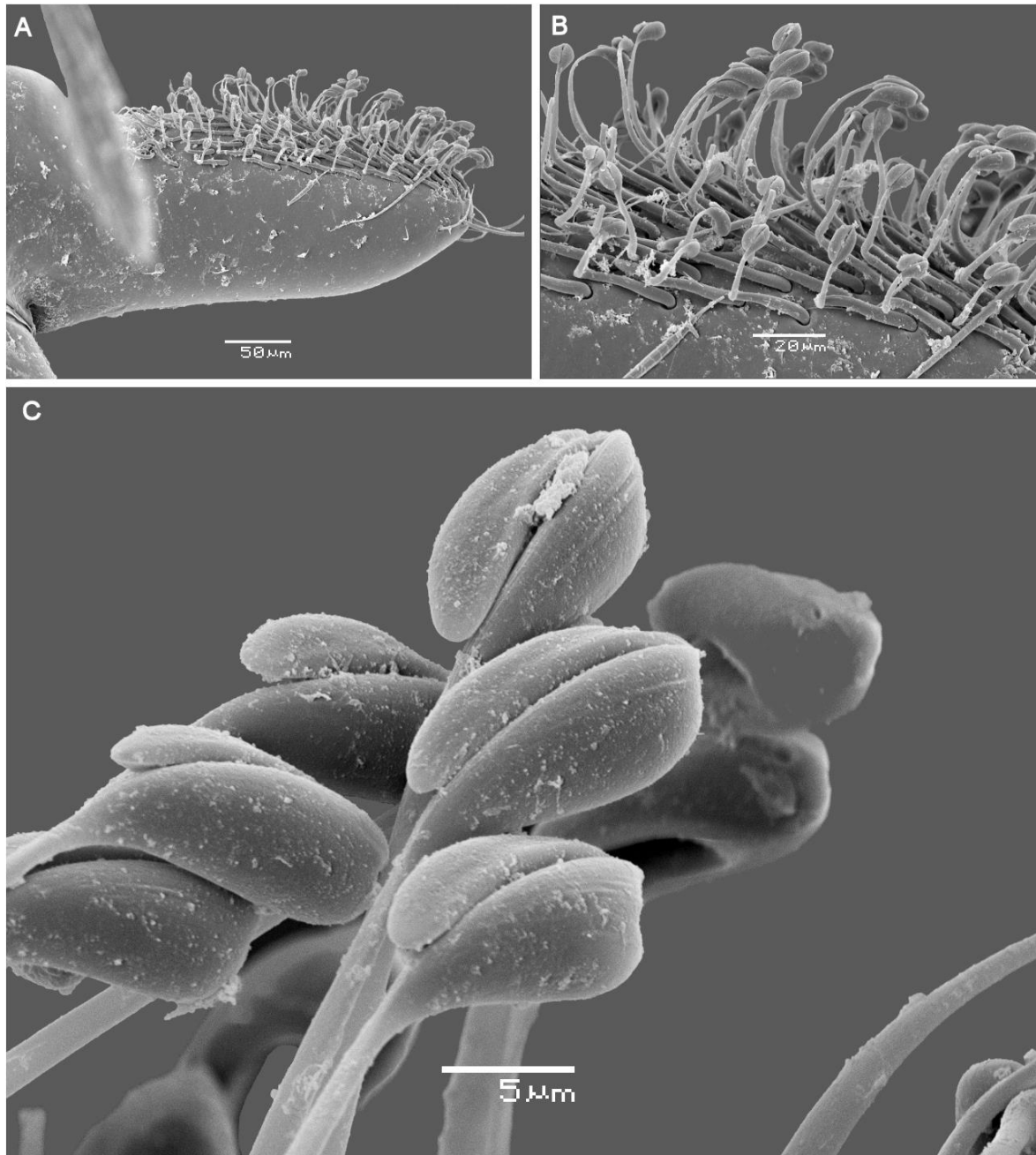


Figure 27: *Rhinocosmetus gretathunbergae* sp. nov., ♂, paratype RBINS IG 34514/30. **A.** Clypeal protrusion, lateral view. **B.** Same, detail. **C.** Setae, lateral view.

Ratio leg I/II 2.2; leg I/cephalothorax 9.0

Cephalothorax (Figs. 26A-C, 27): light brown; clypeal protrusion as *R. xiphias* comb. nov. but shorter; some long setae in ocular region.

Abdomen (Fig. 26A-C): light brown, distal end darker; far extended behind spinnerets, pointed; white spots on venter big.

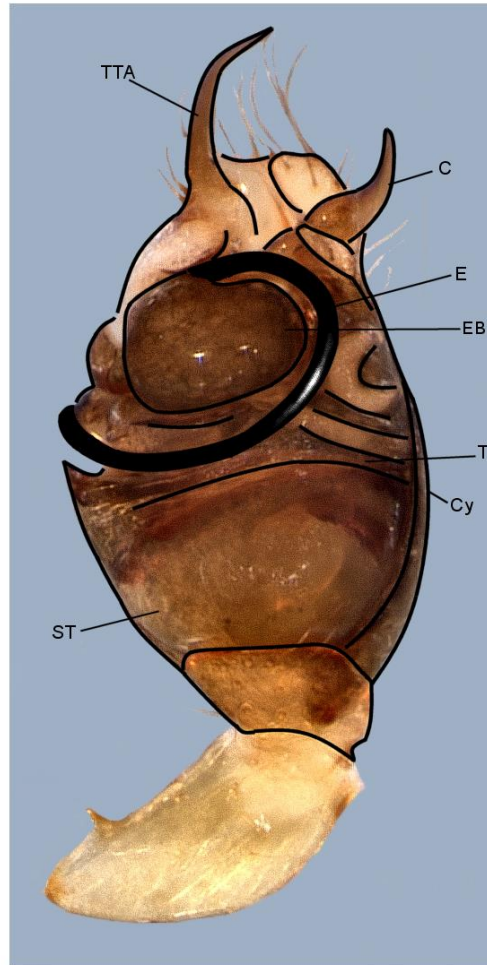


Figure 28: *Rhinocosmetus gretathunbergae* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 26D-F, 28): as typical for the genus (Fig. 3) with these extra characteristics: distal part of cymbium paler than proximal part, with several thick, dentate setae at retrolateral side; lateral lobe of cymbium rather small, located at prolateral extremity of cymbium; TTA with long distal appendage sickle shaped, produced far beyond distal tip of cymbium; conductor long, hornlike, extending beyond prolateral side of cymbium, curved forward.

Lengths of legs are shown in Table 11.

Female (paratype, RMNH ARA 18327, Fig. 39). Total length 1.70; abdomen 1.00; cephalothorax 0.70; AME 0.06, other eyes 0.05, AME-AME 0.08, AME-ALE 0.02, PME-PME 0.08, PME-PLA 0.03.

Table 12: Leg measurements *Rhinocosmetus gretathunbergae* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	1,90	0,20	1,60	1,60	0,70	6,0
II	0,80	0,20	0,55	0,50	0,40	2,5
III	0,45	0,15	0,20	0,25	0,20	1,3
IV	0,70	0,15	0,35	0,30	0,25	1,8

Ratio leg I/II 2.4; leg I/cephalothorax 8.6

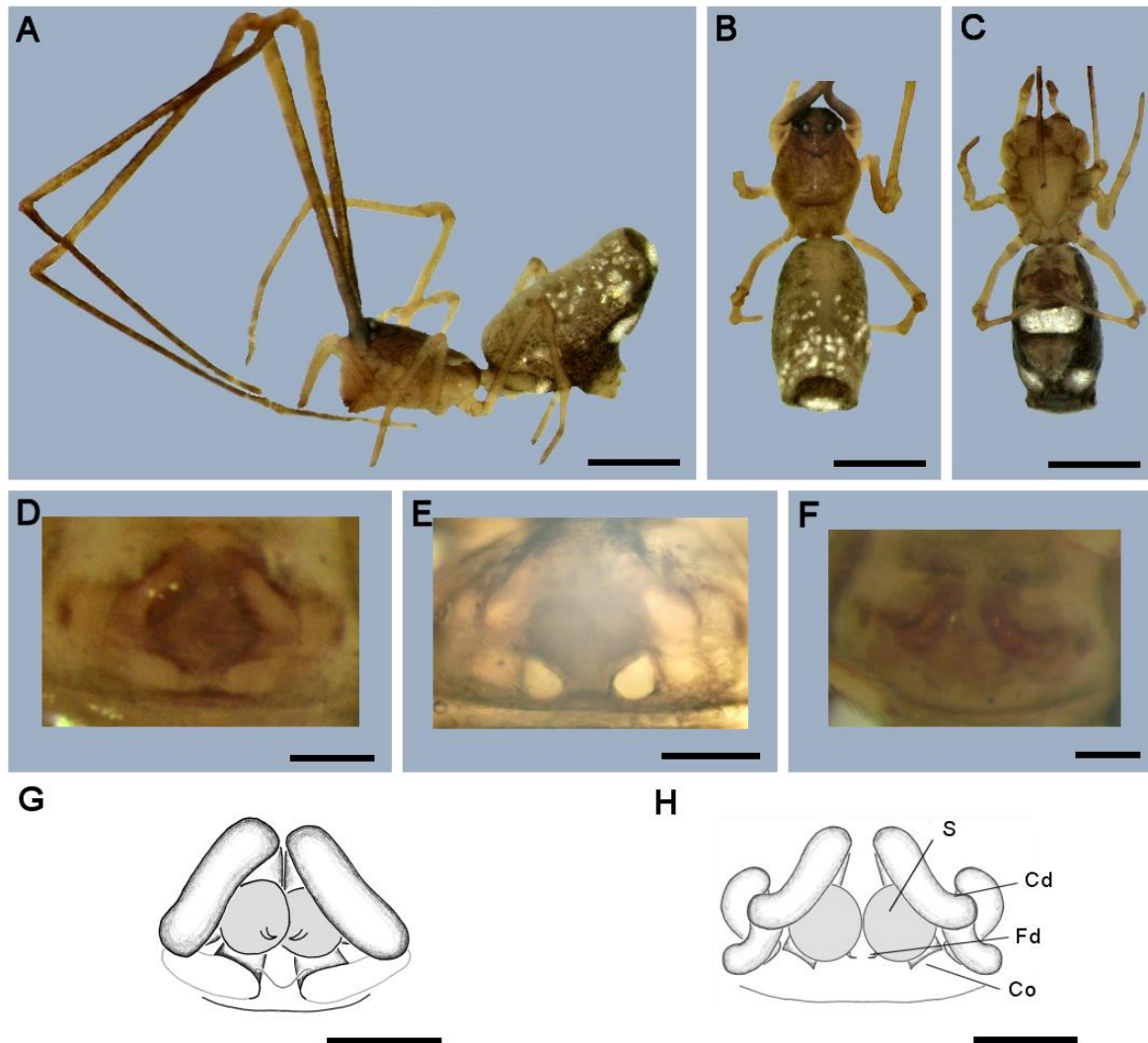


Figure 29: *Rhinocosmetus gretathunbergae* sp. nov., ♀. **A.** Paratype RMNH ARA 18327, habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Same, epigyne, ventral view. **E.** Paratype RMNH ARA 18328, epigyne, ventral view. **F.** Paratype RMNH ARA 18326, epigyne, ventral view. **G.** Paratype RMNH ARA 18305, vulva, ventral view. **H.** Paratype RMNH ARA 18326, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=0.5 mm; D-H=0.1 mm.

Abdomen (Fig. 29A-C): colour as male, ventral side of abdomen darker than dorsal side.

Legs (Fig. 29A): first pair sometimes darker than other.

Epigyne (Fig. 29H): shape of openings teardrop shaped with narrow part pointing forward and outwards; copulatory ducts hardly visible in transparency; very wide, running dorsal of central, small, round, adjacent spermathecae, turning back on ventral side, thence curved twice before connecting to spermathecae.

Lengths of legs are shown in Table 12.

Variation

Males: n = 3: Total length 2.20-2.50; abdomen 1.05-1.30; cephalothorax 0.75-0.80; clypeal protrusion 0.40-0.45.

Females: n = 2: Total length 1.70-2.05; abdomen 1.00-1.25; cephalothorax 0.70-0.80; shape of copulatory openings slightly variable; in the vulva the copulatory ducts may have one curve instead of two before entering the spermathecae.

Distribution

Indonesia, Borneo, Sumatra; Malaysia, N. Borneo (Fig. 72).

Rhinocosmetus gunungleuser sp. nov.

(Figs. 30, 72)

Diagnosis

The female can be distinguished by the posterior spermathecae (Fig. 30D) which are very large and thick-walled, with a notch in the posterior wall as in *R. sumba*, but in *R. sumba* the copulation openings are much smaller and the traject of the copulation ducts is different.

Etymology

The species name is a noun in apposition taken from the type locality, the Gunung Leuser National Park, in North Sumatra, Indonesia.

Material examined

Holotype

INDONESIA •♀; N. Sumatra, Gunung Leuser National Park, Ketambe; 3°40'N; 7°39'E; primary dipterocarp rainforest; leg. Bugama & Yono; 17 July 1985; RMNH ARA 18310.

Other material examined

None.

Description

Female (holotype, Fig. 30). Total length 2.35; abdomen 1.40; cephalothorax 0.95; AME 0.06, other eyes 0.05, AME-AME 0.10, AME-ALE 0.03, PME-PME 0.09, PME-PLE 0.04.

Table 13: Leg measurements *Rhinocosmetus gunungleuser* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,40	0,30	2,00	2,10	0,95	7,8
II	1,00	0,15	0,70	0,65	0,50	3,0
III	0,55	0,15	0,30	0,30	0,30	1,6
IV	1,00	0,20	0,50	0,45	0,35	2,5

Ratio leg I/II 2.6; leg I/cephalothorax 7.6

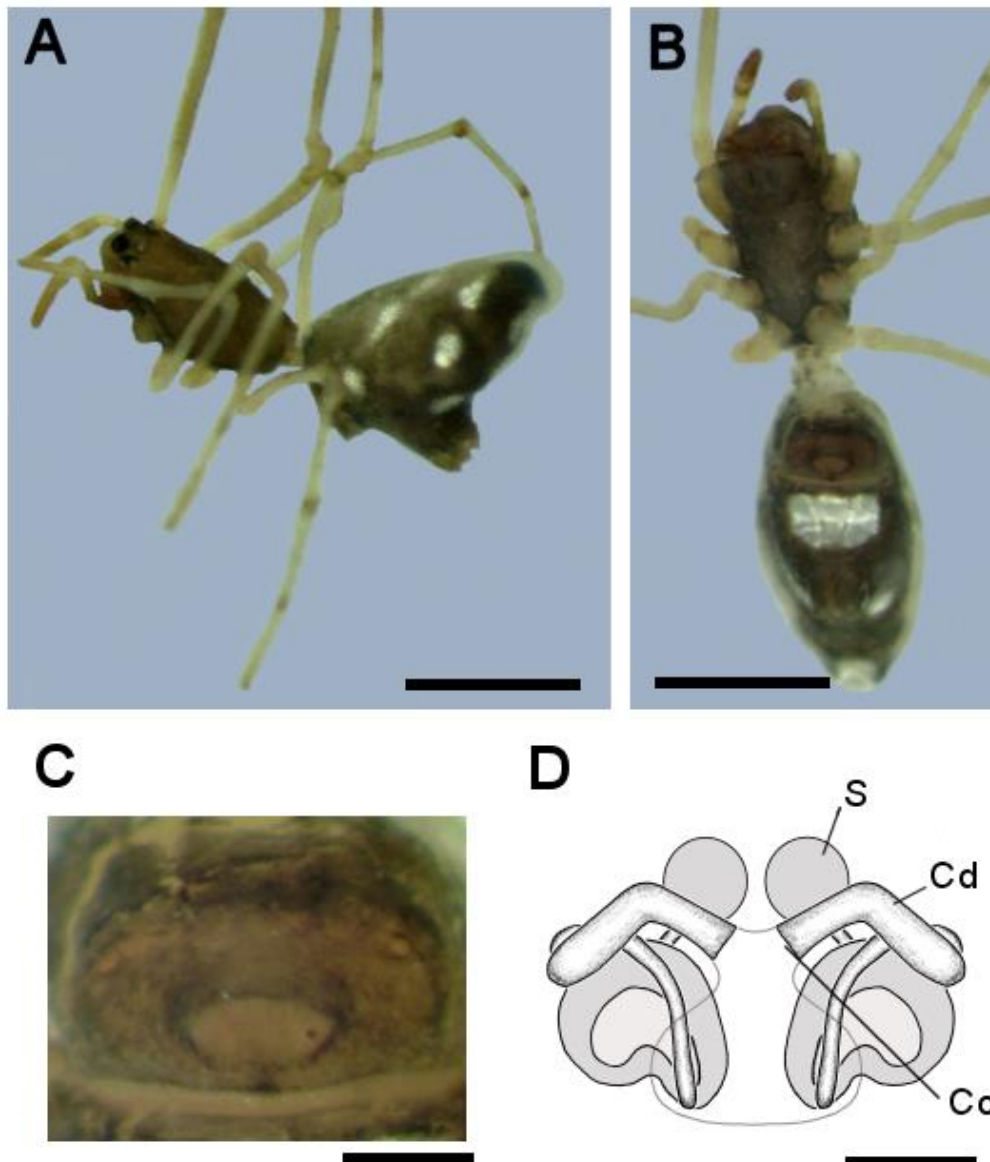


Figure 30: *Rhinocosmetus gunungleuser* sp. nov., ♀, holotype. **A.** Habitus, lateral view. **B.** Same, ventral view. **C.** Epigyne, ventral view. **D.** Vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C-D=0.1 mm.

Abdomen (Fig. 30A-B): cylindrical; white spot on venter large.

Epigyne (Fig. 30C-D): with pale impression and small circular dot on either side near frontal margin; openings of copulatory ducts near anterior rim, rather wide, close to each other; first stretches of copulatory ducts wide, in inverted V-shape, followed by narrow stretch connected to large extra spermathecae which are much larger than frontal ones, provided with notch in posterior margin, connected to anterior spermathecae by narrow duct. copulatory openings?

Lengths of legs are shown in Table 13.

Male: Unknown.

Distribution

Indonesia, Sumatra (Fig. 72).

Rhinocosmetus lombok sp. nov.

(Figs. 31-32, 73)

Diagnosis

Males of *R. lombok sp. nov.* are recognized by the clypeal protrusion (Fig. 31A-D) which is broad over the entire length viewed dorsally as well as laterally as in *R. megarhinus sp. nov.* (Fig. 33D-E), but it is not constricted at the base and the cotyledonoid setae are restricted to the anterior extremity (Fig. 31A-B). In *R. lombok sp. nov.* the abdomen is provided with two pale spots above the spinnerets (Fig. 31D), in other species it is one big spot or three touching spots, the distal prong of the TTA of the male palp is flag shaped (Fig. 31E-F).

Etymology

The species name is a noun in apposition taken from the type locality: Pulau Lombok, an island of Indonesia.

Material examined

Holotype

INDONESIA •♂; Lombok, Kute; 8°54'S; 116°18'E; leg. S. Djojosedharmo; 10-18 Jan. 1990; RMNH ARA 18296.

Other material examined

None.

Description

Male (holotype, Figs. 31-32). Total length 2.95; abdomen 1.40; cephalothorax 1.00; clypeal protrusion 0.55; AME 0.07, other eyes 0.05, AME-AME 0.12, AME-ALE 0.03, PME-PME 0.12, PME-PL 0.06.

Table 14: Leg measurements *Rhinocosmetus lombok sp. nov.* male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,40	0,20	3,20	2,80	1,20	10,8
II	1,40	0,20	1,10	0,80	0,65	4,2
III	0,70	0,15	0,35	0,40	0,30	1,9
IV	1,20	0,20	0,70	0,65	0,40	3,2

Ratio leg I/II 2.6; leg I/cephalothorax 10.1

Cephalothorax (Fig. 31A-D): clypeal protrusion thick, not constricted at base.



Figure 31: *Rhinocosmetus lombok* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Clypeal protrusion, detail. **C.** Habitus, dorsal view. **D.** Habitus, ventral view. **E.** Left palp, retrolateral view. **F.** Same, ventral view. Scale bars: A, C-D=1 mm; B=0.1 mm, E-F=0.2 mm.

Abdomen (Fig. 31C-D): Between epigastric region and spinnerets only two silvery dots, middle one missing.

Male palp (Figs. 31E-F, 32): as typical for the genus (Fig. 3) with these extra characteristics: tip of cymbium with thick setae; embolus base circular, dark sclerotized part fully exposed, thin, 360° loop rather narrow, standing off tegulum, ending in procurved tip; TTA with flat, wide distal part, curved over 90°.

Lengths of legs are shown in Table 14.

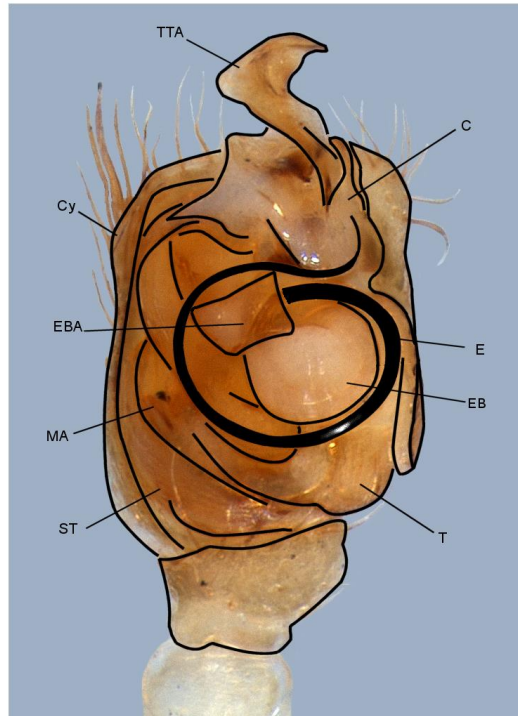


Figure 32: *Rhinocosmetus lombok* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female: Unknown.

Distribution

Indonesia, Lombok (Fig. 73).

Rhinocosmetus megarhinus sp. nov.

(Figs. 33-36, 73)

Diagnosis

Males of *R. megarhinus* sp. nov. are recognized by the clypeal protrusion (Figs. 33A-D, 34A) which is clearly different from the other species (Fig. 4), it is thicker and has only a few cotyledonoid setae. Females are recognized by the internal structure of the vulva with narrow first part of the copulatory ducts (Fig. 36D), very wide recurved second part continued in narrow third part running forward, ending in globular, almost adjacent spermathecae.

Etymology

This species name *megarhinus* is a noun in apposition combining the Greek $\rho\iota\nu\omicron\varsigma$ (nose) and $\mu\epsilon\gamma\alpha$ (large) which can be translated as “big nose”, it refers to the clypeal protrusion that is thicker than that of the other species examined.

Material examined

Holotype

INDONESIA • ♂; N-Bali, Ambengan; 8°10'S; 115°06'E; leg. S. Djojosedharmo; 20 Jan. 1990; RMNH ARA 18293.

Paratypes

INDONESIA •2♀♀; same as holotype; RMNH ARA 18294; •3♂♂ 2♀♀; West-Nusa Tenggara (Lesser Sunda Islands), Semongkat, 20 km SW of Sumbawa Besar; 8°34'S; 117°18'E; leg. S. Djojosedharmo; 3 Jan. 1990; RMNH ARA 18295; •1♂ 1♀; same as holotype; RBINS IG 34514/06; •2♂♂ 2♀♀; N-Bali, Ambengan; 8°10'S; 115°06'E; leg. S. Djojosedharmo; 19-31 Jan. 1990; RBINS IG 34514/21.

Other material examined

INDONESIA •1♀; N-Bali, Ambengan; 8°10'S; 115°06'E; leg. S. Djojosedharmo; 21-22 Jan. 1990; RMNH; •8♂♂ 10♀♀; as previous; 19-31 Jan. 1990; RMNH; •4♂♂ 12♀♀; N-Bali, Ambengan; 8°10'S; 115°06'E; leg. S. Djojosedharmo; 20 Jan 1990; RMNH.



Figure 33: *Rhinocosmetus megarhinus* sp. nov., ♂. **A.** Holotype, cephalothorax, lateral view. **B.** Same, habitus, lateral view. **C.** Paratype RMNH ARA 18295, habitus, ventrolateral view. **D.** Paratype RBINS IG 34514/21, habitus, dorsal view. **E.** Holotype, left palp, ventral view. **F.** Same, left palp, prolateral view. **G.** Same, left palp, retrolateral view. Scale bars: A-D=0.5 mm; E-G=0.2 mm.

Description

Male (holotype, Figs. 33-35). Total length 3.45; abdomen 1.90; cephalothorax 1.00; clypeal protrusion 0.55; AME 0.07, other eyes 0.05, AME-AME 0.14, AME-ALE 0.03, PME-PME 0.12, PME-PLE 0.04.

Table 15: Leg measurements *Rhinocosmetus megarhinus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,20	0,40	3,20	2,80	1,20	10,8
II	1,60	0,25	1,20	1,10	0,60	4,8
III	0,80	0,15	0,40	0,40	0,35	2,1
IV	1,40	0,20	0,80	0,75	0,50	3,7

Ratio leg I/II 2.3; leg I/cephalothorax 10.7

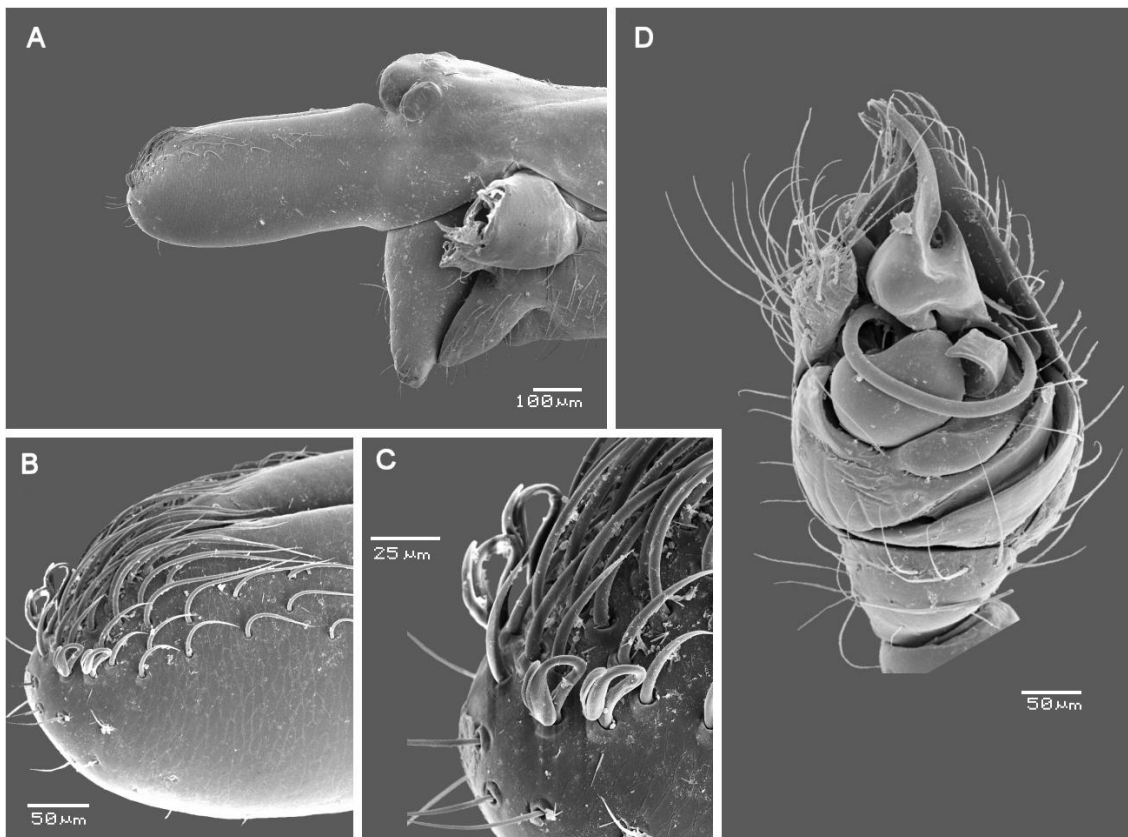


Figure 34: *Rhinocosmetus megarhinus* sp. nov., ♂, paratype RBINS IG 34514/06. **A.** Cephalic part, lateral view. **B.** Same, detail. **C.** Same, setae, lateral view. **D.** Left palp, ventral view.

Cephalothorax (Figs. 33B-D, 34A-B): clypeal protrusion thick, with few cotyledonoid setae at tip, interspersed with long, straight setae and few smaller setae pointing forward; relative length of protrusion equal to that in *R. xiphias* comb. nov.; protrusion in dorsal view wide, with small constriction close to clypeus; with narrow longitudinal dorsal depression, running from tip to knob close to eyes; cephalothorax profile with cephalic and thoracic part at a slight angle, marked by indentation at level of fovea.

Abdomen (Fig. 33B-D): thin, long, part behind spinnerets longer than anterior section.

Male palp (Figs. 33E-G, 34D, 35): as typical for the genus (Fig. 3) with these extra characteristics: cymbium rather long, with several thick, modified setae at tip, long setae over entire surface; embolus base oval; sclerotized part directed forward, looped over 270° with slender part directed forward in gutter shaped (PA in Fig. 3) proximal appendage of TTA which hides distal embolus tip; TTA distal appendage wide, with 45° curve, only slightly surpassing distal margin of cymbium; conductor narrow, surpassing distal cymbial rim.

Lengths of legs are shown in Table 15.

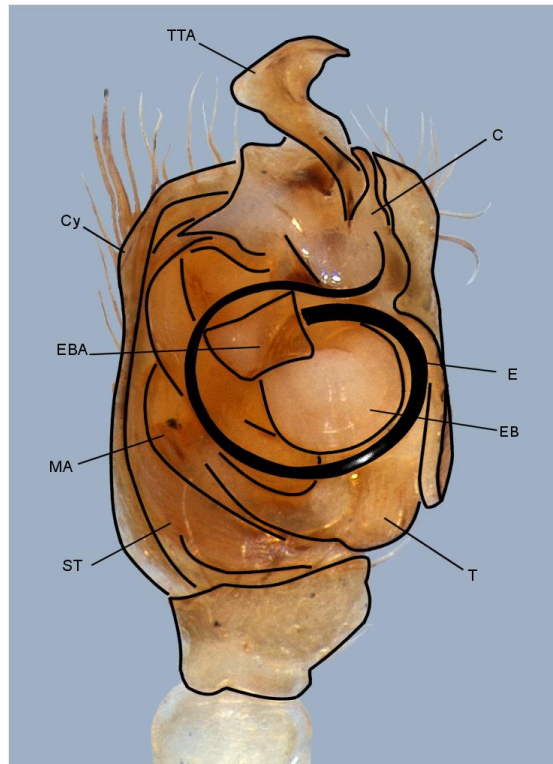


Figure 35: *Rhinocosmetus megarhinus* sp. nov, ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype RMNH ARA 18294, Fig. 36). Total length 2.70; abdomen 1.80; cephalothorax 0.90; AME 0.08, other eyes 0.05, AME-AME 0.10, AME-ALE 0.03, PME-PME 0.09, PME-PLA 0.05.

Table 16: Leg measurements *Rhinocosmetus megarhinus* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,50	0,35	2,40	2,20	0,90	8,4
II	1,10	0,25	0,80	0,80	0,50	3,5
III	0,60	0,20	0,25	0,35	0,22	1,6
IV	1,00	0,20	0,50	0,55	0,40	2,7

Ratio leg I/II 2.4; leg I/cephalothorax 8.5

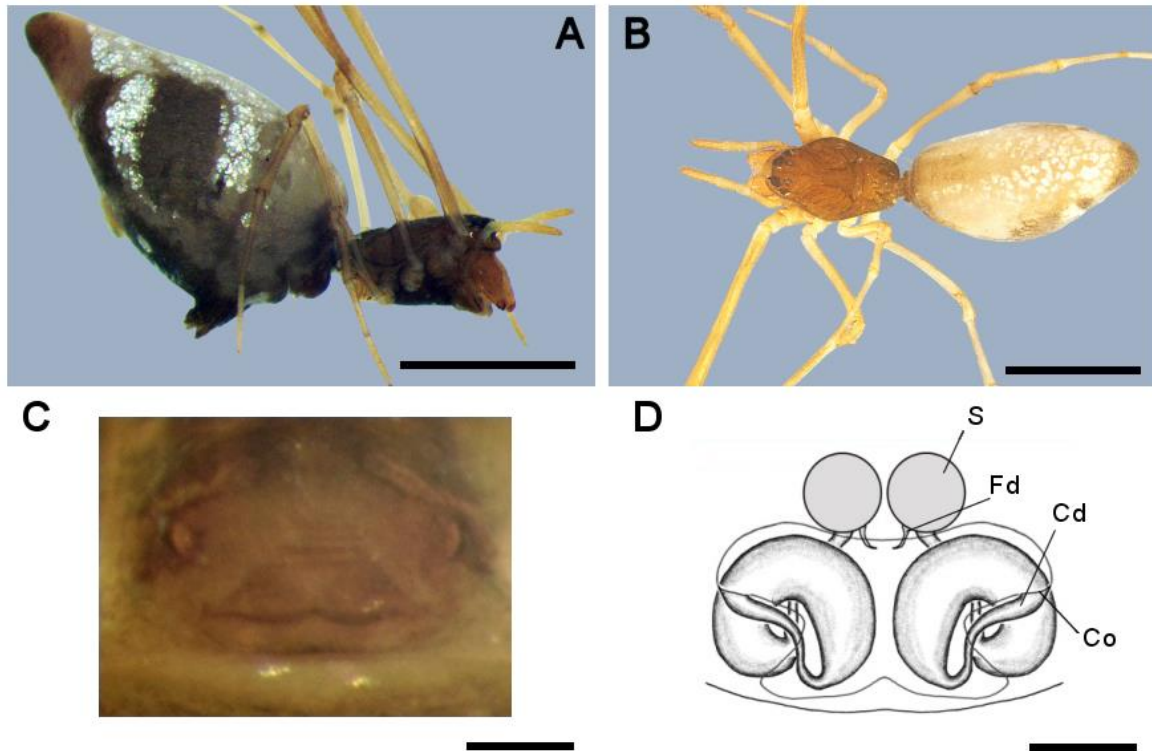


Figure 36: *Rhinocosmetus megarhinus* sp. nov., ♀. **A.** Paratype RMNH ARA 18295, habitus, lateral view. **B.** Paratype RMNH ARA 18294, habitus, dorsal view. **C.** Paratype RMNH ARA 18294, epigyne, ventral view. **D.** Paratype RMNH ARA 18295, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C-D=0.1 mm.

Abdomen (Fig. 36A, B): size about same as *R. xiphias* but more pointed; light brown with large silvery patches covering dorsum, continued on large parts of lateral sides; remainder of lateral sides and venter with darker areas.

Epigyne (Fig. 36C-D): poorly delimited; with slightly sinuous posterior margin and chevron shaped shallow ridge at 1/3 of length from posterior margin; copulatory ducts with narrow first part, very wide recurved second part, continued in narrow third part running forward, ending in globular almost adjacent spermathecae; spermathecae round, small, about same size as thickest part of copulatory ducts.

Lengths of legs are shown in Table 16.

Variation

Males: n = 5: Total length 3.30-3.55; abdomen 1.70-1.20; cephalothorax 0.95-1.10; clypeal protrusion 0.53-0.55.

Females: n = 7: Total length 2.60-3.10; abdomen 1.70-2.10; cephalothorax 0.90-1.10.

Distribution

Indonesia, Bali, Sumbawa Besar (Fig. 73).

***Rhinocosmetus nasicornis* sp. nov.**

(Figs. 37-40, 73)

Diagnosis

Males of *R. nasicornis* sp. nov. are recognized by the short clypeal protrusion provided with a hornlike prominence (Fig. 37A-C) which is not seen in other species, by the complex TTA with a central concavity and by the large and prominent conductor in the male palp (Figs. 37D-F, 38). The females are characterized by the bulging epigyne in which the copulatory ducts are wide up to the last stretch connected to the small spermathecae (Fig. 40D-F).

Etymology

The species name is a noun in apposition combining the Latin terms '*nasus*' (nose) and '*cornu*' (horn), referring to the small hornlike protrusion on the clypeal extension of the male.

Material examined**Holotype**

MALAYSIA •♂; N-Borneo, Sabah, Kinabalu National Park, Poring Hot Springs; 6°3'N; 116°42'E; 630m, canopy fogging; leg. A. Floren; 26 Feb. - 27 March 1996; RMNH ARA 18302.

Paratypes

MALAYSIA •1♀; as holotype; RMNH ARA 18303; •1♂ 1♀; as previous; RBINS IG 34514/08; •1♂; N-Borneo, Sabah, Kinabalu National Park, Poring Hot Springs; 6°3'50"N; 116°42'34"E; canopy fogging; leg. A. Floren; 19-26 Feb. 1996; RMNH ARA 18318; •1♂ 1♀; N-Borneo, Crocker Range, Ulu Senagang; 5°22'N; 116°02'E; 530 m, canopy fogging; leg. A. Floren; 17 Aug. 2009; RMNH ARA 18319; •2♂♂ 1♀, N-Borneo, Kinabalu, Mahua; 5°48'N; 116°24'E; 1100m a.s.l.; canopy fogging; leg. A. Floren; 19 Aug. 2009; RMNH ARA 18320; •1♀; N-Borneo, Sabah, Kinabalu National Park, Poring Hot Springs; 6°3'50"N; 116°42'34"E; canopy fogging; leg. A. Floren; 19 Feb. - 26 March 1996; RMNH ARA 18325.

Other material examined

MALAYSIA •2♂♂; N-Borneo, Crocker Range, Ulu Senagang; 5°22'N; 116°02'E; 530 m, canopy fogging; leg. A. Floren; 17 Aug. 2009; RMNH; •1♀; N-Borneo, Sabah, Kinabalu National Park, Poring Hot Springs; 6°3'50"N; 116°42'34"E; canopy fogging; leg. A. Floren; 19 Feb. - 26 March 1996; RMNH; •1♂ 1♀; as previous; 19 Feb. - 26 March 1996; RMNH; •1♀; as previous; 27 March 1996; RMNH; •1♂ 1♀; as previous; 2009; RMNH; •1♀; as previous; 28 March 1998; RMNH; •4♂♂ 8♀♀; as previous; 9 June 2009; RMNH; •1♂ 1♀; N-Borneo, Sabah, Kinabalu National Park; 6°2'42"N; 116°41'54.18"E; canopy fogging; leg. A. Floren; 16 Sep. 2006; RMNH.

Description

Male (holotype, Figs. 37-39). Total length 2.97; abdomen 1.70; cephalothorax 0.95; clypeal protrusion 0.32; AME 0.07, other eyes 0.05, AME-AME 0.15, AME-ALE 0.02, PME-PME 0.13, PME-PLE 0.05.

Table 17: Leg measurements *Rhinocosmetus nasicornis* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,20	0,20	1,60	1,80	0,85	6,7
II	1,05	0,15	0,85	0,60	0,45	3,1
III	0,64	0,10	0,25	0,30	0,30	1,6
IV	0,90	0,15	0,50	0,45	0,35	2,4

Ratio leg I/II 2.1; leg I/cephalothorax 6.8

Cephalothorax (Fig. 37A-C): clypeal protrusion rather short with horn like prominence; size and position of horn slightly variable; with only few cotyledonoid setae, but normal setae on large part of lateral sides of protrusion.

Abdomen (Fig. 37A-C): constricted behind spinnerets.

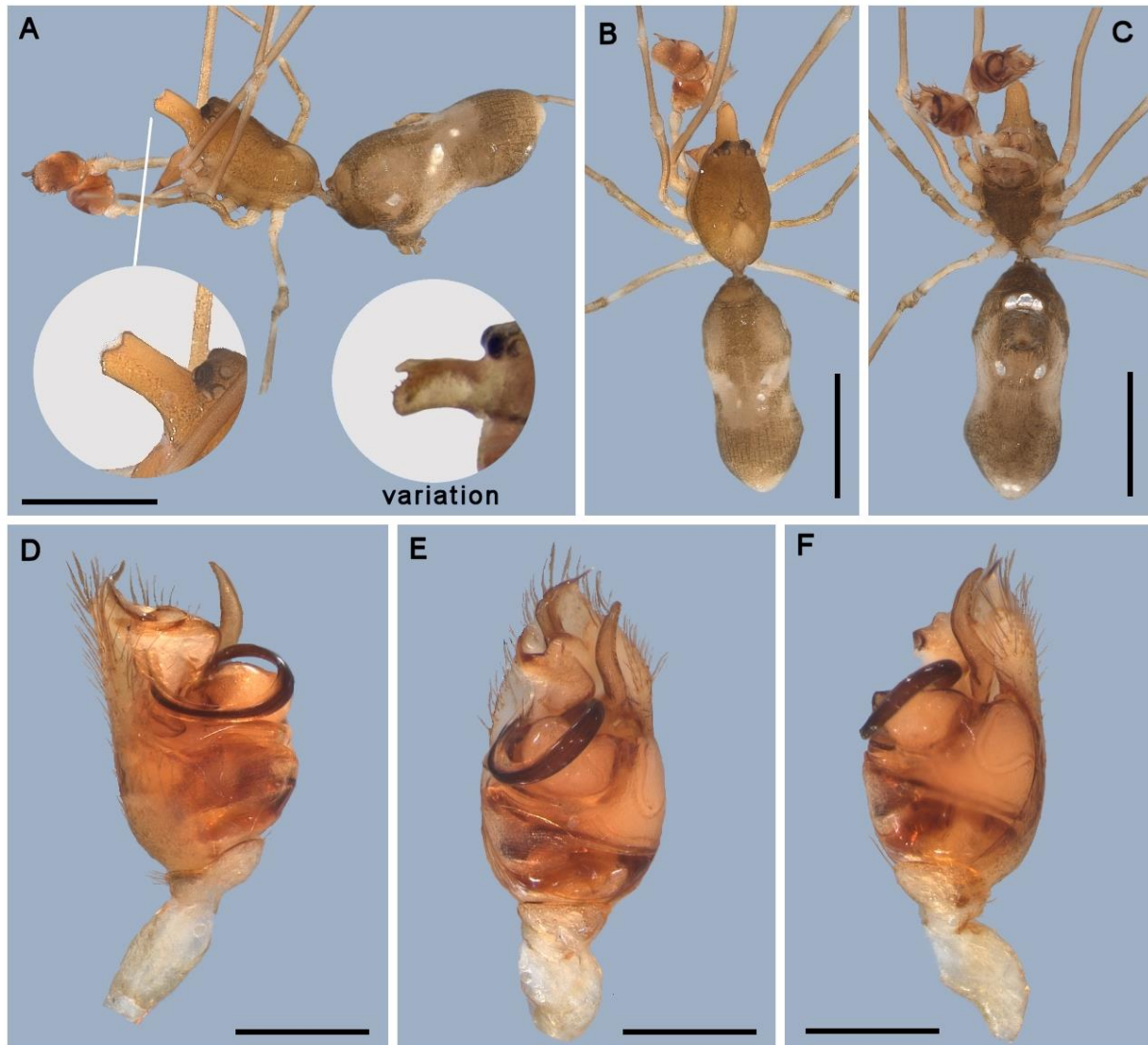


Figure 37: *Rhinocosmetus nasicornis* sp. nov., ♂, holotype. **A.** Habitus, lateral view, variation paratype RMNH ARA 18318. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=1 mm; D-F=0.2 mm



Figure 38: *Rhinocosmetus nasicornis* sp. nov., ♂, paratype RBINS IG 34514/08. Left palp, ventral view.

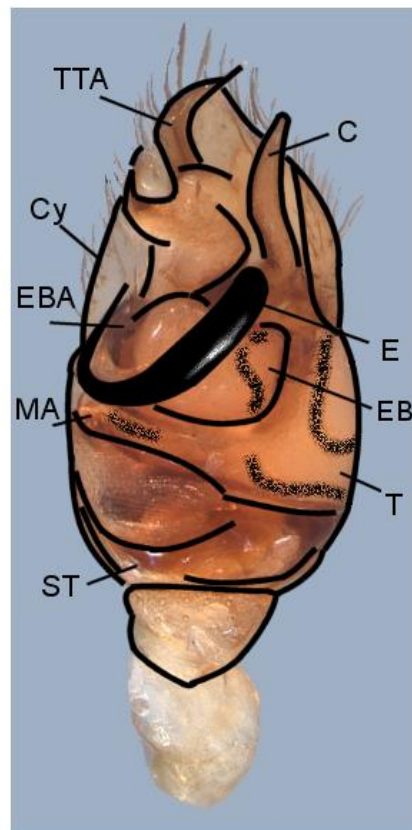


Figure 39: *Rhinocosmetus nasicornis* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 37D-F, 38, 39): as typical for the genus (Fig. 3) with these extra characteristics: lateral lobe of cymbium short; embolus base rounded, origin thick, looped obliquely backward, distal tip covered by membrane; TTA with small, sharp tipped retrolateral extension pointing retrolaterad delimiting concavity with small ventral tooth; distal appendage reaching rim of cymbium, curved prolaterad over 90°; conductor large, slightly bent prolaterad, surpassing prolateral distal cymbial rim.

Lengths of legs are shown in Table 17.

Female (paratype RBINS IG 34514/08, Fig. 40). Total length 2.10; abdomen 1.20; cephalothorax 0.90; AME 0.07, other eyes 0.05, AME-AME 0.12, AME-ALE 0.02, PME-PME 0.09, PME-PLE 0.03.

Table 18: Leg measurements *Rhinosmetus nasicornis* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	1,80	0,20	1,25	1,10	0,65	1,80
II	0,75	0,15	0,60	0,50	0,35	0,75
III	0,50	0,10	0,30	0,25	0,25	0,50
IV	0,70	0,15	0,40	0,35	0,25	0,70

Ratio leg I/II 2.1; leg I/cephalothorax 5.6

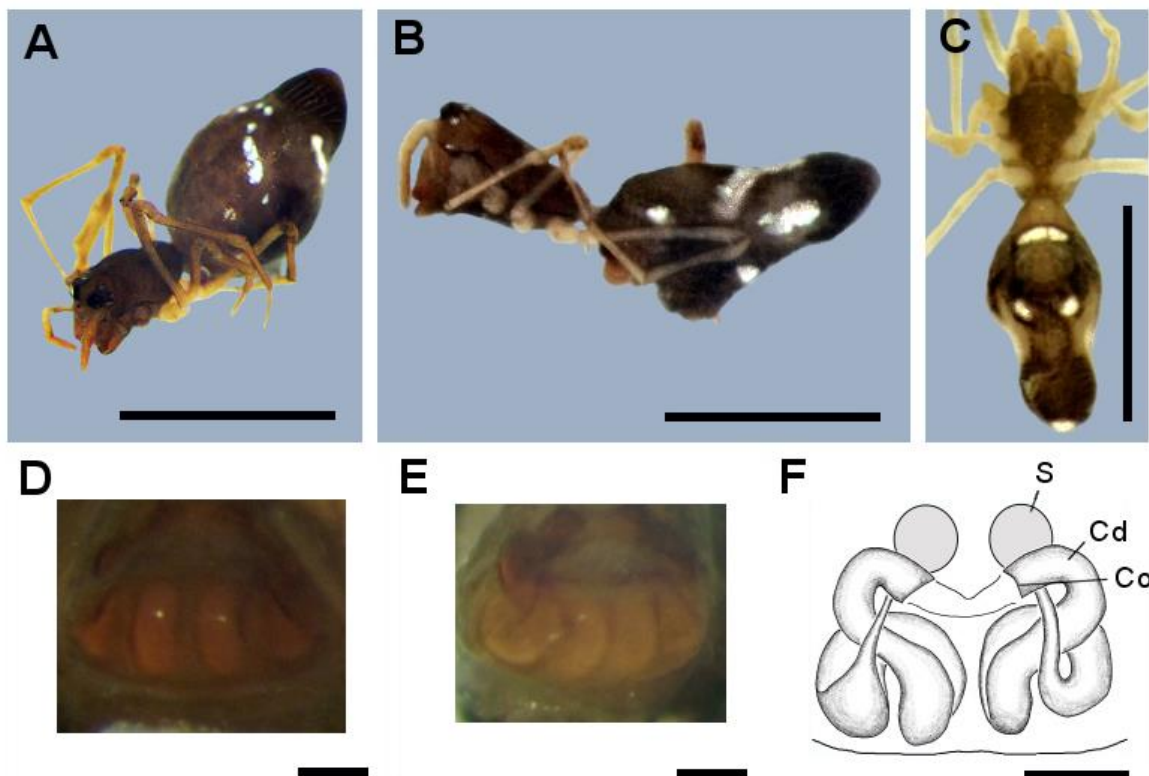


Figure 40: *Rhinosmetus nasicornis* sp. nov., ♀. **A.** Paratype RMNH ARA 18319, habitus, lateral view. **B.** Paratype RMNH ARA 18320, habitus, dorsal view. **C.** Paratype RBINS IG 34514/08, habitus, ventral view. **D.** Paratype RMNH ARA 18319, epigyne, ventral view. **E.** Paratype RMNH ARA 18325, epigyne, ventral view. **F.** Paratype RBINS IG 34514/08, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-F=0.1 mm.

Abdomen (Fig. 40A-C): constricted behind spinnerets.

Epigyne (Fig. 40D-F): strongly bulging with copulatory ducts well visible in transparency; spermathecae round, small, hardly larger than diameter of copulatory ducts which are wide with exception of last part; first part of copulatory ducts S-shaped, then curved towards the centre, forming almost complete circle before ending in a narrow stretch connected with spermathecae.

Lengths of legs are shown in Table 18.

Variation

Males: n = 7: Total length 2.40-2.97; abdomen 1.10-1.70; cephalothorax 0.95-1.00; clypeal protrusion 0.30-0.37.

Females: n = 6: Total length 1.80-2.30; abdomen 1.05-1.50; cephalothorax 0.80-0.90.

Distribution

Malaysia, N-Borneo (Fig. 73).

Rhinocosmetus pinocchio sp. nov.

(Figs. 41-42, 73)

Diagnosis

The male of this species is recognized by the very long clypeal protrusion, longer than in other species, which is curved down (Figs. 41A, 41D-E), with few cotyledonoid setae at the tip and the distinctive long and sharp distal extension of the TTA (Fig. 41F-H).

Etymology

The species name is a noun in apposition of the well-known fictional character Pinocchio whose nose lengthens when he lies, from the children's novel "The Adventures of Pinocchio" by the Italian writer Carlo Collodi (1883, pseudonym of Carlo Lorenzini).

Material examined

Holotype

INDONESIA •♂; Bali, Ubud, Batukaru temple; 8°30'S; 115°15'E; leg. C.L. Deeleman; 19 Nov. 1997; RMNH ARA 18299.

Paratype

INDONESIA •♂; same as holotype; RBINS IG 34514/11.

Other material examined

None.

Description

Male (holotype, Figs. 41-42). Total length 3.90; abdomen 2.00; cephalothorax 1.10; clypeal protrusion 0.80; AME 0.07, other eyes 0.05, AME-AME 0.15, AME-ALE 0.04, PME-PME 0.14, PME-PLE 0.05.

Table 19: Leg measurements *Rhincosmetus pinocchios* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,90	0,40	4,00	4,00	1,50	13,8
II	1,70	0,30	1,60	1,30	0,70	5,6
III	0,80	0,20	0,50	0,40	0,35	2,3
IV	1,60	0,25	0,95	0,80	0,50	4,1

Ratio leg I/II 2.5; leg I/cephalothorax 12.5



Figure 41: *Rhincosmetus pinocchio* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Cephalothorax, dorsal view. **E.** Cephalic part, lateral view. **F.** Left palp, prolateral view. **G.** Same, ventral view. **H.** Same, retrolateral view. Scale bars: A=1 mm; B-E=0.5 mm; F-H=0.2 mm.

Cephalothorax (Fig. 41A,D-E): clypeal protrusion 0.8 mm long, longer than all other examined species, much thicker at base than at top, bent lower at apex; in the middle a fine groove, very few setae.

Abdomen (Fig. 41B-C): dark brown, with dorsal white spots in V-shape, ventral spots rather small.

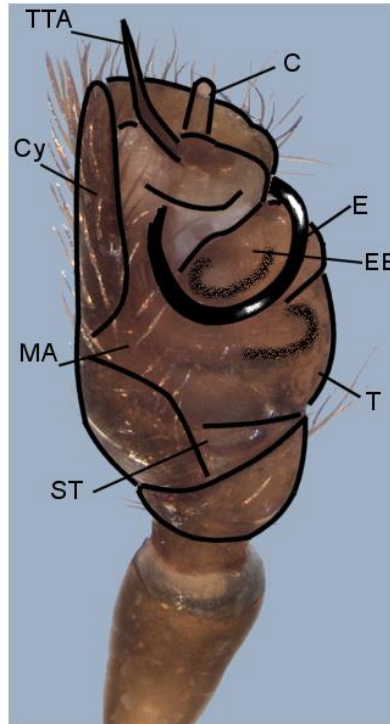


Figure 42: *Rhinocosmetus pinocchio* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 41F-H, 42): as typical for the genus (Fig. 3) with these extra characteristics: lateral lobe of cymbium small; embolus base fairly small, rounded, loop narrow, distal tip hidden by TTA; TTA with distal appendage very narrow, long, hardly bent.

Lengths of legs are shown in Table 19.

Female: Unknown.

Distribution

Indonesia, Bali (Fig. 73).

***Rhinocosmetus skolorhinus* sp. nov.**

(Figs. 43-45, 73)

Diagnosis

Males of *R. skolorhinus* sp. nov. are recognized by the slightly upturned clypeal protrusion of which the extremity is obliquely truncate (Fig. 43A-C). Females are similar to those of *R. cochleatus* sp. nov.,

but are characterized by the vulva with the copulatory ducts wide over most of the length and the copulatory openings which are closer to each other (Fig. 45D-E).

Etymology

The species name is a noun in apposition composed of the Greek *σκολιός* (oblique) and *ρινός* (nose) referring to the slightly oblique clypeal protrusion in the male.

Material examined

Holotype

INDONESIA •♂; N. Sumatra, Gunung Leuser National Park, Bohorok; 3°32'N; 98°7'E; primary dipterocarp rainforest; leg. S. Djojosedharmo; 16 Feb. 1983; RMNH ARA 18308.

Paratypes

INDONESIA •♀; N. Sumatra, Gunung Leuser National Park Park, Ketambe; 3°40'N; 7°39'E; primary rainforest; leg. S. Djojosedharmo; 28/XI/1984; RMNH ARA 18309; •♂; N. Sumatra, Gunung Leuser National Park, Bohorok; 3°32'N 98°7'E; leg. S. Djojosedharmo; 16 Feb. 1983; RBINS IG 34514/18; •♀; N. Sumatra, Gunung Leuser National Park, Ketambe; 3°40'N; 7°39'E; leg. Suh. Djojosedharmo; 30 Nov. 1984; RBINS IG 34514/19.

Description

Male (holotype, Figs. 43-44). Total length 3.35; abdomen 1.70; cephalothorax 1.05; clypeal protrusion 0.60; AME 0.07, other eyes 0.05, AME-AME 0.15, AME-ALE 0.03, PME-PME 0.14, PME-PLE 0.06.

Table 20: Leg measurements *Rhinoscosmetus skolorhinus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,60	0,30	2,40	2,30	0,40	8,0
II	1,25	0,20	0,80	0,75	0,50	3,5
III	0,60	0,15	0,35	0,30	0,25	1,7
IV	1,10	0,20	0,60	0,60	0,40	2,9

Ratio leg I/II 2.3; leg I/cephalothorax 7.6

Cephalothorax (Fig. 43A-C): clypeal protrusion pointing slightly upwards; anterior extremity slightly widened and obliquely truncate; some long setae in ocular region.

Abdomen (Fig. 43A-C): silvery spots on lateral and ventral side large, well delimited.

Male palp (Figs. 43D-F, 44): as typical for the genus (Fig. 3) with these extra characteristics: cymbium with several strong setae on anterior extremity which is slightly concave; embolus base oval; sclerotized part originating on prolateral side, very thin, with obliquely transverse loop, distal tip hidden by TTA; TTA with deep notch between roughly triangular base and distal, sickle shaped appendage, produced beyond distal tip of cymbium; conductor inconspicuous, narrow and short.

Lengths of legs are shown in Table 20.

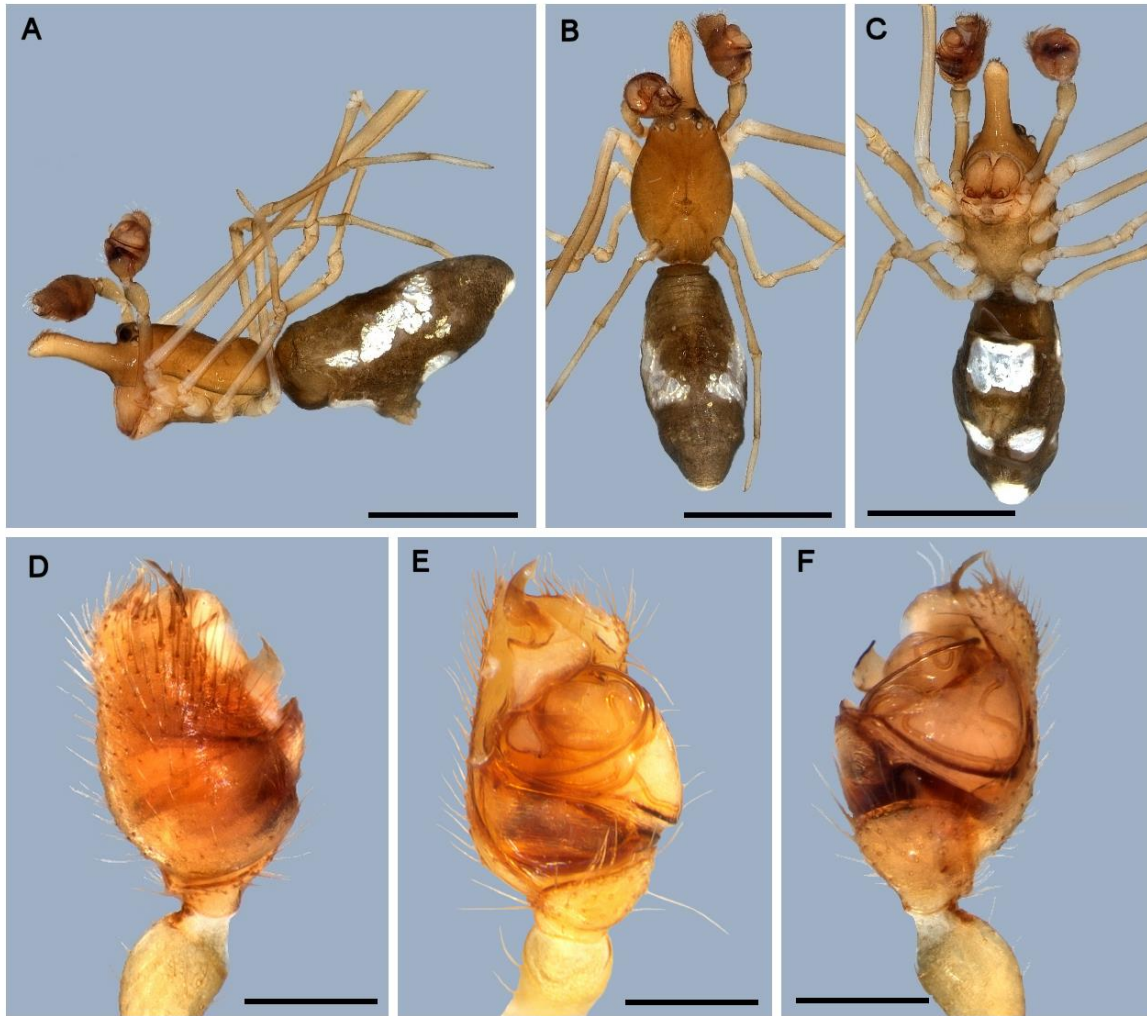


Figure 43: *Rhinocosmetus skolorhinus* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=1 mm; D-F=0.2 mm.

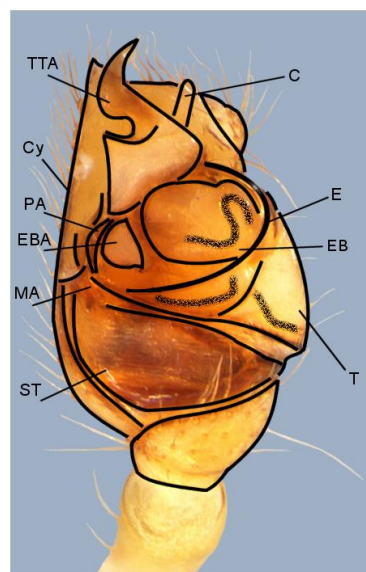


Figure 44: *Rhinocosmetus skolorhinus* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female (paratype RMNH ARA 18309, Fig. 45). Total length 3.10; abdomen 2.10; cephalothorax 1.00; AME 0.07, other eyes 0.05, AME-AME 0.11, AME-ALE 0.02, PME-PME 0.10, PME-PLE 0.04.

Table 21: Leg measurements *Rhinoscymetetes skoliiorhinus* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,40	0,30	2,00	2,10	0,95	7,8
II	1,00	0,15	0,70	0,65	0,50	3,0
III	0,55	0,15	0,30	0,30	0,30	1,6
IV	1,00	0,20	0,50	0,45	0,35	2,5

Ratio leg I/II 2.6; leg I/cephalothorax 7.8

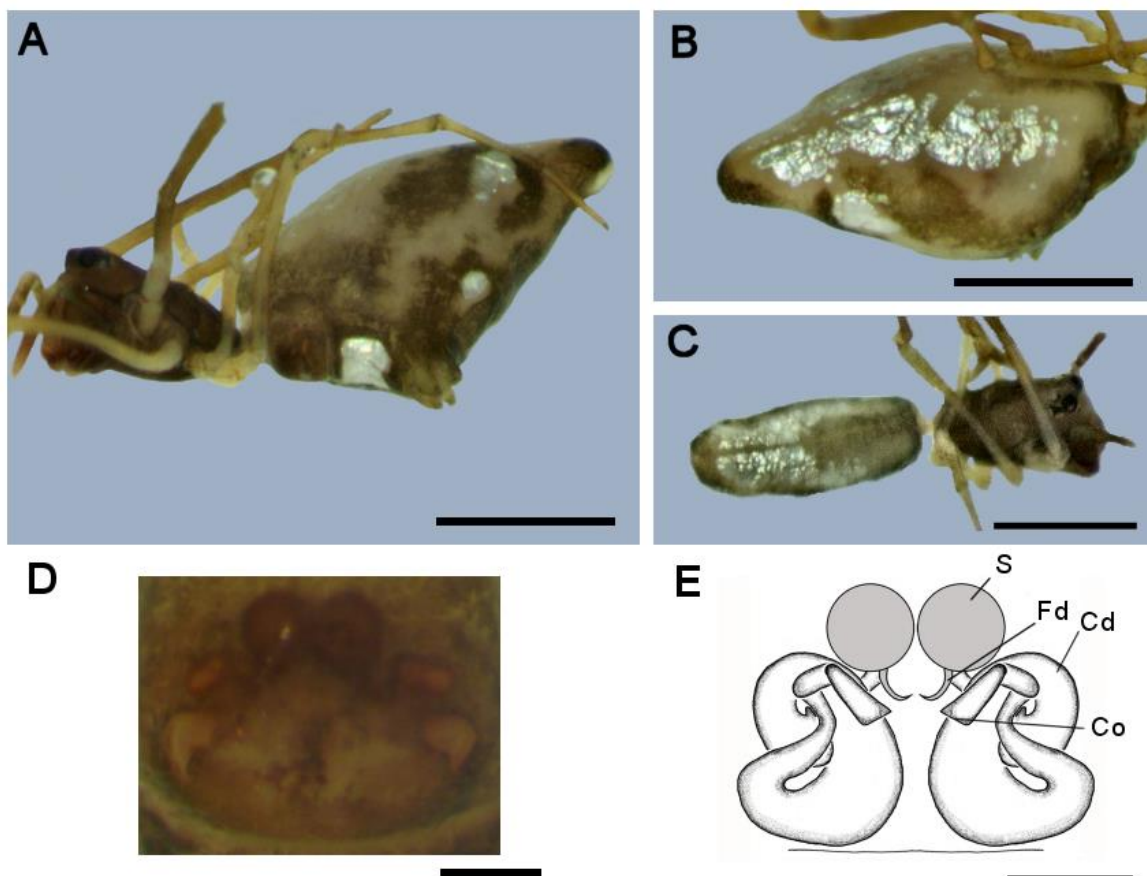


Figure 45 : *Rhinoscymetetes skoliiorhinus* sp. nov., ♀. **A.** Paratype RMNH ARA 18309, habitus, ventrolateral view. **B.** Same, dorsolateral view. **C.** Paratype RBINS IG 34514/19, habitus, dorsal view. **D.** Paratype RMNH ARA 18309, epigyne, ventral view. **E.** Same, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-E=0.1 mm.

Abdomen (Fig. 45A-C): cylindrical or high with rear end pointed.

Epigyne (Fig. 45D-E): inconspicuous, with two lighter spots on either side; vulva with copulatory ducts wide over most of length; entrance openings close to each other.

Lengths of legs are shown in Table 21.

Variation

Males: n = 2: Total length 3.20-3.35; abdomen 1.60-1.70; cephalothorax 1.05; clypeal protrusion 0.55-0.60.

Distribution

Indonesia, Sumatra (Fig. 73).

***Rhinocosmetus sumba* sp. nov.**

(Figs. 46, 72)

Diagnosis

Females of *R. sumba* differ from all other species in the genus by the epigyne with a scapus-shaped darker part, the large kidney shaped posterior spermathecae and the course of the narrow, curved copulatory ducts.

Etymology

The species name is a noun in apposition taken from the type locality Pulau Sumba, an island of Indonesia.

Material examined**Holotype**

INDONESIA • ♀; Lesser Sunda Islands, Sumba Island, 35 km W. of Waingapu; 9°41'S; 120°03'E; evergreen forest near spring; leg. C.L. Deeleman; 31 Jan. 2001; RMNH ARA 18313.

Paratype

INDONESIA • 1 ♀; E. Sumba, Melolo, bird sanctuary, sec. forest; 9°53'S; 120°39'E; leg. C.L. Deeleman, 5 Feb. 2001; RMNH ARA 18314.

Description

Female (holotype, Fig. 44). Total length 2.00; abdomen 1.00; cephalothorax 1.00; AME 0.07, other eyes 0.05, AME-AME 0.11, AME-ALE 0.03, PME-PME 0.09, PME-PLE 0.05.

Table 22: Leg measurements *Rhinocosmetus sumba* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,60	0,35	2,50	2,50	1,00	9,0
II	1,20	0,25	0,85	0,80	0,50	3,6
III	0,60	0,20	0,30	0,35	0,30	1,8
IV	1,00	0,20	0,45	0,60	0,40	2,7

Ratio leg I/II 2.5; leg I/cephalothorax 9.4

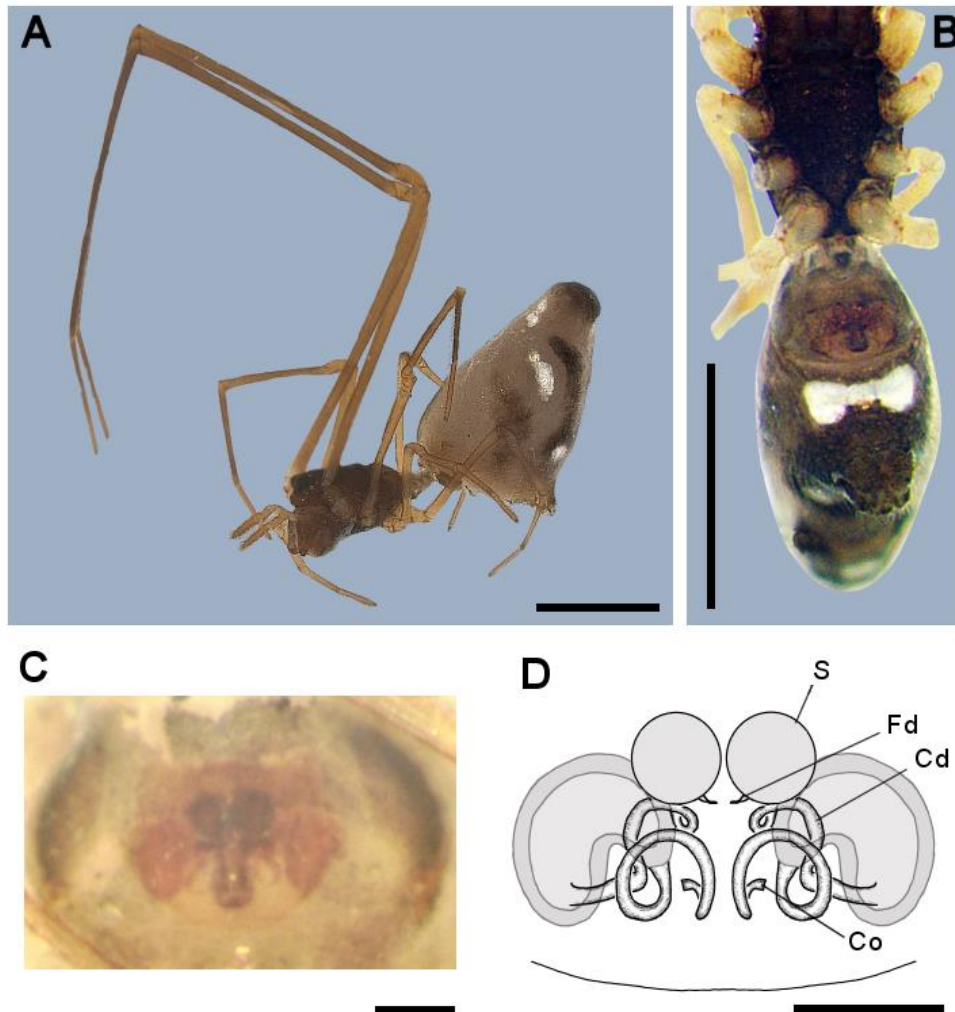


Figure 46: *Rhinocosmetus sumba* sp. nov., ♀. **A.** Holotype, habitus, lateral view. **B.** Paratype RMNH ARA 18314, habitus, ventral view. **C.** Holotype, epigyne, ventral view. **D.** Same, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C-D=0.1 mm.

Abdomen (Fig. 46A-B): white spot between epigyne and spinnerets almost as wide as abdomen.

Epigyne (Fig. 46C-D): slightly bulging with scapus-like darker part, both pairs of spermathecae visible in transparency; anterior pair globular almost touching, posterior pair much larger, kidney-shaped; copulatory ducts narrow over their entire length, coiled before entering posterior spermathecae; stretch between spermathecae long and winding; copulatory openings small, close to posterior margin.

Lengths of legs are shown in Table 22.

Male: Unknown.

Variation

Females: n = 2: Total length 2.00-2.30; abdomen 1.00-1.40; cephalothorax 0.90-1.00.

Distribution

Indonesia, Sumba (Fig. 72).

***Rhinocosmetus xiphias* (Thorell, 1887) comb. nov.**

(Figs. 47-50, 72)

Argyrodes xiphias Thorell, 1887: 95 (Dmf).*Argyrodes xiphias* - Workman, 1896: 62, pl. 62.*Argyrodes levii* Zhu & Song, 1991: 138, f. 10A-D (Dmf).*Argyrodes levii* - Song, Zhu & Li, 1993: 855, f. 7A-D (mf).*Argyrodes xiphias* - Yoshida, 1993: 83, f. 1-4 (mf, S).*Argyrodes xiphias* - Zhu, 1998: 218, f. 143A-D (mf).*Argyrodes xiphias* - Song, Zhu & Chen, 1999: 218, f. 143A-D (mf).*Argyrodes xiphias* - Xu, Yin & Kim, 2000: 87, f. 4-5 (f).*Argyrodes xiphias* - Yoshida, 2003a: 144, f. 387-390 (mf).*Faiditus xiphias* - Agnarsson, 2004: 479 (Tmf from *Argyrodes*).*Faiditus xiphias* - Yoshida, 2009b: 386, f. 276-278 (mf).*Faiditus xiphias* - Yin et al. 2012: 350, f. 143a-d (mf).Note on the types of *Argyrodes xiphias* Thorell, 1887

The introduction of the paper by THORELL (1887) mentions the following “Nel catalogo descrittivo delle specie raccolte dal sig. Fea, delle quali i tipi sono conservati nel Museo Civico di Storia Naturale di Genova” which is translated as “In this paper I describe the species collected by Mr. Fea, the types of which are kept in the collections of MCSNG”. The description of *Argyrodes xiphias* mentions “Mares duos et feminam singulam adultos sat mutilates cum mare juniore hujus araneolae ad Bhamò cepit Gel. Fea,”. This means two adult males, one adult female and one juvenile collected by Fea. At present the collections of MCSNG contain one adult male and one adult female (examined). Considering the above, these specimens should be the types and we therefore designate the male as the lectotype. It is not clear where the second male is but the collection of Stockholm has quite a number of representatives of the species. They are in two tubes with many specimens from Tharawaddy (examined) which cannot be types since the type locality is Bhamó. However, in one of the tubes there is a microvial with one male and a small label. The label does not mention a locality but mentions ‘Doria ded.’ (Doria ‘gave’). Doria was the curator when Fea made his collecting trip to Burma and probably sent a specimen of the species as a gift to Thorell. We assume this is the missing male since Thorell's paper clearly mentions 2 adult males and one female. But strangely enough, according to the World Spider Catalog the types of that species are in Hamburg! And indeed, Nadine Dupérré let us know that they have two males labeled as types collected by Fea in Bhamó and sold by him to their museum (examined digitally). The only possibility is that Fea kept some specimens in his personal collection and sold them later to the Hamburg Museum. This would mean they are not really types because only three adults were mentioned in Thorell's paper.

Material examined

Type material

Lectotype (here designated)

MYANMAR: •♂; Bhamó; 24°16'N 97°14'E; 1885; leg. L. Fea; in webs of large *Nephila* or in shrubs nearby; MCSNG.

Paralectotypes

MYANMAR: •1♀; together with lectotype; •♂; ded. Doria; in tube NHRS-GULI 000105413.

Other material

MYANMAR: •6 ♂♂ 5 ♀♀; Tharawaddy; 302a; NHRS-GULI 000105413; • 2 ♂♂ 6 ♀♀; Tharawaddy; NHRS-GULI-000105414. CAMBODIA: •1♂; Kampot, Kep National Park; 10°29'N; 104°18'E; leg. R.

Bosmans; 5 Dec. 2012; RBINS IG 34514/35. INDONESIA: •3♂♂ 3♀♀; Borneo, C. Kalimantan, Tumbang Tahai; 2°02'S; 113°35'E; leg. S. Djojosedharmo; 13 Sep. 1986; from primary peat bog forest; RMNH ARA 18334.

LAOS •1♂; Champasak, Pakxong W., Tad Etu on Vang Ngao river; 15°11'N; 106°6'E; leg. R. Bosmans; 17-21 Nov. 2012; RBINS IG 34514/36. THAILAND: •1♂; Chiang Rai; 19°53'N; 99°49'E; leg. H. Vanuytven; Dec. 2013; RBINS IG 34514/04; •1♀; Chiang Rai; 19°53'N; 99°49'E; leg. H. Vanuytven; Dec. 2013; RBINS IG 34514/05; •1♂; Prachuap Khiri Khan, Hua Hin, Khao Sam Roi Yot N.P.; 12°14'N; 99°58'E; leg. C.L. Deeleman; 9 Dec. 1990; RMNH ARA 18292.

Description

Male (Figs. 47-49). Total length 3.00; abdomen 1.40; cephalothorax 1.05; clypeal protrusion 0.55; AME 0.08, other eyes 0.05, AME-AME 0.15, AME-ALE 0.02, PME-PME 0.14, PME-PLE 0.07.

Table 23: Leg measurements *Rhinocosmetus xiphias* (Thorell, 1887) comb. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,40	0,30	2,40	2,50	0,50	8,1
II	1,00	0,20	0,75	0,70	0,45	3,1
III	0,55	0,15	0,30	0,30	0,30	1,6
IV	0,95	0,15	0,55	0,55	0,30	2,5

Ratio leg I/II 2.6; leg I/cephalothorax 7.9

Cephalothorax (Figs. 47A-B, 47D-E, 48A-B): Clypeal extension triangular in dorsal view, widest at side of cephalothorax, idem for lateral view; many cotyledonoid setae, clearly visible, split by longitudinal strip in two slightly separated groups (Fig. 47E), upward pointed knob close to eyes; ventral side smooth; several long setae in eye area; sternum triangular, longer than wide, light brown with dark brown mottling.

Abdomen (Fig. 47A-C): sub-cylindrical, dorsum with white spots forming large V; two small lateral spots near posterior end; venter with very large white spot above spinnerets, two smaller spots below spinnerets, one spot close to posterior end.

Legs (Fig. 47A-B): first pair long, but shorter than in other species of the genus.

Male palp (Figs. 47F-I, 48C-D, 49): as typical for the genus (Fig. 3) with these extra characteristics: distal tip of cymbium with a few cylindrical, bent, thick setae (Fig. 48D); embolus with large, roughly triangular base with rounded corners; sclerotized part directed outward, with 360° coil adjacent to tegulum, ending in slender, sinuous tip near cymbial margin, sometimes surpassing it (Fig. 47H); distal slender part of embolus covered by transparent membrane, only tip completely free (Fig. 47G-H); conductor relatively wide as compared with most other species and with distal rounded tip; distal appendage of TTA almost straight, retrolateral extension rather long, with short narrowed tip pointing to distal extremity.

Lengths of legs are shown in Table 23.

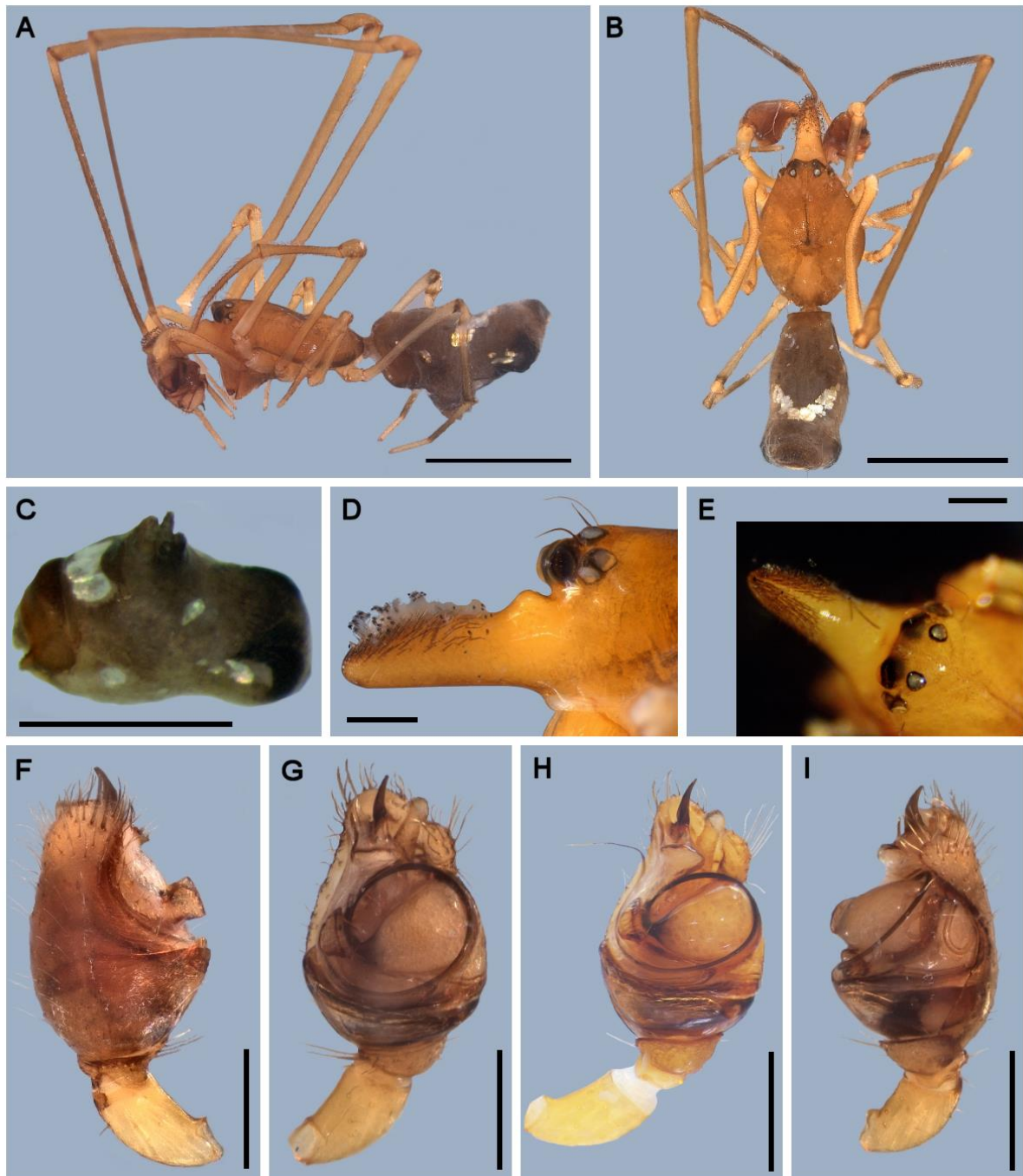


Figure 47: *Rhinocosmetus xiphias* comb. nov., ♂. **A.** RBINS IG 34514/04, habitus, lateral view. **B.** Same, dorsal view. **C.** RBINS IG 34514/35, abdomen, ventrolateral view. **D.** RBINS IG 34514/36, clypeal protrusion, lateral view. **E.** RBINS IG 34514/35, clypeal protrusion, dorsal view. **F.** RBINS IG 34514/04, left palp, prolateral view. **G.** Same, ventral view. **H.** Same, RBINS IG 34514/36. **I.** Holotype, left palp, retrolateral view. Scale bars: A-C=1 mm; D-I=0.2 mm.

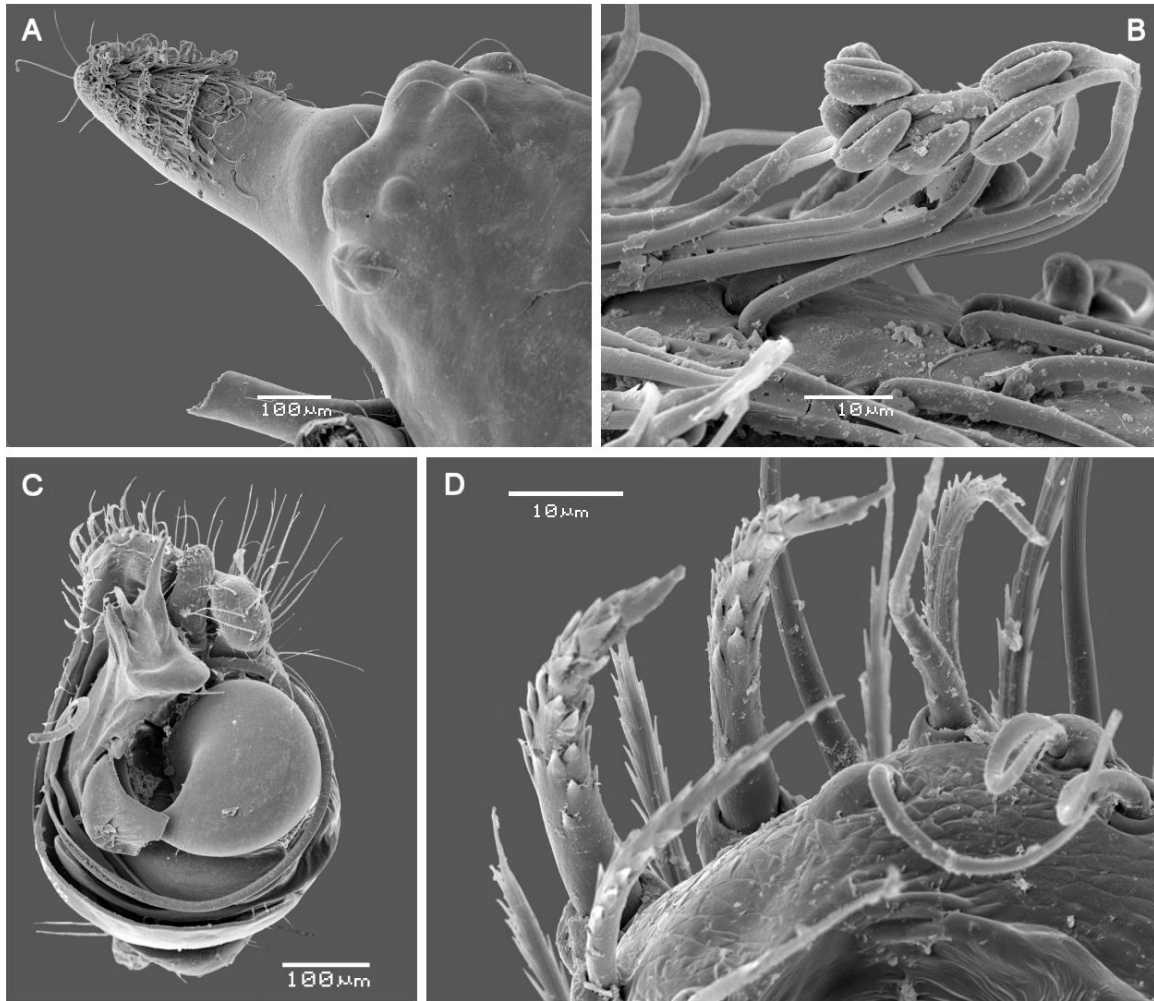


Figure 48: *Rhinocosmetus xiphias* comb. nov., ♂, RMNH ARA 18292. **A.** Cephalic part, dorsal view. **B.** Same, detail. **C.** Left palp, ventral view. **D.** Same, detail.

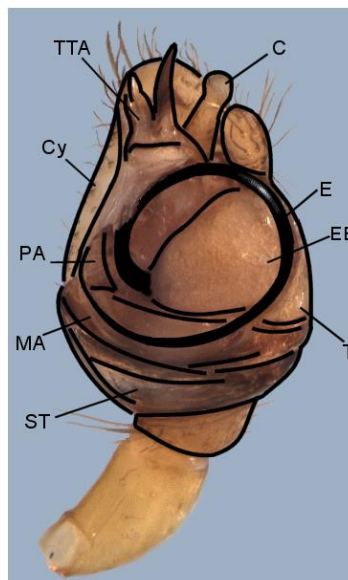


Figure 49: *Rhinocosmetus xiphias* comb. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Note: According to THORELL (1887) the silvery spots on the abdomen are sometimes rather gold coloured.

Female (Fig. 50). Total length 2.65; abdomen 1.80; cephalothorax 0.85; AME 0.07, other eyes 0.05, AME-AME 0.11, AME-ALE 0.02, PME-PME 0.09, PME-PLA 0.04.

Table 24: Leg measurements *Rhinocosmetus xiphias* (Thorell, 1887) comb. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,00	0,25	1,60	1,70	0,80	6,4
II	0,70	0,15	0,60	0,50	0,30	2,3
III	0,45	0,10	0,25	0,25	0,25	1,3
IV	0,75	0,15	0,40	0,35	0,30	2,0

Ratio leg I/II 2.8; leg I/cephalothorax 7.5

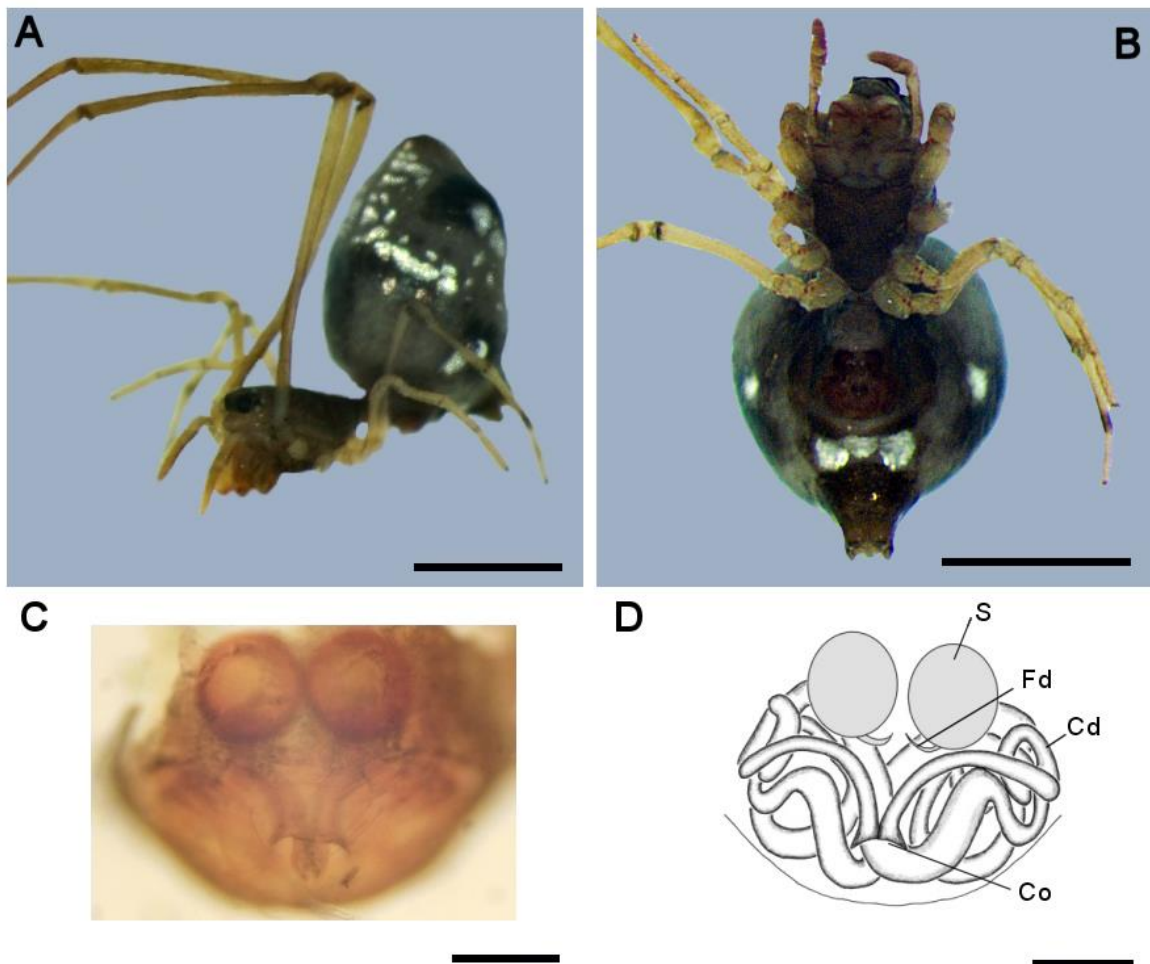


Figure 50. *Rhinocosmetus xiphias* comb. nov., ♀, RMNH ARA 18334. **A.** Habitus, lateral view. **B.** Same, ventral view. **C.** Same, epigyne, ventral view. **D.** Same, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C-D=0.1 mm.

Abdomen (Fig. 50A-B): dark with silvery spots, venter with three white spots between epigyne and spinnerets.

Legs shorter than in male. Lengths of legs are shown in Table 24.

Epigyne (Figs 50C-D): Spermathecae visible in transparency, round, close to each other; entrance openings of copulatory ducts clearly visible, touching; copulatory ducts very long, varying in width, with many curves and trajectory difficult to follow.

Variation

Males: n = 2: Total length 2.70-3.00; abdomen 1.20-1.40; cephalothorax 1.00-1.05; clypeal protrusion 0.50-0.55.

Distribution

Myanmar, Thailand, Cambodia, Laos, Borneo, China (Fig. 72).

Genus *Rhinoliparus* gen. nov.

(Figs. 51-54, 74-75)

Type species

Rhinoliparus nafithiamae sp. nov.

Etymology

Rhinoliparus is derived from the combination of the Greek words ρινος (nose) and λιπαρος (fat); the gender is masculine.

Diagnosis

Rhinoliparus gen. nov. is similar to *Rhinocosmetus* gen. nov. but the clypeal protrusion of the males is a large swelling instead of a long, narrow extension. The dark sclerotized part of the embolus starts on the ventral side of the palp exposing its origin, with the exception of *R. platyrhinus* sp. nov., whereas it originates on the dorsal, unexposed side of the embolus base in *Rhinocosmetus* gen. nov. In contrast with the latter, the cymbium is positioned on the dorsal side of the bulbus, and the distal prong of the TTA is curved retrolaterad. From the other Argyrodinae, only *Faiditus* has sometimes a projection on the clypeus but this bears no cotyledonoid setae. The male palp of *Faiditus* has a strongly hooked TTA distal tip, the TTA of *Rhinoliparus* is much different. Females differ from the other genera by the size of the AME larger than the other eyes which are subequal and the leg formula (1243), (1423) in *Faiditus* and the shape of the abdomen and the white markings on the dorsal, lateral and ventral sides of it. *Ariamnes* has the abdomen extremely elongated, in *Neospintharus* it is truncated and the posterior end with several humps while in *Rhomphaea* it is usually much longer and raised, tapering to a single tip, on average four to six times as long behind as anterior to spinnerets and in *Spheropistha* the abdomen is almost globular. From *Rhinocosmetus* gen. nov. females can be distinguished by the convoluted or wide copulatory ducts respectively in combination with egg-shaped or globular spermathecae.

Description

Small spiders, total length ♂ 2.10-3.30 mm, ♀ 2.10-3.20 mm.

Male with clypeal protrusion wider than long, containing a group of cotyledonoid setae on the anterior side.

Cephalothorax (Fig. 52): uniform light to dark brown; in males, clypeal protrusion same colour as rest of cephalothorax but may be slightly lighter; AME larger than other eyes.

Abdomen: very similar to that of *Rhinocosmetus* gen. nov., extended far behind spinnerets, most often subcylindrical, sometimes constricted at the rear end; abdomen usually higher in females, sometimes slightly pointed at posterior end; colour varies in different species from light brown to very dark; with silvery spots on dorsum, venter and sides, the lateral ones sometimes almost touching each other on dorsal side of abdomen; ventral silvery spot between epigastric region and spinnerets variable in size; two silvery spots behind spinnerets close to lateral sides; venter with another silvery spot at posterior end.

Legs: pale brown, the end of each segment darker. Legs I much longer than others, formula 1243. Ratio leg I and II ♂ 2.3-2.9, ♀ 2.5-2.8. Ratio leg I and cephalothorax ♂ 7.2-10.3, ♀ 7.6-10.6.

Male palp with long, whiplike embolus, turning clockwise in left palp; TTA distal appendage curved retrolaterally, distally projecting beyond the cymbium, shape different in every species (Fig. 53 arrows); embolic base with appendage (EBA) originating on dorsal side of EB; cymbium with thick setae on posterior part, sclerotized part of embolus originates on ventral side of the bulbus, except in *Rhinoliparus platyrhinus* sp. nov.

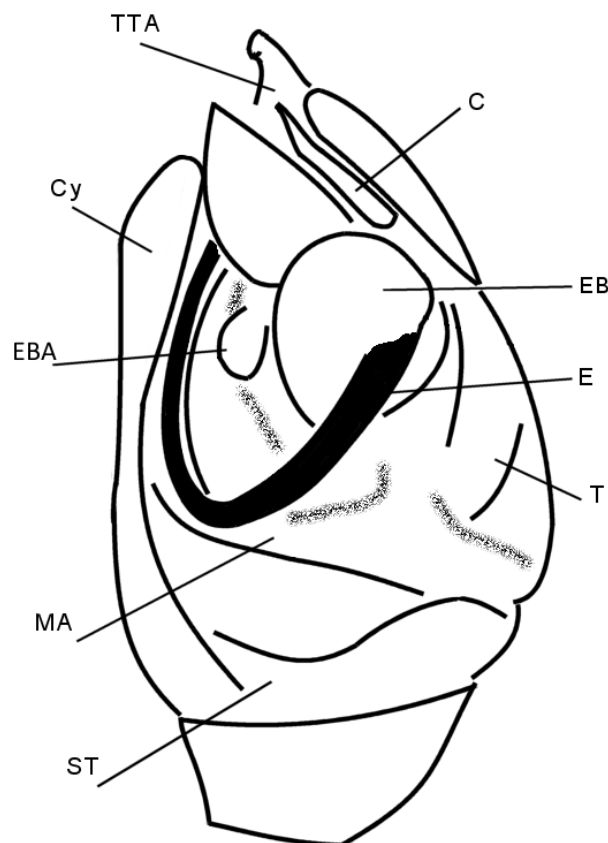


Figure 51. Schematic representation of a male left palp of a member of the genus *Rhinoliparus* gen. nov. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female epigyne: clearly delimited, with wide copulatory openings; vulva with copulatory ducts very long, with stable diameter, without extra spermathecae; in one species, *Rhinoliparus nafithiamae* sp. nov., the spermathecae are round and very small as compared to the width of the copulatory ducts which are usually strongly convoluted; other species have large, egg shaped spermathecae with narrow end posteriorly.

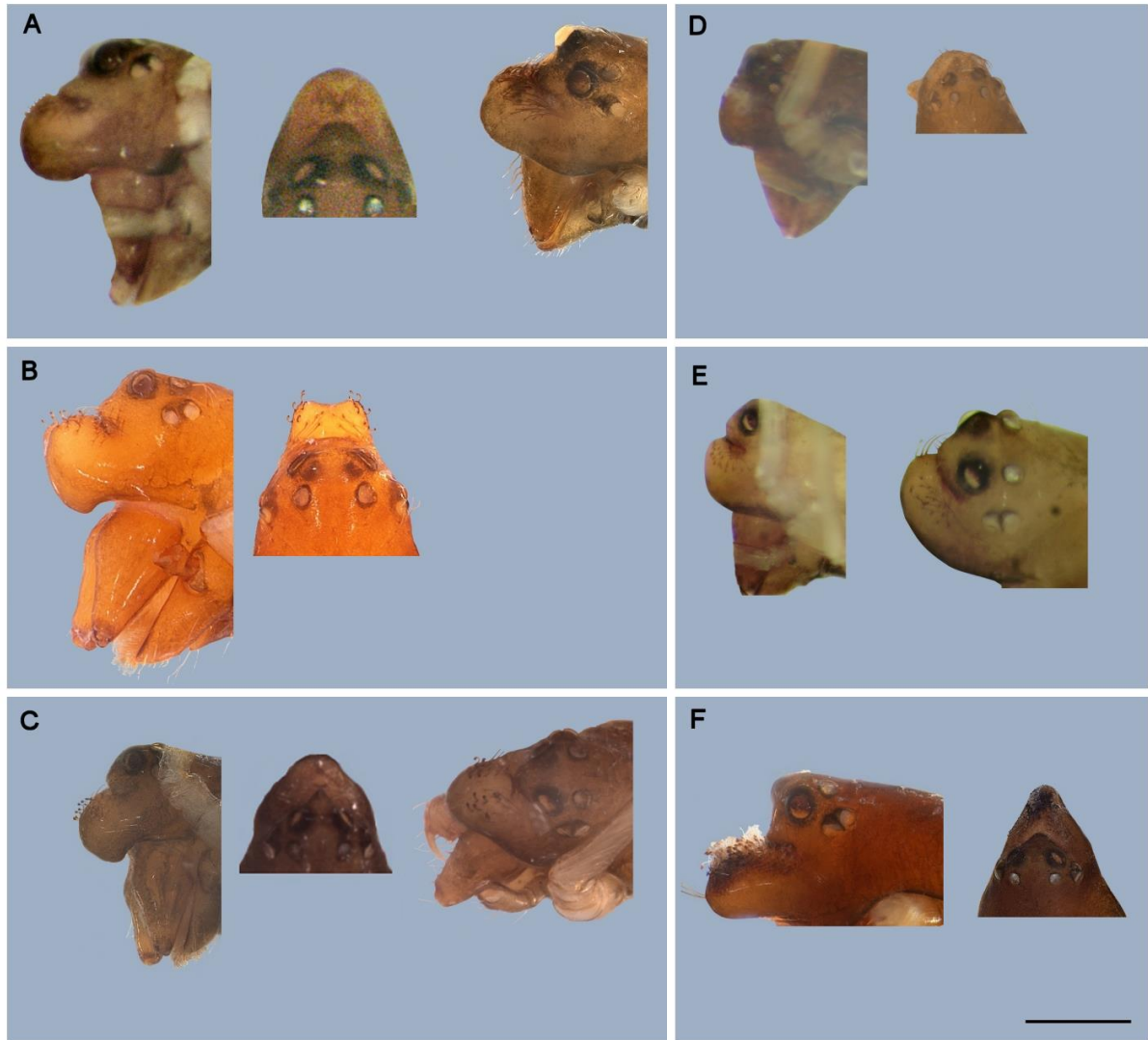


Figure 52: Overview of the clypeal protrusions of the here described *Rhinoliparus* species. **A.** *R. nafithiamae* sp. nov., paratypes RBINS IG 34514/22, RBINS IG 34514/31 and holotype; **B.** *R. kulczynskii* (Roewer, 1942) comb. nov., RMNH ARA 18330; **C.** Same, paratypes RMNH ARA 18331, RMNH ARA 18332 and RMNH ARA 18333; **D.** *R. missai* sp. nov., paratype RBINS IG 34514/33 and holotype; **E.** *R. queensland* sp. nov., holotype; **F.** *R. platyrhinus* sp. nov., holotype. Scale bar: 0.5 mm.

Distribution

Forested areas in South East Asia from Sri Lanka, Nicobar Islands, Cambodia, Indonesia and the Philippines, Papua New Guinea, northern Australia and New Caledonia (Figs. 74-75).

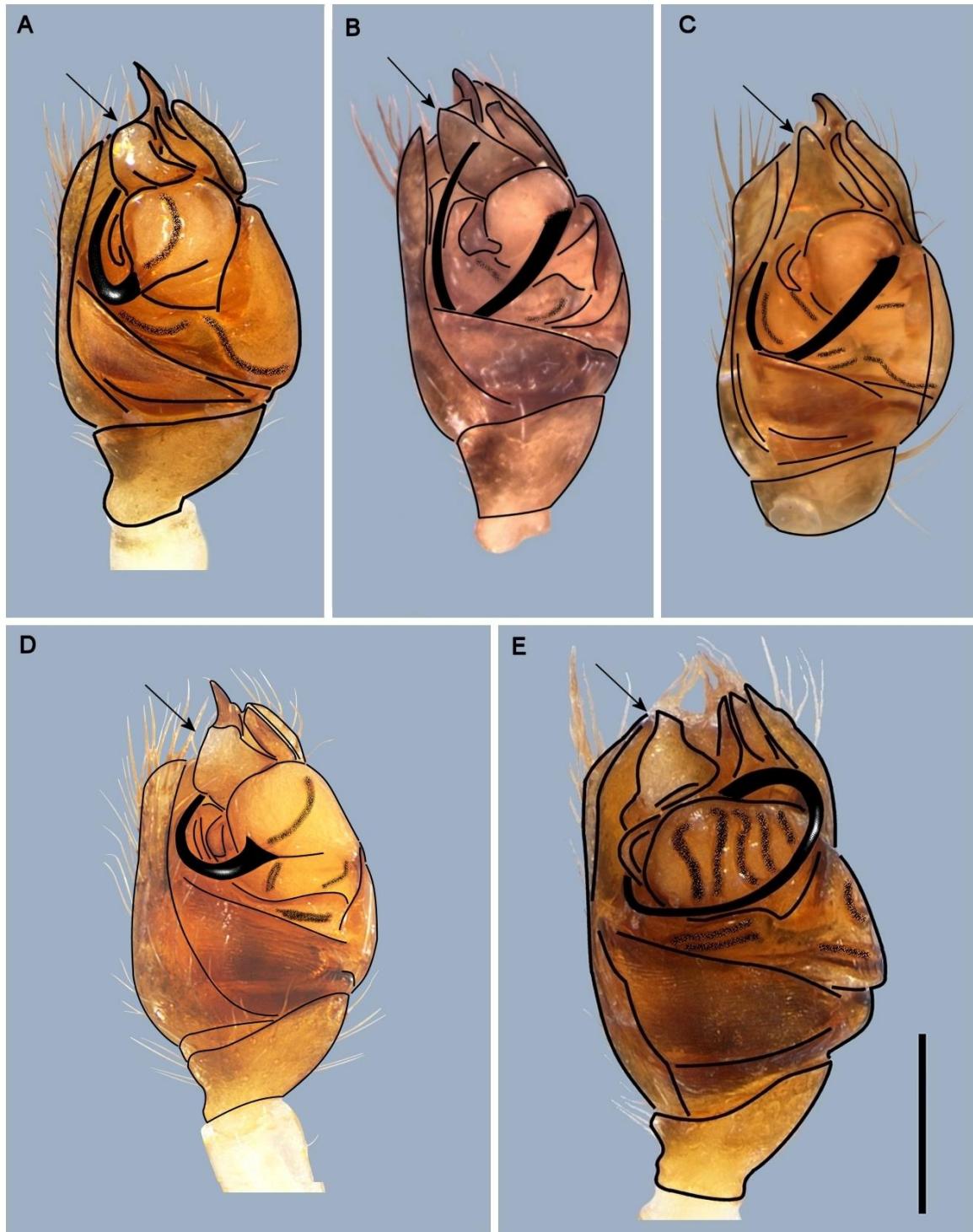


Figure 53: Overview of the male left palp of the here described *Rhinoliparus* species, schematic presentation. **A.** *R. nafithiamae* sp. nov.; **B.** *R. kulczynskii* (Roewer, 1942) comb. nov.; **C.** *R. missai* sp. nov.; **D.** *R. queensland* sp. nov.; **E.** *R. platyrhinus* sp. nov. Arrows: base of TTA. Scale bar: 0.2 mm.

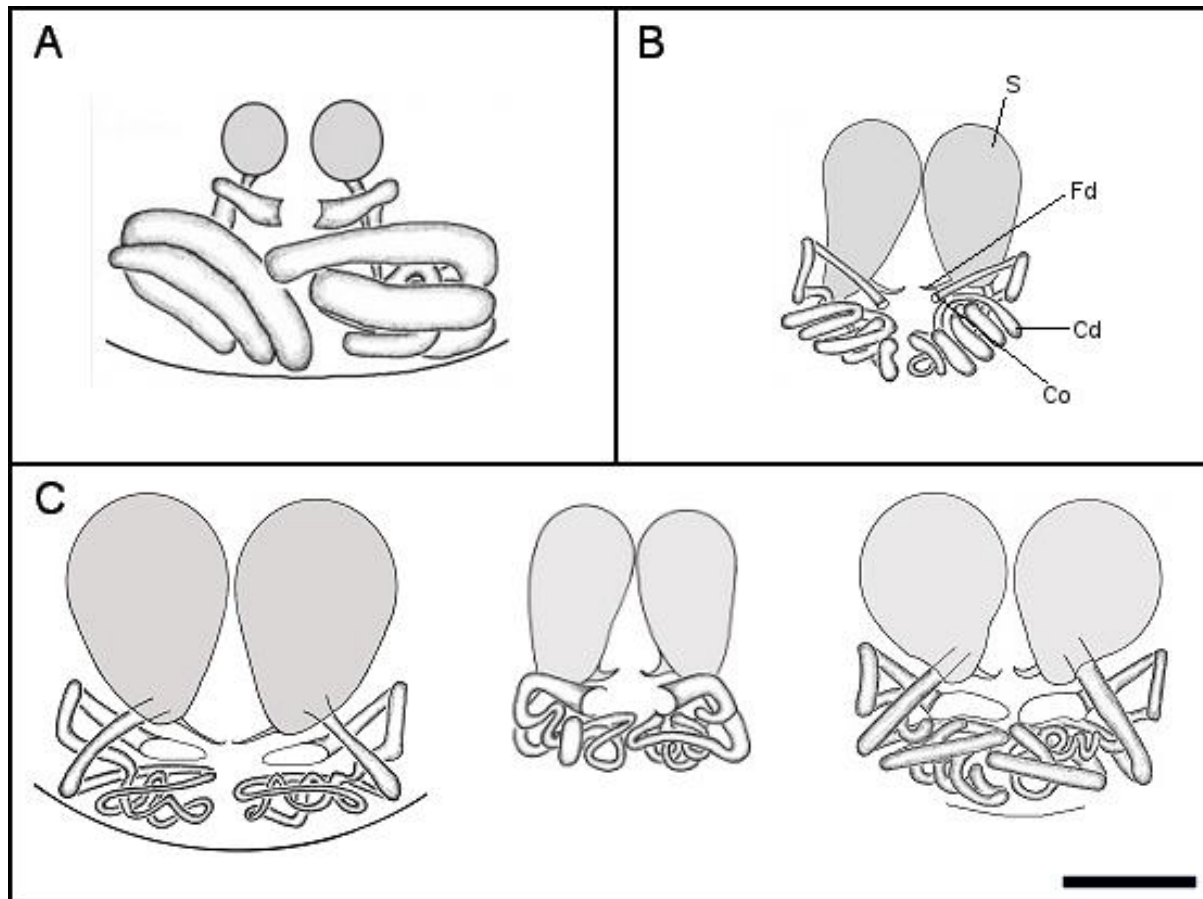


Figure 54: Overview of the female vulva of the here described *Rhinoliparus* species. **A.** *R. nafithiamae* sp. nov., paratype RBINS IG 34514/25; **B.** *R. missai* sp. nov., paratype RBINS IG 34514/29; **C.** *R. kulczyinskii* comb. nov., RBINS IG 34514/15, RMNH ARA 18332 and RMNH ARA 18330. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S: spermathecae. Scale bar: 0.1 mm.

***Rhinoliparus kulczyinskii* (Roewer, 1942) comb. nov.**
(Figs. 55-59, 74)

Argyrodes argenteolus Kulczyński, 1911: 438, pl. 19, f. 14 (Df; preoccupied by O. Pickard-Cambridge, 1894).

Argyrodina kulczyinskii Roewer, 1942: 434 (replacement name).

Argyrodes kulczyinskii - Chrysanthus, 1963: 741, f. 70-75 (f, Dm).

Diagnosis

Males of *R. kulczyinskii* (Roewer, 1942) are characterized by the clypeal protrusion (Figs. 55A-C, 56, 57) which has about the same size as in *R. nafithiamae* sp. nov. (Fig. 63A-C) but is vertically expanded, by the cotyledonoid setae on the sides of the protrusion instead of in the middle (Figs. 57A, 64-A-C) and by the distal appendage of the TTA thicker and more strongly curved (Figs. 55D-F, 63E-G). Females are similar to those of *R. missai* sp. nov. but here the entrance openings are elliptical and there are no parallel copulatory duct loops (Fig. 59H-L, 62E).

Note

KULCZYNSKI (1911) described *Argyrodes argenteolus* from New Guinea. Since this name was preoccupied by O. PICKARD-CAMBRIDGE (1894), ROEWER (1942) changed it to *Argyrodina kulczyinskii*. *Argyrodina* was synonymized with *Argyrodes* by LEVI & LEVI (1962) and the name became *Argyrodes*

kulczynskii (Roewer, 1942). Later, CHRYSANTHUS (1963) described the species again. However, it is not clear if he saw the original specimens from Kulczynski. The drawing of the vulva is similar to ours, the difference may be the result of insufficient clearing of the epigyne. The drawings of the epigyne and of the male clypeal protrusion are very similar. Therefore, we consider our species to be *Argyrodes kulczynskii*, which becomes now *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov.

This species seems to have a very large distribution, from Laos to Papua New Guinea. It is not completely sure though whether the studied specimens all belong to one species, as some small differences in the clypeal protrusion can be observed: in some specimens it is straight whereas it is rounded in others. However, the male palps show no distinctive difference. Also, of the females we have at our disposal from a few localities, the vulvae are very similar. We therefore prefer to treat them all as one species until more specimens are available.

Material examined

CAMBODIA: •1♂; Kampot N.; 5°1'S; 145°45'E; leg. R. Bosmans; 17-21 Nov. 2012; RBINS.

INDONESIA: •1♂; Borneo, E. Kalimantan, Sepaku; 0°54'S; 116°45'E; leg. C.L. & P.R. Deeleman; 20-21 July 1982; RMNH ARA 18333; •2♂♂; C. Sulawesi, Dumoga, watershed protection near Doloduo, prim. forest near border; 0°39'N; 124°03'E; leg. C.L. & P.R. Deeleman; 27 July 1982; RMNH ARA 18331; •1♀; N. Sulawesi (Palu), Marena, Lore Lindu Res.; 1°33'S; 120°07'E; 600m; leg. C.L. & P.R. Deeleman; 24 July 1982; RMNH ARA 18332; •1♂ 1♀; Moluccan Banda Islands, Pulau Banda, Lonthoir, Namulu; 4°33'S; 129°52'E; leg. C.L. & P.R. Deeleman; 19 Jan. 1995; RMNH ARA 18333; •1♂; N. Borneo, Sabah, Tawau, oil palm plantation, canopy fogging; 4°23'N; 117°53'E; leg. A. Floren; 8 Sep. 2009; RMNH ARA 18332; •3♂♂; West-Nusa Tenggara, Sumbawa Besar; 5°1'S; 145°45'E; leg. S. Djojosedharmo; 3 Jan. 1990; RMNH; •1♂ 1♀; as previous; 4°33'S; 129°56'E; leg. C.L. Deeleman; 27 Jan. 1995; RMNH; MALAYSIA •2♂♂; N. Borneo, Sabah, Tawau, oil palm plantation, canopy fogging; 4°23'N; 117°53'E; leg. A. Floren; 8 Sep. 2009; RMNH.

PAPUA NEW GUINEA •1♂ 1♀; Lombok, Kuta; 8°53'; S°116 7'E; leg. S. Djojosedharmo; 10-18 Jan. 1991; RMNH ARA 18330; •1♂; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Dracontomelum doa*; 18 May 1993; RBINS IG 34514/14; •1♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Ficus spec.* (Moraceae); 4 June 1993; RBINS IG 34514/15; •1♂ 2♀♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Pometia pinnata*; 8 June 1993; RBINS; •2♀♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Dracontomelum doa*; 30 March 1993; RBINS; •1♂; as previous; fogging of *Dracontomelum doa*; 18 May 1993; RBINS; •1♂ 1♀; as previous; fogging of *Buchanania spec.* (Anacardiaceae); 19 May 1993; RBINS; •1♂; as previous; fogging of *Sloanea sogerensis* (Elaeocarpaceae); 10 June 1993; RBINS; •1♂; as previous; fogging of *Celtis philippinensis* (Ulmaceae); 6 June 1995; RBINS; •1♀; as previous; fogging of *Maniltoa psylogyne* (Caesalpiniaceae); 7 July 1995; RBINS; •1♀; as previous; fogging of *Mangifera minor* (Anacardiaceae); 18 July 1995; RBINS.

Description

Male (Figs. 55-57). Total length 2.25; abdomen 1.10; cephalothorax 1.15; AME 0.06, other eyes 0.05, AME-AME 0.10, AME-ALE 0.05, PME-PME 0.13, PME-PLE 0.04.

Table 25: Leg measurements *Rhinoliparus kulczynskii* (Roewer,1942) comb. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,60	0,30	2,20	2,30	0,50	7,9
II	1,05	0,25	0,85	0,75	0,45	3,4
III	0,55	0,15	0,35	0,30	0,25	1,6
IV	0,75	0,20	0,50	0,45	0,30	2,2

Ratio leg I/II 2.4; leg I/cephalothorax 7.2

Some specimens from Indonesia are bigger than average and have longer legs. The measurements of one specimen are:

Total length 3.30; abdomen 1.90; cephalothorax 1.40; AME 0.07, other eyes 0.05, AME-AME 0.14, AME-ALE 0.08, PME-PME 0.13, PME-PLE 0.07

Table 26: Leg measurements *Rhinoliparus kulczynskii* (Roewer,1942) comb. nov. male from Indonesia.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,40	0,40	3,00	3,10	1,30	11,2
II	1,50	0,30	1,30	1,00	0,60	4,7
III	0,75	0,20	0,35	0,40	0,30	2,0
IV	1,05	0,25	0,65	0,60	0,35	2,9

Ratio leg I/II 2.4; leg I/cephalothorax 8.0



Figure 55: *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov., ♂, RBINS IG 34514/14. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Left palp, prolateral view. **E.** Same, ventral view. **F.** Same, retrolateral view. Scale bars: A-C=0.5 mm; D-F=0.2 mm.

Cephalothorax (Figs. 55A-C, 56, 57): cotyledonoid setae on sides of clypeal protrusion; strong straight setae almost all in one line, forming semicircle seen dorsally.

Abdomen: light spot between epigastric region and spinnerets rather small as compared with that in other species.

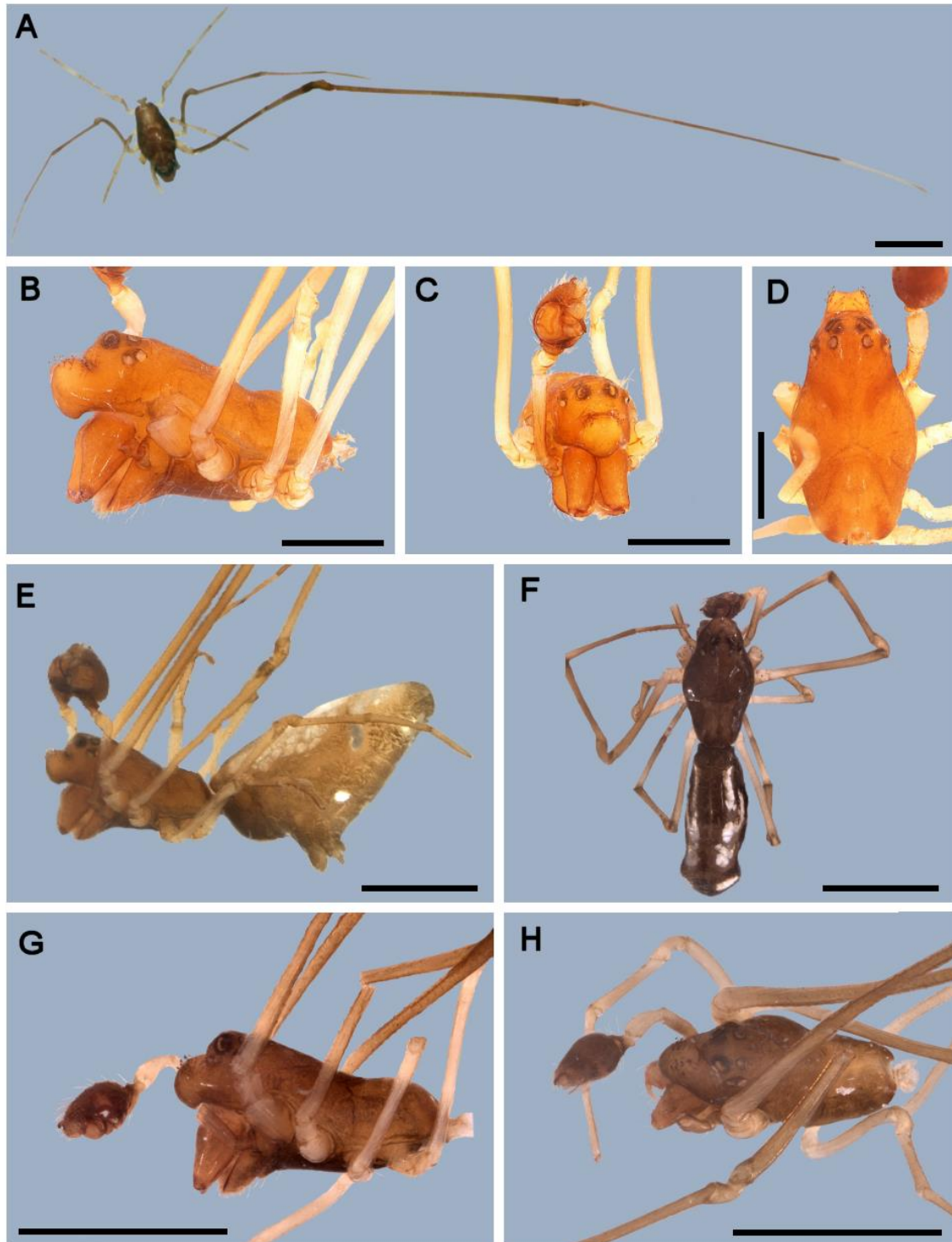


Figure 56: *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov., ♂. **A.** RMNH ARA 18331, cephalothorax, dorsal view. **B.** RMNH ARA 18330, cephalothorax, lateral view. **C.** Same, anterior view. **D.** Same, dorsal view. **E.** Same, habitus, lateral view. **F.** RMNH ARA 18332, habitus, dorsal view. **G.** RMNH ARA 18333, cephalothorax, lateral view. **H.** Same, dorsal view. Scale bars: A, E-H=1 mm; B-D 0.5 mm.

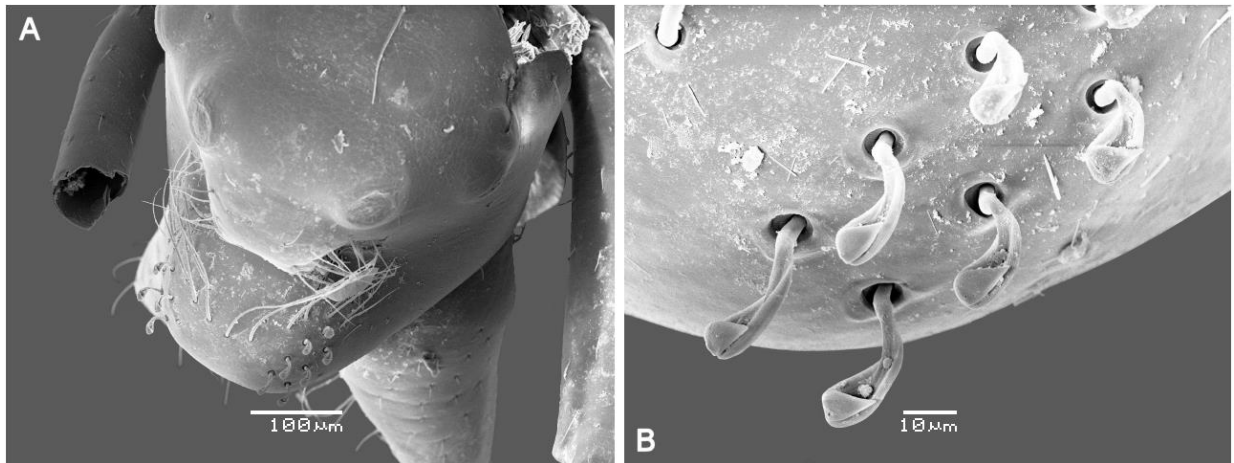


Figure 57: *Rhinoliparus kulczyński* (Roewer, 1942) comb. nov., ♂, RMNH ARA 18333. **A.** Cephalic part, dorsal view. **B.** Setae, dorsal view.

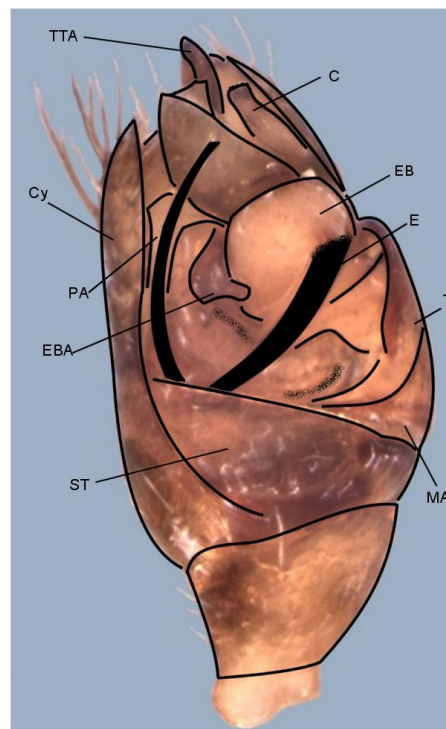


Figure 58: *Rhinoliparus kulczyński* (Roewer, 1942) comb. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 56D-F, 58): as typical for the genus (Fig. 51), with these extra characteristics: embolus base fairly small, oval; sclerotized dark part originating on prolateral side of base, loop oblique, fairly large, partly hidden by subtegulum ending ventrad of TTA: TTA with base of translucent part wide (Fig. 53B arrow), distal prong small; conductor short slightly constricted at truncate tip.

Lengths of legs are shown in Table 25 and Table 26.

Female (Fig. 59). Total length 2.10; abdomen 1.20; cephalothorax 0.90; AME 0.06, other eyes 0.04, AME-AME 0.10, AME-ALE 0.02, PME-PME 0.10, PME-PLE 0.05

Table 27: Leg measurements *Rhinoliparus kulczynskii* (Roewer,1942) comb. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,00	0,30	2,00	1,80	0,75	6,9
II	0,80	0,20	0,60	0,50	0,35	2,5
III	0,40	0,15	0,30	0,25	0,25	1,4
IV	0,65	0,15	0,35	0,35	0,25	1,8

Ratio leg I/II 2.8; leg I/cephalothorax 7.6

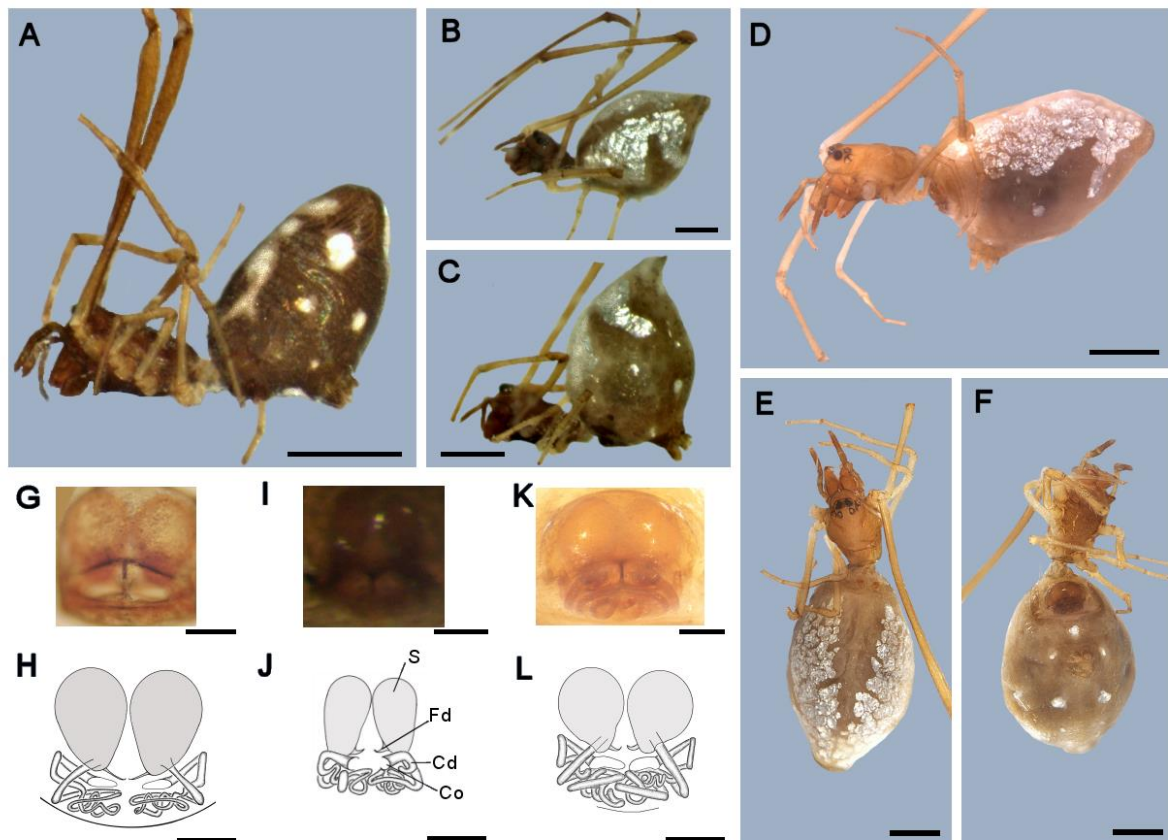


Figure 59: *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov., ♀. **A.** RBINS IG 34514/34, habitus, lateral view. **B.** RMNH ARA 18330, habitus, dorsolateral view. **C.** Same, habitus, lateral view. **D.** RMNH ARA 18330, habitus, lateral view. **E.** Same, dorsal view. **F.** Same, Ventral view. **G.** RBINS IG 34514/15, epigyne, ventral view. **H.** Same, vulva, ventral view. **I.** RMNH ARA 18332, epigyne, ventral view. **J.** Same, vulva, dorsal view. **K.** RMNH ARA 18330, epigyne, ventral view. **L.** RMNH ARA 18330, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-F=1 mm; G-L=0.1 mm.

Abdomen (Fig. 59A-F): with small white dot between epigyne and spinnerets, sometimes also two smaller dots more to the sides just above spinnerets; on dorsal side with big silvery patches, sometimes abdomen almost completely covered.

Epigyne (Fig. 59G-L): rather variable, two elliptical openings widely separated, spermathecae and copulatory ducts partly visible in transparency; spermathecae egg shaped, large, touching; copulatory ducts long, narrow, with numerous coils.

Lengths of legs are shown in Table 27.

Variation

Males: n = 9: Total length 2.10-3.30; abdomen 1.00-1.90; cephalothorax 1.05-1.40.

Females: n = 5: Total length 2.10-3.20; abdomen 1.10-2.20; cephalothorax 0.90-1.10

Distribution

Cambodia, Indonesia (Kalimantan, Borneo), Sulawesi, Sumbawa, Lombok, Moluccan Island Pulau Banda: Lontor), Malaysia (N. Borneo), Papua New Guinea (Fig. 74).

Rhinoliparus missai sp. nov.

(Figs. 60-62, 74)

Diagnosis

Males of *R. missai* sp. nov. are recognized by the small clypeal protrusion, smaller than in the other species, with only a few cotyledonoid setae (Fig. 60A-C), by the small cephalic protrusion in front of the eyes, triangular in dorsal view (Fig. 60C), and by the long narrow conductor. Females are similar to those of *R. nafithiamae* sp. nov., but the spermathecae are egg shaped instead of globular and the copulatory ducts are much narrower (Figs. 62E, 66G).

Etymology

The species name is a patronym in honour of Olivier Missa who collected the type material.

Material examined

Holotype

PAPUA NEW GUINEA •♂; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; 6 Jul. 1995; RBINS IG 34514/16.

Paratypes

PAPUA NEW GUINEA •1♀; same as holotype; RBINS IG 34514/17; •1♂ 1♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Homalium foetidum* (Flacourtiaceae); 6 July 1995; RMNH ARA 18321; •1♀; as previous; fogging of *Terminalia macrocarpa* (Combretaceae); 2 May 1995; RBINS IG 34514/27; •1♀; as previous; fogging of *Podocarpus neliifolius* (Podocarpaceae); 4 May 1994; RBINS IG 34514/28; •1♂ 1♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging *Celtis philippinensis* (Ulmaceae); 5 June 1995; RBINS IG 34514/29; •1♂; as previous; fogging of *Planchonella thysoidis* (Sapotaceae); 25 May 1995; RBINS IG 34514/33.

Other material examined

PAPUA NEW GUINEA •1♂; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Ficus* sp. (Moraceae); 3 June 1993; RBINS; •1♂; as previous; fogging of unidentified species; 6 April 1994; RBINS; •1♂ 1♀; as previous; fogging of *Trichadenia philippinensis* (Flacourtiaceae); 31 May 1994; KBINS; •1♂; as previous; fogging of *Terminalia sepikana* (Combretaceae) 15 June 1995; RBINS; •1♂ 1♀; as previous; fogging of *Homalium foetidum* (Flacourtiaceae); 6 July 1995; RBINS.

Description

Male (holotype, Figs. 60-61). Total length 2.90; abdomen 1.80; cephalothorax 1.10; AME 0.07, other eyes 0.05, AME-AME 0.10, AME-ALE 0.05, PME-PME 0.13, PME-PLE 0.07.

Table 28: Leg measurements *Rhinoliparus missai* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,40	0,40	2,80	3,20	1,10	10,9
II	1,30	0,30	1,05	0,90	0,50	4,1
III	0,60	0,20	0,30	0,45	0,30	1,9
IV	1,10	0,25	0,75	0,70	0,45	3,3

Ratio leg I/II 2.7; leg I/cephalothorax 9.9

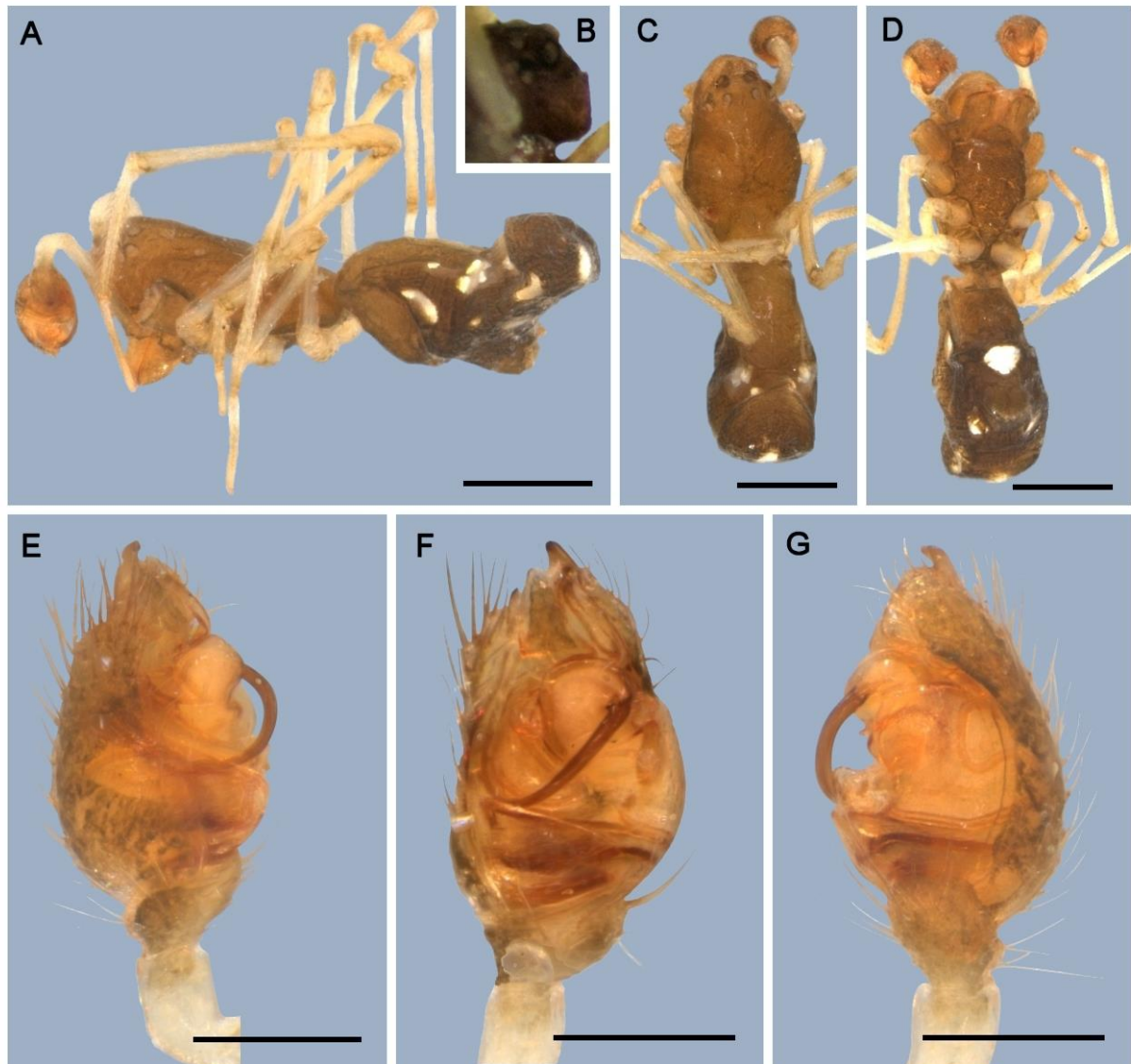


Figure 60 : *Rhinoliparus missai* sp. nov., ♂. **A.** Holotype, habitus, lateral view. **B.** Paratype RBINS IG 34514/17, habitus, cephalic part, lateral view. **C.** Holotype, habitus, dorsal view. **D.** Same, ventral view. **E.** Holotype, left palp, prolateral view. **F.** Same, ventral view. **G.** Same, retrolateral view. Scale bars: A-D=0.5 mm; E-G=0.2 mm.

Cephalothorax (Fig. 60A-D): clypeal protrusion small, triangular as seen from above, with only few cotyledonoid setae only visible under very strong magnification.

Abdomen (Fig. 60A,C-D): long, somewhat constricted before rounded posterior tip; white spot on lateral sides split in several spots; white spot between epigastric region and spinnerets with extra white patch touching spinnerets.

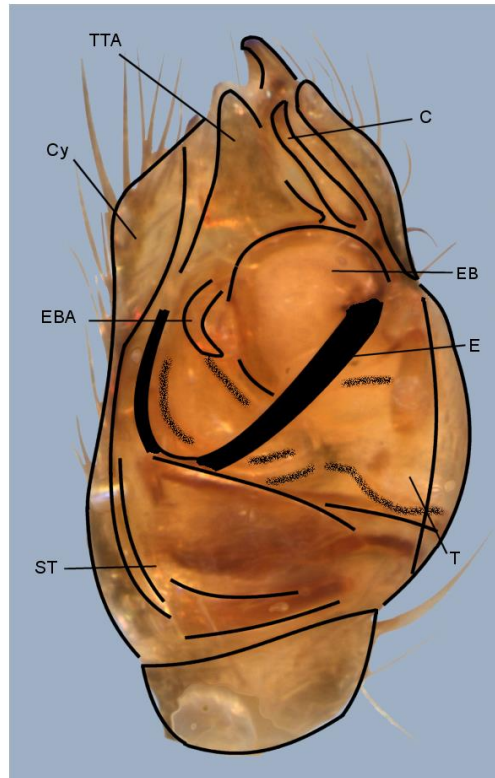


Figure 61: *Rhinoliparus missai* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 60E-G, 61) as typical for the genus (Fig. 51), with these extra characteristics: embolus base rounded; sclerotized dark part originating on prolateral side of base, loop oblique, large, partly hidden by subtegulum and distal part hidden by TTA; TTA with base triangular (Fig. 53C arrow), pointing distal; conductor long and thin.

Lengths of legs are shown in Table 28.

Female (paratype, RBINS IG 34514/17, Fig. 62). Total length 3.20; abdomen 2.20; cephalothorax 1.00; AME 0.07, other eyes 0.05, AME-AME 0.10, AME-ALE 0.04, PME-PME 0.10, PME-PLE 0.04.

Table 29: Leg measurements *Rhinoliparus missai* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,70	0,30	2,10	2,40	0,50	8,0
II	1,05	0,25	0,75	0,75	0,45	3,3
III	0,45	0,20	0,25	0,30	0,25	1,5
IV	0,95	0,20	0,50	0,45	0,40	2,5

Ratio leg I/II 2.5; leg I/cephalothorax 8.4

Abdomen (Fig. 62A-C): all females we could examine with pointed abdomen, sometimes less sharp; ventral spot above spinnerets as in male; white lateral spots not close together on dorsum.

Epigyne (Fig. 62D-E): in ventral view very similar to the epigyne of *Rhinoliparus kulczynskii* comb. nov.; vulva very different, with thin, spiralling copulatory ducts; spermathecae egg shaped, large.

Lengths of legs are shown in Table 29.

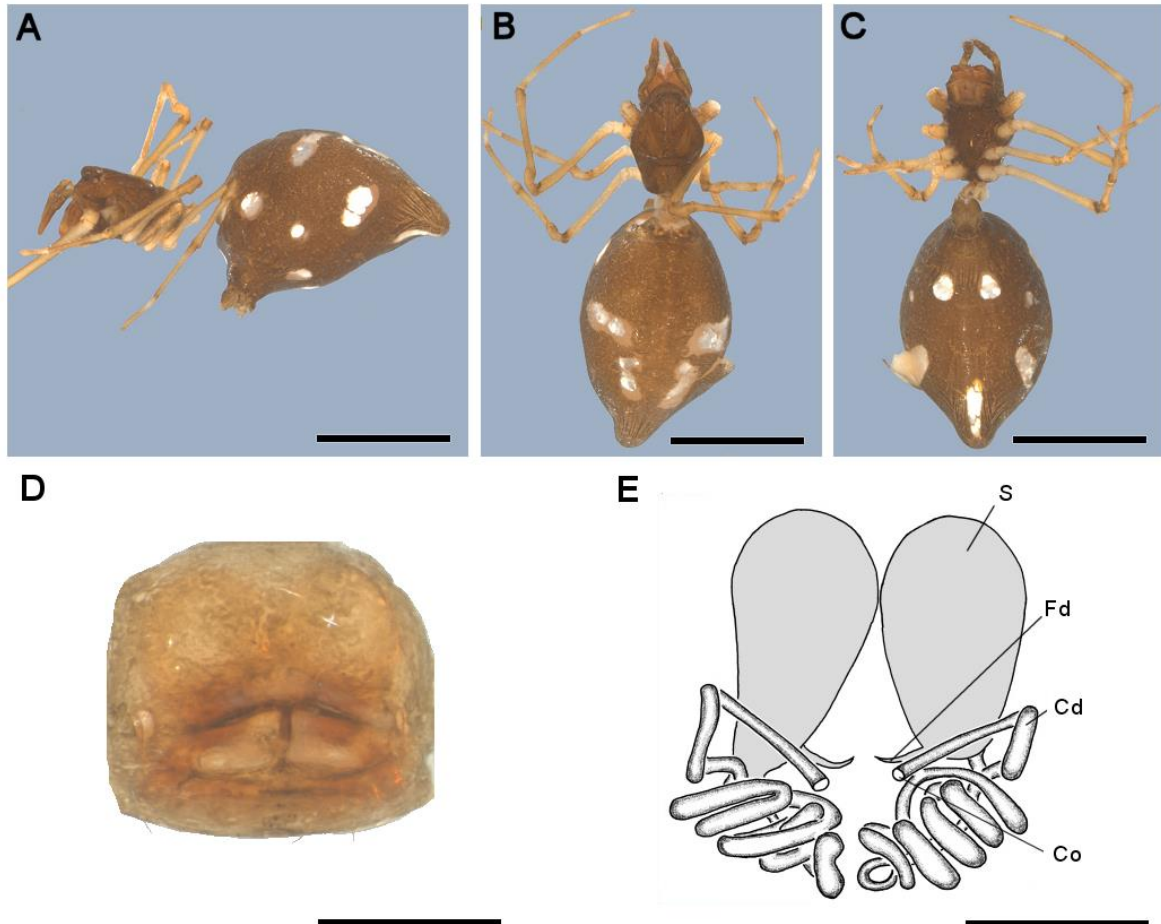


Figure 62: *Rhinoliparus missai* sp. nov., ♀. **A.** Paratype RBINS IG 34514/17, habitus, lateral view. **B.** Same, habitus, dorsal view. **C.** Same, habitus, ventral view. **D.** Paratype RBINS IG 34514/17, epigyne, ventral view. **E.** Paratype RBINS IG 34514/29, vulva, dorsal view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-C=1 mm; D-E=0.1 mm.

Variation

Males: n = 4: Total length 2.10-2.90; abdomen 1.10-1.80; cephalothorax 1.00-1.20.

Abdomen sometimes clearly constricted and pointed at posterior end.

Females: n = 4: Total length 2.30-3.20; abdomen 1.40-2.20; cephalothorax 0.90. All females have the posterior part of the abdomen pointed but not always as sharp as in Fig. 62.

Distribution

Papua New Guinea (Fig. 74).

***Rhinoliparus nafithiamae* sp. nov.**

(Figs. 63-66, 74)

Diagnosis

Males of *R. nafithiamae* sp. nov. are recognized by the clypeal protrusion with the cotyledonoid setae in the middle and not on the sides; the setae are unique for this species in having an outgrowth with an opening (Fig. 64A-D). Males are further recognized by the large Conductor pointing distad and slightly curved prolaterad (Fig. 63E-G). Females are characterized by the vulva with small rounded spermathecae which are not touching and thick copulatory ducts with closely set windings (Fig. 66G).

Etymology

The species name is a matronym in honour of Nafissatou "Nafi" Thiam, a Belgian athlete specialized in multi-event competition.

Material examined**Holotype**

PAPUA NEW GUINEA •♂; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Celtis latifolia* (Ulmaceae), 21 June 1995, RBINS IG 34514/12.

Paratypes

PAPUA NEW GUINEA •1♀; same as holotype; RBINS IG 34514/13; •1♂ 5♀♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Homalium foetidum* (Flacourtiaceae); 6 July 1995; RBINS IG 34514/22; •1♀; as previous; fogging of *Buchanania* spec. (Anacardiaceae), 19 May 1993; RBINS IG 34514/23; •1♀; as previous; fogging of *Tristiropsis acutangula* (Sapindaceae); 5 May 1995; RBINS IG 34514/24; •1♂ 2♀♀; as previous; fogging of *Maniltoa psylogyne* (Caesalpiniaceae); 7 July 1995; RBINS IG 34514/25; •2♀♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; 26 April 1996; RBINS IG 34514/26; •1♂ 1♀, as previous; 25 July 1996, RBINS IG 34514/31; •1♂; as previous; fogging of *Hapholobus* spec. (Burseraceae); 8 June 1995; RBINS IG 34514/31.

Other material examined

PAPUA NEW GUINEA •1♂; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; fogging of *Horsfieldia* spec. (Myristicaceae); 9 April 1993; RBINS; •1♂; as previous; fogging of *Chisocheton wenlandii* (Meliaceae); 13 May 1993; RBINS; •1♀; as previous; fogging of *Pometia pinnata*, 8 June 1993; RBINS; •1♂; as previous; fogging of *Dracontomelum doa*; 22 June 1993; RBINS; •2♀♀; as previous; fogging of *Podocarpus neliifolius* (Podocarpaceae); 4 May 1994; RBINS; •1♂; as previous; fogging of *Trichadenia philippinensis* (Flacourtiaceae); 31 May 1994; RBINS; •1♀; as previous; fogging of *Dracontomelum doa*; 14 June 1994; RBINS; •1♀; as previous; fogging of *Spondias* spec. (Anacardiaceae); 27 April 1995; RBINS; •1♂; as previous; fogging of *Chisocheton ceramicus* (Meliaceae); 10 May 1995; RBINS; •1♀; as previous; fogging of *Chisocheton ceramicus* (Meliaceae); 10 May 1995; RBINS; •1♀; as previous; fogging of *Terminalia sepikana* (Combretaceae); 26 May 1995; RBINS; •1♂; as previous; fogging of *Trichadenia philippinensis* (Flacourtiaceae); 31 May 1995; RBINS; •1♀; as previous; fogging of *Chisocheton ceramicus* (Meliaceae); 14 June 1995; RBINS; •1♂; as previous; fogging of *Terminalia sepikana* (Combretaceae); 15 June 1995; RBINS; •1♂ 1♀; as previous; fogging of *Celtis latifolia* (Ulmaceae); 21 June 1995; RBINS; •2♀♀; as previous; fogging of *Vitex cofassus* (Verbenaceae); 11 July 1995; RBINS; •1♀; as previous; fogging of *Mangifera minor* (Anacardiaceae); 18 July 1995; RBINS; •1♀; as previous; fogging of *Neonauclea* spec. (Rubiaceae); 4 Aug. 1995; RBINS; •1♂ 1♀; Baiteta forest; 5°1'S; 145°45'E; leg. O. Missa; 2 April 1996; RBINS; •1♂ 2♀♀; as previous; 17 April 1996; RBINS; •1♀; as previous; 18 April 1996; RBINS; •1♂; as previous; 25 April 1996; RBINS; •3♀♀;

as previous; 30 April 1996; RBINS; •1♀; as previous; 3 May 1996; RBINS; •2♀♀; as previous; 9 May 1996; RBINS; •1♂ 3♀♀; as previous; 3 June 1996; RBINS; •1♂ 1♀, as previous; 25 July 1996, RBINS.

Description

Male (holotype, Figs. 63-65). Total length 2.70; abdomen 1.50; cephalothorax 1.20; AME 0.08, other eyes 0.05, AME-AME 0.15, AME-ALE 0.04, PME-PME 0.13, PME-PLE 0.07.

Table 30: Leg measurements *Rhinoliparus nafithiamae* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,80	0,30	3,60	3,60	0,80	12,1
II	1,20	0,20	1,15	1,00	0,65	4,2
III	0,40	0,15	0,35	0,30	0,30	1,5
IV	1,10	0,20	0,75	0,60	0,45	3,1

Ratio leg I/II 2.9; leg I/cephalothorax 10.1

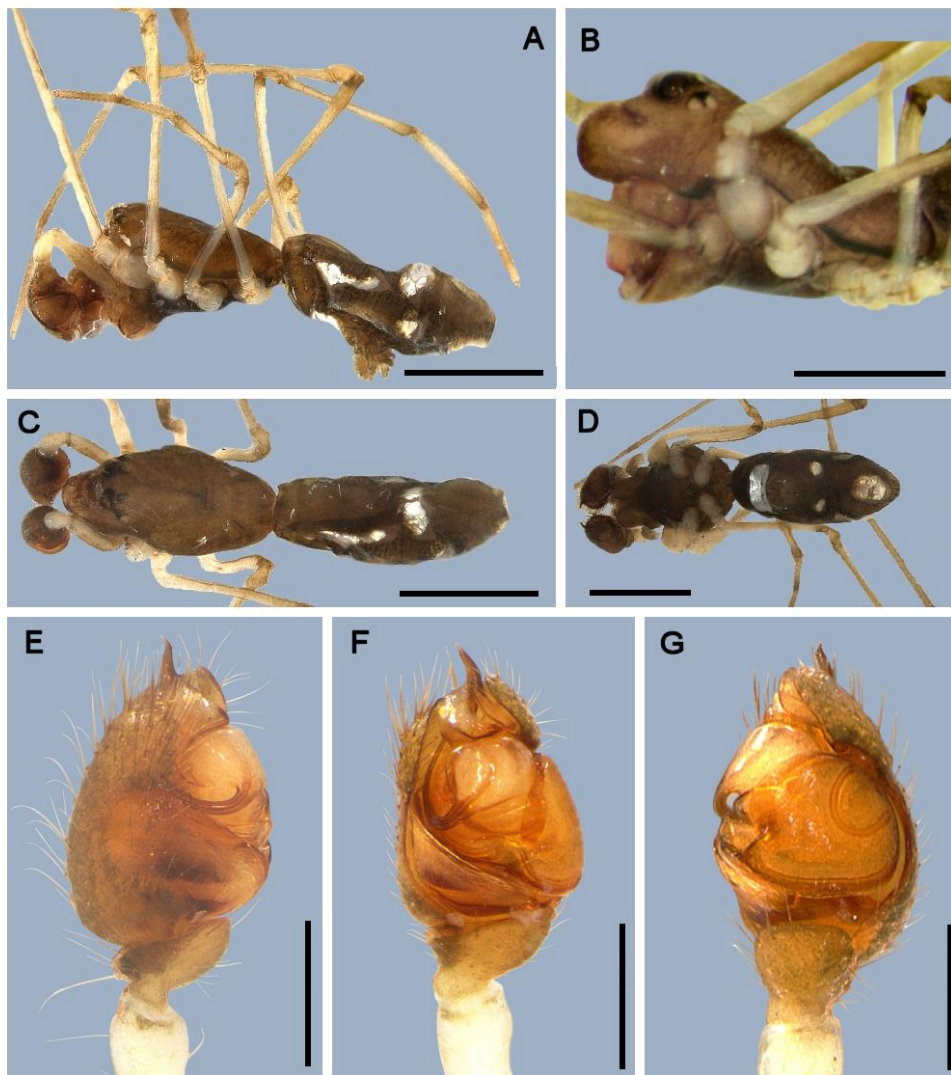


Figure 63: *Rhinoliparus nafithiamae* sp. nov., ♂. **A.** Holotype, habitus, lateral view. **B.** Paratype RBINS IG 34514/22, habitus, cephalic part, lateral view. **C.** Holotype, habitus, dorsal view. **D.** Same, ventral view. **E.** Holotype, left palp, prolateral view. **F.** Same, ventral view. **G.** Same, retrolateral view. Scale bars: A, C-D=1 mm; B=0.5 mm; E-G=0.2 mm.

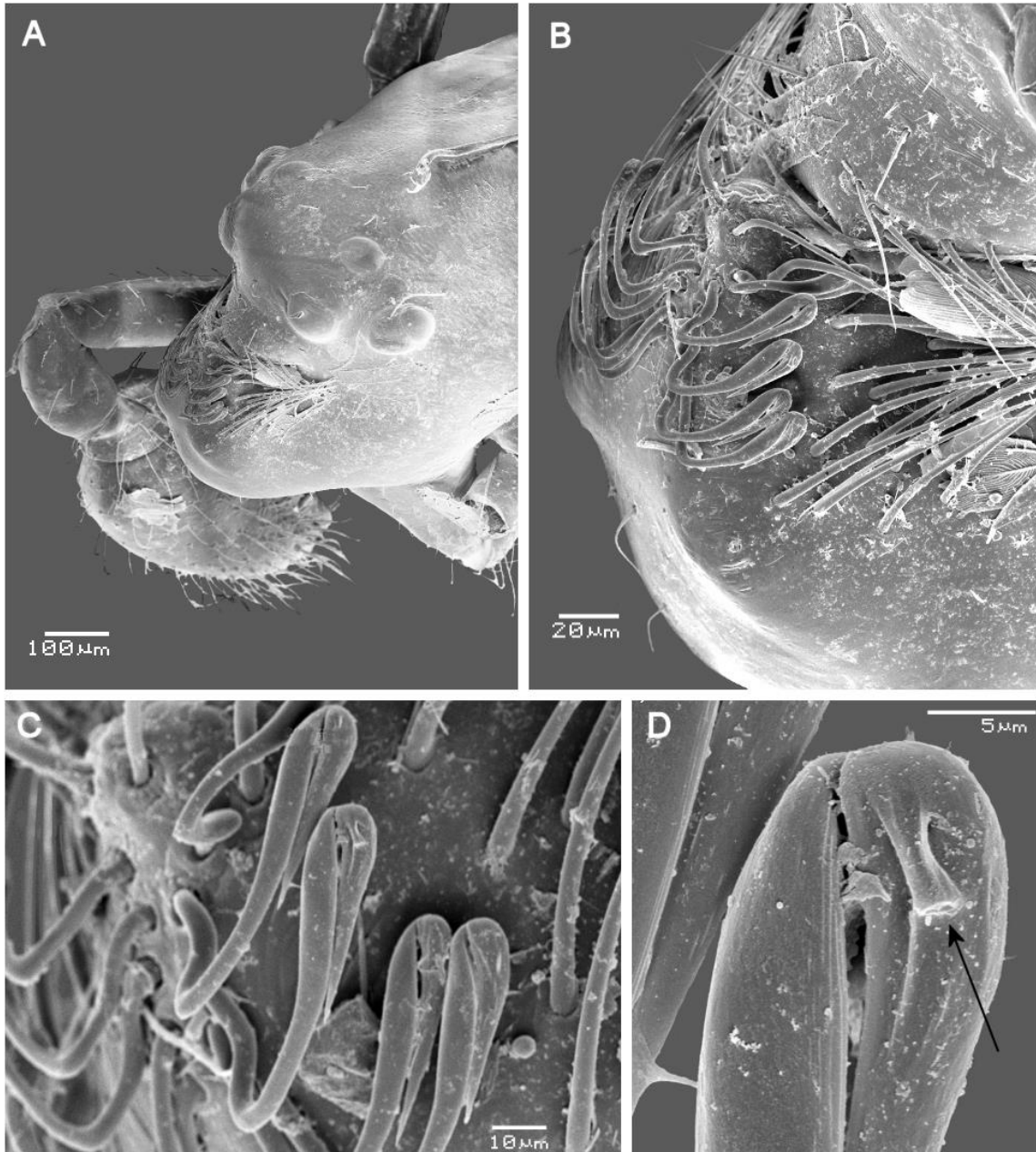


Figure 64: *Rhinoliparus nafithiamae* sp. nov., ♂, paratype RBINS IG 34514/31. **A.** Cephalic part, dorsolateral view. **B.** Same, detail. **C.** Setae, lateral view. **D.** Same, detail. Arrow: perforated outgrowth.

Cephalothorax (Fig. 63A-D): smoothly brown, clypeal protrusion large and projected far to front; cotyledonoid setae in middle, with perforated outgrowth near fold (Fig. 64D); other strong simple setae on sides of protrusion and strong setae around groove formed by clypeal protrusion and small cephalic protrusion; small cephalic projection points much to front and ends rounded dorsally viewed.

Abdomen (Fig. 63A,C-D): white spot between epigastric region and spinnerets rather large; two smaller white dots behind spinnerets; abdominal venter with large white spot near posterior end; dorsum near posterior end with two wide horizontal lines running from middle to sides, sometimes touching each other in middle; a few more spots present on sides.

Legs (Fig. 63A): pale with some darker spots. Lengths of legs are shown in Table 30.

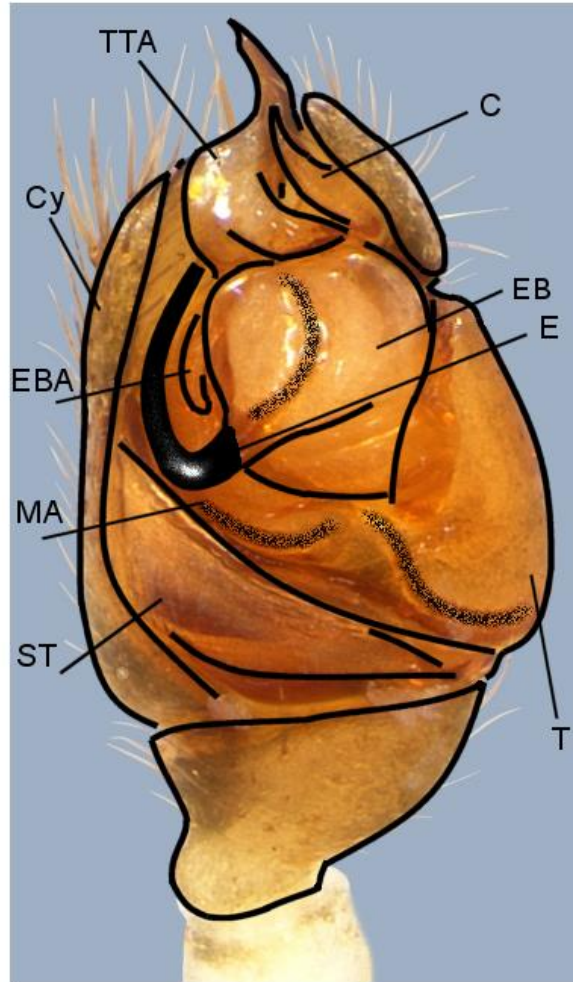


Figure 65: *Rhinoliparus nafithiamae* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Male palp (Figs. 63E-G, 65) as typical for the genus (Fig. 51), with these extra characteristics: embolus base fairly large, slightly wider in front; sclerotized dark part originating on posterior retrolateral end of base, loop positioned in retrolateral part of bulbus, distal tip hidden by TTA; TTA with dorsal extension pointing prolaterally, more conspicuous than membranous part (Fig. 53A arrow); conductor with pointed tip.

Female (paratype RBINS IG 34514/23, Fig. 66). Total length 2.10; abdomen 1.20; cephalothorax 0.90; AME 0.07, other eyes 0.05, AME-AME 0.11, AME-ALE 0.03, PME-PME 0.10, PME-PLA 0.04.

Table 31: Leg measurements *Rhinoliparus nafithiamae* sp. nov. female.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	2,90	0,30	2,80	2,70	1,20	9,9
II	1,20	0,25	1,05	0,80	0,50	3,8
III	0,50	0,15	0,35	0,35	0,30	1,7
IV	1,10	0,20	0,65	0,45	0,35	2,8

Ratio leg I/II 2.6; leg I/cephalothorax 10.6

Abdomen: shape variable, subcylindrical or somewhat higher with pointed rear; large silvery patches on lateral sides, almost touching each other on dorsum.

Legs: first pair longer than from other species. Lengths of legs are shown in Table 31.

Epigyne (Fig. 66F-G): copulatory openings round, far in front, touching; spermathecae and copulatory ducts visible in transparency; spermathecae round, small, slightly separate; copulatory ducts wide, long, with many curves, compact.

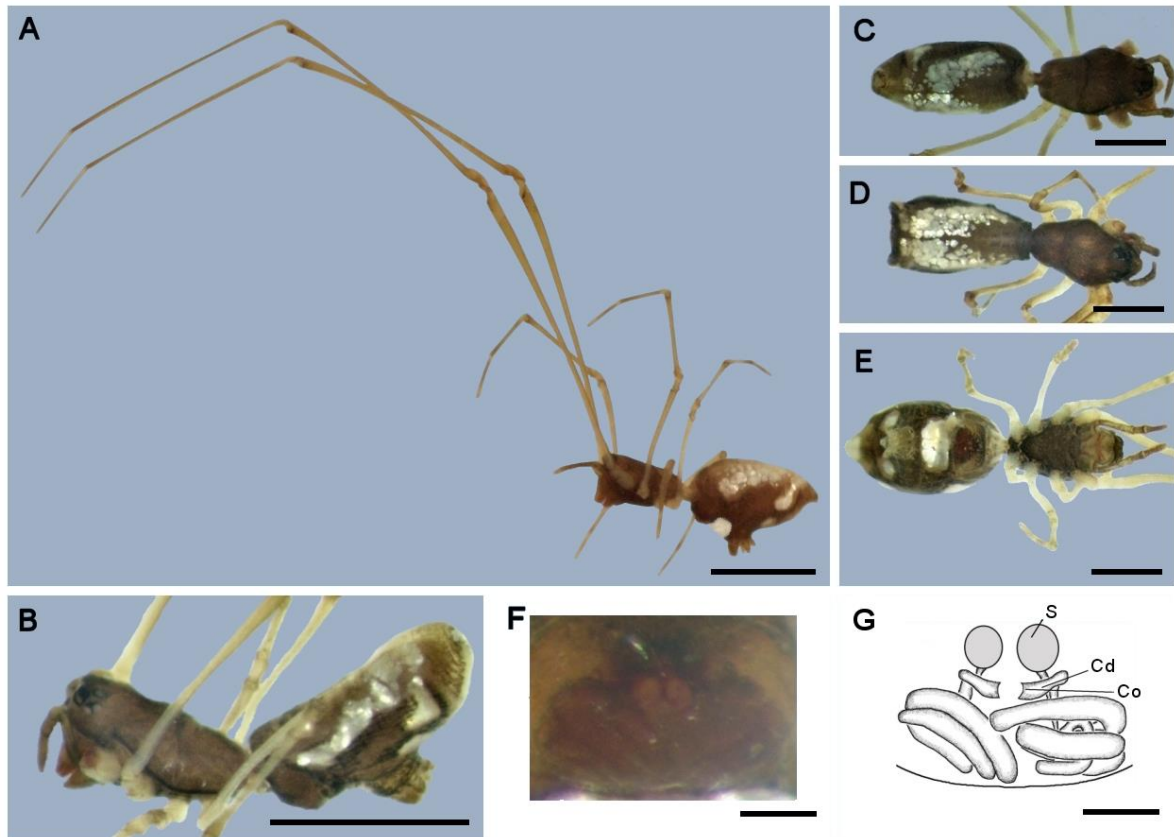


Figure 66: *Rhinoliparus nafithiamae* sp. nov., ♀. **A.** Paratype RBINS IG 34514/23, habitus, lateral view. **B.** Paratype RBINS IG 34514/24, habitus, lateral view. **C.** Paratype RBINS IG 34514/25, habitus, dorsal view. **D.** Paratype RBINS IG 34514/26, habitus, dorsal view. **E.** Paratype RBINS IG 34514/23, habitus, ventral view. **F.** Paratype RBINS IG 34514/24, epigyne, ventral view. **G.** Paratype RBINS IG 34514/25, vulva, ventral view. Abbreviations: Cd, copulatory ducts; Co, copulatory openings; Fd, fertilization ducts; S, spermathecae. Scale bars: A-B=1 mm; C-E=0.5 mm; F-G=0.1 mm.

Variation

Males: n = 3: Total length 2.5-2.70; abdomen 1.30-1.50; cephalothorax 1.20.

Females: n = 3: Total length 2.10-2.30; abdomen 1.20-1.40; cephalothorax 0.90-1.00.

Distribution

Papua New Guinea (Fig. 74).

***Rhinoliparus platyrhinus* sp. nov.**
(Figs. 67-68, 74)

Diagnosis

Males of *R. platyrhinus* sp. nov. differ from all other *Rhinoliparus* by the clypeal protrusion, triangular in dorsal view, longer than in other species and with many cotyledonoid setae. They are further characterized by the conspicuous duct with four stretches visible in the embolus base and by the origin of the sclerotized embolus part on the frontal side of the base.

Etymology

The species name is a noun in apposition composed of the Greek πλατυς (flat) and ρινος (nose) referring to the flat clypeal protrusion.

Material examined**Holotype**

PHILIPPINES •♂; Island Negros, Mabinay, Lamdas, entrance Odloman Cave; 9°43'N; 122°54'E; leg. Theo van Es, Speleo-Nederland excursion, 27 Dec. 1989; RMNH ARA 18324.

Other material examined

None.

Description

Male (holotype, Figs. 67-68). Total length 2.30; abdomen 1.20; cephalothorax 1.10; AME 0.07, other eyes 0.05, AME-AME 0.13, AME-ALE 0.05, PME-PME 0.14, PME-PLA 0.07.

Table 32: Leg measurements *Rhinoliparus platyrhinus* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	missing					missing
II	1,30	0,20	1,00	0,80	0,50	3,8
III	0,70	0,15	0,35	0,40	0,35	2,0
IV	1,20	0,20	0,60	0,65	0,45	3,1

Cephalothorax (Fig. 67A-D): clypeal protrusion longer than in other species with many cotyledonoid setae, shape triangular in dorsal view.

Abdomen (Fig. 67A-C): with broad light lines converging at posterior end; white spot between epigastric region and spinnerets faint.

Male palp (Figs. 67E-G, 68) as typical for the genus (Fig. 51), with these extra characteristics: embolus base broadly oval with conspicuous sperm duct; dark sclerotized part originating on anterior side of the base, with transverse loop, the distal point hidden by the base of the TTA; TTA with small triangular base and small, inconspicuous distal prong (Fig. 53E arrow), almost straight, as long as conductor.

Lengths of legs are shown in Table 32.

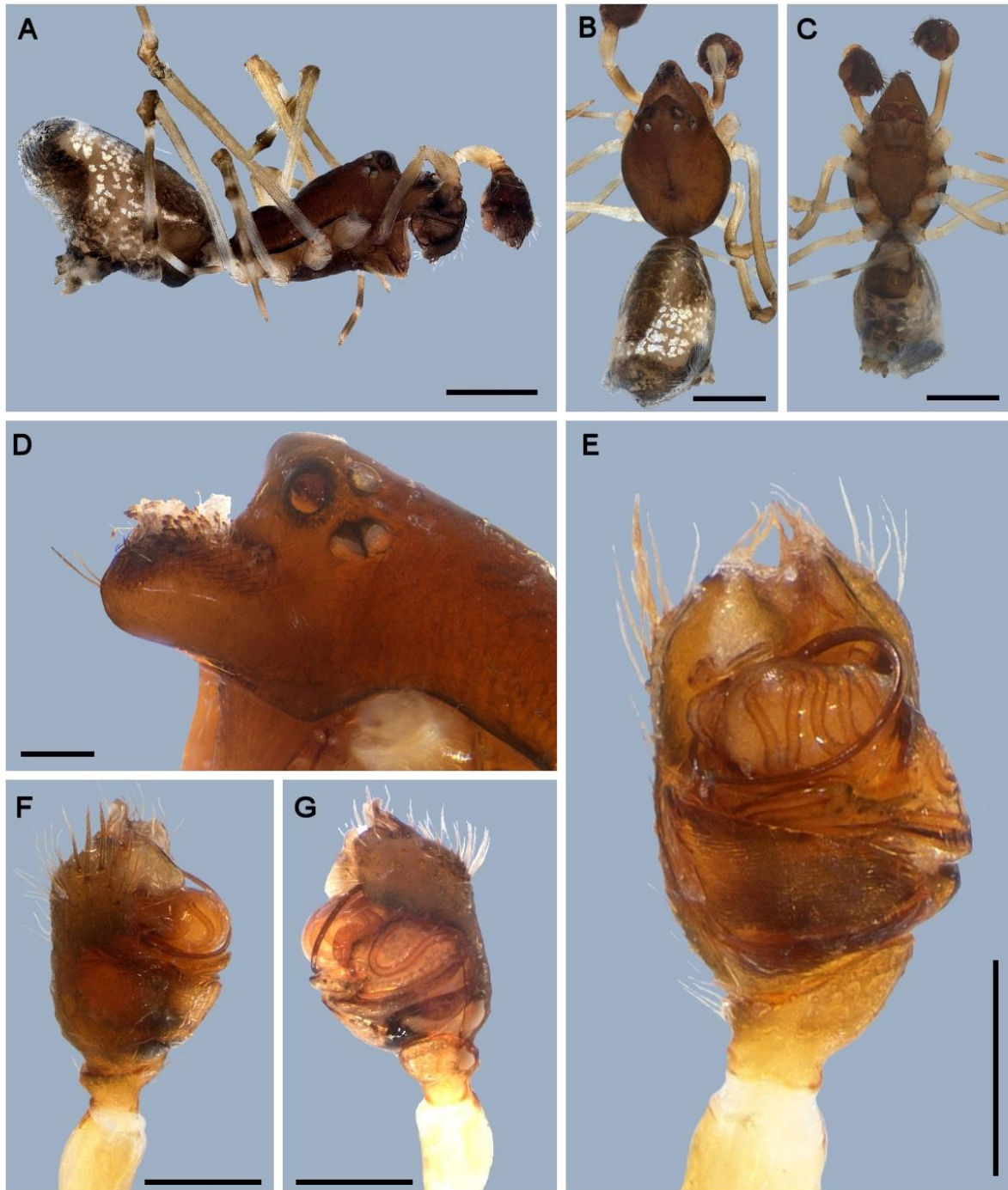


Figure 67: *Rhinoliparus platyrhinus* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Cephalic part, lateral view. **E.** Left palp, ventral view. **F.** Same, prolateral view. **G.** Same, retrolateral view. Scale bars: A-C=0.5 mm; D-G=0.2 mm.

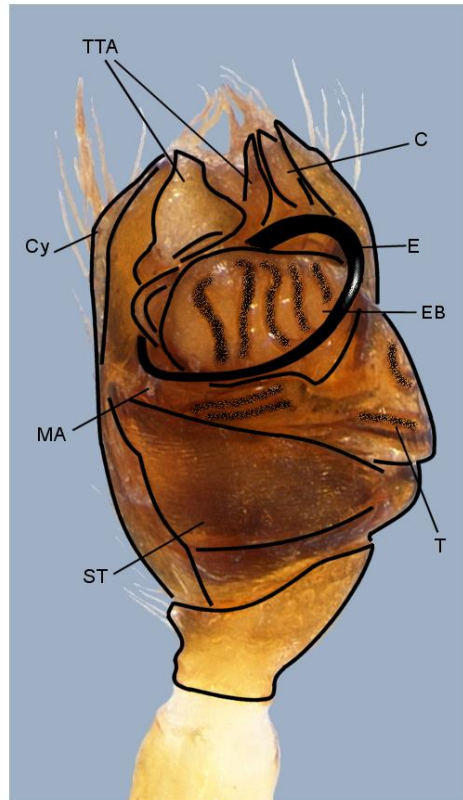


Figure 68: *Rhinoliparus platyrhinus* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female: Unknown.

Distribution

Philippines, Island Negros (Fig. 74).

Rhinoliparus queensland sp. nov.

(Figs. 69-71, 74)

Diagnosis

Males of *R. queensland* sp. nov. are recognized by the short clypeal protrusion it shares with *R. missai* sp. nov., but the cephalic protrusion is smaller (Fig. 69A-E) and rounded instead of triangular as seen from above (Figs. 69E, 70A). The embolus is shorter than in the other species, except *R. nafithiamae*, of which it differs in the shape of the TTA and conductor (Fig. 63E-G).

Etymology

The species name is a noun in apposition taken from the type locality.

Material examined

Holotype

AUSTRALIA •♂; Queensland, Tablelands; 17°50'S, 145°20'E; leg. C.L. Deeleman; 28 July 1992; RMNH ARA 18322.

Paratype

AUSTRALIA • 1♂; as holotype; RMNH ARA 18323.

Other material examined

None.

Description

Male (holotype, Figs. 69-71). Total length 2.85; abdomen 1.60; cephalothorax 1.25; AME 0.08, other eyes 0.06, AME-AME 0.16, AME-ALE 0.09, PME-PME 0.13, PME-PLA 0.09.

N = 2: Total length 2.45-2.85; abdomen 1.25-1.60; cephalothorax 1.20-1.25.

Table 33: Leg measurements *Rhinoliparus queensland* sp. nov. male.

Leg	femur	patella	tibia	metatarsus	tarsus	sum
I	3,10	0,35	2,70	2,90	1,20	10,3
II	1,10	0,25	1,00	0,85	0,50	3,7
III	0,65	0,20	0,25	0,35	0,30	1,8
IV	0,90	0,25	0,50	0,50	0,35	2,5

Ratio leg I/II 2.8; leg I/cephalothorax 8.4

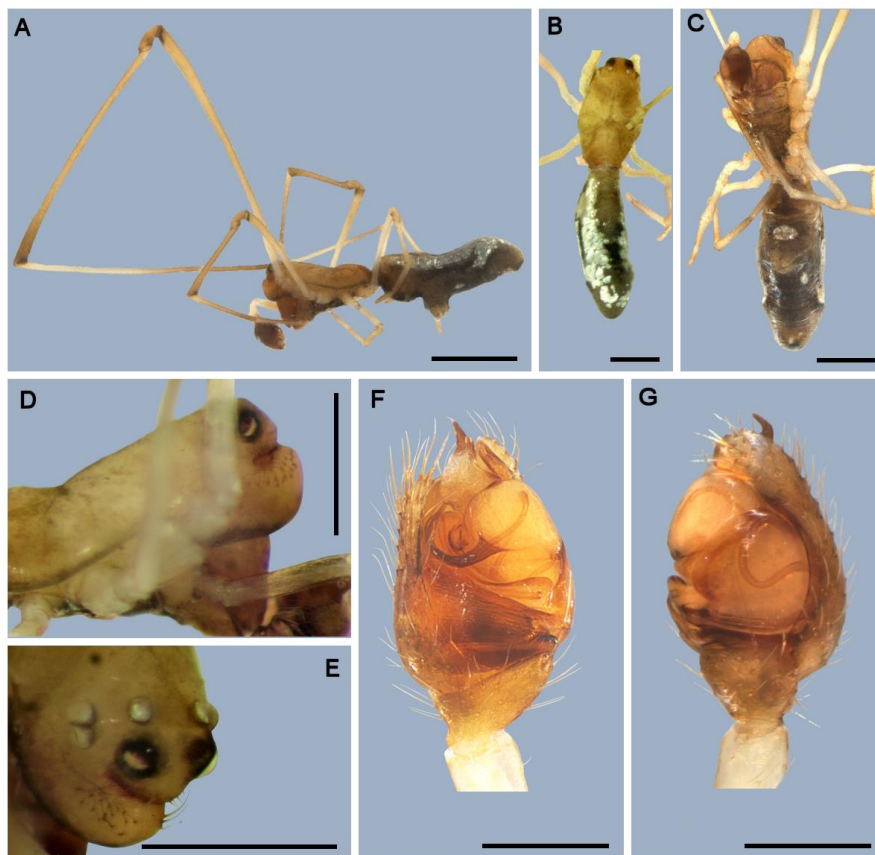


Figure 69: *Rhinoliparus queensland* sp. nov., ♂, holotype. **A.** Habitus, lateral view. **B.** Same, dorsal view. **C.** Same, ventral view. **D.** Cephalic part, lateral view. **E.** Same, dorsolateral view. **F.** Left palp, ventral view. **G.** Same, retrolateral view. Scale bars: A=1 mm; B-E=0.5 mm; F-G=0.2 mm.

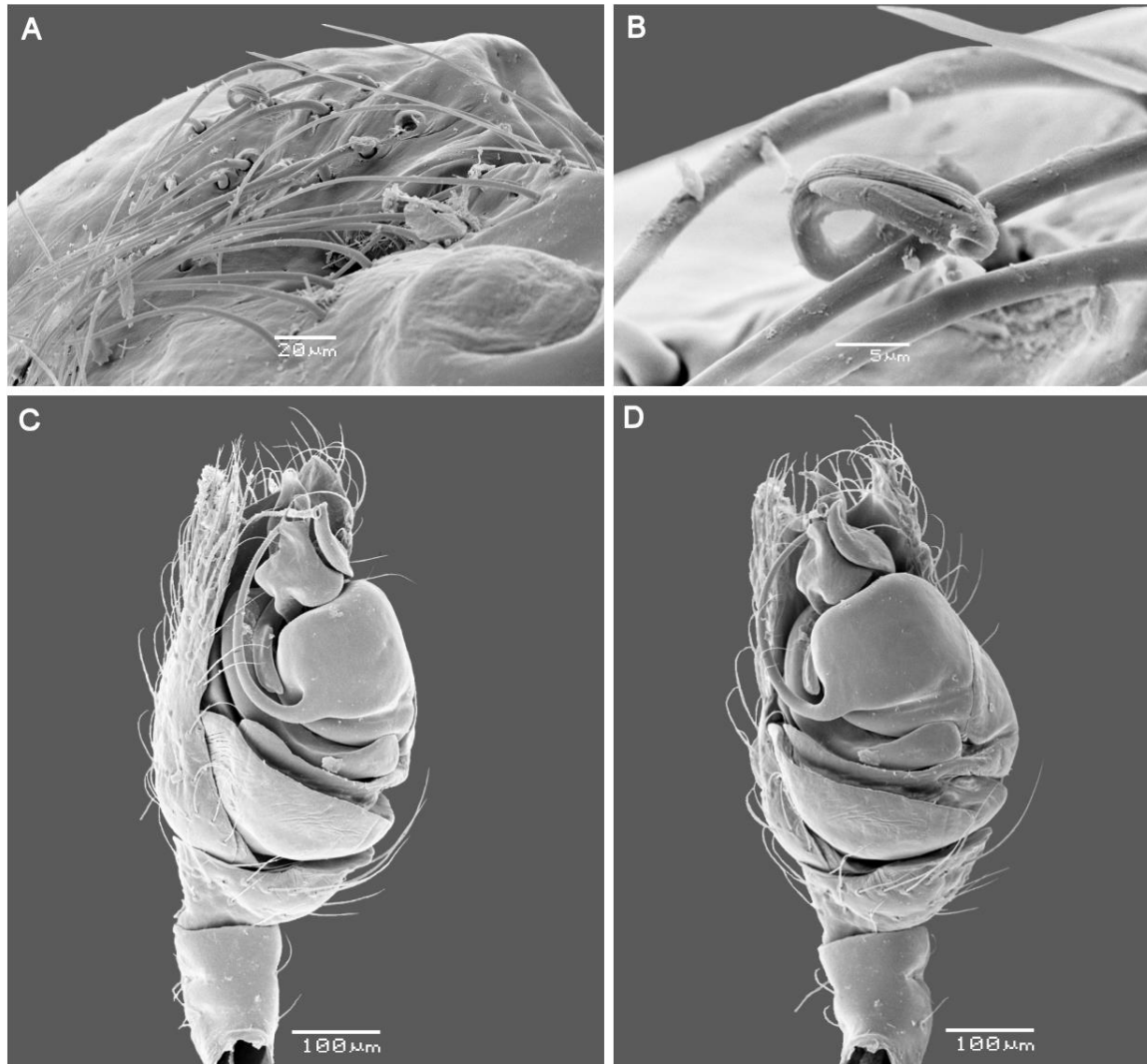


Figure 70: *Rhinoliparus queensland* sp. nov., ♂, paratype RMNH ARA 18323. **A.** Clypeal protrusion, dorsolateral view. **B.** Setae, dorsolateral view. **C.** Left palp, prolateral view. **D.** Same, ventral view.

Cephalothorax (Figs. 69A-E, 70A-B): clypeal protrusion short as in *R. missai* sp. nov. but cephalic protrusion smaller and rounded viewed dorsally; few cotyledonoid setae, only visible under very strong magnification.

Abdomen (Fig. 69A-C): cylindrical with lateral stripes long, posterior end slightly pointing down.

Lengths of legs are shown in Table 33.

Male palp (Figs. 69F-G, 70C-D, 71): as typical for the genus (Fig. 51), with these extra characteristics: embolus base pear shaped, dark sclerotized part originating on retrolateral side, with short loop, distal part hidden by TTA; TTA with wide base, almost rectangular (Fig. 53D arrow), distal prong short, conductor fairly short, narrow, parallel sided.

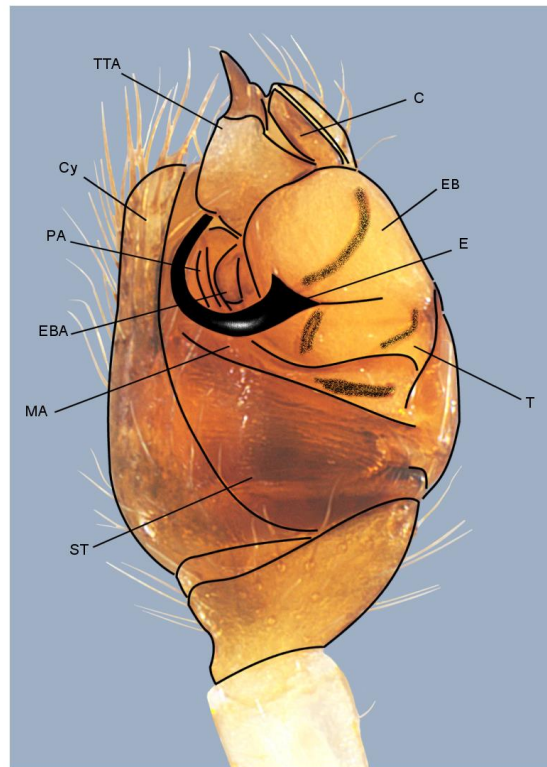


Figure 71: *Rhinoliparus queensland* sp. nov., ♂. Left palp, schematic representation. Abbreviations: C, conductor; Cy, cymbium; E, embolus; EB, embolic base; EBA, embolic base appendage; MA, median apophysis; PA, proximal gutter shaped appendage; ST, subtegulum; T, tegulum; TTA, theridiid tegular apophysis.

Female: Unknown.

Distribution

Australia, Queensland (Fig. 74).

Taxonomic notes

Species transferred to the genus Rhinocosmetus gen. nov.

***Argyrodes nasutus* O. Pickard-Cambridge, 1880 = *Rhinocosmetus nasutus* (O. Pickard-Cambridge, 1880) new comb.**

A. nasutus from Sri Lanka (Fig. 75) has a spoon-like clypeal extension like *R. cochleatus* and *R. atropyga*, but in *A. nasutus* the middle part of it is much more constricted.

***Argyrodes carnicobarensis* Tikader, 1977 = *Rhinocosmetus carnicobarensis* (Tikader, 1977) sp. rev., comb. nov.**

Argyrodes carnicobarensis from Andaman and Nicobar Islands (Fig. 75) which was formerly synonymized with *Faiditus xiphias*, has a dense group of hairs on the tip of a long clypeal protrusion (Fig. 7. A.) and is clearly a *Rhinocosmetus* species but very different from *R. xiphias* and the other species here described. Therefore, it is revalidated and transferred here.

***Argyrodes levii* Zhu & Song, 1991 = *Rhinocosmetus xiphias* (Thorell, 1887) comb. nov.**

The species *Argyrodes levii* Zhu & Song, 1991, was found in the Chinese province Yunnan. This is close to the type locality of the original *F. xiphias* and it can well be the same species, but we can't be sure of that without closer examination of the type species. YOSHIDA (1993) considered this species

also as a junior synonym of *F. xiphias*. The drawings of *Argyrodes levii* are indeed very alike *F. xiphias*, so we agree with his conclusion. The name will now become *Rhinocosmetus xiphias* (Thorell, 1887).

***Faiditus xiphias* (Thorell, 1887) = *Rhinocosmetus xiphias* (Thorell, 1887) new comb.**

Argyrodes xiphias was transferred by Agnarsson (AGNARSSON 2004) to *Faiditus xiphias*. *Faiditus* was removed from synonymy of *Argyrodes*, all other species attributed to the '*A. cancellatus*' and '*A. cordillera*' groups of EXLINE & LEVI (1962) and ZHU (1998) are explicitly transferred to *Faiditus*. *F. xiphias* became the only known species of *Faiditus* outside the America's. But the male sexual organs are very different from those of the other spiders placed under *Faiditus*. The clypeus of these spiders is similar to that of *Rhinoliparus* but the palp is different (see note under affinities). Nothing is known about cotyledonoid setae in *Faiditus*. Therefore, we conclude that *Faiditus* is clearly separate from both *Rhinocosmetus* and *Rhinoliparus*.

The male spider of *Argyrodes xiphias* as drawn by YOSHIDA (1993) is clearly *Rhinocosmetus xiphias*. The female however is less sure. His drawing of the vulva is different from the specimen we have seen, but this is maybe because the epigyne was not cleared well. Yoshida made the assumption that *A. carnibarensis* and *A. levii* are synonymous with *A. xiphias*. He writes "The large projection on the male clypeus and the large silver pigments on the abdomen are characteristic of this species.". As we see in this study, this is not correct, different species have a long protrusion on the clypeus. YOSHIDA (1993) had species from Indonesia, Japan and Taiwan in his possession but doesn't mention which of these he drew. We can't include these places in the distribution list.

Species transferred to the genus Rhinoliparus gen. nov.

***Argyrodes lanyuensis* Yoshida, Tso & Severinghaus, 1998 = *Rhinoliparus lanyuensis* (Yoshida, Tso & Severinghaus, 1998) comb. nov.**

The genitalia of this species from Orchid Island (Taiwan, Fig. 75) are very similar to those of *Rhinoliparus missai* sp. nov., from Papua New Guinea. However, there are some small differences. The copulatory openings of the epigyne of *A. lanyuensis* are smaller than those of *R. missai* sp. nov. and the clypeal extension of the male looks slightly different. But since there is quite some variation in *Rhinoliparus* species, the palps of both type species should be examined side by side to decide.

***Argyrodes mertoni* Strand, 1911 = *Rhinoliparus mertoni* (Strand, 1911) comb. nov.**

The drawings made by STRAND (1911) are not precise enough to conclude whether this species is conspecific with one of the *Rhinoliparus* species described here. There is a chance that it is the same as *R. missai* sp. nov. from Papua New Guinea. *A. mertoni* was collected on Aru Island (Indonesia, Fig. 75) which is very close to Papua New Guinea.

***Argyrodes neocaledonicus* Berland, 1924 = *Rhinoliparus neocaledonicus* (Berland, 1924) comb. nov.**

The drawings of BERLAND (1924) of this spider from New Caledonia (Fig. 75) clearly show a *Rhinoliparus* gen. nov. species but the picture is not precise enough to link it to one of the other species. Therefore, we keep it as a separate species.

***Argyrodes rainbowi* (Roewer, 1942) = *Rhinoliparus rainbowi* (Roewer, 1942) comb. nov.**

The original drawing made by RAINBOW (1916) shows only the abdomen of a female spider from Queensland (Australia, Fig. 75). The drawings in the publication of GROSTAL (1999) make it clear that this species belongs to the genus *Rhinoliparus*. The shape of the sclerites of the male palp is very similar to those of the *Rhinoliparus* species here described, the same applies to the shape of the clypeal extension and the extension of the cephalothorax beneath the eyes. The abdomen and its markings are also like those in *Rhinoliparus*. In *Argyrodes* the copulation ducts are mostly very short. In *A. rainbowi*, they are long and curled like in *Rhinoliparus*. The SEM picture shows the male palp is similar to that of *Rhinoliparus queensland* sp. nov., but the clypeal extension is different.

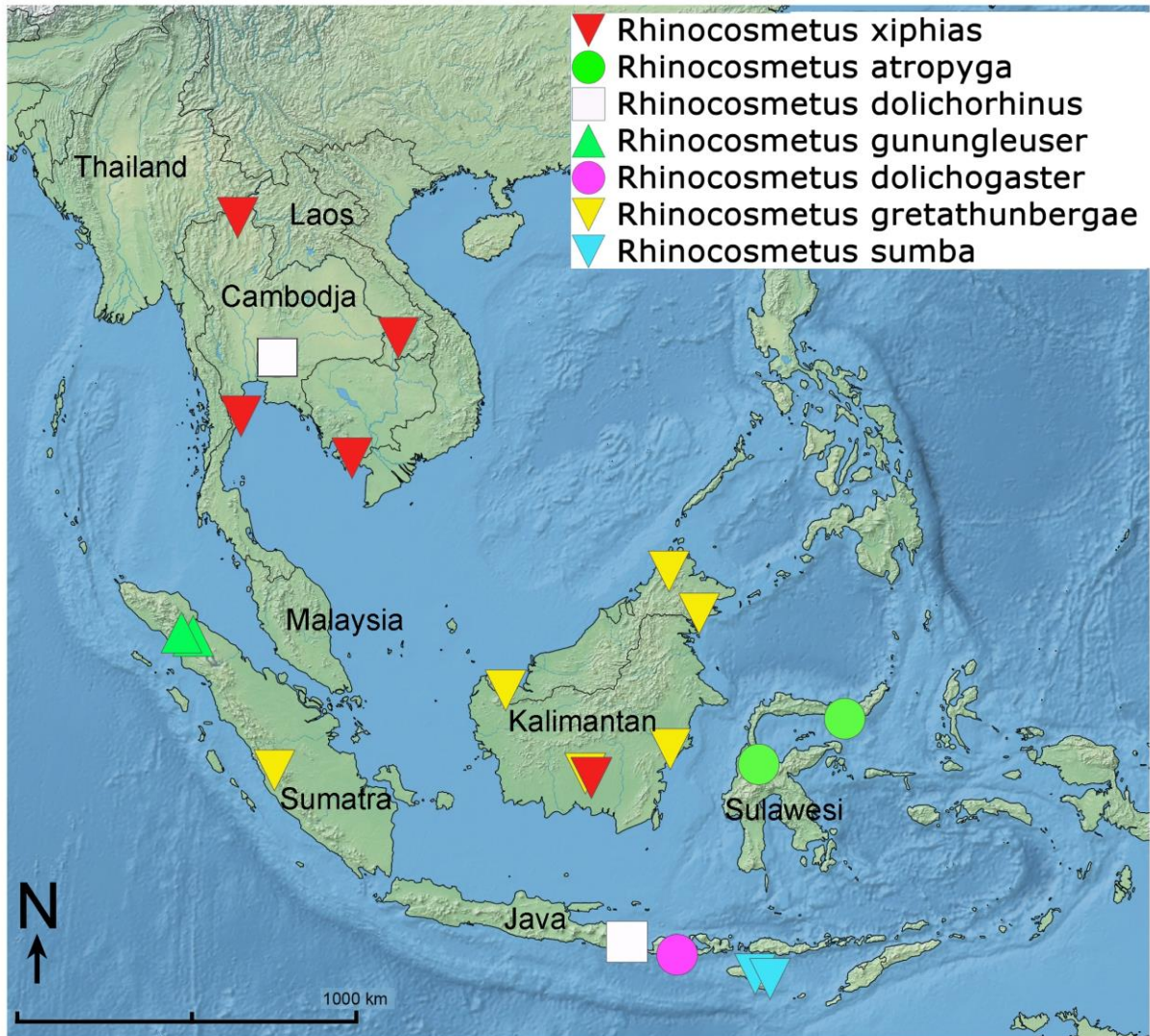
Distribution maps of *Rhinocosmetus* gen. nov. and *Rhinoliparus* gen. nov.

Figure 72: Distribution map of *Rhinocosmetus xiphias*, *Rhinocosmetus atropyga* sp. nov., *Rhinocosmetus dolichorhinus* sp. nov., *Rhinocosmetus gunungleuser* sp. nov., *Rhinocosmetus dolichogaster* sp. nov., *Rhinocosmetus gretathunbergae* sp. nov., *Rhinocosmetus sumba* sp. nov.

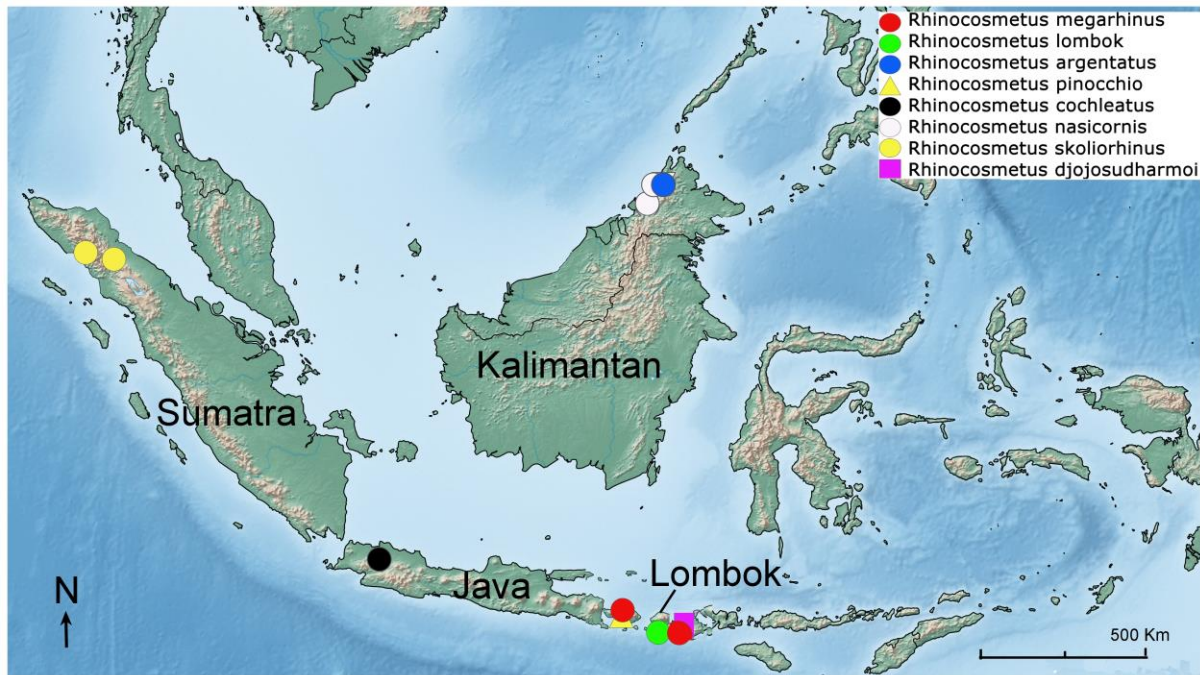


Figure 73: Distribution map of *Rhinocosmetus megarhinus* sp. nov., *Rhinocosmetus lombok* sp. nov., *Rhinocosmetus argentatus* sp. nov., *Rhinocosmetus pinocchio* sp. nov., *Rhinocosmetus cochleatus* sp. nov., *Rhinocosmetus nasicornis* sp. nov., *Rhinocosmetus skolorhinus*, *Rhinocosmetus djojosudharmoi* sp. nov.

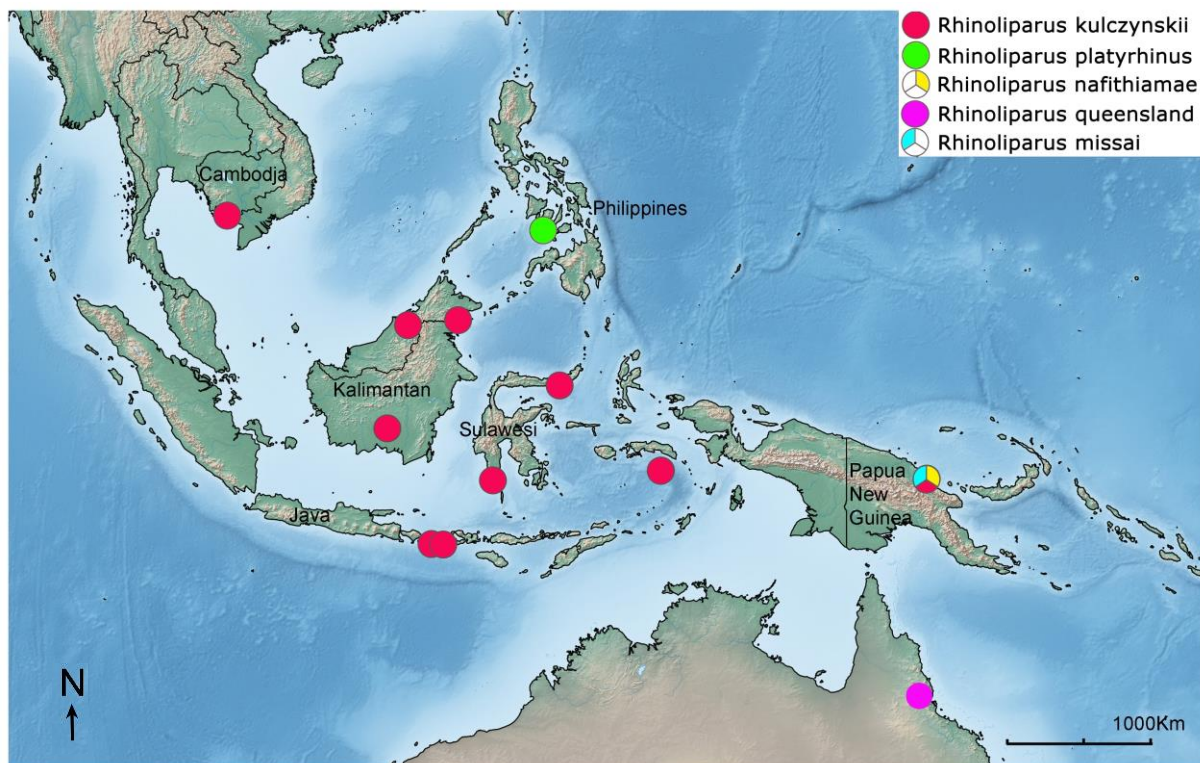


Figure 74: Distribution map of *Rhinoliparus kulczynskii* (Roewer, 1942) comb. nov., *Rhinoliparus platyrhinus* sp. nov., *Rhinoliparus nafithiamae* sp. nov., *Rhinoliparus queensland* sp. nov., *Rhinoliparus missai* sp. nov.

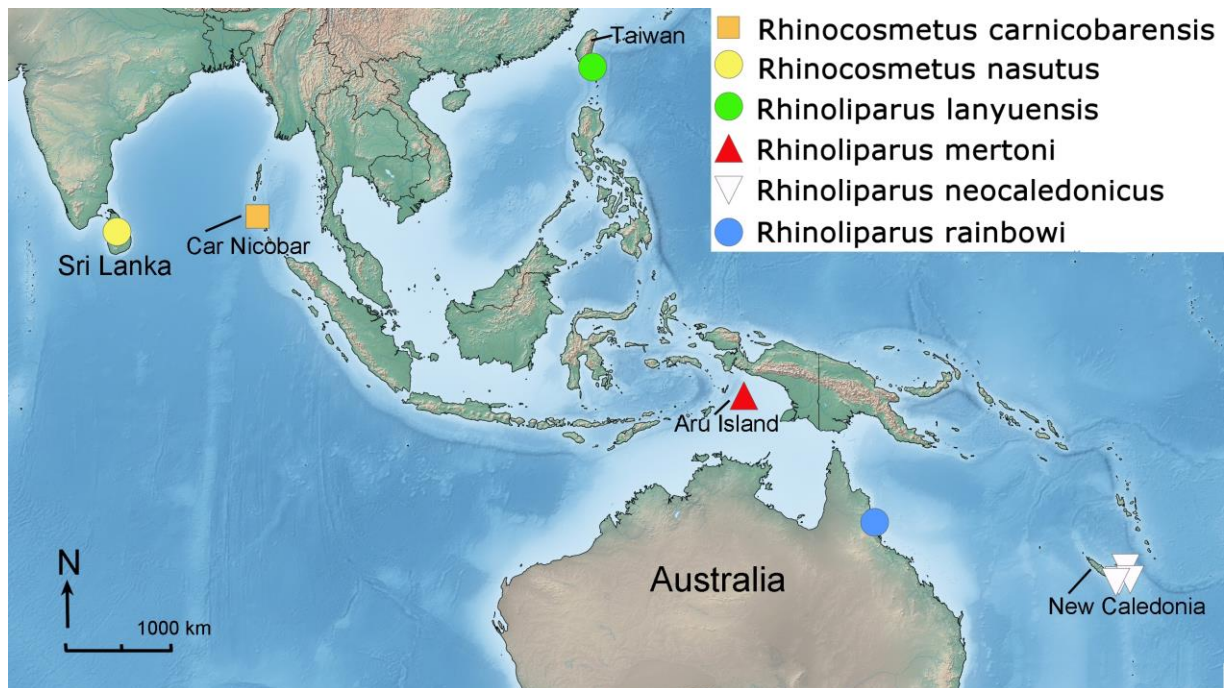


Figure 75: Distribution map of *Rhinocosmetus carnicobarensis* (Tikader, 1977) sp. rev., comb. nov., *Rhinocosmetus nasutus* (O. Pickard-Cambridge, 1880) comb. nov., *Rhinoliparus lanyuensis* (Yoshida, Tso & Severinghaus, 1998) comb. nov., *Rhinoliparus mertoni* (Strand, 1911) comb. nov., *Rhinoliparus neocaledonicus* (Berland, 1924) comb. nov., *Rhinoliparus rainbowi* (Roewer, 1942) comb. nov.

Discussion

Apart from the clypeal protrusion, which is quite spectacular in some of the species here described, males in the new genera are provided with a remarkable character: the cotyledonoid setae on the clypeal protrusion. Modified setae haven been described in a few genera in the Argyrodinae: *Argyrodes* (LOPEZ et al. 1980, WHITEHOUSE 1987), *Ariamnes*, *Rhomphaea* and *Neospintharus* (AGNARSSON 2004). However, these setae appear very different: they are serrated and are typically accompanying clypeal glands. Detailed illustrations of the structures are provided by LEGENDRE & LOPEZ (1974, 1975), LOPEZ et al. (1980), WHITEHOUSE (1987) and AGNARSSON (2004) but the presence of gland outlets was not shown. In a study on *Argyrodes antipodiana* O. PICKARD-CAMBRIDGE, WHITEHOUSE (1987) found the setae are covered with a sticky matter that is apparently secreted at the base of the setae. Since the females touched the setae with their palps during courtship and copulation but did apparently not consume the matter, it was assumed that it contains pheromones.

Manuals on spider fauna (e.g., LOCKET & MILLIDGE 1953, WIEHLE 1960, UBICK et al. 2005) and revisions of tropical genera (HOLM 1962, LIN et al. 2022) provide ample examples of similar structures in Linyphiidae. There again, the cephalic modifications are often associated with the production of fluids, which appear to play a role during courtship. This behaviour is described as ‘gustatory courtship’, (VANACKER et al. 2003; UHL & MAELFAIT 2008) because in these cases it is obvious that the female absorbs some of the fluid.

There is little doubt that the cotyledonoid setae play a similar role in the distribution of a fluid kept by capillarity between the swollen halves of the tip of these setae. However, special setae meant to keep or distribute the product of an underlying gland usually have the outlet pores of this gland at their base as for instance in the femoral organs of Zodariidae (e. g. HENRARD & JOUQUÉ 2017). In the present case no gland pores are visible in the vicinity of the setae and no trace of a substance on them. We assume that the cotyledonoid setae are hollow and serve as ducts to transport the product of an underlying gland and preserve it in the split tips. In one species (*Rhinoliparus nafithiamae* sp. nov.) the setae are even provided with what looks like an extra outlet (Fig. 56D).

There is little doubt that all the species described here are kleptoparasites. THORELL (1878) mentioned that the specimens of *Rhinocosmetus xiphias* were found “in webs of large *Nephila*”. One of us (CD) observed that the specimens caught by hand came from large araneid webs, most often of *Cyrtophora* Simon, 1864, *Nephila* Leach, 1815 or *Trichonephila* Dahl, 1911. TIKADER (1977) mentions that *R. carnicobarensis* was found in the web of a pisaurid which is fairly unusual. For the many species that were collected in canopy samples or by inexperienced collectors, there is no information in this respect.

The size of the distribution area of the species is very variable: some have a very large distribution (*R. xiphias*) but in the majority of the species it is quite restricted. A remarkable case is that of three congeneric species found by O. Missa in canopy samples of the Baiteta forest in Papua New Guinea: *Rhinoliparus nafithiamae* sp. nov., *R. kulczynskii* and *R. missai* sp. nov.

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