

Revision of the Grass Huntsman Spider Genus *Pseudomicrommata* Järvi, 1914 (Araneae: Sparassidae) in the Afrotropical Region

Author: Moradmand, Majid

Source: African Invertebrates, 56(2) : 425-443

Published By: KwaZulu-Natal Museum

URL: <https://doi.org/10.5733/afin.056.0213>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Revision of the grass huntsman spider genus *Pseudomicrommata* Järvi, 1914 (Araneae: Sparassidae) in the Afrotropical Region

Majid Moradmand

Department of Biology, Faculty of Science, University of Isfahan, Isfahan, Iran;
moradmand.arachnids@gmail.com, m.moradmand@sci.ui.ac.ir

ABSTRACT

The grass huntsman spider genus *Pseudomicrommata* Järvi, 1914 is revised in the Afrotropical Region, resulting in the recognition of four valid species. The type species, *P. longipes* (Bösenberg & Lenz, 1895) is redescribed and recorded from Kenya, Tanzania, Botswana, South Africa and Namibia. *Pseudomicrommata vittigera* (Simon, 1897) stat. rev. (from South Africa and Namibia) is revalidated and its male described here for the first time. Two new species are described: *P. mary* sp. n. (male and female) from Guinea and Ivory Coast, and *P. schoemanae* sp. n. (female) from Cameroon.

KEY WORDS: Tropical Africa, Eusparassinae, Taxonomy, new species, systematics, “African clade”.

INTRODUCTION

Despite being amongst the largest and most frequently encountered spiders, the huntsman spiders (family Sparassidae Bertkau, 1872) have been infrequently studied in Africa (e.g. Jäger & Kunz 2005; Moradmand 2013). To date, 33 sparassid genera have been reported from Africa, of which just four genera have been revised taxonomically, including *Palystes* L. Koch, 1875 (by Croeser 1996), *Cebrennus* Simon, 1880 (by Jäger 2000, 2014), *Chrosioderma* Simon, 1897 (by Silva 2005) and *Eusparassus* Simon, 1903 (by Moradmand & Jäger 2012; Moradmand 2013).

Pseudomicrommata Järvi, 1914 will be the fifth African genus to be studied at length and is revised here. *Pseudomicrommata* species are medium-sized Sparassidae strongly associated with vegetation, mostly grasslands and savannahs, hence the common name “grass huntsman spider”. The genus is easily distinguished from other African Sparassidae because of its unique coloration, with the body decorated by a single darker median stripe dorsally in contrast to the rest of the paler body. This kind of coloration can be observed in other foliage-dwelling Sparassidae, such as the species of the European genus *Micrommata* Latreille, 1804.

The systematic position of *Pseudomicrommata* within Sparassidae is not fully understood. Järvi (1914) placed *Pseudomicrommata* along with *Eusparassus* in his newly proposed subfamily Eusparassinae Järvi, 1914, using the characters of the female copulatory organs. Later, Jäger and Kunz (2003) added new somatic characters to those proposed by Järvi and proposed some other African genera to be included in Eusparassinae. Recent molecular analyses by Moradmand *et al.* (2014) suggested that Eusparassinae should be considered monotypic, with the genus *Eusparassus* as the subfamily name-bearing taxon. The remaining genera formerly included in Eusparassinae, including *Pseudomicrommata*, were recovered in a separate clade named the “African Clade”. The monophyly of the African Clade was not fully resolved, but a close relationship between *Pseudomicrommata* and the genus *Arandisa* Lawrence, 1938, a desert-dwelling Sparassidae endemic to southwestern Africa, was recovered (Moradmand *et al.* 2014).

Prior to this study, *Pseudomicrommata* was known as a monotypic genus, with its type species *P. longipes* (Bösenberg & Lenz, 1985) described from Eastern Africa (World Spider Catalog 2015). Prior to this revision all individuals of *Pseudomicrommata* were thought to be *P. longipes*. After a taxonomic revision of the genus, using a large number of specimens from all its distribution range, I concluded that at least four different species are present in the Afrotropical Region. These four species are here diagnosed and (re)described.

MATERIAL AND METHODS

Specimens for this study were obtained from the main African spider collections in Europe and Africa (see the list of collections and curators). Morphological investigations were performed using a Leica MZ 165C stereomicroscope equipped with a drawing tube. Specimens were submerged in 70 % ethanol for examination, measurements and illustrations. The description methodology follows Moradmand (2013). Measurements are given in millimetres. The size classes of specimens are according to Jäger (2001) [small (3–10), medium (10–20)]. Details of the characters used for description and diagnosis are listed below.

The following abbreviations are used throughout the text: AB – anterior bands of epigynal field; ALE – anterior lateral eyes; AME – anterior median eyes; AMP – anterior margin of epigynal pocket; C – conductor; CD – copulatory duct; CO – copulatory opening; DK – field numbers used by Dirk Kunz; dRTA – dorsal RTA; EA – embolic apophysis; EF – epigynal field; EP – epigynal pocket; EM – embolus membrane; fTL – first turning loop; GPO – glandular pores; LL – lateral lobes; MS – median septum; PLE – posterior lateral eyes; PME – posterior median eyes; PMP – posterior margin of epigynal pocket; RTA – retrolateral tibial apophysis; SD – Sparassidae DNA numbers in SMF; SS – slit sensillum; sTL – second turning loop; T – tegulum; vRTA – ventral RTA; I–IV – 1st to 4th leg.

Material from the following museum collections was included in this study (curators are given in parentheses):

- MNHN – Muséum national d'Histoire naturelle, Paris, France (Christine Rollard);
- MRAC – Musée royal de l'Afrique centrale, Tervuren, Belgium (Rudy Jocqué, Christophe Allard);
- NMSA – KwaZulu-Natal Museum, Pietermaritzburg, South Africa (Audrey Ndaba, Chrizelda Stoffels);
- NCA – National Collection of Arachnida, Agricultural Research Council (ARC) – Plant Protection Research Institute, Pretoria, South Africa (Ansie Dippenaar-Schoeman, Petro Marais);
- SAMC – Iziko South African Museum, Cape Town, South Africa (Dawn Larsen);
- SMF – Senckenberg Research Institute, Frankfurt am Main, Germany (Julia Altmann, Peter Jäger);
- ZMB – Museum für Naturkunde, Berlin, Germany (Anja Friederichs, Jason Dunlop);
- ZMH – Zoological Museum, University of Hamburg, Germany (Hieronymus Dastych).

TAXONOMY

Family Sparassidae Bertkau, 1872
Genus *Pseudomicrommata* Järvi, 1914

Micrommata Latreille, 1804 [in part]: Bösenberg & Lenz 1895: 34, pl. 1, fig. 11; Simon 1897a: 490; Simon 1897b: 65, fig. 54; Lawrence 1927: 43, fig. 30; Lessert 1936: 271, figs 68–69 (misidentification).
Pseudomicrommata Järvi, 1914: 49, 162, pl. 3, figs 4–6, 40; Lawrence 1942: 168; Levy 1989: 163; Jäger & Kunz 2005: 168, figs 255–258, 262–267.

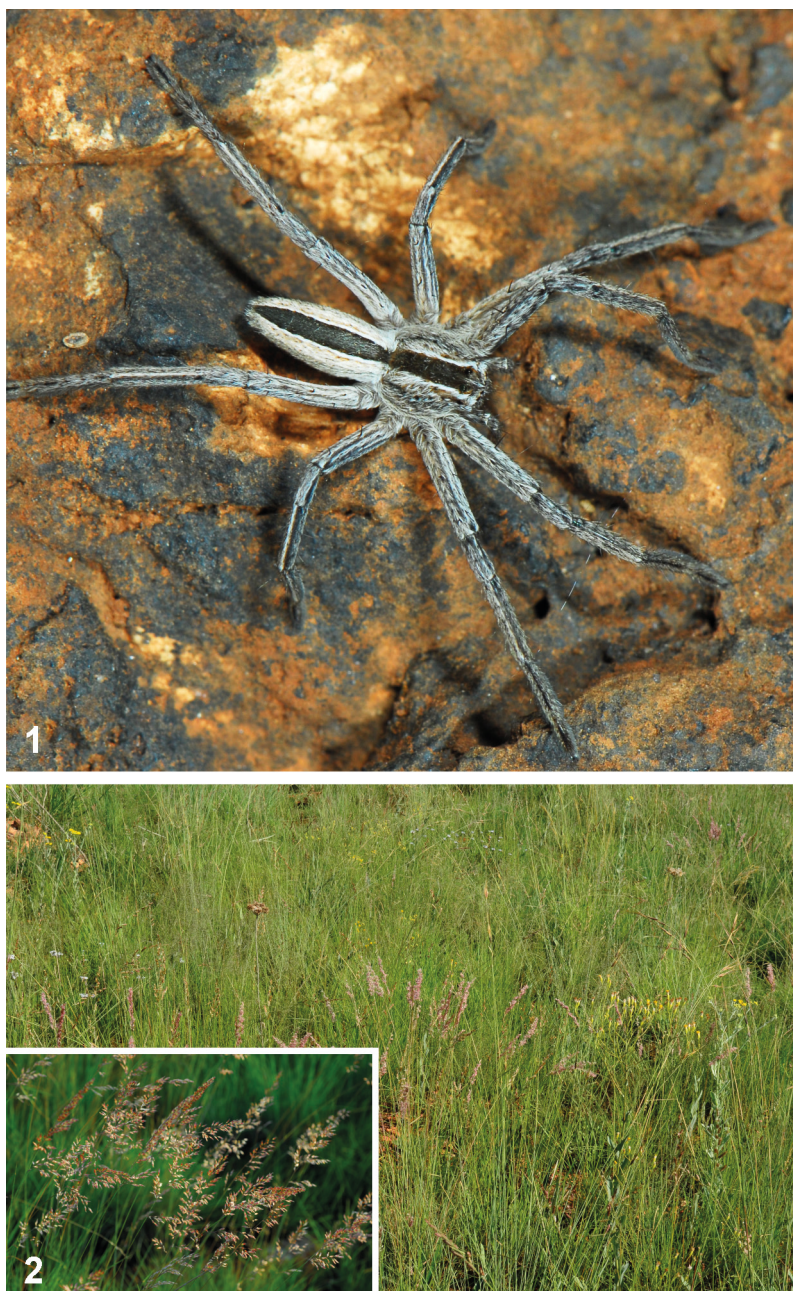
Type species: *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895), subsequent designation of genus by Järvi (1914) using the material of Simon, 1897b sub *Micrommata vittigerum* (junior synonym of *P. longipes*).

Extended and comparative diagnosis: *Pseudomicrommata* (and *Arandisa*) are distinguishable from other Sparassidae genera by a distinct pair of epigynal pockets (EP) in females, while the median septum (MS) is clearly visible throughout the epigynal field (EF) between the EP (e.g. Figs 8, 28, 33) (pocket-like structures present in the Asian genera *Sinopoda* Jäger, 1999 and *Bhutaniella* Jäger, 2000 too, but in a different morphology: MS, if present, is not extended into the anterior half of the EF). In males, *Pseudomicrommata* (and *Arandisa*) have an enlarged embolic apophysis (EA) originating from the median point of the embolus. The presence of a median dark stripe running the length of the dorsum (Fig. 1) clearly distinguishes *Pseudomicrommata* from its closest relative, *Arandisa*. Additionally, in *Pseudomicrommata* spp. the anterior lateral eyes (ALE) are usually the largest, while in *Arandisa* spp. the posterior lateral eyes (PLE) are distinctly the largest eyes. Moreover, *Pseudomicrommata* is diagnosable from *Eusparassus* by the presence of three pairs of ventral tibial spines on legs I–IV (two pairs in *Eusparassus*).

Redescription: Small to medium-sized Sparassidae; prosoma slightly longer than wide; opisthosoma elongated; leg formula IV II I III or IV II III I; two rows of eyes, with anterior row recurved and posterior row procurved, AME smallest, remaining eyes subequal (Fig. 6); chelicerae with two anterior and three to four posterior teeth, posterior row with first two larger and one or two smaller teeth, cheliceral furrow without denticles (Fig. 7); cheliceral basal segment (paturon) with single bristle at distal retromarginal end close to fang base (Fig. 19); male palp with embolus and tegulum forming “U”; EA well developed, embolus membrane (EM) present, conductor small and hyaline (Figs 3–5); tegulum with small projection at its transition part to embolus (Fig. 15); subtegulum not clearly visible; dorsal (dRTA) and ventral retrolateral tibial apophysis (vRTA) well developed, nearly the same length (Figs 3, 15, 23); female epigyne with epigynal EF longer than wide (Fig. 8) or as long as wide (Fig. 28); anterior bands of epigynal field (AB) mostly not (Fig. 20) or weakly developed (Fig. 11); median septum visible alongside epigynal field (e.g. Figs 8, 33); copulatory ducts (CD) elongated, a pair of parallel simple ducts comprising more than half of entire vulva; vulva in posterior half continuing with two turning loops, termed here first and second (f-, sTL), glandular pores present mostly on fTL (Figs 9, 10) or additionally on sTL (Figs 29, 30).

Coloration (live): Body background is pale grey or greenish-brown, with prosoma and opisthosoma decorated mid-dorsally with a reddish-brown stripe; additional longitudinal stripes present on the legs (Fig. 1).

Natural history and habitat preferences: Females construct a papery egg sac attached to grass leaves (one female specimen from NCA). The species were recorded mostly



Figs 1–2. (1) Habitus of *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895) from Ellisras, South Africa; (2) grasslands, the common habitat of *Pseudomicrommata* spp., in Ellisras, South Africa. Photos by Peter Webb.

from savannah grasslands (Fig. 2), but also occur in bushes, small trees and leaf litter (male specimens in Guinea).

Distribution: Widely distributed in tropical Africa, including Kenya, Tanzania, Rwanda, Burundi, Congo, Cameroon, Ivory Coast, Guinea, Namibia, Botswana and South Africa.

Species included: *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895), *P. vittigera* (Simon, 1897) stat. rev., *P. mary* sp. n. and *P. schoemanae* sp. n.

Pseudomicrommata longipes (Bösenberg & Lenz, 1895)

Figs 1, 3–14

Micrommata longipes Bösenberg & Lenz, 1895: 34, pl. 1, fig. 11 (♂ holotype: East Africa [exact locality not clear], 31.i.1896, leg. S.F. Stuhlmann, ZMH – examined); Lessert 1936: 271, figs 68–69.

Pseudomicrommata vittigera (Simon, 1897): Järvi 1914: 49, 162, pl. 3, figs 4–6, 40 (material from Kenya, misidentified); Lawrence 1942: 168 (in part, misidentification).

Pseudomicrommata longipes (Bösenberg & Lenz, 1895): Levy 1989: 163; Jäger & Kunz 2005: 168, figs 255–258, 262–267.

Diagnosis: Males with diagnostic EA, which in ventral view is narrow proximally, widened medially and bifurcated distally (Figs 3, 5, 14). Females can be recognised (especially in comparison with closely similar *P. vittigera*) by the vulva equipped with several glandular pores (GPO) (Figs 9, 10, 12) and sTL extending beyond fTL laterally in dorsal view (Figs 9, 12).

Redescription:

Male (ranges: n=11, single measurements: holotype).

Measurements: Medium sized; total length 10.9–12.9, total length of holotype: 11.3, prosoma length 5.1–5.5, prosoma width 4.2–4.7, anterior width of prosoma 2.3–2.6, opisthosoma length 5.8–7.4, opisthosoma width 2.3–3.0. Eye diameters: AME 0.22, ALE 0.31, PME 0.24, PLE 0.30; eye interdistances: AME–AME 0.15, AME–ALE 0.09, PME–PME 0.40, PME–PLE 0.30, AME–PME 0.75, ALE–PLE 0.42, clypeus height at AME 0.17, clypeus height at ALE 0.28.

Chelicerae: With 2 anterior and 3 posterior teeth (first two larger than the third one) (Fig. 7).

Legs: Leg formula: IV II I III. Palp 6.6 [2.6, 1.1, 0.5, 2.4], I 21.7 [6.1, 2.6, 5.2, 5.7, 2.1], II 23.8 [7.0, 2.8, 6.1, 5.9, 2.0], III 21.5 [6.2, 3.2, 5.0, 5.1, 2.0], IV 23.3 [7.1, 2.4, 5.8, 5.9, 2.1].

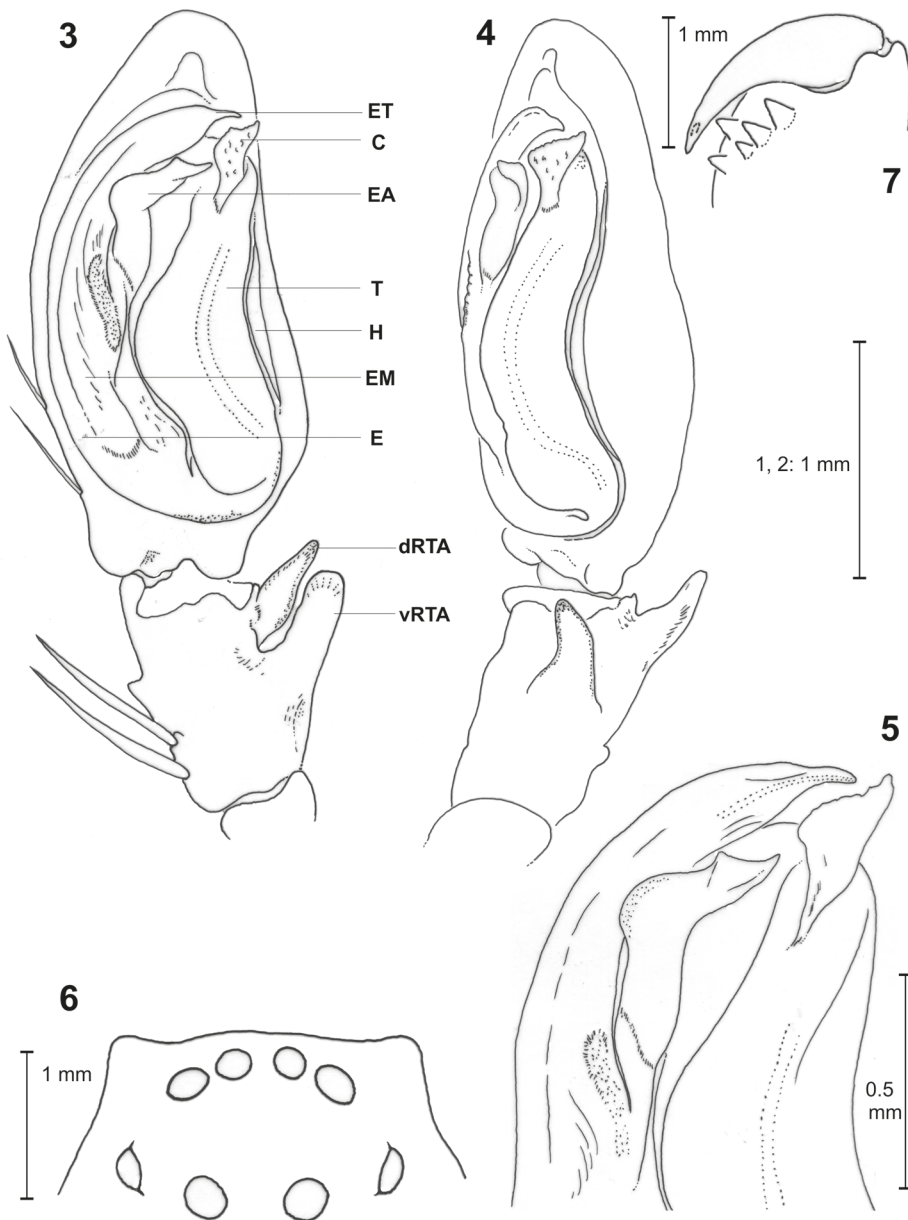
Spination: Palp 131, 001/101, 1211; Legs: Femur I–III 323, IV 321/322; Patella I–IV 000/101; Tibia I–IV 2126/2226; Metatarsus I–III 2024, IV 3036.

Palp: As in diagnosis, with dRTA pointed and vRTA rounded at distal end in ventral view (Fig. 3), both with the same length (Figs 3, 4); cymbium more than 2 times longer than tibia (Fig. 4).

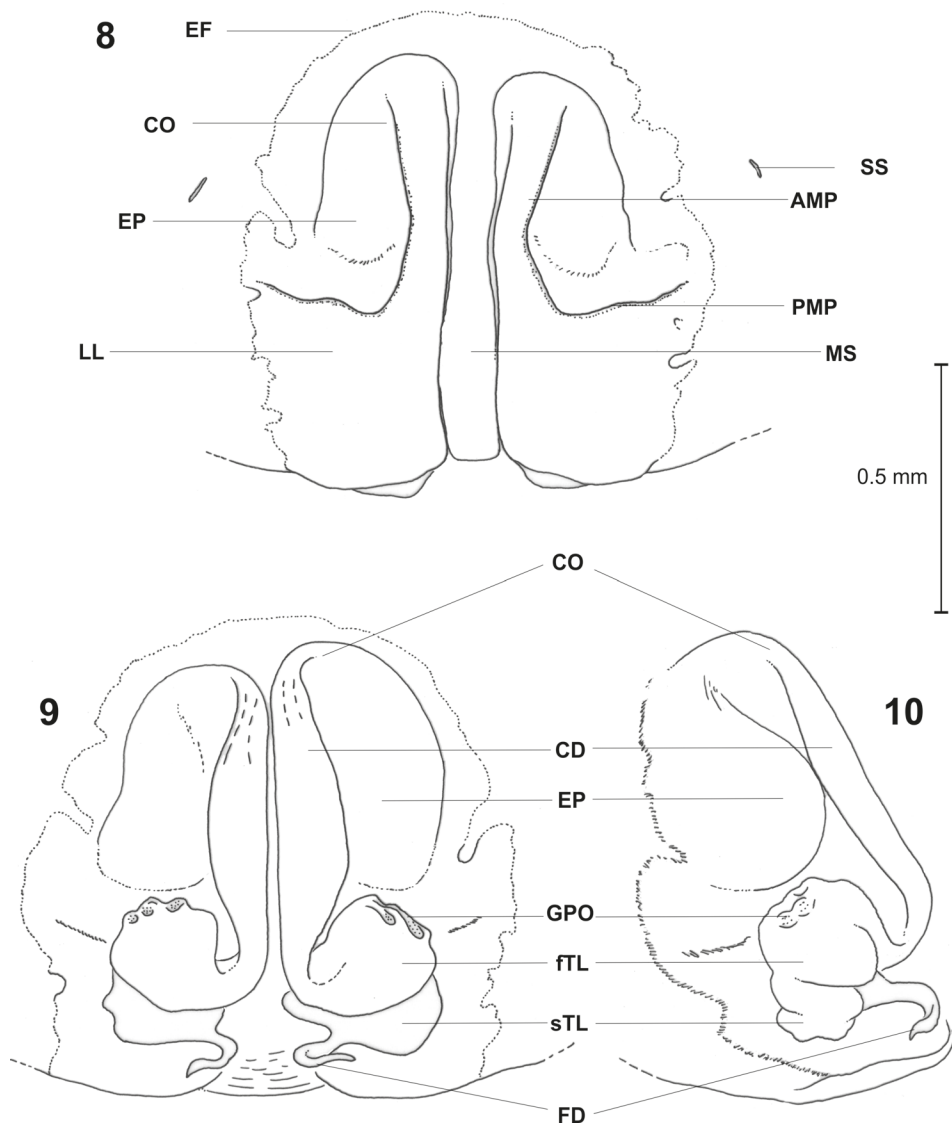
Female (ranges: n=20, single measurements: MRAC 211305 from Tanzania).

Measurements: Medium sized; total length 15.3–18.3, prosoma length 5.8–6.5, prosoma width 4.7–5.1, anterior width of prosoma 2.8–3.1, opisthosoma length 9.5–11.8, opisthosoma width 4.1–6.0. Eye diameters: AME 0.34, ALE 0.48, PME 0.44, PLE 0.46; eye interdistances: AME–AME 0.21, AME–ALE 0.08, PME–PME 0.56, PME–PLE 0.37, AME–PME 0.85, ALE–PLE 0.52, clypeus AME 0.27, clypeus ALE 0.38.

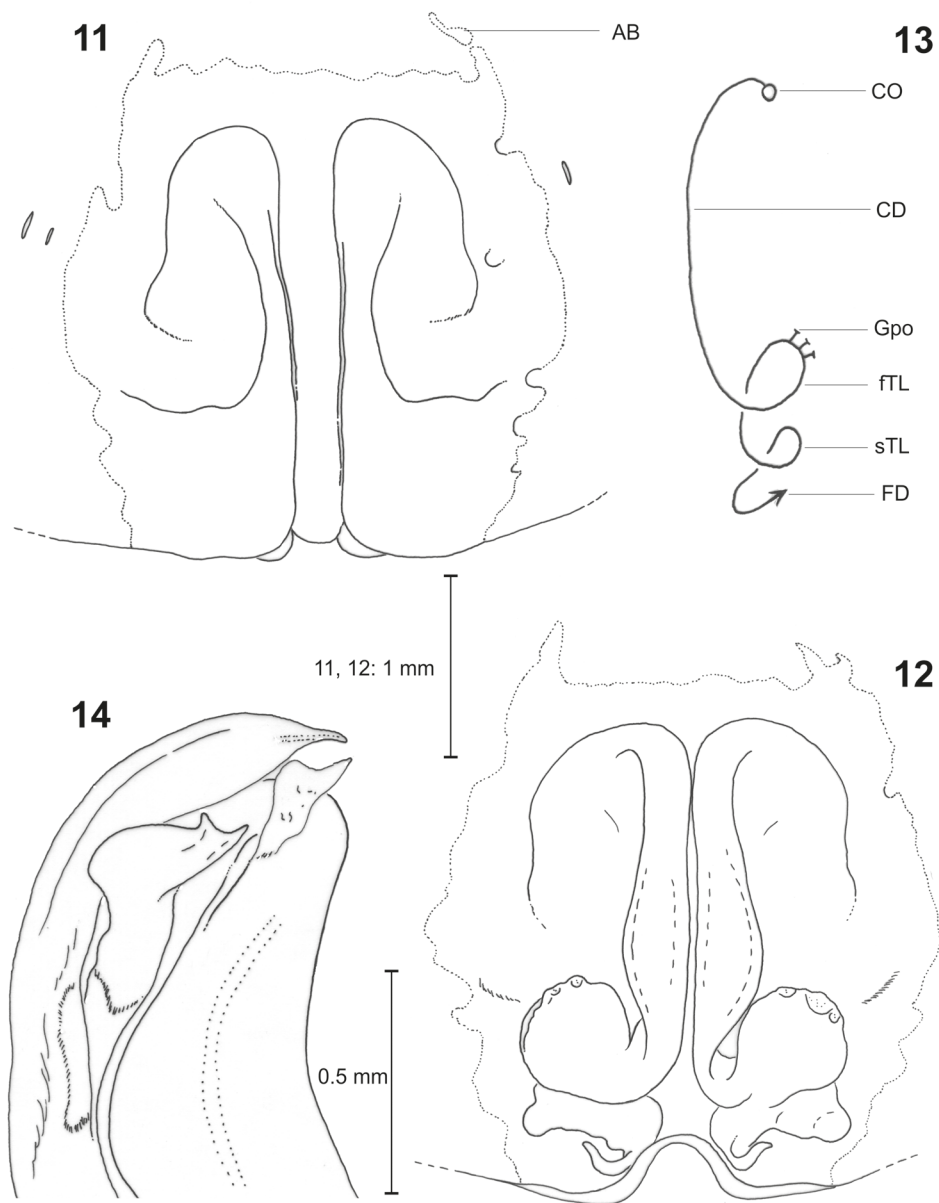
Chelicerae: As in males.



Figs 3–7. *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895), male, Tanzania (MRAC): (3–5) left palp: (3) ventral view, (4) retrolateral view and (5) tip of embolus, embolic apophysis and conductor, ventral view; (6) eye arrangement; (7) left chelicera, ventral view. Abbreviations: C – conductor; dRTA – dorsal retrolateral tibial apophysis; E – embolus; EA – embolic apophysis; EM – embolus membrane; ET – embolus tip; H – haematodocha; T – tegulum; vRTA – ventral retrolateral tibial apophysis.



Figs 8–10. *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895), female, Tanzania (MRAC): (8) epigyne, ventral view; (9) vulva, dorsal view; (10) left vulva, antero-dorso-lateral view. Abbreviations: AMP – anterior margin of epigynal pocket; CD – copulatory duct; CO – copulatory opening; EF – epigynal field; EP – epigynal pocket; FD – fertilization duct; fTL – first turning loop; GPO – glandular pores; LL – lateral lobes; MS – median septum; PMP – posterior margin of epigynal pocket; SS – slit sensillum; sTL – second turning loop.



Figs 11–14. *Pseudomicrommata longipes* (Bösenberg & Lenz, 1895), (11–13) female, Barberspan, South Africa (NCA) and (14) male, Brandfort, South Africa (SMF): (11) epigyne, ventral view; (12) vulva, dorsal view; (13) schematic course of internal duct system; (14) tip of embolus, embolic apophysis and conductor, ventral view. Abbreviation: AB – anterior bands of epigynal field; for others see Figs 8–10.

Legs: Leg formula: IV II I III. Measurements of palp and legs. Palp 6.9 [2.0, 1.1, 1.3, 2.5], I 19.8 [6.5, 3.0, 4.9, 5.0, 2.0], II 21.4 [6.5, 3.0, 4.9, 5.0, 2.0], III 19.0 [6.0, 2.7, 4.3, 4.4, 1.6], IV 21.8 [6.7, 2.6, 5.2, 5.6, 1.8].

Spination: Palp 131, 001/101, 1013; Legs: Femur I–III 323, IV 321/322; Patella I–IV 000/101; Tibia I–IV 1016/2026; Metatarsus I–III 0004/1014/2024, IV 3036.

Epigyne/vulva: As in diagnosis (Figs 8–13), with AMP slightly longer than PMP (for more details the genus redescription).

Other material examined: BOTSWANA: Palapaye, 23.xii.1980, leg. P. Reavell, on herbs, 1♂ (NCA 81/82). KENYA: *Eastern Prov.*: Kibwezi, 23–24.xii.1905, leg. K.P. Scheffler, grassland steppes, 2♂ 5♀ 5 imm. (ZMB 31331). NAMIBIA: *Kunene*: Annabis Farm, 20°00'S, 14°38'E, 23–24.ii.1969, leg. B. Lamoral & R. Day, with egg sac attached to grass, 1♀ (NMSA 11526). SOUTH AFRICA: *Free State Prov.*: Brandfort district, Amanzi Private Game Reserve, 28°36.042'S 26°25.791'E, 17.xii.2010, leg. C. Haddad & V. Butler, canopy fogging, *Olea europea africana*, canopy height 8 m, 10:00 am, 1♀ (SD742, SMF); same locality, 28°35.435'S, 26°26.157'E, 1425 m, 25.x.2011, leg. C. Haddad, 1♂ (SD1117, SMF). *Gauteng Prov.*: Roodeplaat Dam, 20.xi.1991, leg. A. Leroy, in grass, 1♀ (NCA 92/164). *KwaZulu-Natal Prov.*: Maritzburg (=Pietermaritzburg), ii.1945, 4♀ (NMSA 4309); Ndumo Game Reserve, 26°54.425'S 32°19.191'E, 11.ii.2005, post AFRAS 2005 excursion, leg. D. Kunz, 1♀ (DK323, SMF); same data as previous but 26°53.025'S 32°10.050'E, 8.ii.2005, 1♀ (DK298, SMF); same data as previous but 26°54.425'S 32°19.191'E, 5.ii.2005, 1♂ (DK269, SMF); Ndumo Game Reserve, 28.xi.1973, 1♂ (NMSA 20171); Pietermaritzburg, Ashburton, 27.i.1982, under brick in *Acacia karroo* veld, 1♂ (NMSA 20170); Nyala Game Reserve, 12.xii.1980, in dense grass at side of path, 1♀ (NMSA 20171); Zululand, Mfongosi, ii.1918, leg. W.E. Gonzo, 1♀ (misidentified as *Micrommata vittigera*, Lawrence det.) (SAMC B4023). *Limpopo Prov.*: Tuinplaas, Springbokvlakte, Settlers (Tweekaansen), 19.xii.2002, leg. M. van Jaarsveld, 1♂ (NCA 2003/1322); Nylsvley Nature Reserve, 6.iii.1998, leg. J. Leeming, on grass, sweep net, 1♀ (NCA 98/570); Farm Rochdale, between Waterpoort and Louis Trichardt IV, slopes of Soutpansberg, 4.xii.1998, leg. W. Croucamp, 1♀ (NCA 2001/308). *North West Prov.*: Barberspan, xii.1990, leg. K. Morgan, in passage of house, 1♂ (NCA 91/812); same data as previous but 2.ii.1991, 1♀ (NCA 91/813). TANZANIA: Mkomazi Game Reserve, Igire Ridge, 15.iii.1995, leg. A. Russell-Smith, grassland, 2♂ 1♀ (MRAC 211305).

Known geographical distribution: Kenya, Tanzania, Botswana, South Africa and Namibia (Fig. 40).

Remarks: For a long time *P. longipes* was thought to be the only species of *Pseudomicrommata* widespread in tropical Africa. Recent molecular investigation (Moradmand *et al.* 2014) revealed a clue, that in spite of similarity in morphology between species in South Africa and Guinea (in particular females), considerable genetic distance can be observed (see Moradmand *et al.* 2014: fig. 3).

Pseudomicrommata vittigera (Simon, 1897), **stat. rev.**

Figs 15–22

Micrommata vittigerum Simon, 1897b: 65, fig. 54 (two ♀ syntypes: SOUTH AFRICA: Transvaal, MNHN 17.031 – examined); Simon 1897a: 490.

Micrommata ovambica Lawrence, 1927: 43, fig. 30 (♀ holotype: NAMIBIA: Ovamboland, N of Ondungua, Mafa, 1923, leg. R.F. Lawrence, SAMC B6752 – examined) (synonymy by Lawrence 1942).

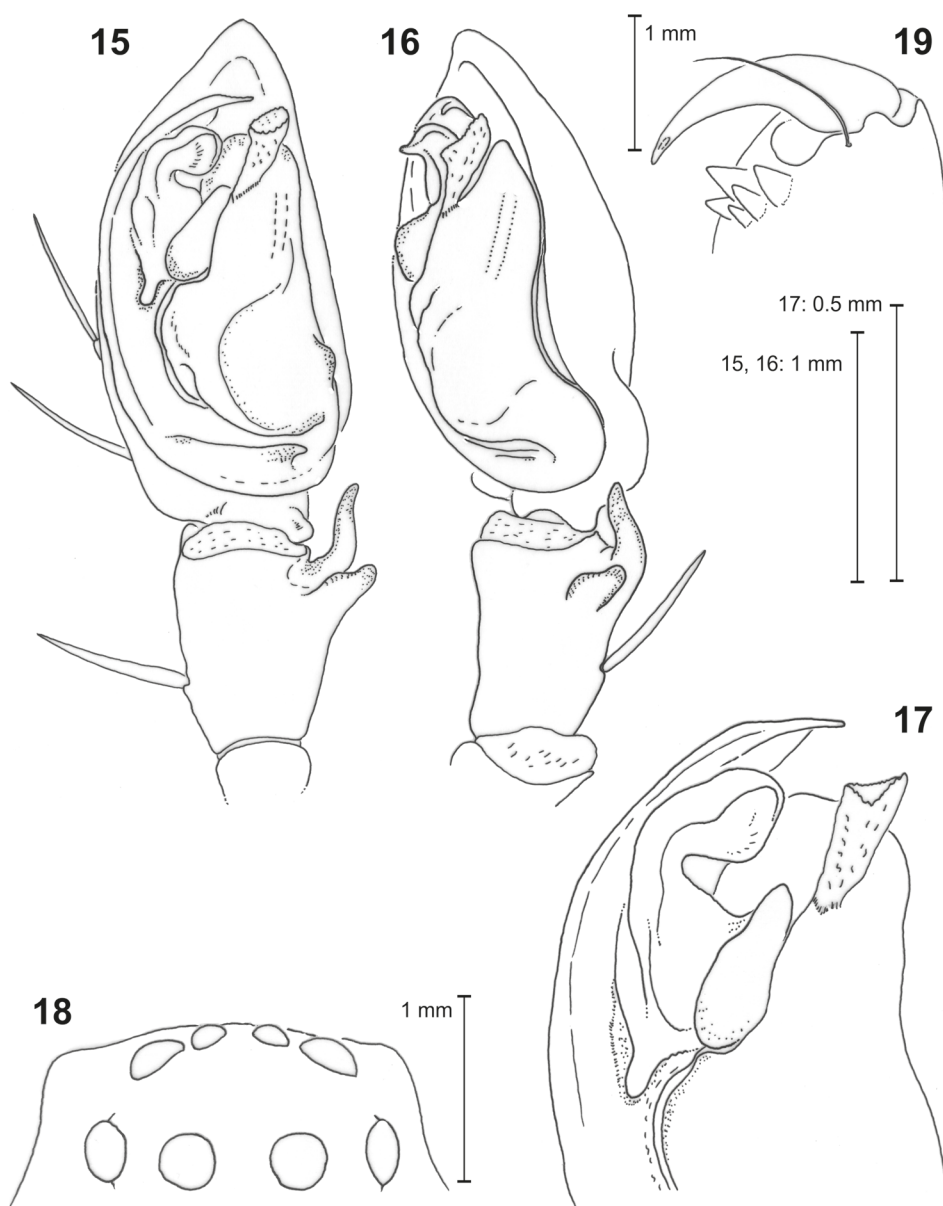
Pseudomicrommata vittigera (Simon, 1897): Levy 1989: 163 (emendation, unjustified synonymy with *P. longipes*); Lawrence 1942: 168 (in part).

Pseudomicrommata longipes (Bösenberg & Lenz, 1895): Jäger & Kunz 2005: 168, figs 262–267 (♀ misidentified).

Diagnosis: Males with clearly distinguishable EA having two spoon-shaped projections (Figs 15–17). Female vulva with sTL not extending laterally beyond fTL in dorsal view (Fig. 21) otherwise similar to *P. longipes*.

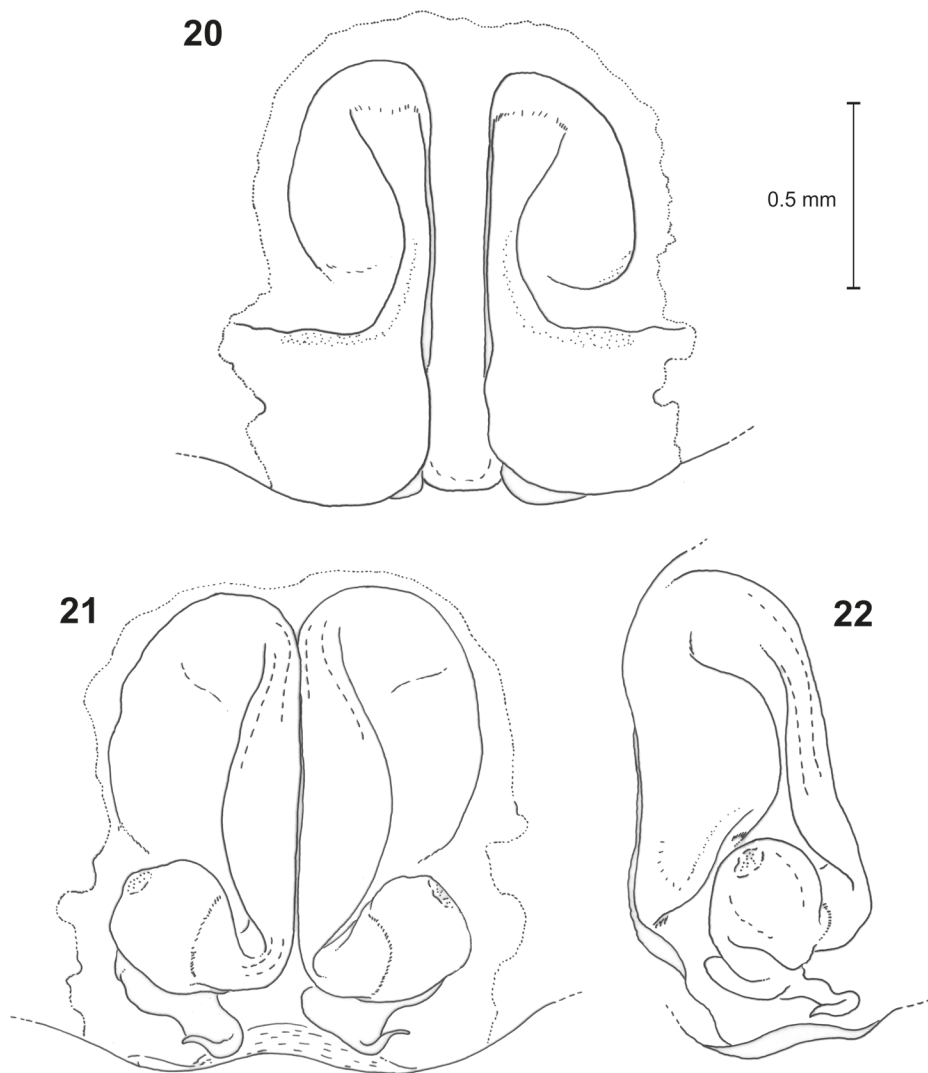
Description:

Male (ranges: n=2, single measurements: NCA 98/357).



Figs 15–19. *Pseudomicrommata vittigera* (Simon, 1897), male, Pafuri, South Africa (NCA): (15–17) left palp: (15) ventral view, (16) retrolateral view and (17) tip of embolus, embolic apophysis and conductor, ventral view; (18) eye arrangement; (19) left chelicera, ventral view.

Measurements: Small sized; total length 8.8, prosoma length 4.5, prosoma width 3.8, anterior width of prosoma 2.2, opisthosoma length 4.3, opisthosoma width 2.4. Eye diameters: AME 0.25, ALE 0.38, PME 0.31, PLE 0.35; eye interdistances: AME–AME 0.13, AME–ALE 0.04, PME–PME 0.32, PME–PLE 0.24, AME–PME 0.51, ALE–PLE 0.21, clypeus height at AME 0.28, clypeus height at ALE 0.32.



Figs 20–22. *Pseudomicrommata vittigera* (Simon, 1897), female syntype, Transvaal, South Africa (MNHN): (20) epigyne, ventral view; (21) vulva, dorsal view; (22) left vulva, antero-dorso-lateral view.

Chelicerae: With 2 anterior and 3 posterior teeth (two large and one smaller) (Fig. 19).

Legs: Leg formula: IV II III=I. Measurements of palp and legs. Palp 4.8 [1.5, 0.8, 0.7, 1.8], I 16.0 [4.6, 2.1, 3.8, 4.1, 1.4], II 17.9 [5.2, 2.2, 4.5, 4.6, 1.4], III 16.0 [4.8, 1.7, 4.0, 4.1, 1.4], IV 18.6 [5.5, 1.7, 4.7, 5.3, 1.4].

Spination: Palp 131, 101, 2121; Legs: Femur I–III 223/323, IV 323; Patella I–IV 101; Tibia I–IV 2126/2226; Metatarsus I–III 2024, IV 3036.

Palp: As in diagnosis, with cymbium two times longer than tibia; the transition part of tegulum to embolus with a clear process, an additional retrolateral hump-like process present on tegulum (Fig. 15); vRTA much shorter than dRTA, both pointed distally (Figs 15, 16).

Female (ranges: n=6, single measurements: syntype).

Measurements: Medium sized; total length 11.3–13.5, prosoma length 4.7–5.5, prosoma width 4.1–4.6, anterior width of prosoma 2.5–3.6, opisthosoma length 6.6–8.0, opisthosoma width 3.5–4.0. Eye diameters: AME 0.28, ALE 0.40, PME 0.33, PLE 0.34; eye interdistances: AME–AME 0.15, AME–ALE 0.05, PME–PME 0.41, PME–PLE 0.32, AME–PME 0.47, ALE–PLE 0.34, clypeus AME 0.31, clypeus ALE 0.36.

Chelicerae: As in males.

Legs: Leg formula: IV II III I. Measurements of palp and legs. Palp 6.1 [1.8, 0.9, 1.2, 2.2], I 16.1 [4.8, 2.3, 3.9, 3.8, 1.3], II 17.9 [5.7, 2.4, 4.1, 4.3, 1.4], III 16.3 [5.2, 2.3, 3.7, 3.8, 1.3], IV 18.8 [5.8, 2.3, 4.1, 5.2, 1.4].

Spinination: Palp 131, 001/101, 2120/2120, 1013; Legs: Femur I–III 223/323, IV 321/322; Patella I–IV 000/101; Tibia I–IV 1016/2026; Metatarsus I–III 0004/2024, IV 0006/3036.

Epigyne/vulva: As in diagnosis, with sTL much smaller than fTL; GPO only present on fTL (Figs 20–22) (for more details see the genus redescription).

Other material examined: SOUTH AFRICA: *Limpopo Prov.*: Letsitele Kraal, Nelspruit, 27.ii.1976, leg. A.S. Dippenaar, with egg sacs on grasses, 2♀ (NCA 76/125); Rietbokpan, Pafuri (near Kruger National Park) [22.93°S 31.02°E], 13.i.1996, leg. A. Leroy, 1♂ (NCA 98/357); same data as previous, on plant, 1♂ (NCA 2001/100). *Mpumalanga Prov.*: 2D Ranch, Loskop Dam Nature Reserve, 27.ii.1994, leg. A. Leroy, 1♀ (NCA 2001/101).

Remarks: *P. vittigera* stat. rev. was previously known only from females and the male is described here for the first time. The male characters confirm that *P. vittigera* stat. rev. must be considered a valid species and be withdrawn from the junior synonymy of *P. longipes*. Diagnosing species status solely on females is not an easy task, which is the reason why previous taxonomists decided to synonymise this species with the more widespread *P. longipes*. This conclusion might also be applied to *P. ovambica* (Lawrence, 1927) from Namibia. However, until its potential male is discovered and described, this species should remain a junior synonym of *P. vittigera*.

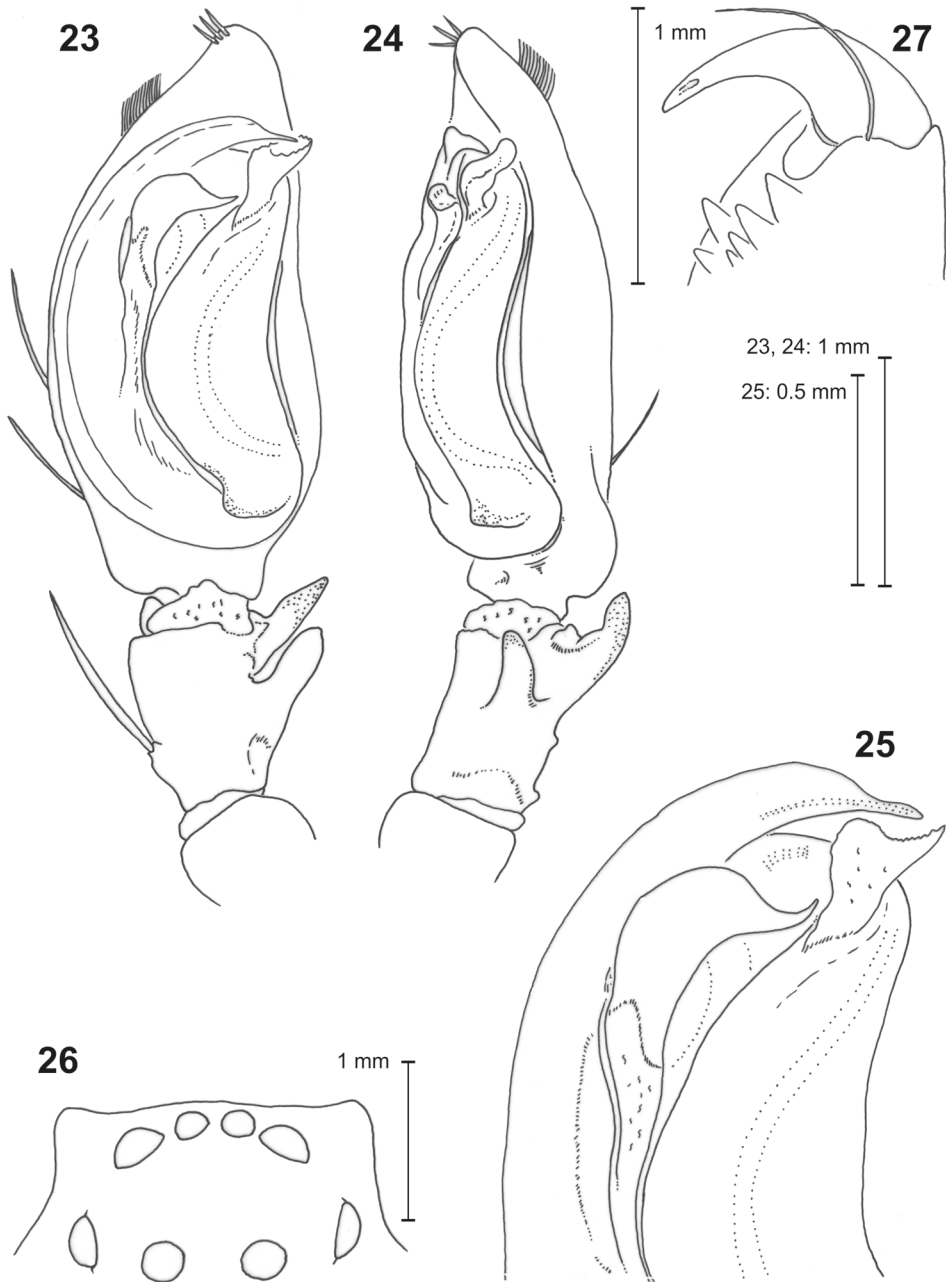
Known geographical distribution: South Africa and Namibia, although latter records are unlikely to be conspecific (Fig. 40).

Pseudomicrommata mary sp. n.

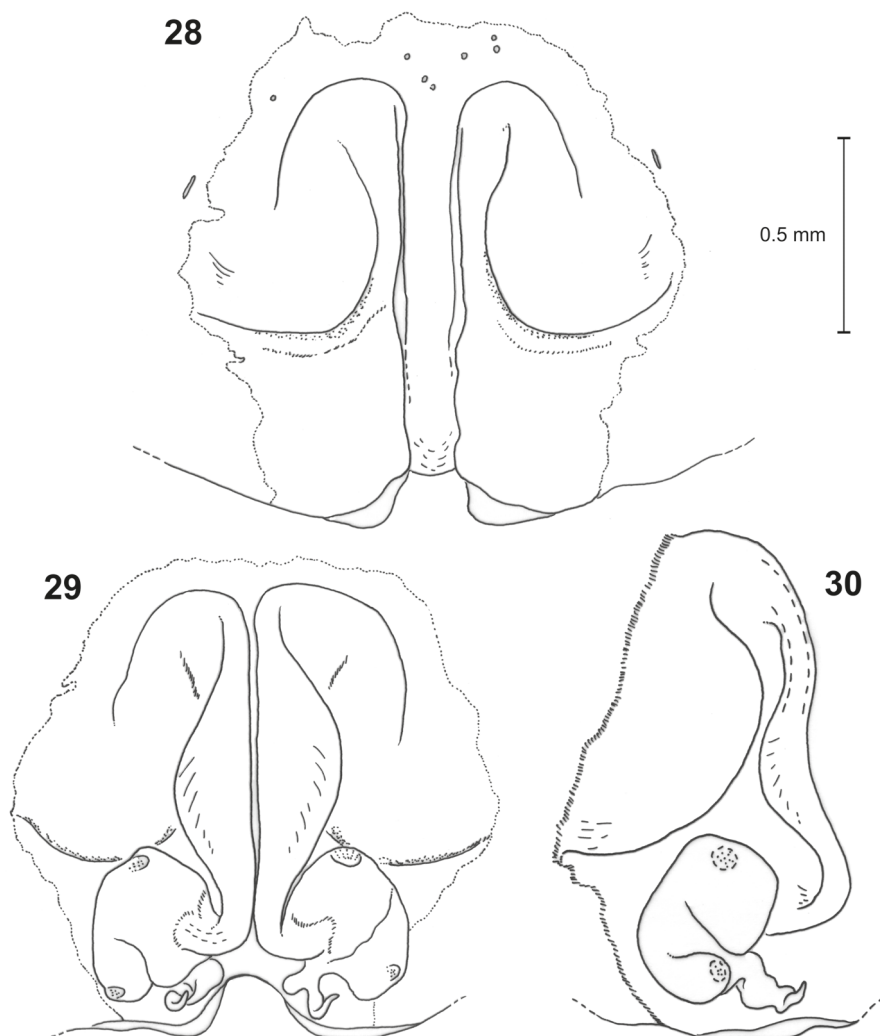
Figs 23–32

Etymology: This species is dedicated to my wife Maryam (nickname: Mary), for all her love and support; noun in apposition.

Diagnosis: Males distinguished easily from other congeners by the EA narrow proximally, widened medially and pointed distally in ventral view (embolus tip is not as bifid as in *P. longipes*) (Figs 23, 25); in females, epigyne with PMP longer than AMP (Figs 28, 31) and vulva clearly with additional GPO on sTL (besides those on fTL) (Figs 29, 30, 32), currently unique amongst the known species.



Figs 23–27. *Pseudomicrommata mary* sp. n., male holotype, Mt Nimba, Guinea (SMF): (23–25) left palp, (23) ventral view, (24) retrolateral view and (25) tip of embolus, embolic apophysis and conductor, ventral view; (26) eye arrangement; (27) left chelicera, ventral view.



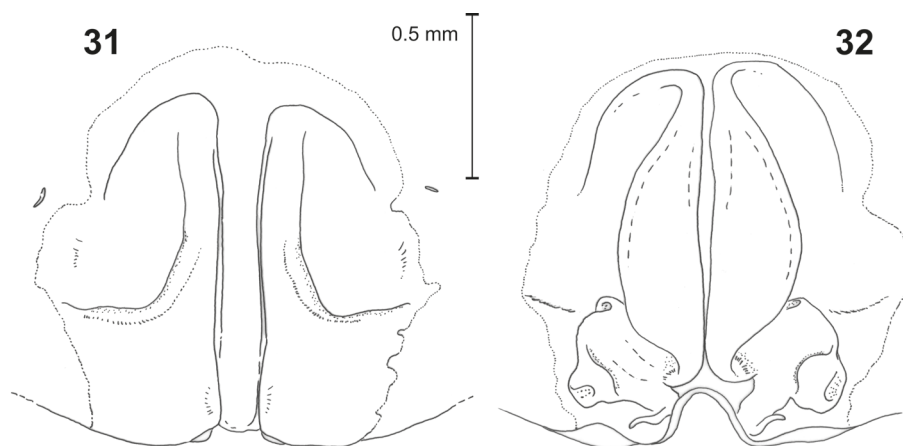
Figs 28–30. *Pseudomicrommata mary* sp. n., female paratype, Mt Nimba, Guinea (MRAC): (28) epigyne, ventral view; (29) vulva, dorsal view; (30) left vulva, antero-dorso-lateral view.

Description:

Male (ranges: n=11, single measurements: holotype).

Measurements (holotype largest): Medium sized; total length 10.9–12.9, prosoma length 4.5–4.8, prosoma width 4.2–4.7, anterior width of prosoma 2.0–2.2, opisthosoma length 5.4–6.1, opisthosoma width 2.5–3.2. Eye diameters: AME 0.22, ALE 0.38, PME 0.34, PLE 0.33; eye interdistances: AME–AME 0.14, AME–ALE 0.04, PME–PME 0.38, PME–PLE 0.34, AME–PME 0.64, ALE–PLE 0.28, clypeus height at AME 0.24, clypeus height at ALE 0.31.

Chelicerae: With 2 anterior and 4 posterior teeth (first two larger with two additional smaller ones) (Fig. 27).



Figs 31–32. *Pseudomicrommata mary* sp. n., female paratype, Adiope Doumé, Ivory Coast (MRAC): (31) epigyne, ventral view; (32) vulva, dorsal view.

Legs: Leg formula: IV II I III. Palp 6.1 [1.8, 0.7, 1.0, 2.6], I 17.8 [5.1, 2.4, 4.3, 4.4, 1.6], II 19.1 [5.6, 2.4, 4.7, 4.7, 1.7], III 16.9 [5.2, 2.1, 4.1, 3.9, 1.6], IV 19.3 [5.8, 1.9, 4.7, 5.2, 1.7].

Spination: Palp 131, 101, 2121/2111; Legs: Femur I–III 323, IV 321/322; Patella I–IV 000/101; Tibia I–IV 2126/2226; Metatarsus I–III 2024, IV 3036.

Palp: As in diagnosis, with cymbium nearly three times longer than tibia, dRTA distally pointed, vRTA distally hump-like, subtegulum not visible (Figs 23, 24); EA membranous and hyaline proximally, hard and sclerotized distally (Fig. 25).

Female (ranges: $n=8$, single measurements: SD 1105).

Measurements: Medium sized; total length 11.8–15.9, prosoma length 4.5–5.1, prosoma width 3.7–4.2, anterior width of prosoma 2.1–2.4, opisthosoma length 7.3–10.8, opisthosoma width 3.1–5.7. Eye diameters: AME 0.25, ALE 0.38, PME 0.36, PLE 0.34; eye interdistances: AME–AME 0.18, AME–ALE 0.04, PME–PME 0.37, PME–PLE 0.32, AME–PME 0.68, ALE–PLE 0.32, clypeus AME 0.16, clypeus ALE 0.22.

Chelicerae: As in males.

Legs: Leg formula: IV II I III. Measurements of palp and legs. Palp 5.3 [1.4, 0.9, 1.1, 1.9], I 15.0 [4.4, 2.1, 3.5, 3.6, 1.4], II 16.1 [4.9, 2.2, 3.8, 3.7, 1.5], III 14.2 [4.5, 1.8, 3.3, 3.2, 1.4], IV 16.2 [5.0, 1.8, 3.8, 4.1, 1.5].

Spination: Palp 131, 001/101, 2121, 1113; Legs: Femur I–III 323, IV 321/322; Patella I–IV 000/101; Tibia I–IV 1016/2026; Metatarsus I–III 0004/2024, IV 3036.

Epigyne/vulva: As in diagnosis, with EF nearly as wide as long; AMP bending posteriorly (Fig. 28), sTL extending beyond fTL in lateral view (Figs 29, 32) (for more details see the genus redescription).

Holotype ♂: GUINEA: *Prefecture de Lola*: Mount Nimba, SE Gbakole, Plateau de Zougouépo, 07°43'N, 08°24'W, 500 m, 26.i.1952, leg. M. Lamotte, N° 19 (SMF).

Paratypes: Same data as holotype, 2♀ (SMF); Same data as holotype but 15.iii.1957, N° 50, 4♂ 4♀ (SMF); Same data as holotype but 21.i.1957, N° 18, 2♂ (SMF); Mount Nimba, Ga forest, 746 m, 6.ii.2012, leg. A. Henrard, C. Allard, P. Bimou & M. Sidibé, sieving soil litter, primary forest, 1♀ (MRAC 238760, SD 1105); Mount Nimba, Kpélévi Savannah, 572 m, 7.iii.2012, leg. A. Henrard, C. Allard, P. Bimou & M. Sidibé, pitfall traps, 1♂ (MRAC 238965). IVORY COAST: Adiope Doumé (Orstom), 15–20.viii.1968, leg. J.J. van Mol,

1♀ (MRAC 134636, MM); N of Korhogo, Bandama River, iii.1980, leg. J. Everts, edge riverine forest, 2♂ (MRAC 172141-2); Bouaflé, 22.i.1981, leg. J. Everts, pitfall traps, 1♂ (MRAC 174220).

Remarks: The type specimens were collected in 1952 and 1957 by mammologist Prof Dr M. Lamotte during his investigation in Mount Nimba of Guinea. A large number of spiders were donated to SMF in 1960 and kept in the collection. Mount Nimba is one of the main biodiversity hotspots in western Africa with a high level of endemism (Lamotte & Roy 2003). It seems that *P. mary* sp. n. is the first of this rich collection to be described as a new species.

Known geographical distribution: Recorded from Mount Nimba and surrounding areas in Guinea and Ivory Coast (Fig. 40).

***Pseudomicrommata schoemanae* sp. n.**

Figs 33–39

Etymology: This species is named in honour of Dr Ansie Dippenaar-Schoeman for her significant contributions to African arachnology and her assistance to my studies on African Sparassidae; noun in a genitive case.

Diagnosis: This is the only *Pseudomicrommata* species with a generally elongated epigyne; the enlarged epigynal pockets (EP) occupy the majority of the epigynal field (EF) space, which is unique amongst the currently known species (Figs 33, 38).

Male unknown.

Description:

Female (ranges: n=4, single measurements: holotype).

Measurements (Holotype largest): Medium sized; total length 11.4–13.2, prosoma length 4.8–5.5, prosoma width 4.1–4.7, anterior width of prosoma 2.4–2.6, opisthosoma length 6.6–7.7, opisthosoma width 3.5–4.5. Eye diameters: AME 0.21, ALE 0.43, PME 0.36, PLE 0.35; eye interdistances: AME–AME 0.20, AME–ALE 0.06, PME–PME 0.42, PME–PLE 0.32, AME–PME 0.71, ALE–PLE 0.36, clypeus AME 0.20, clypeus ALE 0.28.

Chelicerae: Chelicerae with 2 anterior and 4 posterior teeth (two larger and two smaller ones) (Fig. 37).

Legs: Leg formula: IV II I III. Measurements of palp and legs. Palp 6.4 [1.4, 0.7, 1.1, 2.2], I 17.4 [5.1, 2.5, 4.1, 4.2, 1.5], II 18.2 [5.6, 2.4, 4.4, 4.3, 1.5], III 16.2 [5.2, 2.1, 3.8, 3.7, 1.4], IV 18.4 [5.6, 2.1, 4.4, 4.8, 1.5].

Spination: Palp 131, 101, 2121, 1013; Legs: Femur I–III 323, IV 321; Patella I–IV 000/101; Tibia I–IV 1016/2026; Metatarsus I–III 0004/1014/2024, IV 3036.

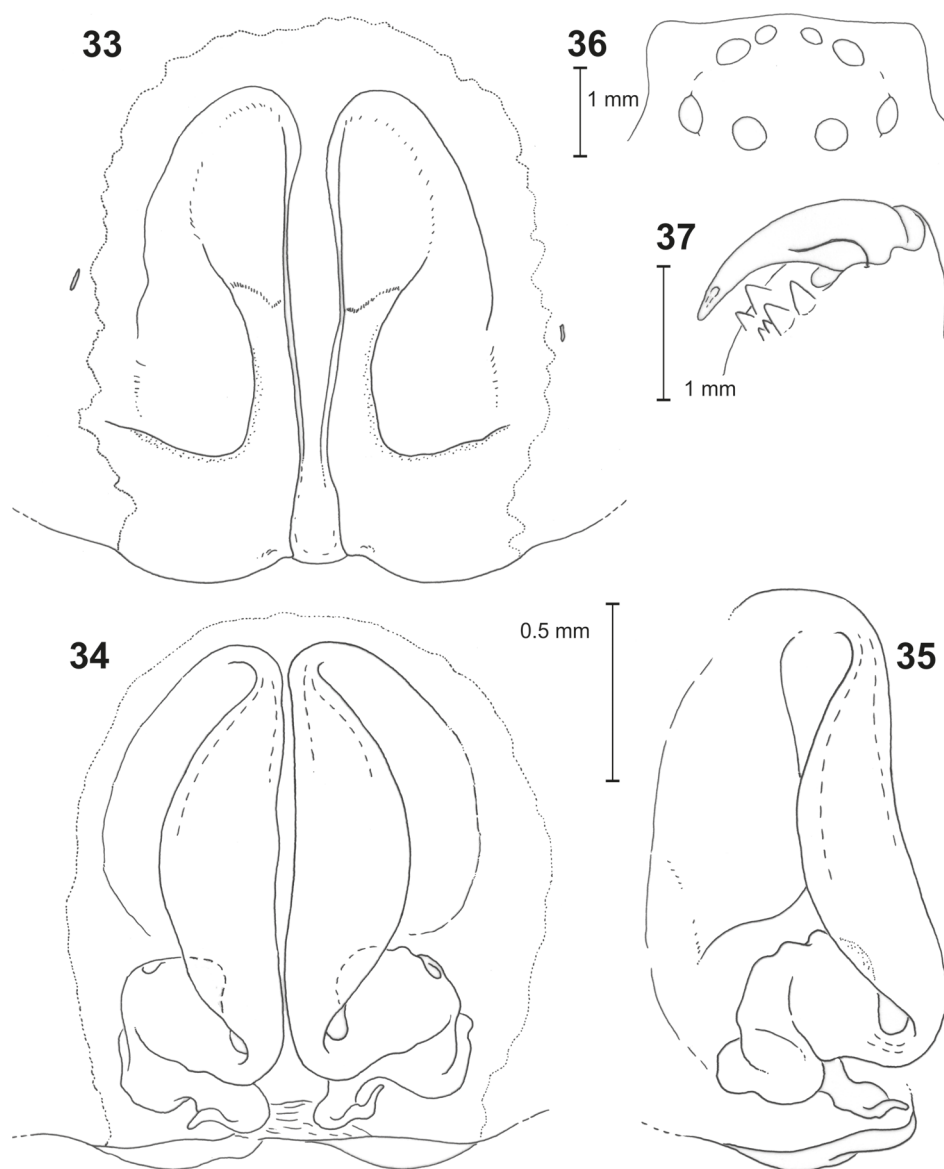
Epigyne/vulva: As in diagnosis, with generally enlarged and elongated EF, posterior part of LL behind PMP small (Figs 33, 38); CD enlarged and expanded, partially covering fTLs; sTL usually extend beyond fTL laterally (Figs 34, 39), GPO present only on fTLs (Figs 34, 35).

Holotype ♀: CAMEROON: North Prov.: Bossoum, 09°56'33"N 13°41'51"E, 11.iv.1914, leg. G. Tessmann (ZMB 48632).

Paratypes: CAMEROON: Same data as holotype, 2♀ (ZMB 48633), 1♀ (SMF).

Remarks: The type material for this study was collected by the German botanist G. Tessmann (1884–1969) during his expedition to Cameroon in 1914.

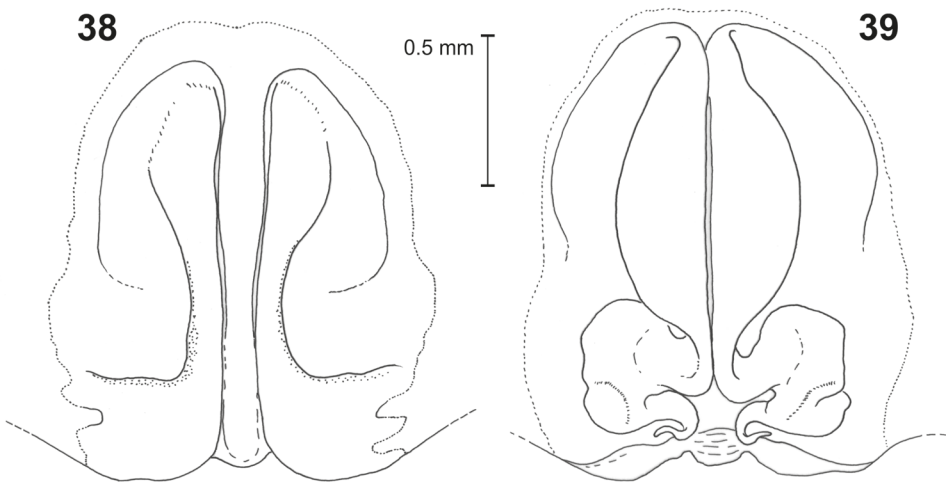
Known geographical distribution: Only known from the type locality (Fig. 40).



Figs 33–37. *Pseudomicrommata schoemanae* sp. n., female holotype, Bossoum, Cameroon (ZMB): (33) epigyne, ventral view; (34) vulva, dorsal view; (35) left vulva, antero-dorso-lateral view; (36) eye arrangement; (37) left chelicera, ventral view.

ACKNOWLEDGEMENTS

I acknowledge the authorities of the University of Isfahan, in particular the Office of Research Affairs, for their support in providing facilities for my scientific short visit (July 2014) to the Senckenberg Research Institute, Frankfurt am Main (SMF), Germany. I am thankful to Dr Peter Jäger for his cooperation during my visit to the Arachnology lab. As with my prior work, Mrs Julia Altmann (SMF) was a great help in sorting material and translating old, handwritten labels, for which I am very thankful. I thank my friend Dr Hossein Rajaei (ZMH) for his help during my visit to the Arachnid collection at the University of Hamburg. I am



Figs 38–39. *Pseudomicrommata schoemanae* sp. n., female paratype, Bossoum, Cameroon (SMF): (38) epigyne, ventral view; (39) vulva, dorsal view.



Fig. 40. Currently known distribution of *Pseudomicrommata* species.

grateful to Dr Jason Dunlop and Mrs Anja Friederichs (ZMB) for granting me access to the rich collection of spiders under their curation. A main part of the material was loaned to me during my visit (2012) to the MRAC African spider collection (Tervuren), supported by the SYNTHESYS Project (<http://www.synthesys.info/>), which is financed by the European Community Research Infrastructure Action under the FP7 “Capacities” Program. Dr Ansie Dippenaar-Schoeman and Dr Charles Haddad supported this research with their comments, and Mr Peter Webb with good quality photos, for which I am very thankful. The two referees, Dr Cristina Rheims and Dr Peter Jäger, are thanked for their constructive suggestions that improved the manuscript.

REFERENCES

- BÖSENBERG, W. & LENZ, H. 1895. Ostafrikanische Spinnen gesammelt von Herrn Dr. F. Stuhlmann in den Jahren 1888 und 1889. *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten* **12**(2): 27–51.
- CROESER, P.M.C. 1996. A revision of the African huntsman spider genus *Palystes* L. Koch, 1875 (Araneae: Heteropodidae). *Annals of Natal Museum* **37**: 1–122.
- JÄGER, P. 2000. The huntsman spider genus *Cebrennus*: four new species and a preliminary key to known species (Araneae: Sparassidae: Sparassinae). *Revue Arachnologique* **13**(12): 163–186.
- 2001. Diversität der Riesenkrabbspinnen im Himalaya über eine Radiation zweier Gattungen in den Schneetropen (Araneae: Sparassidae: Heteropodinae). *Courier Forschungsinstitut Senckenberg* **232**: 1–136.
- 2014. *Cebrennus* Simon, 1880 (Araneae: Sparassidae): a revisionary up-date with the description of four new species and an updated identification key for all species. *Zootaxa* **3790**(2): 319–356.
- JÄGER, P. & KUNZ, D. 2003. Morphological evidence for the monophyly of the re-established subfamily Eusparassinae Järv, 1912 (Arachnida: Araneae: Sparassidae). In: Fritz, U. (Ed.) 6th Annual Congress of the Gesellschaft für Biologische Systematik, Dresden, 16–18 September 2003. Electronic Supplement, 17 (2003). *Organisms, Diversity and Evolution* **3**: 308.
- 2005. An illustrated key to genera of African huntsman spiders (Arachnida, Araneae, Sparassidae). *Senckenbergiana Biologica* **85**: 163–213.
- JÄRVI, T.H. 1914. Das Vaginalsystem der Sparassiden. II. *Annales Academiæ Scientiarum Fennicæ* **4**: 132–248.
- LAMOTTE, M. & ROY, R. (eds) 2003. Le peuplement animal du mont Nimba (Guinée, Côte d’Ivoire, Liberia). Mémoires du Muséum National d’Histoire Naturelle series No. 190. Publications Scientifiques du Muséum, Paris, France. (In French)
- LAWRENCE, R.F. 1927. Contributions to a knowledge of the fauna of South-West Africa V. Arachnida. *Annals of the South African Museum* **25**(1): 1–75.
- 1942. A contribution to the araneid fauna of Natal and Zululand. *Annals of the Natal Museum* **10**: 141–190.
- LESSERT, R. DE 1936. Araignées de l’Afrique orientale portugaise, recueillies par MM. P. Lesne et B.-B. Cott. *Revue Suisse de Zoologie* **43**: 207–306.
- LEVY, G. 1989. The family of huntsman spiders in Israel with annotations on species of the Middle East (Araneae: Sparassidae). *Journal of Zoology, London* **217**: 127–176.
- MORADMAND, M. 2013. The stone huntsman spiders – *Eusparassus* (Araneae: Sparassidae): systematics and zoogeography with revision of the African and Arabian species. *Zootaxa* **3675**: 1–108.
- MORADMAND, M. & JÄGER, P. 2012. Taxonomic revision of the huntsman spider genus *Eusparassus* Simon, 1903 (Araneae: Sparassidae) in Eurasia. *Journal of Natural History* **46**: 2439–2496.
- MORADMAND, M., SCHÖNHOFER, A.L. & JÄGER, P. 2014. Molecular phylogeny of the huntsman spider family Sparassidae with focus on the genus *Eusparassus* and notes on the RTA-clade and ‘Laterigradae’. *Molecular Phylogenetics and Evolution* **74**: 48–65.
- SILVA, D.D. 2005. Revision of the spider genus *Chrosioderma* Simon (Araneae: Sparassidae). *Proceedings of the California Academy of Sciences* **56**: 337–377.
- SIMON, E. 1897a. Etudes arachnologiques. 27e Mémoire. XLII. Descriptions d’espèces nouvelles de l’ordre des Araneae. *Annales de la Société Entomologique de France* **65**: 465–510.
- 1897b. Histoire naturelle des araignées. T. 2, fasc. 1. Paris: Encyclopédique Roret.
- WORLD SPIDER CATALOG 2015. *World Spider Catalog, Version 16*. Bern: Natural History Museum. (<http://wsc.nmbe.ch/>; accessed 25/01/2015).

