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Source: African Invertebrates, 51(2) : 321-384

Published By: KwaZulu-Natal Museum

URL: https://doi.org/10.5733/afin.051.0206

African Invertebrates Vol. 51 (2) Pages 321–384 Pietermaritzburg December, 2010

A revision of the tracheline sac spider genus *Cetonana* Strand, 1929 in the Afrotropical Region, with descriptions of two new genera (Araneae: Corinnidae)

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ABSTRACT

The dark sac spiders of the genus *Cetonana* Strand, 1929 (Corinnidae: Trachelinae) of the Afrotropical Region are revised. Following a detailed comparison of the somatic and genitalic morphology of the Afrotropical *C. martini* (Simon, 1897) with the European type species, *C. laticeps* (Canestrini, 1868), *Afroceto* gen. n. is established to include the transfer of two Afrotropical species previously described in *Cetonana*, namely *A. martini* (Simon, 1897) comb. n. (type species) and *A. coenosa* (Simon, 1897) comb. n. Three species are proposed as junior synonyms of *A. martini*, namely *C. curvipes* (Tucker, 1920) syn. n., *C. tridentata* (Lessert, 1923) syn. n. and *C. simoni* (Lawrence, 1942) syn. n. The type of *C. aculifera* (Strand, 1916) from Madagascar is presumed destroyed and this species is considered *nomen dubium*. Additionally, 12 new *Afroceto* gen. n. species are described from southern Africa, namely *A. arca* sp. n., *A. bulla* sp. n., *A. bisulca* sp. n., *A. capensis* sp. n., *A. corcula* sp. n., *A. croeseri* sp. n., *A. flabella* sp. n., *A. gracilis* sp. n., *A. plana* sp. n., *A. porrecta* sp. n., *A. rotunda* sp. n. and *A. spicula* sp. n. *Afroceto* gen. n. species display variable ecological preferences, occurring in tree canopies, lower foliage strata, bark, and on the ground in contrasting habitats (forests, savannah, grassland, karoo and fynbos) in southern Africa, with single records from Malawi and Tanzania. *Patelloceto* gen. n., closely resembling *Afroceto* gen. n. but distinguished by the reduced leg spination and distinctive genitalic morphology, is also described, with three new species, *P. secutor* sp. n. (type species), *P. denticulata* sp. n. and *P. media* sp. n. from southern, central and east Africa. *Patelloceto* gen. n. species are primarily arboreal, occurring in tree canopies, lower foliage strata or on bark in forests and savannahs.

KEY WORDS: Corinnidae, Trachelinae, *Afroceto*, *Patelloceto*, Afrotropical, distribution, endemic, habitat, new species, new genera.

INTRODUCTION

Recent and ongoing revisions of Afrotropical tracheline sac spiders (Araneae: Corinnidae) have increased our knowledge of regional generic and species diversity (Haddad 2006; Lyle & Haddad 2006, 2009; Haddad & Lyle 2008; Lyle 2008, in press). Presently there are nine genera occurring in the region, namely *Cetonana* Simon, 1874, *Fuchiba* Haddad & Lyle, 2008, *Fuchibotulus* Haddad & Lyle, 2008, *Paccius* Simon, 1898, *Planochelas* Lyle & Haddad, 2009, *Poachelas* Haddad & Lyle, 2008, *Spinotrachelas* Haddad, 2006, *Thysanina* Simon, 1910 and *Trachelas* L. Koch, 1866, of which all but *Cetonana* and *Trachelas* are endemic. Three genera formerly listed under Trachelinae by Dippenaar-Schoeman & Jocqué (1997) were misplaced: *Austrachelas* Lawrence, 1938 was recently transferred to Gallieniellidae; *Brachyphaea* Simon, 1895 belongs to Corinninae; and *Pronophaea* Simon, 1897 can be considered Corinnidae *incertae sedis* (Haddad *et al.* 2009; Haddad & Bosselaers 2010; Jocqué & Bosselaers in press). The unusual genus *Lessertina* Lawrence, 1942, considered by Bosselaers and Jocqué (2000) to be Corinnidae *incertae sedis* and later as a Trachelinae genus (Bosselaers & Jocqué 2002), is here considered Corinnidae *incertae sedis* due to conflicting genitalic morphology with other Trachelinae (particularly a palpal median apophysis and conductor in males) and ambiguity as to the homology of the "ventral cusp" on the anterior metatarsi.

Platnick and Ewing (1995) stated that many New World trachelines had been treated as congeneric with either one of two European trachelines, *Trachelas minor* O.P.-Cambridge, 1872 or *Cetonana laticeps* (Canestrini, 1868), type species of their respective genera. Detailed examination of their somatic and genitalic morphology produced very little evidence to support that the New World trachelines are similar to the European, resulting in the removal of *Meriola* Banks, 1895 as a synonym of *Trachelas* L. Koch, 1872 and the transfer of many Neotropical *Cetonana* species to *Meriola* (Platnick & Ewing 1995). However, the fate of the remaining three Neotropical *Cetonana* species and their relationships to other trachelines (particularly the Afrotropical and Palearctic *Cetonana*) remains unresolved.

This development highlighted the need for a detailed comparison of the Afrotropical *Cetonana* with the type species to resolve their taxonomy. A recent cladistic analysis including *C. laticeps* and *C. martini* (Simon, 1897) from South Africa already provided the first indications that the genus was polyphyletic and may need to be separated into different genera (Haddad *et al.* 2009). In evaluating their morphology, several distinctive differences between *C. laticeps* and *C. martini* were found (Table 1), which ultimately necessitated the establishment of the new genus *Afroceto* gen. n. to accommodate the Afrotropical species. A second new genus, *Patelloceto* gen. n., resembling *Afroceto* gen. n. in somatic morphology, is described to accommodate three Afrotropical species with unusual genitalic morphology and reduced leg spination. Variations in the appearance of ventral cusps between the two new genera further support their establishment. Only males have ventral cusps in *Patelloceto* gen. n., while they are present in both sexes, although not in all females, in *Afroceto* gen. n.

In this paper, *C. coenosa* (Simon, 1897) and *C. martini* are redescribed and transferred to *Afroceto* gen. n., with the latter species designated as the type species of the new genus. *Cetonana curvipes* (Tucker, 1920), *C. tridentata* (Lessert, 1923) and *C. simoni* (Lawrence, 1942) are proposed as junior synonyms of *Afroceto martini* (Simon, 1897) comb. n. after the examination of all holotypes. A further 12 new species are described in the genus. The type material of *C. aculifera* (Strand, 1916), described from Madagascar, could not be traced and is presumed lost or destroyed. Recent collections of large quantities of spiders from Madagascar by several American and European institutions have yielded no fresh material of this species fitting Strand's (1916) description, and as a result this name is considered a *nomen dubium*. A second new genus *Patelloceto* gen. n. is described, with *P. secutor* sp. n. from southern and eastern Africa as the type species. Two additional species are described from central and eastern Africa.

RELATIONSHIPS

To evaluate the relationships of the Afrotropical *Cetonana* with the European type species, *C. laticeps*, we compared the somatic and genitalic morphology of the latter species with two Afrotropical species that were ultimately considered as the type species of the two new genera proposed here, i.e. *Afroceto martini* (Simon, 1897) comb. n. and *Patelloceto secutor* sp. n. (Table 1). For details of the material examined see the species listings below. Figures of the genitalic morphology of *C. laticeps* are given by Grimm (1986).

While there was considerable similarity in several eye characters relating to anterior eye sizes and separations, and MOQ anterior : posterior width ratio, the posterior eye rows showed several differences. The PME of *C. laticeps* are separated by at least 1.3 times their diameter, while those of *A. martini* and *P. secutor* sp. n. are separated by less than their diameter in both sexes. Also, the PME of *C. laticeps* are smaller than the PLE, while *vice versa* applies to *A. martini* and *P. secutor* sp. n. Sclerites associated with the sternum and leg bases are generally similar in the three genera, except for an additional pair of intercoxal sclerites between coxae III and IV found in *P. secutor* sp. n. that are not present in the other two species.

Leg spination and the occurrence of ventral leg cusps have proved useful tools in diagnosing Afrotropical tracheline genera (Haddad 2006; Haddad & Lyle 2008). Leg spines are totally absent in *C. laticeps*, while *A. martini* and *P. secutor* sp. n. have spines at least on femur I and some segments of the posterior legs. *Afroceto* gen. n. and *Patelloceto* gen. n. have scattered leg spines on the anterior femora and posterior tibiae and/or metatarsi, but distinction between the two genera lies in the more numerous, longer and more robust spines of *Afroceto* gen. n. species. The spines of *Patelloceto* gen. n. species are short and fine. There is considerable variation between species in the presence and number of leg spines and cusps in *Afroceto* gen. n., while *Patelloceto* gen. n. are more stable and conservative in these structures.

In *C. laticeps*, ventral leg cusps are found on the anterior metatarsi and tarsi of both sexes; in *A. martini* cusps are additionally found on the anterior tibiae of both sexes, with cusps of females being elongate rather than stout (Figs 23–26), as in males (Figs 29–31). Some *A. martini* females additionally have erect elongate setae in two rows lateral of the cusp rows. However, several *Afroceto* gen. n. species have females lacking cusps while still presenting regular leg spines. In such cases the anterior metatarsi and tarsi are quite densely scopulate ventrally. In contrast, *P. secutor* sp. n. males have short tibial, metatarsal and tarsal cusps on legs I and II (Figs 123–129), all of which are absent in females (Table 1).

Regarding genitalic morphology, each genus can be recognised by characteristic combinations of genitalic characters. Perhaps most distinctive is *Patelloceto* gen. n., whose males have a very large and distinctive retrolateral patellar and dorsal tibial apophysis and a short distal embolus (Figs 130, 133–135); the only other genus to possess such a large tibial apophysis is the South African *Spinotrachelas* Haddad, 2006, which can be separated from *Patelloceto* gen. n. by the many pairs of strong ventral spines on the anterior legs (Haddad 2006; Lyle in press). The male palp of *C. laticeps* has a very strongly curved cymbium that is narrowed distally and a long winding embolus with a sharp tip (Grimm 1986, figs 14a–d), contrasting with the slightly curved cymbium and shorter embolus with a broadened tip seen in *A. martini* (Figs 32, 39). Further, the palpal patella of *C. laticeps* lacks an apophysis, which is found in *A. martini*. Palps of all *Afroceto* gen. n. males have well-developed retrolateral tibial apophyses, and occasionally also a patellar apophysis, though quite variable in size and shape.

The females of *C. laticeps* can be recognised by the posteriorly placed copulatory openings in small epigynal ridges (Grimm 1986, figs 15–17), while *A. martini* has medially placed copulatory openings found within very large broad oval anterior epigynal ridges (Figs 28, 36). Other *Afroceto* gen. n. species have either epigynal ridges (e.g. *A. plana* sp. n. and *A. coenosa*) or epigynal hoods (e.g. *A. arca* sp. n., *A. capensis* sp. n. and *A. rotunda* sp. n.). *Patelloceto* gen. n. females can be easily recognised by the widely

TABLE 1
A comparison of key morphological and genitalic characters of the type species of *Cetonana* Strand, 1929, *Afroceto* gen. n. and *Patelloceto* gen. n. Abbreviations in Material & Methods.

Character	***Cetonana laticeps* (Canestrini, 1868)**	***Afroceto martini* (Simon, 1897)**	***Patelloceto secutor* sp. n.**
Chilum	Single	Single	Single
Setae in eye region	Long, erect	Short and long, erect	Short, lying flat
AME:ALE relative size ♂	AME>ALE	AME>ALE	AME>ALE
AME:ALE relative size ♀	AME>ALE	AME>ALE	AME>ALE
AME separation ♂	0.45× AME diameter	0.46× AME diameter	0.45× AME diameter
AME separation ♀	0.38× AME diameter	0.45× AME diameter	0.44× AME diameter
MOQ relative width ♂	PW = 1.15AW	PW = 1.07AW	PW = 1.11AW
MOQ relative width ♀	PW = 1.10AW	PW = 1.10AW	PW = 1.10AW
PME:PLE relative size ♂	PME<PLE	PME>PLE	PME>PLE
PME:PLE relative size ♀	PME<PLE	PME>PLE	PME>PLE
PME separation ♂	1.47× PME diameter	0.78× PME diameter	0.80× PME diameter
PME separation ♀	1.38× PME diameter	0.70× PME diameter	0.88× PME diameter
Pleural bars	Isolated	Isolated	Isolated
Precoxal triangles	Present	Present	Present
Intercoxal sclerites	Between I&II and II&III	Between I&II and II&III	Between all pairs
Cusps leg I ♂	Mt & Ta, short	Ti, Mt & Ta, short	Ti, Mt & Ta, short
Cusps leg I ♀	Mt & Ta, short	Ti, Mt & Ta, elongate	Absent
Cusps leg II ♂	Mt & Ta, short	Ti, Mt & Ta, short	Ti, Mt & Ta, short
Cusps leg II ♀	Mt & Ta, short	Ti, Mt & Ta, elongate	Absent
Leg spines ♂	Absent	Many, scattered	Few, scattered
Leg spines ♀	Absent	Many, scattered	Few, scattered
Femoral spines ♂	—	Long *pl* 1 on I & II, *pl* 1 *rl* 1 on III & IV	Short *pl* 1 on I–III
Femoral spines ♀	—	Long *pl* 1 on I & II, *pl* 1 *rl* 1 on III & IV	Short *pl* 1 on I
Abdominal scutum ♂	Indistinct	Distinct, entire dorsum	Distinct, entire dorsum
Abdominal scutum ♀	Absent	Distinct, <1/3 abdomen length	Distinct, 1/3 abdomen length
♂ palp patellar apophysis	Absent	Small *do rl*	Very large *rl*, extending past base of cymbium
♂ palp tibial apophysis	Single, elongate, triangular *rl*	Single, short *rl* with three distal denticles	Large sword-like *do*, small finger-like *rl*
♂ tegular apophysis	Present, tooth-like	Distal lobe	Absent
♂ embolus origin	Prolateral distal	Prolateral proximal	Distal retrolateral
♂ embolus shape	Long, wire-like, winding	Long, tapering, winding	Short, spine-like, straight
♂ cymbium shape	Strongly curved ventrally	Slightly curved ventrally	Very slightly curved ventrally
♀ palpal femur	One row long erect setae	One row short erect setae	Two rows short erect setae
♀ copulatory openings	Posteriorly situated	Medially situated	Laterally situated
♀ spermathecae	Close together, medially	Close together, medially	Widely separated, laterally
♀ entrance ducts	Directed anteriorly, spiralling	Directed medially, spiralling	Directed anteriorly, sharply bent
♀ ST1	Small, bilobed	Small, globular	Small, oval
♀ ST2	Large, anterior, oval	Small, anterior, oval	Small, lateral, bilobed
♀ anterior hood (atrium)	Present	Absent	Absent
♀ epigynal hoods	Small	Large, semi-circular	Lateral, elongate

separated small spermathecal structures accompanied by oblique lateral ridges, with a broad membranous median septum separating them (Figs 131, 136).

Even though there is a large degree of variation in genitalic morphology within *Afroceto* gen. n., their larger size, abdominal sclerotisation and presence of high numbers of leg spines, particularly the long, strongly developed prolateral spines on femur I, help separate this genus from the African *Patelloceto* gen. n. and *Thysanina*. Within the Trachelinae, considerable genitalic variation with relatively conservative somatic morphology can also be found in *Thysanina* and *Meriola* Banks, 1895. Whether this genitalic variation can be regarded as adequate justification to establish several new genera to accommodate each genitalic template is certainly debatable, and should be the subject of an extensive cladistic analysis. Considering these factors, it is quite possible that *Afroceto* gen. n., *Thysanina* and *Meriola* may be polyphyletic, as is the case in *Trachelas* (Platnick & Ewing 1995; Bosselaers *et al.* 2009; Haddad *et al.* 2009; Bosselaers & Bosmans 2010).

While it would be ideal to analyze the relationships of *Afroceto* gen. n. and *Patelloceto* gen. n. in the present contribution, we feel that there is too large a diversity of Afrotropical tracheline species (and most likely genera, too) that still need to be described, particularly in *Trachelas* and *Thysanina*. Therefore, any result produced would be too preliminary to account for variations in these genera or effectively identify the characters needed to define the limits of each genus properly. If attempted now, such an analysis would inevitably need to be repeated at a later stage, which could potentially result in an unnecessarily large numbers of taxonomic changes being made to the classification of the Trachelinae. While the tracheline fauna of the other continents has been quite thoroughly treated (with the exception of Australia), we would thus propose that a global-level cladistic analysis be performed once the Afrotropical fauna has been more thoroughly revised.

BIOLOGY

Afroceto gen. n. species have been predominantly captured from the ground surface by pitfall trapping or sifting leaf litter, but are also collected from foliage or beneath loose bark of trees, sometimes occurring in high numbers (Haddad, pers. observ.). Some specimens of *A. arca* sp. n. have been collected from abandoned *Trinervitermes trinervoides* (Sjöstedt, 1911) termite mounds (Haddad & Dippenaar-Schoeman 2006*a*), while *A. plana* sp. n. was one of the most abundant spiders associated with the bark of *Acacia xanthophloea* trees at Ndumo Game Reserve in South Africa (Haddad, unpubl.). Egg sacs are constructed underneath bark and under stones or logs, and measure 4.0–5.0 mm in diameter. *Afroceto* gen. n. species have been collected in South Africa from all the major biome types, namely savannah, grassland, forest, fynbos and karoo (Foord *et al.* 2002, 2008; Dippenaar-Schoeman *et al.* 2005*a*; Haddad & Dippenaar-Schoeman 2006*a*, 2009; Haddad *et al.* 2006; Dippenaar *et al.* 2008), and are occasionally collected in agroecosystems during long-term surveys, although usually not in large numbers (Dippenaar-Schoeman *et al.* 2005*b*; Haddad *et al.* 2005; Haddad & Dippenaar-Schoeman 2006*b*). Only three species, *A. martini*, *A. arca* sp. n. and *A. plana* sp. n., are widespread and occur in several different biomes: *A. martini* and *A. plana* sp. n. occur primarily in higher rainfall regions and are known from forest, savannah, grassland and fynbos habitats, while *A. arca* sp. n. is mainly distributed in lower rainfall semi-arid and arid habitats (grassland, Nama karoo and succulent karoo). The remaining species have smaller distribution ranges and are restricted to one or two biome types. The greatest endemism levels are in the fynbos, Nama karoo and succulent karoo biomes of southern and western South Africa.

Only three species are not endemic to South Africa (including Lesotho): there is a single record of *A. arca* sp. n. from Namibia, a single record of *A. martini* from Tanzania and one record of *A. plana* sp. n. from Malawi. These outlying records suggest that the genus could at least also occur in Botswana, Mozambique, Swaziland and Zimbabwe.

Patelloceto gen. n. species are presently known from limited records in savannah and forest habitats in the east of the continent (e.g. Haddad *et al.* 2006, 2010 as *Cetonana* sp.). These spiders are primarily arboreal and have been collected by beating, under bark or by canopy fogging. *Patelloceto secutor* sp. n. was often collected from bark of *Acacia xanthophloea* trees and by canopy fogging at Ndumo Game Reserve (Haddad, unpubl.) but was considerably less abundant than *A. plana* sp. n. in both. Both genera have been collected frequently by canopy fogging in South Africa, although they are not very abundant, while *Patelloceto* gen. n. was occasionally collected by canopy fogging in Kenya, Uganda and Tanzania.

MATERIAL AND METHODS

All specimens were preserved and examined in 70 % ethanol, and were observed for description using a light microscope. The epigynes of female paratypes were dissected with 0-size insect pins and cleared for eight minutes in a Branson 3200 ultrasonic bath, after which they were drawn in 70 % ethanol. A left palp of a male paratype was dissected and drawn for each species, where possible.

All measurements are given in millimetres (mm). Body measurements (excluding legs) were determined from the smallest and largest specimens of both sexes to provide a size range. Eye and leg measurements are given for the largest specimen of each sex. Leg spination follows the format of Bosselaers and Jocqué (2000). Eye arrangements are described for the anterior view of the anterior eye row and the dorsal view of the posterior eye row. Descriptions are provided for the type species first, followed by other species in alphabetical order.

The following abbreviations are used in the descriptions:

AER – anterior eye row
AL – abdomen length
ALE – anterior lateral eye
AME – anterior median eye
AW – abdomen width
CL – carapace length
CW – carapace width
do – dorsal
FL – fovea length
MOQ – median ocular quadrangle
PER – posterior eye row
pl – prolateral
PLE – posterior lateral eye
plv – prolateral ventral
PME – posterior median eye
rl – retrolateral
rlv – retrolateral ventral
SL – sternum length
ST – spermatheca
SW – sternum width
TL – total length
vt – ventral terminal

Material for scanning electron microscopy (*A. martini*, *A. plana* sp. n. and *P. secutor* sp. n.) was dehydrated in a graded ethanol series and then critical point dried in an argon chamber. Specimens were mounted onto stubs, sputter coated five times with gold, and then studied using a JEOL WinSEM 6400 at 10 kV. Digitised micrographs were taken. Digital photographs of males and/or females of each species were taken using a Nikon Coolpix 8400 mounted on a Nikon SMZ800 stereomicroscope. The extended focal range images were stacked using CombineZM software (http://www.hadleyweb.pwp.blueyonder.co.uk) to increase depth of field.

Material used in this study was obtained from the following collections (curators are named in parentheses). Locality co-ordinates were provided when available.

AMG – Albany Museum, Grahamstown, South Africa (A. Kirk-Spriggs);
AMNH – American Museum of Natural History, New York, USA (N. Platnick);
BMNH – Natural History Museum, London, UK (J. Beccaloni);
CASC – California Academy of Sciences, San Francisco, USA (C. Griswold);
MHNG – Muséum d'Histoire Naturelle de la Ville de Genéve, Geneva, Switzerland (P. Schwendinger);
MNHN – Muséum National d'Histoire Naturelle, Paris, France (C. Rollard);
MRAC – Royal Museum for Central Africa, Tervuren, Belgium (R. Jocqué);
NCA – National Collection of Arachnida, ARC-Plant Protection Research Institute, Pretoria, South Africa (A. Dippenaar-Schoeman);
NMBA – National Museum, Bloemfontein, South Africa (L. Lotz);
NMSA – Natal Museum, Pietermaritzburg, South Africa (A. Ndaba);
PCJB – Personal collection of Jan Bosselaers;
SAMC – Iziko South African Museum, Cape Town, South Africa (M. Cochrane);
SMF – Naturmuseum und Forschungsinstitut Senckenberg, Frankfurt am Main, Germany (P. Jäger);
TMSA – Ditsong National Museum of Natural History (former Transvaal Museum), Pretoria, South Africa (R. Lyle).

TAXONOMY

Genus *Cetonana* Strand, 1929

Ceto Simon, 1874: 238; Grimm 1986: 10; Paik 1991: 263; Dippenaar-Schoeman & Jocqué 1997: 128.
Cetonana Strand, 1929 (replacement name); Platnick & Ewing 1995: 2; Platnick 2010.
Cetonana Mello-Leitão, 1941: Brignoli 1983: 556 [*lapsus!*].

Type species: *Drassus laticeps* Canestrini, 1868.

Diagnosis (after Grimm 1986 and Bosselaers *et al.* 2009): *Cetonana* can be recognised by the following combination of characters: the presence of ventral leg cusps on metatarsi and tarsi I and II of both sexes (absent from tibiae of both sexes); scopulate metatarsi and tarsi I and II of females comprising erectile bristles; the absence of leg spines; flat carapace; AME that are clearly larger than the other eyes; PME that are smaller than the PLE; female epigyne with posterior copulatory openings; and male palp with strongly ventrally curved cymbium and a tegulum occupying only part of the ventral side of the cymbium.

Species included: *C. laticeps*, *C. lineolata* Mello-Leitão, 1941, *C. orientalis* (Schenkel, 1936), *C. petrunkevitchi* Mello-Leitão, 1945 and *C. setosa* (Simon, 1897).

Afrotropical species transferred to other genera: *Afroceto coenosa* (Simon, 1897) comb. n.; *A. martini* (Simon, 1897) comb. n. (= *C. curvipes* (Tucker, 1920) syn. n., = *C. tridentata* (Lessert, 1923) syn. n., = *C. simoni* (Lawrence, 1942) syn. n.).

Afrotropical species considered *nomen dubium*: *C. aculifera* (Strand, 1916).

Cetonana laticeps (Canestrini, 1874)

For complete bibliography see Platnick (2010).

Material examined: SPAIN: 1♂ 1♀ Girona Province, Baix Empordà, Els Angels, 485 m, J. Bosselaers, sifting litter in corkoak wood (PCJB). GERMANY: 2♀ Baden-Württemberg, Tübingen (SMF, 20270).

Cetonana aculifera (Strand, 1916)

Ceto aculifera Strand, 1916: 74.

This species was described from Madagascar on the basis of a single female. The type specimen was presumably lost or destroyed during World War II, and the original description is inadequate for the identification of the species. Despite considerable efforts to generate spider material in Madagascar during recent decades, no fresh tracheline specimens could be found in the California Academy of Sciences, Royal Museum for Central Africa, Museum of Comparative Zoology, Smithsonian Institute or American Museum of Natural History fitting Strand's (1916) description, and as a result this name is considered a *nomen dubium*.

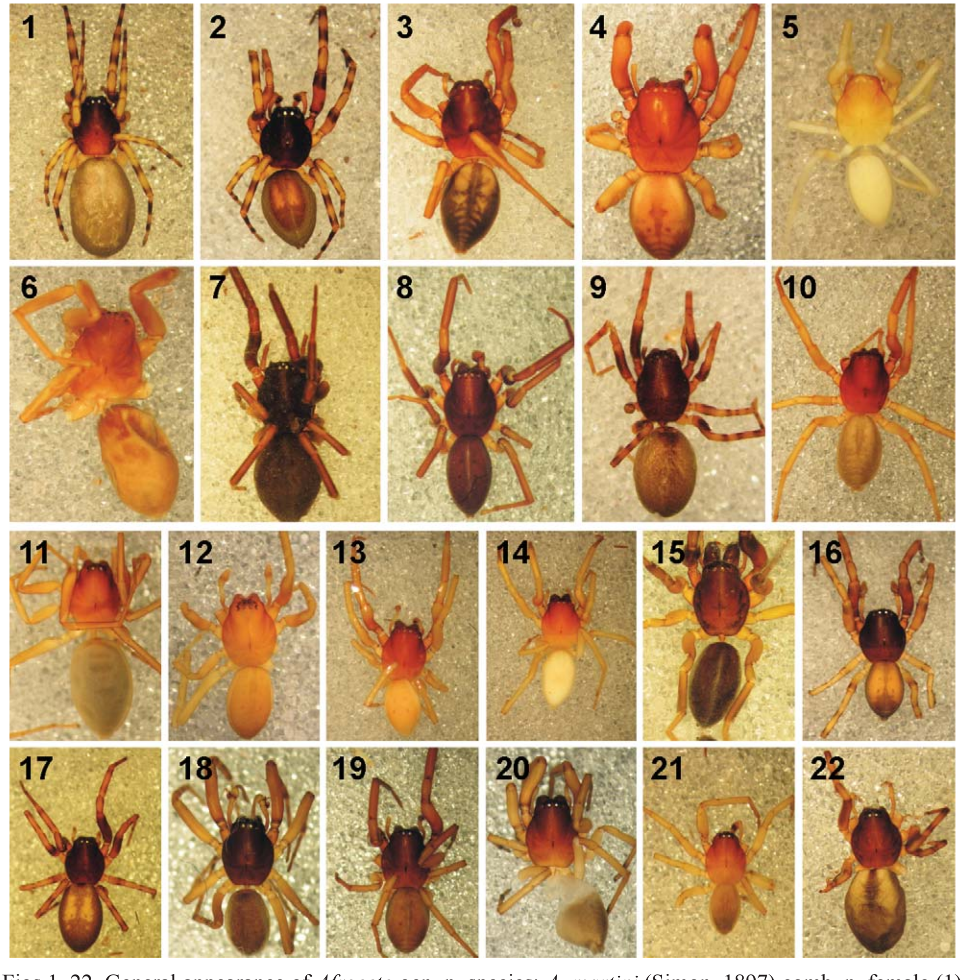
Genus **Afroceto** gen. n.

Etymology: The generic name is a combination of the prefix afro-, indicating the Afrotropical Region where the genus is found, and the suffix from *Cetonana*, to which this genus is closely related. Gender feminine.

Type species: *Cetonana martini* (Simon, 1897).

Diagnosis: The genus *Afroceto* gen. n. differs from other closely related genera, such as *Cetonana*, *Patelloceto* gen. n., *Thysanina* Simon, 1910 and *Trachelas*, in several respects. The most noticeable characteristics are their generally larger size and the presence of leg spines, of which the most diagnostic are one to four strong prolateral leg spines on the femora of leg I. The aforementioned genera lack leg spines with the exception of *Patelloceto* gen. n. and two *Thysanina* species, in which single fine spines are found on the femora, and isolated fine spines on the tibiae and metatarsi of the posterior legs (see below and Lyle & Haddad 2006). The posterior legs of *Afroceto* gen. n. usually have several spines scattered on the femora, tibiae and metatarsi. Ventral cusps are found on the anterior tibiae, metatarsi and tarsi of legs I and II in all males and in some females; in females without cusps the anterior metatarsi and tarsi are densely scopulate. Variation in cusp shape can be seen within species: tibial cusps are usually elongate with a rounded point and are slightly constricted at the base, while other cusps are often peg-like with a rounded point and flattened at the base (Figs 26, 83, 89). Males of *Afroceto* gen. n. have a well-developed dorsal abdominal scutum covering nearly the entire abdomen, in females extending up to 1/3 the abdomen length, or absent (Figs 1–22); dorsal abdominal scuta are absent in *Thysanina*, indistinct in male *Cetonana* and absent in their females, and often absent in *Trachelas*. Abdominal sclerotisation is similar to *Patelloceto* gen. n.

Description: Medium to large spiders, 3.4–8.1 mm in length; male smaller, with legs and abdomen thicker, more robust than female. Carapace slightly dorsoventrally flattened, highest immediately posterior to eye region; ocular region narrowest; carapace broader medially, concave posteriorly; carapace bright orange to dark red-brown, paler posterior to fovea (Figs 1–22); carapace covered in fine setae; fovea short, distinct, slightly thickened; ocular region darkened with dark rings around eyes. Anterior eye row nearly straight, either slightly procurved or recurved; posterior eye row slightly recurved (Fig. 81). Chelicerae usually with two or three promarginal teeth and two retromarginal teeth; labium usually longer than broad; endites straight along lateral margin; serulla distinct. Sternum shield-shaped (Fig. 82), longer than broad; short and long fine setae scattered across smooth surface; colouration pale brown to orange, darker towards border. Legs with paired tarsal claws situated in dense claw tuft; ventral cusps (Fig. 23) present on anterior tibiae, metatarsi and tarsi of males, sometimes present in females (*A. martini*,



Figs 1–22. General appearance of *Afroceto* gen. n. species: *A. martini* (Simon, 1897) comb. n. female (1) and male (2); *A. arca* sp. n. female (3) and male (4); *A. bulla* sp. n. female (5); *A. bisulca* male (6); *A. capensis* sp. n. female (7) and male (8); *A. coenosa* (Simon, 1897) comb. n. female (9); *A. corcula* sp. n. female (10); *A. croeseri* sp. n. female (11) and male (12); *A. flabella* sp. n. male (13) and female (14); *A. gracilis* sp. n. male (15); *A. plana* sp. n. male (16) and female (17); *A. porrecta* sp. n. male (18); *A. rotunda* sp. n. male (19) and female (20); *A. spicula* sp. n. male (21) and female (22).

A. corcula sp. n. and *A. plana* sp. n.); in other females anterior metatarsi and tarsi densely scopulate ventrally; long erect setae sometimes found on tibiae of anterior legs (Fig. 91); cusps varying in shape, either elongate with rounded point and tapered at base (Fig. 26), or peg-like with rounded point and tapered at base (Fig. 89); situated in deep sockets (Fig. 27); cusp arrangement differs among species and individuals; leg spines present, one to four strong prolateral spines on femur I, sometimes also on other femora; posterior legs with scattered spines on most segments; legs I to IV generally pale yellow to light brown, many species with grey bands on most leg segments. Abdomen broad anteriorly, broadest medially, tapering posteriorly; integument pale yellow to dark grey, with paired sigilla; some species with grey chevron or other dorsal abdominal markings (Figs 1–22); dorsal scutum present in males, usually absent in females. Female with paired copulatory openings in weakly sclerotised epigyne, often with uniquely shaped anterior epigynal hood and lateral epigynal ridges (Fig. 28); vulva with variable entrance ducts, ST II (spermathecae linked to entrance ducts) usually anteriorly located, and ST I (spermathecae linked to ST II and fertilisation ducts) smaller, posteriorly placed. Male palps with considerable variations in size and structure of tibial apophyses, and structure, length and origin of embolus (Figs 32, 87); patellar apophysis rarely present.

Species included: *A. arca* sp. n., *A. bulla* sp. n., *A. bisulca* sp. n., *A. capensis* sp. n., *A. coenosa* (Simon, 1897) comb. n. (ex *Cetonana*), *A. corcula* sp. n., *A. croeseri* sp. n., *A. flabella* sp. n., *A. gracilis* sp. n., *A. martini* (Simon, 1897) comb. n. (ex *Cetonana*), *A. plana* sp. n., *A. porrecta* sp. n., *A. rotunda* sp. n. and *A. spicula* sp. n.

Key to the species of *Afroceto* gen. n.

1 Males (♂♂ of *A. bulla* sp. n., *A. coenosa* (Simon) and *A. corcula* sp. n. unknown) 2

– Females (♀♀ of *A. bisulca* sp. n., *A. gracilis* sp. n. and *A. porrecta* sp. n. unknown) 12

2 Retrolateral patellar apophysis present 3

– Retrolateral patellar apophysis absent....................5

3 Embolus curving transversely, ending in sharp point; tibial apophysis simple, triangular, with sharp point, situated dorsally; distal spines on cymbium absent (Figs 112, 113) .... **spicula** sp. n.

– Embolus orientated obliquely for much of its length, distal section curved, ending in swollen, fist-like point; tibial apophysis complex, situated retrolaterally, broader distally than at base in lateral view, with one or three excrescences (Figs 40, 98); cymbium with two distal spines (Fig. 39)....................4

4 Embolus curving prolaterally after emerging from beneath tegulum, tip directed retrolaterally, ending close to distal tip of cymbium (Fig. 39); retrolateral tibial apophysis in lateral view with three excrescences (Figs 40, 41) .... **martini** (Simon)

– Embolus directed distally after emerging from beneath tegulum, tip close to retrolateral margin of cymbium (Fig. 97); retrolateral tibial apophysis in lateral view broad and flat, with dorsally directed tooth-like excrescence (Fig. 98) .... **plana** sp. n.

5 Embolus very broad and tongue-shaped, projecting ventrally; retrolateral tibial apophysis in lateral view with single base split into two tooth-like projections, ventral one rounded and directed anteriorly, dorsal one directed dorsally (Fig. 53)........... **bisulca** sp. n.

– Embolus narrower with distinct curvature, varying in length; retrolateral apophysis simple or comprising two distinctly separated apophyses 6

6 Embolus originating prolaterally, directed transversely across cymbium, with nearly parallel sides and flattened tip near retrolateral margin (Fig. 73) ......**flabella** sp. n.

– Embolus shaped otherwise 7

7 Cymbium strongly curved ventrally, post-tegular section narrow, twice as long as tegulum, accompanied by very long fine tapering retrolateral embolus; palpal tibia with two retrolateral apophyses, ventral one small and triangular, dorsal one angled slightly dorsally and twice as long (Figs 103, 104) ....**porrecta** sp. n.

– Cymbium only slightly curved, post-tegular section less than tegular length, embolus position variable; palpal tibia with single apophysis 8

8 Tegulum with large, curved, tapering prolateral distal extension containing part of sperm ducts; embolus originating prolaterally, curving beneath tegular extension, emerging retrolaterally and curving towards tip of cymbium along retrolateral margin (Fig. 60); retrolateral tibial apophysis parallel sided, directed dorsally, ending in two sharp points (Fig. 61) ....**capensis** sp. n.

Tegulum without tegular extension; embolus originating prolaterally or distally, coiled or tapering distally to sharp point; retrolateral tibial apophysis triangular, tapering to point distally 9

9 Embolus coiled, tip directed distally 10

– Embolus slender, ending in sharp point directed obliquely towards retrolateral margin 11

10 Tibial apophysis situated retrolaterally, subtriangular, broadest medially, gradually tapering to tip (Fig. 46); embolus originating prolaterally, with broad coiled base; tip pointed and located medially near cymbium tip (Figs 47, 49); tibiae I and II with prolateral cusps only (Fig. 45) ....**arca** sp. n.

– Tibial apophysis situated dorsally (Fig. 71), triangular, with sharp tip; embolus originating retrolaterally distally, with narrow coiled base and curved, parallel sided distal section; tip broad and serrated, located near prolateral margin of cymbium (Fig. 70); tibiae I and II with prolateral and retrolateral cusps (Fig. 71) .....**croeseri** sp. n.

11 Tegular sperm duct with sharp proximal and retrolateral loops; cymbium without *plv* distal spine (Fig. 78)...**gracilis** sp. n.

– Tegular sperm duct U-shaped, with broad proximal loop and no distal loop; cymbium with single *plv* distal spine (Fig. 107) .... **rotunda** sp. n.

12 Epigyne with anterior hood present 13

– Epigyne with anterior hood absent...17

13 Anterior hood arch-shaped or round (e.g. Fig. 43) 14

– Anterior hood with distinctive median projection (e.g. Fig. 57)..........................16

14 Anterior hood with lateral extensions extending to copulatory openings (Fig. 75); ST I projecting laterally beyond outer margin of ST II; spermathecae separated by distance less than their length; ST I not linked by narrow transverse tube 15

– Anterior hood not extending to copulatory openings (Fig. 43); ST I and ST II outer margin in same plane; spermathecae widely separated, by distance approximately equal to their length; ST I linked by narrow transverse tube (Fig. 44) ...**arca** sp. n.

15 Anterior margin of anterior hood subtriangular, expanded anteriorly; ST I expanded laterally, much larger than ST II (Fig. 75)..**flabella** sp. n.

– Anterior margin of anterior hood evenly thick, not expanded anteriorly; ST I and ST II equal in size (Fig. 109) .... **rotunda** sp. n.

16 Anterior hood with lateral extensions leading to copulatory openings (Fig. 65); ST I and ST II spherical (Fig. 66); anterior legs with ventral cusps on metatarsi and tarsi (Fig. 64)...**corcula** sp. n.

– Anterior hood without lateral extensions (Fig. 56); ST II oval, situated laterally, ST I subtriangular, with small posterior lobe (Fig. 58); anterior legs without ventral cusps...**capensis** sp. n.

17 Anterior legs with cusps present on tibiae, metatarsi and tarsi (Figs 35, 99) 18

– Anterior legs without ventral cusps 19

18 Tip of ST II extending beyond anterior margin of epigyne (Fig. 100); copulatory ducts simple, directed anteriorly to small ST II, with broad duct leading to posteriorly situated spherical ST I (Fig. 101)...**plana** sp. n.

– Tip of ST II not extending beyond anterior margin of epigyne (Fig. 36); copulatory ducts compactly coiled to small ST II, with narrow duct leading to bilobed posteriorly situated ST I (Fig. 37) ....**martini** (Simon)

19 Copulatory ducts and anterior region of ST II coiled (Fig. 115); ST I widely separated, spherical, at epigastric fold (Figs 114–116) .... **spicula** sp. n.

– Copulatory ducts curved but not coiled, ST II oval (e.g. Fig. 54); ST I close together, sometimes at epigastric fold, shape variable...20

20 Posterior section of spermathecae converging medially to epigastric fold; lateral ridges absent; ST II clearly separated (Fig. 54) .... **bulla** sp. n.

– Posterior section of spermathecae diverging, ending broadly at epigastric fold (Fig. 62); epigyne with lateral ridges; ST II nearly touching 21

21 Epigyne with distinct oval lateral ridges anteriorly, leading to median copulatory openings, placed in anterior half of epigyne (Fig. 62); femur I and metatarsus IV with single leg spine, remaining leg segments spineless .... **coenosa** (Simon)

– Epigyne without lateral ridges, copulatory openings situated medially in posterior half of epigyne (Fig. 68); femora I–IV, and tibiae and metatarsi III and IV, with leg spines.. **croeseri** sp. n.

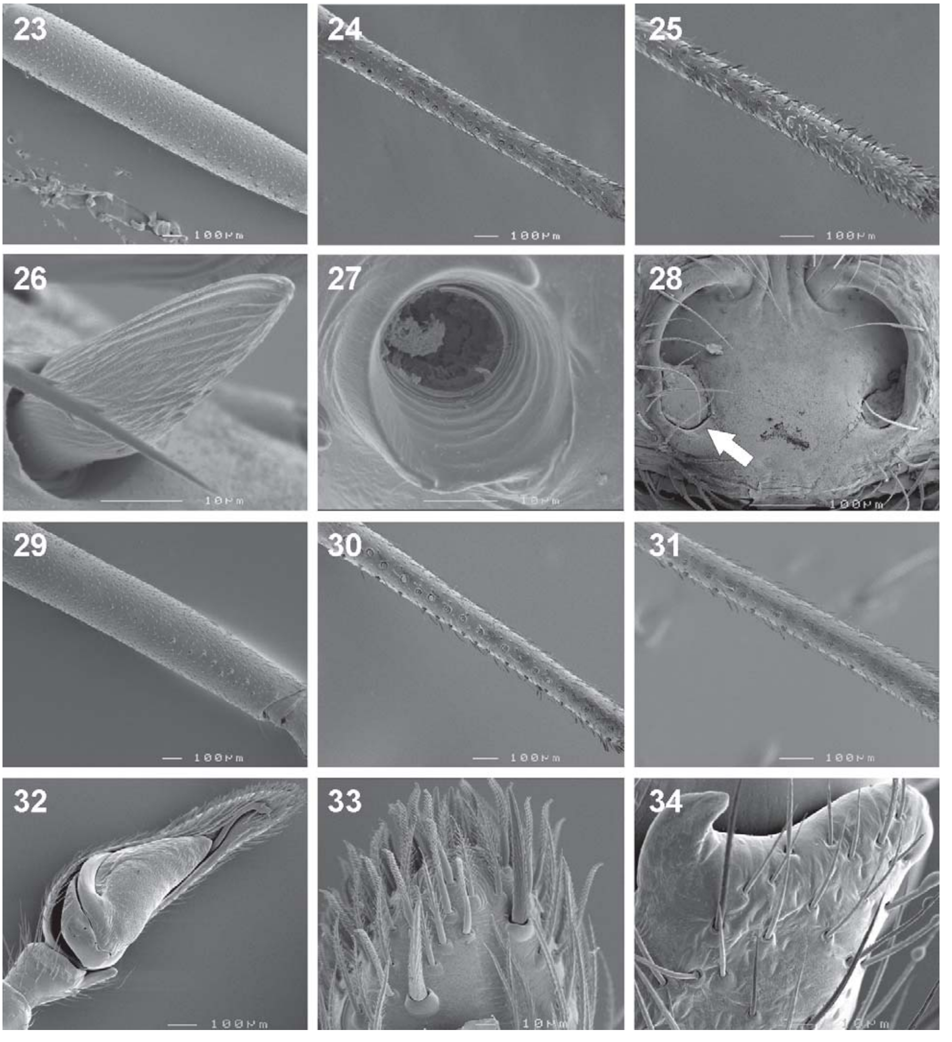
Afroceto martini (Simon, 1897), **comb. n.**

Figs 1, 2, 23–41

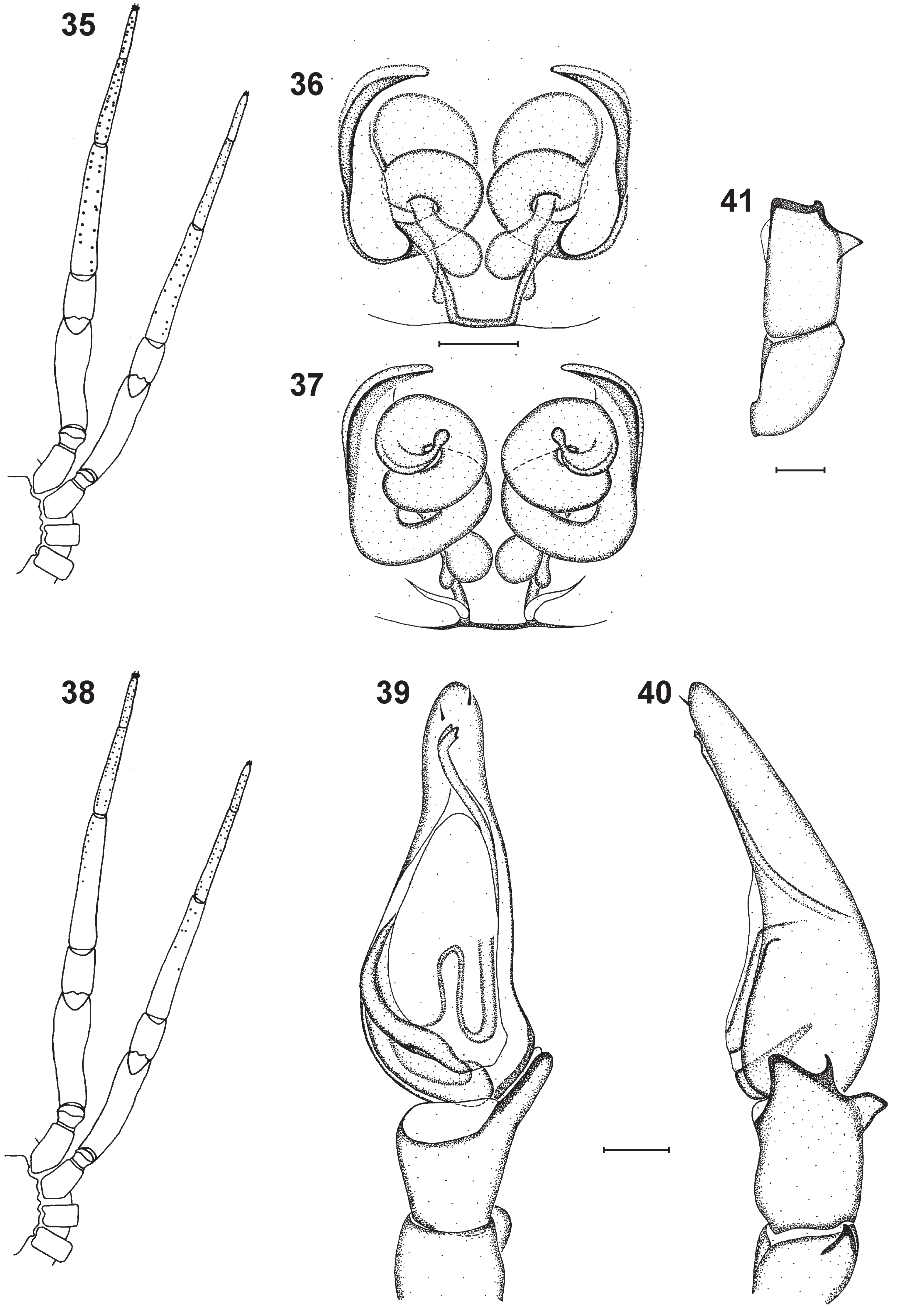
Ceto martini: Simon 1897*a*: 509; 1897*b*: 179, fig. 184.
Ceto curvipes Tucker, 1920: 480, pl. 29, fig. 18. **Syn. n.**
Ceto tridentata Lessert, 1923: 200, figs 50, 51. **Syn. n.**
Ceto simoni Lawrence, 1942: 172, fig. 22. **Syn. n.**
Cetonana martini: Bosselaers & Jocqué 2002: 250, figs 3a, 4e.

Diagnosis: The female can be recognised by the coiled copulatory ducts, which are initially directed medially (Fig. 36) and are covered by long curved lateral epigynal ridges. The male can be recognised by the palp, which has a broad tibial apophysis with three distal excrescences, and the embolus that curves prolaterally after emerging from beneath the tegulum, ending in a fist-like tip (Fig. 39).

Remarks: Examination of the type material of *C. martini* (holotype female, and male and female syntypes), *C. curvipes* (holotype male), *C. tridentata* (holotype male) and *C. simoni* (holotype female) indicated several key similarities in somatic and genitalic morphology. Females share the same epigyne structure, particularly the shape of the epigynal ridges, and orientation of the copulatory openings and coiled entrance ducts.



Figs 23–34. Scanning electron micrographs of *Afroceto martini* (Simon, 1897) comb. n. female (23–28) and male (29–34): (23, 29) tibia I, cusp arrangement; (24, 30) metatarsus I, cusp arrangement; (25, 31) tarsus I, cusp arrangement; (26) individual cusp of tibia II; (27) cusp socket; (28) epigyne, ventral view, arrow indicating seminal plug blocking copulatory opening; (32) left palp, ventral view; (33) distal end of male cymbium, with two strong spines; (34) right palp, hook-like median excrescence on the tibial apophysis.



Figs 35–41. *Afroceto martini* (Simon, 1897) comb. n. female (35–37) and male (38–41): (35, 38) schematic representation of cusp arrangement on legs I and II; (36) epigyne, ventral view; (37) vulva, dorsal view; (39) left palp, ventral view; (40) left palp, retrolateral view; (41) left palp, variation in retrolateral tibial apophysis, retrolateral view. Scale bars (36, 37, 39–41) = 0.1 mm.

Males share similar palpal structures, particularly the embolus partially obscured by the tegulum, orientation of the distal end of the embolus and structure of the retrolateral tibial apophysis. We therefore propose the synonymy of *C. curvipes* syn. n., *C. tridentata* syn. n. and *C. simoni* syn. n. with *A. martini* comb. n. Although a male specimen is amongst the type series, it was never described by Simon (1897*a*).

Redescription:

Female.

Measurements: CL 2.40–2.90, CW 2.05–2.33, AL 2.40–4.60, AW 1.48–2.80, TL 4.80–7.60, FL 0.15–0.23, SL 1.40–1.73, SW 1.20–1.38, AME–AME 0.10, AME–ALE 0.05, ALE–ALE 0.53, PME–PME 0.20, PME–PLE 0.16, PLE–PLE 0.80. Length of leg segments (sequence from femur to tarsus, and total): I 2.30+1.00+1.88+1.73+1.18=8.09; II 2.25+1.00+1.70+1.65+1.00=7.60; III 1.73+0.80+1.23+1.55+0.65=5.96; IV 2.30+1.05+2.20+1.60+0.85=8.00.

Carapace reddish brown (Fig. 1); first two thirds of carapace gradually rounded with highest point in first third, last third with relatively steep decline; surface smooth, with short, distinct, slightly thickened fovea at two thirds CL. Ocular region reddish brown to dark brown with dark brown, almost black, rings around eyes; AER slightly procurved, AME larger than ALE; clypeus height equal to 0.8 AME diameter; AME separated by distance equal to 0.4 diameter; AME separated from ALE by approx. 0.4 AME diameter; PER very slightly procurved, almost straight, PME larger than PLE; PME separated by distance equal to 1.2 their diameter; PME separated from PLE by 1.2 PME diameter. Chelicerae brown, orange towards fang base; anterior surface covered in pale, fine setae; fangs orange, paler at tips; two promarginal teeth, proximal tooth largest; two retromarginal teeth, proximal tooth largest. Sternum light brown, darker towards borders; surface smooth covered in fine setae. Abdomen cream with brown mottling dorsally; some specimens with grey chevron markings; broader anteriorly, tapering posteriorly; scutum small, covering less then one quarter abdomen length; venter pale grey, covered in fine setae. Legs I to IV uniform brown to pale yellow; some specimens with incomplete grey bands on all legs; anterior leg pairs more robust than posteriors; moderately dense scopulae on metatarsi and tarsi, remaining leg segments covered in fine, less dense setae; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1 *rl* 1, IV *pl* 1 *rl* 1; patellae spineless; tibiae: I *plv* 8–10 *rlv* 8–10 cusps, II *plv* 3–8 *rlv* 5–11 cusps, III *pl* 1, IV *plv* 3 *vt* 2; metatarsi: I *plv* 15 *rlv* 13 cusps, II *plv* 13 *rlv* 10 cusps, III *pl* 1 *rl* 1 *plv* 1, IV *plv* 1 *vt* 2; tarsi: I *plv* 8–10 *rlv* 7–8 cusps, II *plv* 6–9 *rlv* 6–8 cusps (Figs 23–27, 35). Epigyne with curved lateral epigynal ridges, with large copulatory openings close to lateral ridges (Figs 28, 36); entrance ducts forming two-fold coil before extending towards oval anterior ST II, with narrow tube leading to posterior globular ST I (Fig. 37).

Description:

Male.

Measurements: CL 1.84–3.50, CW 1.65–3.00, AL 1.68–3.90, AW 1.29–2.13, TL 3.68–7.20, FL 0.18–0.25, SL 1.20–1.88, SW 1.08–1.73, AME–AME 0.13, AME–ALE 0.08, ALE–ALE 0.65, PME–PME 0.23, PME–PLE 0.23, PLE–PLE 1.23. Length of leg segments (sequence from femur to tarsus, and total): I 3.20+6.10+2.75+2.45+1.63=16.13; II 2.90+1.38+2.50+2.45+1.55=10.78; III 2.20+1.10+1.60+2.10+0.90=7.90; IV 0.80+1.25+2.60+3.40+1.18=9.23.

Carapace reddish brown (Fig. 2); first two thirds of carapace gradually rounded with highest point in first third, last third with relatively steep decline; surface slightly granular, with short, distinct, slightly thickened fovea at two thirds CL. Ocular region reddish brown with darkened, almost black rings around eyes; AER very slightly procurved, AME larger than ALE; clypeus height equal to 0.7 AME diameter; AME separated by approx. 0.4 diameter; AME separated from ALE by approx. 0.15 AME diameter; PER very slightly procurved, almost straight, PME larger than PLE; PME separated by approx. 1.2 diameter; PME separated from PLE by distance approx. equal to PME diameter. Chelicerae brown, orange towards fang base; anterior surface covered in fine, light setae; fangs orange, paler at tips; three promarginal teeth, median tooth largest, proximal tooth smallest; two retromarginal teeth, proximal tooth largest. Sternum orange, brown towards borders; surface smooth, covered in fine setae. Abdomen cream with brown mottling dorsally; some specimens with grey chevron markings; abdomen broader anteriorly, tapering posteriorly; scutum broad, covering three quarters of dorsum; venter cream, covered in short fine setae. Legs I to IV uniform brown to pale yellow; some specimens with incomplete grey band arrangement on all legs; anterior leg pairs more robust than posteriors; slightly dense scopulae on metatarsi and tarsi, remaining leg segments covered in fine, less dense setae; leg spines and cusps present. Leg spination: femora: I *pl* 1–4, II *pl* 1, III *pl* 1, IV *pl* 1; patellae spineless; tibiae: I *plv* 7–9 *rlv* 0–3 cusps, II *plv* 4–10 *rlv* 0–2 cusps, III *pl* 1 *rl* 1 *plv* 2 *rlv* 1, IV *pl* 1 *rl* 2 *plv* 1 *vt* 2; metatarsi: I *plv* 15 *rlv* 10–11 *vt* 2 cusps, II *plv* 6–13 *rlv* 10 cusps, III *pl* 1 *rl* 1 *plv* 2 *rlv* 1, IV *pl* 1 *rl* 1 *plv* 2; tarsi: I *plv* 6–9 *rlv* 4–7 cusps, II *plv* 4–6 *rlv* 2–7 cusps (Figs 29–31, 38). Palp with embolus originating prolaterally, partly hidden by tegulum, directed prolaterally then retrolaterally after emergence from beneath tegulum (Figs 32, 39); two small strong spines situated prolaterally and retrolaterally on distal end of cymbium (Fig. 33); tibia with three retrolateral apophyses, dorsal and ventral apophyses triangular, median apophysis curving ventrally (Figs 34, 40), with some variation in sharpness of curved tip (Fig. 41); patellar apophysis small, triangular (Fig. 40).

Lectotype (here designated) ♀ and paralectotypes 2♀ 1♂ and 1 imm. (examined): SOUTH AFRICA: Natal (no specific locality), C. Martin (MNHN, 9232). Note: The lectotype has been designated here to preserve the current concept of the species.

Type material of new synonyms (examined):
Cetonana curvipes (Tucker, 1920). Holotype ♂ SOUTH AFRICA: *Western Cape*: Groot Wintershoek Mts, 4200–4700 ft, 19.xi.1915, R.W. Tucker (SAMC, B2742).
Cetonana tridentata (Lessert, 1923). Holotype ♂ SOUTH AFRICA: *KwaZulu-Natal*: Umbilo, Bevis (MNHG).
Cetonana simoni (Lawrence, 1942). Holotype ♀ SOUTH AFRICA: *KwaZulu-Natal*: Umhlali, Sheffield Beach, ii.1940, R.F. Lawrence (NMSA, 2983).

Other material examined: LESOTHO: 2♂ 1 juv. Qachas Nek, 30°06.549'S:28°41.068'E, 1833 m, 8.xi.2003, C. Haddad, bluegum bark (NCA, 2006/1546). SOUTH AFRICA: *Eastern Cape*: 1♀ East London, Cambridge street, Outdoor Living Shop, 17.vi.1978, P. Croeser, wandering in camping equipment (NMSA, 18455); 1♀ 1♂ Fort Brown, Andries Vosloo Kudu Reserve, 33°07'S:26°37'E, 4.vi.1981, P.M.C. Croeser, found on and under bark of dry river bed trees *Combretum caffrum* (NMSA); 1♀ same data (NMSA); 1♀ Grahamstown, Dassienuaz, 8.x.1989, R.F. Law[rence]. (AMG); 1♀ Grahamstown, Fern Point, ii.1933, J. Hewitt (AMG); 4♀ Hogsback, Amatola Mountains, 32°36'S:26°56'E, 25.iii.2007, C. Haddad, leaf litter (NCA, 2006/1521); 1♂ Kasouga Coastal Reserve, 16 km WSW of Port Alfred, 33°39'S:26°45'E, i.1940, J. Omer-Cooper (NMSA); 1♀ Kei Mouth, 32°41.206'S:28°22.497'E, 8.xii.2005, C. Haddad, leaf litter, coastal forest (NCA, 2006/1291); 1♀ 3 juv. same data (NCA, 2006/1292); 3♂ same locality, 32°41.280'S:28°22.484'E, 13.xii.2002, C. Haddad, leaf litter at tree base (NCA, 2006/1509); 2♂ same data, 2.vi.2003, C. Haddad, leaf litter, coastal bush (NCA, 2006/1507); 1♀ same data, 2.vi.2003, C. Haddad, under cut grass, coastal bush (NCA, 2006/1495); 1♀ same data, 30.iv.2005, C. Haddad, leaf litter, coastal dune (NCA, 2006/1480); 1♀ near Mazeppa Bay, 36°26.495'S:28°36.968'E, 28.x.2006, C. Haddad, leaf litter, *Eucalyptus* plantation (NCA, 2007/279); 1♀ Mkhambathi Nat. Res., 10 m, 31.27333°S:30.02288°E, 27.i.2008, III-UKZN, Tree beats, forest (NCA, 2010/235); 1♂ Port Elizabeth, Lovemore Park, 34°00.282'S:25°31.597'E, 1.i.2010, C. Haddad, night collecting, bark and foliage (NCA, 2009/3667); 1♂ Rivierberg Range, Plessierivier, 43 km NE Willowmore at hwy R337, 33°08.31'S:23°50.4'E, 18.xi.1999, 650 m, E.I. Schlinger (CASC); 2♂ 20 km W of Grahamstown, along N2 highway, 33°25.237'S:26°21.266'E, 13.vii.2005, C. Haddad & R. Lyle, under *Eucalyptus* bark (NCA, 2006/1490). *Free State*: 1♂ Bethlehem District, Golden Gate National Park, Spelonken, 28°28'S: 28°38'E, 21.iv.1994, L. Lotz (NMBA, 6546); 1♀ same locality, 21.iv.1994, J. Irish, beating (NMBA, 6555); 3♀ Bloemfontein district, "Hopefield" farm, 28°54'S:26°14'E, 1.xii.2001, C. Haddad, under bluegum bark (NCA, 2006/1477); 2♂ same locality, 4.xii.2001, C. Haddad, bluegum leaf litter (NCA, 2006/1481); 2♀ Bloemfontein district, Maselspoort, 29°01.683'S:26°24.316'E, 2.ii.2005, C. Haddad, *Eucalyptus* bark (NCA, 2008/2018); 1♀ Bloemfontein, Westdene, 29°06.088'S:26°12.506'E, 12.i.2002, C. Haddad, rolled up in dry leaves in shrubs (NCA, 2006/1503). *Gauteng*: 1♂ Pretoria, 3.iv.2001, B. Sunkel, in garden (NCA, 2004/428); 1♀ Johannesburg, Parktown North, 26°10'S:28°02'E, 19.xi.1986, S. Filmer, wall in lounge (NCA, 87/65); 1♂ Roodeplaat Dam Nat. Res., 25°38'S:28°21'E, 23.i.1988, M. Filmer, ground under rock (NCA, 88/263); 1♀ Suikerbosrand Nat. Res., near Heidelberg, 26°30'S:28°15'E, 23.i.1993, A. Leroy (NCA, 2006/1531). *KwaZulu-Natal*: 1♂ 1♀ Albert Falls, "Helenshoek" farm, x.1958, R.F. Lawrence (NMSA, 7023); 1♂ 1♀ Ashburton, 10 km SE of Pietermaritzburg, 2.i.1991, V.D. & B. Roth (CASC); 1♂ Charter's Creek, Lake street, Lucia Forest, 28°12'S:32°26'E, 19–21.xi.1985, J. Doyen & C. & T. Griswold (NMSA); 1♀ Drakensberg, Champagne Castle Hostel, iv.1948, R.F. Lawrence (NMSA, 5580); 1♀ Dukuduku Forest, 22.i.1980, P. Reavell (NMSA, 13545); 1♀ Durban, 29°59'S:30°58'E, vii.1915, W. Bell-Marley (SAMC, ENW-B001323); 1♂ Empangeni, 28°45'S:31°54'E, xii.1986, P.E. Reavell, on wall in garden (NMSA); 1♀ Empangeni, 28°45'S:31°54'E, 14.ii.1980, P.E. Reavell, in house (NMSA); Enseleni Game Reserve, Lower Umfolozi, 28°42'S:31°59'E, 12.xii.1994, L. Lotz (NMBA, 6932); 1♀ Eshowe, 28°54'S:31°28'E, xi–xii.1943, L. Bevis (NMSA, 12162); 1♀ Greater St. Lucia (iSimangaliso) Wetlands Park, False Bay Park, 20.x.2004, J. Esterhuizen, tsetse fly traps (NCA, 2004/794); 1♀ Greater St Lucia (iSimangaliso) Wetlands Park, Hell's Gate, 25.i.2004, J. Esterhuizen, tsetse fly traps (NCA, 2004/814); 1♀ same locality, 6.x.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/818); 1♀ same locality, 29.ix.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/758); 1♀ same locality, 8.ix.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/759); 2♀ 1 juv. same locality, 3.xi.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/788); 1♂ same locality, 27.x.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/797); 1♀ same locality, 10.iii.2003, J. Esterhuizen, tsetse fly traps (NCA, 2004/798); 1♀ same locality, 25.x.2004, J. Esterhuizen, tsetse fly traps (NCA, 2005/219); 1♀ same locality, 3.v.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/210); 1♂ same locality, 20.ix.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/217); 1♂ same locality, 3.v.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/211); 1♂ same locality, 9.viii.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/214); 1♀ same locality, 1.ix.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/220); 2♀ same locality, 8.xi.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/222); 1♀ same locality, 19.iii.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/208); 1♀ same locality, 26.ix.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/209); 1♀ same locality, 26.vii.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/212); 1♀ same locality, 2.vii.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/213); 1♀ same locality, 13.ix.2004, J. Esterhuizen, tsetse fly traps (NCA, 2005/215); 1♀ same locality, 13.ix.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/216); 1♀ same locality, 4.x.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/218); 1♀ same locality, 1.xi.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/221); 2♀ Ithala Game Reserve, Doornkraal Camp, 27°30.735'S:31°12.231'E, 29.vi.2007, C. Haddad, night collecting (NCA, 2007/2849); 1♀ same locality, Pongola River picnic site, Dakaneni Loop, 27°28.195'S:31°16.686'E, 30.vi.2007, C. Haddad, under bark, riverine forest (NCA, 2007/2835); 1♂ Kosi Bay Nat. Res., 26°57.767'S:32°48.981'E, 15.iv.2006, C. Haddad, beats, coastal forest (NCA, 2006/749); 1♀ Mtunzini, Garland Farm, 28°59'S:31°44'E, xi.1983, P. Atkinson, at light (NMSA); 1♂ (together with ♀ holotype of *Ceto coenosa*) Natal, C. Martin (MNHN, 71288); 1♂ Natal National Park, 1950–1951, ¼ S1 Doomey mus., *ca* 5500 ft, Swedish South Africa Expedition, Zoological Institute, University, Lund, Dr Brink & Dr Rudebeck (AMG); 1♂ Ndumo Game Reserve, Start of game count transect 8, 26°50.183'S:32°13.135'E, 2.vii.2003, C. Haddad, under bark of fever tree (NCA, 2006/1483); 13♀ same locality, SW shore Banzi Pan, 26°53.118'S:32°16.927'E, 28.vi.2003, C. Haddad, under bark, fever tree (NCA, 2006/1486); 1♀ same locality, W shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, 3.vii.2003, C. Haddad, under *Acacia xanthophloea* bark (NCA, 2006/1489); 1♀ near Enseleni, 7.iii.1980, P. Reavell, dense Sandveld bush, on climbers (NMSA, 13123); 1♂ same locality, 7.iii.1980, P. Reavell (NMSA, 13129); 1♀ Pietermaritzburg, Botanical Garden, xii.1990, V.D. & B. Roth (CASC); 1♂ 1 juv. Pongola River, vii.1936, R.F. Lawrence (NMSA, 131); 1♂ same data (NMSA, 133); 1♀ 10 km W Eshowe, "Cascades" farm, Ngotshe Forest, 28°53'S:31°28'E, 1800 ft, 17–18.i.1984, C. Griswold & T. Meikle-Griswold (NMSA). *Limpopo*: 4♂ 1♀ Entabeni, 23°03'S:30°15'E, 12.ii.2008, D. de Bakker, R. Jocqué, W. Fannes & A. Henrard, canopy fogging, woodland (MRAC); 1♀ Lajuma Mountain Retreat, Soutpansberg Mountains, 15.vi.1997, M. van der Merwe, pit traps (NCA, 98/28); 1♀ same locality, 15.vi.1997, M. Mafadza, tall forest, pit traps (NCA, 2005/2020); 1♂ 2 juv. same locality, 23°02.414'S:29°41.046'E, 6.ii.2008, R. Lyle & R. Fourie, beats, Afromontane forest (NCA, 2008/505); 1♂ same locality, 15.ii.1999, S. Foord, grass, sweepnet (NCA, 2001/399); 1♀ Polokwane Nat. Res., 23°53'S:29°44'E, 9.iii.2005, M.A. Modiba, active search, island 2, site 2, sample 3 (NCA, 2006/1544); 4♂ 1♀ Tshulu Research Reserve, 22°34'S:30°48'E, 17.ii.2008, D. de Bakker, R. Jocqué, W. Fannes & A. Henrard, canopy fogging 15, *Trichilia dregeana*, riverine forest (MRAC); 7♂ 1♀ same locality, 17.ii.2008, D. de Bakker, R. Jocqué, W. Fannes & A. Henrard, canopy fogging 16, *Trichilia dregeana*, riverine forest (MRAC); 6♂ 6♀ same locality, 18.ii.2008, D. de Bakker, R. Jocqué, W. Fannes & A. Henrard, canopy fogging 17, *Trichilia dregeana*, riverine forest (MRAC). *Mpumalanga*: 1♂ Badplaas, Embuleni Nat. Res., 25°57'12"S:30°33'15"E, 1100 m, 28.iii.2001, D. & S. Ubick, grass veld savannah, in wooded areas (CASC); 1♂ Belfast, 31.v.1991, M. Filmer, under rock (NCA, 91/1498); 1♂ Bergvliet State Forest, Sabie, 23.x.1984, A.M. van den Berg, tree trap (NCA, 87/667); 3♀ Burgershall, 20.i.1989, M. van den Berg, beating, citrus orchard (NCA, 2008/2775); 1♂ Kaapmuiden, 25°32'S:31°19'E, 1–12.xi.1918, R.W.E. Tucker (SAMC, ENW-B004273); 1♂ Nelspruit, Lowveld National Botanical Garden, 25°26.586'S: 30°58.414'E, 17.xi.2007, A. Leroy, under bark of fever tree (NCA, 2008/1969); 1♂ same data (NCA, 2008/1970); 1♂ 1♀ 7 km NW of Nelspruit, “Glenwood” farm, 27.i.1998, M. van den Berg, on macadamia trees (NCA, 98/886). *Western Cape*: 1♂ Bellville, 33°54'S:18°38'E, 6–25.i.1989, R. Jocqué, in and around house (MRAC, 169691); 1♀ Betty’s Bay, Harold Porter National Botanical Gardens, 34°20.915'S:18°55.183'E, 26.iii.2008, C. Haddad, walking on tree trunk (NCA, 2008/574); 1♀ Cape of Good Hope Nat. Res., Teeberg, x.1998, H.G. Robertson, mesic mountain fynbos of NE rocky slope, Winkler litter trap (SAMC); 2♂ Cape Town, Newlands Forest Reserve, SE of Table Mountain, 33°58'S:18°28'E, 4.iv.2001, N. Larsen, K. Muller, S. Prinsloo, D. & S. Ubick, indigenous forest (CASC); 1♀ Cape Town, Newlands Forest, 33°55'S:18°25'E, 18.ix.1997, M. Kreuels (MRAC, 207454); 1♀ Cape Town, Rondebosch, 1.ii.2006, M. Cumming, in garden (NCA, 2006/1557); 11♀ Cape Town, Table Mountain, Cecilia Ridge, 33°59.629'S:18°25.193'E, 23.v.2008, C. Uys, sugar-baited ant trap, *Pinus radiata* plantation (NCA, 2008/2914); 2♀ same locality, Cecilia Ridge, 33°59.629'S:18°25.193'E, 23.v.2008, C. Uys, decayed log, *Pinus radiata* plantation (NCA, 2008/2919); 1♀ same locality, Cecilia Ridge, 33°59.629'S:18°25.193'E, 23.v.2008, C. Uys, sugar-baited ant trap, sandstone fynbos (NCA, 2008/2920); 1♀ same locality, Fernwood Gully, 33°58'S:18°27'E, 150 m, 18.xii.1996, C.E. Griswold, indigenous forest (CASC); 1♂ same locality, Rooikat Ravine, 33°59.629'S:18°25.193'E, 23.v.2008, C. Uys, sugar-baited ant trap, Afrotemperate forest (NCA, 2008/2916); 5♂ De Hoop Nat. Res., Potberg, *Eucalyptus* forest, 34°22.487'S:20°31.980'E, 3–10.vi.2004, C. Haddad, pitfall traps (NCA, 2006/1512); 3♀ 15 juv. same locality, 6.iv.5004, C. Haddad, searching under bark (NCA, 2006/1501); 1♂ 2♀ same locality,

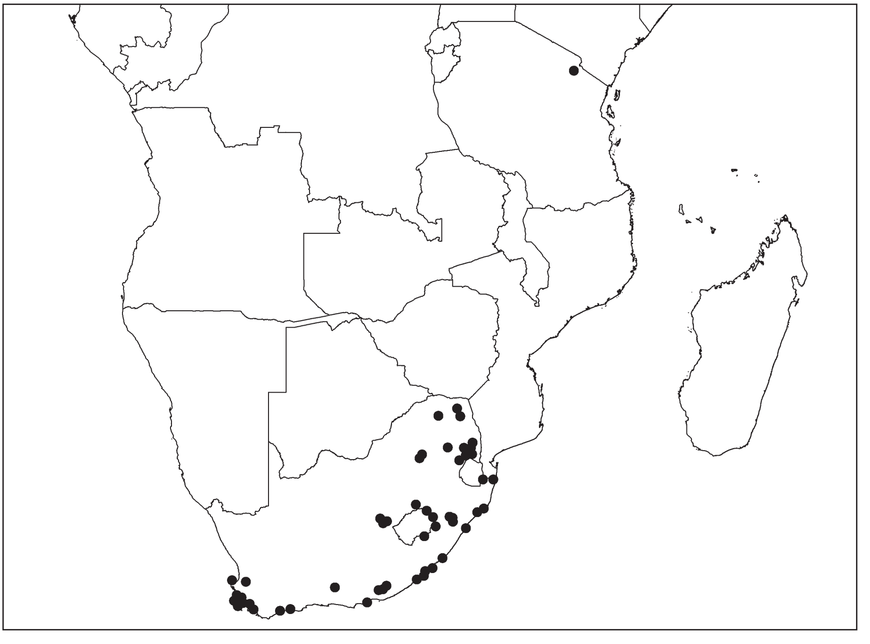


Fig. 42. The distribution of *Afroceto martini* (Simon, 1897) comb. n. in southern and East Africa.

Cupido's Kraal, *Eucalyptus* forest, 34°25.222'S:20°37.904'E, 26.ix.2007, C. Haddad & R. Lyle, under bark (NCA, 2007/2856); 2♂ Fisherhaven, 34°21.430'S:19°07.557'E, 26.xii.2000, C. Haddad, sieving leaf litter (NCA, 2006/1504); 1♂ Jakobsbaai, 32°57.734'S:17°53.520'E, 2.x.2007, C. Haddad & R. Lyle, night collecting (NCA, 2008/220); 2♀ Kirstenbosch National Botanical Gardens, Skeleton Gorge Forest, Table Mountain, 33°59'S:18°26'E, 800 ft, 7.i.1985, C. Griswold & T. Meikle-Griswold, under rocks and logs (NMSA); 1♀ same locality, 700 ft, 7.i.1985, C.E. Griswold (NMSA); 1♂ Malmesburg, Rondeberg 567 (Part 2), 33°24'S: 18°16'E, 26.x.1987, L.N. Lotz, in tent (NMBA, 2231); 1♂ 1 juv. Robben Island, 20.ix.2004, University of Cape Town, bush, Australian *Acacia* (NCA, 2005/2126). TANZANIA: 1♀ Tanga, W. Usambara Mountains, Mazumbai forest, 04°49'S:38°30'E, 1400–1800 m, 10–20.xi.1995, C.E. Griswold, N. Scharff & D. Ubick (CASC).

Distribution: Predominantly known from southern, central and north-eastern South Africa, and Lesotho, as well as a single locality in East Africa (Fig. 42).

Afroceto arca sp. n.

Figs 3, 4, 43–49

Etymology: From Latin *arcus* (arch), referring to the arch-like structure of the anterior epigynal hood.

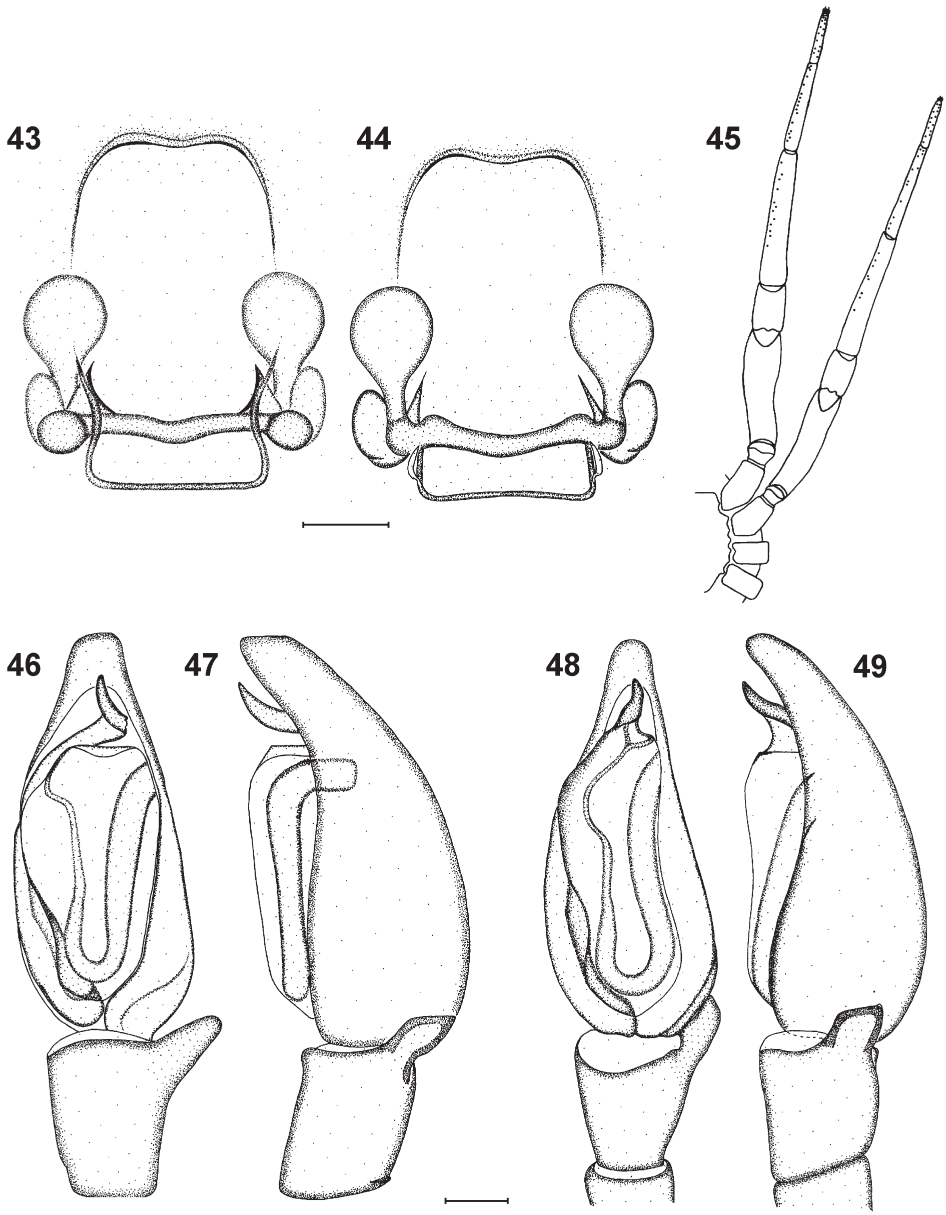
Diagnosis: This species can be recognised by the arch-shaped anterior hood of the epigyne and the two bulbous spermathecae that flank the copulatory openings (Fig. 43). The males can be recognised by the curve of the embolus and the rounded tip of the subtriangular retrolateral tibial apophysis (Figs 47, 49). The sperm duct of this species is U-shaped and narrows towards the tip of embolus, either branching or not. The two variations of the male palp had largely overlapping ranges. However, no variation in female epigyne structure was observed in these populations, suggesting that these specimens are all conspecific.

Description:

Female.

Measurements: CL 1.98–3.00, CW 1.70–2.50, AL 2.25–4.60, AW 1.45–2.90, TL 4.10–8.10, FL 0.10–0.15, SL 1.13–1.70, SW 0.98–1.38, AME–AME 0.13, AME–ALE 0.05, ALE–ALE 0.55, PME–PME 0.18, PME–PLE 0.20, PLE–PLE 0.88. Length of leg segments (sequence from femur to tarsus, and total): I 2.40+1.13+1.88+1.55+1.15=8.21; II 2.20+1.18+1.70+1.48+1.18=7.74; III 1.53+0.90+1.13+1.40+0.58=5.54; IV 2.28+1.03+ 1.85+2.15+0.65=7.96.

Carapace orange to dark brown (Fig. 3); slightly raised to midpoint, with relatively gradual decline posteriorly; surface smooth, covered in short fine setae; fovea short, thickened, distinct, at ⅔ CL. Ocular region dark orange to brown with dark brown rings around eyes; AER very slightly recurved, nearly straight, AME slightly larger than ALE; clypeus height equal to AME diameter; AME separated by distance approximately equal to their diameter; AME separated from ALE by 0.25 AME diameter; PER slightly recurved, PLE slightly larger than PME; PME separated by distance approximately equal to their diameter; PME separated from PLE by distance slightly larger than PME diameter. Chelicerae orange, dark brown towards border; dark long setae scattered on the anterior surface; fangs bright orange; three promarginal teeth, median tooth largest, distal tooth smallest; two retromarginal teeth, distal tooth slightly larger. Sternum orange, brown towards border; surface with long brown setae and short, light fine setae scattered throughout. Abdomen cream to pale yellow dorsally with grey chevron markings, with darkened median line and light grey transverse branches up to midpoint; abdomen broader anteriorly, tapering posteriorly; venter cream. Legs I to IV uniform orange; tibiae, metatarsi and tarsi with dense ventral scopulae; remaining leg segments covered with fine, less dense setae. Anterior legs slightly more robust



Figs 43–49. *Afroceto arca* sp. n. female (43, 44) and male (45–49): (43) epigyne, ventral view; (44) vulva, dorsal view; (45) schematic representation of cusp arrangement on legs I and II; (46) left palp, ventral view; (47) left palp, retrolateral view; (48) variation of left palp, ventral view; (49) variation of left palp, retrolateral view. Scale bars (43, 44, 46–49) = 0.1 mm.

than posterior. Leg spination: femora: I *pl* 3; patellae spineless; tibiae: III *pl* 1 *vt* 1, IV *plv* 2 *vt* 1; metatarsi: III *pl* 1 *rl* 1. Genitalia weakly sclerotised; epigynal anterior hood arched-shaped; copulatory openings situated mediolaterally, flanked by ST I and ST II; ST II large, globular, extending to approximately midpoint of epigyne; ST I small and globular, partially hidden by copulatory openings; ST I linked by narrow transverse duct (Figs 43, 44).

Male.

Measurements (eye and leg measurements taken from second largest specimen): CL 1.76–3.70, CW 1.45–3.00, AL 1.90–3.90, AW 1.30–2.70, TL 3.70–7.60, FL 0.10–0.35, SL 1.10–1.75, SW 0.90–1.75, AME–AME 0.15, AME–ALE 0.10, ALE–ALE 0.73, PME–PME 0.25, PME–PLE 0.28, PLE–PLE 1.13. Length of leg segments (sequence from femur to tarsus, and total): I 3.00+1.50+2.70+1.80+1.30=10.30; II 2.60+1.35+2.33+1.65+1.08=9.01; III 1.70+1.05+1.10+1.58+0.58=6.01; IV 2.40+1.15+2.03+2.30+0.73=8.61.

Carapace orange to brown (Fig. 4); first third of carapace slightly raised with gradual decline in last two thirds; surface covered in short, fine setae; fovea short, thickened, distinct, at two thirds CL. Ocular region dark orange to brown with dark brown to black rings around eyes; AER very slightly procurved, AME slightly larger than ALE; AME separated by distance approximately equal to their diameter; AME separated from ALE by distance equal to half AME diameter; PER slightly recurved, PLE slightly larger than PME; PME separated by distance equal to 1.2 diameter; PME separated from PLE by distance equal to PLE diameter. Chelicerae orange to dark brown near fang base; anterior surface with scattered black setae; fangs orange at tip, dark brown at fang base; three promarginal teeth, median tooth largest, distal and proximal teeth subequal in size; two retromarginal teeth, distal tooth largest. Sternum orange, brown towards border; surface with scattered long brown and short pale setae. Abdomen cream dorsally with orange scutum covering entire dorsum; dorsum with pale brown chevron with thickened median line and pale brown transverse branches and dark grey lines laterally; abdomen broader anteriorly, tapering posteriorly; surface smooth with fine short dark setae throughout; venter cream. Legs I to IV uniform orange to brown; anterior legs slightly more robust than posterior legs; tibiae, metatarsi and tarsi with dense scopulae ventrally, remaining leg segments covered in fine, short dark setae. Leg spination: femora: I *pl* 2–3, II *pl* 3–4; patellae spineless; tibiae: I *plv* 15 *vt* 1 cusps, II *plv* 8 *rlv* 2 *vt* 2 cusps, III *pl* 1 *plv* 2–4 *vt* 1, IV *plv* 2 *vt* 2; metatarsi: I *plv* 3–12 cusps, II *plv* 2–8 cusps, III *plv* 2 *rlv* 1, IV *rl* 1 *plv* 2 *rlv* 1; tarsi: I *plv* 6 *rlv* 9 cusps, II *plv* 5–7 *rlv* 7 cusps (Fig. 45). Palp yellow-brown; embolus curved, distally located on tegulum, slightly coiled; sperm ducts U-shaped, unbranched (Fig. 46) or branched (Fig. 48) distally near embolus base; tibial apophysis prominent, subtriangular with rounded point (Figs 47, 49).

Holotype: ♀ SOUTH AFRICA: *Gauteng*: Knoppieslaagte [25.93°S:28.05°E], 13.ii.1980, D. Uys, pitfalls (NCA 84/605).

Allotype: ♂ LESOTHO: Mohale Dam, Island 2, 29°25.396'S:28°05.903'E, 14.xii.2003, C. Haddad, under rocks on hillside (NCA, 2006/1515).

Paratypes: SOUTH AFRICA: *Free State*: 2♀ Bloemfontein district, "Deelhoek" farm, 28°51'S:26°07'E, 1999, C. Haddad, abandoned *Trinervitermes trinervoides* mound (NCA, 2006/1498); 1♂ same locality, 4.xi.2001, C. Haddad, under dung pad (NCA, 2006/1479). *Gauteng*: 1♀ Kloofendal Nat. Res., Roodepoort, 16.ii.1989, A. Leroy, under stone, exposed hillside (NCA, 89/741). *Western Cape*: 1♀ Anysberg Nat. Res., Vrede Cottages, 33°27.934'S:20°35.218'E, 23.ix.2005, C. Haddad & R. Lyle, night collecting (NCA, 2007/3936).

Other material examined: LESOTHO: 2♀ 2♂ 4 juv. Mohale Dam, Island 1, 29°25.255'S:28°05.985'E, 13.xii.2003, C. Haddad, among roots of fern (NCA, 2006/1517); 1♂ Mohale Dam, Island 4, 29°25.349'S: 28°06.253'E, 15.xii.2003, C. Haddad, under rocks (NCA, 2006/1516); 1♀ Mohale Dam, Island 5, 29°25.396'S:28°05.903'E, 16.xii.2003, C. Haddad, under rocks (NCA, 2006/1514); 1♂ near Ha Thlaku Village, 30°09.718'S:28°14.175'E, 2122 m, 14.xi.2003, C. Haddad, under rocks, near stream (NCA, 2006/1533); 1♀ Quthing, 17.iii.1949, Dr Brink, Dr Rudebeck, Swedish South Africa Expedition 1950–1951, Zoological Institute, University, Lund, rich meadows on horizontal layers of sandstone (AMG). NAMIBIA: 1♂ Vogelfederberg, 20.iv–18.v.1999, B. Wharton, pitfall trap (CASC). SOUTH AFRICA: *Eastern Cape*: 1♂ Alicedale, F. Cruden (AMG); 1♂ Fort Brown, xii.1915, Walton (AMG); 1♂ Grahamstown, 33 Oatlands road, 33°18'S:26°32'E, 17.xii.1979, P.M.C. Croeser, in house (NMSA); 1♀ 1♂ 5 imm. Jansenville district, "Klipfontein" farm, 32°54.492'S:24°45.436'E, 29.ix–1.x.2008, R. Lyle, active searching (NCA, 2008/2858); 1♂ 1♀ 1 juv. near Kirkwood, Dunbrody, 1902, J. O'Neil (SAMC, 697); 1♂ Sundays River Valley, 23.xi.1999, H. Potgieter, citrus pitfall trap (NCA, 2000/234). *Free State*: 1♂ 1 juv. Bloemfontein district, "Hopefield" farm, 28°54'S:26°14'E, 15.xii.2001, C. Haddad, bluegum leaf debris (NCA, 2006/1497); 1♀ Brandfort, Florisbad, 28°46'S:26°05'E, 1250 m, 30.iii–26.iv.1988, L.N. Lotz, pres. traps (NMBA, 3987); 1♀ same data (NMBA, 8501); 1♀ Bloemfontein, 29°08'S:26°10'E, 1440 m, 18.ii.1993, L.N. Lotz, in house (NMBA, 5782); 1♀ Brandfort, Krugersdrift Dam, 28°42'S:25°55'E, 1.i.1987, Museum staff, in canal (NMBA, 9057); 1♀ Fauresmith, Boschrand 208, 29°56'S:24°48'E, 22.iii.2005, L. Lotz, sweeping, beating (NMBA, 10007); 1♀ Kimberley district, Benfontein Nat. Res., 28°49.259'S:24°50.155'E, 9.iii.2010, C. Haddad, base of grass tussocks (NCA, 2010/295). *Gauteng*: 1♂ Witwatersrand, Marievale Bird Sanctuary, 26°20'S:28°32'E, 8.xii.1990, V.D. & B. Roth (CASC). *KwaZulu-Natal*: 1♀ Pietermaritzburg, Scotsville, vii.1951, R.F. Lawrence, in dry leaves of garden (NMSA, 5649). *North West*: 1♂ Potschefstroom district, Thabela Thabang Mountain Retreat, 26°51.828'S:28°17.805'E, 29.x–5.xii.2009, R. Fourie & A. Grobler, pitfall traps, Vaal River bank (NMSA, 22680). *Northern Cape*: 1♂ 8.9 mi W of Hanover, Eierfontein, i.1902, S.C. Cronwright-Schreiner (SAMC, 10051); 1♂ same locality, xii.1901–ii.1902, Schreiner (SAMC, 11964); 1♀ Kathu District, "Sacha" farm, 27°42.500'S:22°57.967'E, 24–27.ii.2003, C. Haddad, pitfall traps (NCA, 2006/1500); 1♂ Lime Acres district, "Klien Papkuil" farm, 28°28.638'S:23°43.461'E, 12–17.i.2008, R.

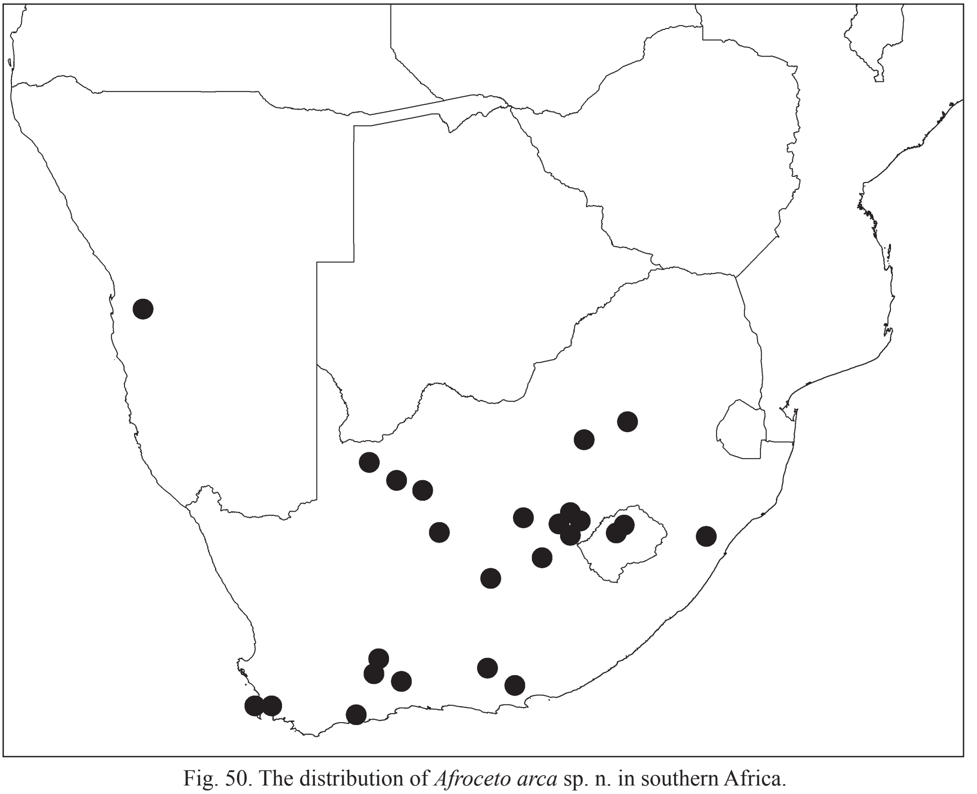


Fig. 50. The distribution of *Afroceto arca* sp. n. in southern Africa.

Lyle, leaf litter (NCA, 2008/2855); 3♀ same data (NCA, 2008/2856); 1♀ same data (NCA, 2008/2857); 3♂ Prieska District, Green Valley Nuts Estate, 22°56.683'S:29°35.183'E, 23.xi–18.xii.2001, C. Haddad, leaf litter, *Eucalyptus* trees (NCA, 2006/1502). *Western Cape*: 2♂ 1 juv. Buffels Bay, near Knysna, i.1910, W. Purcell (SAMC, B2315); 3♂ Cape Town, dunes near Khayelitsha, 33°55'S:18°25'E, 19.i.1989, R. Jocqué, fore dunes, sieved litter of shrub (MRAC, 169681); 1♀ same data, 20.i.1989 (MRAC, 169815); 1♀ Cape Peninsula, Muizenberg, 34°06'S:18°27'E, 5–19.v.1991, R. Legg, dunes to the north (MRAC, 173716); 1♀ same data, 18.vii–11.viii.1991 (MRAC, 173801); 3♀ De Hoop Nat. Res., Potberg, 34°22.487'S:20°31.980'E, 6.iv.2006, C. Haddad, leaf litter (NCA, 2006/1511); 1♀ Kalk Bay Mountains, iii.1898, R.M. Lightfoot (SAMC, 3136); 1♀ Kommetjie, 30 km S of Cape Town, 34°09'S:22°10'E, 5.iv.2001, K. Muller, S. Prinsloo, D & S. Ubick, coastal strand, intertidal zone (CASC); 1♀ Le Roux River, 10 km W Cango Caves, 33°30'S:22°10'E, 4.ii.1991, V.D. & B. Roth (CASC); 1♂ 3♀ 1 juv. Swartberg Nat. Res., Gamkaskloof, 15.ii.2001, Z. van der Walt, on soil (NCA, 2002/201); 1♀ same locality, 14.iv.1995, M. de Jager, on soil, on slides (NCA, 95/252); 1♂ Swartberg Nat. Res., Gamkaskloof, Die Hel, 33°21.0'S:21°40.2'E, iii.2006, Z. van der Walt, collected by hand (NCA, 2009/3678).

Distribution: Found in Lesotho, Namibia and South Africa. In South Africa recorded predominantly in grassland, karoo and fynbos habitats (Fig. 50).

Afroceto bisulca sp. n.

Figs 5, 51–53

Etymology: From Latin *bis* (double) and *sulcus* (a furrow); refers to the split in the retrolateral tibial apophysis, which forms two subtriangular excrescences.

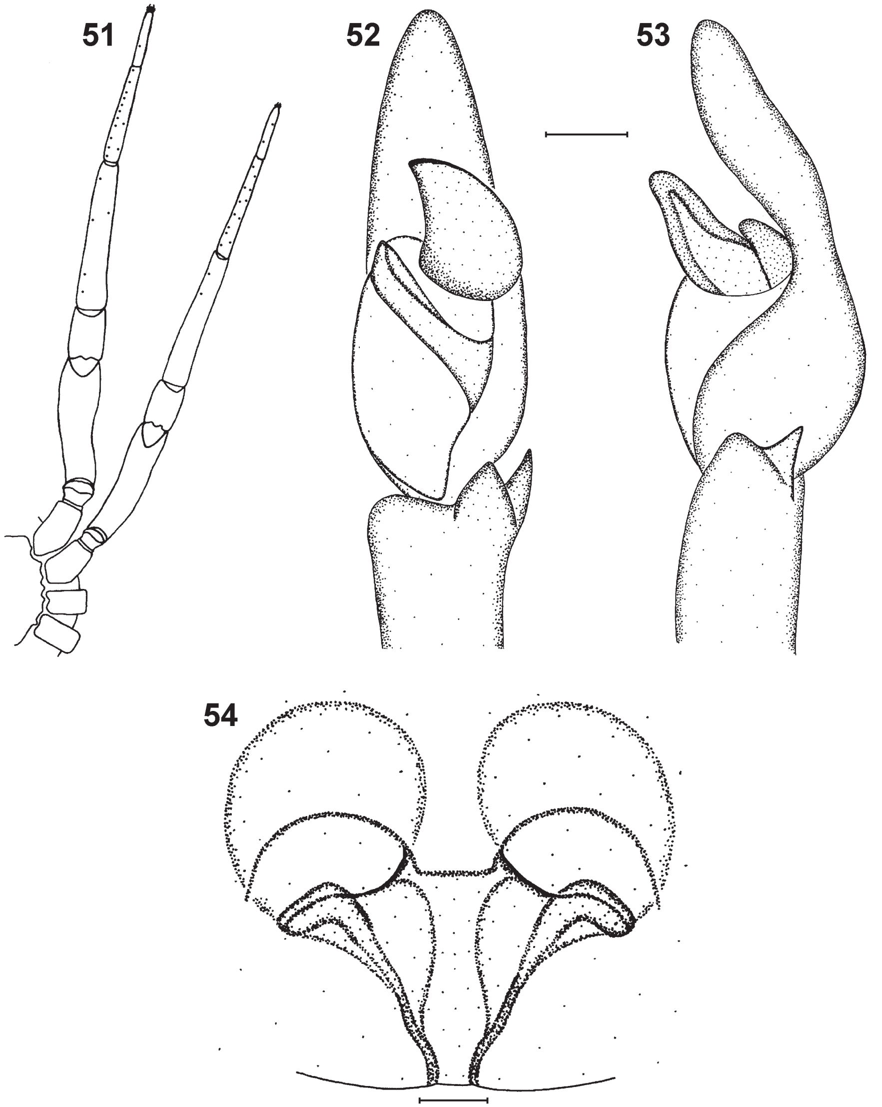
Diagnosis: The male can easily be recognised by the broad tongue-like embolus and the retrolateral tibial apophysis split into two excrescences, of which the most dorsally situated one has a sharper point (Figs 52, 53). Female unknown.

Description:

Male.

Measurements: CL 2.40, CW 1.80, AL 2.20, AW 1.45, TL 4.60, FL 0.13, SL 1.23, SW 1.30, AME–AME 0.05, AME–ALE 0.03, ALE–ALE 0.28, PME–PME 0.13, PME–PLE 0.15, PLE–PLE 0.63. Length of leg segments (sequence from femur to tarsus, and total): I 2.10+0.93+1.70+1.23+0.98=6.94; II 1.78+0.78+1.38+1.28+0.88=6.10; III 2.05+0.65+0.78+1.13+0.50=5.11; IV 1.75+0.75+1.60+1.65+0.53=6.28.

Carapace pale yellow, orange posteriorly (Fig. 5); first third of carapace evenly high, second third with gradual decline and last third with relatively steep decline; surface covered in fine, short setae; fovea short, distinct, at two thirds CL. Ocular region orange with light rings around eyes; AER slightly recurved, AME larger than ALE; clypeus height equal to AME diameter; AME separated by distance equal to 0.8 their diameter; AME separated from ALE by 0.2 AME diameter; PER slightly recurved, PLE slightly larger than PME; PME separated by distance equal to their diameter; PME separated from PLE by 0.8 PME diameter. Chelicerae orange; long, pale orange setae scattered on anterior surface; fangs light orange to pale yellow near tip; two promarginal teeth, distal tooth largest; two retromarginal teeth, distal tooth largest. Sternum pale yellow, slightly darker yellow towards border; fine, pale setae scattered on surface. Abdomen very pale yellow dorsally, without distinctive markings or sigilla; abdomen broader anteriorly, tapering posteriorly; venter pale yellow. Legs I to IV uniform pale yellow; leg spines and cusps present. Leg spination: femora: I *pl* 1; patellae spineless; tibiae: I *plv* 4 *rlv* 1 cusps, II *plv* 2 cusps, III *pl* 2 *rl* 1 *vt* 1; metatarsi: I *plv* 10 *rlv* 2 *vt* 1 cusps, II *plv* 7 *rlv* 5 cusps, III *pl* 1 *rl* 1; tarsi: I *plv* 1 cusp, II *plv* 1 *rlv* 1 cusps (Fig. 51). Palp



Figs 51–54. *Afroceto bisulca* sp. n. (51–53) male: (51) schematic representation of cusp arrangement on legs I and II; (52) left palp, ventral view; (53) left palp, retrolateral view; and *A. bulla* sp. n. female: (54) epigyne ventral view. Scale bars (52–54) = 0.1 mm.

yellow; embolus broad, tongue-like (Fig. 52); retrolateral tibial apophysis prominent, with short, well-rounded ventral excrescence and sharply pointed dorsal excrescence (Fig. 53).

Holotype: ♂ SOUTH AFRICA: *Western Cape*: Cape Peninsula, Bergvliet, near Diep Rivier [34.04°S:18.47°E], x.1898, F. Purcell (SAMC, 6238).

Distribution: Known only from the type locality (Fig. 55).

Afroceto bulla sp. n.

Figs 6, 54

Etymology: From Latin *bulla* (a bubble); refers to the bubble-shaped ST II.

Diagnosis: This species can be recognised by the bubble-shaped ST II and the ducts linking the spermathecae, which converge at a 45° angle to the epigastric fold (Fig. 54). Male unknown.

Description:

Female.

Measurements: CL 2.90, CW 2.30, AL 3.80, AW 2.20, TL 6.70, FL 0.23, SL 1.80, SW 1.48, AME–AME 0.10, AME–ALE 0.30, ALE–ALE 0.30, PME–PME 0.20, PME–PLE 0.53, PLE–PLE 0.90. Length of leg segments (sequence from femur to tarsus, and total): I 2.50+1.78+2.35+2.03+1.18=9.84; II 2.48+1.40+2.08+1.65+1.05=8.66; III 2.90+1.50+2.70+2.90+1.10=11.10; IV 2.18+1.20+1.68+1.55+0.80=7.41.

Carapace orange to light brown posteriorly (Fig. 6); first two-thirds of carapace even and high, last third with relatively steep decline; fovea short, distinct, at two thirds CL. Ocular region light brown with dark rings around eyes; AER nearly straight, slightly procurved, ALE slightly larger than AME; clypeus height 0.8 AME diameter; AME separated by distance slightly less than their diameter; AME separated from ALE by approximately 0.3 ALE diameter; PER slightly recurved, ALE larger than AME; PME

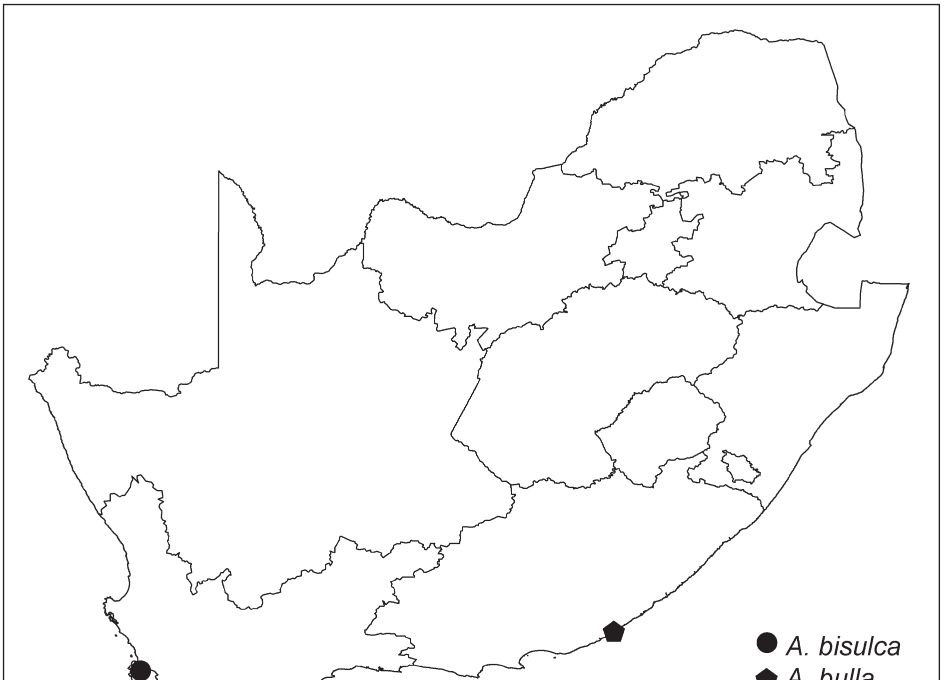


Fig. 55. The distribution of *Afroceto* bulla sp. n. and *A. bisulca* sp. n. in South Africa.

separated by distance equal to 1.4 their diameter; PME separated from PLE by twice PME diameter. Chelicerae dark brown, paler towards fang base; anterior surface covered in long scattered setae, denser toward fang base; fangs appear longer than other species, bright orange in colour; two promarginal teeth, equal in size; two retromarginal teeth, proximal tooth largest. Sternum pale yellow, orange near border; surface covered in long, fine setae. Abdomen creamy yellow dorsally, mottled with dark brown, with grey chevron markings; abdomen broader anteriorly, tapering posteriorly; surface covered in fine, light setae; venter cream. Legs I to IV uniform yellow to orange, with irregular leg spines. Leg spination: femora: I *pl* 3, II *pl* 1, III *pl* 1 *do* 2 *rl* 1, IV *do* 1 *rl* 1; patellae spineless; tibiae: II *pl* 2 *rl* 2 *plv* 2 *rlv* 2 *vt* 2, III *pl* 2 *rl* 2 *plv* 2 *rlv* 2 *vt* 2; metatarsi: II *pl* 1 *rl* 3 *plv* 3 *rlv* 2, III *pl* 3 *rl* 2 *plv* 3 *rlv* 3. Epigyne weakly sclerotised; ducts linking spermathecae at 45° angle to epigastric fold; extending into small triangular ST I; ST II large, globular (Fig. 54).

Holotype: ♀ SOUTH AFRICA: *Eastern Cape*: East London [33.0°S:27.9°E], v.1916, Rattray (AMG).

Distribution: Known only from the type locality (Fig. 55).

Afroceto capensis sp. n.

Figs 7, 8, 56–61

Etymology: This species is named after the Western Cape Province, where the entire type series was collected.

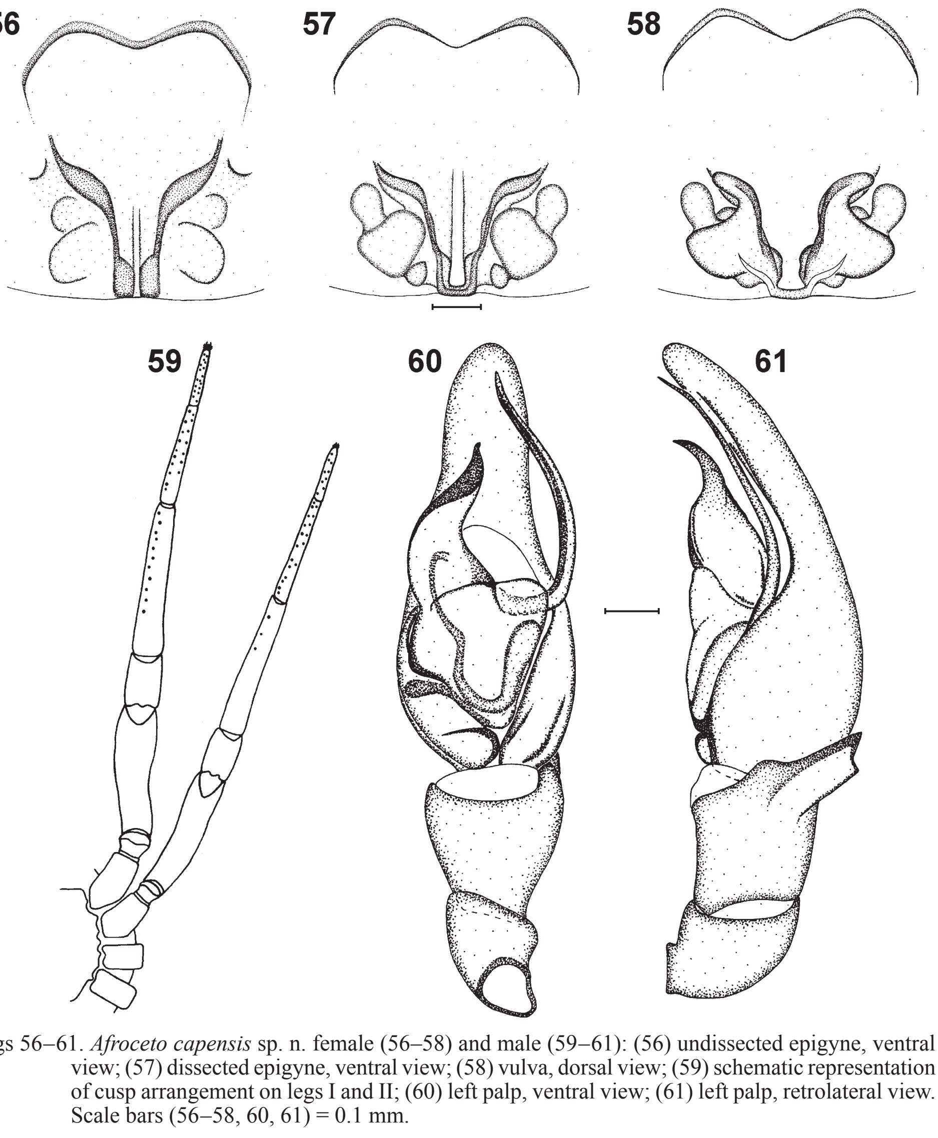
Diagnosis: The female can easily be recognised by the M-shaped anterior epigynal hood (Fig. 56). It has ST II that appear bilobed and are obscured by the large posterior subtriangular ST I (Figs 57, 58). The male of this species can easily be recognised by the well curved retrolateral embolus and the sharply pointed tapering prolateral tegular extension (Fig. 60).

Description:

Female.

Measurements: CL 2.60–2.70, CW 2.10–2.28, AL 2.80–3.80, AW 1.90–2.50, TL 5.80–6.50, FL 0.15–0.20, SL 1.60–1.65, SW 1.25–1.38, AME–AME 0.13, AME–ALE 0.08, ALE–ALE 0.45, PME–PME 0.13, PME–PLE 0.18, PLE–PLE 0.75. Length of leg segments (sequence from femur to tarsus, and total): I 2.43+1.10+1.85+1.55+1.10=8.03; II 2.20+1.05+1.51+1.50+1.00=7.26; III 1.58+0.83+1.10+1.40+0.58=5.49; IV 2.38+0.98+1.85+2.23+0.68=8.12.

Carapace reddish brown to dark brown (Fig. 7); first third of carapace rising gradually to highest point, declining gradually in last two thirds; surface slightly granulated, covered in short, fine setae; fovea at two thirds CL. Ocular region dark brown to almost black with black rings around eyes; AER slightly recurved, AME slightly larger than ALE; clypeus height equal to AME diameter; AME separated by distance equal to their diameter; AME separated from ALE by 0.4 AME diameter; PER recurved, PLE slightly larger than PME; PME separated by distance equal to their diameter; PME separated from PLE by 1.2 PME diameter. Chelicerae reddish brown, dark brown near fang base; anterior surface with scattered black setae, setae longer towards fang base; fang dark orange at base, bright orange at tip; three promarginal teeth, median tooth largest, distal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum dark brown, almost black near border, appearing mottled; surface texture granular, covered in scattered long, dark setae. Abdomen creamy yellow dorsally, with dark grey mottled pattern over entire abdomen; abdomen broader anteriorly, tapering posteriorly; surface smooth, with short fine setae throughout; venter cream. Legs I to IV uniform yellow to brown; anterior legs darker, more robust than posteriors; femora to metatarsi with incomplete grey bands covering almost entire segment on legs I to IV; bands on anterior leg segments grey, light brown on posterior leg segments; tibiae, metatarsi and tarsi with dense scopulae. Leg spination: femora: I *pl* 2; patellae spineless; tibiae: IV *rlv* 2 *vt* 2; metatarsi: III *pl* 1 *plv* 2 *vt* 2, IV *pl* 1 *plv* 2. Palpal spination: tibia *pl* 1 *do* 1. Epigyne



Figs 56–61. *Afroceto capensis* sp. n. female (56–58) and male (59–61): (56) undissected epigyne, ventral view; (57) dissected epigyne, ventral view; (58) vulva, dorsal view; (59) schematic representation of cusp arrangement on legs I and II; (60) left palp, ventral view; (61) left palp, retrolateral view. Scale bars (56–58, 60, 61) = 0.1 mm.

weakly sclerotised; anterior epigynal hood M-shaped; epigynal ridges funnel-shaped, with copulatory openings extending into bilobed ST II, partly obscured by larger posterior subtriangular ST I (Figs 56–58).

Male.

Measurements: CL 2.30, CW 1.93, AL 2.70, AW 1.63, TL 4.80, FL 0.15, SL 1.40, SW 1.15, AME–AME 0.08, AME–ALE 0.05, ALE–ALE 0.38, PME–PME 0.10, PME–PLE 0.13, PLE–PLE 0.63. Length of leg segments (sequence from femur to tarsus, and total): I 2.10+0.95+1.65+1.55+1.38=7.06; II 1.80+0.85+1.48+1.28+0.90=6.31; III 1.33+0.68+0.90+1.15+0.45=4.51; IV 1.90+0.75+1.53+1.75+0.63=6.56.

Carapace reddish brown to dark brown (Fig. 8); first third of carapace rising gradually to highest point, declining gradually until last quarter, declining steeply in last quarter; surface slightly granulated, covered in short, fine setae; fovea at two thirds CL. Ocular region dark brown with black rings around eyes; AER recurved, ALE slightly larger than AME; clypeus height equal to AME diameter; AME separated by distance equal to 0.6 their diameter; AME separated from ALE by distance equal to 0.4 AME diameter; PER very slightly recurved, PME subequal to PLE; PME separated by distance equal to 0.84 their diameter; PME separated from PLE by distance equal to 0.9 PME diameter. Chelicerae brown, dark brown near fang base; anterior surface with scattered black setae; three promarginal teeth, median tooth largest, proximal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum orange-brown, darkening near border; surface texture smooth, covered in scattered long, fine setae. Abdomen creamy yellow dorsally, with dark grey mottled pattern over entire abdomen; abdomen broader anteriorly, tapering posteriorly; dark brown scutum extends over almost entire length of abdomen; surface smooth, with short fine setae throughout; venter cream. Legs I to IV uniform orange to brown; anterior legs darker, more robust than posteriors; tibiae, metatarsi and tarsi with dense scopulae. Leg spination: femora: I *pl* 3, II *pl* 2; patellae spineless; tibiae: I *plv* 11 cusps, II *plv* 3 cusps, III *plv* 3 *vt* 2, IV *plv* 2 *vt* 2; metatarsi: I *plv* 9 *rlv* 7 *vt* 1 cusps, II *plv* 11 *rlv* 6 *vt* 1 cusps, III *pl* 1 *plv* 3, IV *pl* 1 *plv* 2; tarsi: I *plv* 7 *rlv* 10 cusps, II *plv* 5 *rlv* 4 cusps (Fig. 59). Palp brown; embolus originating prolaterally, curving beneath large tapering curved prolateral tegular extension, emerging retrolaterally, curving and extending along retrolateral margin to cymbium tip (Fig. 60); retrolateral tibial apophysis parallel sided, directed dorsally, with sharp anterior point (Fig. 61).

Holotype: ♀ SOUTH AFRICA: *Western Cape*: De Hoop Nat. Res., De Hoop Vlei, 34°29.425'S:20°25.762'E, 8.iv.2004, C. Haddad, litter under cut fynbos (NCA, 2006/1530).

Allotype: ♂ same locality as holotype, 2.i.1951, Swedish South Africa Expedition, Zoological Institute, University Lund, 1950–51, Dr. Brink & Sr. Rudebeck, soon Endan, under fern (AMG).

Paratypes: SOUTH AFRICA: *Western Cape*: 1♀ Hermanus, Petshus Park, 21.ii.1902, P. Lightfoot (SAMC, 11662); 1♀ Cape Peninsula, Kalk Bay Mtn., i.1900, W. Purcell (SAMC, 8657).

Distribution: Endemic to the Western Cape Province, South Africa (Fig. 67).

Afroceto coenosa (Simon, 1897), **comb. n**

Figs 9, 62, 63

Ceto coenosa Simon, 1897*c*: 11; Simon 1897*b*: 179, fig. 183.

Diagnosis: This species may be recognised by the short curved entrance ducts that extend from the copulatory openings to ST II, and short diverging tubes leading to ST I (Fig. 62).

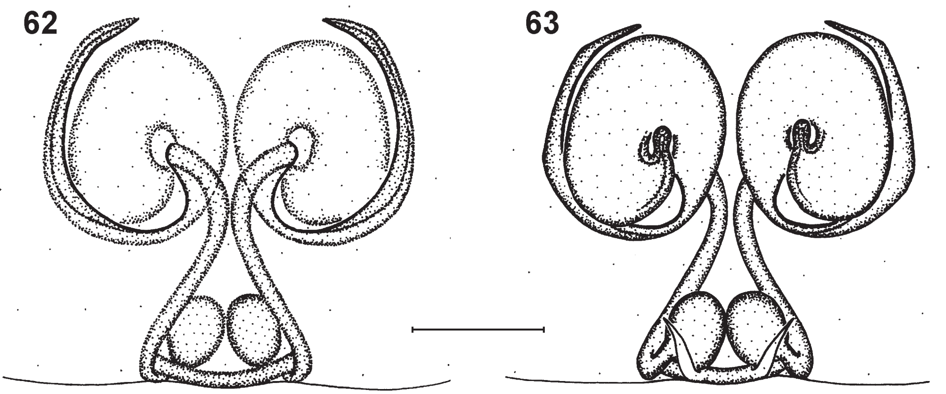
Remarks: Simon (1897*b*) illustrated the palp of *A. coenosa*. However, no males of this species could be traced in MNHN or other collections, and thus no redescription of the male is given. The holotype female of *A. coenosa* is deposited with a male of *A. martini*, which he may erroneously have interpreted as its matching male. As such, the true male of *A. coenosa* is unknown. It is possible that *A. gracilis* sp. n., known only from the male, is the matching male of *A. coenosa*, but specimens have not been collected together at the same locality and they are regarded as separated species until additional material can be sampled.

Redescription:

Female.

Measurements: CL 2.00–2.30, CW 1.70–1.93, AL 2.10–3.00, AW 1.95–2.10, TL 4.20–5.30, FL 0.13–0.15, SL 1.23–1.28, SW 0.98–1.05, AME–AME 0.10, AME–ALE 0.05, ALE–ALE 0.30, PME–PME 0.18, PME–PLE 0.15, PLE–PLE 0.68. Length of leg segments (sequence from femur to tarsus, and total): I 1.60+0.75+1.18+1.00+0.75=5.28; II 1.48+0.70+1.03+0.95+0.95=4.79; III 1.13+0.63+0.73+0.95+0.43=3.87; IV 1.13+0.73+1.43+1.43+0.53=5.35.

Carapace brown to reddish brown (Fig. 9); rounded with highest point in second third of carapace length; surface smooth, covered in short, fine setae; fovea small, distinct and slightly thickened, at two thirds CL. Ocular region dark brown, eyes with black rings; AER slightly recurved, ALE larger than AME; clypeus height equal to AME diameter; AME separated by distance equal to their diameter; AME separated from ALE by distance equal to half AME diameter; PER very slightly recurved, almost straight, PME and PLE equal in size; PME separated by 1.2 their diameter; PME separated from PLE by 1.2 PME diameter. Chelicerae bright orange, with short, light setae scattered over anterior surface; two promarginal teeth, proximal tooth largest; two retromarginal teeth, distal tooth largest, proximal tooth slightly smaller. Sternum dark orange, brown towards border; covered in short, fine setae, with longer setae towards border. Abdomen creamy white to pale yellow dorsally, with mottled grey pattern over entire abdomen; brown and grey mottled mark situated anteriorly; abdomen broader anteriorly and tapering posteriorly; scutum small, extending one quarter abdomen length; dorsal surface



Figs 62, 63. *Afroceto coenosa* (Simon, 1897) comb. n. female: (62) epigyne, ventral view; (63) vulva, dorsal view. Scale bar = 0.1 mm.

smooth, covered in fine setae; venter pale grey, covered in fine setae. Legs I to IV uniform yellow to light brown, dense ventral setae on tibiae, metatarsi and tarsi; anterior legs more robust than posteriors; femora with large incomplete band covering almost entire segment, patellae with incomplete dorsal band, tibiae and metatarsi with two incomplete bands, situated proximally and distally. Leg spination: femora: I *pl* 1; patellae and tibiae spineless; metatarsi IV *vt* 1. Epigyne with semi-circular lateral ridges, which extend into relatively large medially located copulatory openings and copulatory ducts; copulatory ducts large, curving anteriorly into broad, curved ST II, with narrow ducts running posteriorly, diverging to posterior ST I; ST I small and oval, situated at epigastric fold (Figs 62, 63).

Holotype (examined): ♀ deposited together with 1♂ *A. martini*: SOUTH AFRICA: Natal [no specific locality], C. Martin (MNHN, 71288).

Other material examined: SOUTH AFRICA: *KwaZulu-Natal*: 1♀ Durban, Bluff, 14.iv.1976, F. Wanless & A. Russell-Smith, coastal dune scrub, shrub layer (BMNH); 1♀ Pietermaritzburg, Town Bush, 15.iv.1976, F. Wanless & A. Russell-Smith, on pine trunk (BMNH). *Mpumalanga*: 1♀ 11 km South East from Pilgrims Rest, 1400 m, 11–31.xii.1985, S. & J. Peck, relict native forest edge, FIT-malaise (AMNH).

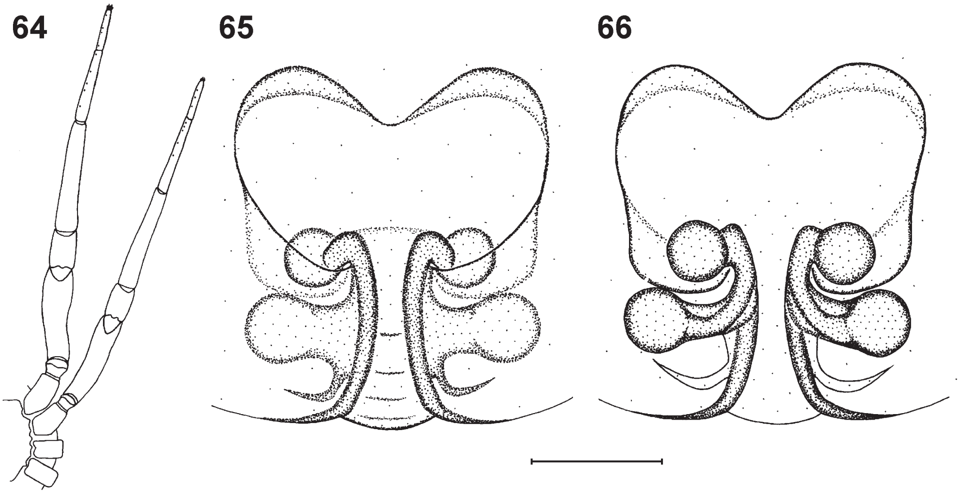
Distribution: Known from scattered localities in KwaZulu-Natal and Mpumalanga provinces, South Africa (Fig. 67).

Afroceto corcula sp. n.

Figs 10, 64–66

Etymology: From Latin *corcullum* (little heart); refers to the heart-shaped structure of the epigynal ridges.

Diagnosis: This species is easily recognised by the heart shape of the anterior epigynal ridges. It can be further recognised by the small globular shape of ST I and ST II, linked by a curved duct (Figs 65, 66). Ventral cusps are present on the anterior metatarsi and tarsi (Fig. 64). Male unknown.



Figs 64–66. *Afroceto corcula* sp. n. female: (64) schematic representation of cusp arrangement on legs I and II; (65) epigyne, ventral view; (66) vulva, dorsal view. Scale bar (65, 66) = 0.1 mm.

Description:

Female.

Measurements: CL 2.80–2.95, CW 2.30–2.48, AL 2.60–3.50, AW 2.20–2.23, TL 5.70–6.40, FL 0.18–0.20, SL 1.60–1.78, SW 1.33–1.38, AME–AME 0.15, AME–ALE 0.08, ALE–ALE 0.48, PME–PME 0.15, PME–PLE 0.20, PLE–PLE 0.83. Length of leg segments (sequence from femur to tarsus, and total): I 2.40+1.08+1.98+1.60+1.08=8.14; II 2.25+1.10+1.68+1.53+1.03=7.59; III 1.78+0.88+1.13+1.45+0.55=5.79; IV 2.50+1.05+1.95+1.80+0.70=8.00.

Carapace bright orange to brown (Fig. 10); first two thirds of carapace convex, last third with relatively steep decline; surface smooth, covered in short, fine setae; fovea short, distinct, at two thirds CL. Ocular region brown with dark brown rings around eyes; AER slightly recurved, AME slightly larger than ALE; clypeus height equal to AME diameter; AME separated by distance slightly less their diameter; AME separated from ALE by 0.4 AME diameter; PER recurved, PLE slightly larger than PME; PME separated by 1.2 their diameter; PME separated from PLE by 1.6 PME diameter. Chelicerae orange, slightly darker at fang base; scattered long setae on anterior surface, increasing slightly in length towards fang base; fang pale orange; two promarginal teeth, distal tooth largest; one retromarginal tooth, situated distally. Sternum pale orange, brown towards border; surface covered in fine, long, pale setae. Abdomen cream dorsally, with very pale grey

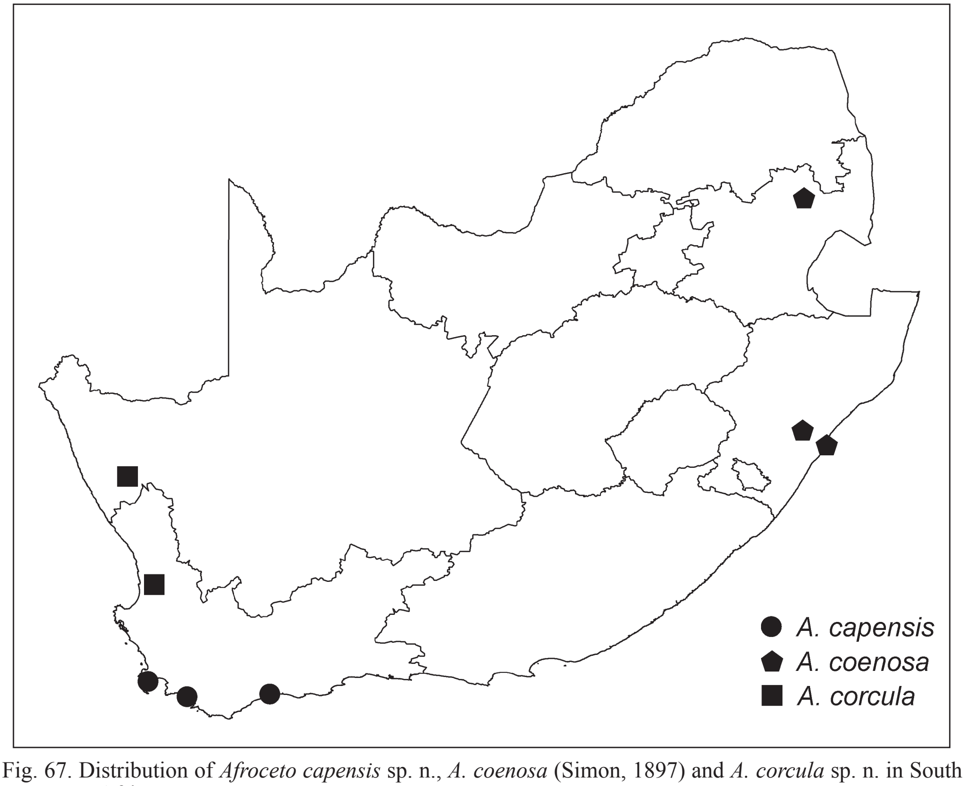


Fig. 67. Distribution of *Afroceto capensis* sp. n., *A. coenosa* (Simon, 1897) and *A. corcula* sp. n. in South Africa.

chevron with few lateral branches; abdomen broader anteriorly, tapering posteriorly; two pairs of pale grey sigilla, anterior and posterior to midpoint of abdomen; fine scattered setae covering abdomen; venter cream. Legs I to IV uniform brown to pale yellow; anterior legs more robust than posterior pairs; relatively dense scopulae on ventral surface of tibiae, metatarsi and tarsi; remaining leg segments covered in fine, pale setae; leg spines and cusps present. Leg spination: femora: I *pl* 2; patellae spineless; tibiae: III *pl* 1 *vt* 1, IV *plv* 1 *vt* 2; metatarsi: I *plv* 5 cusps, II *plv* 5 cusps, III *pl* 1 *rl* 1 *plv* 1, IV *pl* 1 *rl* 1 *plv* 2; tarsi: I *plv* 4 cusps, II *plv* 3 cusps (Fig. 64). Epigyne weakly sclerotised; epigynal ridges meeting anteriorly medially, heart-shaped, extending laterally to median copulatory openings (Fig. 65); ST II globular, situated slightly anterior to copulatory openings, with curved narrow duct leading to slightly larger globular lateral ST I; ST I situated posterior to copulatory openings (Figs 65, 66).

Holotype: ♀ SOUTH AFRICA: *Northern Cape*: Horingsgat, *ca* 4 km N of Leliefontein in Kamiesberg, 30°18'S:18°05'E, 24–25.ii.1979, B. Lamoral (NMSA, 11891).

Paratype: ♀ SOUTH AFRICA: *Western Cape*: Clanwilliam, Dwars Rivier 330, 32°31'S:19°16'E, 13.iii.1993, L.N. Lotz, night in house (NMBA, 5940).

Distribution: Known from the Western and Northern Cape provinces, South Africa (Fig. 67).

Afroceto croeseri sp. n.

Figs 11, 12, 68–71

Etymology: This species is named after the collector of the type specimen, Peter Croeser, in recognition of the large quantity of valuable spider material he collected in the Eastern Cape and KwaZulu-Natal provinces of South Africa.

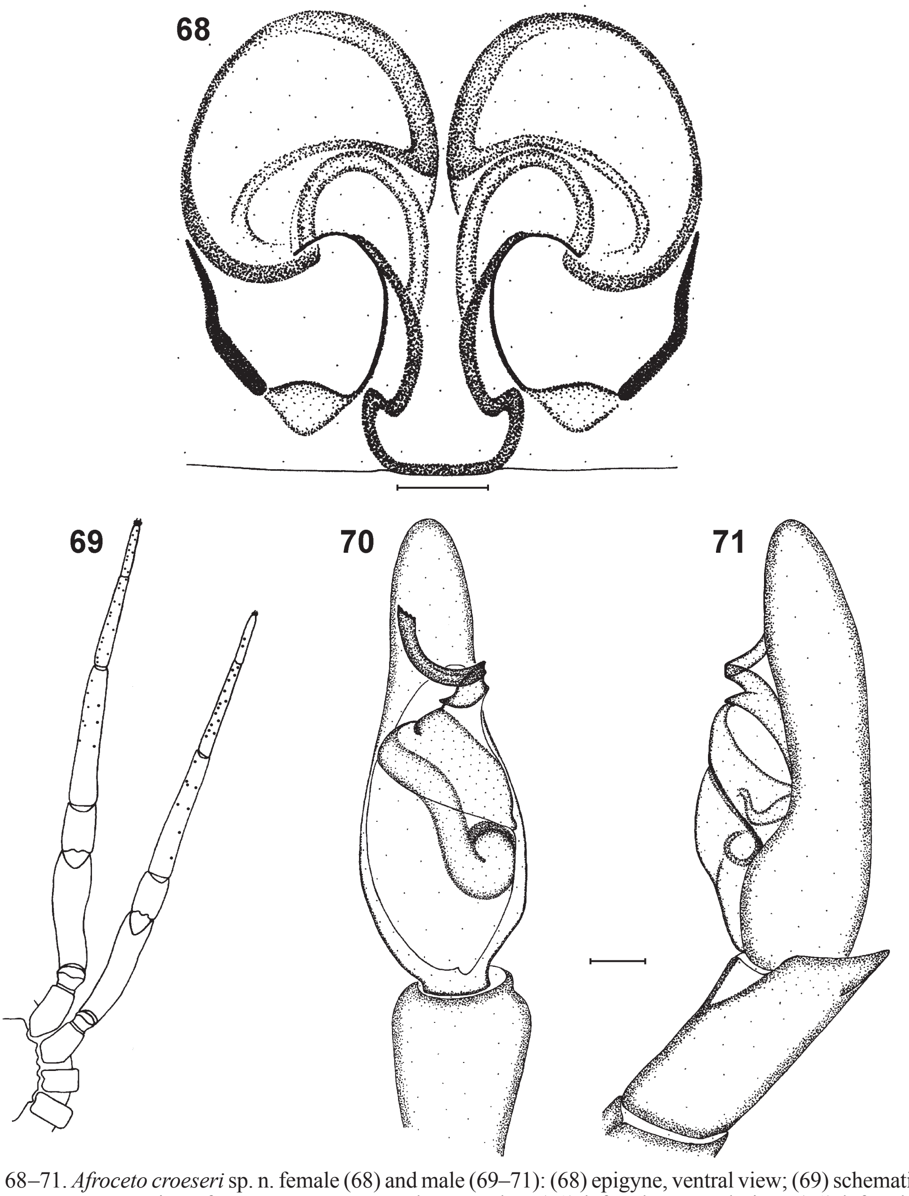
Diagnosis: The female can be recognised by the broad curved copulatory openings that extend into looped copulatory ducts (Fig. 68). The male can easily be recognised by the retrolateral distally originating embolus with a narrow basal coil and curved, parallel sided distal section, ending in a serrated tip (Fig. 70). The sharply pointed tibial apophysis is situated dorsally (Fig. 71).

Description:

Female.

Measurements: CL 2.20, CW 1.85, AL 3.50, AW 2.15, TL 5.80, FL 0.10, SL 1.35, SW 1.08, AME–AME 0.08, AME–ALE 0.03, ALE–ALE 0.40, PME–PME 0.15, PME–PLE 0.13, PLE–PLE 0.53. Length of leg segments (sequence from femur to tarsus, and total): I 2.18+0.90+1.90+1.73+1.20=7.91; II 1.90+0.83+1.50+1.55+1.03=6.81; III 1.45+0.65+1.03+1.30+0.55=4.98; IV 2.25+0.85+1.90+2.23+0.73=7.96.

Carapace orange (Fig. 11); first two thirds of carapace slightly raised, highest point at posterior end of the first third, declining gradually until last quarter, with steep posterior decline; fovea short, distinct, slightly thickened, at two-thirds CL. Ocular region orange with dark brown rings around eyes; AER slightly recurved, AME slightly larger than ALE; clypeus height 0.8 AME diameter; AME separated by 0.6 times their diameter; AME separated by ALE by 0.1 AME diameter; PER recurved, PLE slightly larger than PME; PME separated by 1.2 PME diameter; PME separated from PLE by PME diameter. Chelicerae bright orange, paler orange near fang base; scattered long brown setae on anterior surface, setae increasing in length towards fang base; fang pale orange; three promarginal teeth, median tooth largest, distal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum pale yellow, brown towards border; surface covered in long brown setae. Abdomen pale grey dorsally; abdomen broader anteriorly, tapering posteriorly; two pairs of sigilla, first pair pale grey, at midsection, second pair darker, at two-thirds abdomen length; venter pale grey. Legs I to IV uniform pale yellow to



Figs 68–71. *Afroceto croeseri* sp. n. female (68) and male (69–71): (68) epigyne, ventral view; (69) schematic representation of cusp arrangement on legs I and II; (70) left palp, ventral view; (71) left palp, retrolateral view. Scale bars (68, 70, 71) = 0.1 mm.

orange, anterior legs slightly darker in colour and more robust. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1 *rl* 1, IV *pl* 1 *rl* 1; patellae spineless; tibiae: III *pl* 1 *rl* 1 *vt* 1, IV *pl* 1 *rl* 1 *plv* 1 *vt* 2; metatarsi: III *pl* 1 *rl* 1 *plv* 1, IV *pl* 1 *rl* 1 *plv* 1 *vt* 1. Palpal spination: patellae *pl* 1; tibiae *pl* 1 *do* 1 *plv* 1. Epigyne weakly sclerotised; copulatory openings broad and curved, in posterior half of epigyne, directed medially; ST II large, anteriorly situated, semi-circular; ST I triangular with whip-like duct (Fig. 68).

Male.

Measurements: CL 2.30, CW 1.90, AL 2.60, AW 1.55, TL 4.80, FL 0.15, SL 1.28, SW 1.13, AME–AME 0.08, AME–ALE 0.03, ALE–ALE 0.43, PME–PME 0.13, PME–PLE 0.13, PLE–PLE 0.63. Length of leg segments (sequence from femur to tarsus, and total; both tarsi I missing): I 2.23+0.98+1.85+1.68+?=?; II 1.95+0.85+1.53+1.53+1.15=7.01; III 1.55+0.68+1.05+1.30+0.65=5.23; IV 2.25+0.85+1.80+2.18+0.80=7.91.

Carapace orange (Fig. 12); first two thirds of carapace rounded, declining steeply in last third; surface smooth, covered in short fine setae; fovea short, distinct, at two thirds CL. Ocular region orange with dark brown rings around eyes; AER slightly recurved, AME larger than ALE; clypeus height equal 0.7 AME diameter; AME separated by distance half their diameter; AME separated from ALE by 0.2 ALE diameter; PER recurved, PLE larger than PME; PME separated by distance equal to their diameter; PME separated from PLE by 0.8 PME diameter. Chelicerae orange, paler brown at fang base; scattered, light, long setae on anterior surface; fangs bright orange; two promarginal teeth, distal tooth largest; two retromarginal teeth, distal tooth largest. Sternum yellow, brown towards border; surface covered with scattered fine, long setae. Abdomen pale yellow dorsally with pale grey markings laterally; abdomen broader anteriorly, tapering posteriorly; dorsal scutum large, orange; two pairs of sigilla, pale grey pair anterior to midpoint, posterior pair darker in colour, posterior to midpoint; venter cream. Legs I to IV uniform pale yellow; dense scopulae on metatarsi and tarsi, remaining leg segments covered in fine, less dense setae; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1; patellae spineless; tibiae: I *plv* 6 *rlv* 3 cusps, II *plv* 4 *rlv* 4 cusps, III *pl* 2 *rl* 1 *plv* 2 *vt* 1, IV *pl* 1 *rl* 2 *plv* 3 *rlv* 2; metatarsi: I *plv* 11 *rlv* 4 *vt* 1 cusps, II *plv* 8 *rlv* 4 *vt* 2 cusps, III *pl* 2 *rl* 1 *plv* 1 *rlv* 2, IV *rl* 1; tarsi: I *plv* 6 *rlv* 4 cusps, II *plv* 2 cusps (Fig. 69). Palp brown throughout; tegulum oval, embolus originating retrolaterally distally, with narrow basal coil and curved, parallel sided distal section, ending in a serrated tip near prolateral cymbial margin (Fig. 70); sperm duct broad, running obliquely across tegulum; tibial apophysis triangular with sharp tip, situated dorsally (Figs 70, 71).

Holotype: ♀ SOUTH AFRICA: *KwaZulu-Natal*: Mhlopeni Nat. Res., 5 km SE of Muden, 29°02'S:30°21'E, 3000 ft, [date unknown], P.M.C. Croeser, T. & C. Griswold, valley bushveld (NMSA).

Allotype: ♂ SOUTH AFRICA: *Eastern Cape*: E of Glenmore, above KwaNcukunca stream, 20.i.1994, M. Burger, on soil, pitfall trap (NCA, 96/56).

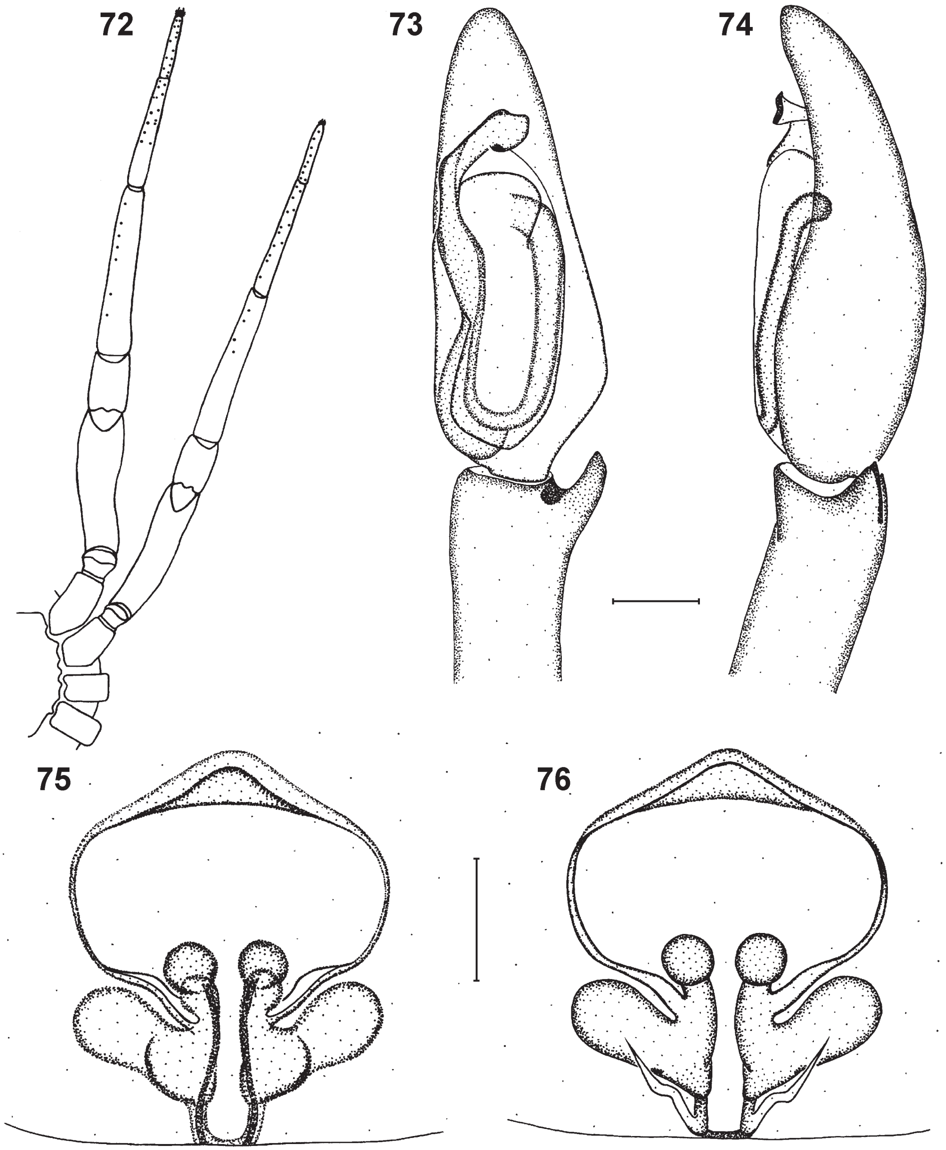
Distribution: Known only from two localities in south-eastern South Africa (Fig. 80).

Afroceto flabella sp. n.

Figs 13, 14, 72–76

Etymology: From Latin *flabellum* (small fan); refers to the flattened, fan-like structure of the male embolus.

Diagnosis: The male can easily be recognised by the flattened tip of the embolus and the U-shaped sperm duct running along the margins of the tegulum, and the small, sharply pointed retrolateral tibial apophysis (Figs 73, 74). The female can easily be recognised by the broad subtriangular shape of the anterior epigynal hood with lateral extensions leading to the copulatory openings (Fig. 75), along with small spherical ST II above the copulatory openings, and large, oval, laterally projecting ST I (Fig. 76).



Figs 72–76. *Afroceto flabella* sp. n. male (72–74) and female (75–76): (72) schematic representation of cusp arrangement on legs I and II; (73) left palp, ventral view; (74) left palp, retrolateral view; (75) epigyne, ventral view; (76) vulva, dorsal view. Scale bars (73–76) = 0.1 mm.

Description:

Male.

Measurements: CL 2.80, CW 2.28, AL 2.90, AW 1.75, TL 5.50, FL 0.18, SL 1.53, SW 1.30, AME–AME 0.13, AME–ALE 0.05, ALE–ALE 0.53, PME–PME 0.15, PME–PLE 0.18, PLE–PLE 0.80. Length of leg segments (sequence from femur to tarsus, and total): I 2.38+1.10+2.05+1.55+1.03=8.11; II 2.20+1.00+1.78+1.50+1.05=7.33; III 1.48+ 0.75+1.13+1.30+0.60=5.26; IV 2.18+0.85+1.73+2.00+0.68=7.44.
Carapace dark orange, fading to pale yellow posteriorly (Fig. 13); first third of carapace rounded, last two thirds with a gradual decline; surface smooth, covered in short, fine setae; fovea short, distinct, at two thirds abdomen length. Ocular region brown with dark brown rings around eyes; AER very slightly recurved, AME slightly larger than ALE; clypeus height subequal to AME diameter; AME separated by distance approximately equal to 0.8 their diameter; AME separated from ALE by 0.4 AME diameter; PER recurved, PME slightly larger than PLE; PME separated by approximately 1.1 times their diameter; PME separated from PLE by distance equal to PME diameter. Chelicerae brown, darker towards fang base; long, fine setae scattered on anterior surface, slightly longer towards fang base; fangs bright orange, darkening towards fang base; three promarginal teeth, median tooth largest, proximal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum pale yellow, brown towards border; surface covered in short fine setae. Abdomen pale yellow to orange dorsally, with broad yellow stripe laterally and orange band dorsally across abdomen; abdomen broader anteriorly, tapering posteriorly; scutum almost covering entire abdomen length; two pairs of distinct sigilla, anterior pair slightly paler brown than posterior pair, situated either side of midpoint; venter pale yellow-grey. Anterior legs pale brown and more robust, posterior legs darker brown; metatarsi and tarsi covered with dense scopulae, remaining leg segments covered in pale fine setae; leg spines and cusps present. Leg spination: femora: I *pl* 3, II *pl* 3; patellae spineless; tibiae: I *plv* 7 cusps, II *plv* 4 cusps, III *pl* 1 *plv* 2 *vt* 2, IV *plv* 4 *vt* 2; metatarsi: I *plv* 7 *rlv* 6 *vt* 1 cusps, II *plv* 9 *rlv* 4 cusps, III *pl* 1 *rl* 1 *plv* 2, IV *plv* 4 *rlv* 1; tarsi: I *plv* 5 *rlv* 9 cusps, II *plv* 8 *rlv* 1 cusps (Fig. 72). Palp yellow-brown, tegulum elongate; embolus originating prolaterally, curving retrolaterally, tip round and flattened; sperm duct U-curved, narrower at embolus base; retrolateral tibial apophysis small, triangular, sharply pointed (Figs 73, 74).

Female.

Measurements: CL 2.70, CW 2.10, AL 3.20, AW 1.80, TL 5.90, FL 0.13, SL 1.60, SW 1.28, AME–AME 0.13, AME–ALE 0.05, ALE–ALE 0.53, PME–PME 0.15, PME–PLE 0.18, PLE–PLE 0.83. Length of leg segments (sequence from femur to tarsus, and total): I 2.28+1.05+1.68+1.40+1.10=7.51; II 2.03+0.95+1.50+1.40+1.03=6.91; III 1.58+ 0.88+1.08+1.30+0.58=5.42; IV 2.30+0.75+1.80+2.10+0.65=7.60.
Carapace light orange, paler orange posterior to midpoint (Fig. 14); first third of carapace rounded, last two thirds with gradual decline; surface covered in short fine setae; fovea short, distinct, thickened, at two thirds CL. Ocular region orange with dark brown rings around eyes; AER recurved, AME slightly larger than ALE; clypeus height equal to AME diameter; AME separated by distance slightly less than their diameter; AME separated from ALE by distance equal to 0.5 AME diameter; PER recurved, PME and PLE subequal in size; PME separated by distance equal to their

diameter; PME separated from PLE by distance equal to PME diameter. Chelicerae brown, darker towards fang base; long, fine setae scattered on anterior surface; fangs orange-brown; three promarginal teeth, median tooth largest, distal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum pale yellow, brown towards border; surface with scattered long brown setae. Abdomen cream, without markings dorsally; abdomen broader anteriorly, tapering posteriorly; venter cream. Legs I to IV uniform light brown; anterior legs slightly more robust than posteriors; tibiae, metatarsi and tarsi with dense scopulae ventrally, remaining segments covered with fine setae; cusps absent. Leg spination: femora: I *pl* 1; patellae spineless; tibiae: III *pl* 1 *plv* 2, IV *plv* 2 *vt* 2; metatarsi: III *pl* 1 *rl* 1 *plv* 1, IV *pl* 1 *rl* 1 *plv* 2. Epigyne weakly sclerotised; anterior hood subtriangular, with lateral extensions leading to copulatory openings; ST II small, rounded, anterior to copulatory openings; ST I large, oval, projecting laterally, situated posterior to copulatory openings (Figs 75, 76).

Holotype ♂ and Allotype ♀: SOUTH AFRICA: *Eastern Cape*: Grahamstown [33.3°S:26.5°E], ii.1933, R.F. Lawrence (SAMC, B8279).

Distribution: Known only from the type locality (Fig. 80).

Afroceto gracilis sp. n.

Figs 15, 77–79

Etymology: From Latin *gracilis* (slender); refers to the slender embolus of the male.

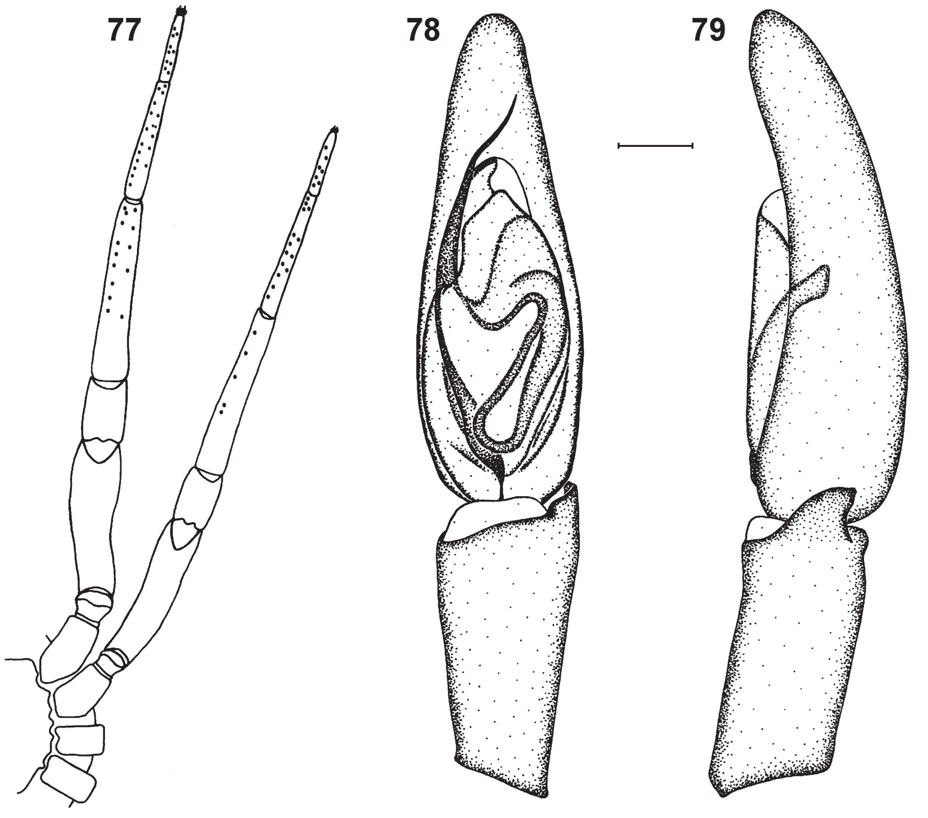
Diagnosis: The male can easily be recognised by the slender, pointed embolus, which runs prolaterally of the tegulum at its base and obliquely towards the retrolateral margin in its distal section (Fig. 78). The tegular sperm duct has two sharp bends, one proximal and the second retrolateral (Fig. 78). The retrolateral tibial apophysis is short and triangular, with a broad base and dorsally directed rounded tip (Fig. 79). Female unknown.

Description:

Male.

Measurements: CL 1.50–2.23, CW 1.15–1.65, AL 1.81–2.56, AW 0.96–1.56, TL 3.69–5.04, FL 0.10–0.23, SL 0.88–1.19, SW 0.80–1.00, AME–AME 0.08, AME–ALE 0.02, ALE–ALE 0.37, PME–PME 0.14, PME–PLE 0.10, PLE–PLE 0.59. Length of leg segments (sequence from femur to tarsus, and total): I 1.90+0.88+1.47+1.20+0.84=6.29; II 1.67+0.78+1.31+1.14+0.80=5.70; III 1.20+0.63+0.88+1.06+0.51=4.28; IV 1.78+0.73+1.49+1.75+0.64=6.39.

Carapace brown to dark brown nearing borders (Fig. 15); highest point in first third of carapace; gradually decline until last quarter, last quarter with steep decline; surface finely granulate, covered in short, fine setae; fovea distinct, at two thirds carapace length. Ocular region brown, with dark brown rings around eyes; AER recurved, AME slightly larger than ALE; clypeus height subequal to AME diameter; AME separated by distance equal to approximately half their diameter; AME separated from ALE by 0.33 AME diameter; PER slightly recurved, PME slightly larger than PLE; PME separated by distance slightly larger than their diameter; PME separated from PLE by distance slightly less than PME diameter. Chelicerae brown, darker towards fang base; long, fine setae scattered on anterior surface, slightly longer towards fang base; fangs orange, darker towards fang base; three promarginal teeth, median tooth largest, distal tooth smallest;



Figs 77–79. *Afroceto gracilis* sp. n. male: (77) schematic representation of cusp arrangement on legs I and II; (78) left palp, ventral view; (79) left palp, retrolateral view. Scale bar (78, 79) = 0.1 mm.

two retromarginal teeth, distal tooth largest. Sternum pale orange, brown towards border; surface covered in short fine setae. Abdomen pale yellow to orange dorsally, with grey stripe laterally, extending to half abdomen length; abdomen broader anteriorly, tapering posteriorly; abdomen with brown scutum covering almost entire dorsum; two pairs of pale brown, indistinct sigilla. Legs I to IV yellow to light brown, dense ventral setae on tibiae, metatarsi and tarsi; anterior legs more robust than posteriors; femora with large incomplete band covering almost entire segment, patellae with incomplete dorsal band, tibiae and metatarsi with two incomplete bands, situated proximally and distally; leg spines and cusps present. Leg spination: femora: I *pl* 2, II *pl* 1, III *pl* 1; patellae spineless; tibiae: I *plv* 7–8 *rlv* 3 *vt* 2 cusps, II *plv* 4–5 cusps, III *pl* 1 *plv* 1 *vt* 2, IV *vt* 2; metatarsi: I *plv* 10–12 *rlv* 7–8 *vt* 1–2 cusps, II *plv* 8–9 *rlv* 3–4 *vt* 1–2 cusps, III *pl* 1 *rl* 1 *plv* 1, IV *pl* 1 *rl* 1 *plv* 1 *rlv* 1 *vt* 2; tarsi: I *plv* 4–5 *rlv* 4 cusps, II *plv* 4–5 *rlv* 3–4 cusps (Fig. 77). Palp brown, tegulum elongate; embolus originating prolaterally, curving retrolaterally toward cymbium tip, distal section slender and pointed; sperm duct with sharp proximal and retrolateral bends (Fig. 78); retrolateral tibial apophysis short and triangular, with broad base, tip rounded and directed dorsally (Fig. 79).

Holotype: ♂ SOUTH AFRICA: *Mpumalanga*: Dullstroom, Sakhelwe Location, 25°24.887'S:30°05.572'E, 2017 m, 26–29.xi.2008, L. Makaka, pitfall traps (NCA, 2009/4819).

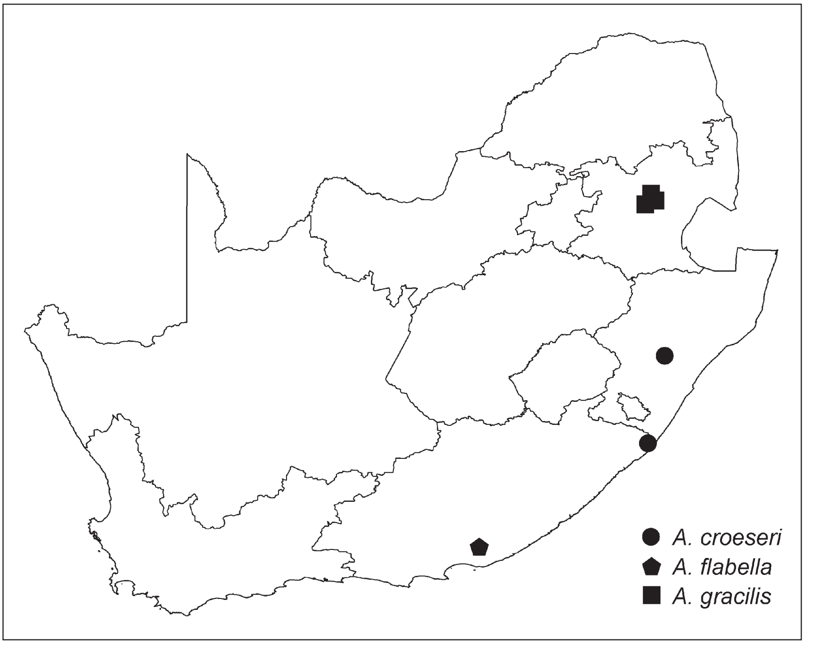


Fig. 80. Distribution of *Afroceto croeseri* sp. n., *A. flabella* sp. n. and *A. gracilis* sp. n. in South Africa.

Paratypes: SOUTH AFRICA: *Mpumalanga*: 1♂ Dullstroom, Groblers Farm, 25°20.002'S:30°06.292'E, 1950 m, 26–29.xi.2008, L. Makaka, pitfall traps (NCA, 2009/4817); 1♂ Dullstroom, Verloren Vallei Nat. Res., 25°18.832'S:30°07.791'E, 2189 m, 26–29.xi.2008, L. Makaka, pitfall traps (NCA, 2009/4818); 1♂ Veloren Vallei Nat. Res., Block 3, 25°18.832'S:30°07.791'E, 29.xi–2.xii.2008, L. Makaka, pitfall traps (NCA, 2010/226); 1♂ Roger Croall, 25°32'S:30°04'E, 26–29.xi.2008, L. Makaka, pitfall traps (NCA, 2010/223).

Distribution: Known only from the Dullstroom district in Mpumulanga Province, South Africa (Fig. 80).

Afroceto plana sp. n.

Figs 16, 17, 81–101

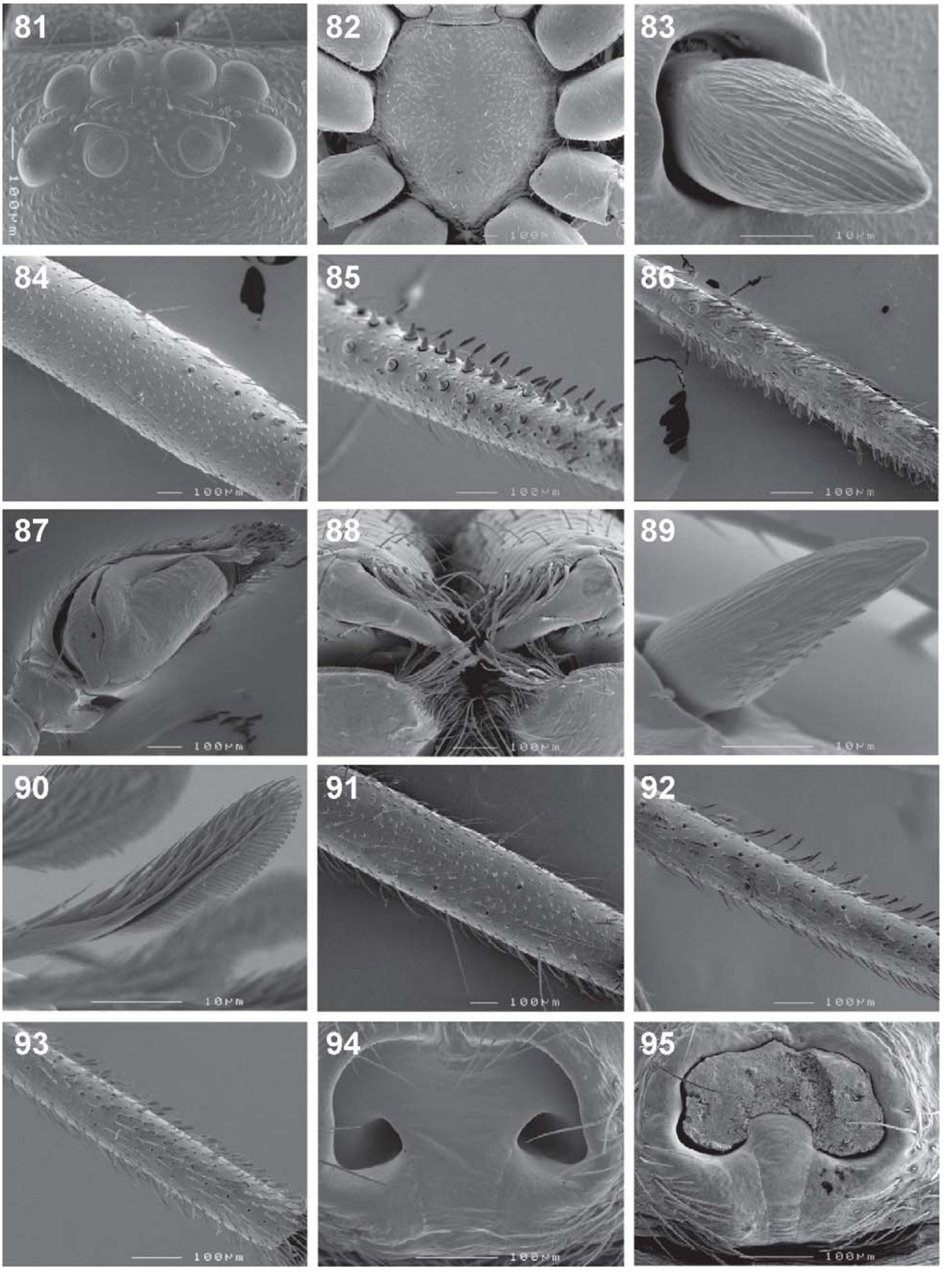
Etymology: From Latin *planus* (flat); refers to the flat tibial apophysis of the male.

Diagnosis: The male of this species is closely related to *A. martini* but can be recognised by the flat retrolateral tibial apophysis with a single dorsally directed tooth-like excrescence, the more compact tegulum and cymbium, and the embolus that is directed distally after emerging from beneath the tegulum, with the tip close to the retrolateral cymbial margin (Figs 97, 98). The female can be recognised by the curved copulatory ducts, with ST II extending beyond the anterior margins of the lateral epigynal ridges (Figs 100, 101); in *A. martini* the copulatory ducts are distinctly coiled and ST II do not reach the anterior margin of the lateral epigynal ridges (Figs 36, 37).

Description:

Male.

Measurements: CL 2.10–2.80, CW 1.83–2.50, AL 2.30–3.20, AW 1.53–2.20, TL 4.40–6.10, FL 0.18–0.28, SL 1.23–1.58, SW 1.08–1.45, AME–AME 0.13, AME–ALE 0.08,



Figs 81–95. Scanning electron micrographs of *Afroceto plana* sp. n. male (81–93) and female (94, 95): (81) eye arrangement, dorsal view; (82) sternum; (83) individual cusp on tibia I; (84, 91) tibia I, ventral cusps; (85, 92) metatarsus I, ventral cusps and scopulate setae; (86, 93) tarsus I, cusps and scopulate setae; (87) left palp, ventral view; (88) fangs, ventral view; (89) individual cusp on metatarsus I; (90) detail of scopulate seta on metatarsus I; (94) epigyne, ventral view, without plugs; (95) epigyne, ventral view, with plugs.

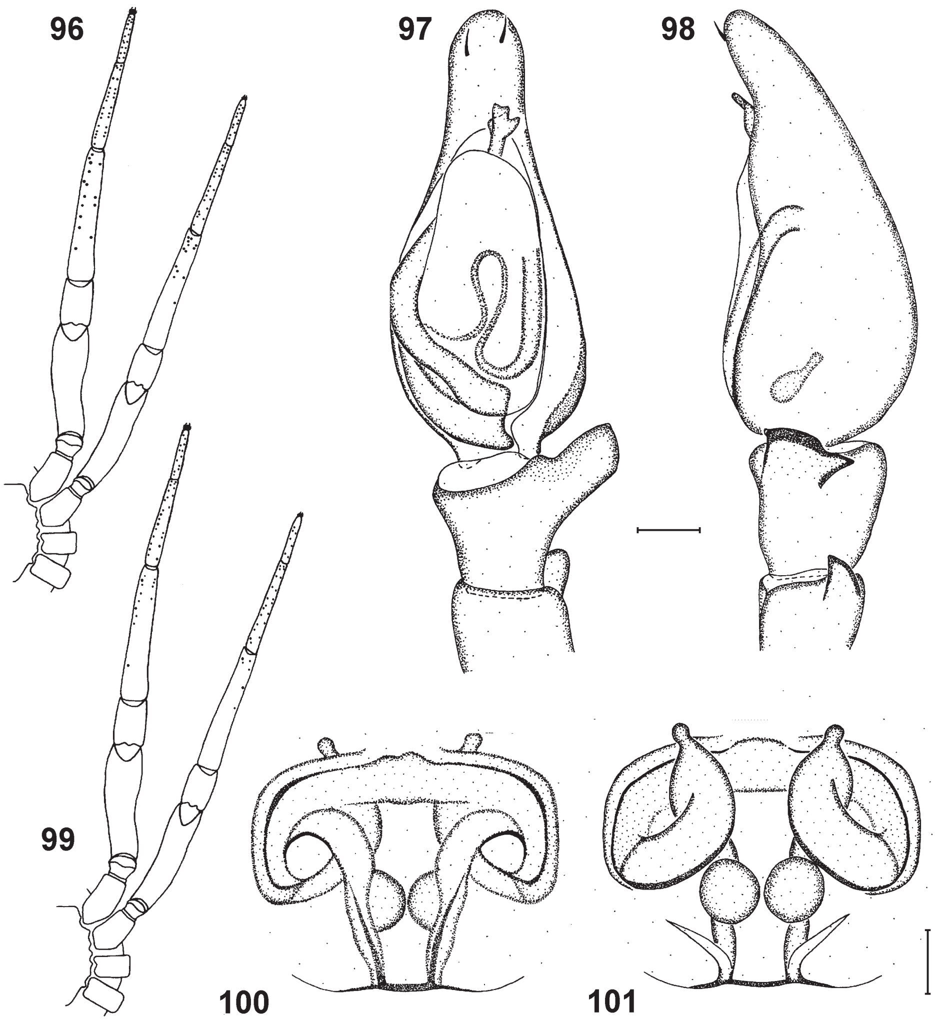
ALE–ALE 0.53, PME–PME 0.20, PME–PLE 0.20, PLE–PLE 0.83. Length of leg segments (sequence from femur to tarsus, and total): I 2.43+1.18+2.05+1.70+1.08=8.44; II 2.15+1.24+1.80+1.63+0.98=7.80; III 1.53+0.85+1.10+1.48+0.73=5.69; IV 2.18+0.98+1.93+2.33+0.73=8.15.

Carapace brown to dark brown, slightly paler posterior to fovea (Fig. 16); first two thirds of carapace slightly raised with highest point near one third of carapace length; last third with relatively steep decline; surface slightly granular, covered in short fine setae; fovea short, distinct, slightly thickened, at two thirds CL. Ocular region dark brown with black rings around eyes; AER slightly procurved, AME larger than ALE; clypeus height equal to 0.5 AME diameter; AME separated by slightly less than 0.5 their diameter; AME separated from ALE by 0.3 AME diameter; PER slightly recurved, PLE larger than PME; PME separated by 1.5 times their diameter; PME separated from PLE by distance equal to PME diameter (Fig. 81). Chelicerae dark brown, paler near base; anterior surface covered in long, dark setae; fangs bright orange, darker at fang base; three promarginal teeth, median and proximal teeth subequal in size, distal tooth smallest; two retromarginal teeth, distal tooth slightly larger than proximal tooth. Sternum pale brown to yellow, covered in fine long setae throughout (Fig. 82). Abdomen cream to light brown dorsally, with dark grey ventral line, either branched into a chevron or unbranched; abdomen broader anteriorly, tapering posteriorly; two pairs of grey sigilla, one pair anterior and other posterior to midpoint of abdomen; venter cream. Legs I to IV uniform pale yellow to light brown, with incomplete grey bands on femora to metatarsi; relatively dense scopulae ventrally on metatarsi and tarsi, remaining leg segments covered in fine, pale setae; anterior femora with two incomplete distal bands, tibiae with incomplete distal and proximal bands, metatarsi with incomplete distal and proximal band; posterior pairs of legs with similar band arrangement, with exception of femora, with one incomplete distal band; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1 *rl* 1, IV *pl* 1 *rl* 1; patellae spineless; tibiae: I *plv* 7–10 *rlv* 0–4 *vt* 1 cusps, II *plv* 4–9 *rlv* 0–4 cusps, III *pl* 1 *rl* 1 *plv* 1 *vt* 2; metatarsi: I *plv* 10–14 *rlv* 8–11 *vt* 2 cusps, II *plv* 13 *rlv* 9 *vt* 2 cusps, III *pl* 1 *rl* 1 *plv* 2 *rlv* 1, IV *pl* 1 *rl* 1 *plv* 2; tarsi: I *plv* 4–10 *rlv* 3–8 cusps, II *plv* 4–8 *rlv* 2–5 cusps (Figs 83–86, 96). Palp yellow-brown; embolus originating prolaterally, curving beneath tegulum, emerging distally; distal section of embolus directed distally, tip fist-like, close to retrolateral margin of cymbium (Figs 87, 97); cymbium with two short ventral spines, located prolaterally and retrolaterally near distal end of cymbium (Fig. 97); retrolateral tibial apophysis prominent, flattened, broad, with sharp, dorsally directed tooth-like excrescence; patellar apophysis sharp, slightly curved (Fig. 98).

Female.

Measurements: CL 2.00–2.40, CW 1.78–2.08, AL 2.40–4.00, AW 1.85–2.60, TL 5.00–6.30, FL 0.13–0.28, SL 1.33–1.43, SW 1.05–1.16, AME–AME 0.08, AME–ALE 0.05, ALE–ALE 0.45, PME–PME 0.23, PME–PLE 0.10, PLE–PLE 0.58. Length of leg segments (sequence from femur to tarsus, and total): I 2.05+0.95+1.55+1.40+0.95=6.90; II 1.83+0.88+1.38+1.35+0.88=6.32; III 1.38+0.73+0.95+1.25+0.48=4.79; IV 2.05+0.85+1.73+2.00+0.65=7.28.

Carapace orange to dark brown, paler posterior to midpoint (Fig. 17); first two thirds of carapace raised, with highest point at one third of carapace length, posterior third declining steeply; surface smooth, covered in short, fine setae; fovea short, distinct, slightly thickened, at two-thirds CL. Ocular region light brown with dark brown rings around eyes; AER slightly recurved, AME larger than ALE; clypeus height equal to 0.8 AME diameter; AME separated by 0.6 their diameter; ALE separated from AME by 0.8 AME diameter; PER slightly recurved, PLE larger than PME; PME separated from PLE by distance equal to 1.5 their diameter; PME separated by distance equal to PME diameter. Chelicerae light brown, slightly darker at fang base; anterior surface of chelicerae with scattered setae (Fig. 88); fangs orange; three promarginal teeth, proximal tooth largest, distal tooth smallest; two retromarginal teeth, proximal tooth largest. Sternum pale yellow, brown towards borders; surface covered in long, fine setae. Abdomen pale yellow to cream dorsally, with light grey lateral stripe; abdomen



Figs 96–101. *Afroceto plana* sp. n. male (96–98) and female (99–101): (96, 99) schematic representation of cusp arrangement legs I and II; (97) left palp, ventral view; (98) left palp, retrolateral view; (100) epigyne, ventral view; (101) vulva, dorsal view. Scale bars (97, 98, 100, 101) = 0.1 mm.

broader anteriorly, tapering posteriorly; one pair of pale grey sigilla anterior to midpoint of abdomen; fine setae scattered throughout dorsum; venter cream. Legs I to IV uniform light brown to pale yellow; erect setae on anterior legs, alongside cusps on tibiae, metatarsi and tarsi; dense scopulae ventrally on anterior metatarsi and tarsi (Figs 90–92). Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1 *rl* 1, IV *pl* 1 *rl* 1; patellae spineless; tibiae: I *plv* 9–13 *rlv* 4–7 cusps, II *plv* 2–8 *rlv* 3–4 cusps, III *pl* 1 *rl* 1 *rlv* 1, IV *pl* 1 *rl* 2 *plv* 1 *vt* 2; metatarsi: I *plv* 14–16 *rlv* 9–10 cusps, II *plv* 11–12 *rlv* 8–9 cusps, III *pl* 1 *rl* 1 *rlv* 1, IV *pl* 1 *rl* 1 *plv* 1; tarsi: I *plv* 6 *rlv* 4–6 cusps, II *plv* 3–4 *rlv* 1–3 cusps (Figs 89, 91–93, 99). Genital area sclerotised; lateral epigynal ridges comma-shaped, copulatory openings directed anteriorly; epigyne without mating plugs (Fig. 94) or with plugs (Fig. 95); copulatory ducts broad, curved, leading to small anterior ST II extending beyond anterior margin of lateral ridges (Figs 100, 101); narrow duct leading posteriorly from ST II to medially placed globular ST I in posterior half of epigyne (Fig. 101).

Holotype: ♂ SOUTH AFRICA: *KwaZulu-Natal*: Ndumo Game Reserve, Crocodile Farm, 26°54.426'S: 32°19.185'E, 19.i.2002, C. Haddad, leaf litter under fig tree (NCA, 2002/385).

Allotype: ♀ SOUTH AFRICA: *KwaZulu-Natal*: Ndumo Game Reserve, W shore of Nyamiti Pan, 26°53.767'S: 32°16.557'E, 3.vii.2003, C. Haddad, under *Acacia xanthophloea* bark (NCA, 2006/1488).

Paratypes: SOUTH AFRICA: *KwaZulu-Natal*: 5♂ Ndumo Game Reserve, Start of game count transect 8, 26°50.183'S:32°13.135'E, 2.vii.2003, C. Haddad, under bark of fever tree (NCA, 2006/1493). *Western Cape*: 1♂ 4♀ 1 juv. De Hoop Nat. Res., Potberg, 34°22.487'S:20°31.980'E, 6.iv.2004, C. Haddad, leaf litter (NCA, 2006/1505).

Other material examined: MALAWI: 1♀ Viphya Mountains, Chikangawa, 11°50'S:33°48'E, ix–x.1977, R. Jocqué, old pine plantation (MRAC, 153548). SOUTH AFRICA: *Free State*: 1♂ Bloemfontein district, "Hopefield" farm, 28°54'S:26°14'E, 1.xii.2001, C. Haddad, under Bluegum bark (NCA, 2006/1478); 1♂ 1 juv. Sandveld Nat. Res., 27°41'S:25°43'E, 25.x.2003, C. Haddad, in chimney of *Odontotermes* termite mound (NCA, 2002/507). *KwaZulu-Natal*: 1♀ Ndumo Game Reserve, Crocodile Farm, 26°54.426'S: 32°19.185'E, 28.vi.2003, C. Haddad, active search (NCA, 2006/1494); 2♀ same locality, Crocodile Farm, 26°54.426'S:32°19.185'E, 8.xii.2000, C. Haddad, fever tree, active search (NCA, 2006/1506); 2♂ same locality, E shore of Shokwe Pan, 26°52.516'S:32°12.407'E, 21.vi.2006, C. Haddad, under logs (NCA, 2006/1238); 3♂ same data (NCA, 2006/1244); 1♂ same locality, near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, 9.ii.2005, C. Haddad, leaf litter, floodplain (NCA, 2005/40); 16♂ same locality, start of game count transect 8, 26°50.183'S:32°13.135'E, 2.vii.2003, C. Haddad, under fever tree bark (NCA, 2006/1484); 8♀ same data (NCA, 2006/1485); 6♀ same locality, start of game count transect 8, 26°50.183'S:32°13.135'E, 2.vii.2004, C. Haddad, *Ficus* bark (NCA, 2006/1492); 3♂ same locality, W shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, 3.vii.2003, C. Haddad, under *A. xanthophloea* bark (NCA, 2006/1487). *Limpopo*: 1♀ Tuinplaas, Springbokvlakte, Settlers Lodge, 7.v.2002, M. van Jaarsveld, aru 5731 grass, pitfall trap (NCA, 2003/332); 1♀ same locality, 7.v.2002, M. van Jaarsveld, aru 5730 grass, pitfall trap (NCA, 2003/333); 1♀ same locality, 7.v.2002, M. van Jaarsveld, aru 5734 grass, pitfall trap (NCA, 2003/334).

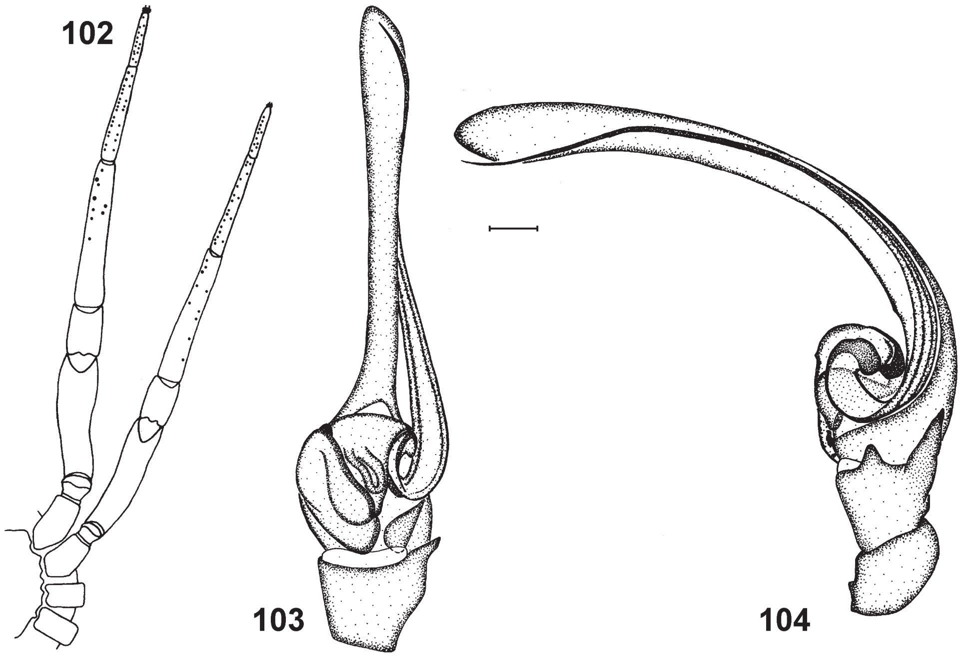
Distribution: Recorded from the eastern, central and southern parts of South Africa, with a single specimen collected in Malawi (Fig. 105).

Afroceto porrecta sp. n.

Figs 18, 102–104

Etymology: From Latin *porrecta* (stretched out, extended or long); refers to the very long embolus and cymbium of the male.

Diagnosis: This species can be recognised by the long, slender embolus that extends retrolaterally along the elongated, slender cymbium (Fig. 103). The palpal tibia has two distinctly separate retrolateral apophyses, of which the dorsal apophysis is larger and more sharply pointed (Fig. 104). Female unknown.



Figs 102–104. *Afroceto porrecta* sp. n. male: (102) schematic representation of cusp arrangement on legs I and II; (103) left palp, ventral view; (104) left palp, retrolateral view. Scale bar (103, 104) = 0.1 mm.

Description (only the type specimen was measured since the other specimen examined was severely damaged):

Male.

Measurements: CL 2.42, CW 1.92, AL 2.58, AW 1.62, TL 5.00, FL 0.38, SL 1.37, SW 1.20, AME–AME 0.01, AME–ALE 0.06, ALE–ALE 0.45, PME–PME 0.18, PME–PLE 0.16, PLE–PLE 0.71. Length of leg segments (sequence from femur to tarsus, and total): I 2.35+1.00+1.94+1.63+1.08=8.00; II 2.08+0.90+1.67+1.45+0.92=7.02; III 1.57+0.73+1.06+1.37+0.53=5.26; IV 2.33+0.86+1.92+2.24+0.75=8.10.

Carapace reddish brown (Fig. 19); first third with gradual rise to highest point of carapace, gradual decline of carapace till last quarter, last quarter with steep decline; surface smooth, covered in fine setae; fovea long, distinct, at two thirds CL. Ocular region reddish brown with black rings around eyes; AER recurved, AME slightly larger than ALE; clypeus height slightly more than AME diameter; AME separated by distance equal to 0.7 their diameter; AME separated from ALE by 0.29 AME diameter; PER procurved, PLE and PME are subequal in size; PME separated by 1.5 PME diameter; PME separated from PLE by slightly less than1.5 PME diameter. Chelicerae brown, slightly darker towards fang base; anterior surface with scattered black setae; three promarginal teeth, median tooth largest, proximal and distal tooth equal in size; two retromarginal tooth, largest situated distally. Sternum brown, border light brown; surface with scattered long setae. Abdomen pale grey; abdomen broader anteriorly, tapering posteriorly; brown scutum extends two thirds dorsum length, dark brown median line extending to half abdomen length; surface smooth with short, fine setae throughout;

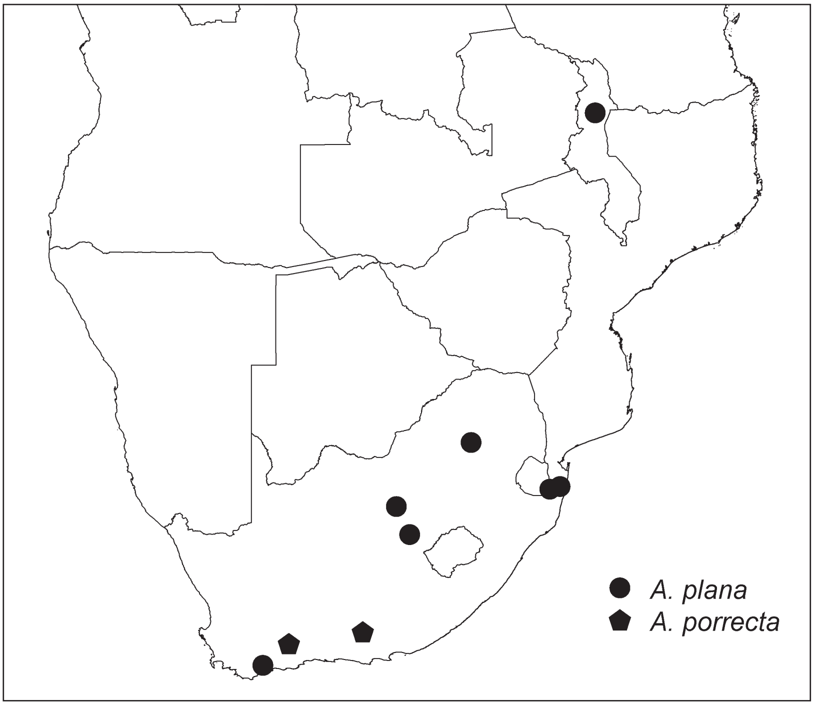


Fig. 105. Distribution of *Afroceto plana* sp. n. and *A. porrecta* sp. n. in southern Africa.

venter cream. Legs I to IV uniform pale yellow with incomplete band markings; anterior legs more robust than posteriors; legs with dense scopulae ventrally on metatarsi and tarsi; remaining segments covered in scattered setae; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1, IV *pl* 1; patellae spineless; tibiae: I *plv* 7 *rlv* 2 cusps, II *plv* 5 *rlv* 5 cusps, III *pl* 1 *plv* 2 *rl* 1 *rlv* 2 *vt* 2, IV *pl* 2 *plv* 3 *rl* 1 *rlv* 2 *vt* 1; metatarsi: I *plv* 15 *rlv* 9 cusps, II *plv* 11 *rlv* 4 *vt* 2 cusps, III *pl* 1 *plv* 2 *rl* 1 *rlv* 1, IV *pl* 2 plv 2 *rl* 1 *rlv* 1; tarsi: I *plv* 6 *rlv* 3 cusps, II *plv* 2 *rlv* 1 cusps (Fig. 112). Palp yellow, elongated slender embolus with narrow point (Fig. 103), curving retrolaterally on narrow, elongated cymbium; two retrolateral tibial apophysis, dorsal apophyses small, rounded, posterior apophyses large sharply pointed (Fig. 104).

Holotype: ♂ SOUTH AFRICA: *Western Cape*: "Rosendal" Farm, near Prince Albert, 33°16.492'S:22°14.461'E, 24–27.ix.2008, D. van Rensburg, R. Lyle, R. Fourie, J. Saaiman, R. du Preez & V. Swart, pitfall traps, southern slope (NCA, 2008/2895).

Other material examined: SOUTH AFRICA: *Eastern Cape*: 1♂ Jansenville District, 28 km NWW of Jansenville, "Suurhaak" Farm, Trap 18-7 (NCA, 2008/2896).

Distribution: This species is only known from single localities in the Western and Eastern Cape provinces, South Africa (Fig. 105).

Afroceto rotunda sp. n.

Figs 19, 20, 106–110

Etymology: From Latin *rotunda* (rounded); refers to the rounded anterior hood of the female epigyne.

Diagnosis: The male of this species resembles *A. gracilis* sp. n. in genitalic morphology, but can be distinguished by the single loop of the U-shaped seminal ducts, the presence of a ventral distal cymbial spine, and the broader, shorter retrolateral tibial apophysis (Figs 107, 108). The female resembles *A. arca* sp. n. in genitalic morphology but can be recognised by the round anterior hood with lateral extensions leading to the copulatory openings, and the absence of a transverse duct linking the ST I (Fig. 109).

Description:

Male.

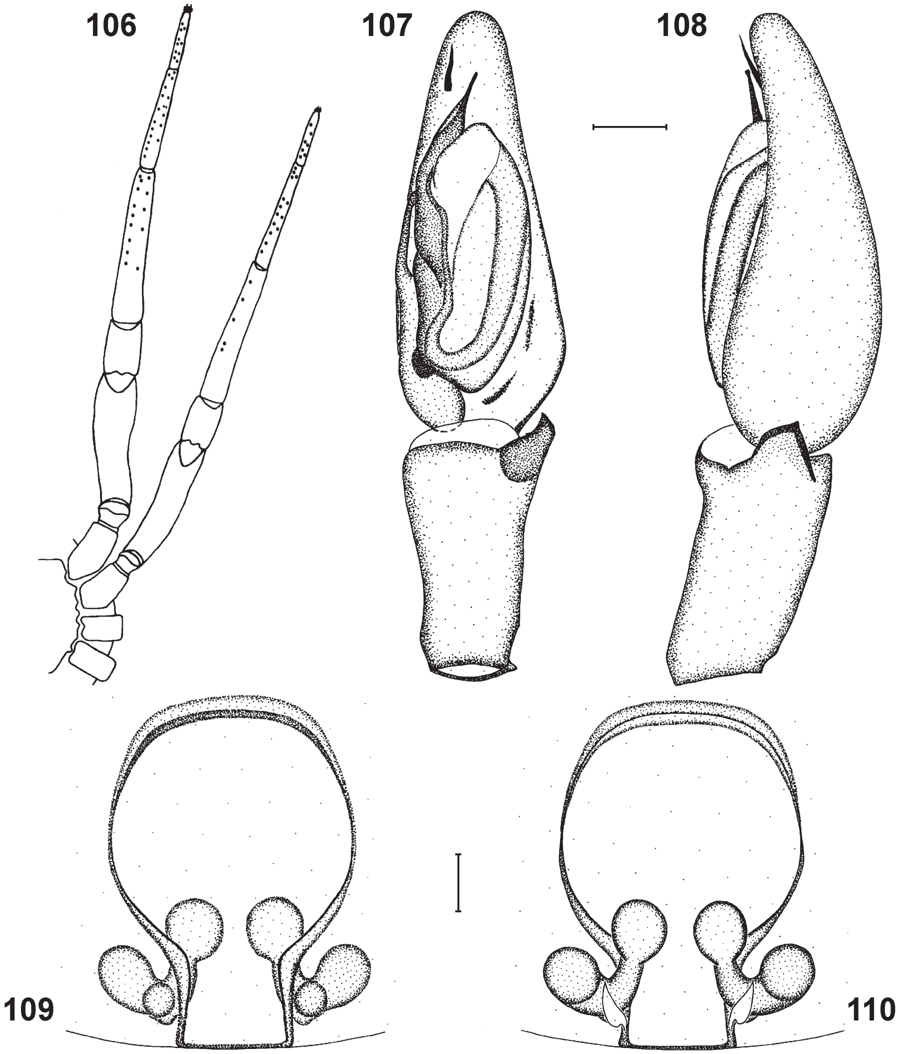
Measurements: CL 2.58, CW 1.83, AL 1.41, AW 0.94, TL 3.99, FL 0.25, SL 1.49, SW 1.24, AME–AME 0.10, AME–ALE 0.06, ALE–ALE 0.45, PME–PME 0.14, PME–PLE 0.18, PLE–PLE 0.71. Length of leg segments (sequence from femur to tarsus, and total): I 2.38+1.08+1.92+1.38+0.88=7.64; II 2.00+0.92+1.62+1.27+0.85=6.66; III 1.23+ 0.65+0.96+1.23+0.46=4.53; IV 1.81+0.77+1.54+1.73+0.54=6.39.

Carapace reddish brown, pale orange posterior to midpoint (Fig. 19); highest point in first third of CL, declining gradually in last two thirds; surface smooth, covered in fine setae; fovea distinct, slightly thickened, at two thirds CL. Ocular region reddish brown with dark brown rings around eyes; AER recurved, AME and ALE subequal in size; clypeus height equal to AME diameter; AME separated by distance equal to 0.84 their diameter; AME separated from ALE by 0.5 AME diameter; PER very slightly recurved, PLE subequal to PME; PME separated by distance equal to their diameter; PME separated from PLE by distance equal to 1.14 PME diameter. Chelicerae brown, slightly darker towards fang base; anterior surface with scattered black setae; two promarginal teeth, proximal tooth largest; two retromarginal teeth, proximal tooth largest. Sternum orange, border brown; surface with scattered long brown setae. Abdomen creamy pale yellow with grey mottling, with dark grey lateral line extending length of abdomen; abdomen broader anteriorly, tapering posteriorly; brown scutum covering entire dorsum; surface smooth, with short, fine setae throughout; venter cream. Legs I to IV uniform pale brown; anterior legs more robust, slightly darker than posteriors; legs with relatively dense scopulae ventrally on metatarsi and tarsi; remaining segments covered in scattered fine setae; leg spines and cusps present. Leg spination: femora: I *pl* 4, II *pl* 4; patellae spineless; tibiae: I *plv* 7 *rlv* 4 *vt* 2 cusps, II *plv* 5 cusps, III *pl* 1 *plv* 2 *vt* 1, IV *plv* 2 *vt* 2; metatarsi: I *plv* 10 *rlv* 7 *vt* 1 cusps, II *plv* 9 *rlv* 4 *vt* 1 cusps, III *pl* 1 *rl* 1 *plv* 3, IV *pl* 1 *plv* 3; tarsi: I *plv* 6 *rlv* 4 cusps, II *plv* 4 *rlv* 3 cusps (Fig. 106). Palp brown; sperm duct U-shaped, narrowing towards embolus; embolus originating prolaterally, with narrow, sharply pointed tip directed obliquely towards the retrolateral margin of cymbium; cymbium with one strong prolateral distal ventral spine (Fig. 107); retrolateral tibial apophysis broad, triangular, ending in sharp point (Fig. 108).

Female.

Measurements: CL 2.54, CW 2.00, AL 3.46, AW 1.92, TL 6.00, FL 0.23, SL 1.47, SW 1.25, AME–AME 0.12, AME–ALE 0.06, ALE–ALE 0.45, PME–PME 0.14, PME–PLE 0.16, PLE–PLE 0.69. Length of leg segments (sequence from femur to tarsus, and total): I 2.06+0.98+1.55+1.27+0.84=6.70; II 1.86+0.88+1.39+1.20+0.78=6.11; III 1.27+0.76+ 0.98+1.18+0.47=4.66; IV 1.98+0.78+1.59+1.86+0.56=6.77.

Carapace reddish brown, pale orange posterior to midpoint (Fig. 19); highest point in first third CL, with gradual decline in last two thirds; surface finely granulated, covered



Figs 106–110. *Afroceto rotunda* sp. n. male (106–108) and female (109, 110): (106) schematic representation of cusp arrangement on legs I and II; (107) left palp, ventral view; (108) left palp, retrolateral view; (109) dissected epigyne, ventral view; (110) vulva, dorsal view. Scale bars (107–110) = 0.1 mm.

in short fine setae; fovea short, distinct, at two thirds CL. Ocular region reddish brown, with black rings around eyes; AER slightly recurved, AME subequal to ALE; clypeus height equal to AME diameter; AME separated by distance equal to their diameter, AME separated from ALE by distance equal to half AME diameter; PER recurved, PME subequal to PLE; PME separated by distance equal to their diameter; PME separated from PLE by 1.17 PME diameter. Chelicerae brown, darker towards fang base; dark long setae on anterior surface, increasing in length towards fang base; three promarginal teeth, median tooth largest, distal tooth smallest; two retromarginal teeth, distal tooth largest. Sternum orange, brown towards borders; surface with scattered long and short dark setae. Abdomen pale yellow with pale mottled grey; abdomen broader anteriorly, tapering posteriorly; surface smooth, covered with short fine setae throughout; venter cream. Legs I to IV uniform pale brown; metatarsi and tarsi with dense ventral scopulae, remaining segments covered with fine, scattered setae. Leg spination: femora: I *pl* 4, II *pl* 1; patellae spineless; tibiae: III *pl* 1 *rl* 1 *plv* 4, IV *vt* 2; metatarsi: III *pl* 1 *plv* 1 *rlv* 1, IV *rlv* 2. Epigyne sclerotised, with rounded anterior hood, extending laterally to medially situated copulatory openings (Fig. 109); ST II approximately subequal to ST I, both spherical; ST II anterior of copulatory opening, linked by short, broad, curved duct to lateral ST I, posterior to copulatory opening (Fig. 110).

Holotype ♂ and Allotype ♀: SOUTH AFRICA: *Northern Cape*: "Blesfontein" Farm, nr Sutherland, 32°28.087'S:20°25.113'E, 1357 m, 30.xi.2008, V. Butler, active search, vlei [wetland] area (NCA, 2008/2899).

Distribution: Known only from the type locality (Fig. 117).

Afroceto spicula sp. n.

Figs 21, 22, 111–116

Etymology: From Latin *spiculum* (a dart, an arrow), which refers to the sharp embolus tip of the male.

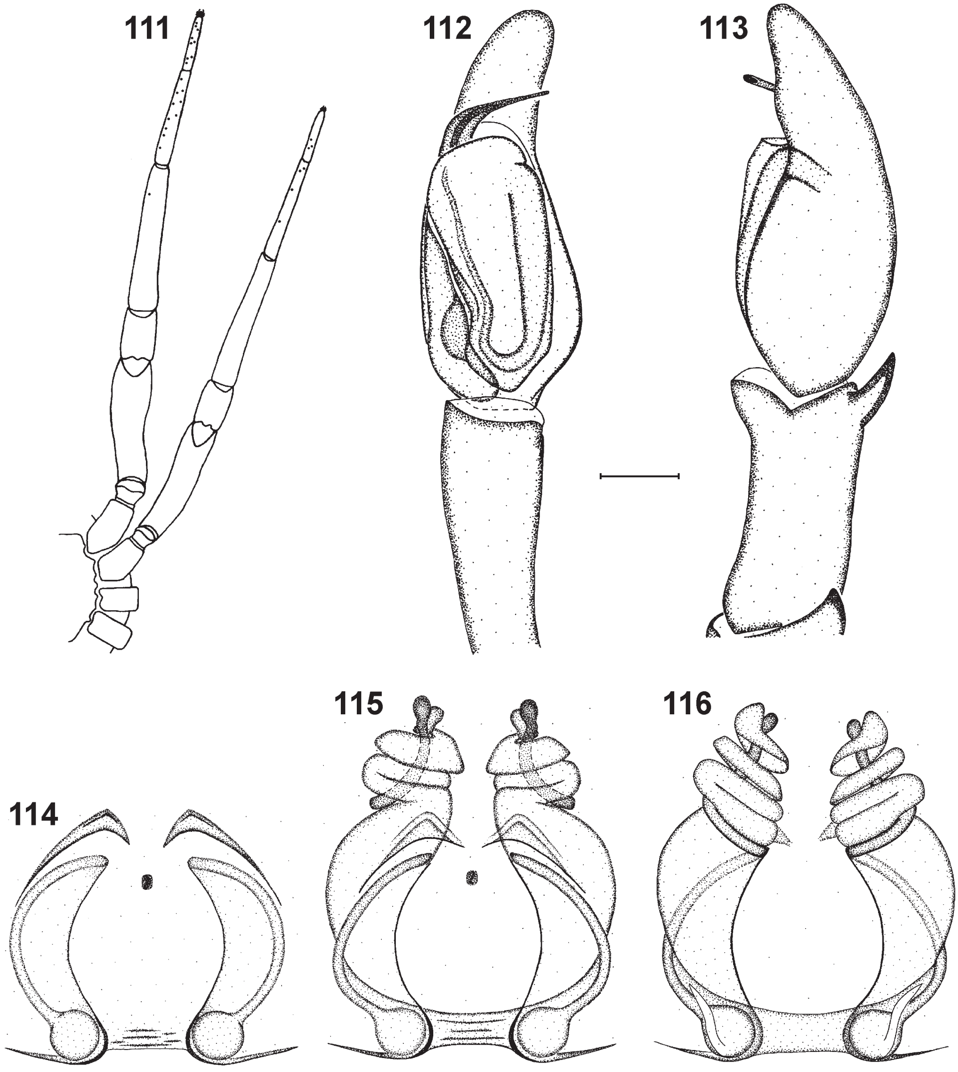
Diagnosis: Males can easily be recognised by the sharp transverse embolus, the prominent, sharply pointed dorsal tibial apophysis, and the small, dorsally situated retrolateral patellar apophysis that is slightly curved into a point (Figs 112, 113). The female has long coiled copulatory ducts and anterior ST II, leading via a fine duct to the small round posterior ST I (Fig. 115).

Description:

Male.

Measurements: CL 1.90, CW 1.73, AL 2.00, AW 1.33, TL 4.00, FL 0.23, SL 1.23, SW 1.08, AME–AME 0.08, AME–ALE 0.03, ALE–ALE 0.38, PME–PME 0.10, PME–PLE 0.10, PLE–PLE 0.58. Length of leg segments (sequence from femur to tarsus, and total): I 1.70+0.78+1.35+1.15+0.78=5.76; II 1.58+0.78+1.25+1.10+0.75=5.46; III 1.10+0.55+0.83+0.95+0.45=3.88; IV 1.63+0.70+1.33+1.45+0.53=5.64.

Carapace light brown, pale orange posterior to fovea (Fig. 21); carapace highest at eye region, first two thirds of carapace with gradual decline, with relatively steep decline in the last third; surface smooth, covered in fine setae; fovea short, distinct, at two thirds CL. Ocular region orange, with dark brown rings around eyes; AER almost straight, AME and ALE subequal in size; clypeus height equal to AME diameter; AME separated by distance equal to 0.75 their diameter; AME separated from ALE by distance equal to half AME diameter; PER slightly recurved, PLE slightly larger than PME; PME separated by 0.8 PME diameter; PME separated from PLE by 0.8 PME diameter. Chelicerae orange to brown, slightly darker towards fang base; anterior surface with scattered black setae; two promarginal teeth, proximal tooth largest; one small retromarginal tooth, situated distally. Sternum pale yellow, border light brown; surface with scattered long brown setae. Abdomen creamy pale yellow, mottled grey posterior to midpoint; abdomen broader anteriorly, tapering posteriorly; scutum nearly covering entire dorsum; surface smooth with short, fine setae throughout; venter cream. Legs I to IV uniform pale yellow; anterior legs more robust than posteriors; legs with dense scopulae ventrally



Figs 111–116. *Afroceto spicula* sp. n. male (111–113) and female (114–116): (111) schematic representation of cusp arrangement on legs I and II; (112) left palp, ventral view; (113) left palp, retrolateral view; (114) undissected epigyne, ventral view; (115) dissected epigyne, ventral view; (116) vulva, dorsal view. Scale bars (112–116) = 0.1 mm.

on metatarsi and tarsi; remaining segments covered in scattered dark setae; leg spines and cusps present. Leg spination: femora: I *pl* 3, II *pl* 1; patellae spineless; tibiae: I *plv* 1 cusp, III *plv* 1 *vt* 1, IV *vt* 1; metatarsi: I *plv* 7 *rlv* 3 cusps, II *plv* 3 *rlv* 1 cusps, III *pl* 1 *plv* 2, IV *pl* 1 *rl* 1 *plv* 2 *rlv* 1; tarsi: I *plv* 6 *rlv* 3 cusps, II *plv* 2 *rlv* 1 cusps (Fig. 111). Palp yellow; embolus with sharply pointed tip, curving transversely across cymbium to retrolateral margin; sperm duct U-shaped, narrowing towards embolus; tibial apophysis dorsally situated, slightly curved, ending in sharp point; patella with small, slightly curved dorsal apophysis (Figs 112, 113).

Female.

Measurements: CL 2.30, CW 1.98, AL 3.40, AW 2.20, TL 5.80, FL 0.23, SL 1.40, SW 1.18, AME–AME 0.10, AME–ALE 0.03, ALE–ALE 0.43, PME–PME 0.15, PME–PLE 0.15, PLE–PLE 0.65. Length of leg segments (sequence from femur to tarsus, and total): I 2.45+1.03+1.98+1.68+1.20=8.34; II 2.08+0.85+1.58+1.50+1.08=7.09; III 1.53+0.80+1.18+1.35+0.63=5.49; IV 2.40+0.98+2.05+2.28+0.88=8.59.

Carapace dark brown (Fig. 22); first two thirds of carapace rounded, with relatively steep decline in last third; surface smooth, covered in short fine setae; fovea short, distinct, at two thirds CL. Ocular region dark brown with black rings around eyes; AER slightly procurved, AME larger than ALE; clypeus height slightly less than AME diameter; AME separated by distance equal to their diameter, AME separated from ALE by 0.4 AME diameter; PER very slightly recurved, PME larger than PLE; PME separated by distance equal to their diameter; PME separated from PLE by 1.2 PME diameter. Chelicerae brown, darker towards fang base; dark long setae on anterior surface, increasing in length towards fang base; two promarginal teeth, distal tooth largest; two retromarginal teeth, proximal tooth largest. Sternum orange, brown towards borders; long, surface with scattered long dark setae. Abdomen pale yellow with chevron markings, with grey median line, light grey transverse branches and dark grey lines laterally; abdomen broader anteriorly, tapering posteriorly; surface smooth, covered with short fine setae throughout; venter cream. Legs I to IV uniform light brown, with distinct incomplete

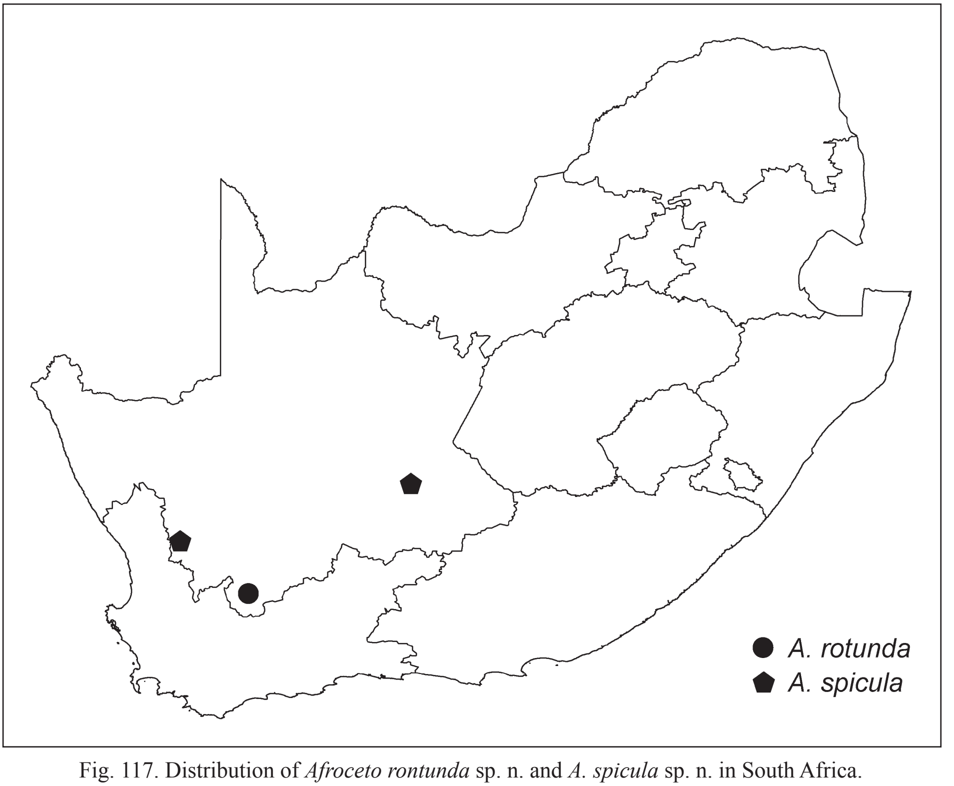


Fig. 117. Distribution of *Afroceto rontunda* sp. n. and *A. spicula* sp. n. in South Africa.

bands on femora to tibiae and complete bands on distal ends of metatarsi; dense scopulae on metatarsi and tarsi, remaining segments covered with fine, scattered setae; femora with one large incomplete proximal band; patellae with one incomplete proximal band; tibiae with two incomplete bands, proximal and distally situated. Leg spination: femora: I *pl* 1; patellae spineless; tibiae: III *rl* 1 *plv* 2 *rlv* 2 *vt* 2, IV *pl* 1 *rl* 2 *plv* 2; metatarsi: III *pl* 1 *plv* 2 *rlv* 2. Palpal spination: femora *rlv* 2, tibiae *do* 1. Epigyne sclerotised with semi-circular hoods, covering copulatory openings; entrance ducts coiled, ST II hidden behind hoods; ST I small, globose, posteromedially situated, linked to ST II by long narrow duct (Figs 114–116); anterior portion of spermathecal structures hidden in abdomen in ventral view (Fig. 114).

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: Oorlogskloof Nat. Res., near Nieuwoudtville [31.4°S:19.1°E], 21.xii.2000, J. Leroy, sifted from leaf litter under *Rhus lancea* trees, riverine thickets (NCA, 2006/1529).

Allotype: ♀ SOUTH AFRICA: *Northern Cape*: 30 km SE of Britstown, "De Put" Farm, 30°48.433'S:23°40.600'E, 20–29.i.2006, M. Burger, M. Carstens, K. Jacobs & A. Pretorius, caught in pitfall and funnel traps, SARCA (Grid trap) (NCA, 2006/1555).

Distribution: Known from the Northern Cape Province, South Africa (Fig. 117).

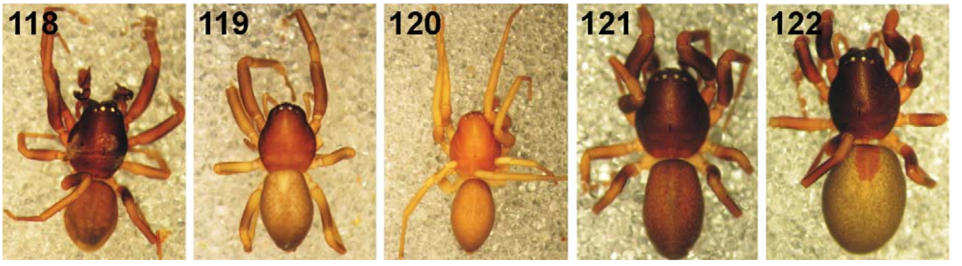
Genus **Patelloceto** gen. n.

Etymology: The name is a combination of the patella, referring to the large retrolateral patellar apophysis of the males (longer than the palpal patella), and *Cetonana*, to which the new genus is related. Gender feminine.

Type species: *Patelloceto secutor* sp. n.

Diagnosis: This genus superficially resembles *Afroceto* gen. n. and the South American genus *Trachelopachys* Simon, 1897, but can easily be recognised by the unique genitalic morphology: males have a distal femoral apophysis that is sometimes denticulate, a large retrolateral patellar apophysis that is longer than the patella itself, and a large dorsal triangular tibial apophysis. Females can be recognised by the broad membranous median septum separating the small lateral spermathecae, and the long oblique lateral epigynal hoods flanking the copulatory openings.

Description: Medium sized spiders, 3.4–8.1 mm in length; male smaller, more robustly built than female, with legs and abdomen thicker and more compact than female. Carapace convex, highest immediately posterior to eye region; ocular region narrowest, broader medially and concave posteriorly; carapace bright orange to red-brown; carapace covered in fine setae; fovea short, distinct and slightly thickened; ocular region darkened with dark rings around eyes. Anterior eye row slightly recurved; posterior eye row recurved. Chelicerae usually with two or three promarginal teeth, and two retromarginal teeth; labium usually longer than broad; endites straight along lateral margin, serulla distinct. Sternum shield-shaped, longer than broad; short and/or long fine setae scattered across smooth surface; colouration pale yellow to orange brown, darker towards border. Legs with paired tarsal claws situated between a dense claw tuft; ventral cusps present on anterior tibiae, metatarsi and tarsi of males only, absent in females; cusps shape usually elongate with sharply rounded point (Fig. 129); cusp arrangement differs between species and individuals; leg spines present, one prolateral spine on femur I, sometimes found on other femora of remaining legs; limited number of scattered spines on posterior legs, especially when compared with the genus *Afroceto*; legs I to IV generally pale yellow to light brown, femora of all legs often darker than other leg segments. Abdomen broader



Figs 118–122. General appearance of *Patelloceto* gen. n. species: *P. secutor* sp. n. male (118) and female (119); *P. denticulata* sp. n. male (120); *P. media* sp. n. male (121) and female (122).

anteriorly and tapering posteriorly; integument pale yellow to cream, with paired sigilla; males have large scutum covering abdomen dorsally, scutum in females reduced in size, usually only covering first fifth of abdomen. Female epigyne analogous structures, long oblique lateral epigynal hoods (Fig. 131) that flank small copulatory openings; small, lateral ST separated by a broad membranous median septum; distance between ST varies among species (Figs 136, 144); ST I large, situated posteriorly to ST II (Figs 137, 145). Male palps with limited variation in structures; distal femoral apophysis present, but varying in size between species; retrolateral patellar apophysis is longer than the patella, extending to or past tegulum base (Figs 135, 140, 143); triangular tibial apophysis dorsally situated, varying is size; embolus short, with two-three spines situated near embolus tip (Figs 134, 139, 142).

Species included: *P. denticulata*, *P. media* and *P. secutor* (all new).

Key to the species of *Patelloceto* gen. n.

1 Males 2
– Females (♀ of *P. denticulata* sp. n. unknown) 4

2 Anterior margin of dorsal palpal tibial apophysis more than half dorsal cymbium length; palpal tibia with small finger-like distal retrolateral apophysis (Fig. 130); palpal femur without distal denticles (Fig. 135) ....**secutor** sp. n.
– Anterior margin of dorsal palpal tibial apophysis less than half dorsal cymbium length; palpal tibia without small finger-like distal retrolateral apophysis (Fig. 140); palpal femur with distal denticles (Fig. 140) 3

3 Embolus with post-tegular section forming broad loop, directed prolaterally distally, broader, tapering distally to sharp tip; cymbium with 3 distal ventral spines (Fig. 140) ....**denticulata** sp. n.
– Embolus with post-tegular section nearly straight in ventral view, directed distally, fine with slightly swollen tip; cymbium with 2 distal ventral spines (Fig. 143)...... ....**media** sp. n.

4 Lateral epigynal ridges oblique, extending medially along their anterior margin; copulatory openings in same plane as bilobed ST II (Fig. 136); ST I oval, not reaching epigastric fold (Fig. 137)..**secutor** sp. n.
– Lateral epigynal ridges ending abruptly and not extended medially along their anterior margin; copulatory openings placed anterior of simple oval ST II (Fig. 144); ST I teardrop shaped, extending to epigastric fold (Fig. 145) ....**media** sp. n.

Patelloceto secutor sp. n.

Figs 118, 119, 123–137

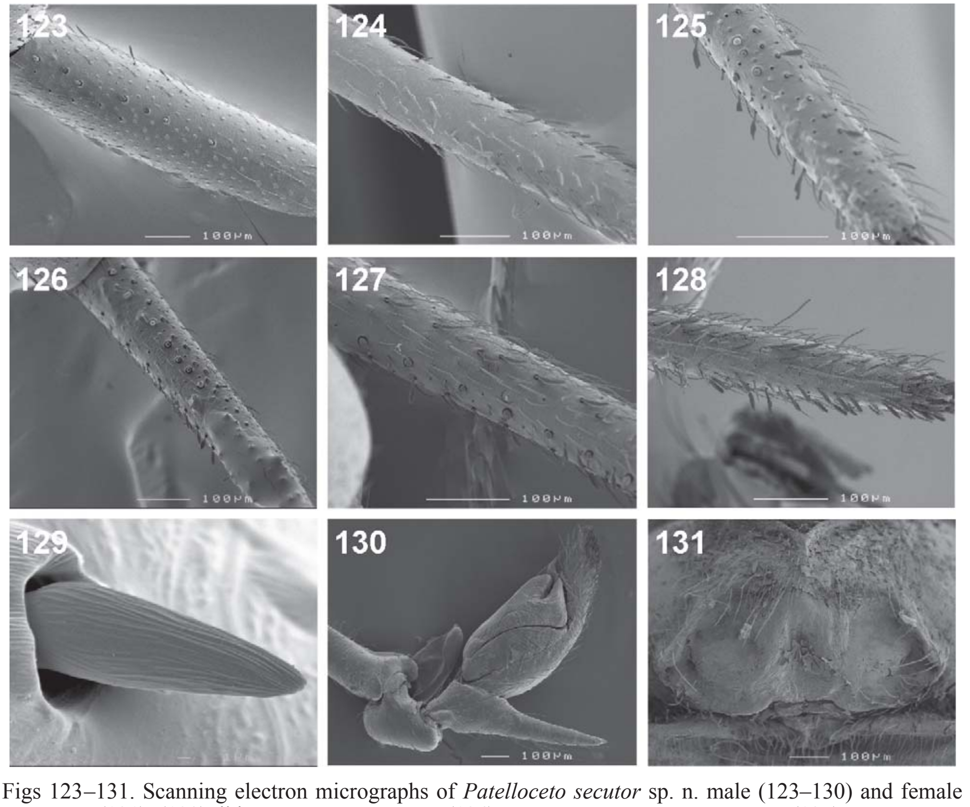
Etymology: From Latin *secutor* (a class of gladiator). The sharp dorsally pointed tibial apophysis that appears sword-like and is shielded by the palpal cymbium, is reminiscent of a gladiator armed with a sword and a shield.

Diagnosis: The male can easily be recognised by the dorsal palpal tibial apophysis that is more than half the dorsal cymbium length, and the presence of a small finger-like retrolateral palpal tibial apophysis (Fig. 134). The female can be recognised by the two widely separated copulatory openings that are shielded by two oblique epigynal hoods that are bent and extended medially along their anterior margin (Fig. 136).

Description:

Male.

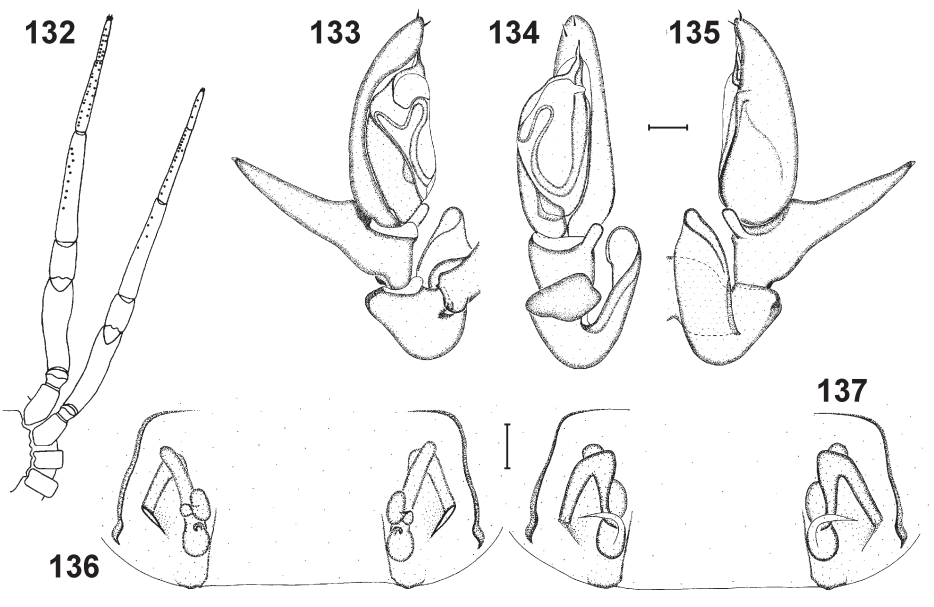
Measurements: CL 1.75–2.10, CW 1.52–1.83, AL 1.76–2.40, AW 1.28–1.53, TL 3.44–4.25, FL 0.13–0.28, SL 0.94–1.20, SW 0.90–1.08, AME–AME 0.09, AME–ALE 0.23, ALE–ALE 0.38, PME–PME 0.18, PME–PLE 0.40, PLE–PLE 0.60. Length of leg seg-



Figs 123–131. Scanning electron micrographs of *Patelloceto secutor* sp. n. male (123–130) and female (131): (123) tibia I, cusp arrangement; (124) metatarsus I, cusp arrangement; (125) tarsus I, cusp arrangement; (126) tibia II, cusp arrangement; (127) metatarsus II, cusp arrangement; (128) tarsus II, cusp arrangement; (129) individual leg cusp on tibia II; (130) right palp, prolateral view; (131) epigyne, ventral view.

ments (sequence from femur to tarsus, and total): I 1.58+0.73+1.20+1.08+0.73=5.32; II 1.53+0.70+1.08+0.98+0.65=4.94; III 1.10+0.58+0.75+1.00+0.43=3.86; IV 1.58+0.68+ 1.18+1.43+0.53=5.40.

Carapace dark brown (Fig. 118); carapace evenly high in first three quarters with relatively steep decline in last quarter; surface finely granular, covered in short fine setae; fovea short, thick, distinct, at two thirds CL. Ocular region dark brown with black rings around eyes; AER slightly recurved, AME larger than ALE; clypeus height equal to 1.5 AME diameter; AME separated by distance equal to 0.7 their diameter; AME separated from ALE by 0.2 AME diameter; PER slightly recurved, PME and PLE subequal in size; PME separated by distance equal to 1.2 their diameter; PME separated from PLE by distance slightly less than PME diameter. Chelicerae dark brown, darker towards fang base; anterior surface of chelicerae with scattered black setae, setae longer towards fang base; fangs dark orange; two promarginal teeth, distal tooth largest; two retromarginal teeth, proximal tooth largest. Sternum dark orange, brown towards border; surface granular, rough, with dark setae. Abdomen dark orange dorsally, darkening to brown laterally and posteriorly; abdomen broader anteriorly, tapering posteriorly; scutum almost covering entire abdomen length; surface smooth, with short, fine setae throughout; venter pale brown. Legs I to IV yellow to orange, femora dark brown; metatarsi and tarsi with relatively dense scopulae ventrally; remaining leg segments covered in short, fine setae; anterior legs more robust; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1; patellae spineless; tibiae: I *plv* 9 *rlv* 4 cusps, II *plv* 2 *rlv* 0–4 cusps; metatarsi: I *plv* 9–13 *rlv* 7–8 *vt* 2 cusps, II *plv* 10–11 *rlv* 2–8 *vt* 2 cusps; tarsi: I *plv* 5–6 *rlv* 2–6 cusps, II *plv* 3–4 *rlv* 0–3 cusps (Figs 123–129, 132). Palp brown, without spines;



Figs 132–137. *Patelloceto secutor* sp. n. male (132–135) and female (136–137): (132) schematic representation on cusp arrangement on legs I and II; (133) left palp, prolateral view; (134) left palp, ventral view; (135) left palp, retrolateral view; (136) epigyne, ventral view; (137) vulva, dorsal view. Scale bars (133–137) = 0.1 mm.

femur with lobed distal retrolateral apophysis, without denticles; patella with large, elongate, slightly twisted retrolateral apophysis, extending beyond base of cymbium; tibia with short, finger-like distal retrolateral apophysis and very large sword-like dorsal apophysis, anterior length nearly twice as long as tibial width (Figs 130, 133–135); tegulum elongate; embolus short, slightly curved, directed distally; cymbium with two short distal ventral spines, situated prolaterally and medially (Fig. 134).

Female.

Measurements: CL 1.80–2.15, CW 1.60–1.80, AL 2.25–3.00, AW 1.75–2.24, TL 4.20–4.50, FL 0.10–0.15, SL 1.10–1.23, SW 0.98–1.03, AME–AME 0.10, AME–ALE 0.02, ALE–ALE 0.39, PME–PME 0.14, PME–PLE 0.12, PLE–PLE 0.57. Length of leg segments (sequence from femur to tarsus, and total): I 1.65+0.78+1.25+1.14+0.78=5.60; II 1.57+0.71+1.41+1.06+0.70=5.45; III 0.90+0.63+0.82+1.02+0.47=3.84; IV 1.45+0.67+1.22+1.57+0.59=5.50.

Carapace reddish brown to brown (Fig. 119); first two thirds of carapace slightly raised, with steep decline in last third; surface granular, covered in short, fine setae; fovea short, thickened, distinct, at two thirds CL. Ocular region reddish brown to brown with dark brown to black rings around eyes; AER slightly recurved, AME slightly larger than ALE; clypeus height subequal to AME diameter; AME separated by distance 0.8 their diameter; AME separated from ALE by 0.4 AME diameter; PER slightly recurved, PLE larger than PME; PME separated by distance equal to 1.25 times their diameter; PME separated from PLE by distance equal to PLE diameter. Chelicerae dark orange to brown, almost black laterally, slightly paler near fang base; anterior surface with scattered black setae, setae longer towards fang base; fangs orange in colour; two promarginal teeth, subequal in size, both situated distally; two retromarginal teeth, subequal in size, situated proximally. Sternum orange, brown towards border; surface with scattered long brown setae. Abdomen cream to grey dorsally; abdomen broader anteriorly, tapering posteriorly; orange to brown scutum extending to one fifth of abdomen length; abdomen with two pairs of sigilla, first pair just posterior to scutum, second pair at two fifths of abdomen length; venter cream. Legs I to IV uniform orange to brown, femora dark brown; tibiae, metatarsi and tarsi with relatively dense scopulae ventrally; remaining segments covered in less dense setae; ventral cusps absent. Leg spination: femora: I *pl* 1; patellae and tibiae spineless; metatarsi: III *vt* 1. Palpal spination: tibiae *pl* 1. Epigyne with broad membranous median septum separating laterally placed spermathecae (Fig. 131); copulatory openings situated laterally, in same plane as ST II, flanked laterally by oblique epigynal hoods, anteriorly extending transversely to level of median margin of spermathecae (Fig. 136); copulatory ducts directed anteriomedially, bending sharply before running posteriorly to small bilobed ST II, connected by narrow duct to small oval ST I, not reaching epigastric fold (Fig. 137).

Holotype: ♂ SOUTH AFRICA: *KwaZulu-Natal*: Greater St Lucia (iSimangaliso) Wetlands Park, Hell's Gate [28.03°S:32.42°E], 31.vii.2004, J. Esterhuizen, tsetse fly traps, Block C (NCA 2006/233).

Allotype: ♀ same data as holotype, 9.ii.2004 (NCA, 2004/819).

Paratypes: MOZAMBIQUE: 1♂ Marracuene Lodge, near Marracuene, 12 m, 25°46.379'S:32°41.430'E, 1.xii.2007, R. Lyle & R. Fourie, beating shrubs, riverine forest (NCA, 2008/177). SOUTH AFRICA: *KwaZulu-Natal*: 2♂ Ndumo Game Reserve, E shore of Shokwe Pan, 26°52.516'S:32°12.407'E, 21.vi.2006, C. Haddad, under logs (NCA, 2006/1239). 1♂ same locality, Crocodile Farm, 26°54.426'S:32°19.185'E, 5.vii.2002, C. Haddad, fever tree bark (NCA, 2004/300); 1♀ same locality, W shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, 24.vi.2006, C. Haddad & F. Jordaan, under bark, fever tree (NCA, 2006/1245).

Other material examined: SOUTH AFRICA: *KwaZulu-Natal*: 1♀ False Bay Park, 12.i.2004, J. Esterhuizen, tsetse fly traps (NCA, 2004/784); 1♂ 1♀ Greater St. Lucia (iSimangaliso) Wetlands Park, Hell's Gate, 26.i.2004, J. Esterhuizen, tsetse fly traps (NCA, 2004/817); 1♀ same locality, 5.iv.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/226); 1♂ 1♀ same locality, 12.iv.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/234); 2♀ same locality, 26.iv.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/228); 1♂ same locality, 20.ix.2004, J. Esterhuizen, tsetse fly traps, block A (NCA, 2005/390); 1♀ same locality, 12.i.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2004/796); 1♀ same locality, 12.iv.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/227); 1♀ same locality, 3.v.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/229); 1♂ same locality, 31.v.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/230); 1♀ 1♂ 1 juv. same locality, 12.vii.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/231); 1♀ same locality, 26.vii.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/232); 1♀ same locality, 13.ix.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/235); 1♀ same locality, 15.xi.2004, J. Esterhuizen, tsetse fly traps, block B (NCA, 2005/239); 1♂ same locality, 20.ix.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/237); 1♀ same locality, 1.xi.2004, J. Esterhuizen, tsetse fly traps, block C (NCA, 2005/238); 1♀ Ndumo Game Reserve, Start of game count transect 8, 26°50.183'S:32°13.135'E, 2.vii.2003, C. Haddad, under fever tree bark (NCA, 2006/1482); 3♂ same data (NCA, 2006/1483); 3♂ 3♀ same data (NCA, 2006/1496); 1♂ same locality, Crocodile Farm, 26°54.426'S:32°19.185'E, 19.i.2002, C. Haddad, fever tree bark (NCA, 2002/389); 2♂ same locality, E shore of Shokwe Pan, 26°52.516'S:32°12.407'E, 21.vi.2006, C. Haddad, under logs (NCA, 2006/1239); 1♂ Ndumo Game Reserve, Banzi Pan, fish ladder, 26°52.010'S: 32°18.141'E, 27.vi.2009, C. Haddad, *Acacia xanthophloea* bark (TMSA 23588); 1♀ Tembe Elephant Park, open woodland/sand, near offices, 27°02.556'S:32°25.465'E, 7.vii.2007, C. Haddad, beats, short shrubs (NCA, 2008/2827); 1♀ 3 juv. same locality, 15.iii.2003, A. Honiball (NCA, 2004/260). *Limpopo*: 1♂ 2♀ Pafuri, Wallers Camp, 22°25'S:31°02'E, 16.ii.2008, D. de Bakker, R. Jocqué, W. Fannes & A. Henrard, canopy fogging 14, *Kigelia africana*/*Colophospermum mopane*, wooded savannah (MRAC). ZIMBABWE: 1♂ Sengwa Wildlife Research Area, 18°10'S:28°14'E, 900 m, 15.i.2007, M.S. Cumming (NCA, 2008/2859).

Distribution: Widely but sporadically distributed from Maputaland in South Africa and southern Mozambique, and collected at a single locality in Zimbabwe (Fig. 146).

Patelloceto denticulata sp. n.

Figs 120, 138–140

Etymology: From Latin *denticulata* (bearing small teeth), referring to the denticles on the femoral apophysis of the male palp.

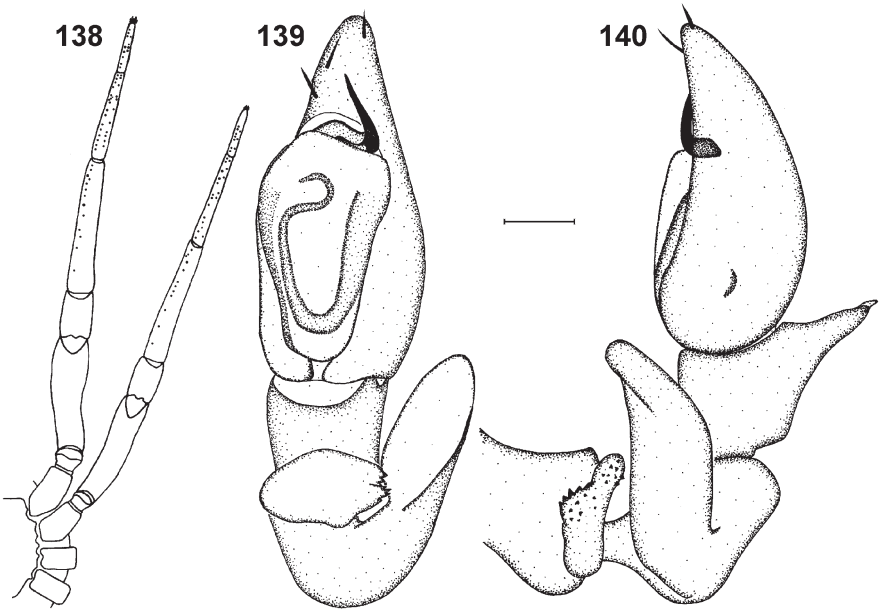
Diagnosis: This species can easily be distinguished from congeners by the presence of three rather than two ventral distal cymbial spines, and the broader, distinctly looping embolus (Fig. 139). Female unknown.

Description:

Male.

Measurements: CL 2.50, CW 2.08, AL 2.60, AW 1.75, TL 5.10, FL 0.18, SL 1.18, SW 1.18, AME–AME 0.13, AME–ALE 0.05, ALE–ALE 0.50, PME–PME 0.20, PME–PLE 0.13, PLE–PLE 0.73. Length of leg segments (sequence from femur to tarsus, and total): I 2.03+0.90+1.60+1.30+0.93=6.76; II 1.85+0.95+1.45+1.23+0.90=6.38; III 1.38+0.55+0.93+1.05+0.55=4.46; IV 1.93+0.70+1.55+1.80+0.68=6.66.

Carapace orange (Fig. 120), slightly darker at eye region; first third of carapace convex, last third with steep decline; surface smooth, covered in short fine setae; fovea at two thirds of CL. Ocular region orange, eyes with dark brown rings; AER slightly recurved, ALE larger than AME; clypeus height slightly larger than AME diameter; AME separated by distance equal to their diameter; AME separated from ALE by distance equal to half AME diameter; PER slightly procurved, almost straight, PME larger than PLE; PME separated by distance equal to twice PME diameter; PME separated from PLE by 1.2 PME diameter. Chelicerae light brown, slightly darker at base; anterior surface with



Figs 138–140. *Patelloceto denticulata* sp. n. male: (138) schematic representation of cusp arrangement on legs I and II; (139) left palp, ventral view; (140) left palp, retrolateral view. Scale bar (139, 140) = 0.1 mm.

scattered long, fine setae; fang orange-brown; three promarginal teeth, distal tooth largest, proximal tooth smallest; two retromarginal teeth, proximal tooth largest. Sternum pale yellow; surface smooth with scattered long, fine setae. Abdomen pale grey with cream undertones dorsally; abdomen broader anteriorly, tapering posteriorly; scutum covering entire abdomen length; two pairs of pale, indistinct grey sigilla; venter cream. Legs light brown to pale yellow in colour; anterior legs larger and more robust than posteriors; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1, III *pl* 1; patellae spineless; tibia: I *plv* 13 cusps, II *plv* 12 cusps, III *plv* 1, IV *plv* 2 *vt* 2; metatarsi: I *plv* 17 *rlv* 10 *vt* 2 cusps, II *plv* 12 *rlv* 5 *vt* 2 cusps, III *plv* 1; tarsi: I *plv* 8 *rlv* 4 cusps, II *plv* 7 *rlv* 3 cusps (Fig. 138). Palp pale yellow-brown, without spines; femur with small retrolateral apophysis with fine denticles; patella with slightly twisted retrolateral apophysis, extending beyond base of cymbium; tibia with pointed dorsal apophysis, anterior length approximately equal to distal tibial width (Fig. 140); tegulum elongate; embolus broad, looping retrolaterally, then distally, with sharp tip; cymbium with three short distal ventral spines, two situated prolaterally and one retrolaterally (Fig. 139).

Holotype: ♂ ETHIOPIA: Shoa, Lake Zwai Zwai, 07°45'S:38°45'E, 18.vii.1981, A. Russell-Smith, on trunk of *Ficus sycomorus* (MRAC, 223298).

Distribution: Known only from the type locality (Fig. 146).

Patelloceto media sp. n.

Figs 121, 122, 141–145

Etymology: From Latin *media* (central), referring to the equatorial localities in Central Africa where most of the specimens were collected.

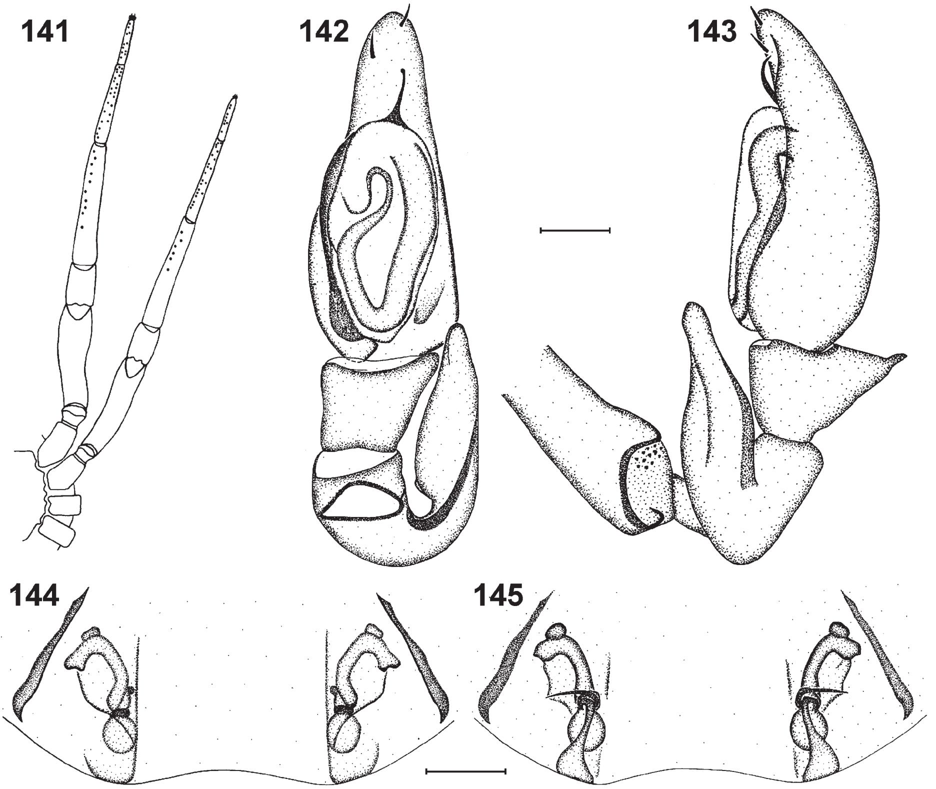
Diagnosis: This species is closely related to *P. secutor* sp. n., but males can be recognised by the much smaller dorsal tibial apophysis and the presence of small denticles on the retrolateral side of the femoral apophysis (Fig. 142). Females can be distinguished by the abruptly ending oblique lateral epigynal hoods (not extended medially as in *P. secutor* sp. n.) and the more anteriorly placed copulatory openings (anterior of ST II, not in same plane as ST II as in *P. secutor* sp. n.) (Fig. 143).

Description:

Male.

Measurements: CL 1.69–1.96, CW 1.42–1.65, AL 1.92–2.27, AW 1.12–1.35, TL 3.69–4.23, FL 0.06–0.14, SL 0.96–1.12, SW 0.88–1.02, AME–AME 0.08, AME–ALE 0.04, ALE–ALE 0.35, PME–PME 0.14, PME–PLE 0.14, PLE–PLE 0.59. Length of leg segments (sequence from femur to tarsus, and total): I 1.69+0.75+1.29+1.12+0.75=5.60; II 1.53+0.71+1.16+1.08+0.71=5.19; III 1.18+0.59+0.76+1.00+0.43=3.96; IV 1.63+0.65+1.25+1.51+0.57=5.61.

Carapace dark red-brown (Fig. 121), slightly darker at eye region; first third of carapace convex, last third with steep decline; surface smooth, covered in short fine setae; fovea at ⅔ CL. Ocular region brown, eyes with brown rings; AER slightly recurved, ALE



Figs 141–145. *Patelloceto media* sp. n. male (141–143) and female (144–145): (141) schematic representation on cusp arrangement on legs I and II; (142) left palp, ventral view; (143) left palp, retrolateral view; (144) epigyne, ventral view; (145) vulva, dorsal view. Scale bars (142–145) = 0.1 mm.

larger than AME; clypeus height equal to AME diameter; AME separated by distance equal to 0.58 their diameter; AME separated from ALE by 0.29 AME diameter; PER recurved, PME and PLE subequal; PME separated by 1.6 PME diameter; PME separated from PLE by 1.6 PME diameter. Chelicerae brown, slightly paler towards base; anterior surface with scattered long and short, fine setae; fang orange-brown; 2 promarginal teeth, proximal tooth largest; 2 retromarginal teeth, proximal tooth largest. Sternum orange brown; surface smooth with scattered short, fine setae. Abdomen orange-grey dorsally; abdomen oval, broadest at midpoint, tapering posteriorly; brown scutum covering entire abdominal dorsum; two pairs of pale, indistinct brown sigilla; venter cream. Legs light brown to pale yellow; anterior legs larger and more robust than posterior ones; leg spines and cusps present. Leg spination: femora: I *pl* 1, II *pl* 1; patellae spineless; tibia: I *plv* 4–10 cusps, II *plv* 5–8 cusps, III *plv* 1, IV *plv* 2 *vt* 2; metatarsi: I *plv* 13–18 *rlv* 6–10 cusps, II *plv* 13–14 *rlv* 5–7 *vt* 2 cusps, IV *plv* 1; tarsi: I *plv* 4–7 *rlv* 4–6 cusps, II *plv* 2–7 *rlv* 1–2 cusps (Fig. 141). Palp brown; femur with small retrolateral apophysis with fine denticles; patella with large retrolateral apophysis, slightly longer than patella and extending beyond base of cymbium, with groove on outer margin; tibia with pointed dorsal apophysis, anterior margin approx. as long as tibial width (Fig. 142); embolus nearly straight, very slightly curved, fine with swollen tip, directed distally (Fig. 143).

Female.

Measurements: CL 1.85–2.04, CW 1.50–1.73, AL 2.65–2.88, AW 1.73–1.96, TL 4.50–4.92, FL 0.08–0.16, SL 1.06–1.18, SW 0.94–1.04, AME–AME 0.08, AME–ALE 0.04, ALE–ALE 0.35, PME–PME 0.14, PME–PLE 0.12, PLE–PLE 0.59. Length of leg segments (sequence from femur to tarsus, and total): I 1.67+0.75+1.25+1.10+0.80=5.57; II 1.49+0.67+1.12+1.06+0.73=5.07; III 1.16+0.59+0.84+1.06+0.51=4.16; IV 1.69+0.67+1.39+1.59+0.57=5.91.

Carapace dark red-brown (Fig. 122), slightly darker at eye region; first third of carapace convex, last third with steep decline; surface smooth, covered in short fine setae; fovea at ⅔ CL. Ocular region dark brown, eyes with black rings; AER slightly recurved, AME slightly larger than ALE; clypeus height equal to AME diameter; AME separated by distance equal to 0.71 their diameter; AME separated from ALE by 0.29 AME diameter; PER recurved, PME and PLE subequal in size; PME separated by 1.33 PME diameter; PME separated from PLE by 1.67 PME diameter. Chelicerae brown, slightly paler at base; anterior surface with scattered long, fine setae; fang orange-brown; 2 promarginal teeth, distal tooth largest; 2 retromarginal teeth, distal tooth largest. Sternum brown; surface smooth with scattered short, fine setae. Abdomen grey with cream mottling dorsally, oval, broader medially, rounded posteriorly; dorsum with narrow anterior scutum extending ⅓ abdomen length; two pairs of pale brown sigilla; venter cream. Legs light brown to pale yellow; anterior legs larger and more robust than posterior ones; ventral cusps absent. Leg spination: femora: I *pl* 1; patellae spineless; tibia: IV *vt* 1; metatarsi: IV *plv* 1. Epigyne with broad membranous median septum separating laterally placed spermathecae; copulatory openings situated laterally, anteriorly of spermathecae, flanked laterally by abruptly ending oblique epigynal hoods (Fig. 144); copulatory ducts directed anteromedially for short distance, bending sharply before running posteriorly to oval ST II, connected anteriorly to narrow duct leading to teardrop-shaped ST I reaching epigastric fold (Fig. 145).

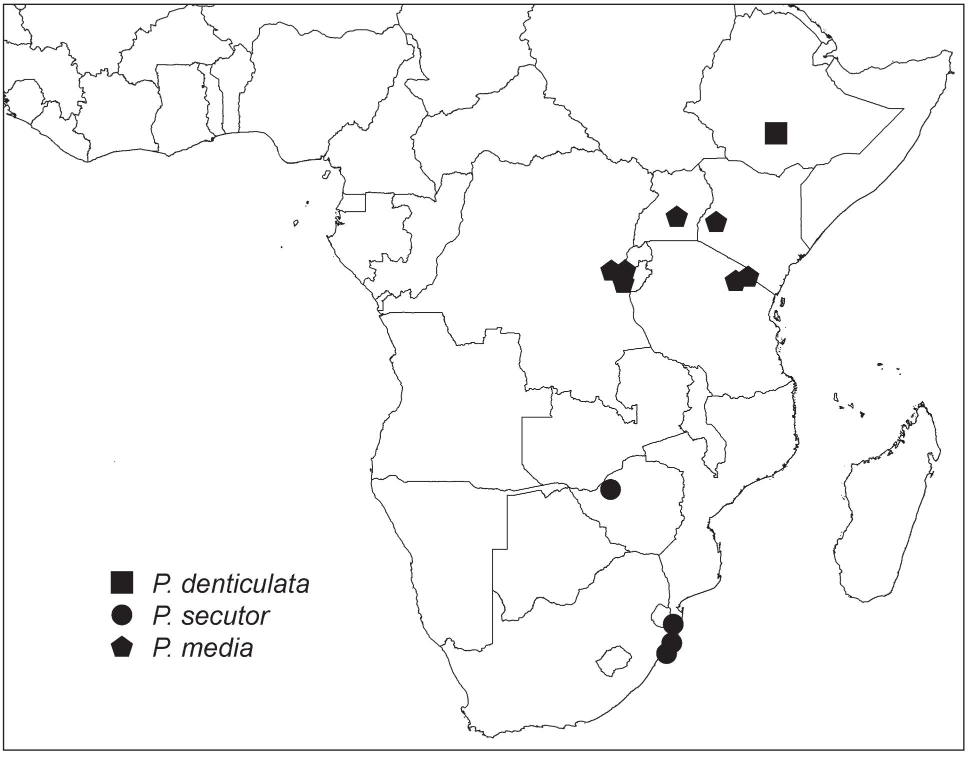


Fig. 146. Distribution of *Patelloceto* gen. n. species in the continental Afrotropical Region.

Holotype: ♂ DEMOCRATIC REPUBLIC OF CONGO (DRC): Ruwenzori W., kampi ya Tshupa, 00°20'N: 29°50'E, 4000 m, 3.vii.1935, H.J. Bredo (MRAC, 177193).

Allotype: ♀ DRC: Kivu, vallée de Kaisola, plaine de la Ruindi, Battag, 3.vii.1972, M. Lejeune (MRAC, 144353).

Paratypes: DRC: 2♂ 2♀ Rutshuru, 01°11'S:29°27'E, v.1937, J. Ghesquière (MRAC 174312); 1♀ same data (MRAC, 174284); 1♂ Sake, 01°34'S:29°02'E, v.1937, J. Ghesquière (MRAC, 174293). KENYA: 1♀ Kakamega forest, 00°13'N:34°54'E, 1654 m, 17–24.iii.2004, D. Shilabira Smith, Malaise trap (MRAC, 212612); 1♂ same data (MRAC, 212624); 1♀ same locality, 3–10.ii.2002, D. Shilabira Smith, Malaise trap (MRAC, 212626); 2♀ same locality, 6–13.i.2002, D. Shilabira Smith, Malaise trap (MRAC, 212629); 1♂ same locality, 10–17.ii.2002, D. Shilabira Smith, Malaise trap (MRAC, 212690); 2♀ same locality, 17–24. ii.2002, D. Shilabira Smith, Malaise trap (MRAC, 212636).

Other material examined: TANZANIA: 1♀ Manyara National Park, 3150 ft, 22.i.1970, M.E. Irwin & E.S. Ross (CASC); Mkomazi Game Reserve, 03°52.94'S:37°52.56'E, 31.xii.1995, G. McGavin, canopy fogging 3/15, *Acacia senegal* (OUMNH). UGANDA: 1♂ 3♀ Rubaga, 00°18'N:32°33'E, vi.1994, D. Penney, on tree trunks (MRAC, 219697).

Distribution: Known from scattered localities in equatorial central and east Africa (Fig. 146).

DISCUSSION

Tracheline corinnids are a diverse group of spiders of varying sizes. Platnick and Shadab (1974*a*) state that trachelines are characterised by the complete absence of leg spines and the presence, in males at least, of ventral cusps on the tibia, metatarsus and tarsus of leg I and II. Subsequently Platnick (1975) suggested that the definition of the subfamily be broadened, as he had examined South American trachelines lacking ventral cusps, but retained the lack of leg spines as a diagnostic characteristic. Platnick and Ewing (1995) noted the presence of leg spines in some *Meriola* species, while some recently described and revised tracheline genera from southern Africa clearly have very prominent and well developed leg spines in addition to ventral cusps, at least in males (Haddad 2006; Lyle & Haddad 2006; Haddad & Lyle 2008).

Haddad and Lyle (2008) consequently rejected the complete absence of leg spines as a synapomorphic characteristic of the subfamily. The current paper, as well as recent revisions and descriptive papers, shows that leg spines occur in several tracheline genera: *Spinotrachelas* and *Poachelas* have prominent leg spines, most notably ventral pairs on the tibiae and metatarsi of the anterior legs, in addition to ventral cusps at least in males (Haddad 2006; Haddad & Lyle 2008). Two of the six species of *Thysanina* have a few scattered weak leg spines (Lyle & Haddad 2006). *Afroceto* gen. n. have one to four strong prolateral leg spines on the anterior femora and scattered spines on the posterior legs, while *Patelloceto* gen. n. have smaller, finer spines scattered on some of the femora and posterior leg segments. Many species of South American *Meriola* also have spines present on some of the leg segments (Platnick & Ewing 1995).

Most tracheline genera have ventral cusps present on the anterior leg segments, which are most prominent in males. Cusp arrangement and shape vary between the different tracheline genera. *Thysanina* have peg-like cusps situated in deep sockets (Lyle & Haddad 2006). The cusp shape of *Meriola* is elongate with a sharp tip (Platnick & Ewing 1995). *Afroceto*, however, has variations in cusp shape between and within species. Cusps vary between peg-like with a slightly constricted base, as in *A. plana* sp. n. (Figs 83, 89), to elongate and rounded with a constricted base in *A. martini* (Fig. 26). *Patelloceto* males have elongate cusps with a slightly constricted base (Fig. 136). Cusps occur in males of the Asian genus *Utivarachna* Kishida, 1940 and are widely spaced and triangular, or closely set and rounded (Deeleman-Reinhold 2001; Chami-Kranon *et al.* 2007). The cusps of *Spinotrachelas* are curved and pointed with a flattened base (Haddad 2006). The American *Trachelas* species of the *bispinosus*, *bicolor*, *speciosus* and *tranquillus* groups present stout blunt cusps in both sexes, with large variation in the numbers of cusps (Platnick & Shadab 1974*a*, *b*). In contrast, cusps are absent from many Old World species of *Trachelas*, including both sexes of the type species, *T. minor*; when present, they only occur in males (Deeleman-Reinhold 2001; Kim & Lee 2008; Lyle 2008; Bosselaers *et al.* 2009; Zhang *et al.* 2009). In *Paratrachelas* Kovblyuk & Nadolny, 2009 cusps are found on the anterior tibiae and metatarsi of males, and are short and blunt (Kovblyuk & Nadolny 2009). Perhaps most distinctive is the total absence of leg spines and cusps in both sexes of *Metatrachelas* Bosselaers & Bosmans, 2010, *Fuchiba*, *Fuchibotulus* and *Planochelas*, excluding the tentatively placed *P. purpureus* Lyle & Haddad, 2009, which has paired ventral spines on the anterior tibiae and metatarsi (Haddad & Lyle 2008; Lyle & Haddad 2009; Bosselaers & Bosmans 2010).

Most of the above studies have shown that the presence, number, arrangement and shape of cusps and leg spines varies between genera, between species of a genus, and even within species, and this has the potential to be used as a taxonomic tool at the generic and sometimes species level. Intraspecific variation in cusp numbers (e.g. in *Afroceto* species) limits the possibility to use this as a tool to separate species, as the wide range in cusp numbers frequently results in overlap between species. However, the presence of cusps in some female *Afroceto* species, i.e. *A. martini*, *A. corcula* sp. n. and *A. plana* sp. n., and the total absence thereof in the remaining species, is a useful tool to separate this group from congeners.

In summary, much work still remains before each Corinnidae subfamily can be clearly defined. The variable occurrence of ventral cusps and leg spines in Trachelinae, previously regarded as key structures in the definition of the group, requires that other morphological characters need to be investigated to evaluate the monophyly of the group and its composite genera. Variability in the appearance of ventral cusps and leg spines is important to note since both ventral cusps and leg spines may be absent, while the presence of ventral cusps without leg spines has been noted regularly. Additionally, it is noted that trachelines with leg spines always have ventral cusps, at least in males. While there have been considerable advances in resolving the taxonomy of the group in recent years, revisions of the Australian and South American fauna, and Afrotropical *Trachelas* and *Paccius*, will be essential to understanding better the relationships between genera, particularly *Trachelas*, which is polyphyletic and clearly needs to be resolved (Platnick & Ewing 1995; Bosselaers *et al.* 2009; Haddad *et al.* 2009; Bosselaers & Bosmans 2010).

ACKNOWLEDGEMENTS

The curators of the various museums are thanked for the loan of material that made this study possible. Ezemvelo KZN Wildlife (EKZNW) and Western Cape Nature Conservation are thanked for permission to collect in their reserves (EKZNW permits 23781/2000, 28970/2001, 31896/2002, 1662/2003, 4827/2003, 1924/2004, 54/2005, 1010/2006, 2496/2006), and reserve managers are thanked for their assistance. This publication is based upon work supported by the National Research Foundation through a SABI MSc scholarship (grant GUN 2074799) to R.L. and a South African Biosystematics Initiative grant to C.H. (grant FA2005040700016). Any opinions, findings, conclusions or recommendations expressed in this material are those of the authors and the NRF does not accept any liability in regard thereto. The two reviewers, Jan Bosselaers and Norman Platnick, are thanked for their valuable inputs that helped address some key issues and improve the manuscript.

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