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On the African crab spider genus *Geraesta* Simon, 1889 (Araneae: Thomisidae)

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ABSTRACT

A new species, *Geraesta ansieae* sp. n. is described and illustrated. Further, two species are illustrated, diagnosed and transferred from *Stephanopis* O. Pickard-Cambridge, 1869 to *Geraesta* Simon, 1889: *G. congoensis* (Lessert, 1943) comb. n. and *G. octolobata* (Simon, 1886) comb. n. New localities for *G. hirta* Simon, 1889 are given and a key to the males of all of the valid species is provided. *Stephanopis rhomboidalis* Simon, 1886 is considered a *nomen dubium*.

KEY WORDS: Afrotropical Region, biodiversity, Madagascar, new species, new taxa, Stephanopinae, taxonomy.

INTRODUCTION

The genus *Geraesta* Simon, 1889 is restricted to the Afrotropical Region and currently comprises three poorly studied species (Platnick 2014). The recent examination of African Stephanopinae crab spiders from several museum collections brought to light the presence of a species of the genus that is new to science, as well as new records for two known species. Further, an ongoing study of the genus *Stephanopis* O. Pickard-Cambridge, 1869 revealed that at least two African species placed in it are misplaced and should be transferred to *Geraesta*.

MATERIAL AND METHODS

Methodology follows Benjamin (2011). Specimens used for habitus illustrations were placed in 70% ethanol and photographed using a dissecting microscope (Zeiss Discovery V20) with top illumination and a magnification of up to 150×. Digital images were taken with a Zeiss AxioCam HRc camera. Images were edited using the Zeiss ZEN Pro Software Package. Left palps are depicted unless otherwise stated. Setae are usually not depicted in the final palp drawings. All measurements are given in millimetres.

Morphological abbreviations: AER – anterior row of eyes; ALE – anterior lateral eyes; AME – anterior median eyes; C – conductor; CD – copulatory duct; CO – copulatory opening; E – embolus; MA – median apophysis; PER – posterior row of eyes; PLE – posterior lateral eyes; PME – posterior median eyes; RTA – retrolateral tibial apophysis; S – spermatheca; Tr –trichobothrium; VTA – ventral tibial apophysis.

Museum collections (curators are given in parentheses):

CAS – California Academy of Sciences, San Francisco, USA (Charles Griswold);
MHNG – Muséum d'Histoire naturelle, Geneva, Switzerland (Peter Schwendinger);
MNHN – Muséum national d'Histoire naturelle, Paris, France (Christine Rollard, Elise-Anne Leguin);
MRAC – Musée royal de l'Afrique centrale , Tervuren, Belgium (Rudy Jocqué);

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NCA – National Collection of Arachnida, Agricultural Research Council (ARC) – Plant Protection Research Institute, Pretoria, South Africa (Ansie Dippenaar-Schoeman, Petro Marais).

TAXONOMY

Family Thomisidae Sundevall, 1833

Genus *Geraesta* Simon, 1889

Geraesta Simon, 1889: 224; Benjamin 2011: 15.

Type species: *Geraesta hirta* Simon, 1889, by original designation.

Diagnosis: Diagnosed by the presence of two to three trichobothria on the dorsal surface of the male palpal cymbium (Fig. 24; Benjamin 2011: figs 40d, 42b, 43c, 45e) and the presence of at least one serrated apical tibial apophysis (Figs 4, 5, 24–26; Ramírez 2014: fig. 151a). Females can be separated by the presence of opisthosomal lobes (Figs 10, 17, 18). Further, *Geraesta* can be separated from other African Stephanopinae as follows: from *Borboropactus* Simon, 1884 by the presence of two to three trichobothria on the cymbium (Fig. 25; Benjamin 2011: figs 40d, 42b, 43c, 45e; Marusik *et al.* 2013: figs 1–3). Females can be separated from *Borboropactus* by the presence of epigynal lips and opisthosomal lobes (Benjamin 2011: figs 41e, 42c, 44d, 46d); from *Epidius* Thorell, 1877 by the absence of an elongated male palpal tibia (tibia is longer than the cymbium in *Epidius*; Benjamin 2011: fig. 35c) and the absence of 4–6 thick long spines on the distal margin of the male palpal tibia (Benjamin 2011: figs 33b, 35c, 36b). Judging from the illustrations in Ledoux (2004), *Prepotelus* Simon, 1898 might be a synonym of *Geraesta*.

Description: *Geraesta* is described in Benjamin (2011).

Distribution: This genus is endemic to Africa and is now known from Botswana, Comoros, Democratic Republic of Congo, Ivory Coast, Madagascar, Rwanda, South Africa and Tanzania.

Key to males of *Geraesta*

1 E short, not winding around the tegulum (Benjamin 2011: figs 44a, 45b) ..... ***mkwawa*** Benjamin, 2011
– E longer, at least partly winding around the tegulum (Figs 4, 5, 19) 2

2 C present, E winding less than 1.5× around the tegulum (Figs 5, 11, 19).....3
– C absent, E winding 1.5× around the tegulum (Figs 1–4) ..... ***ansieae*** sp. n.

3 RTA and VTA present (Benjamin 2011: figs 42a, b) ..... ***lehtineni*** Benjamin, 2011
– VTA absent 4

4 E winding 0.5× around the tegulum 5
– E winding once around the tegulum (Figs 5–8, 12–15) ..... ***congoensis*** (Lessert, 1943) comb. n.

5 C spiniform with an acute tip, MA spoon-like with a tapered stalk, opisthosoma with two dorsal protuberances (Figs 9, 10; Benjamin 2011: figs 39a, b, c) ..... ***hirta*** Simon, 1889
– C sickle-shaped with a short filiform tip, MA sickle-shaped with a stout stalk, opisthosoma with eight whitish dorsal protuberances (Figs 17–26)..... ***octolobata*** (Simon, 1886) comb. n.

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Geraesta ansieae sp. n.

Figs 1–4

Etymology: Named in honour of Dr Ansie Dippenaar-Schoeman. She has contributed in a big way to our present understanding of the diversity and richness of African crab spiders. Further, she is an inspiration to many African arachnologists.

Diagnosis: Males of *G. ansieae* sp. n. can be distinguished from congeners by the combined presence of the following characters: C absent, MA spoon-shaped with an elongated stalk, filiform E that winds 1.5× around the tegulum, and the single tibial apophysis. Female unknown.

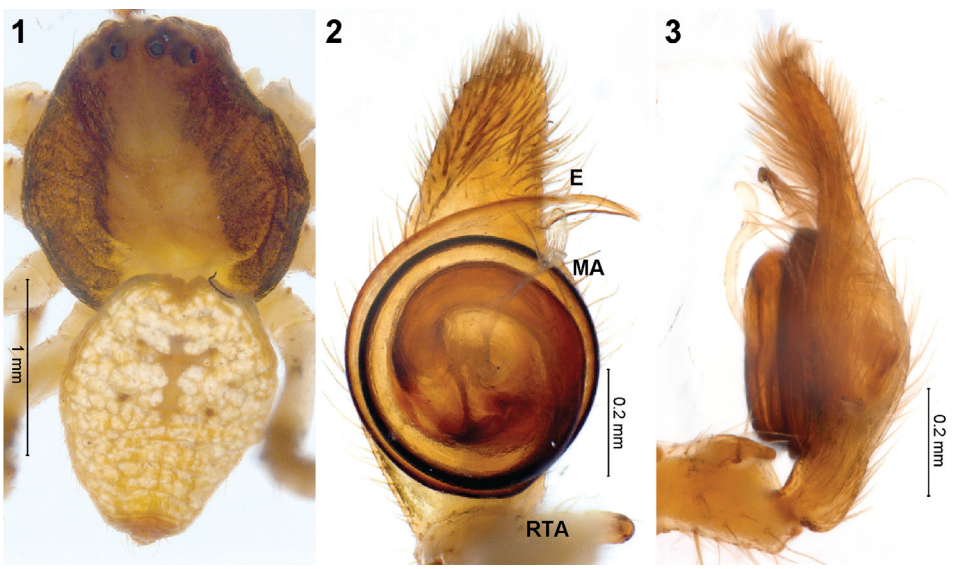
Description:

Male (holotype).

Measurements: total length: 2.7; prosoma length: 1.5, width: 1.5. Leg I: femur 2.9, patella 0.6, tibia 3.0, metatarsus 2.4, tarsus 1.4.

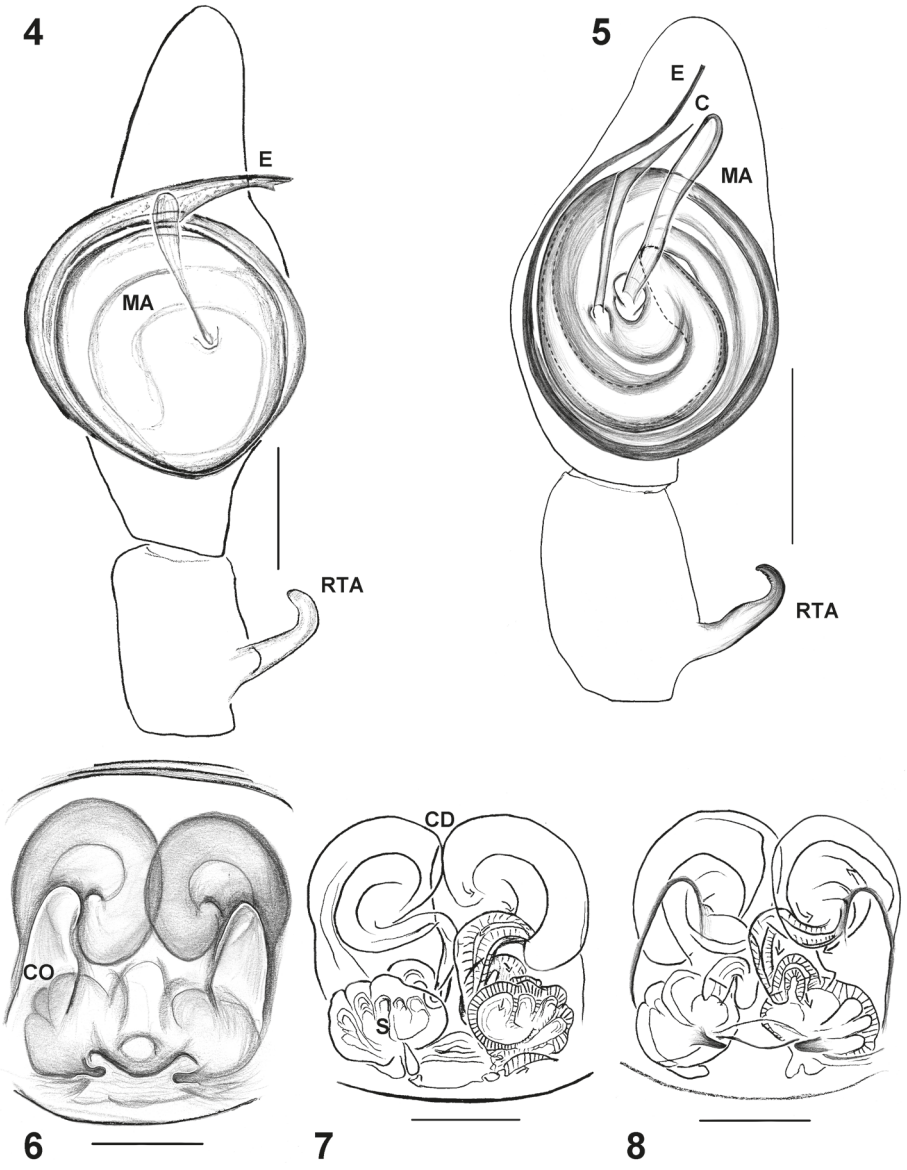
Prosoma rounded, yellow-brown, blackish laterally (Fig. 1). Leg formula 2143, ALE > PLE > PME > AME. AER, PER recurved, eyes on light-brown protuberances, but not touching. Legs elongated. Opisthosoma longer than wide, light yellow, with white spots, yellow folium in the centre (Fig. 1). Opisthosoma without tubercles. Palp as in Figs 2–4, with single tibial apophysis and disc-shaped tegulum; E long, winding 1.5× around tegulum, C absent, MA spoon-shaped with an elongated stalk.

Holotype ♂: RWANDA: *Eastern Rwanda*: Akagera National Park, 01°40'S 30°35'E, 14.xi–10.xii.1985, leg. R. Jocqué, Nsengimana & J.P. Michiels, dried out, right palp missing, some legs missing (MRAC 239298).



Figs 1–3. *Geraesta ansieae* sp. n. (MRAC 239298): (1) dorsal habitus; (2, 3) left male palp in ventral (2) and retrolateral (3) views. Abbreviations: E – embolus; MA – median apophysis; RTA – retrolateral tibial apophysis. Scale bars = 0.2 mm (2, 3), 1.0 mm (1).

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Figs 4–8. (4) *Geraesta ansieae* sp. n. (MRAC 239298) and (5–8) *G. congoensis* (Lessert, 1943) (MRAC 239299): (4, 5) left male palp, ventral view; (6) epigynum, ventral view; (7) vulva, dorsal view; (8) vulva, ventral view. Abbreviations: C – conductor; CD – copulatory duct; CO – copulatory opening; E – embolus; MA – median apophysis; RTA – retrolateral tibial apophysis; S – spermatheca. Scale bars = 0.1 mm (5), 0.2 mm (4, 6–8).

Remark: Although the type specimen is in a reasonably poor condition, the distinctive morphology of the male palp (long embolus, absence of conductor) leaves no doubt that it is a new taxon that should be described.

Distribution: Known only from the type locality.

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Geraesta congoensis (Lessert, 1943), **comb. n.**

Figs 5–8, 12–15

Stephanopis congoensis Lessert, 1943: 333, figs 35–37.

Diagnosis: Males of *G. congoensis* can be distinguished from congeners by the combined presence of the following characters: needle-shaped C with slight bend just before the tip, spatulate MA with an elongated stalk, and the filiform E that winds once around the tegulum.

Description:

Male (syntype).

Measurements: total length: 7.5; prosoma length: 3.3, width: 2.9. Leg I: femur 3.8, patella 1.2, tibia 3.8, metatarsus 2.9, tarsus 1.2.
Leg formula 1243, ALE > PLE > PME > AME. AER, PER recurved, eyes on light-brown protuberances, but not touching. Palps as in Figs 5, 15: single tibial apophysis, C needle-shaped with slight bend just before the tip, MA spatulate with an elongated stalk. E originates at distal end of the tegulum, winding once around it.

Female (syntype).

Measurements: total length: 5.4; prosoma length: 2.7, width: 2.6.
In general similar to male. Epigynum and vulva as in Figs 6–8. Further, see Lessert (1943) for a detailed description.

Type material: 1♂ 1♀ syntypes (examined): D.R. CONGO: *Flandria*: Leg. R.P. Hulstaert, det. Lessert 1943, no more label data, material badly preserved, male legs separated, left palp removed/missing, chelicerae missing, MRAC 239288; 1♀ syntype, together with 1 palp and 2 chelicerae, legs separated, epigynum dissected (not examined): D.R. CONGO: *Sankuru*: Komi, probably lost, see remarks below.

Other material examined: BOTSWANA: *Okavango Delta*: Shakawe Fishing Camp, 18°25'S 21°53'E, 12.xii.2006. leg. C. Haddad, beating short shrubs, 1♂ (NCA 2007/1088). CÔTE D'IVOIRE: *Bingerville*: 00°20'S 19°06'E, 1.ii.1963, leg. J. Decelle, 1♂ (MRAC 239297). D.R. CONGO: *Bokuma*: x.1936, leg. R.P. Hulstaert, 1♀, damaged and in a fragile condition (MRAC 239299). SOUTH AFRICA: *KwaZulu-Natal*: Ndumo Game Reserve, 26°52'S 32°12'E, 9.i.2002, leg. C. Haddad, grass, sweep net, 1♀ (NCA 2002/599); Tembe Elephant Park, 27°01'S 32°24'E, 8.i.2002, leg. C. Haddad, beating short shrubs, 2♂ 2♀ (NCA 2006/1401).

Remarks: The specimens cited in the original description as types are housed in MRAC (239288). The palp and two chelicerae that were originally in MHNG were probably from the aforementioned male syntype. These parts and a single female, probably the female from Komi mentioned in the original description, were loaned some years ago to Pekka Lehtinen (formally of the Zoological Museum, University of Turku, Finland) and never returned (Peter Schwendinger, in litt.). They are now believed lost.

Distribution: Botswana, Democratic Republic of the Congo, Ivory Coast, South Africa.

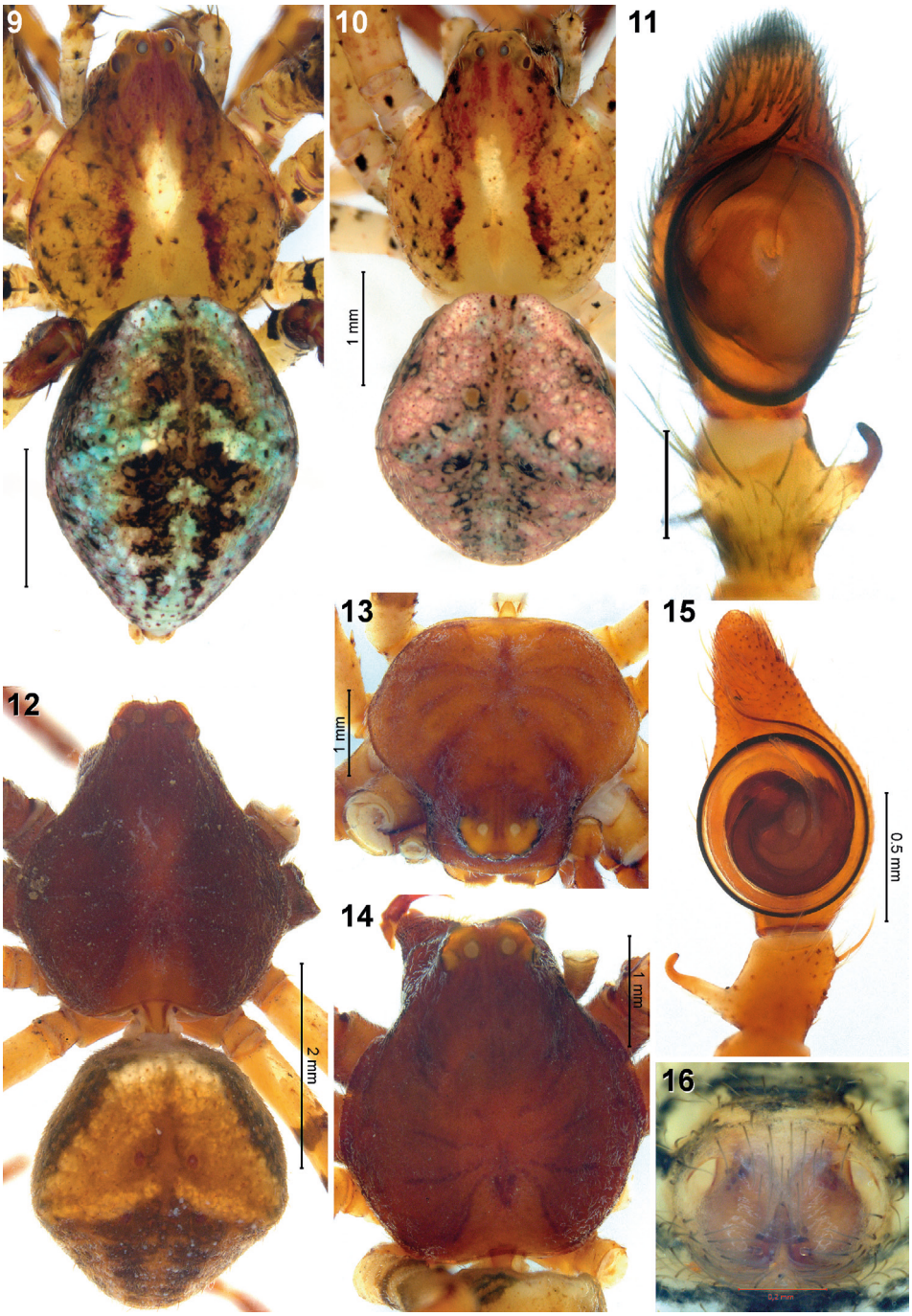
Geraesta hirta Simon, 1889

Figs 9–11, 16

Geraesta hirta Simon, 1889: 7, 225, figs 3–4; Benjamin 2011: 16, figs 7f, 39a–e, 40a–f, 41a–f; Ramírez 2014: 223, figs 151a–b, 172f.
Geraesta bilobata Simon, 1897: 7, fig. 5.

Diagnosis: Males of *G. hirta* can be distinguished from congeners by the combined presence of the following characters: spiniform C with an acute tip, spoon-like MA with a tapered stalk, and an elongated filiform E that winds 0.5× around the tegulum.

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Figs 9–16. (9, 10, 11, 16) *Geraesta hirta* Simon, 1889 and (12–15) *G. congoensis* (Lessert, 1943), male from Côte d'Ivoire, MRAC 239297 (12) and syntypes, MRAC 239288 (13–15): (9, 10, 12–14) habitus, dorsal; (11) left palp, ventral view; (15) right palp, ventral view; (16) epigynum, ventral view. Scale bars: (11, 16) = 0.2 mm, (15) = 0.5 mm, (9, 10, 13, 14) = 1.0 mm, (12) = 2.0 mm.

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Description: See Benjamin (2011).

New records: COMOROS: *Grande Comore*: Tsinimouapanga, Noumamilima, 11°50'S 43°26'E, 780 m, 1.vi.2003, leg. R. Jocqué & D. van den Spiegel, forest, beating, 1♀ (MRAC 239300); Djoumouadjongo, 11°48'S 43°17'E, 268 m, 30.v.2003, leg. R. Jocqué & D. van den Spiegel, forest, 1♀ (MRAC 239296); La Grille, S. de Ivembeni, Ferme GP, 11°27'S 43°20'E, 825 m, 22.xii.1983, leg. R. Jocqué, sieving, 1♂ (MRAC 239301). MADAGASCAR: *Toamasina Province*: Station Forestière Analamazaotra, administered by Mitsinjo, 0.75 km N of Andasibe, 18°55.783'S 48°24.696'E, 964 m, 31.i–3.ii.2009, leg. C. Griswold *et al.*, general collecting day and night, primary montane rainforest, 1♀ (CAS, CASENT 9035910); Same label data as previous, 1♂ 1♀ (CAS, CASENT 9035911); Same label data as previous, 1♂ 1♀ (CAS, CASENT 9035912).

Distribution: Previously known only from Madagascar, recorded from the Comoros for the first time.

Geraesta octolobata (Simon, 1886), **comb. n.**

Figs 17–26

Stephanopis octolobata Simon, 1886: 170 (♀ syntype from MADAGASCAR, deposited in MNHN, but not found; species catalogue card found, but no vial in jar # 1547 mentioned therein).

Diagnosis: Males and females of *G. octolobata* can be distinguished from congeners by the eight dorsal lobes of the opisthosoma, which is reflected in the species name. Further, males can be distinguished by the combined presence of the following characters: C with a short filiform tip, concave MA with a stout stalk and a groove in the apical half, and filiform E slightly longer than the length of the tegulum.

Description:

Male.

Measurements: total length: 5.0; prosoma length: 2.7, width: 2.3. Leg I: femur 3.3, patella 0.9, tibia 3.2, metatarsus 2.6, tarsus 1.2.

Prosoma brownish with a prominent triangular-shaped white patch and random dark green/black patches (Figs 17, 18). Opisthosoma with eight whitish dorsal lobes in two rows of four each, blackish with green/black patches medially and laterally. Leg formula 1243, ALE > PLE > PME > AME. AER, PER recurved, eyes on light-brown protuberances, but not touching. Palps as in Figs 20–26: single tibial apophysis with serrated tip, cymbium with two dorsal Tr; C broadest at centre, with a short filiform tip; MA concave with stout stalk and groove in apical half; E longer than the length of the tegulum.

Female.

The female is only known from the original description.

Material examined: MADAGASCAR: *Antsiranana*: R.S. Manongarvio, 17.3 km 218° SW Antanambao, 14°01.35'S 48°28.09'E, 1600 m, 27.x–7.xi.1998, leg. B.L. Fisher, 1♂ (CAS, CASENT 9057555, #1971 MT); *Antananarivo*: Station Forestière Angavakely, 22 km E Antananarivo, 18°55.06'S, 47°45'E, 1300 m, 8.ix.2001, leg. D. Andriamalala, T. Andriambinintsoa, J.J. Rafanomezantsoa & D. Ubick, low canopy remnant forest, general collecting, 1imm.♀ (CAS, CASENT 9001385).

Remarks: The examined specimens fit the description of Simon (1886).

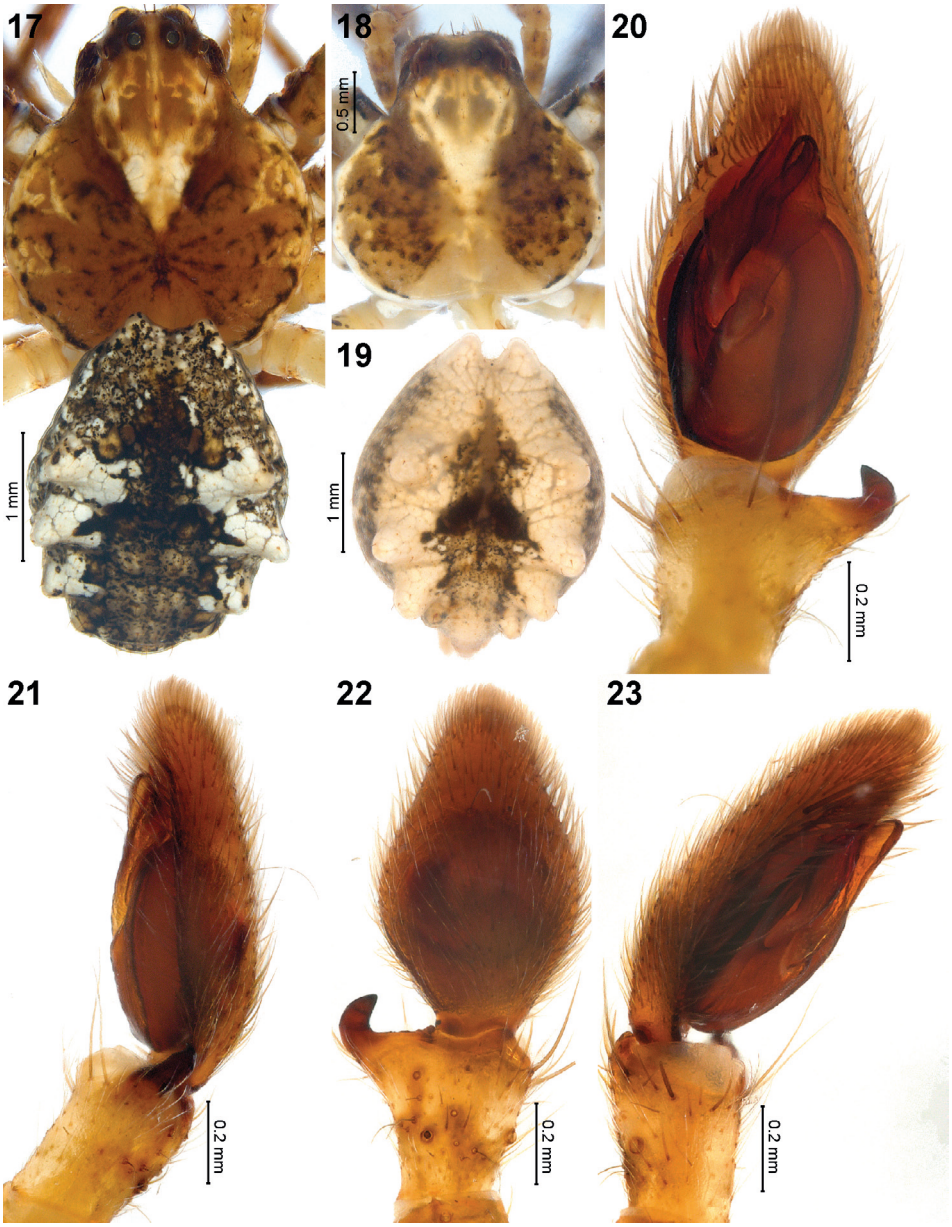
Distribution: Endemic to highland forests of Madagascar.

Stephanopis rhomboidalis Simon, 1886

Stephanopis rhomboidalis Simon, 1886: 169 (1♂ 1♀ syntypes from MADAGASCAR, should be in the MNHN, but not found; no species catalogue card found).

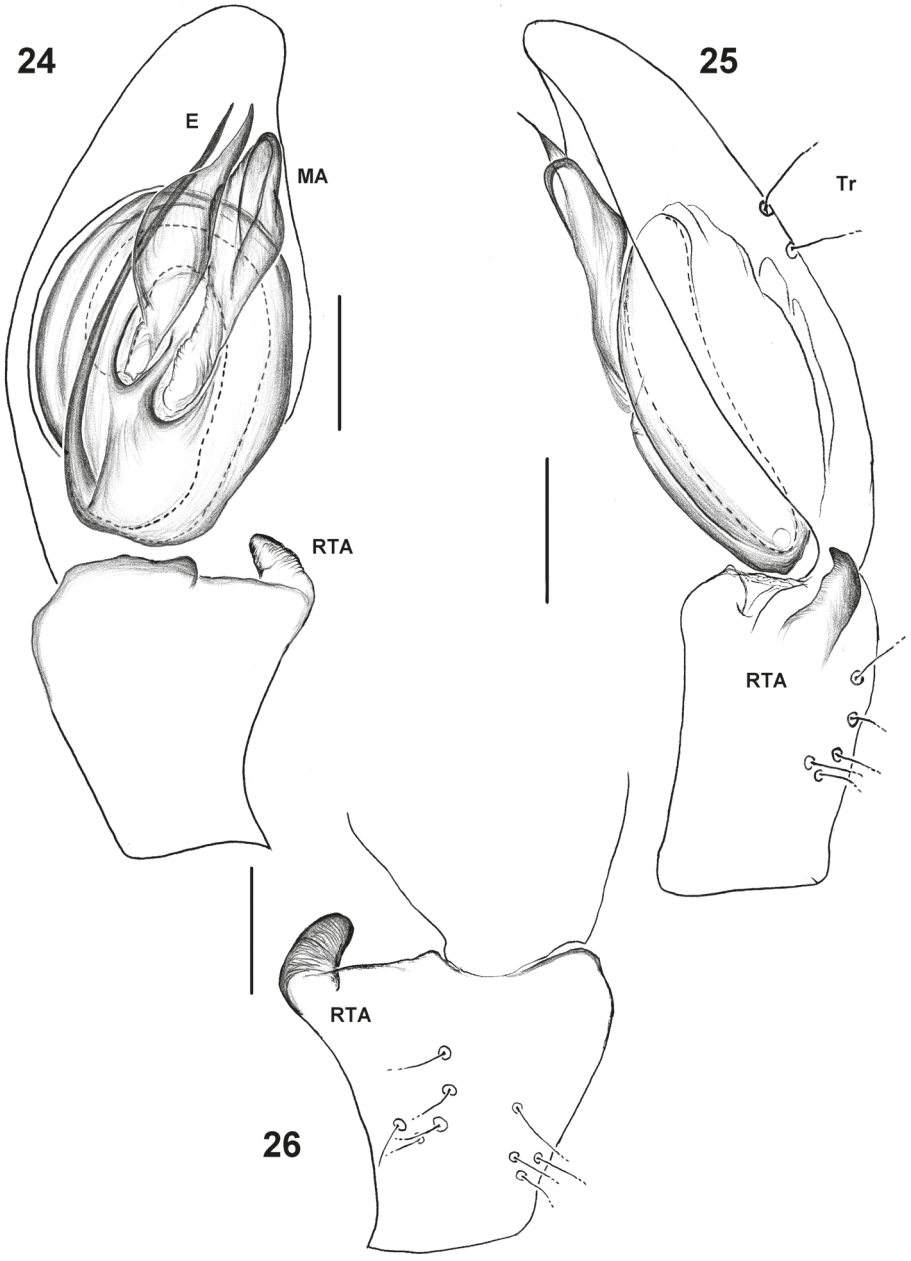
Remarks: This species is considered a *nomen dubium* as no known *Geraesta* or *Stephanopis* species can be unambiguously linked to this name.

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Figs 17–23. *Geraesta octolobata* (Simon, 1886), males from CASENT 9057555 (17, 20–23) and CASENT 9001385 (18, 19): (17, 18, 19) habitus, dorsal; (20–23) left male palp in ventral (20), retrolateral (21), dorsal (22) and prolateral (23) views. Scale bars: (20–23) = 0.2 mm, (18) = 0.5 mm, (17, 19) = 1.0 mm.

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Figs 24–26. *Geraesta octolobata* (Simon, 1886), male from CASENT 9057555, left palp in ventral (24), retrolateral (25) and dorsal (26) views. Abbreviations: C – conductor; E – embolus; MA – median apophysis; RTA – retrolateral tibial apophysis; Tr – trichobothrium. Scale bars = 0.2 mm.

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