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Jumping spiders (Araneae: Salticidae) of the Ndumo Game Reserve, Maputaland, South Africa

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ABSTRACT

Salticids from the Ndumo Game Reserve (KwaZulu-Natal, South Africa) are described. In total 72 species of 38 genera were found, of which one genus *Aenigma* gen. n. and 14 species are described as new: *Aenigma incognita* sp. n., *Bianor eximius* sp. n., *Evarcha mirabilis* sp. n., *E. striolata* sp. n., *Habrocestum africanum* sp. n., *Icius nigricaudus* sp. n., *Massagris natalensis* sp. n., *Phlegra arborea* sp. n., *Ph. certa* sp. n., *Pignus pongola* sp. n., *Pseudicius venustulus* sp. n., *Rhene pinguis* sp. n., *Thyenula fidelis* sp. n., and *Th. magna* sp. n. Three specific names are synonymised: *Cyrba armata* Wesołowska, 2006 with *C. lineata* Wanless, 1984; *Pellenes pulcher* Wesołowska, 1999 (junior homonym of *P. pulcher* Logunov, 1995) with *P. tharinae* Wesołowska, 2006; and *Thyene strandi* Caporiacco, 1939 with *Th. natalii* Peckham & Peckham, 1903. A new combination, *Evarcha annae* (ex *Habrocestum annae* Peckham & Peckham, 1903) is proposed. Twenty species are recorded from South Africa for the first time: *Asemonea stella* Wanless, 1980; *Cyrba boveyi* Lessert, 1933; *Evarcha elegans* Wesołowska & Russell-Smith, 2000; *E. ignea* Wesołowska & Cumming, 2008; *E. prosimilis* Wesołowska & Cumming, 2008; *Goleba puella* (Simon, 1885); *Heliophanus fascinatus* Wesołowska, 1986; *H. pauper* Wesołowska, 1986; *Hispo georgius* (Peckham & Peckham, 1892); *Menemerus minshullae* Wesołowska, 1999; *Modunda staintoni* (O.P.-Cambridge, 1872); *Myrmarachne lulengana* Roewer, 1965; *Nigorella plebeja* (L. Koch, 1875); *Pellenes epularis* (O.P.-Cambridge, 1872); *P. bulawayoensis* Wesołowska, 1999; *P. tharinae* Wesołowska, 2006; *Pseudicius alter* Wesołowska, 1999; *Schenkelia modesta* Lessert, 1927; *Thyene bucculenta* (Gerstaecker, 1873); and *Th. semiargentea* (Simon, 1884). The rich diversity of Salticidae collected in this study, and the proportion of new species relative to the total jumping spider fauna (19 %), highlight the need to maintain conservation efforts within Maputaland protected areas with management plans that also take invertebrate taxa into consideration.

KEY WORDS: Araneae, Salticidae, jumping spiders, taxonomy, new taxa, synonymy, new combination, new records, South Africa, protected areas.

INTRODUCTION

The Ndumo Game Reserve (NGR) is situated in the northern part of the KwaZulu-Natal Province, South Africa, and falls within the Maputaland bioregion (Fig. 1). The reserve lies close to the borders of South Africa, Swaziland and Mozambique. It is one of South Africa's reserves formally protecting wetland and riparian ecosystems and is recognised as a RAMSAR site (Ramsar 2008). The reserve covers 10,117 ha and is structurally highly diverse, with a range of habitats including floodplain vegetation, subtropical bush, various types of savannah and woodland, and riparian forest with tall trees. The climate is subtropical.

The invertebrates of NGR are poorly known (Haddad 2003), but introductory studies of arachnids showed a very high diversity of spiders (over 430 species), representing the highest known diversity of the group from any reserve in South Africa; salticids were the most diverse family, with 82 species initially recorded (Haddad *et al*. 2006). The objective of this paper is to provide a full account of all jumping spiders found in the reserve, to re-evaluate the taxonomy of the Salticidae listed in the initial checklist (Haddad *et al*. 2006), and to provide notes on their biology and occurrence in different

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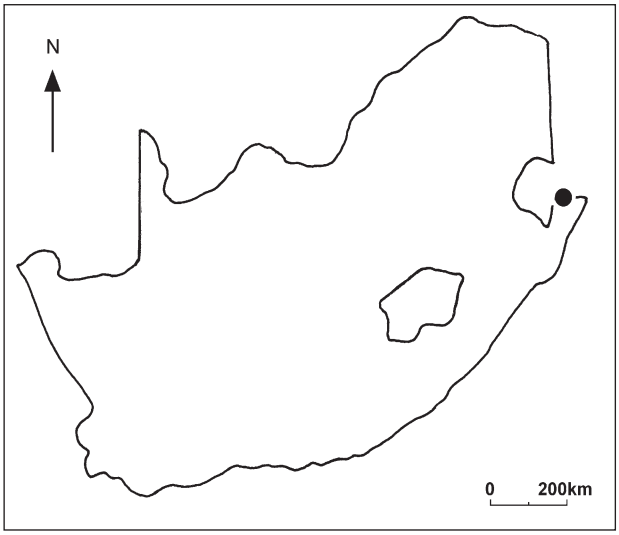


Fig. 1. Location of the Ndumo Game Reserve in northern KwaZulu-Natal, South Africa.

habitats. Following this more detailed study on the taxonomy of the family, the synonyms proposed here, and the identification of previously unidentified morphospecies listed in the initial checklist, the number of salticid species from the reserve is reduced from 82 to 72. Given the close proximity of NGR to several other reserves in Maputaland where surveys are currently under way, and the high levels of endemism of other taxonomic groups in Maputaland (e.g. plants), this paper will provide valuable baseline data for the identification of Salticidae in this region and elsewhere in South Africa, and for future evaluations of salticid endemism in Maputaland.

MATERIAL AND METHODS

Field observations were conducted during several trips in the period 2000–2007. Spiders were collected by different methods: using pitfall traps, sifting leaf litter, turning rocks and logs, from tree bark, beating sheets, sweep-nets, by hand, and at light traps. All material of jumping spiders collected in a survey of fever tree bark (Haddad unpubl.) from five sites in the reserve (Banzi, Hotwe, Nyamiti and Shokwe Pans, and the Pongola River floodplain) was also included in this study. Unless otherwise stated, the specimens were all collected by the second author from Ndumo Game Reserve, South Africa. All material collected in the field was preserved in 70 % ethanol.

Eight broad habitat types can be recognised in NGR, and details of the vegetation are given in De Moor *et al.* (1977) and Haddad *et al.* (2006): *Acacia tortilis* (umbrella thorn *Acacia*) savannah (AS, Fig. 2), *Acacia xanthophloea* (fever tree) forest (AX, Fig. 3), deciduous broadleaf woodland (BW, Fig. 4), *Ficus sycomorus* (wild fig) forest (FF, Fig. 5), floodplain vegetation along the Pongola and Usutu rivers (FP, Fig. 6), riparian forest (RF, Fig. 7), sand forest (SF, Fig. 8), and subtropical bush (ST, Fig. 9), including *Acacia nigrescens* (knob thorn) woodland and Mahemane thicket. The abbreviations provided with each habitat type are used below, in descriptions of the habitat and biology of the salticid species.

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Figs 2, 3. Habitats of the Ndumo Game Reserve, northern KwaZulu-Natal, South Africa: (2) *Acacia tortilis* savannah (AS); (3) *Acacia xanthophloea* forest, Hotwe Pan (AX).

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Figs 4, 5. Habitats of the Ndumo Game Reserve, northern KwaZulu-Natal, South Africa: (4) Deciduous broadleaf woodland (BW) (photo courtesy Cathariné Hanekom); (5) *Ficus sycomorus* forest, Shokwe Pan (FF).

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Figs 6, 7. Habitats of the Ndumo Game Reserve, northern KwaZulu-Natal, South Africa: (6) Floodplain vegetation near Usutu River (FP); (7) Riverine forest, Pongola River (RF).

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Figs 8, 9. Habitats of the Ndumo Game Reserve, northern KwaZulu-Natal, South Africa: (8) Sand forest (SF); (9) Subtropical bush, Mahemane thicket (ST).

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Individuals were examined in 70 % ethanol in a Petri dish. The genitalia were removed for study, and after examination were placed in microvials and stored with specimens in the same collection vials. The epigynes were macerated in 5 % hot KOH for a few minutes, cleared in clove oil and examined under a compound microscope. In some cases (*Myrmarachne* spp., *Thyene* spp.) the epigynes were stained in Chlorazol black E alcohol solution. Drawings were made on a Citoval stereomicroscope with the aid of a reticular eyepiece. Digital photographs of the habitus of specimens were taken using a Nikon Coolpix 4500 attached to a Nikon stereomicroscope. Terminology is standard for spiders, and all measurements are given in millimetres.

The holotypes of the newly described species are deposited in the National Collection of Arachnida, ARC–Plant Protection Research Institute Pretoria, South Africa (NCA), and paratypes and other material are deposited in the NCA, National Museum, Bloemfontein, South Africa (NMBA), Natal Museum, Pietermaritzburg, South Africa (NMSA), and in the Royal Museum for Central Africa, Tervuren, Belgium (MRAC).

TAXONOMY

Genus **Aenigma** gen. n.

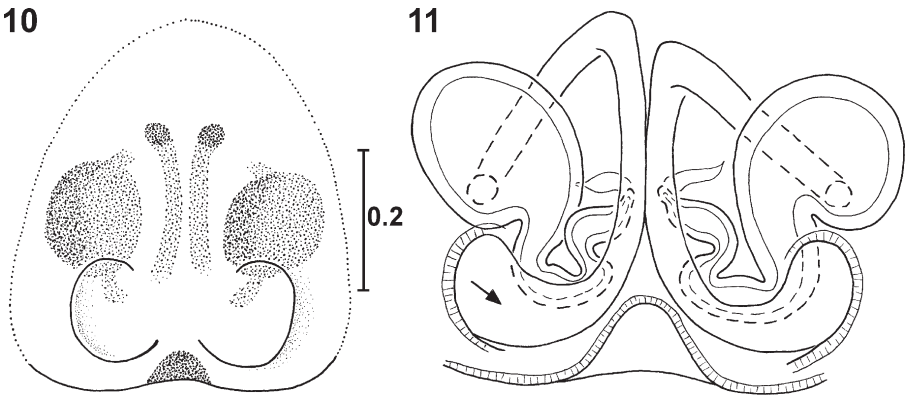
Etymology: From Latin *aenigma* (riddle), referring to the uncertain taxonomic position of the genus. Gender feminine.

Type species: *Aenigma incognita* sp. n.

Diagnosis: The habitus is typical for the majority of salticids (Fig. 210), with oval, medium high carapace and ovoid abdomen. Chelicera is long, promargin with two teeth, retromargin with single tooth. Legs medium long, with numerous spines.

Distinguished from other salticid genera by the unique form of the epigyne, by long and thin seminal ducts and, especially, by the shape of the receptacles, which are spherical with very long tail-like terminal parts.

Remark: Relationships of this genus will remain unresolved until the male of the type species is discovered.



Figs 10, 11. *Aenigma incognita* sp. n., holotype: (10) epigyne; (11) internal structure of epigyne.

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Aenigma incognita sp. n.

Figs 10, 11, 210

Etymology: From Latin *incognita* (unknown).

Diagnosis: The female of this species is characterised by the structure of the epigyne, long and narrow seminal ducts, and receptacles with an elongated, narrow characteristic tail forming the final part. Male unknown.

Description:

Female.

Measurements: Carapace length 3.1, width 2.3, height 1.2. Abdomen length 3.3, width 2.4. Eye field length 1.6, anterior width 2.1, posterior width 2.2.

General appearance as in Fig. 210. Carapace ovoid, medium high, brown with slightly darker eye field and black rings surrounding eyes; traces of dark streaks radiating from fovea; some colourless bristles near eyes, sparse whitish hairs on slopes of carapace; small white scales frame anterior eyes ventrally, three parallel white lines below anterior lateral eyes, one of them across clypeus. Chelicerae long, unidentate, light brown, with dark patch on external sides; endites and labium brown with paler tips. Sternum yellow. Abdomen ovoid, on yellowish grey background mosaic composed of dense dark grey dots, with traces of paler chevrons medially; fine hairs covering abdomen, longer at anterior edge; sides of abdomen with small dark marks; venter yellowish with wide dark streak; spinnerets pale. Legs yellow with brownish spots; spines numerous; spination of leg I: femur 1-1-5 dorsally; patella pro- and retrolaterally 1; tibia 1-2 prolaterally, 1-1 retrolaterally, 2-2-0-2 ventrally; metatarsus 1-1 prolaterally, 1 retrolaterally, 2-2 ventrally. Palps yellow. Epigyne with two large rounded depressions near epigastric furrow (Fig. 10); internal structure as in Fig. 11, seminal ducts long, weakly sclerotised.

Holotype: ♀ Red Cliffs, Usutu R., 26°51.164'S:32°12.365'E, semi-aquatic vegetation, 4.xii.2000 (NCA 2009/664).

Habitat and biology: The holotype was collected from semi-aquatic vegetation on the banks of the Usutu River.

Genus *Afromarengo* Benjamin, 2004

Afromarengo coriacea (Simon, 1900)

Marengo coriacea: Simon 1900*a*: 401; Lawrence 1947: 36, fig. 22; Wanless 1978*a*: 261, fig. 1a–j, pl. 1a–c; Wesołowska & Russell-Smith 2000: 67, figs 171–174.
Marengo kibonotensis: Lessert 1925*a*: 439, figs 15–17.
Afromarengo coriacea: Benjamin 2004: 66, figs 4c, 57a–c, 58a–d, 59a–f.

See Wanless (1978*a*) for description of both sexes.

Material examined: 1♂ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, on bush, 3.xii.2000 (NMSA 21834); 2♀ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, under tree bark, 11.i.2007 (NCA 2007/3034); 1♂ Western shore of Nyamiti Pan, 26°53.767'S: 32°16.557'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/598).

Distribution: Known from Congo, Kenya, Tanzania and South Africa.

Habitat and biology: This species was rare and was collected by beating foliage in BW. Adults were collected from beneath bark in AX and SF, close to colonies of *Crematogaster* ants.

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Genus *Asemonea* O. P.-Cambridge, 1869

Asemonea stella Wanless, 1980

Figs 12, 13

Asemonea stella: Wanless 1980: 237, figs 16a–f, 28; Wesołowska & Russell-Smith 2000: 16, figs 14–17; Szüts 2000: 63, figs 1–6.

See Wanless (1980) for description of male and Wesołowska & Russell-Smith (2000) for description of female.

Redescription:

Female.

Measurements: Carapace length 1.4, width 0.9, height 0.7. Abdomen length 2.0, width 1.2. Eye field length 0.5, anterior width 0.8, posterior width 0.6.

General appearance as in Fig. 12; small, light coloured spider. Carapace pear-shaped, eyes typical for Lyssomaninae, in four rows, situated on high tubercles; posterior median eyes relatively large; fovea sulciform; colouration of carapace creamy (light green in living individuals), two parallel black lines on thoracic part, eyes (except anterior median ones) surrounded by black rings. Mouthparts and sternum pale; chelicerae with five very small teeth on promargin and four on retromargin. Abdomen whitish with blackish pattern, characteristic star-shaped patch on centre of dorsum (Fig. 12); venter light; spinnerets white. Legs long and thin, last pair longest (with very long metatarsus), black spots on basis and tips of tibiae of all legs, also on metatarsi I and II; spines numerous, long, pale. Whole body covered with fine pale hairs. Epigyne with small depression posteriorly (Fig. 13).

Material examined: 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, semi-aquatic vegetation, 4.xii.2000 (NCA 2008/2021).

Distribution: Known from Kenya and Tanzania, also reported from Queensland in Australia. Recorded for the first time in South Africa.

Habitat and biology: This species was collected from broad-leaved woody plants, where its pale green colouration is cryptic.

Asemonea sp.

Figs 14, 15

The only specimen represents a new, undescribed species. Unfortunately, the epigyne was lost during preparation. For this reason we refrain from giving a formal scientific name for the species until discovery of new specimens. Male unknown.

Description:

Female.

Measurements: Carapace length 1.5, width 1.2, height 0.6. Abdomen length 2.1, width 1.3. Eye field length 0.5, anterior width 0.9, posterior width 0.6.

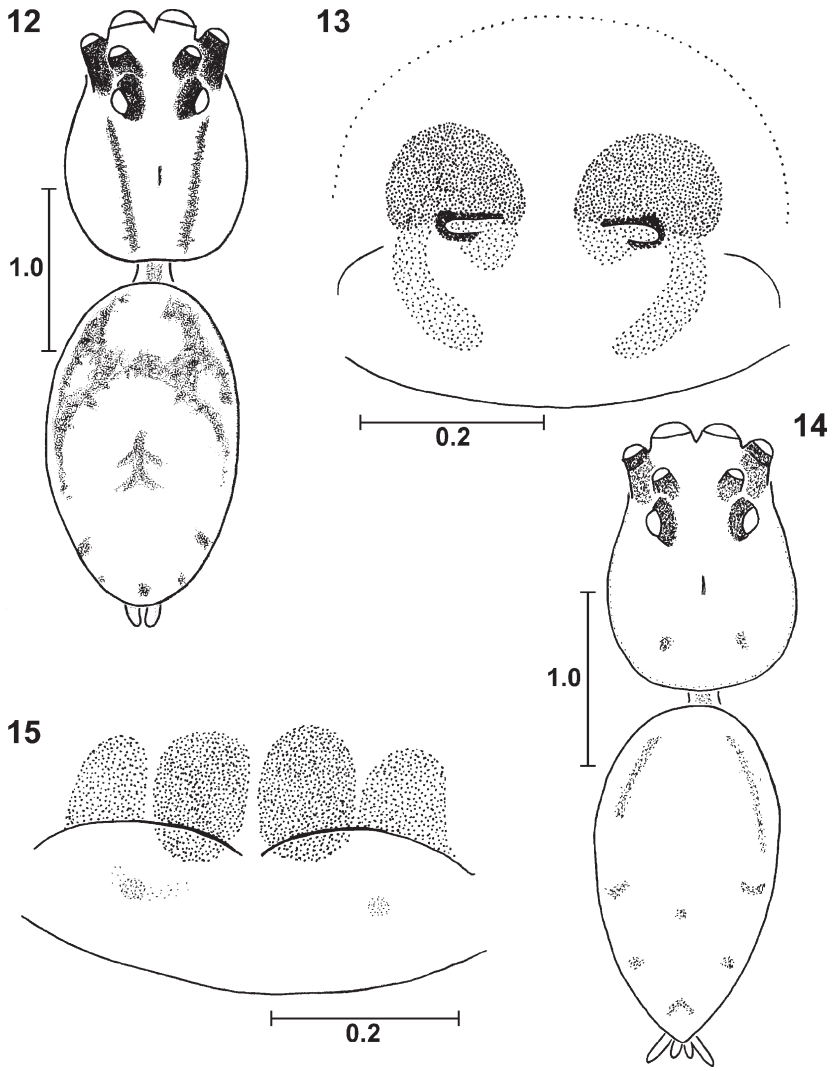
General appearance in Fig. 14; small, pale spider; shape of body as in other *Asemonea* species (see above). Carapace whitish cream, with two dark dots on thoracic part posteriorly; eyes (except anterior medians) surrounded by black rings. Chelicerae with four small teeth on both margins. Abdomen also whitish, with only a few blackish marks (Fig. 14). Legs white with black patches at basis and tips of tibiae and on retro-

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lateral side of tarsi terminally (all legs); probably black tarsal patches are a diagnostic feature for the species (usually tarsi are the lightest segments of legs); first leg with four pairs of spines on tibia ventrally and three pairs on metatarsus. Epigyne oval, very weakly sclerotised, with small depression posteriorly (Fig. 15); seminal ducts long.

Material examined: 1♀ Southern boundary fence, deep sand forest, 26°55.578'S:32°19.081'E, beats, foliage, 9.ii.2005 (NCA 2008/2022).

Habitat and biology: This species was collected by beating foliage in SF. Apart from the female, several immatures were collected that may be conspecific with this species.



Figs 12–15. *Asemonea stella* (12, 13) and *Asemonea* sp. (14, 15): (12, 14) habitus; (13, 15) epigynes.

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Genus *Baryphas* Simon, 1902

Baryphas ahenus Simon, 1902

Baryphas ahenus: Simon 1902*a*: 42; 1903*a*: 681, figs 807–809; Peckham & Peckham 1903: 207, pl. 24, fig. 2; Lessert 1925*b*: 349, fig. 13; Prószyński 1987: 5; Wesołowska & Cumming 2008: 169, figs 2–8.

See Wesołowska & Cumming (2008) for description of both sexes.

Material: 1♀ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, beats, foliage, 3.xii.2000 (NCA 2008/2023); 1♂ 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, short plants, 8.xii.2000 (NCA 2008/2024); 1♀ Near Vulture Restaurant, 26°53.376'S: 32°18.703'E, subtropical bush, beats, foliage, 9.vii.2000 (NMSA 21835).

Distribution: Species common in southern Africa.

Habitat and biology: This widespread species was commonly collected from foliage along the Pongola and Usutu River floodplains, and in ST, where it was common on low-growing shrubs (e.g. *Croton* sp.). Predominantly immature spiders were sampled, and were thus not preserved.

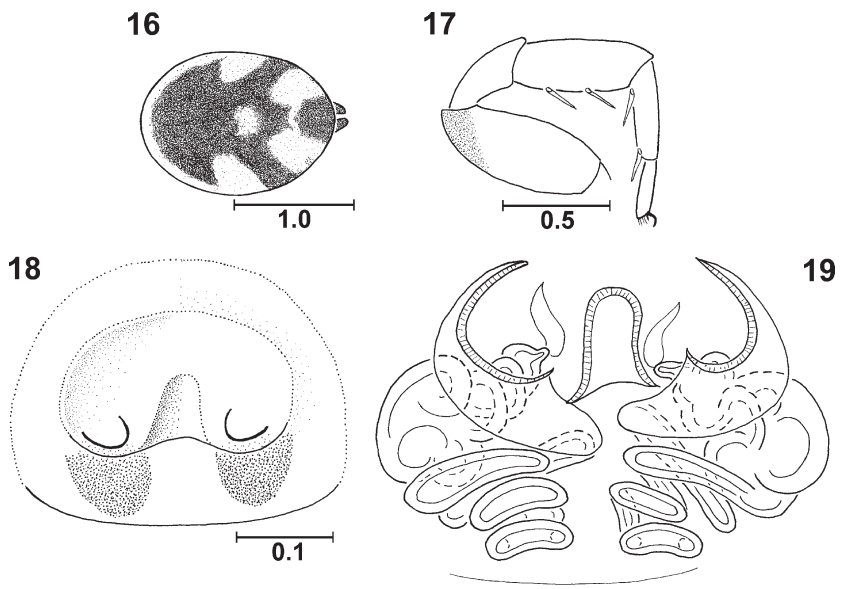
Genus *Bianor* Peckham & Peckham, 1886

Bianor eximius sp. n.

Figs 16–19, 211

Etymology: From Latin *eximius* (exceptional).

Diagnosis: The female of this species has large white patches on the abdomen. It is distinguished from congeners by the very long seminal ducts (the longest of all species in the genus), forming three loops, and the multi-chambered receptacles (two-chambered in other species). Male unknown.



Figs 16–19. *Bianor eximius* sp. n., holotype: (16) abdominal pattern; (17) first leg; (18) epigyne; (19) internal structure of epigyne.

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Description:

Female.

Measurements: Carapace length 1.2, width 1.2, height 0.6. Abdomen length 1.7, width 1.3. Eye field length 0.6, anterior width 0.9, posterior width 1.2.

General appearance as in Fig. 211; small spider; shape of body typical for the genus. Carapace blackish, anterior part of eye field and thoracic part sparsely covered with white scales; long dark setae near eyes; clypeus low, with white hairs. Mouthparts and sternum dark brown, only inner margins of endites slightly paler. Abdomen ovoid, black, with five large white patches and band along anterior margin composed of light hairs (Fig. 16); abdomen dark ventrally; spinnerets dark. First leg slightly thicker than others (Fig. 17); legs dark yellow, femora tinged with grey. Palps light. Epigyne typical for the genus, with central pocket (Fig. 18); seminal ducts very long, forming a few loops, receptacles multi-chambered (Fig. 19).

Holotype: ♀ Airfield, 26°54.865'S:32°17.896'E, broadleaf woodland, leaf litter, 3.vii.2005 (NCA 2009/665).

Habitat and biology: Collected from leaf litter in partial shade in BW.

Genus *Cyrba* Simon, 1876
Cyrba boveyi Lessert, 1933

Figs 20–23, 238

Cyrba boveyi: Lessert 1933: 145, fig. 63; Wanless 1984*a*: 463, figs 11a–f.

See Wanless (1984*a*) for descriptions of both sexes.

Redescription:

Male.

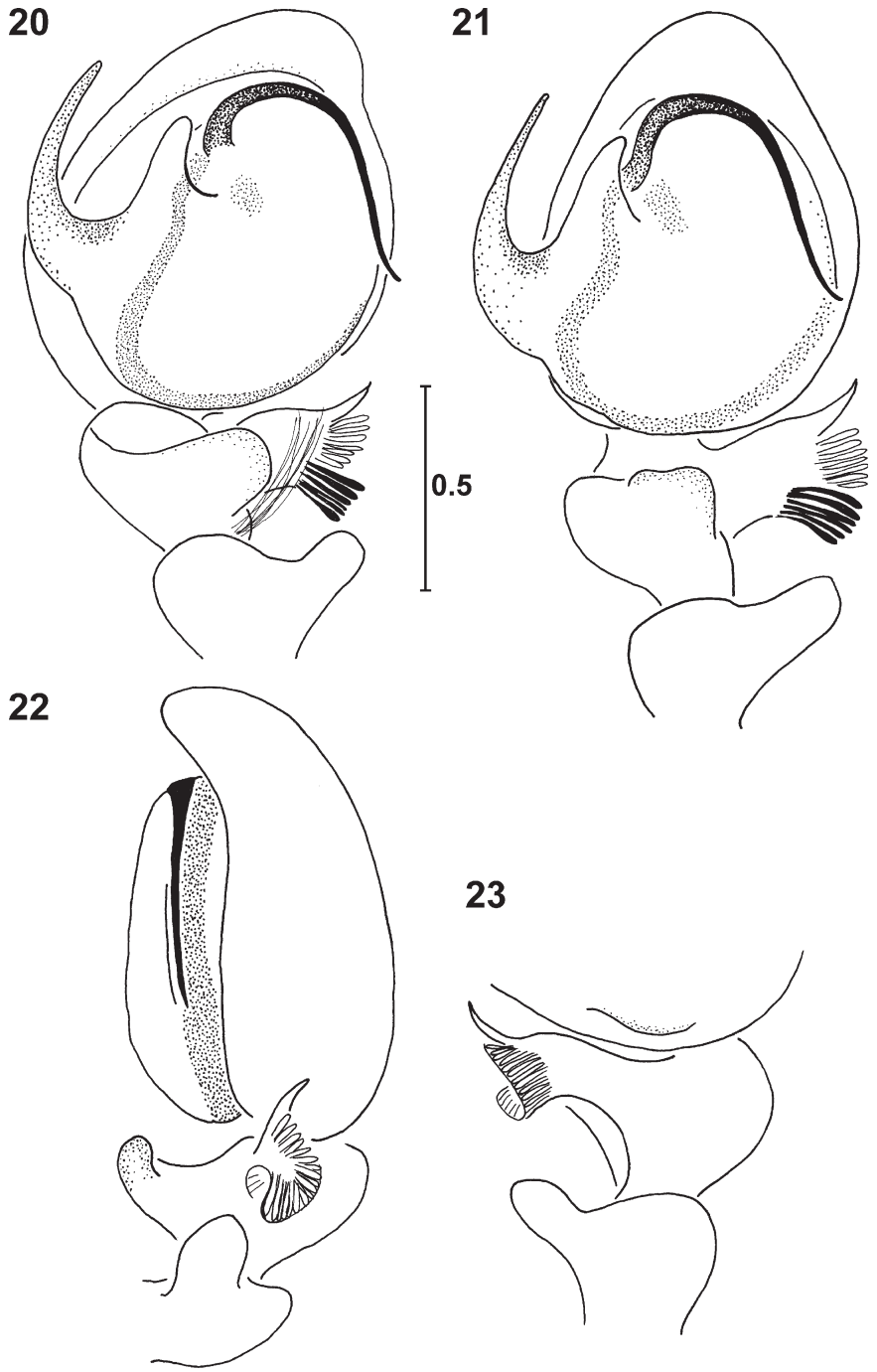
Measurements: Carapace length 2.3–2.4, width 1.4–1.5, height 0.8. Abdomen length 2.5–2.6, width 1.1–1.3. Eye field length 0.9–1.0, anterior width 1.3–1.5, posterior width 1.2–1.4.

General appearance in Fig. 238; medium-sized spider; whole body densely covered with short, bright reddish orange hairs. Carapace slightly elongate, moderately high in cephalic part and sloping gently posteriorly; eye field trapeziform, slightly wider anteriorly; some brown bristles in vicinity of eyes; fovea prominent; clypeus low, clothed in white hairs. Chelicerae light brown, pluridentate, promargin with three, retromargin with four teeth; endites orange with lighter inner margins, labium and sternum yellowish orange. Abdomen elongate, dorsum bright orange with scattered brown bristles, venter yellowish; spinnerets grey. Legs yellowish orange, only first pair with black tibiae and metatarsi; pedipalps with black cymbium. Palpal patella with blunt apophysis (Figs 20–23); tibial apophysis with recurved row of long black scales; tegulum rounded, rather flat, with furrow near base of embolus and long process at prolateral edge (Figs 20, 21).

Material examined: 3♂ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, under logs, 1.xii.2000 (NCA 2008/2025); 4♂ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, under logs, 2.xii.2000 (NCA 2009/677).

Distribution: Species known from Angola, Kenya and Mozambique; recorded for the first time from South Africa.

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Figs 20–23. *Cyrba boveyi*: (20, 21) palpal organ, ventral views; (22) palpal organ, lateral view; (23) tibial apophysis, dorsal view.

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Habitat and biology: *C. boveyi* was a common ground-dwelling salticid in BW and was regularly found in silk retreats beneath logs and rocks, particularly in sunny areas. It was frequently found in the vicinity of colonies of large ants (*Camponotus* and *Streblognatha*), and dense aggregations of spitting spiders (*Scytodes caffra* Purcell, 1904) and violin spiders (*Loxosceles spinulosa* Purcell, 1904). Several immature specimens were collected from *A. xanthophloea* bark low on the tree trunks.

Cyrba lineata Wanless, 1984

Figs 24, 25, 239

Cyrba lineata: Wanless 1984*a*: 465, figs 13a–h.
Cyrba armata: Wesołowska 2006*a*: 618, figs 1–5. **Syn. n.**

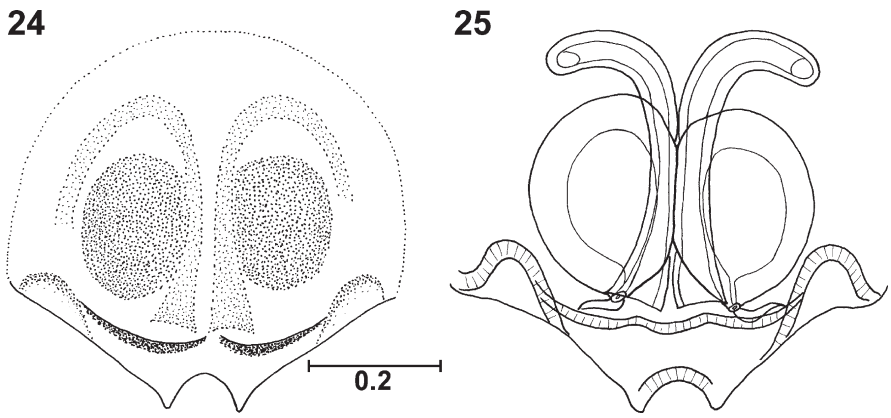
See Wesołowska (2006*a*) for description of male, and Wanless (1984*a*) for description of female; general appearance of male in Fig. 239.

Redescription:

Female.

Measurements: Carapace length 2.5–2.7, width 1.7–1.8, height 0.9–1.1. Abdomen length 3.0–3.8, width 1.9–2.4. Eye field length 1.0–1.1, anterior width 1.7–1.8, posterior width 1.6–1.7.

Medium-sized spider. Carapace longer than wide, moderately high, with gently sloping posterior part; light brown to dark brown at margins; eye field slightly darker than thoracic area, in one specimen two black spots on eye field centre, eyes surrounded by black rings; short brown hairs on carapace, some long bristles near eyes; anterior eyes fringed by white hairs; fovea long, sulciform; clypeus low with short white hairs. Chelicerae brown, promargin with three, retromargin with four teeth; mouthparts brown, sternum light brown. Abdomen ovoid, blackish, with narrow longitudinal white line and light patch on mytiliform field; in other specimens abdomen grey with three lighter chevrons posteriorly; abdomen covered in short dark hairs; venter dark grey with two yellowish lines; spinnerets grey. Legs light brown, femora tinged with black, first pair of legs with darker tibiae and metatarsi; last pair of legs longest; leg hairs and spines



Figs 24, 25. *Cyrba lineata*: (24) epigyne; (25) internal structure of epigyne.

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brown. Epigyne with acute lobes of caudal ledge and two pockets (Fig. 24); internal structure as in Fig. 25, receptacles spherical with very thick walls.

Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, leaf litter, 11.iv.2006 (NCA 2006/782); 1♀ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* grassland, leaf litter, 8.vii.2004 (NCA 2008/2026); 3♀ Near pump, Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, sieving leaf litter, 27.vi.2006, C. Haddad & F. Jordaan (NCA 2006/1203); 2♀ Northern shore of Nyamiti Pan, 26°53.192'S:32°18.272'E, under logs, 7.vii.2002 (NMSA 21836); 1♀ Start of game count transect 8, 26°50.183'S:32°13.135'E, *F. sycomorus* bark, 11.vii.2004 (NCA 2008/1882); 2♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, leaf litter, 15.vi.2005 (NMSA 21837).

Distribution: Species known only from South Africa.

Habitat and biology: *C. lineata* was common under logs and rocks in AS and BW, and was collected from underneath logs and in leaf litter in AX, RF and ST. All of the material was collected during winter.

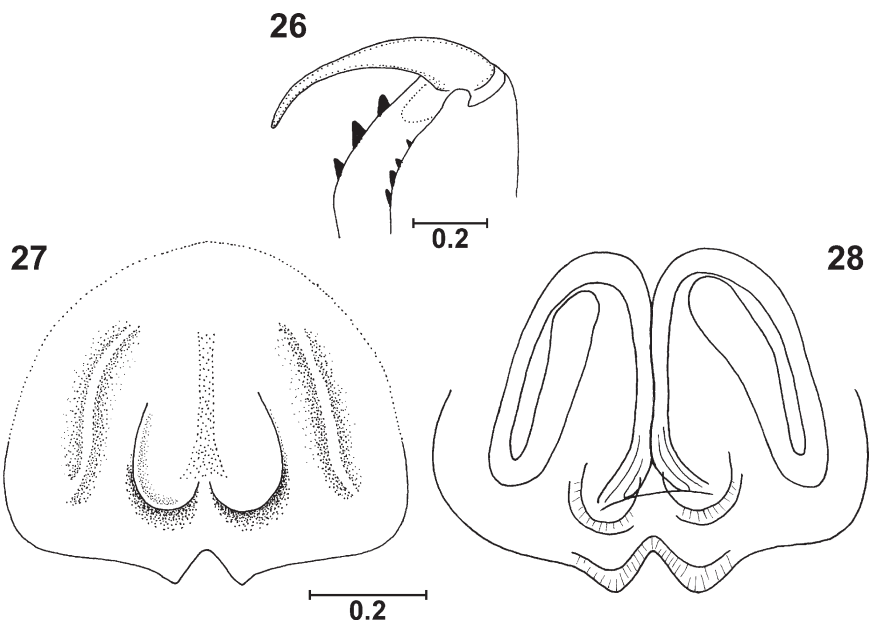
Remarks: The species is distinguishable by the presence of epigynal pouches. *C. lineata* was hitherto known only from the female. *C. armata* was recently described from Kosi Bay in KwaZulu-Natal (approximately 60 km east of NGR), on the base of single male, and Wesołowska (2006*a*) suggested that it may be the missing sex of *C. lineata*. The similar morphology and occurrence of the two sexes in the same locality (NGR) allows for the synonymisation of their names.

Cyrba nigrimana Simon, 1900

Figs 26–28

Cyrba nigrimanus: Simon 1900*a*: 389; Caporiacco 1947: 230.
Cyrba nigrimana: Wanless 1984*a*: 465, figs 12a–g.

See Caporiacco (1947) for description of male.



Figs 26–28. *Cyrba nigrimana*: (26) cheliceral dentition; (27) epigyne; (28) internal structure of epigyne.

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Redescription:

Female.

Measurements: Carapace length 2.6, width 1.7, height 0.8. Abdomen length 2.7, width 1.8. Eye field length 1.1, anterior width 1.6, posterior width 1.5.

Medium-sized spider. Carapace elongate, sloping gently posteriorly; eye field short, slightly wider anteriorly; carapace orange-brown, eyes surrounded by black rings; fovea elongate, sulciform, clearly visible; clypeus low, clothed in long white hairs. Chelicerae brown, three teeth on promargin and four small teeth on retromargin (Fig. 26). Abdomen elongate oval, narrower than carapace, dark grey, covered with dense, short, greyish hairs; venter grey; spinnerets grey. Legs moderately long and slender, last pair longest; legs light brown, only tibiae and metatarsi of first pair black; hairs covering legs long, brown; one pair of ventral spines on metatarsus I, three pairs on tibia. Pedipalps blackish. Epigyne with notch in posterior edge and posterior depression in shape of inverted heart (Fig. 27); receptacles elongated (Fig. 28).

Material examined: 1♀ Airfield, 26°54.865'S:32°17.896'E, broadleaf woodland, leaf litter, 22.i.2006 (NCA 2008/2027); 1♀ Dipini Hide, 26°51.678'S:32°15.514'E, under logs, 7.vii.2002 (NCA 2009/676).

Distribution: Species described from South Africa (Pretoria, Gauteng Province and Makapan, Limpopo Province). Also reported by Caporiacco (1947) from Eastern Africa, but this record is doubtful.

Habitat and biology: Collected from leaf litter in BW and under logs in ST.

Remark: This species has elongate receptacles, whereas those of the other members of the genus are spherical.

Genus *Evarcha* Simon, 1902

Evarcha annae (Peckham & Peckham, 1903), **comb. n.**

Figs 29–31

Habrocestum annae: Peckham & Peckham 1903: 238, pl. 27, fig. 4; Prószyński 1987: 39.

Redescription:

Female.

Measurements: Carapace length 3.5, width 2.7, height 1.4. Abdomen length 4.2, width 2.9. Eye field length 1.6, anterior width 2.4, posterior width 2.5.

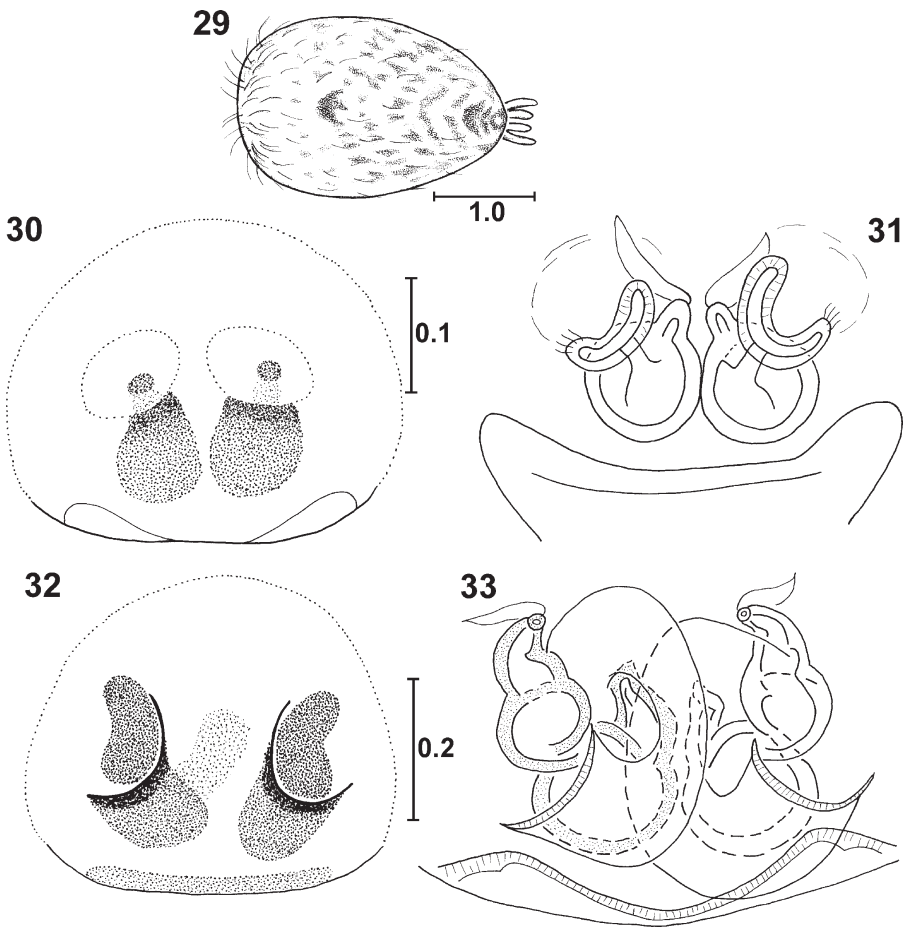
Carapace brownish orange, eye field dark brown, eyes with black rings; anterior part of eye field sparsely covered with white hairs, some surrounding anterior eyes; on thoracic area light hairs longer, but not numerous. Chelicerae unidentate; labium and endites orange, sternum lighter. Abdomen oval, yellowish, with series of chevrons formed by small grey spots (Fig. 29); sides and venter pale; sparse brown bristles on dorsum, longer at anterior edge of abdomen; spinnerets pale. Legs dark yellow, bearing brown hairs and spines. Epigyne small, rounded, with two shallow depressions (Fig. 30); internal structure as in Fig. 31; seminal ducts short, receptacles spherical.

Male. Unknown.

Material examined: 1♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, leaf litter, 15.vi.2005 (NCA 2008/2028).

Distribution: Previously known only from the type locality, Durban in South Africa.

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Figs 29–33. *Evarcha annae* (29–31) and *Evarcha elegans* (32, 33): (29) abdominal pattern; (30, 32) epigynes; (31, 33) internal structure of epigynes.

Habitat and biology: Known only from a single female collected from leaf litter in ST.

Remarks: The body proportions and the presence of a wide epigynal pocket suggest that this species should be placed in the genus *Evarcha*, but establishment of closer relationships with other congeners will be possible only after finding the male of this species.

Evarcha dotata (Peckham & Peckham, 1903)

Habrocestum dotatum: Peckham & Peckham 1903: 239, pl. 27, fig. 6.
Hyllus ventrilineatus: Strand 1906: 665.
Evarcha cara: Wesołowska & van Harten 1994: 22, figs 50, 51.
Hyllus corniger: Wesołowska & van Harten 1994: 43, figs 93–96.
Evarcha dotata: Wesołowska & Russell-Smith 2000: 23, figs 29–36; Wesołowska & van Harten 2007: 199, figs 27–31.
Hyllus dotatus: Logunov 2004: 87, figs 1, 2.

See Wesołowska & van Harten (1994, 2007) for descriptions of both sexes.

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Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under tree bark, 12.i.2007 (NCA 2007/3077); 1♀ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* savannah, leaf litter, 8.vii.2004 (NCA 2008/2029); 3♂ Near NRC picnic site, 26°52.742'S:32°11.088'E, *A. tortilis* savannah, leaf litter, 29.xi.2000 (NCA 2008/2030); 10♀ Near Vulture Restaurant, 26°53.376'S:32°18.703'E, subtropical bush, beats, foliage, 8.vii.2000 (NMSA 21838); 1♀ south-western shore of Banzi Pan, 26°53.160'S:32°16.958'E, beats, short shrubs, 12.i.2007 (NCA 2007/3024); 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, short shrubs, 6.xii.2000 (NMSA 21839).

Distribution: Species widely distributed in the Afrotropical Region; known also from Yemen.

Habitat and biology: This widespread species was common on low-growing foliage of herbaceous plants and in sweep netting samples, and was also occasionally observed at the base of grass tussocks and in leaf litter, in AS, BW and ST.

Evarcha elegans Wesołowska & Russell-Smith, 2000

Figs 32, 33

Evarcha elegans: Wesołowska & Russell-Smith 2000: 26, figs 37–44; Wesołowska & Tomasiewicz 2008: 14, figs 52, 53.

See Wesołowska & Russell-Smith (2000) for description of both sexes.

Redescription:

Female.

Measurements: Carapace length 2.5, width 1.9, height 1.0. Abdomen length 2.7, width 1.6. Eye field length 1.2, anterior width 1.6, posterior width 1.7.

Carapace orange, ocular area slightly lighter, eyes with black rings; near eyes some light setae. Abdomen grey, posteriorly slightly darker, with yellowish median serrate band; sides whitish yellow, venter light with two lines formed by dark marks; spinnerets pale, their tips darker. Legs yellowish orange, spines light. Epigyne oval, with two broadly spaced openings (Fig. 32); seminal ducts very poorly sclerotised, wide, forming loop (Fig. 33).

Material examined: 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NCA 2008/2031).

Distribution: Previously known only from the type locality, Mkomazi Game Reserve in Tanzania. Recorded from South Africa for the first time.

Habitat and biology: Collected from the foliage of shrubs in ST.

Evarcha ignea Wesołowska & Cumming, 2008

Figs 34–37, 212

Evarcha ignea: Wesołowska & Cumming 2008: 175, figs 22, 23.

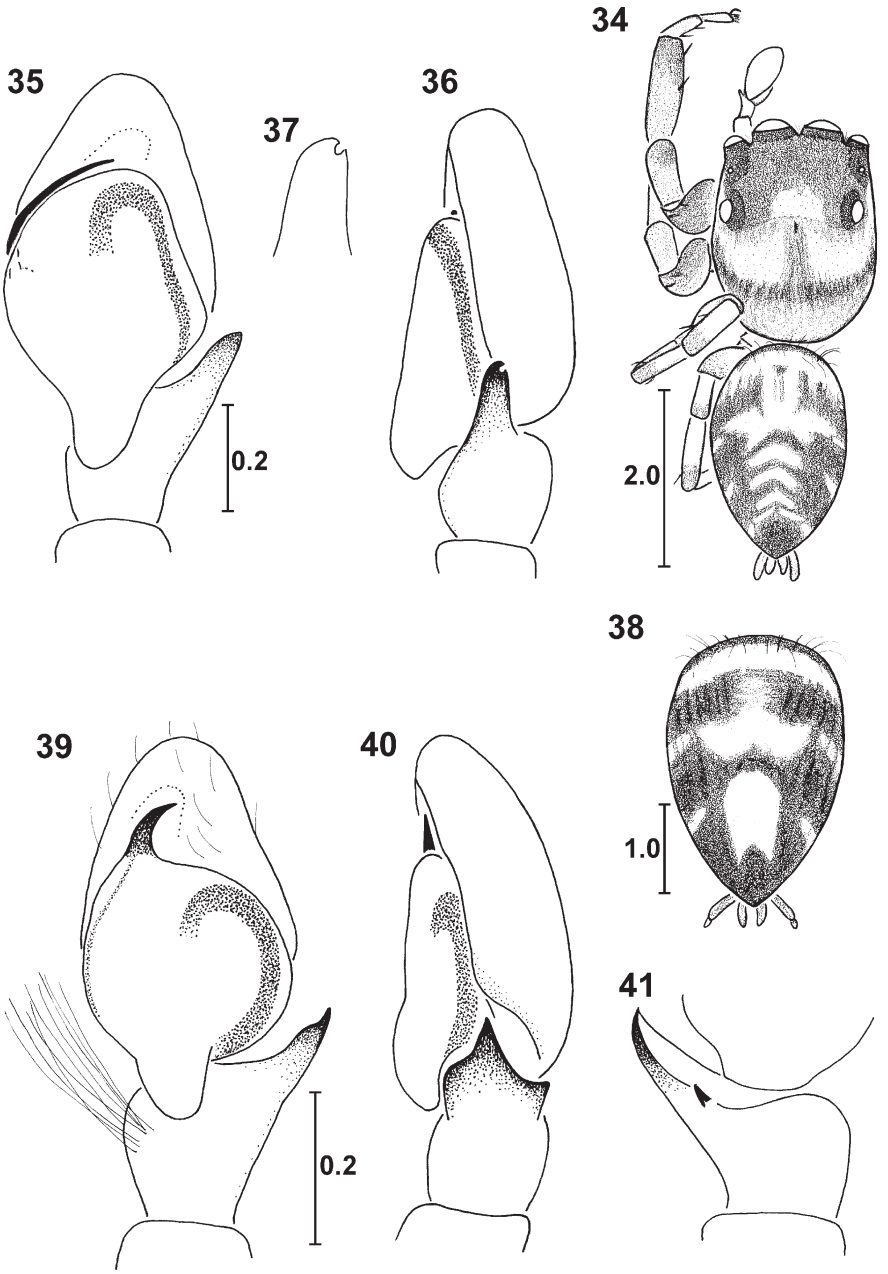
Redescription:

Male.

Measurements: Carapace length 1.9–2.3, width 1.5–1.8, height 0.8–1.0. Abdomen length 1.6–2.2, width 1.1–1.4. Eye field length 0.9–1.0, anterior width 1.4–1.5, posterior width 1.5–1.6.

General appearance as in Fig. 34. Carapace dark brown, with thin black line along margins, vicinity of eyes black; brown setae form median streak on thorax and band

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Figs 34–41. *Evarcha ignea* (34–37) and *Evarcha mirabilis* sp. n., holotype (38–41): (34) habitus of male; (35, 39) palpal organs, ventral views; (36, 40) palpal organs, lateral views; (37) tibial apophysis, lateral view; (38) abdominal pattern; (41) tibial apophysis, dorsal view.

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along edge of flat part of thorax; long brown bristles near eyes, white hairs scattered on thoracic plain, forming large patch on eye field posteriorly; anterior eyes surrounded by orange scales; clypeus high, clothed in bright reddish scarlet scale-like hairs (Fig. 212), reaching to sides of carapace. Chelicerae unidentate; labium and endites brown, sternum yellow tinged with grey. Abdomen russet brown with yellowish pattern (Fig. 34), light posterior chevrons joined to large patch in some specimens; in one specimen delicate small orange scutum anteriorly on dorsum; sparse long dark setae cover abdomen, denser and longer at anterior edge; venter grey, in one specimen yellow with three streaks composed of dark dots; spinnerets yellowish grey. Legs brown with lighter rings on patellae and tibiae basally, and yellowish metatarsi and tarsi; leg hairs and spines brown. Pedipalps brown; tibial apophysis straight and wide, with small notch in tip (Figs 36, 37); tegulum with posterior lobe, embolus nestling to tegulum (Fig. 35).

Female. Unknown.

Material examined: 1♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, grassy litter, 13.vi.2005 (NCA 2008/2032); 2♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, *Commiophora harveyi* bark, 13.vi.2005 (NCA 2008/2033); 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, leaf litter, 8.xii.2000 (NMSA 21840).

Distribution: Species described from Zimbabwe, recorded for the first time from South Africa.

Habitat and biology: This species was collected from the bases of grasses and from leaf litter in BW and ST. Two males were captured beneath bark in SF.

Evarcha mirabilis sp. n.

Figs 38–41

Etymology: From Latin *mirabilis* (admirable).

Diagnosis: The male of the species is closely related to *Evarcha maculata* Rollard & Wesołowska, 2002 from the Nimba Mountains, but has a distinctly wider tibial apophysis with an additional tooth (compare Fig. 40 herein with fig. 6B in Rollard & Wesołowska 2002). Female unknown.

Description.

Male.

Measurements: Carapace length 1.9, width 1.4, height 0.8. Abdomen length 1.7, width 1.1. Eye field length 0.9, anterior width 1.3, posterior width 1.4.

Carapace rather high, dark brown, with two lighter semicircular areas on thoracic region (behind last row of eyes); anterior eyes surrounded with fawn scales; long brown bristles near eyes, white scale-like hairs scattered on eye field and on thoracic plain, denser behind anterior eyes; clypeus low, dark brown. Chelicerae unidentate; labium and endites brown, sternum orange. Abdomen russet brown with yellowish pattern, only transverse band at anterior margin white (Fig. 38); long dark setae at anterior edge of abdomen; venter dark yellow; spinnerets grey. Colouration of legs contrasted; coxae, trochanters and basal halves of femora yellow, distal parts of femora, patellae and tibiae almost black, metatarsi and tarsi yellow. Pedipalps contrasted; femur black, remaining segments yellow; tibial apophysis very broad at base, pointed at tip, with two dorsal teeth (Figs 40, 41). Tegulum rounded, with posterior lobe, embolus short (Fig. 39).

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Holotype: ♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, sweeps, grass, 13.vi.2005 (NCA 2009/666).

Evarcha mustela (Simon, 1902)

Viciria mustela: Simon 1902*a*: 48; 1903*a*: 743, figs 885, 886; Lessert 1936: 297, figs 94, 95.
Viciria morigera: Peckham & Peckham 1903: 232, pl. 26, fig. 6.
Viciria parmata: Peckham & Peckham 1903: 234, pl. 26, fig. 5.
Evarcha mustela: Wesołowska & Cumming 2008: 176, figs 24–32.

See Wesołowska & Cumming (2008) for description of both sexes.

Material examined: 1♀ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, beats, short shrubs, 10.xii.2000 (NMSA 21841); 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 10.xii.2000 (NMBA 11603); 2♂ same locality, beats, short shrubs, 8.xii.2002 (NCA 2009/679); 2♂ 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland beats, foliage, 8.xii.2000 (NCA 2008/2034).

Distribution: Known from western and southern Africa.

Habitat and biology: The species was occasionally collected by beating foliage of shrubs in BW and ST. This species was only collected in summer.

Evarcha prosimilis Wesołowska & Cumming, 2008

Figs 42–46

Evarcha prosimilis: Wesołowska & Cumming 2008: 179, figs 33–37.
Evarcha similis: Wesołowska & Russell-Smith 2000: 28, figs 45–48 (*nec* Caporiacco 1941).

Redescription:

Measurements (male/female): Carapace length 2.3–2.4/2.3, width 1.9/2.0, height 0.9/0.9. Abdomen length 2.0–2.1/2.9, width 1.3–1.4/2.2. Eye field length 1.0–1.2/1.0, anterior width 1.6/1.5, posterior width 1.7/1.6.

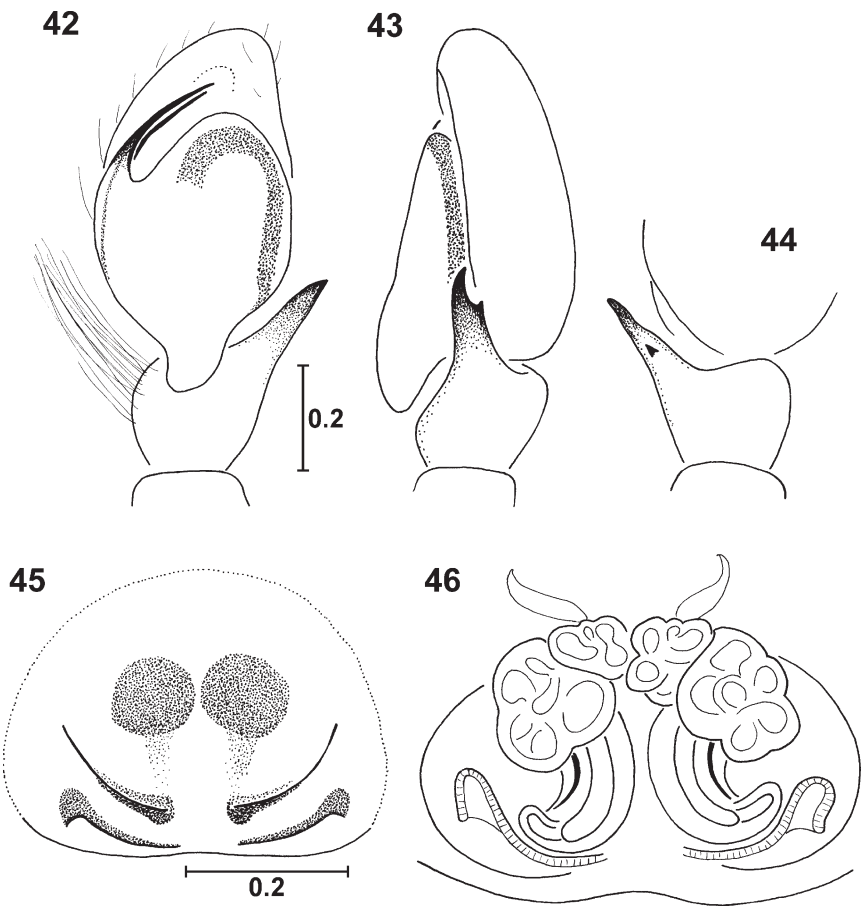
Male.

Carapace oval, brown, vicinity of eyes black; sparse white hairs on eye field, forming small patch behind anterior median eyes; longitudinal streak composed of brown hairs on thoracic area; glaring orange scales encircling anterior eyes, except scales surrounding anterior laterals from above, which are white; clypeus high, covered with orange reddish hairs. Mouthparts dark brown, sternum orange-brown. Abdomen light brown with white yellowish pattern; two transverse bands in anterior half, large leaf-shaped patch, and pair of submarginal spots in posterior half. Abdomen covered with brown and whitish hairs; venter yellow, with three longitudinal lines of small dark marks, in second specimen whole venter dark; spinnerets greyish. Legs yellow with brown rings, tarsi light, first and second pairs slightly darker than posterior pairs; leg hairs and spines brown. Pedipalps dark brown, white hairs forming spots on tips of palpal femur and patella dorsally; tibial apophysis with notch (Figs 43, 44), embolus double (Fig. 42).

Female.

Carapace light brown, traces of striae on thoracic part, black rings around eyes; clypeus low, brownish, with thin white line on lower clypeal margin; two parallel white lines on lateral slopes of carapace, below anterior lateral eyes; anterior eyes surrounded by small fawn scales, some long brown bristles on eye field anteriorly. Mouthparts brownish with light tips, sternum yellowish. Abdomen darker than in male, mottled, pattern com-

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Figs 42–46. *Evarcha prosimilis*: (42) palpal organ, ventral view; (43) palpal organ, lateral view; (44) tibial apophysis, dorsal view; (45) epigyne; (46) internal structure of epigyne, dorsal view.

posed of small greyish brown patches on yellowish background, posteriorly a few darker chevrons; brownish and grey hairs cover abdomen; venter light with brownish marks; spinnerets greyish beige. Legs yellow with brownish rings proximally and distally on segments; spines and leg hairs brown. Epigyne as in Fig. 45, receptacles multi-chambered (Fig. 46), only initial chambers strongly sclerotised.

Material examined: 1♂ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, leaf litter, 5.vii.2002 (NMSA 21842); 1♀ Near NRC picnic site, 26°52.742'S:32°11.088'E, *A. tortilis* savannah, leaf litter, 29.xi.2000 (NCA 2008/2035); 1♂ Near Nyamiti Bird Hide, Pongola River floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, pitfall traps, 15–25.i.2006, C. Haddad & R. Lyle (NCA 2008/1877); 1♂ Red Cliffs, 26°51.164'S:32°12.365'E, subtropical bush, leaf litter, 17.vi.2005 (NCA 2008/2036).

Distribution: Species known from northern Tanzania and Zimbabwe; recorded for the first time in South Africa.

Habitat and biology: Collected from leaf litter and the bases of grass tussocks in AS, BW and ST, and from pitfall traps in FP.

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Remarks: This species resembles *E. culicivora* Wesołowska & Jackson, 2003 from Kenya, but the male has a shorter embolus (compare Fig. 42 herein with fig. 6 in Wesołowska & Jackson 2003); the females are very similar and telling them apart is problematic. It is also similar to *E. picta* Wesołowska & van Harten, 2007 from Yemen, but the male of the latter species has a wider tibial apophysis, and the female has an epigyne with a strongly sclerotised posterior rim (see figs 38, 41 in Wesołowska & van Harten 2007).

'Evarcha' striolata sp. n.

Figs 47–49, 213, 214

Etymology: From Latin *striolata* (striped); the name refers to the abdominal pattern.

Diagnosis: The structure of the palpal organ is similar to that of *E. infrastriata* (Keyserling, 1881) from Australia. *E. striolata* is easily distinguished from its congeners by the characteristic striped abdominal pattern. Female unknown.

Description.

Male.

Measurements: Carapace length 2.1, width 1.6, height 0.8. Abdomen length 2.0, width 1.1. Eye field length 0.9, anterior width 1.4, posterior width 1.5.

General appearance in Figs 47, 213, 214. Carapace high, sloping abruptly posteriorly; dark orange with black rings surrounding eyes; surface almost bald, only a few colourless delicate bristles near anterior eyes; clypeus low, with few delicate hairs. Mouthparts and sternum dark yellow. Abdomen narrower than carapace, slightly elongate, narrowing posteriorly, striped (Fig. 47); two brown streaks separated by three yellowish ones on dorsum, dark streaks on sides; these brown stripes are formed by dense dark hairs; venter light yellow with two thin dark lines joined by transverse line in front of base of spinnerets; spinnerets pale. Legs yellowish, covered with short brown hairs, spines numerous; legs of pair III longest. Pedipalp (only right pedipalp present) pale; tegulum rounded, embolus encircling tegulum; tibial apophysis long, straight, thin (Figs 48, 49).

Holotype: ♂ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, grass at base of *A. xanthophloea*, 22.i.2006 (NCA 2006/719).

Habitat and biology: The holotype was collected from the base of grasses under a fever tree in AX.

Remarks: The species slightly differs from other *Evarcha* by the body shape. Its taxonomic position is tentative. Only discovery of the female and examination of its genitalia will enable confirmation of this placement.

Genus *Festucula* Simon, 1901

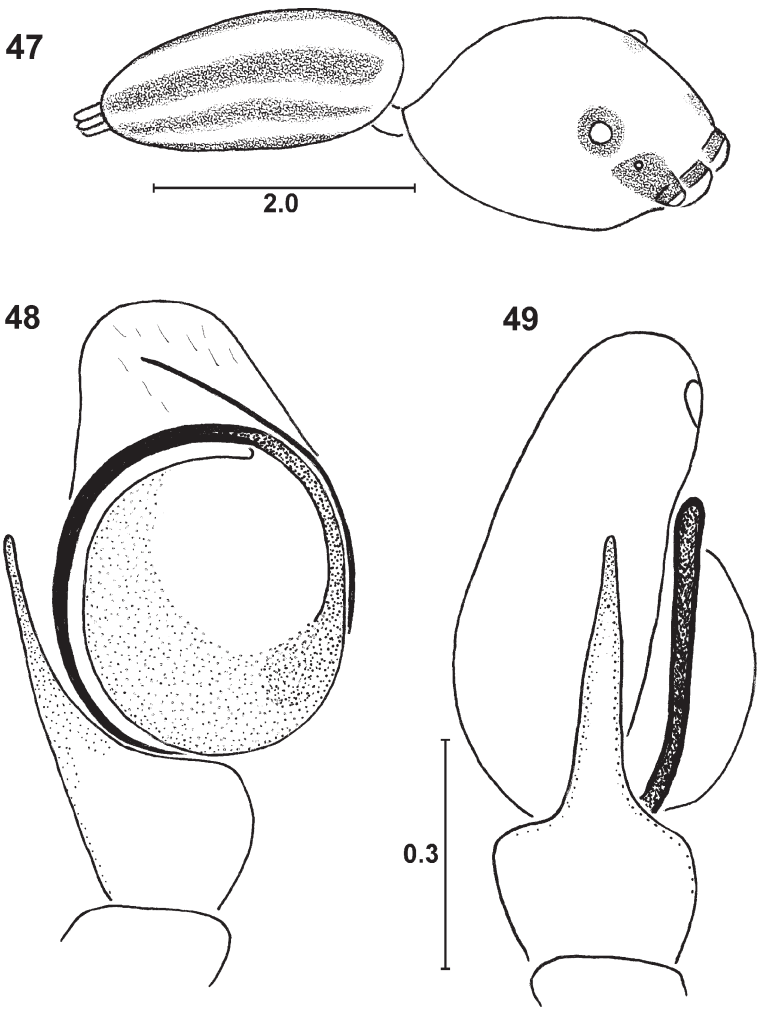
Festucula lawrencei Lessert, 1933

Figs 50–52

Festucula lawrencei: Lessert 1933: 152, fig. 72; Wesołowska 1992: 50, figs 26–27; Wesołowska & Russell-Smith 2000: 28, figs 49–51.

See Wesołowska & Russell-Smith (2000) for description of both sexes.

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Figs 47–49. *Evarcha striolata* sp. n., holotype: (47) habitus, lateral view; (48) palpal organ, ventral view; (49) palpal organ, lateral view.

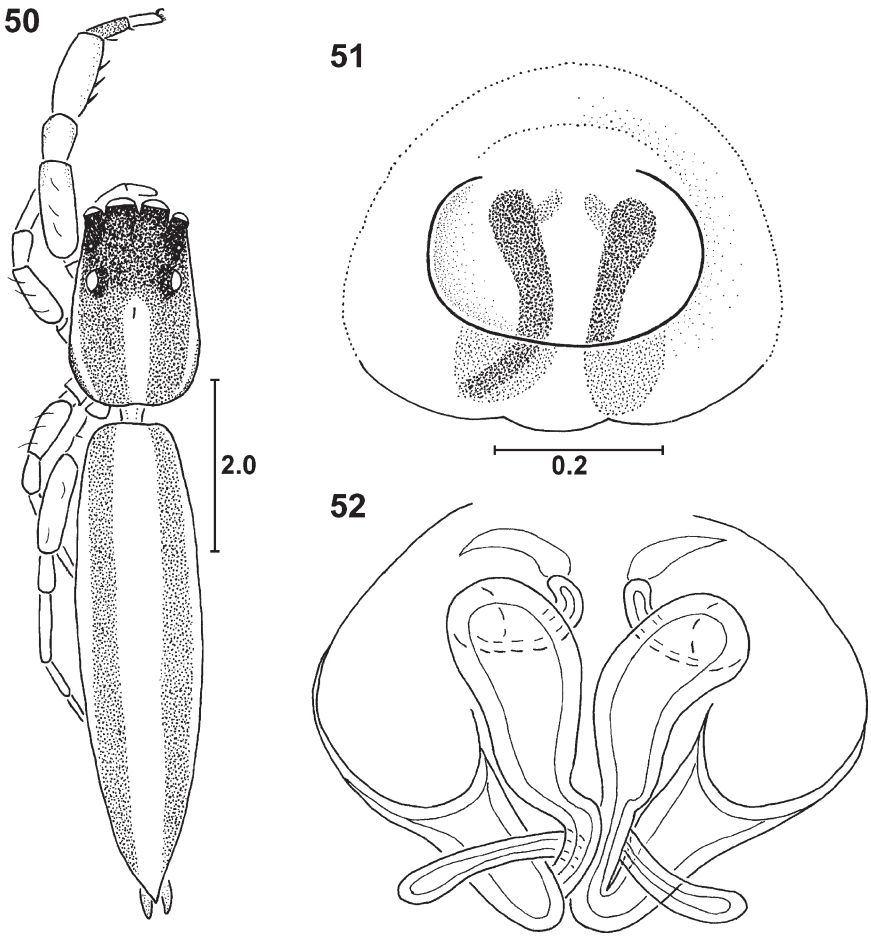
Redescription:

Female.

Measurements: Carapace length 2.2, width 1.2, height 0.5. Abdomen length 5.5, width 1.4. Eye field length 0.9, anterior width 1.0, posterior width 1.1.

General appearance in Fig. 50; very long and slender spider. Carapace slightly elongate, not broadening along its whole length, very flattened, eye field short; dorsum of carapace dark brown, with light brown band medially on thoracic part; along sides dark yellow streak, but margins framed by dark line; clypeus very low, clothed in white hairs; delicate, short whitish hairs sparsely cover carapace. Chelicerae, labium and sternum dark brown, maxillae brown with light inner margins. Abdomen very long and thin, striped, with two marginal brownish grey streaks and broad median whitish streak; sides of abdomen

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Figs 50–52. *Festucula lawrencei*: (50) habitus of female; (51) epigyne; (52) internal structure of epigyne.

whitish, three dark stripes on venter; spinnerets dark. Legs relatively short, the third pair shortest; first legs slightly thicker than others, with slightly swollen tibia, armed with three prolateral ventral spines, and two pairs of spines on metatarsus ventrally; leg I brown, remaining legs whitish yellow. Stridulatory apparatus consists of row of setae located on carapace sides, below lateral eyes, and a few bristles on prolateral surface of femora of first legs. Epigyne with shallow depression, partially plugged with waxy secretion (Fig. 51); internal structure in Fig. 52, receptacles elongate.

Material examined: 1 ♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, sweeps, grass, 13.vi.2005 (NCA 2008/2037).

Distribution: Species known from Angola and Tanzania; recorded for the first time from South Africa.

Habitat and biology: The female and a large number of immatures were collected by sweeping long grasses in BW. This species is clearly a grass-dwelling specialist, demonstrated by its elongate body form and colour, which is cryptic on grass stalks.

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Genus *Goleba* Wanless, 1980
Goleba puella (Simon, 1885)

Figs 53–61

Asamonea puella: Simon 1885: 27; Roewer 1965: 4, figs 5a–c.
Asemonea puella: Clark 1974: 12, figs 2, 3.
Goleba puella: Wanless 1980: 246, figs 22a–e, 23a–c, 29.

Redescription:

Measurements (male/female): Carapace length 2.5/2.5, width 1.9/1.9, height 0.8/0.7. Abdomen length 3.2/4.5, width 1.3/2.2. Eye field length 0.8/0.8, anterior width 1.3/1.2, posterior width 0.9/1.0.

Male.

General appearance as in Fig. 53. Carapace pear-shaped, yellowish (probably green in live specimens), with black rings surrounding eyes (except anterior medians), and traces of parallel brownish stripes on the thoracic part; eyes placed in four rows, posterior median eyes relatively large (as in other Lyssomaninae spiders), all eyes on high tubercles; fovea sulciform; clypeus medium high, with band composed of reddish hairs (Fig. 54), band extending to lateral margins of carapace. Mouthparts and sternum yellow. Chelicerae pluridentate, four teeth on promargin and five on retromargin, dorsal surface of chelicerae with transverse brown band (Fig. 54). Abdomen narrower than carapace, elongate, yellow, with poorly defined pattern formed by reddish hairs; venter pale; spinnerets yellow. Legs slender, long, especially long metatarsi; legs yellowish, only femora with brown stripes on prolateral surfaces; spines numerous, robust, long. Pedipalps pale; palpal femur with big ventral tubercle (Fig. 59); cymbium narrow terminally (Fig. 58); tibia with ventral and retrolateral apophyses, the latter one hooked (Figs 57, 58); tegulum irregular, with median tegular apophysis and two small lobes (Fig. 56); spermophore meandering, embolus stout (Figs 55, 56).

Female.

Slightly larger than male, abdomen not as slender; whole body yellowish white, only eye rings blackish. Epigyne rounded, shown in Fig. 60; internal structure as in Fig. 61; accessory glands very long, tubule-like.

Material examined: 1♂ 1♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, beats, short bushes, 6.vii.2000 (NMBA 11597); 1♀ Near pump, Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, beating foliage, 27.vi.2006 (NCA 2006/1214); 1♂ 1♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, beats, foliage, 2.xii.2000 (NCA 2008/2038).

Distribution: Species hitherto known from Angola, Congo, Ghana and Kenya; recorded for the first time from South Africa.

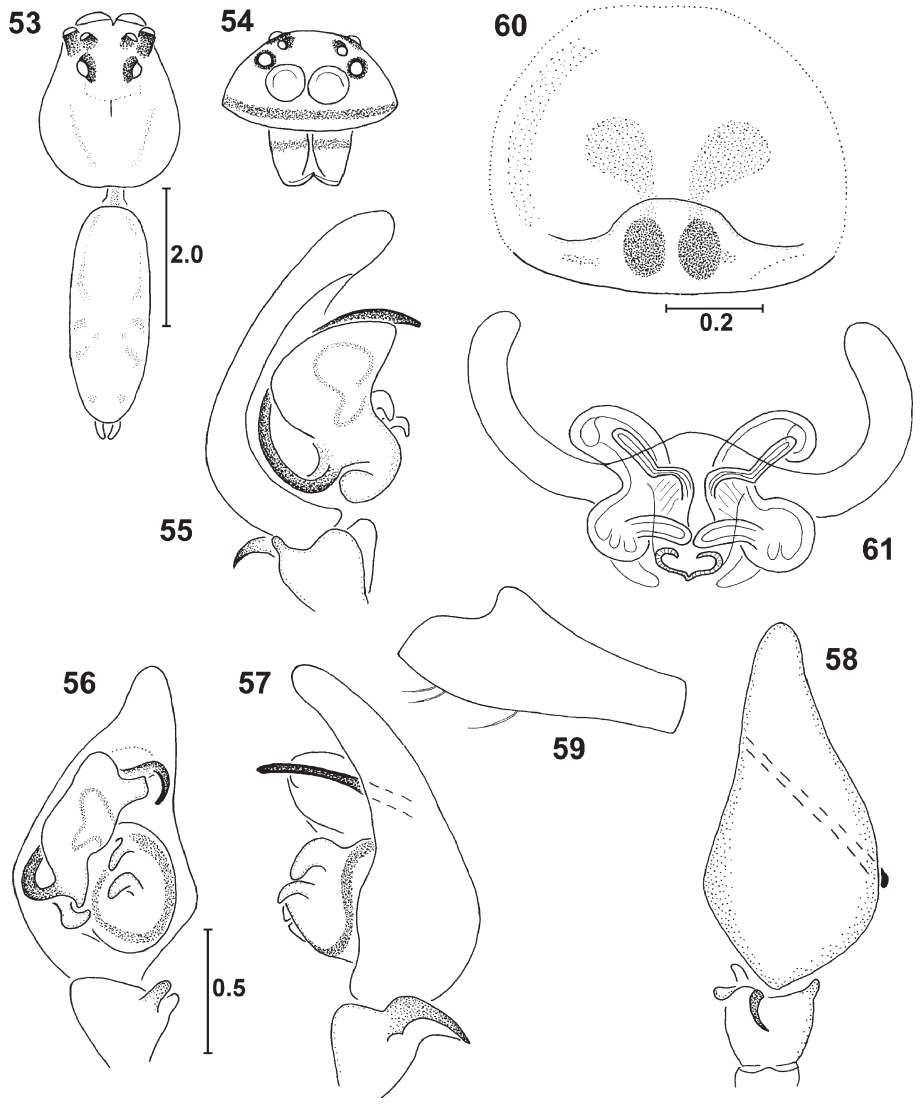
Habitat and biology: This pale green species was occasionally collected from foliage of woody plants in BW, RF and ST.

Genus *Habrocestum* Simon, 1876
Habrocestum africanum sp. n.

Figs 62–67

Etymology: The specific name refers to Africa.

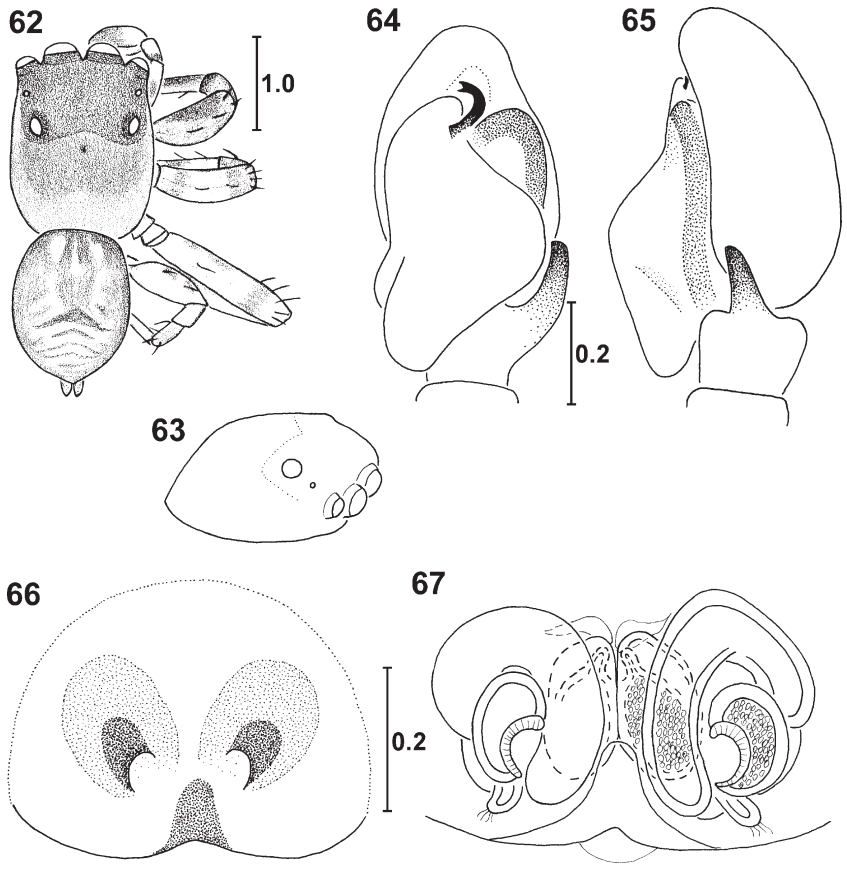
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Figs 53–61. *Goleba puella*: (53) habitus of male; (54) carapace, frontal view; (55) palpal organ, ventrolateral view; (56) palpal organ, ventral view; (57) palpal organ, lateral view; (58) palpal organ, dorsal view; (59) palpal femur; (60) epigyne; (61) internal structure of epigyne.

Diagnosis: The male of the species is closely related to *H. formosum* Wesołowska, 1999 from Zimbabwe, but has a wider tibial apophysis, longer tegulum and smaller embolus (compare Figs 64, 65 herein with figs 13–15 in Wesołowska 1999*a*). The female resembles *H. tanzanicum* Wesołowska & Russell-Smith, 2000 from Tanzania, but can be recognised by the smaller copulatory openings and more elongate spermathecae (more compact in *H. tanzanicum*, compare Figs 66, 67 herein with figs 56, 57 in Wesołowska & Russell-Smith 2000).

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Figs 62–67. *Habrocestum africanum* sp. n., paratypes: (62) habitus of male; (63) carapace, lateral view; (64) palpal organ, ventral view; (65) palpal organ, lateral view; (66) epigyne; (67) internal structure of epigyne.

Description.

Measurements (male/female): Carapace length 1.9/2.1–2.2, width 1.4/1.7–1.8, height 0.9/1.0. Abdomen length 1.4/2.5, width 1.1/1.7–2.1. Eye field length 1.1/1.1, anterior width 1.4/1.4–1.5, posterior width 1.3/1.3.

Male.

General appearance as in Fig. 62; small spider. Carapace high with very steep posterior slope (Fig. 63); eye field short, distance between anterior lateral eyes slightly larger than between posterior lateral ones; carapace dark brown, vicinity of eyes black; short greyish hairs cover thoracic part, denser on carapace slopes, orange hairs on eye field, numerous brown bristles near eyes; anterior eyes surrounded by short hairs, orange above eyes and whitish below; clypeus light brown. Chelicerae fissidentate; mouthparts brown, sternum dark yellow. Abdomen small, narrower than carapace, dark yellow with brown pattern (Fig. 62); venter yellow, tinged grey; brown hairs on abdomen. Legs dark yellow with brown spots, first pair slightly darker; legs III longest (especially

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long femora); spines numerous, long, brown; leg hairs brown. Pedipalps brown, along prolateral sides of femur, patella and part of cymbium dense white hairs; palpal organ shown in Figs 64, 65; tibial apophysis straight, embolus short.

Female.

Resembles male. Endites with pale inner margins. Pedipalps yellow. Epigyne rounded with deep pocket at epigastric furrow (Fig. 66); internal structures strongly sclerotised, shown in Fig. 67.

Holotype: ♂ Red Cliffs, 26°51.164'S:32°12.365'E, subtropical bush, leaf litter, 17.vi.2005 (NCA 2009/667).

Paratypes: 3♀ together with holotype (NCA 2009/667); 1♀ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, beats, short shrubs, 2.xii.2000 (NMSA 21828); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, beats, various trees, 24.i.2006, R. Lyle (NMSA 21829); 1♂ 1♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, pitfall traps, 15–25.i.2006, C. Haddad & R. Lyle (NCA 2008/1874); 2♂ 1♀ same locality, pitfall traps, 18–28.vi.2006, C. Haddad & F. Jordaan (NCA 2008/1872); 1♂ 6♀ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/642); 1♂ South-western shore of Banzi Pan, 26°53.118'S: 32°16.927'E, *A. xanthophloea* bark, 17.vi.2005 (NCA 2008/1842); 1♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 23.i.2006 (NCA 2008/611).

Habitat and biology: Specimens were collected from the soil surface and from leaf litter in thorny thickets in ST. Occasionally collected from the foliage of low shrubs and from fever tree bark in AX.

Genus *Harmochirus* Simon, 1885

Harmochirus luculentus Simon, 1886

Harmochirus luculentus: Simon 1886: 387; Prószyński 1987: 59, 108; Wesołowska 1994: 205, figs 21–24; Logunov 2001: 254, figs 206–246; Wesołowska & van Harten 2007: 214, figs 68–75.
Harmochirus albibarbis: Peckham & Peckham 1895: 171, pl. 16, fig. 3; Wesołowska 1994: 198, figs 1–3.
Valloa elegans: Peckham & Peckham 1903: 218, pl. 24, fig. 10.
Harmochirus elegans: Wesołowska 1994: 203, figs 14, 15.

See Logunov (2001) for description of both sexes.

Material examined: 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, under tree bark, 12.i.2007 (NCA 2007/3075); 1♀ Near NRC picnic site, 26°52.742'S:32°11.088'E, *A. tortilis* savannah, sweeps, grass, 29.xi.2000 (NCA 2008/2039).

Distribution: Species widespread in the Afrotropical Region.

Habitat and biology: This rare species was collected from tall grasses in AS. One male was collected from under tree bark along the Pongola River floodplain.

Genus *Heliophanus* C. L. Koch, 1833

Heliophanus claviger Simon, 1901

Figs 68–72

Heliophanus claviger: Simon 1901*a*: 56, fig. 9; Wesołowska 1986: 15, figs 54–63.

See Wesołowska (1986) for description of both sexes.

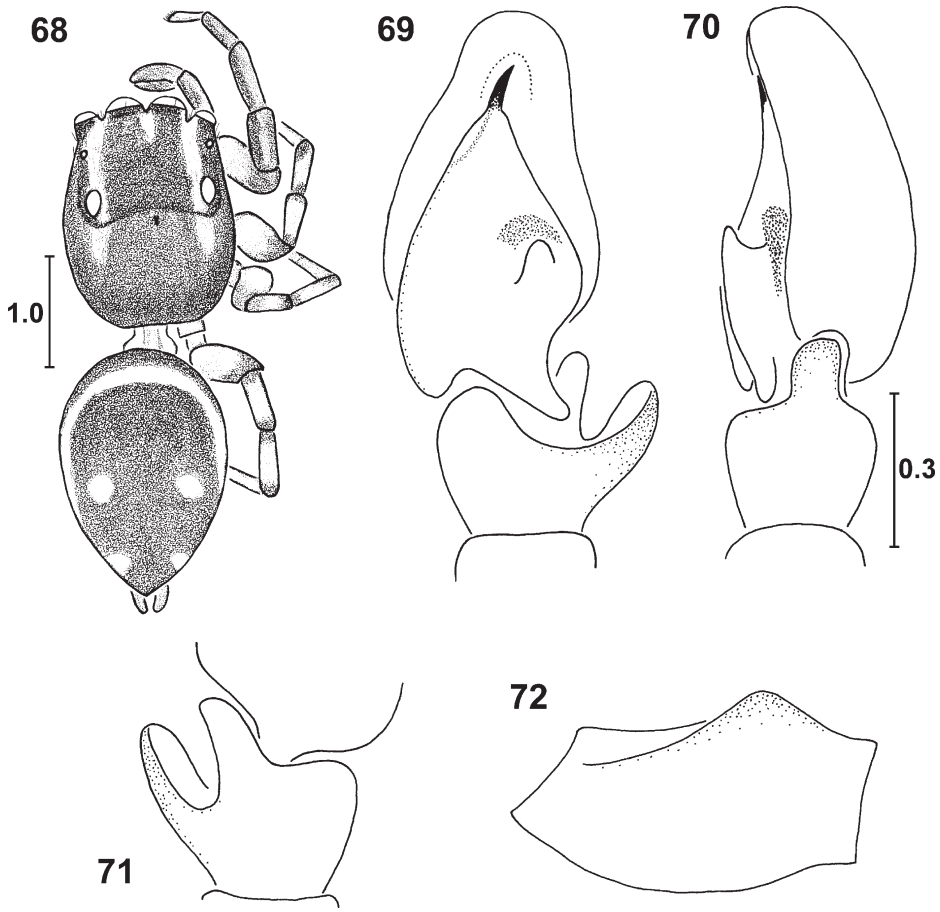
Redescription:

Male.

Measurements: Carapace length 2.3, width 1.8, height 0.8. Abdomen length 2.4, width 1.7. Eye field length 0.8, anterior width 1.3, posterior width 1.5.

General appearance in Fig. 68. Carapace dark brown, eye field black with metallic lustre, reticulate-punctured; white hairs form patch between anterior median eyes and

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Figs 68–72. *Heliophanus claviger*: (68) habitus of male; (69) palpal organ, ventral view; (70) palpal organ, lateral view; (71) tibial apophysis, dorsal view; (72) palpal femur.

two light streaks extending from anterior lateral eyes to thoracic part of carapace (Fig. 68); endites and labium brown with light tips, chelicerae and sternum dark brown. Abdomen oval, dark brown, with white band along anterior abdominal edge, extending to sides, and two pairs of rounded spots, one of them at midpoint and second at spinnerets (Fig. 68); venter pale yellow; spinnerets dark. Legs yellow with brown rings; pedipalps brown, with white scales on tibia dorsally and on cymbium; tegulum triangular, embolus short (Fig. 69); two tibial apophyses (Figs 69–71); palpal femur with small process ventrally (Fig. 72).

Material examined: 1♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, beats, foliage, 6.vii.2000 (NCA 2008/2040).

Distribution: Known only from South Africa.

Habitat and biology: This rare and distinctive species was collected from foliage of short shrubs in BW. Several immature specimens were collected from *A. xanthophloea* bark around Hotwe, Nyamiti and Shokwe Pans, and along the Pongola River floodplain.

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Heliophanus debilis Simon, 1901

Figs 73–75

Heliophanus debilis: Simon 1901*a*: 59, fig. 12; Wesołowska 1986: 21, figs 148–162.

See Wesołowska (1986) for description of both sexes.

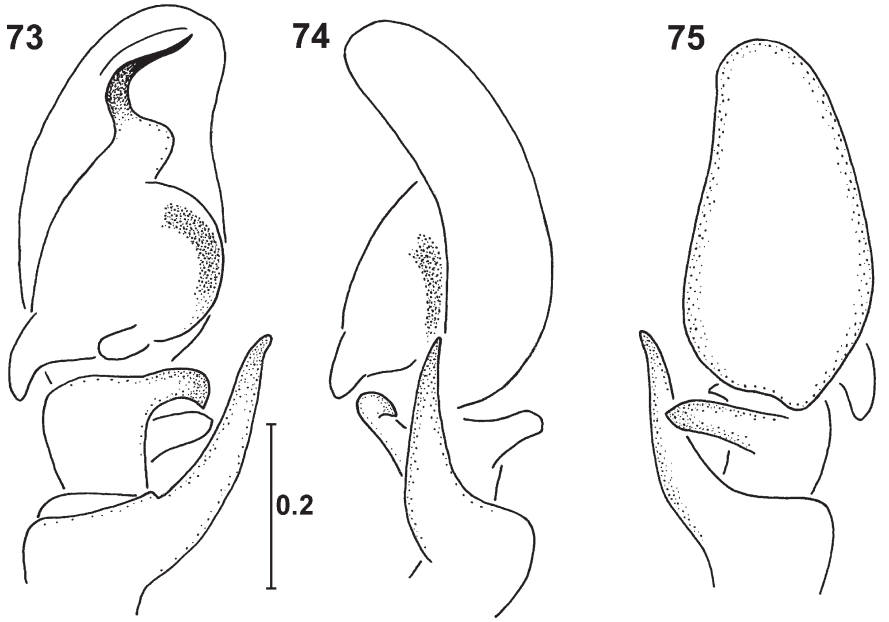
Redescription:

Male.

Measurements: Carapace length 1.5–1.6, width 1.1–1.2, height 0.5–0.6. Abdomen length 1.3–1.4, width 0.9–1.0. Eye field length 0.6–0.7, anterior width 0.9–1.0, posterior width 1.0–1.1.

Small spider. Carapace medium high, dark brown; eye field punctured reticulate, black with metallic shine, brown bristles near eyes; short white hairs form thin longitudinal line on thoracic part and narrow white stripe at carapace margins. Mouthparts and sternum dark brownish, only inner margins of endites slightly paler. Abdomen brownish black, along its anterior and lateral margins white band composed with light hairs, with leaf-shaped yellowish pattern in posterior half of dorsum; venter whitish; spinnerets dark. Legs whitish yellow, femora I brown; spines brown. Pedipalps brown; palpal patella with very long, stout apophysis, two tibial apophyses (Figs 73–75).

Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under rocks, 6.vii.2004 (NMSA 21843); 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 8.vii.2004 (NMSA 21844); 2♂ 1♀ same data but 6.ii.2005 (NCA 2008/624); 1♀ same data but 20.vi.2005 (NCA 2008/627); 1♀ same data but 24.i.2006 (NCA 2008/633); 1♂ same locality, under tree bark, 12.i.2007 (NCA 2007/3078); 1♂ 4♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/1869); 2♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, pitfall traps, 15–25.i.2006, C. Haddad & R. Lyle (NCA 2008/1873);



Figs 73–75. *Heliophanus debilis*: (73) palpal organ, ventral view; (74) palpal organ, lateral view; (75) palpal organ, dorsal view.

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3♀ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/646); 2♂ 2 imm. South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 17.vi.2005 (NCA 2008/1843); 1♂ 1♀ same locality but 23.i.2006 (NCA 2008/1850); 2♂ 3♀ 3 imm. Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/602); 2♂ same locality but 19.vi.2005 (NCA 2008/607); 4♂ 12♀ 2 imm. same locality but 23.i.2006 (NCA 2008/614).

Distribution: Species widely distributed in central and southern Africa.

Habitat and biology: This was the most common *Heliophanus* species in the reserve and was frequently collected from *A. xanthophloea* bark along various pans and floodplain habitats, where silk retreats were constructed beneath the bark structure. Adults were occasionally seen foraging on the tree trunks. Specimens were occasionally collected from low-growing herbaceous plants and from rocks and logs on the ground surface. One male specimen was parasitised by an ichneumonid wasp larva, which protruded ventrally from the epigastric fold.

Heliophanus fascinatus Wesołowska, 1986

Figs 76–80

Heliophanus fascinatus: Wesołowska 1986: 23, figs 186–198; Logunov 2004: 86.

Redescription:

Measurements (male/female): Carapace length 1.4/1.6–1.7, width 1.1–1.4/1.1–1.2, height 0.5/0.6. Abdomen length 1.4/1.8–2.1, width 0.7–0.8/1.2–1.4. Eye field length 0.6–0.7/0.8, anterior width 0.9–1.0/1.0–1.1, posterior width 1.0–1.1/1.1–1.2.

Male.

Small spider. Carapace brown with black eye field; light scale-like hairs forming white transverse band on eye field, along anterior median eyes; two large, poorly contrasted light spots on ocular area centrally; light patch formed by white hairs on foveal area, extending to light streak running to posterior edge of carapace; lateral margins of carapace framed by white lines. Mouthparts and sternum dark brown, only tips of endites yellowish. Abdomen dark brown or black with white median band; venter yellow, with two dark patches at base of spinnerets; narrow dark lines along sides; spinnerets dark. Legs whitish yellow, spines and leg hairs brown. Pedipalps brown; patellar apophysis long, dorsal tibial apophysis spike-like (Figs 76–78); embolus short (Figs 76, 79).

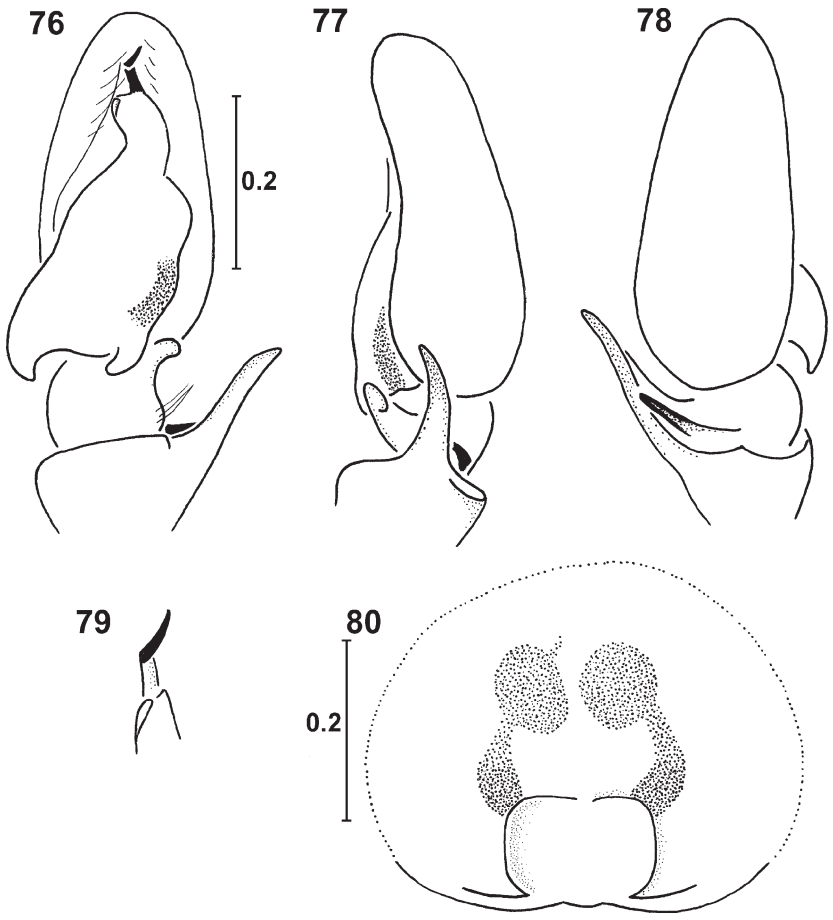
Female.

Slightly larger than male and lighter coloured. Abdomen brown with longitudinal light band composed of five pairs of light patches; light coloured spots also on sides. Epigyne with rectangular depression at posterior edge (Fig. 80).

Material examined: 1♂ 1♀ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/623); 3♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 16.vi.2005 (NCA 2008/1861); 1♀ same data but 24.i.2006 (NCA 2008/632); 1♂ 6♀ same data but 24.i.2006 (NCA 2008/1868); 1♀ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/647); 1♂ 1♀ same data but 27.i.2006 (NCA 2008/654); 1♂ 1♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/603).

Distribution: Species known from Botswana, Democratic Republic of the Congo and Rwanda, recently reported from Sudan (Logunov 2004). Recorded here for the first time from South Africa.

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Figs 76–80. *Heliophanus fascinatus*: (76) palpal organ, ventral view; (77) palpal organ, lateral view; (78) palpal organ, dorsal view; (79) embolus, ventrolateral view; (80) epigyne.

Habitat and biology: This species was only collected from fever tree bark in AX, and occurred in four of the five sites sampled. It was less common than *H. debilis* in this habitat. Silk retreats were constructed beneath the bark.

Heliophanus orchesta Simon, 1886

Heliophanus orchesta: Simon 1886: 389, fig. 2; 1901*a*: 54, fig. 4; Wesołowska 1986: 30, figs 295–309.
Heliophanus ambiguus: Lessert 1925*a*: 458, figs 40–42.
Heliophanus decoloratus: Lawrence 1927: 58, pl. 4, fig. 83.

See Wesołowska (1986) for description of both sexes.

Material examined: 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, leaf litter, 8.vii.2004 (NCA 2008/2732).

Distribution: Widely distributed in southern Africa and known also from Madagascar.

Habitat and biology: This rare species was collected from grassy litter at the base of *Cynodon dactylon* grass in floodplain vegetation.

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Heliophanus pauper Wesołowska, 1986

Heliophanus pauper: Wesołowska 1986: 228, figs 850–851; 1999*a*: 154, figs 23–29; 2003: 279, figs 97–100.

See Wesołowska (1986, 1999*a*) for descriptions of both sexes.

Material examined: 1♀ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, *Ficus* bark, 11.vii.2004 (NCA 2008/2733).

Distribution: Known from Kenya and Zimbabwe; recorded for the first time from South Africa.

Habitat and biology: Only one specimen was collected, from *F. sycomorus* bark at Shokwe Pan.

Heliophanus trepidus Simon, 1910

Figs 81, 82

Heliophanus trepidus: Simon 1910: 215; Wesołowska 1986: 20, figs 133–147; 2003: 290, figs 135–137; Wesołowska & Cumming 2008: 185, figs 52–54.

See Wesołowska (1986) for description of both sexes.

Redescription:

Female.

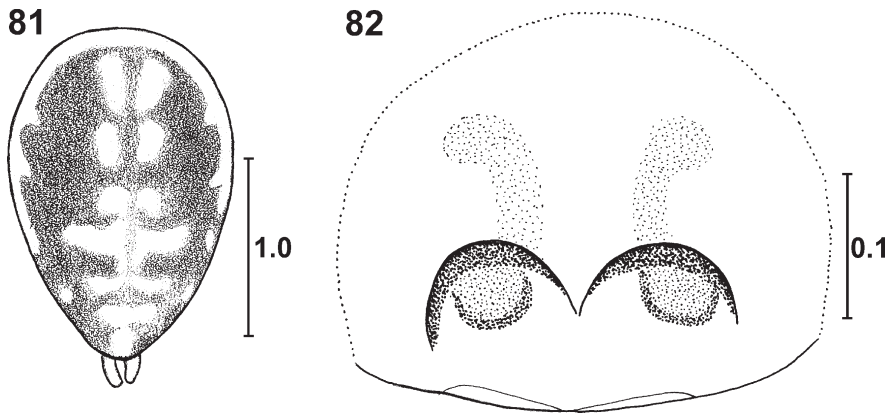
Measurements: Carapace length 1.8, width 1.3, height 0.8. Abdomen length 2.3, width 1.5. Eye field length 0.8, anterior width 1.0, posterior width 1.2.

Carapace black, brown bristles near eyes, some white hairs on anterior half of eye field and behind posterior row of eyes. Mouthparts dark brown, sternum blackish. Abdomen black with white band on anterior edge, extending to sides, with a few pairs of whitish spots medially (Fig. 81); venter yellowish grey. Legs yellow. Epigyne with two rounded depressions touching each other, placed posteriorly (Fig. 82).

Material examined: 1♀ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, *Ficus* bark, 28.vi.2003 (NCA 2008/2734).

Distribution: Species distributed in the southern part of Africa.

Habitat and biology: Only a single specimen was collected from under *F. sycomorus* bark at Shokwe Pan.



Figs 81, 82. *Heliophanus trepidus*: (81) abdominal pattern of female; (82) epigyne.

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Genus *Hispo* Simon, 1886
Hispo georgius (Peckham & Peckham, 1892)

Leptorchestes georgii: Peckham & Peckham 1892: 52, pl. 2, fig. 6.
Quekettia georgii: Peckham & Peckham 1903: 255.
Pseudomarengo inermis Caporiacco, 1947: 228, pl. 2, fig. 63; Roewer 1965: 33, figs 27a–e.
Pseudomarengo rufescens: Caporiacco 1947: 229, pl. 2, fig. 64.
Hispo inermis: Wanless 1981: 186, figs 5a–j; Wesołowska & Cumming 2008: 186, figs 55–66.

See Wanless (1981) and Wesołowska & Cumming (2008) for descriptions of both sexes.

Material examined: 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, *Commiophora harveyi* bark, 13.vi.2005 (NCA 2008/2735).

Distribution: Species known from central Africa, Zimbabwe and Madagascar; recorded for the first time from South Africa.

Habitat and biology: This rare species somewhat resembles *Crematogaster* ants and was only recorded from a single specimen collected under bark in sand forest, but was collected frequently from foliage in sand forest at the nearby Tembe Elephant Park.

Remarks: Wesołowska and Cumming (2008) synonymised *L. georgii* Peckham & Peckham, 1892 with *H. inermis* Wanless, 1981, but erroneously used the younger specific name. Platnick (2009) gives the valid senior synonym: *H. georgius* (Peckham & Peckham, 1892).

Genus *Holcolaetis* Simon, 1886
Holcolaetis zuluensis Lawrence, 1937

Figs 83–86, 240, 241

Holcolaetis zuluensis: Lawrence 1937: 255, fig. 23; Roewer 1965: 28, fig. 25c; Wanless 1985: 259, figs 6a–g, 16c.

Redescription:

Measurements (male/female): Carapace length 5.0–5.1/5.1–5.9, width 3.6–3.7/3.6–4.2, height 1.4–1.5/1.5–1.7. Abdomen length 6.5–6.7/7.6, width 3.0–3.2/4.2. Eye field length 2.1–2.2/1.9–2.2, anterior width 2.4–2.5/2.5–3.0, posterior width 2.5–2.7/2.7–3.1.

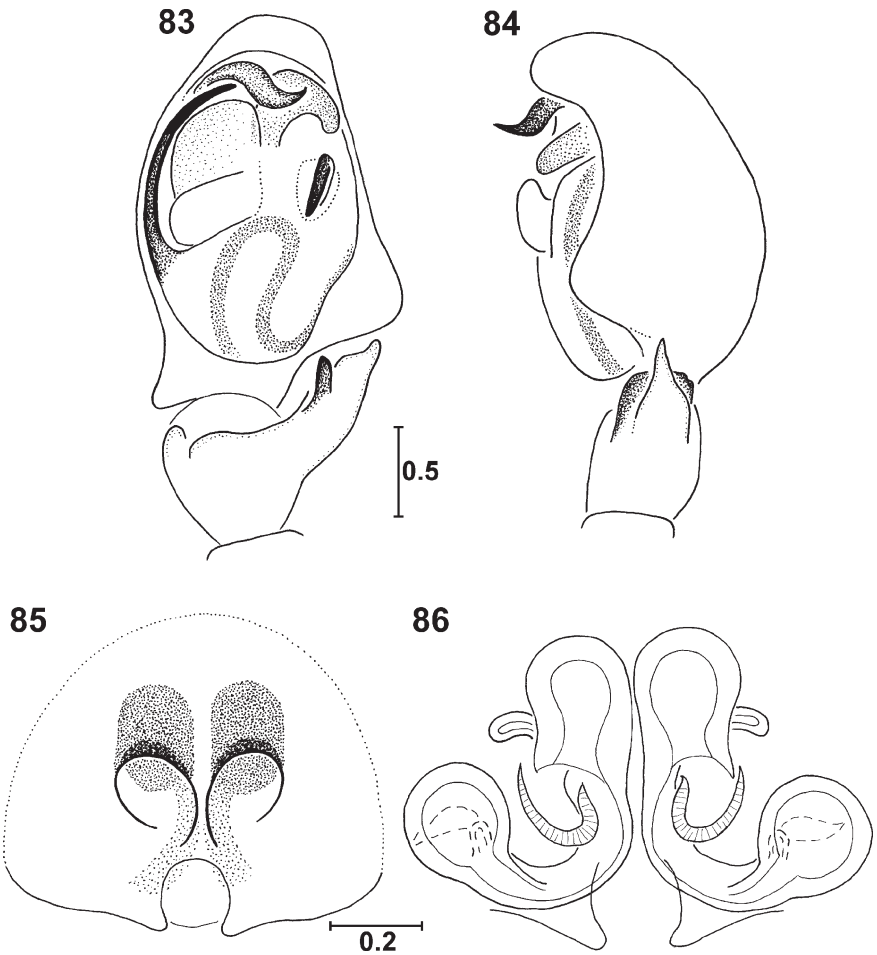
Male.

General appearance as in Fig. 240; large spider, body slender, flattened and hairy. Eye field dark brown with three whitish streaks composed of light hairs; streaks join in posterior part of ocular area to form wide band extending towards posterior edge of carapace; sides of thoracic part dark brown, with white line framing lateral margins of carapace; clypeus brown. Endites with wide pale inner margins; labium and sternum light brown; chelicera large, with seven small teeth on promargin, and nine teeth on retromargin. Abdomen long and narrow, dark brown with median broad white stripe; venter greyish black with two parallel lines created by small light dots, sides yellowish; abdomen clothed in short hairs, with sparse longer bristles among them; spinnerets dark. First pair of legs dark brown, their tibiae long; remaining legs light brown, distal ends of tibiae and patellae darker; leg hairs long and dense, black; spines stout. Pedipalps large, light orange; tibial apophysis short, with large flange (Figs 83, 84).

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Female.

General appearance in Fig. 241; shape and size similar to male. Carapace oval, broadest in middle of its length, with short eye field and distinct fovea; eyes of second row relatively large; carapace dark brown, margins darker, ocular area black; some white hairs on eye field and on slopes of carapace, hairs forming white line framing margins of carapace; clypeus low, covered with white hairs. Chelicerae with five small teeth on promargin and eight on retromargin; labium brown, sternum yellowish grey, endites with paler tips. Abdomen elongate, flat, dark brown, with broad median dentate yellowish band, clothed in brown and grey hairs, denser and longer at anterior edge; venter yellowish, with four brown longitudinal lines; spinnerets brown. Legs stout, relatively short, brown with darker patches; spines brown; leg hairs long, brown and grey. Epigyne with posterior notch and two horns at epigastric fold (Fig. 85); internal structure strongly sclerotised, receptacles spherical (Fig. 86).



Figs 83–86. *Holcoleatis zuluensis*: (83) palpal organ, ventral view; (84) palpal organ, lateral view; (85) epigyne; (86) internal structure of epigyne.

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Material examined: 1♀ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, under bark, 2.vii.2000 (NMSA 21845); 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under tree bark, 12.i.2007 (NCA 2007/3073); 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/617); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 11.vii.2002 (NMSA 21846); 1♀ same data but 13.vii.2004 (NCA 2008/1854); 1♂ same data but 16.vi.2005 (NCA 2008/1860); 1♂ 1♀ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, under bark, 9.ii.2005 (NCA 2006/832); 2♀ same locality, *Commiophora harveyi* bark, 13.vi.2005 (NCA 2005/978); 2♀ 3 imm. Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/634); 1♂ 5 imm. same data but 7.ii.2005 (NCA 2008/640); 1♀ 5 imm. South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 23.i.2006 (NCA 2008/1845); 2♀ Start of game count transect 8, 26°50.183'S:32°13.135'E, *A. xanthophloea* bark, 1.vii.2003 (NMSA 21847); 1♀ same locality, *F. sycomorus* bark, 11.vii.2004 (NCA 2008/1944); 3♀ 2 imm. Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/592).

Distribution: Species known from Tanzania and South Africa.

Habitat and biology: This large, sexually dimorphic species was collected in most habitats in the reserve, and was one of the most frequently collected salticids associated with bark. Females (Fig. 241) and immatures have mottled brown colouration that enables them to camouflage well on bark, while males are black with distinctive white markings (Fig. 240). Both sexes have flattened bodies that enable them to crawl into narrow crevices and under bark. Egg sacs were constructed under bark, either on the inner bark surface or on the tree trunk, and measured approximately 15–20 mm in diameter.

Genus *Hyllus* C. L. Koch, 1846
Hyllus argyrotoxus Simon, 1902

Fig. 242

Hyllus argyrotoxus: Simon 1902*b*: 391; Clark 1974: 16; Wesołowska & Russell-Smith 2000: 39, figs 77–83.

Hyllus perspicuus: Peckham & Peckham 1903: 209, pl. 23, fig. 2; Lessert 1925*a*: 492, fig. 75; 1925*b*: 350; Berland & Millot 1941: 338, fig. 43.

See Wesołowska & Russell-Smith (2000) for description of both sexes. General appearance of male in Fig. 242.

Material examined: 1♀ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, fever tree bark, 6.vii.2004 (NMSA 21848); 1♂ same locality, under tree bark, 12.i.2007 (NCA 2007/3076); 1♂ same locality, on wall of house, 11.v.2006 (NCA 2006/778); 1♂ same locality, beats, short shrubs, 11.iv.2006 (NCA 2006/781); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, beats, trees, 24.i.2006, R. Lyle (NMSA 21849); 1♂ same locality, under logs, 5.i.2007 (NCA 2007/3028); 1♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, leaf litter, 9.ii.2005 (NCA 2008/2736); 1♂ same locality, pitfall traps, 15–25.i.2006, C. Haddad & R. Lyle (NCA 2008/1875); 1♂ same locality, pitfall traps, 18–28.vi.2006, C. Haddad & F. Jordaan (NCA 2008/1871); 3♀ Pongola/Usutu River floodplains, 26°51.585'S:32°18.916'E, subtropical bush, on low shrubs, 2.xii.2000 (NCA 2008/2737); 2♂ Southern boundary fence, deep sand forest, 26°55.578'S:32°19.081'E, beats, foliage, 9.ii.2005 (NMSA 21850); 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, on foliage, 8.xii.2000 (NMSA 21851); 1♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, beats, foliage, 2.xii.2000 (NMSA 21852).

Distribution: Widely distributed in the Afrotropical Region.

Habitat and biology: This species was mainly collected from foliage of shrubs and trees in most of the habitats in the reserve. One female was collected from a retreat with an egg sac constructed on the underside of a leaf. Silk was used to fold the leaf, forming a broad tube in which the egg sac was constructed.

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Hyllus brevitarsis Simon, 1902

Hyllus brevitarsis: Simon 1902*b*: 391; Berland & Millot 1941: 337; Clark 1974: 17; Wesołowska & Cumming 2008: 190, figs 71–74; Wesołowska 2008: 323, figs 7–22.
Hyllus natali: Peckham & Peckham 1903: 210, pl. 23, fig. 4; Strand 1909: 75; Lessert 1925*b*: 495, fig. 76; Caporiacco 1940: 863, fig. 54.
Hyllus rubrotinctus: Strand 1906: 665.

See Wesołowska (2008) for description of both sexes.

Material examined: 1♀ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, beats, short shrubs, 6.xii.2000 (NMSA 21853); 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 6.xii.2000 (NMBA 11606); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, beats, foliage, 29.xi.2000 (NCA 2008/2738); 1♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, leaf litter, 9.ii.2005 (NCA 2008/2739); 1♂ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, beats, short shrubs, 12.i.2007 (NCA 2007/3022); 1♀ 26°52.464'S:32°16.050'E, Subtropical bush, *A. nigrescens* woodland, on grass, 6.xii.2000 (NMSA 21854); 5♂ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, beats, foliage, 27.ii.2002 (NMSA 21855).

Distribution: Widespread in the Afrotropical Region.

Habitat and biology: This medium sized *Hyllus* was occasionally collected by beating foliage of shrubs and trees in various savannah and floodplain habitats (AX, BW, FF, FP and ST). Some specimens were extracted from retreats constructed on the ventral side of leaves of *Sansevieria hyacinthoides* plants. One female was extracted from a silk retreat constructed in a grass inflorescence. This species was only collected in late spring and summer.

Hyllus treleaveni Peckham & Peckham, 1902

Figs 243–245

Hyllus treleaveni: Peckham & Peckham 1902: 334; 1903: 207, pl. 23, fig. 3; Wesołowska & Cumming 2004: 579, figs 1–30.
Hyllus moestus: Peckham & Peckham 1903: 208, pl. 23, fig. 5; Wesołowska & Russell-Smith 2000: 42, figs 84–88.
Hyllus bevisi: Lessert 1925*a*: 495, figs 77–78.
Hyllus marleyi: Lessert 1925*b*: 352, fig. 15.
Hyllus normanae: Wanless & Clark 1975: 280, figs 13, 14.

See Wesołowska & Cumming (2004) for description of both sexes. General appearance of both sexes and face of female in Figs 243–245.

Material examined: 6♂ 4♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, on wall of house, and short shrubs, 11.iv.2006 (NCA 2006/777); 1 subadult ♀ same locality, on wall of house, 17.i.2006 (NCA 2006/696); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 16.vi.2005 (NCA 2008/1858); 1♀ Red Cliffs, Usutu R., 26°51.164'S:32°12.365'E, semiaquatic vegetation, 7.xii.2000 (NMSA 21856); 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 5.ii.2005 (NCA 2008/659); 1♂ 1♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/597).

Distribution: Species widespread in the Afrotropical Region.

Habitat and biology: This large salticid was commonly collected from foliage, especially in BW, but also occasionally in FP habitats. On one occasion in April more than 20 individuals were found on a single broadleaved shrub and the outside walls of a house at Crocodile Farm, where males were displaying to females and to one another. Two couples were observed mating. One adult female was observed with an ichneumonid wasp in its chelicerae (Fig. 244). The biology of this species was studied in more detail by Wesołowska & Cumming (2004).

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Genus *Icius* Simon, 1876

Icius nigricaudus sp. n.

Figs 87–92, 215–217

Etymology: From Latin *niger* (black) and *cauda* (tail); the name refers to the colouration of the abdomen.

Diagnosis: A distinctive species. The male may be recognised by the colour pattern and the structure of the pedipalp, particularly the long posterior lobe of the tegulum. The female genitalia slightly resembles that of *I. dendryphantoides* Strand, 1909 from South Africa, but the seminal ducts are narrower and the receptacles elongate (spherical in *I. dendryphantoides*); compare Fig. 92 herein with figure on p. 46 in Prószyński (1987).

Description:

Measurements (male/female): Carapace length 1.3–1.4/1.4, width 0.9–1.0/1.0, height 0.4–0.5/0.4. Abdomen length 1.2–1.3/1.6, width 0.6–0.8/1.0. Eye field length 0.7/0.7, anterior width 0.8–0.9/0.9, posterior width 0.9–1.0/1.0.

Male.

Small, slender spider; general appearance as in Figs 87, 215. Carapace low, sloping posteriorly, brown with black line along margins; eye field black, reticulate pitted; delicate translucent hairs cover carapace, with some white scales near eyes; white hairs form four small patches located at lateral margins of carapace; clypeus very low. Chelicerae brown, unidentate; labium and endites fawnish brown, sternum light brown. Abdomen elongate, anterior two thirds olive-yellow, posterior part black; white scales form five patches on abdomen, one at anterior margin, first pair at one third abdomen length, and second pair in border of light and black parts (Fig. 87); venter coloured similar to dorsum, light with blackish posterior third (Fig. 216); spinnerets black. First pair of legs slightly larger than others, blackish with lighter metatarsi and tarsi; legs II–IV light brown, darker strips along anterior surface of femur III and both lateral surfaces of femur IV; leg hairs fine, brown. Pedipalps dark, some white hairs along retrolateral edge of cymbium and tibia; tegulum triangular, with long posterior lobe, embolus straight (Fig. 88); tibial apophysis hooked (Figs 88–90).

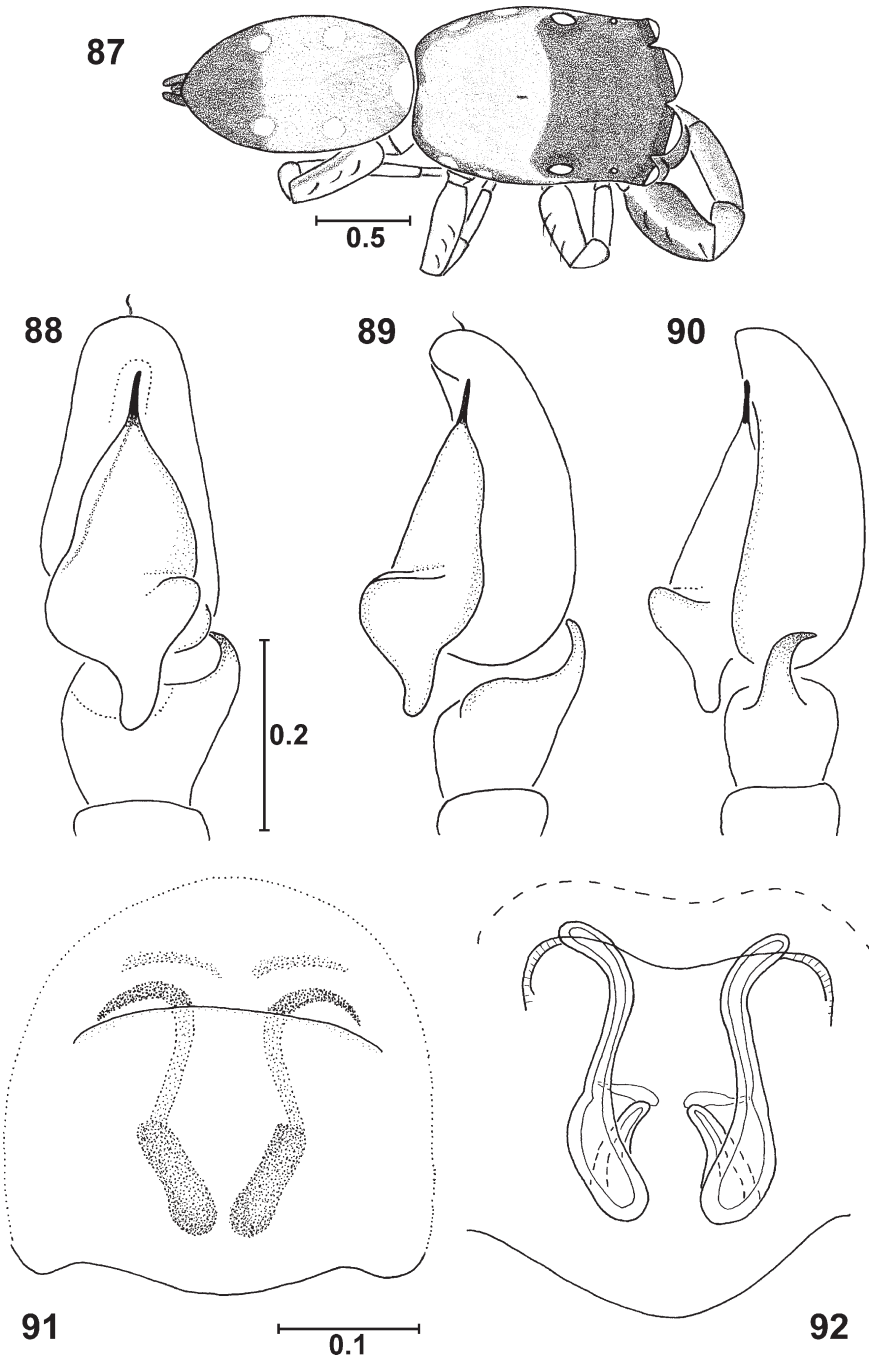
Female.

General appearance in Fig. 217. Carapace similar to male, but without white patches. Labium brown, endites with pale inner margins, sternum yellow. Abdomen black with narrow longitudinal whitish median line and narrow streak on anterior margin extending to sides; venter blackish with large yellowish area behind epigastric furrow and three small patches near spinnerets. Legs yellow; spination of first leg: femur 1-1-1 dorsally, 0-0-3 prolaterally, tibia 2-2 ventrally, metatarsus 2-2-2 ventrally. Pedipalps yellow. Epigyne weakly sclerotised, slightly depressed anteriorly (Fig. 91); internal structure simple (Fig. 92).

Holotype: ♂ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, grass litter, 16.vi.2005 (NCA 2009/668).

Paratypes: 1♂ 1♀ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/618); 1♀ same locality, beats, various trees, 24.i.2006, R. Lyle (MRAC 224651); 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 23.i.2006 (NCA 2008/1847).

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Figs 87–92. *Icius nigricaudus* sp. n., paratypes: (87) habitus of male; (88) palpal organ, ventral view; (89) palpal organ, ventrolateral view; (90) palpal organ, lateral view; (91) epigyne; (92) internal structure of epigyne.

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Habitat and biology: This rare species was collected from the base of grasses in wetland habitats. Several specimens were collected from under bark of *A. xanthophloea*. This species somewhat resembles *Crematogaster* ants in colour and size.

Genus *Kima* Peckham & Peckham, 1902

Kima variabilis Peckham & Peckham, 1903

Fig. 246

Kima variabilis: Peckham & Peckham 1903: 253, pl. 29, fig. 4; Wesołowska & Szeremeta 2001: 227, figs 39–44.

See Wesołowska & Szeremeta (2001) for description of male. General appearance of male in Fig. 246. Female unknown.

Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under tree bark, 12.i.2007 (NCA 2007/3074); 1♂ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, low foliage, 18.i.2006 (NCA 2008/2740).

Distribution: Species known from South Africa only.

Habitat and biology: This large species is a distinctive mimic of *Polyrachis gagates* ants, which were common and widespread in floodplain and savannah habitats in the reserve. Despite this, *K. variabilis* was rarely collected. This species generally moved slowly when disturbed, and rarely moved its legs up and down to imitate the antennal movements of ants, behaviour that is usually encountered in other salticid ant mimics (Cushing 1997). Morphological adaptations to resemble *P. gagates* include the elongate carapace with a median depression, the globose abdomen, long legs, and the iridescent silver-grey setae that cover the entire body. It is not known whether *K. variabilis* preys on its model or on other ants.

Genus *Massagris* Simon, 1900

Massagris natalensis sp. n.

Figs 93–98, 218

Etymology: The species is named after the KwaZulu-Natal Province.

Diagnosis: The male of the species differs from congeners by the absence of a tibial apophysis and by the shape of the embolus, which is longer than in the other species. Female unknown.

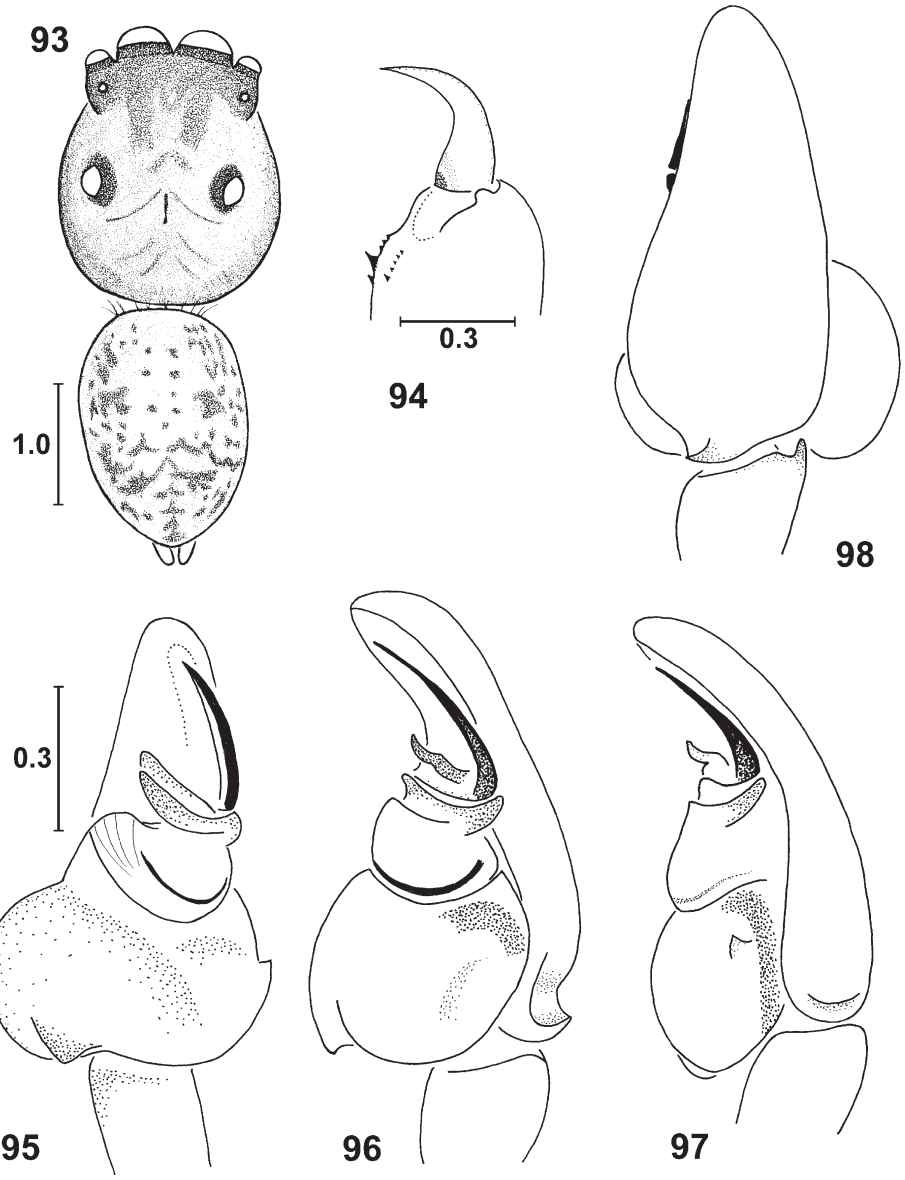
Description:

Male.

Measurements: Carapace length 2.2, width 1.6, height 1.0. Abdomen length 1.9, width 1.3. Eye field length 1.2, anterior width 1.3, posterior width 1.2.

General appearance in Figs 93, 218. Carapace rounded, medium high, gently sloping posteriorly; eye field large, occupying half carapace length, eyes set on well developed tubercles; fovea long, sulciform; carapace brown, vicinity of eyes black, with darker lines radiating from fovea; clypeus low, brown. Labium and endites brownish with light tips, sternum light brown; chelicerae pluridentate, both margins with five small teeth (Fig. 94); long, thick bristles form basket-like structure above dorsal surface of chelicerae. Abdomen narrower than carapace, oval, greyish yellow with small brown spots; silver guanine crystals translucent through integument; venter yellow. Legs light

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Figs 93–98. *Massagris natalensis* sp. n., holotype: (93) habitus; (94) cheliceral dentition; (95) palpal organ, ventral view; (96) palpal organ, ventrolateral view; (97) palpal organ, lateral view; (98) palpal organ, dorsal view.

brown, first tibia with two pairs of ventral spines, metatarsus with one pair. Pedipalps rather large, brown; palpal organ as in Figs 95–98.

Holotype: ♂ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, *Ficus* bark, 25.xi.2000 (NCA 2009/669).

Paratype: 1♂ SOUTH AFRICA: *KwaZulu-Natal*: Ophathe Game Reserve, Ophathe R. bed, 28°22.693'S: 31°24.442'E, leaf litter, 5.vii.2007, C. Haddad & R. Fourie (NCA 2007/2974).

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Habitat and biology: This species was collected from under bark in FF at Shokwe Pan. The paratype was collected from leaf litter in a dry river bed at Ophathe Game Reserve, approximately 200 km south of NGR, also in savannah.

Genus *Menemerus* Simon, 1868

Menemerus minshullae Wesołowska, 1999

Menemerus minshullae: Wesołowska 1999*b*: 309, figs 192–196; 2007: 520, figs 8–12.
Menemerus manicus: Wesołowska 1999*b*: 306, figs 182–187.

See Wesołowska (1999*b*) for description of both sexes.

Material examined: 1♂ 1♀ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, under rocks, 25.vi.2007, C. Haddad & F. Jordaan (NCA 2006/1268); 1♀ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, beats, short shrubs, 2.xii.2000 (NMSA 21857); 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.vii.2004 (NMSA 21858); 2♀ 1 imm Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/639); 2♂ 1 imm. Western shore of Nyamiti Pan, 26°53.767'S: 32°16.557'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/595); 2♂ 4♀ 1 imm. same data but 6.ii.2005 (NCA 2008/599); 1♂ 1♀ 7 imm. same data but 19.vi.2005 (NCA 2008/605).

Distribution: Species known from Malawi and Zimbabwe; recorded for the first time from South Africa.

Habitat and biology: This species was collected on several occasions from under *A. xanthophloea* bark in AX and FP. The flattened body makes it easy for this species to hide beneath loose bark. One specimen was collected by beating dried-out shrubs and *Acacia* thorn trees in BW.

Menemerus zimbabwensis Wesołowska, 1999

Figs 99, 100, 219

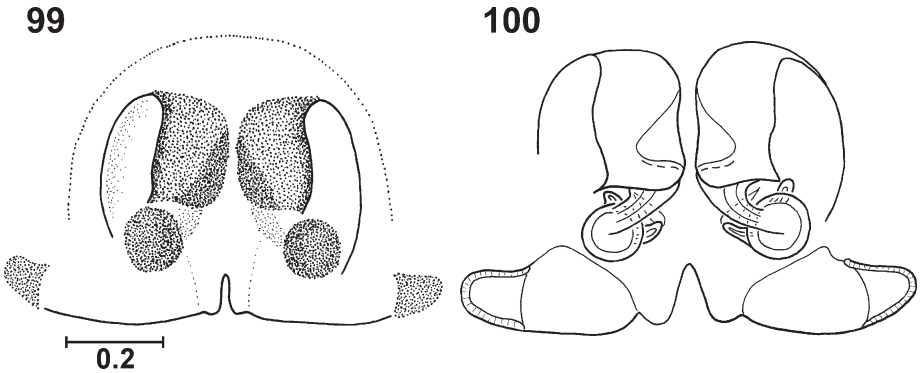
Menemerus zimbabwensis: Wesołowska 1999*b*: 342, figs 300, 301; 2007: 524, figs 22–29.

See Wesołowska (2007) for description of both sexes.

Redescription:

Female.

Measurements: Carapace length 2.9, width 2.2, height 0.6. Abdomen length 3.6, width 2.3. Eye field length 1.2, anterior and posterior width 1.6.



Figs 99, 100. *Menemerus zimbabwensis*: (99) epigyne; (100) internal structure of epigyne.

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General appearance in Fig. 219; flattened, hairy spider. Carapace dark brown with black eye field, clothed densely in light grey hairs, with brown bristles near eyes; light streaks composed of whitish hairs along lateral margins of carapace; clypeus covered with white hairs. Sternum and mouthparts brown, endites with yellow inner margins. Abdomen flat, elongated, brown, covered with greyish hairs, with ill-defined lighter streak medially; sides of abdomen light, venter dark tinged; spinnerets brownish. Legs dark orange, marked with dark brown spots; leg hairs brown and grey. Pedipalps orange. Epigyne oval, slightly elevated medially, with narrow notch in posterior edge and two large depressions partially plugged with waxy secretion; epigynal pockets widely spaced (Fig. 99); copulatory openings hidden in very large and deep, strongly sclerotised cups, seminal ducts short, receptacles spherical (Fig. 100).

Material examined: 1♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/600).

Distribution: Species known from South Africa and Zimbabwe.

Genus *Mexcala* Peckham & Peckham, 1902

Mexcala elegans Peckham & Peckham, 1903

Figs 101–104, 247

Mexcala elegans: Peckham & Peckham 1903: 248, pl. 29, fig. 2; Wesołowska 2009: 158, figs 30–46.
Cosmophasis natalensis: Lawrence 1942: 184, fig. 30.
Mexcala natalensis: Wesołowska & Cumming 2008: 197, figs 92–97.

Redescription:

Measurements (male/female): Carapace length 3.2/3.2, width 2.2/2.3, height 1.4/1.5. Abdomen length 3.6/4.8, width 1.9/2.9. Eye field length 1.3/1.3, anterior width 1.7/2.0, posterior width 1.7/2.0.

Male.

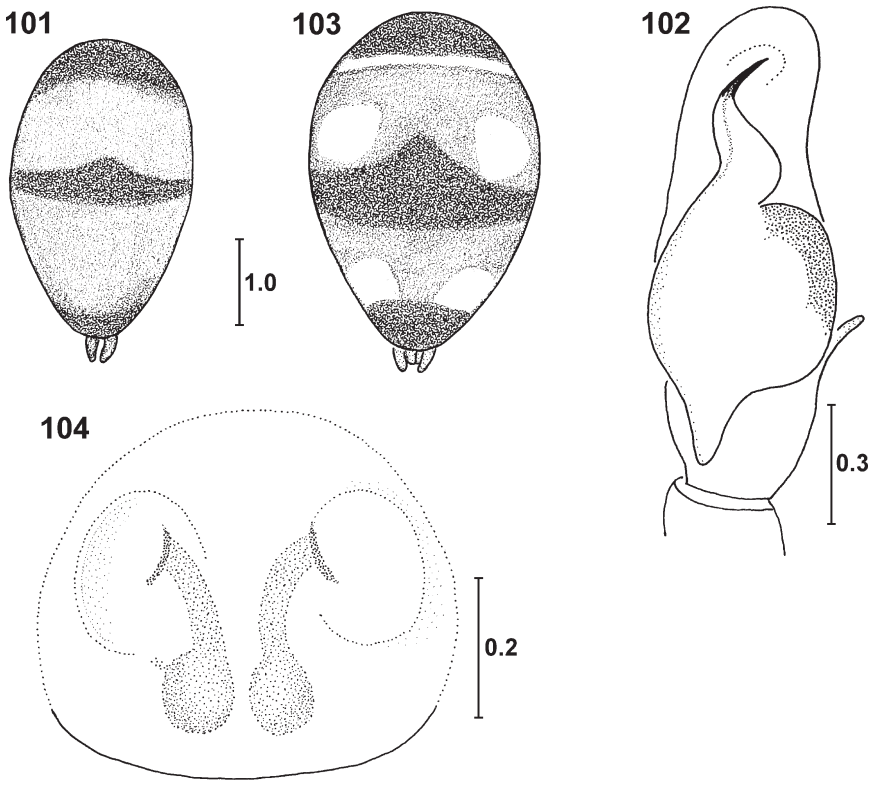
Medium-sized, slender spider with long legs and contrasting colouration. Carapace high with short eye field and gently sloping posterior part; brown bristles near eyes; clypeus low. Chelicerae long, brown, with short sharp spike-like setae on dorsal surfaces; labium, endites and sternum dark brown. Abdomen slightly elongate, in living specimens bright silver-grey with three velvet black transverse bands, second of them forming triangle at about half of abdomen length (Fig. 101); sparse brown bristles cover abdomen; venter dark; spinnerets dark. Legs brown, long and thin, last pair longest. Pedipalp with single narrow apophysis; embolus short, tegulum with triangular posterior lobe (Fig. 102).

Female.

General appearance in Fig. 247; slightly larger than male. Abdominal pattern similar to male but with additional thin transverse white band and two pairs of large yellow patches (Fig. 103); venter with broad median brown stripe. Epigyne with two large rounded shallow depressions (Fig. 104).

Material examined: 2♂ Between Crocodile farm and Main camp, 26°54.431'S:32°19.045'E, broadleaf woodland, under rocks, 7.vii.2000 (NMSA 21859); 1♂ 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under log, 3.iv.2003 (NMSA 21860); 2♂ Eastern shore of Shokwe Pan, 26°52.516'S: 32°12.407'E, grass at tree bases, 24.i.2006 (NCA 2006/838); 1♀ 2 imm. same locality, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/1864); 2♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, leaf litter, 6.vii.2000 (NMBA 11600); 1♂ 1 imm. same locality but 20.vi.2005 (NCA 2005/984); 3♀ Near

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Figs 101–104. *Mexcala elegans*: (101) abdominal pattern of male; (102) palpal organ, ventral view; (103) abdominal pattern of female; (104) epigyne.

Environmental Centre, 26°55.275'S:32°17.947'E, broadleaf woodland, leaf litter, 6.ii.2005 (NCA 2005/35); 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, sifting leaf litter, 11.i.2007 (NCA 2007/3039); 1♂ 9 imm. Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/635); 1♂ 1 imm. same locality but 22.vi.2005 (NCA 2008/649); 1♂ 1♀ Southwestern shore of Banzi Pan, 26°53.118'S:32°16.927'E, under tree bark, 28.vi.2003 (NMSA 21861); 1♀ same locality, *A. xanthophloea* bark, 5.ii.2005 (NCA 2008/660); 1♂ 1 imm. same data but 23.i.2006 (NCA 2008/1848); 1♂ 2 imm. Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/593); 1♀ 3 imm. same data but 19.vi.2005 (NCA 2008/604); 1♀ 5 imm. same data but 23.i.2006 (NCA 2008/608); 1♂ Western shore of Shokwe Pan, *Ficus sycomorus* forest, 26°52.013'S:32°12.982'E, leaf litter, 9.i.2002 (NMSA 21862); 1♂ same locality, on *Ficus* bark, 9.i.2002 (NMSA 21863).

Distribution: Species known only from South Africa and Zimbabwe.

Habitat and biology: This species was collected from all of the habitats in the reserve, predominantly wandering on the ground, low-growing plants, on bark and on the walls of houses. This species demonstrates polymorphic colouration: early instar immatures have a metallic silver-blue carapace and metallic green or purple abdomen, with a median triangular marking; late instar immatures have a metallic blue carapace and abdomen, with a median triangular marking; adults have a metallic silver-blue carapace and abdomen, with a triangular marking medially on the abdomen, or an abdomen with white or yellow markings (anterior band and two pairs of spots medially and posteriorly).

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These variations suggest mimicry of two different groups of Hymenoptera, namely ants (Formicidae) and velvet ants (Mutillidae). None of these colour variations point to a specific species of model, and these spiders can rather be regarded as generalised mimics. Their behaviour and movements resemble ant movements, with the forelegs moving up and down to resemble antennal movements, the abdomen moving up and down, and rapid darting runs. *M. elegans* was observed preying on a wide variety of ant species, and no other prey was observed being captured. Early instar immatures captured *Oecophylla* and *Crematogaster* ants, while subadults and adults captured *Streblognatha* sp., *Camponotus* spp., *Myrmicaria natalensis* (Smith, 1858), *Anoplolepis custodiens* (Smith, 1858), *Polyrachis gagates* Smith, 1858 and *Pachycondyla tarsata* (Fabricius, 1798). The predation behaviour of this species will be dealt with in more detail in a separate paper (Haddad unpubl.).

Genus *Modunda* Simon, 1901

Modunda staintoni (O. P.-Cambridge, 1872)

Salticus staintoni: O. P.-Cambridge 1872: 331, pl. 14, fig. 20.
Salticus congener: O. P.-Cambridge 1872: 332.
Modunda phragmitis: Simon 1901*b*: 160, figs 63, 64.
Modunda staintoni: Logunov 2001: 277, figs 347–366; Prószyński 2003: 98, figs 112, 115, 116, 119, 122–132; Wesołowska & van Harten 2007: 229, figs 118–123; Wesołowska & Tomasiewicz 2008: 26, figs 102–106.

See Wesołowska & van Harten (2007) for description of both sexes.

Material examined: 1♀ Crocodile Farm, Pongola River Floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/622).

Distribution: Species known from Afghanistan and Punjab in India, the Middle East, the Arabian Peninsula and southern Ethiopia. This is the first record from South Africa, far from the hitherto known species range. This species may have been introduced to the ports of Richards Bay or Durban in KwaZulu-Natal by shipping, and dispersed from there. Alternately, this specimen may represent a new species closely related to *M. staintoni*.

Habitat and distribution: Only known from a single specimen collected from fever tree bark.

Genus *Myrmarachne* MacLeay, 1839

Myrmarachne ichneumon (Simon, 1886)

Figs 105–110

Salticus ichneumon: Simon 1886: 387; Peckham & Peckham 1892: 17, pl. 1, fig. 7; 1903: 250.
Myrmarachne ichneumon: Simon 1901*c*: 498; Roewer 1965: 47, figs 38, 38a; Wanless 1978*b*: 56, figs 31a–g, 32a–i.

Redescription:

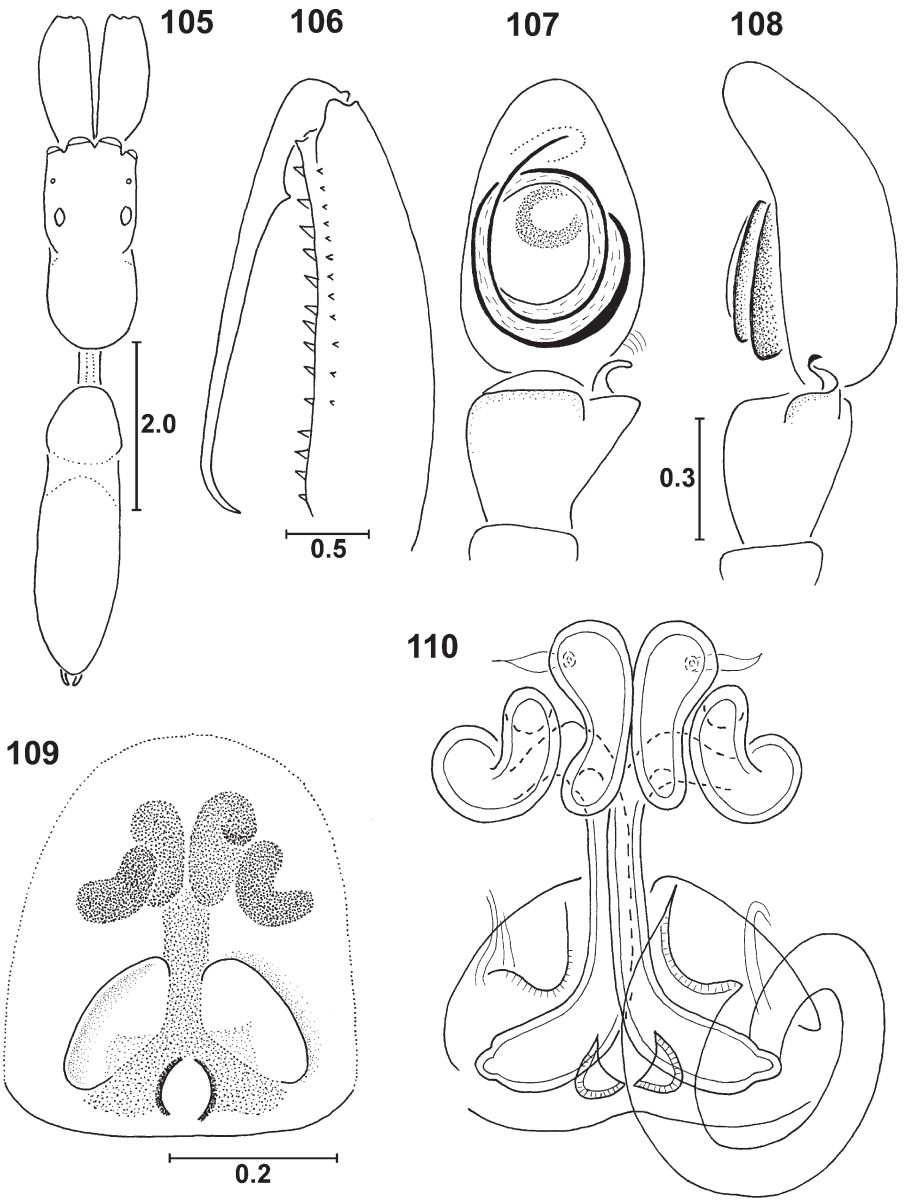
Measurements (male/female): Carapace length 2.4–2.8/2.3, width 1.2–1.3/1.2, height 0.9/0.9. Abdomen length 3.5–3.8/3.3, width 0.8–0.9/1.0. Eye field length 0.8–1.0/0.8, anterior width 0.8–0.9/0.8, posterior width 1.0–1.1/0.9.

Male.

Body very elongate and slender (Fig. 105). Carapace orange, eyes with black rings, eye field with silver patch of translucent guanine crystals and pair of darker spots in

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centre; delicate hairs sparsely cover carapace, some whitish hairs in constriction furrow. Mouthparts orange, clypeus clothed in white hairs; chelicerae very long and slender, fang with small protuberance, 14 teeth on promarginal edge and 12 on retromarginal edge (Fig. 106); dark line along dorsal inner margins of chelicerae. Abdomen long,



Figs 105–110. *Myrmarachne ichneumon*: (105) habitus of male; (106) cheliceral dentition of male; (107) palpal organ, ventral view; (108) palpal organ, lateral view; (109) epigyne; (110) internal structure of epigyne.

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thin, orange greyish, with pair of darker spots in midway of posterior dorsal scutum; spinnerets yellow. Legs yellowish, femora slightly darker, tarsus of first pair brownish. One specimen dark, almost black, abdomen shiny; only legs light, yellowish, with dark lines along sides of segments and femora tinged with grey. Pedipalps orange; tibial apophysis distally hooked, with well developed flange, protected by depression in cymbium and tuft of long bristles on proximal edge of cymbium (Figs 107, 108).

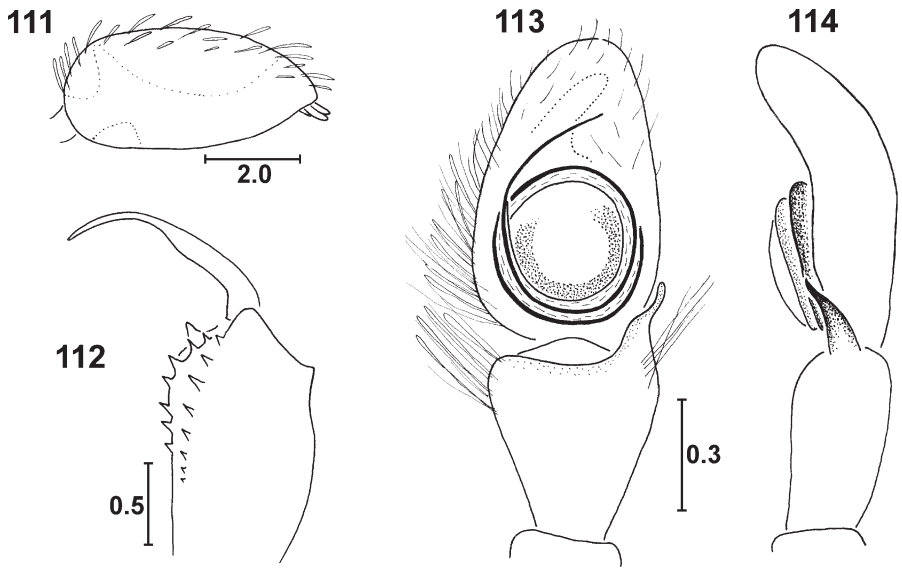
Female.

Shape of body similar to male, but abdomen slightly wider and chelicerae shorter. General colouration orange yellowish, rings surrounding eyes black; silver spots of guanine crystals translucent through integument. Epigyne in Fig. 109, with two large openings separated by septum and smaller paired posteromedian pouches; seminal ducts long, their initial parts membranous and poorly visible, receptacles looped (Fig. 110).

Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short shrubs, 14.xii.2000 (NCA 2008/2741); 1♂ Near Vulture Restaurant, 26°53.376'S:32°18.703'E, subtropical bush, on bush, 7.vii.2000 (NMSA 21864); 1♀ Red Cliffs, 26°51.164'S:32°12.365'E, subtropical bush, beats, short shrubs, 3.xii.2000 (NMSA 21865); 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, beats, short shrubs, 11.i.2007 (NCA 2007/3041); 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.vii.2000 (NCA 2008/2742).

Distribution: Species recorded in Kenya, Tanzania and South Africa.

Habitat and biology: This species was collected from foliage in BW, SF and ST. Two different colour morphs could be recognised: a black form that appears to mimic *Streblognatha* or *Camponotus* ants, and an orange variation that resembles *Oecophila* ants. The mimicry effect is enforced by the very elongate body with constrictions of the thorax and abdomen, and the gait and movements of the antennae.



Figs 111–114. *Myrmarachne laurentina*: (111) abdomen of male, lateral view; (112) cheliceral dentition; (113) palpal organ, ventral view; (114) palpal organ, lateral view.

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Myrmarachne laurentina Bacelar, 1953

Figs 111–114

Myrmarachne laurentina: Bacelar 1953: 8, figs 4–8; Wanless 1978*b*: 99, figs 63a, b, e, g, i, 64b, c, 65a–c, g, h.

See Wanless (1978*b*) for description of both sexes.

Redescription:

Male.

Measurements: Carapace length 2.7–3.2, width 1.6–1.8, height 1.0–1.1. Abdomen length 2.7–2.9, width 1.4–1.5. Eye field length 1.4–1.5, anterior width 1.4–1.5, posterior width 1.6–1.7.

General colouration black, body ornate with sparse short, whitish hairs and scales; long white scales on abdomen (Fig. 111); clypeus clothed in white hairs. Chelicerae brown, with two spurs on dorsal surface; one on inner margin at base of fang, and second situated on external edge (Fig. 112). Legs I with long coxae; legs I with whitish yellow coxae, femora brownish, patellae, tibiae and metatarsi with dark lines along sides, tarsi pale; legs II as first pair, but coxae dark and metatarsi light; legs III brownish, only metatarsi and tarsi light; legs IV brown, only trochanters whitish and light spot at bases of patellae. Pedipalps with dense, long, lanceolate, dark hairs on prolateral edge of tibia and cymbium; tibia broad (Fig. 113). Palpal organ shown in Figs 113, 114.

Material examined: 3♂ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, on bush, 3.xii.2000 (NMSA 21866); 1♂ 2♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, beats, short bushes, 6.vii.2000 (NMBA 11596); 1♂ South-western shore of Banzi Pan, 26°53.118'S: 32°16.927'E, beats, short shrubs, 12.i.2007 (NCA 2007/3025).

Distribution: Known from Mozambique and South Africa.

Habitat and biology: This species apparently mimics *Camponotus* ants and was collected from foliage in BW. One specimen was collected on the wall of a house near foraging *Camponotus* workers. Mimicry is enforced by the black colouration, and the erect pale spatulate setae on the abdomen.

Myrmarachne lulengana Roewer, 1965

Figs 115–120

Myrmarachne lulengana: Roewer 1965: 50, fig. 42; Wanless 1978*b*: 33, figs 12g, j–l, 13a–h.

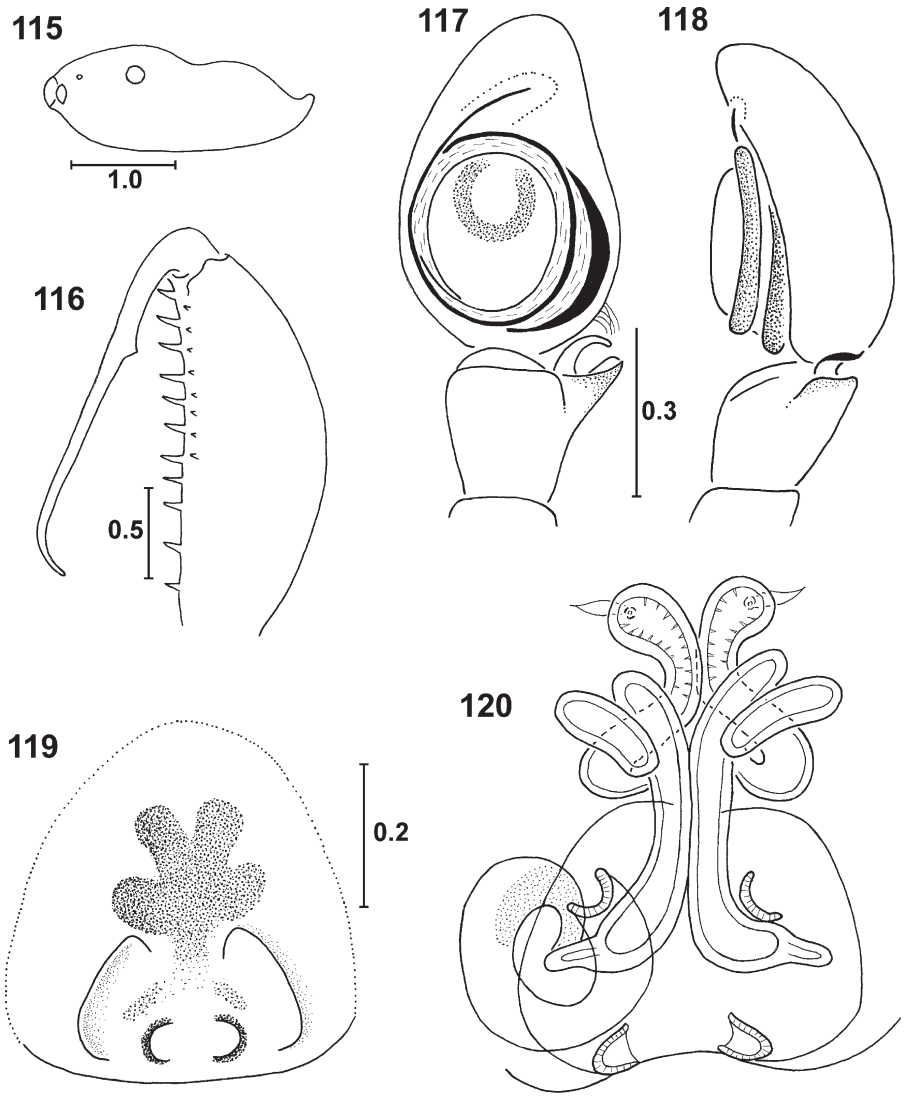
Redescription:

Measurements (male/female): Carapace length 2.3/1.9, width 1.4/1.2, height 0.8/0.8. Abdomen length 2.4/2.0, width 1.2/1.0. Eye field length 0.9/0.8, anterior width 1.2/1.0, posterior width 1.3/1.1.

Male.

Colouration of body dark, almost black; eye field reticulate punctured, with brown bristles near eyes, scattered short white hairs on thoracic part of carapace; small bump behind ocular region (Fig. 115). Chelicerae long, fang with small protuberance (Fig. 116). Abdomen dark brown, with sparse short white hairs on dorsum; venter dark; spinnerets brown. Legs slender, orange brownish with darker femora and brown lines along lateral sides; tibia of first leg only with single ventral spine. Pedipalps dark; tibial apophysis robust, wide at base, hooked at tip, with well developed flange, protected by

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Figs 115–120. *Myrmarachne lulengana*: (115) carapace of male, lateral view; (116) cheliceral dentition of male; (117) palpal organ, ventral view; (118) palpal organ, lateral view; (119) epigyne; (120) internal structure of epigyne.

depression in cymbium and tuft of long bristles on proximal edge of cymbium (Figs 117, 118).

Female.

Shape of body and colouration similar to male. Epigyne with two widely separated pouches (Fig. 119); internal structure with rather complex receptacles (Fig. 120).

Material examined: 1♀ 2 imm. Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 20.vi.2005 (NCA 2008/628); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S: 32°12.407'E, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/1866); 1♂ Southern shore of Hotwe Pan,

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26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/638); 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 23.i.2006 (NCA 2008/1852); 1♂ 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NMSA 21867).

Distribution: Species distributed in Botswana, Democratic Republic of the Congo and Kenya; recorded for the first time from South Africa.

Habitat and biology: Two specimens of this species were collected from foliage on ST, and several from fever tree bark in AX. This species closely resembles *M. laurentina* in general appearance, and may also be a mimic of *Camponotus* ants.

Myrmarachne marshalli Peckham & Peckham, 1903

Figs 121–123

Myrmarachne marshalli: Peckham & Peckham 1903: 249, pl. 29, fig. 6; Wanless 1978*b*: 67, figs 38a–h , 39a–g, 40a–k, pl. 1a–d, 4a, c, e; Wesołowska & Cumming 2008: 199, figs 98–106.
Myrmarachne akermani: Lawrence 1942: 181, figs 28–29.
Myrmarachne burgeoni: Roewer 1965: 54, figs 56, 56a.
Myrmarachne bredoi: Roewer 1965: 55, fig. 57.
Myrmarachne benoiti: Roewer 1965: 57, fig. 60.
Myrmarachne mulungu: Roewer 1965: 59, fig. 63.

See Wesołowska & Cumming (2008) for description of both sexes.

Redescription:

Female.

Measurements: Carapace length 2.6, width 1.3, height 0.9. Abdomen length 3.0, width 1.6. Eye field length 1.0, anterior width 1.1, posterior width 1.2.

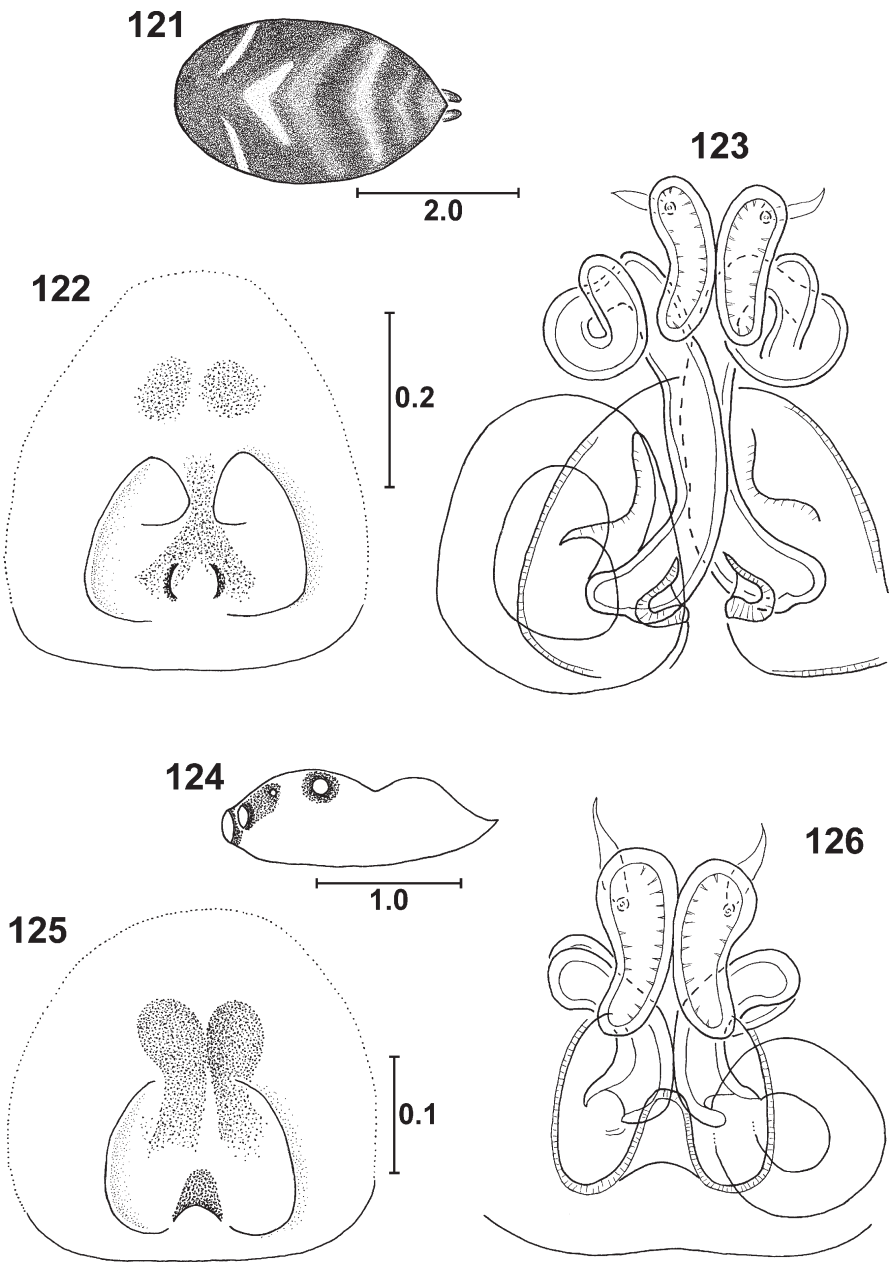
Cephalic part of carapace slightly higher than thoracic part; carapace black, with white hairs forming thin band in constriction. Chelicerae with seven teeth on promargin and five on retromargin; endites and labium dark brown with slightly lighter tips; sternum black. Abdomen black, with poorly contrasted chevrons composed of greyish hairs (Fig. 121); venter black, with two longitudinal lines formed by white dots; spinnerets yellowish. Leg I whitish, with black stripes along lateral sides of trochanters, femora and patellae, tarsi tinged with grey; legs II whitish, with black lines on sides of femora, patellae and tibiae; legs III as II, but coxae and trochanters black; last pair of legs blackish, only trochanters and tarsi whitish, light patch on base of patella; four pairs of ventral spines on tibia I, two pairs on metatarsus. Pedipalps blackish. Epigyne with large triangular depression and two posteromedian pockets (Fig. 122); internal structure as in Fig. 123.

Material examined: 1♀ 1 imm. Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 20.vi.2005 (NCA 2008/629); 1♀ Near Fontana Camp, *A. tortilis* savannah, 26°52.072'S: 32°09.545'E, leaf litter, 8.vii.2004 (NMSA 21868); 1♂ Southern shore of Hotwe Pan, 26°52.730'S: 32°18.452'E, *A. xanthophloea* bark, 27.i.2006 (NCA 2008/656).

Distribution: Widely distributed in Africa.

Habitat and biology: This species was rare and most specimens were collected from *A. xanthophloea* bark near to foraging *Camponotus* ants. Wesołowska and Cumming (2008) also suggested Batesian mimicry of *Camponotus* ants, and reported briefly on the behaviour and diet of this species in Zimbabwe, which consisted mainly of flies and small spiders.

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Figs 121–126. *Myrmarachne marshalli* (121–123) and *Myrmarachne solitaria* (124–126): (121) abdominal pattern of female; (122, 125) epigynes; (123, 126) internal structure of epigynes; (124) carapace of female, lateral view.

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Myrmarachne solitaria Peckham & Peckham, 1903

Figs 124–126

Myrmarachne solitaria: Peckham & Peckham 1903: 250, pl. 29, fig. 5; Wanless 1978*b*: 75, fig. 46a–l.

See Wanless (1978*b*) for description of both sexes.

Redescription:

Female.

Measurements: Carapace length 1.9, width 1.0, height 0.6. Abdomen length 1.9, width 1.0. Eye field length 0.8, anterior width 0.9, posterior width 1.0.

Carapace with thoracic bump (Fig. 124), orange with darker margins of constriction, white hairs in constriction furrow, eyes surrounded by black rings. Mouthparts and sternum orange; chelicerae with six promarginal and five retromarginal teeth. Abdomen ovoid, anteriorly yellowish grey, posterior part dark grey, shining; spinnerets dark. Legs I whitish, with brown lines along lateral sides of femora, patellae and tibiae; metatarsi dark; legs II as first pair, but metatarsi light; legs III with brownish basal segments, tips of tibiae and distal segments light; last pair of legs similar to III, with light rings at middle of patellae and dark lines on sides of metatarsi. Epigyne small, with single pouch (Fig. 125); internal structure relatively simple (Fig. 126).

Material examined: 2♀ 1 imm. Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 16.vi.2005 (NCA 2008/1859); 2♂ 1♀ same data but 24.i.2006 (NCA 2008/1867); 1♀ Near Fontana Camp, *A. tortilis* savannah, 26°52.072'S:32°09.545'E, leaf litter with *Crematogaster* ants, 8.vii.2004 (NMSA 21869); 1♀ 1 imm. Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/645); 2♂ 1 imm. same data but 22.vi.2005 (NCA 2008/650); 1♂ 1 imm. same data but 27.i.2006 (NCA 2008/655); 1♂ 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 5.ii.2005 (NCA 2008/662); 4♂ 7 imm. same data but 23.i.2006 (NCA 2008/1851); 1♀ 2 imm. Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/594); 2♀ 2 imm. same data but 23.i.2006 (NCA 2008/613).

Distribution: Species known only from South Africa.

Habitat and biology: This species was the most common *Myrmarachne* species collected, and was often encountered on *A. xanthophloea* bark at various sites in the reserve. It was usually found near foraging *Crematogaster* ants, which it resembles.

Genus *Natta* Karsch, 1879

Natta horizontalis Karsch, 1879

Natta horizontalis: Karsch 1879: 362; Próchniewicz 1989: 218, figs 33–38; Wesołowska 1993*a*: 25, figs 17–41; Wesołowska & Cumming 2008: 201, figs 107–109.

Cyllobelus rufopictus: Simon 1909: 420; Berland & Millot 1941: 320, fig. 22; Lessert 1936: 289, fig. 84; Lawrence 1942: 187, fig. 32.

See Wesołowska (1993*a*) for description of both sexes.

Material examined: 2♀ Airfield, 26°54.865'S:32°17.896'E, broadleaf woodland, leaf litter, 5.vii.2002 (NMSA 21870); 1♂ 1♀ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/621); 1♂ 1♀ 2 imm. Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/1863); 1♀ same locality, beats, various trees, 24.i.2006, R. Lyle (NMSA 21871); 1♀ Near NRC picnic site, 26°52.742'S:32°11.088'E, *A. tortilis* savannah, leaf litter, 29.xi.2000 (NMSA 21872); 2♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S: 32°18.892'E, leaf litter, 9.ii.2005 (NMSA 21873); 1♀ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/644); 1♀ same data but 27.i.2006 (NCA 2008/653); 1♂ 1♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 3.vii.2003 (NMSA 21874); 1♀ same data but 23.i.2006 (NCA 2008/610).

Distribution: Widespread in the Afrotropical Region.

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Habitat and biology: This species was observed in leaf litter of most habitats in the reserve, but was only sampled in AS, AX, BW and RF. Specimens were occasionally collected from tree bark or by beating foliage of short plants and trees. The body scales are iridescent and give this species a metallic appearance. *N. horizontalis* is a generalised ant mimic, moving in short darting runs and moving the forelegs up and down to resemble antennal movements. It was frequently collected near foraging ants, but was never seen preying on them. Individuals were observed to rapidly dart away from foraging ants when confronted, suggesting that this species is not myrmecophagous. However, the laboratory experiments of Jackson and van Olphen (1992) indicated that *N. horizontalis* (as *Cyllobelus rufopictus*) prefers feeding on ants rather than flies, while Wesołowska & Cumming (2008) recorded a specimen feeding on an *Odontotermes* termite. Further studies are thus needed to establish the dietary range of this widespread and common species.

Genus *Nigorella* Wesołowska & Tomasiewicz, 2008

Nigorella plebeja (L. Koch, 1875)

Figs 127–131, 220

Euophrys plebeja: L. Koch 1875: 90, pl. 7, fig. 9.
Pachypoessa albimana: Simon 1902*b*: 399.
Philaeus manicus: Peckham & Peckham, 1903: 205, pl. 24, fig. 1.
Pachypoessa plebeja: Prószyński 1987: 71–72.
Nigorella plebeja: Wesołowska & Tomasiewicz 2008: 35.

Redescription:

Measurements (male/female): Carapace length 3.5–3.7/4.4–4.7, width 2.8–3.0/3.1–3.6, height 1.2–1.5/1.7–1.8. Abdomen length 3.4–3.9/6.4–6.6, width 2.1–2.4/4.2–4.7. Eye field length 1.3–1.4/1.6, anterior width 2.0–2.1/2.1–2.3, posterior width 2.1–2.2/2.4–2.7.

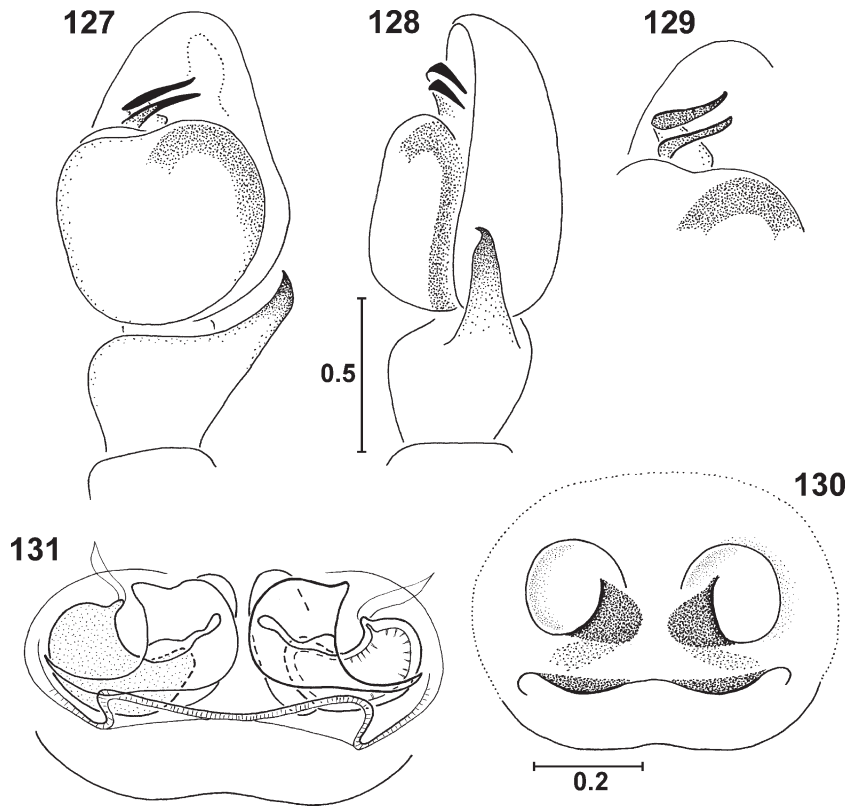
Male.

General appearance in Fig. 220. Medium-sized, dark, hairy spider; carapace oval, medium high, gently sloping posteriorly, dark brown; eye field short, black; fovea visible; dark, short hairs densely cover carapace, with numerous long bristles near eyes; clypeus low, dark, with black hairs. Chelicerae large, black, unidentate; endites and labium dark brown with narrow whitish margins. Abdomen narrower than carapace, dark brown with traces of lighter patches medially; dense long dark hairs on abdomen; venter dark, with four longitudinal lines composed of yellowish dots; spinnerets dark. Legs dark brown; first pair of legs slightly stouter than others, with dark scopulae on tarsi; leg hairs long, dark brown. Pedipalp dark; tibial apophysis straight, tegulum rounded, with small anterior haematodocha (Figs 127, 128); embolus short, enveloped by tegular apophysis (Fig. 129).

Female.

Larger than male. General colouration dark brown to black, vicinity of fovea slightly lighter; whole body covered with short, dark hairs; clypeus with few white hairs; three parallel lighter bands on 'cheeks', below anterior lateral eyes. Labium with narrow white tip, endites with wide pale inner margins. Abdomen broader than carapace,

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Figs 127–131. *Nigorella plebeja*: (127) palpal organ, ventral view; (128) palpal organ, lateral view; (129) embolic division, ventrolateral view; (130) epigyne; (131) internal structure of epigyne.

brownish grey, pattern formed by a patchwork of small dark patches; venter dark, with four longitudinal lines formed with light dots. Epigyne strongly sclerotised, with two widely spaced rounded depressions and broad posterior pocket (Fig. 130); internal structure simple, initial part of seminal ducts with very thick walls (Fig. 131).

Material examined: 1♀ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.vii.2004 (NMSA 21875); 1♀ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* savannah, leaf litter, 8.vii.2004 (NCA 2008/2743); 1♂ Near Environmental Centre, 26°55.275'S:32°17.947'E, broadleaf savannah, leaf litter, 6.ii.2005 (NCA 2008/2744); 1♂ Northern shore of Nyamiti Pan, 26°53.192'S:32°18.272'E, under logs, 7.vii.2002 (NCA 2008/2745).

Distribution: Species known from the Democratic Republic of the Congo; recorded for the first time from South Africa.

Habitat and biology: This species was collected from the ground in leaf litter or under logs, and on one occasion from under bark, in AS, AX, BW and FP.

Remarks: The species is very similar to *N. aethiopica* Wesołowska & Tomasiewicz, 2008, but is smaller; the male differs by the shape of the tibial apophysis, which is longer and has a single tip (bifid in *N. aethiopica*), and the female epigyne has a strongly sclerotised initial part of the seminal ducts (compare Figs 128 and 131 herein with figs 134 and 142 in Wesołowska & Tomasiewicz 2008).

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Genus *Pellenes* Simon, 1876

Pellenes bulawayoensis Wesołowska, 1999

Figs 221, 222

Pellenes bulawayoensis: Wesołowska 1999*a*: 163, figs 52–56; Wesołowska & Cumming 2008: 202, figs 110–112.

See Wesołowska & Cumming (2008) for description of male. General appearance in Fig. 221, face in Fig. 222. Female unknown.

Material examined: 1♂ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 23.i.2006 (NCA 2008/612).

Distribution: Previously known from Zimbabwe only; recorded in South Africa for the first time.

Habitat and biology: A single specimen was collected from fever tree bark in AX.

Pellenes epularis (O. P.-Cambridge, 1872)

Figs 132, 133

Salticus epularis: O. P.-Cambridge 1872: 329.
Pellenes epularis: Logunov *et al*. 1999: 122, figs 111–130; Prószyński 2003: 112, figs 484–486, 489–491; Wesołowska 2006*b*: 246, figs 87–92; Wesołowska & van Harten 2007: 238, figs 135–138.

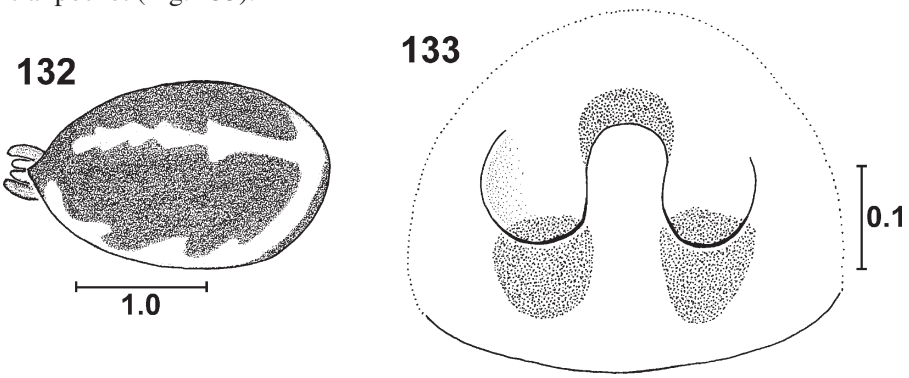
See Logunov *et al*. (1999) for description of male, and Wesołowska (2006*b*) for description of female.

Redescription:

Female.

Measurements: Carapace length 2.1, width 1.5, height 0.7. Abdomen length 1.9, width 1.4. Eye field length 1.0, anterior width 1.3, posterior width 1.4.

Carapace moderately high, dark brown, with black eye field; long brown setae near eyes, short whitish hairs cover slopes of carapace; clypeus clothed in white hairs, extending in narrow line to frame lateral carapace margins. Mouthparts and sternum dark brown. Abdomen black with serrate median white streak, with white band along anterior and lateral margins, extending to submarginal patches (Fig. 132); venter brownish grey; spinnerets dark. Legs light brown, first pair slightly darker, with numerous white scales on legs (especially on femora); leg hairs and spines dark. Epigyne with central pocket (Fig. 133).



Figs 132, 133. *Pellenes epularis*: (132) abdomen of female, dorsolateral view; (133) epigyne.

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Material examined: 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, under rocks, 6.vii.2004 (NCA 2008/2746).

Distribution: Widely distributed in the Palaearctic Region. In Africa known only from Namibia; recorded for the first time from South Africa.

Habitat and biology: Only a single specimen was collected from under rocks in BW. Other specimens were observed foraging in full sun on the ground surface near *Odontotermes natalensis* termite galleries in AS, but were not collected.

Remarks: The diversity and distribution of the genus *Pellenes* in Africa are very poorly known. It may be that African populations of this species, widely separated from the Palaearctic localities, belong in reality to another species, morphologically very similar to *P. epularis*.

Pellenes tharinae Wesołowska, 2006

Pellenes pulcher Wesołowska, 1999*a*: 165, figs 57–59 (*nec* Logunov, 1995).
Pellenes tharinae: Wesołowska 2006*b*: 248, figs 93–101. **Syn. n.**

See Wesołowska (2006*b*) for description of both sexes.

Remarks: Although the specimen is not mature, the characteristic colouration allows for its determination. *Pellenes pulcher* was described from Zimbabwe (Wesołowska 1999*a*) and *P. tharinae* was described from Namibia (Wesołowska 2006*b*). During the present study we have discovered that both names apply to the same species, i.e. *P. tharinae* is a junior subjective synonym of *P. pulcher*. Since *P. pulcher* Wesołowska, 1999 is a junior homonym of *P. pulcher* Logunov, 1995, according to Art. 60 (ICZN 1999) the first available name for this species should be used, i.e. *P. tharinae*.

Material examined: ♂ 1 subadult Fontana camp, 26°51.911'S:32°09.586'E, *Acacia* grassland, leaf litter, 2.vii.2002 (NCA 2008/2747).

Distribution: Hitherto known from Zimbabwe and Namibia; recorded for the first time from South Africa.

Habitat and biology: Collected from leaf litter in *Acacia tortilis* grassland savannah.

Genus *Phintella* Strand, 1906

Phintella aequipes (Peckham & Peckham, 1903)

Figs 134, 135

Telamonia aequipes: Peckham & Peckham 1903: 188, pl. 19, fig. 3; Lessert 1925*a*: 448, figs 26–30.
Heliophanus clarus: Peckham & Peckham 1903: 190, pl. 21, fig. 6; Wesołowska 1986: 231, figs 873–875.
Phintella aequipes: Prószyński 1984: 106; Wesołowska & Cumming 2008: 203, figs 113–121.

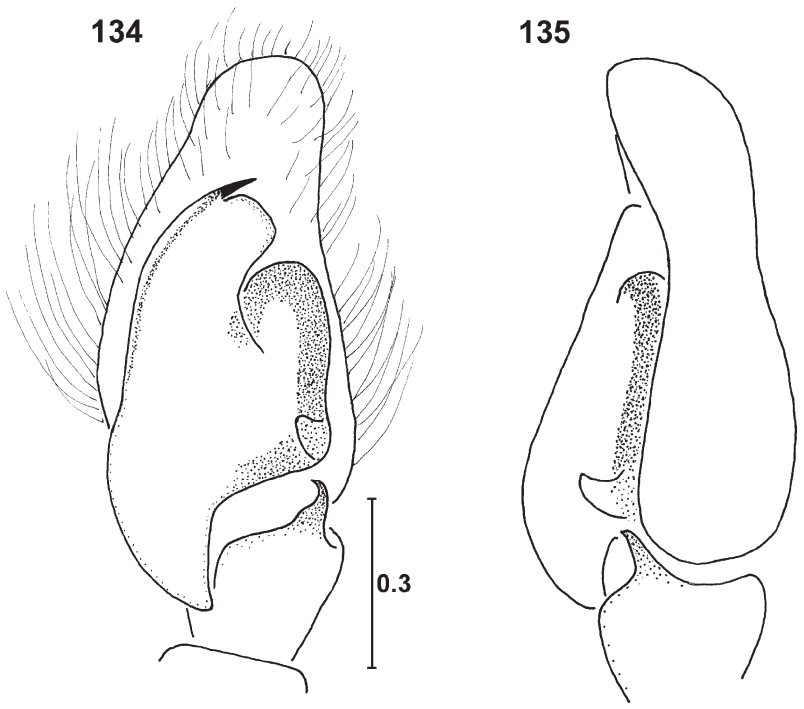
See Wesołowska & Cumming (2008) for description of both sexes. Pedipalps shown in Figs 134, 135.

Material examined: 1♀ Red Cliffs, Usutu R., 26°51.164'S:32°12.365'E, semiaquatic vegetation, 4.xii.2000 (NCA 2008/2748); 1♂ Subtropical bush, 26°52.464'S:32°16.050'E, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NCA 2008/2749).

Distribution: Widely distributed in southern Africa; reported also from Kilimanjaro in Tanzania.

Habitat and biology: This species was collected from foliage of reeds and short shrubs in RF and ST, respectively.

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Figs 134, 135. *Phintella aequipes*: (134) palpal organ, ventral view; (135) palpal organ, lateral view.

Remarks: Both specimens are bleached, and the male has a slightly shorter embolus than specimens from Zimbabwe (compare Fig. 134 with fig. 116 in Wesołowska & Cumming 2008).

Genus *Phlegra* Simon, 1876

Phlegra arborea sp. n.

Figs 136–141, 223

Etymology: The specific name refers to the spider's habitat; all of the specimens were collected on bark of *A. xanthophloea*.

Diagnosis: The male resembles *Ph. atra* Wesołowska & Tomasiewicz, 2008 from Ethiopia in shape, body size and the pedipalp structure, but has a narrower tegulum with a longer posterior lobe (compare Fig. 137 herein with fig. 150 in Wesołowska & Tomasiewicz 2008). Female unknown.

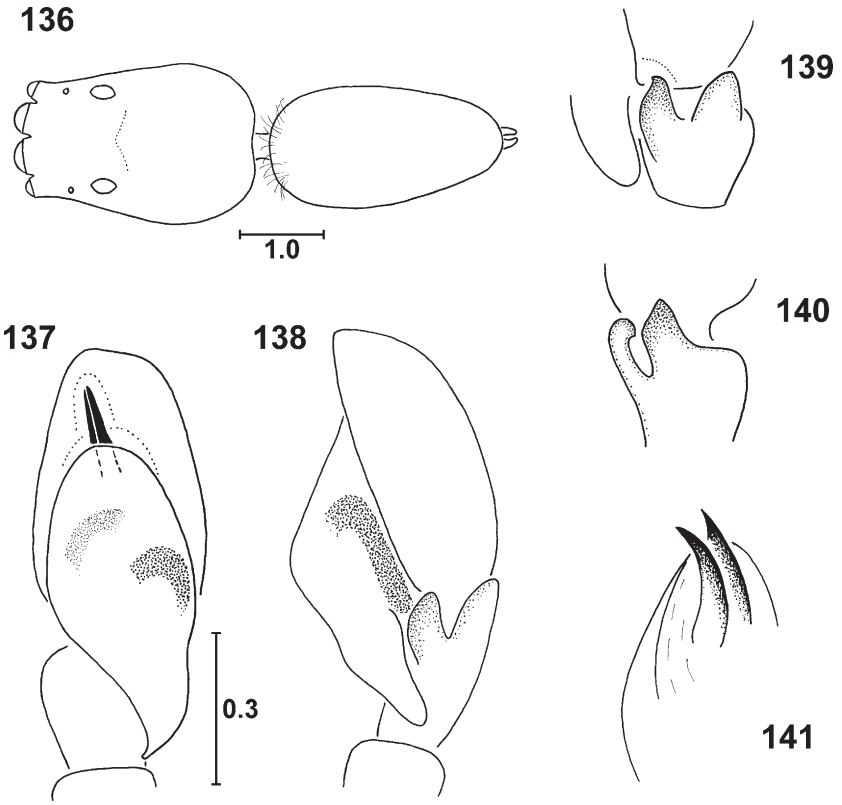
Description:

Male.

Measurements: Carapace length 2.4–2.5, width 1.6–1.7, height 0.8–1.0. Abdomen length 2.1–2.2, width 1.2–1.3. Eye field length 0.8, anterior width 1.1–1.2, posterior width 1.2–1.3.

General appearance in Figs 136, 223; slender, blackish, hairy spider. Carapace slightly pear shaped, with short eye field; ocular area black, thoracic part dark brown. Mouthparts and sternum dark. Abdomen slender, almost black. Legs dark brown. Whole body clothed

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Figs 136–141. *Phlegra arborea* sp. n., paratype: (136) habitus; (137) palpal organ, ventral view; (138) palpal organ, lateral view; (139) tibial apophysis, lateral view; (140) tibial apophysis, dorsal view; (141) embolus, dorsolateral view (cymbium removed).

in short dense blackish hairs. Pedipalps dark brown; tegulum long and slender, with long triangular posterior lobe, embolus straight (Fig. 137); tibial apophyses as in Figs 138–140; embolus compound (Fig. 141).

Holotype: ♂ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 28.vi.2003 (NCA 2009/670).

Paratypes: 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.ii.2005 (NCA 2008/619); 1♂ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/1865).

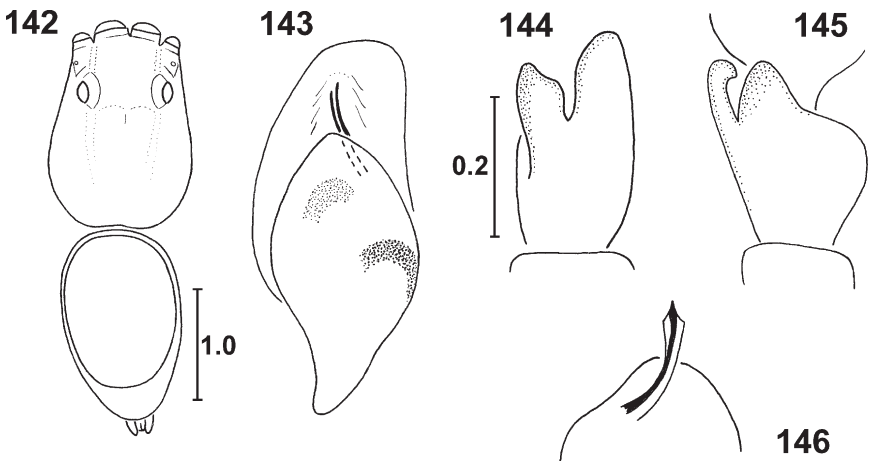
Habitat and biology: The specimens were found under *A. xanthophloea* bark.

Phlegra certa sp. n.
Figs 142–146

Etymology: From Latin *certa* (certain).

Diagnosis: The species is distinguishable by the brilliant reddish hairs on the eye field. The male pedipalp resembles that in *Ph. nuda* Próchniewicz & Heciak, 1994 but has a wider ventral tibial apophysis (compare Fig. 144 herein with fig. 155 in Wesołowska & Tomasiewicz 2008) and differs in the embolus structure (compare Fig. 146 herein with

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Figs 142–146. *Phlegra certa* sp. n., paratype: (142) habitus; (143) palpal organ, ventral view; (144) tibial apophysis, lateral view; (145) tibial apophysis, dorsal view; (146) embolus, dorsal view (cymbium removed).

fig. 32 in Logunov & Azarkina 2006 and fig. 157 in Wesołowska & Tomasiewicz 2008). Female unknown.

Description:

Male.

Measurements: Carapace length 1.5–2.2, width 1.0–1.2, height 0.6–0.7. Abdomen length 1.6–2.1, width 1.0–1.2. Eye field length 0.7, anterior width 1.0–1.2, posterior width 0.9–1.1.

General appearance in Fig. 142; small and slender, dark spider. Carapace pear-shaped, broadest posteriorly, with short eye field; colouration of carapace orange to blackish, eye field black, covered with reddish orange hairs (eye field appearing to have golden metallic lustre), thoracic part lighter; in lighter coloured specimen traces of two whitish lines, running from anterior lateral eyes to posterior edge of carapace; ocular area with fine long brown bristles, blackish hairs on thoracic part; clypeus low, dark. Mouthparts and sternum dark brown. Abdomen elongate, clothed in thin delicate dark hairs, longer at its anterior edge; delicate, dark brown, shiny scutum covering almost entire dorsum of abdomen (Fig. 142); venter dark; spinnerets blackish. Legs dark brown or black, metatarsi lighter with dark distal ends, tarsi yellowish; leg hairs and spines dark. Pedipalps blackish; some whitish hairs on cymbium, in vicinity of tibial apophysis; palpal organ shown in Fig. 143, structure of tibial apophyses in Figs 144, 145, details of embolus in Fig. 146.

Holotype: ♂ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, leaf litter, 9.ii.2005 (NCA 2009/671).

Paratypes: 1♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, grassy litter, 13.vi.2005 (NMSA 21830); 1♂ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* savannah, leaf litter, 8.vii.2004 (NCA 2008/2750); 1♂ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, subtropical bush, sifting leaf litter, 24.vi.2006, C. Haddad & F. Jordaan (NCA 2006/1240).

Habitat and biology: This small species was rare. The few specimens collected were found in leaf and grass litter in AS and BW.

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Genus *Pignus* Wesołowska, 2000

Pignus pongola sp. n.

Figs 147–151, 224

Etymology: The specific name is a noun in apposition, referring to the type locality.

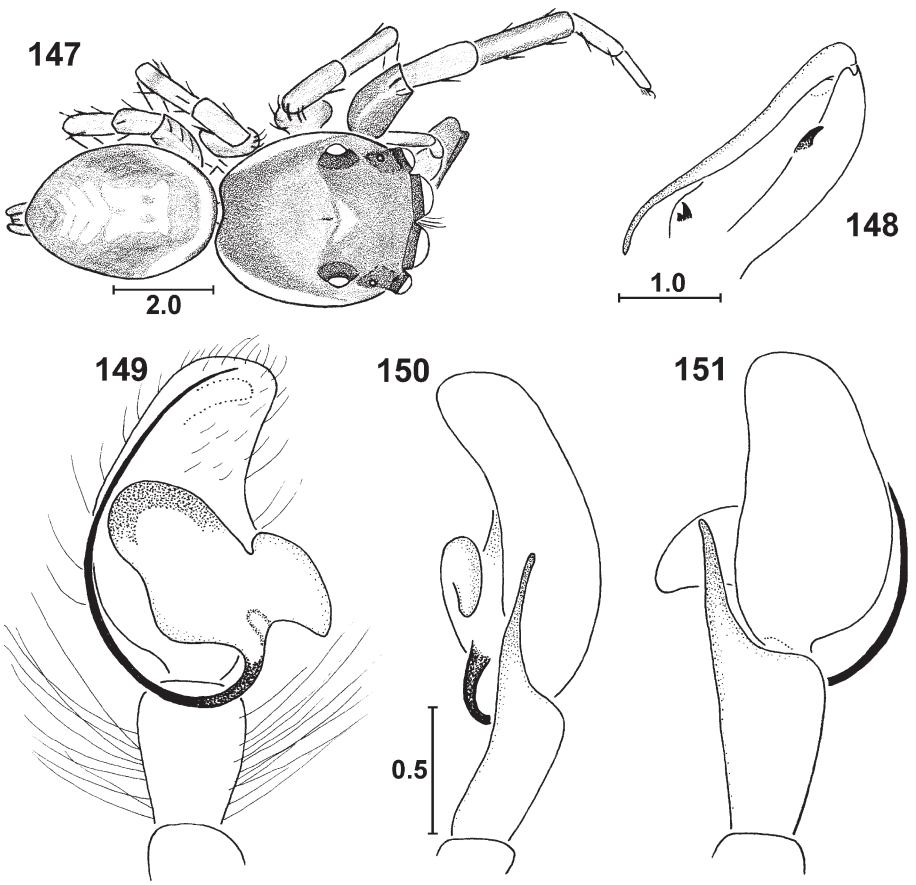
Diagnosis: A distinctive species. Male recognised by the unique shape of the chelicerae and the structure of the male pedipalp, with a large lobe of the tegulum at the embolus base. Female unknown.

Description:

Male.

Measurements: Carapace length 3.6, width 3.0, height 1.7. Abdomen length 3.4, width 2.4. Eye field length 1.6, anterior and posterior width 2.5.

General appearance as in Figs 147, 224; medium-sized spider. Carapace oval, dark brown, with broad white streaks composed of light hairs along lateral margins; lighter spot in foveal area; reddish scales cover anterior part of eye field and form small patches



Figs 147–151. *Pignus pongola* sp. n., holotype: (147) habitus; (148) cheliceral dentition; (149) palpal organ, ventral view; (150) palpal organ, lateral view; (151) palpal organ, dorsal view.

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in front of posterior lateral eyes; some brown bristles on eye field; clypeus very low, with some white hairs; below anterior lateral eyes, on 'cheeks', two parallel thin lines. Endites and labium brown with yellow tips; sternum orange; chelicerae very large, longer than in congeners, with long fang; promargin with two teeth, retromargin with single large tooth placed close to base of fang (Fig. 148); chelicerae dark brown with metallic lustre. Abdomen oval, brownish grey with irregular lighter band medially; sparse long bristles on abdominal dorsum; venter dark, with four lines composed of light dots; spinnerets light brown. Legs brown, but coxae orange; femora darker than remaining segments; leg hairs dense, dark brown, among them some whitish ones. Pedipalps small, brownish, clothed in long hairs; tibial apophysis narrow and long, tegulum with large semicircular lobe at base of embolus, embolus long (Figs 149–151).

Holotype: ♂ Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, beating foliage, 27.vi.2006 (NCA 2006/1221).

Habitat and biology: The specimen was collected from foliage in riverine forest.

Remarks: The pedipalp structure of the species shows similarities to that in the genus *Philaeus* Thorell, 1869, but the shape of the body, colour pattern and especially the form of the chelicerae are typical of the genus *Pignus*.

Genus *Portia* Karsch, 1878
Portia schultzi Karsch, 1878

Fig. 248

Portia schultzi: Karsch 1878: 774; Wanless 1978*c*: 88, figs 1a–g, pl. 1–2, 4a–b; Wesołowska & Cumming 2008: 207, figs 131–134.
Brettus martini: Simon 1900*b*: 31.
Linus lesserti: Lawrence 1937: 254, fig. 22.
Linus alboguttatus: Lawrence 1938: 520, fig. 38.
Portia alboguttata: Wanless 1978*c*: 96, figs 5c–e, h–i.

See Wesołowska & Cumming (2008) for description of both sexes. General appearance of female in Fig. 248.

Material examined: 1♂ 2♀ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, from *Cyrtophora* web, 8.xii.2000 (NCA 2008/2751); 1♂ 3♀ Dipini Hide, 26°51.678'S:32°15.514'E, webs of *Nephilengys cruentata*, 7.vii.2002 (NCA 2009/678).

Distribution: Widely distributed in eastern and southern Africa, and Madagascar.

Habitat and biology: The biology of this arachnophagous species has been well studied (e.g. Jackson 1995; Jackson & Hallas 1986, 1990). Specimens were commonly observed in the vicinity of webs of several large orb-weavers in the reserve, particularly *Nephilengys cruentata* (Fabricius, 1775) and *Nephila inaurata* (Walckenaer, 1842) (Nephilidae), and *Cyrtophora citricola* (Forskål, 1775) (Araneidae), in BW, FF, FP, RF, SF and ST. Several individuals were observed on the outer walls of buildings at Crocodile Farm and Main Camp, or on the bark of trees, moving slowly while searching for webs.

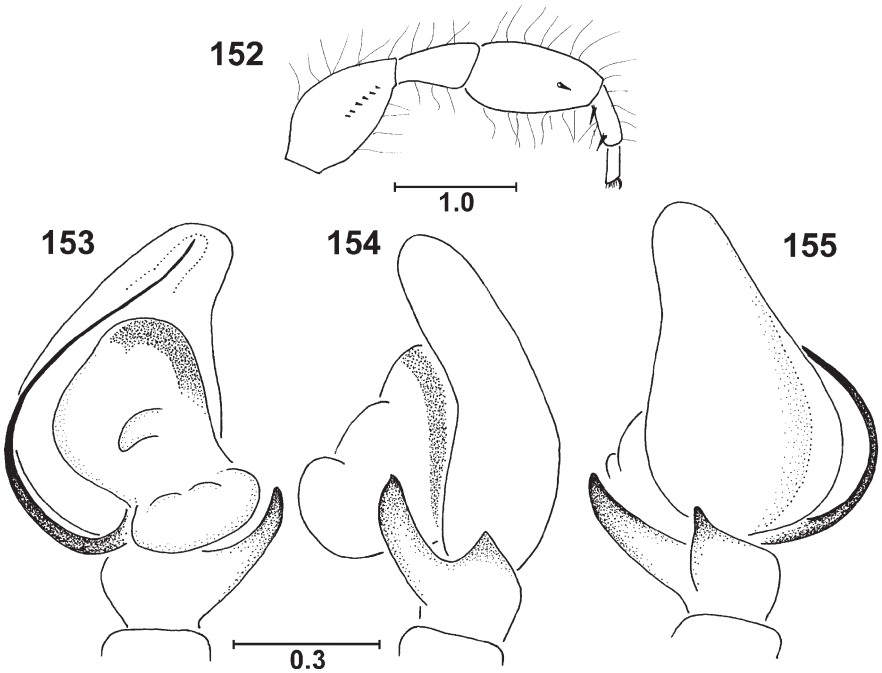
Genus *Pseudicius* Simon, 1885
Pseudicius alter Wesołowska, 1999

Figs 152–155

Pseudicius alter: Wesołowska 1999*a*: 169, figs 67–73.

See Wesołowska (1999*a*) for description of both sexes.

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Figs 152–155. *Pseudicius alter*: (152) first leg, prolateral surface; (153) palpal organ, ventral view; (154) palpal organ, lateral view; (155) palpal organ, dorsal view.

Redescription:

Male.

Measurements: Carapace length 1.7, width 1.2, height 0.7. Abdomen length 2.0, width 1.1. Eye field length 0.7, anterior width 0.9, posterior width 1.0.

Spider with flattened and elongate body. Carapace elongate, very flat, dark brown with black eye field, covered with colourless hairs, with long brown bristles in vicinity of eyes. Stridulatory apparatus present, consisting of row of setae on sides of carapace, below lateral eyes, and corresponding setae on femora of first legs. Mouthparts and sternum dark brown. Abdomen elongate, black, with three pairs of submarginal white patches, composed of light hairs, venter brown; spinnerets dark. Legs brown; first pair clearly stouter than others; first tibia swollen (Fig. 152) with single short prolateral spine, metatarsus with two pairs of ventral spines; legs clothed in long, fine, brown hairs. Pedipalps as in Figs 153–155; tegulum irregular, embolus long, two tibial apophyses, dorsal one small.

Material examined: 1♂ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, *Ficus* bark, 4.xii.2000 (NCA 2008/2752).

Distribution: Hitherto known only from Zimbabwe; recorded for the first time from South Africa.

Habitat and biology: This species was very rare and only a single specimen was collected. This contrasts dramatically to *P. venustulus* sp. n., described below, which was very common under *A. xanthophloea* bark.

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Pseudicius venustulus sp. n.

Figs 156–164

Etymology: From Latin *venustulus* (pretty).

Diagnosis: The species is closely related to *P. alter*. The male is easily recognisable by the presence of three tibial apophyses and the shape of the tegulum. The female differs by the placement of the epigynal pouches, which are situated near the epigastric furrow (in *P. alter* the pouches are at the midpoint of the epigyne, near the gonopores).

Description:

Measurements (male/female): Carapace length 1.7–2.0/1.7–1.8, width 1.2–1.3/1.1–1.2, height 0.5–0.6/0.5–0.6. Abdomen length 2.0–2.5/1.8–2.0, width 1.1–1.4/1.1–1.3. Eye field length 0.8/0.7, anterior width 0.9/0.8–0.9, posterior width 1.0/0.9–1.0.

Male.

General appearance as in Fig. 156; body elongate. Carapace very flattened, light or dark brown, eye field black or only eyes with black ring and two rounded blackish patches on centre of eye field; colourless hairs cover carapace, brown bristles in vicinity of eyes, some white scale-like hairs behind first row of eyes. Stridulatory apparatus of the carapace – leg type. Mouthparts and sternum yellow to brown. Abdomen elongate, black, with four pairs of white spots (Fig. 156), abdomen shiny posteriorly; venter yellowish with silver patches of translucent guanine crystals; spinnerets dark. First pair of legs stout, brown, tibia slightly swollen, single short spine on tibia prolaterally, two pairs of spines on metatarsus ventrally; legs II and III yellow, legs IV yellow with brown ring on segments (except metatarsus and tarsus); thin, long, brown hairs on legs. Pedipalps yellow to brown, its structure in Figs 157–160.

Female.

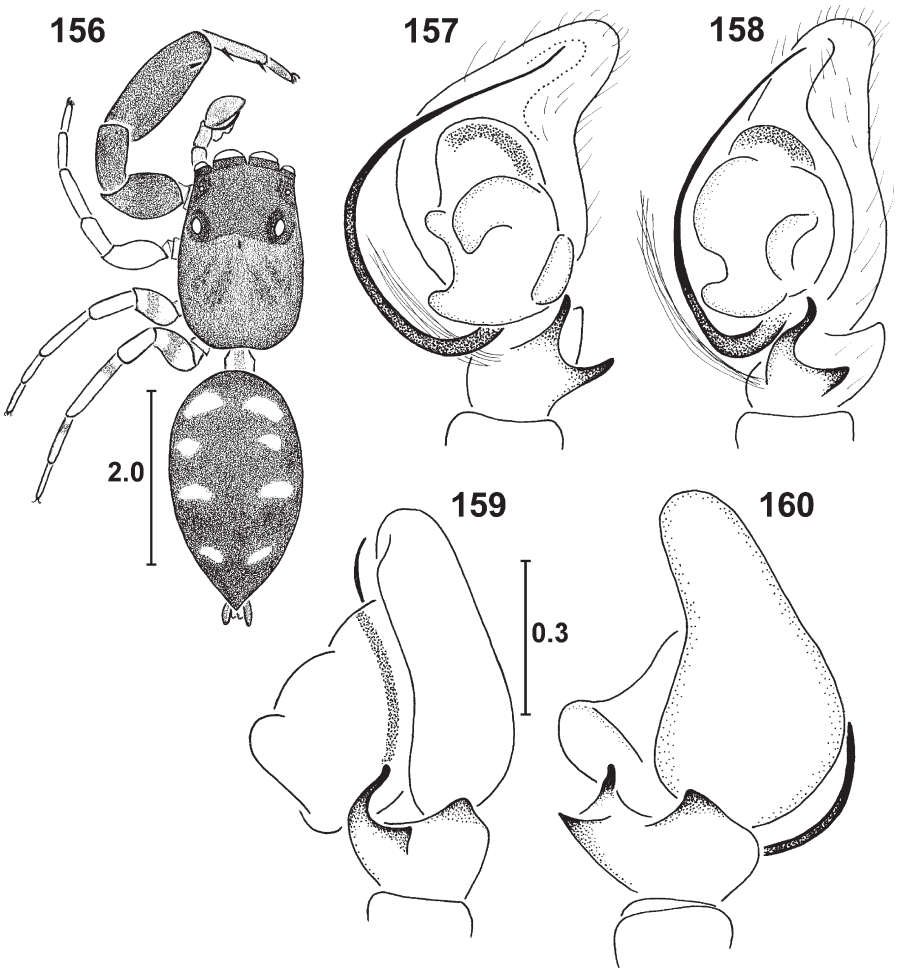
Similar to male but slightly lighter. Pattern of abdomen composed of four large brown spots on yellowish background (Fig. 161); brown and whitish hairs on abdomen. All legs yellow, first pair not stout. Epigyne oval, with two rounded depressions anteriorly and pair of pouches posteriorly (Fig. 162); internal structure with seminal ducts long and coiled (Figs 163, 164).

Holotype: ♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, sweeping grass, 13.vi.2005 (NCA 2009/672).

Paratypes: 2♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, tree bark, 5.xii.2000 (NMSA 21831); 1♀ Northern shore of Nyamiti Pan, 26°53.192'S:32°18.272'E, under logs, 7.vii.2002 (NCA 2008/2753); 10♂ 3♀ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/636); 1♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, beats, foliage, 2.xii.2000 (NMSA 21832); 14♂ 4♀ Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 3.vii.2003 (MRAC 224650).

Additional material examined: 25♂ 13♀ 32 imm. Crocodile Farm, Pongola R. floodplain, 26°54.426'S: 32°19.185'E, *A. xanthophloea* bark, 8.vii.2004 (NCA 2008/615); 11♂ 1♀ 3 imm. same data but 6.ii.2005 (NCA 2008/620); 99♂ 37♀ same data but 20.vi.2005 (NCA 2008/625); 24♂ 5♀ 10 imm. same data but 24.i.2006 (NCA 2008/630); 27♂ 5♀ 36 imm. Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 13.vii.2004 (NCA 2008/1855); 54♂ 19♀ 74 imm. same data but 6.ii.2005 (NCA 2008/1856); 40♂ 10♀ 60 imm. same data but 16.vi.2005 (NCA 2008/1862); 85♂ 23♀ 62 imm. same data but 24.i.2006 (NCA 2008/1870); 13♂ 6♀ 16 imm. Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 7.ii.2005 (NCA 2008/643); 16♂ 2♀ 16 imm. same data but 22.vi.2005 (NCA 2008/651); 8♂ 3♀ 3 imm. same data but 27.i.2006 (NCA 2008/652); 10♂ 7♀ 16 imm. South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 11.vii.2004 (NCA 2008/658); 6♂ 5 imm. same data but 5.ii.2005 (NCA 2008/1841); 10♂ 3♀ 6 imm. same data but 17.vi.2005 (NCA 2008/1844); 16♂

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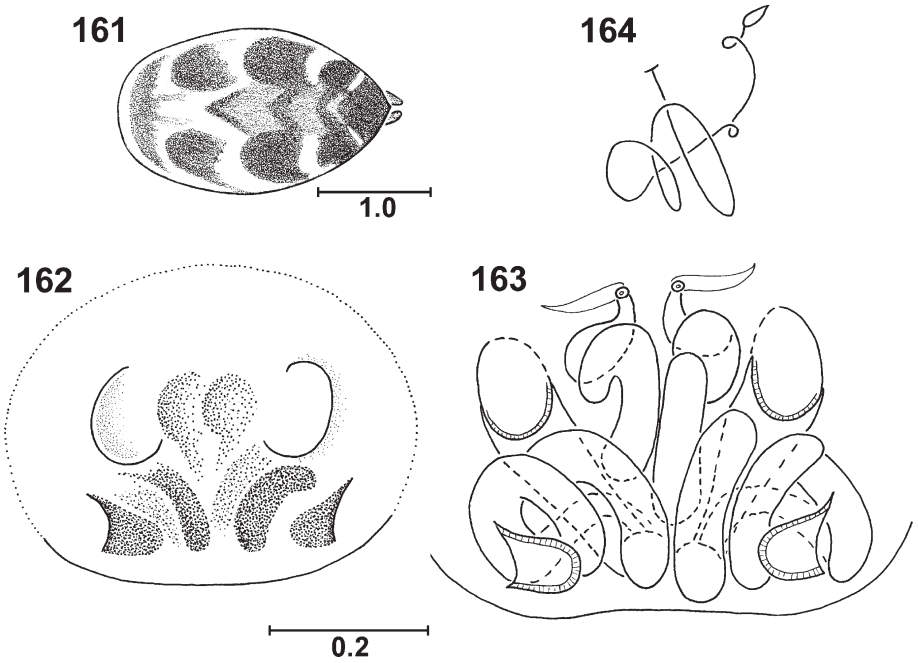


Figs 156–160. *Pseudicius venustulus* sp. n., male, paratype: (156) habitus; (157) palpal organ, ventral view; (158) palpal organ, ventrolateral view; (159) palpal organ, lateral view; (160) palpal organ, dorsal view.

16♀ 9 imm. same data but 23.i.2006 (NCA 2008/1853); 40♂ 4♀ 34 imm. Western shore of Nyamiti Pan, 26°53.767'S:32°16.557'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/596); 9♂ 5♀ 15 imm. same data but 6.ii.2005 (NCA 2008/601); 19♂ 8♀ 33 imm. same data but 19.vi.2005 (NCA 2008/606); 11♂ 1♀ 8 imm. same data but 23.i.2006 (NCA 2008/609).

Habitat and biology: This species was one of the most common spiders associated with bark in most habitats, and was the most common salticid associated with *A. xanthophloea* bark, representing approximately 82 % of the Salticidae collected and 14 % of the total spiders collected (Haddad unpubl.). Activity on the boughs of trees was greatest in early and mid-morning, and mid-afternoon. Males were often collected in silk cocoons with subadult females, suggesting that they mate soon after the female's final moult. Females remained with their egg sacs until the first instars emerged from the eggs. This species was parasitised by several insects. Of the 1309 specimens captured in the *A. xanthophloea* bark study, 17 were parasitised by ichneumonid wasp larvae on their

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Figs 161–164. *Pseudicius venustulus* sp. n., female, paratype: (161) abdominal pattern; (162) epigyne; (163) internal structure of epigyne; (164) diagrammatic course of seminal duct.

abdomens (10 females, 3 males, 1 subadult female and 3 subadult males). Twelve of these parasites were positioned anterodorsally, three laterally and medially on the abdomen, and two at the epigastric fold. One adult female was found in a silk cocoon together with an adult mantispid (well-known egg parasites), and one female cephalothorax was found together with an adult acrocerid fly. On several occasions mites were found in abandoned silk retreats, but there was no evidence that the mites preyed on the spiders.

Genus *Rhene* Thorell, 1869

Rhene pinguis sp. n.

Figs 165–169

Etymology: From Latin *pinguis* (fat, thick); the name refers to the swollen shape of the spider.

Diagnosis: The male of the species can be distinguished from congeners by the shape of the embolus, which has a tip with a wide vane. Female unknown.

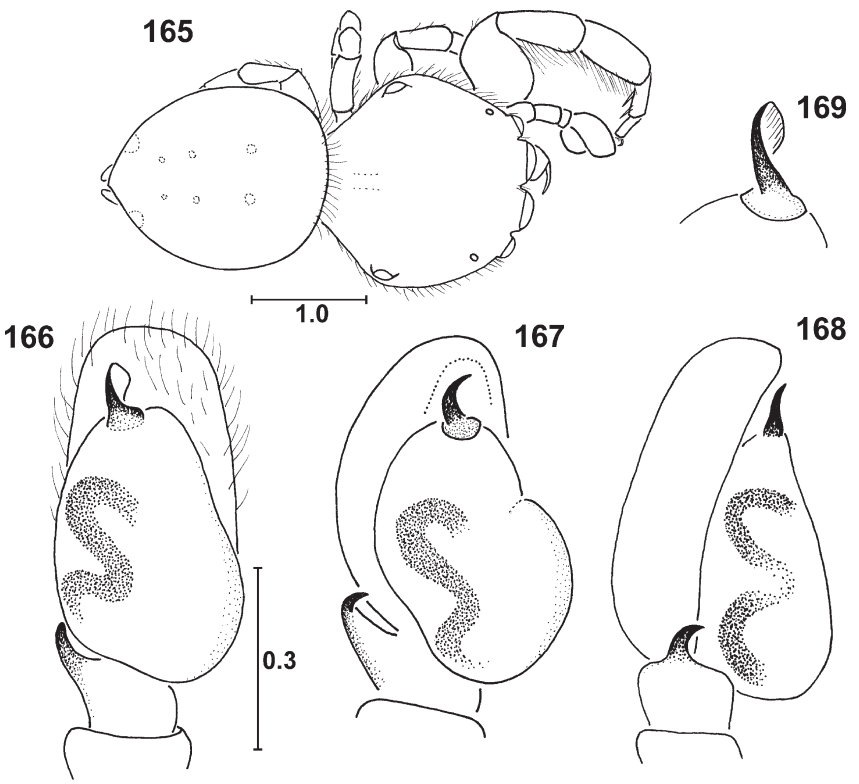
Description:

Male.

Measurements: Carapace length 1.7, width 1.8, height 0.8. Abdomen length 2.0, width 1.6. Eye field length 1.2, anterior width 1.1, posterior width 1.8.

General appearance as in Fig. 165; very flat, thickset, hairy spider. Carapace flat, greatly broadened, almost square; eye field very large, trapezoid, occupying majority

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Figs 165–169. *Rhene pinguis* sp. n., holotype: (165) habitus; (166) palpal organ, ventral view; (167) palpal organ, ventrolateral view; (168) palpal organ, lateral view; (169) embolus.

of carapace. Anterior and posterior eye rows close to each other; carapace brown, eyes with black rings, ocular area punctured reticulate; dense brown hairs cover whole carapace, only some small whitish scales in thoracic part medially; clypeus very low, dark. Chelicerae unidentate; labium, endites and sternum dark brown. Abdomen rounded, strongly flattened, its anterior edge covering posterior part of carapace; large scutum on abdominal dorsum, dark brown, white hairs forming poorly contrasted white patches near spinnerets and three pairs of small patches placed medially (Fig. 165); venter brown; spinnerets dark. First pair of legs black, distinctly bigger and thicker than others, with patellae and tibiae densely covered with long black hairs; legs II–IV brown, metatarsi lighter proximally, tarsi yellowish; first leg with two pairs of spines ventrally on metatarsi, without spines on tibiae. Pedipalps brown; palpal tibia short, with short hooked apophysis (Figs 167, 168); tegulum large, convex, spermophore meandering (Figs 166, 167); embolus very short, placed on apex of haematodocha, with wide vane on tip (Figs 166, 169).

Holotype: ♂ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, beating, short shrubs, 1.xii.2000 (NCA 2009/673).

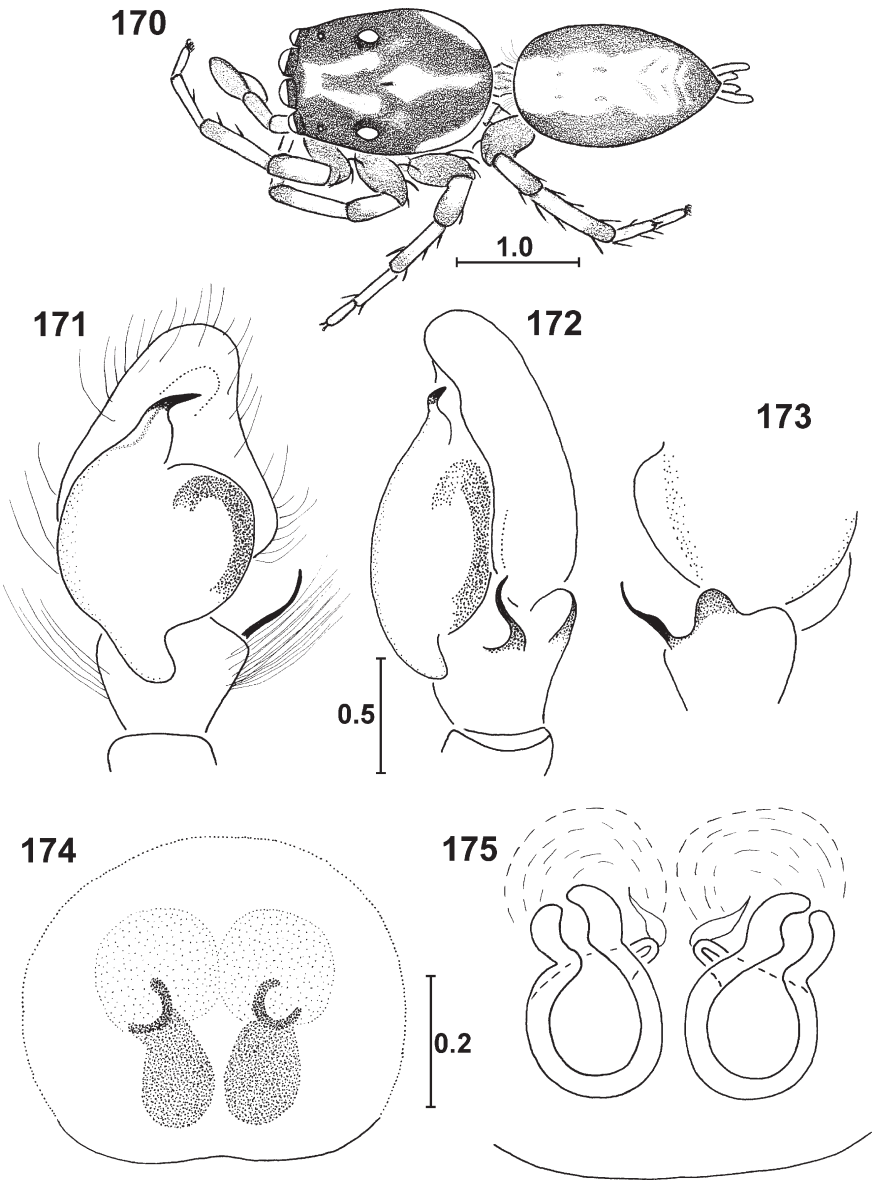
Habitat and biology: This species was rare and the only specimen was collected by beating foliage in FF.

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Genus *Schenkelia* Lessert, 1927
Schenkelia modesta Lessert, 1927

Figs 170–175

Schenkelia modesta: Lessert 1927: 466, figs 36, 37; Prószyński 1968: 217, figs 1–9; Wesołowska & Russell-Smith 2000: 94, figs 256–260.



Figs 170–175. *Schenkelia modesta*: (170) habitus of male; (171) palpal organ, ventral view; (172) palpal organ, lateral view; (173) tibial apophysis, dorsal view; (174) epigyne; (175) internal structure of epigyne.

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Redescription:

Measurements (male/female): Carapace length 2.9–3.3/3.1, width 2.1–2.4/2.3, height 1.1–1.2/1.1. Abdomen length 3.0–3.4/3.5, width 1.7–2.2/2.4. Eye field length 1.3–1.5/1.3, anterior width 1.7–1.8/1.7, posterior width 1.6–1.7/1.6.

Male.

General appearance shown in Fig. 170. Carapace oval, medium high, dark brown to blackish, eyes with black rings; long brown bristles in vicinity of anterior eyes; white hairs form light median band on thoracic part of carapace and frame lateral carapace margins posteriorly; fovea visible; clypeus brown. Chelicerae fissidentate; labium dark brown, endites brown with pale inner margins; sternum light brown. Abdomen narrower than carapace, oval, dark brown laterally and yellowish medially (Fig. 170), clothed with short brown hairs, long brown bristles scattered among them; venter yellow with wide greyish band occupying medium part; spinnerets pale. Legs yellow, segments darker distally; leg hairs brown, except whitish on femora; spines long. Pedipalps dark yellow, tegulum with posterior lobe, embolus short, tibial apophysis very thin (Figs 171, 172); tibia with large process dorsally (Fig. 173).

Female.

Similar to male, but slightly lighter in colour. Epigyne rounded with two shallow cavities (Fig. 174), seminal ducts very short, receptacles spherical, their walls thick (Fig. 175).

Material examined: 1♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, beats, short bushes, 6.vii.2000 (NMBA 11598); 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, *Commiophora harveyi* bark, 13.vi.2005 (NMSA 21876); 1♂ 1♀ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, beats, short shrubs, 1.xii.2000 (NCA 2008/2754).

Distribution: Probably widely distributed in the Afrotropical Region; known from Democratic Republic of the Congo, Ivory Coast and Tanzania. The species is recorded from South Africa for the first time.

Habitat and biology: This species was generally rare; specimens were collected by beating foliage in BW, FF and SF.

Genus *Sonoita* Peckham & Peckham, 1903

Sonoita lightfooti Peckham & Peckham, 1903

Sonoita lightfooti: Peckham & Peckham 1903: 184, pl. 19, fig. 4; Wanless 1985: 267, figs 11a–l , 13a, b, 4a, b, 16f; Wesołowska & Cumming 2008: 212, figs 157–163; Wesołowska & Tomasiewicz 2008: 48, figs 189–194, 213, 214.

See Wesołowska & Tomasiewicz (2008) for description of male, and Wesołowska & Cumming (2008) for description of female.

Material examined: 2♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 2.xii.2000 (NMBA 11604); 3♂ 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, beats, trees, 24.i.2006, R. Lyle (NCA 2008/2755); 1♂ Red Cliffs, Usutu R., 26°51.164'S:32°12.365'E, semiaquatic vegetation, 4.xii.2000 (NCA 2008/2756).

Distribution: Poorly known; species reported from South Africa, Zimbabwe, Ivory Coast and Ethiopia.

Habitat and biology: This species was occasionally collected by beating foliage in dense thickets (ST) and wetland habitats (FP and RF).

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Genus *Stenaelurillus* Simon, 1886
Stenaelurillus natalensis Haddad & Wesołowska, 2006

Fig. 249

Stenaelurillus natalensis: Haddad & Wesołowska 2006: 580, figs 22–36.

See Haddad & Wesołowska (2006) for description of both sexes. General appearance of male in Fig. 249.

Material examined: 2♂ Airfield, 26°54.865'S:32°17.896'E, broadleaf woodland, leaf litter, 6.xii.2005 (NMSA 21877); 1♀ same locality, under rocks, 12.i.2007 (NCA 2007/3064); 1♀ Crocodile Farm, 26°54.426'S: 32°19.185'E, broadleaf woodland, on ground in thick grass, 2.vii.2003 (NMSA 21878); 1♂ same locality, leaf litter, 5.vii.2003 (NMSA 21879); 2♀ 1 imm. same locality, on ground near termite galleries, 15.vi.2005 (NCA 2006/674); 2♂ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, leaf litter, 26.i.2006 (NMSA 21880); 2♀ 2 imm. same locality, leaf litter near termite galleries, 26.i.2006, C. Haddad & R. Lyle (NCA 2006/680); 2♂ 8 imm. Near NRC picnic site, *A. tortilis* savannah, 26°52.742'S:32°11.088'E, grassy leaf litter near *Odontotermes* mound, 23.vi.2005 (NCA 2006/679); 1♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, pitfall traps, 15–25.i.2006, C. Haddad & R. Lyle (NCA 2008/1876); 2♂ 3♀ Near Vulture Restaurant, 26°53.376'S:32°18.703'E, subtropical bush, under logs, 19.vi.2006, C. Haddad & F. Jordaan (NCA 2006/1275); 2♂ Red Cliffs, 26°51.164'S:32°12.365'E, subtropical bush, near termite mound, 17.vi.2005 (NMSA 21881); 1♀ 8 imm. 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, on sand near *Odontotermes* termite mound, 17.vi.2005 (NCA 2006/675); 2♂ 3 imm. same locality, in semi-shade, branches near termite galleries, 18.vi.2005 (NCA 2006/676); 1♂ 1 imm. 26°52.475'S:32°15.972'E, subtropical bush, *A. nigrescens* woodland, in semi-shade, near *Odontotermes* termite mound, 18.vi.2005 (NCA 2006/677); 5 imm. 5♂ 26°52.398'S:32°16.082'E, subtropical bush, *A. nigrescens* woodland, on *Odontotermes* termite mound, 18.vi.2005 (NCA 2006/678); 1♂ 26°52.371'S:32°13.363'E, subtropical bush, Mahemane thicket, *Odontotermes* termite mound and nearby leaf litter, 15.vi.2005 (MRAC 218447); 2♂ 2♀ same data (MRAC 218448); 1♂ 7 imm. 26°51.908'S:32°14.458'E, Subtropical bush, Mahemane thicket, leaf litter near *Odontotermes* mound, 15.vi.2005 (NCA 2006/673).

Distribution: Known only from two sites in Maputaland, South Africa.

Habitat and biology: The natural history of this species was studied in detail by Haddad and Wesołowska (2006), and can be summarised as follows. This species was very common in the immediate vicinity of *Odontotermes badius* termite mounds and foraging galleries in leaf litter near mounds, although they very rarely entered the chimneys. Individuals were active 1–2 hours after sunrise until an hour before sunset, predominantly in savannah and thicket habitats with sandy soils and receiving direct sunlight for most of the day. Depending on the season, between 19–24 % of the specimens observed had *O. badius* prey in their chelicerae (Fig. 249). No other prey was taken in the field. Termites were captured while foraging in leaf litter, while repairing their galleries and/or the mound structure, or where galleries were damaged and termites were exposed to the outside environment. Prey capture involved the observation and identification of prey from as much as 15 cm away, followed by a series of short runs and jumps before prey was attacked. Several bites were inflicted by immatures, who dragged their prey away once paralysed. Adults often only inflicted a single bite and immediately dragged their prey away.

Genus *Thyene* Simon, 1885
Thyene bucculenta (Gerstaecker, 1873)

Fig. 225

Phidippus bucculentus: Gerstaecker 1873: 475, pl. 18, fig. 4.
Thyene bucculenta: Simon 1886: 348; Lessert 1925*a*: 486, figs 68, 70, 72; Prószyński 1987: 110, figs 109, 110; Próchniewicz 1989: 222; Wesołowska & Russell-Smith 2000: 105, figs 290–292.
Thyene bucculifera: Strand 1909: 45.

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See Wesołowska & Russell-Smith (2000) for description of male. General appearance of male in Fig. 225. Female unknown.

Material examined: 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NCA 2008/2757).

Distribution: Species distributed in eastern Africa, recorded for the first time from South Africa.

Habitat and biology: This distinctive species was uncommon, and only one male specimen was collected by beating shrubs in ST.

Thyene coccineovittata (Simon, 1886)

Figs 176–181, 226, 227, 250

Hyllus coccineovittatus: Simon 1886: 348; Berland & Millot 1941: 371, 373, figs 70, 71, 72A.
Thyene crudelis: Peckham & Peckham 1903: 229, pl. 25, fig. 5; Lessert 1925*b*: 349; Berland & Millot 1941: 371.

Redescription:

Measurements (male/female): Carapace length 3.7/2.4, width 3.0/1.9, height 1.5/0.8. Abdomen length 4.0/2.7, width 2.3/1.4. Eye field length 1.1/1.1, anterior width 2.0/1.3, posterior width 2.1/1.5.

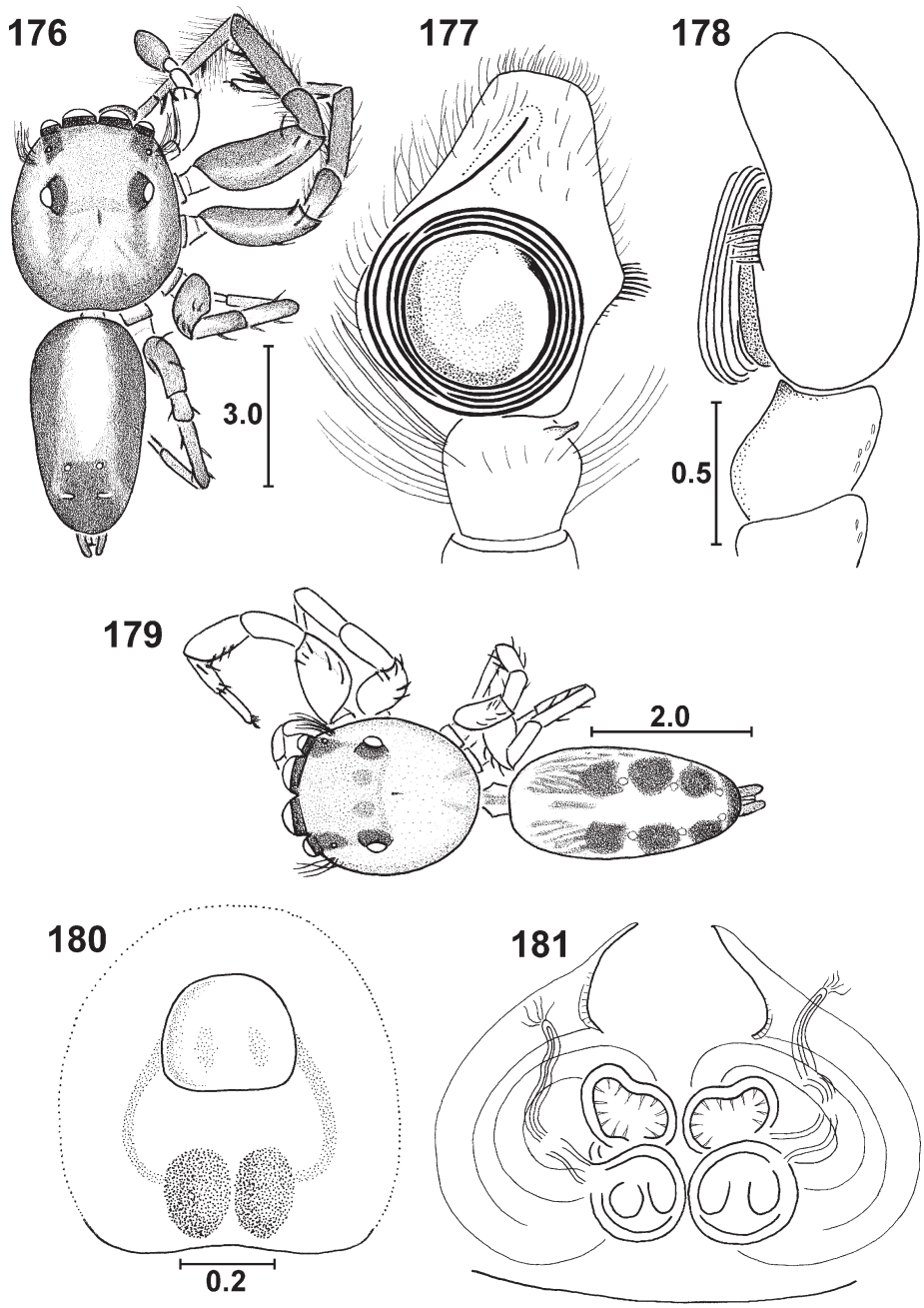
Male.

General appearance in Figs 176, 226. Carapace rounded, reddish brown, with darker margins, eyes surrounded by black rings; short whitish hairs form poorly contrasted bands, one on middle of thoracic part and two on carapace sides, laterally from eye field; tufts of long brown bristles form 'horns' at posterior median eyes. Chelicerae robust, with stout fangs; endites brown with whitish inner margins, their external edges extended into triangular lobes; sternum orange. Abdomen dark, brownish fawn, with lighter shiny streak along middle; two pairs of very small, but clearly contrasted white marks posteriorly (Fig. 176); venter dark, with two lines composed of white dots; sparse long brown bristles on dorsum of abdomen; spinnerets dark. Legs dark brown, coxae orange, tarsi of legs II–IV light brown; first pair of legs longest; long, thin, dense dark hairs on legs, especially dense on patella, tibia and metatarsus I; leg hairs brown with a mixture of greyish ones; spines long and stout, brown. Pedipalps light brown, their femora swollen, some scales dorsally on tibia and patella; tibial apophysis very short, tegulum rounded, embolus very long, encircling the tegulum five times; retrolateral edge of cymbium with protuberance covered with spike-like bristles (Figs 177, 178).

Female.

General appearance in Figs 179, 227, 250; smaller than male. Carapace orange brownish, eye field tinged with grey, eyes surrounded by black rings; around anterior median eyes row of white scales; sparse brown hairs on carapace, tufts of long bristles near posterior median eyes; white hairs form three parallel lines below anterior lateral eyes, on 'cheeks'. Mouthparts and sternum orange. Abdomen elongate, with longitudinal light stripe medially, shiny caudally; abdomen with several darker lines anteriorly, in posterior two thirds of its length with three pairs of large blackish patches (reddish in living individuals?) lateral of central streak; between dark patches three pairs of very small round white spots; venter yellowish tinged with grey; sparse long bristles on

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Figs 176–181. *Thyene coccineovittata*: (176) habitus of male; (177) palpal organ, ventral view; (178) palpal organ, lateral view; (179) habitus of female; (180) epigyne; (181) internal structure of epigyne.

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abdomen; spinnerets brownish. Legs dark yellow with brown hairs and spines; first legs thickest, tibiae short and slightly swollen, metatarsi short; first tibia with three pairs of ventral spines, metatarsus with two pairs. Pedipalps pale. Epigyne typical for *Thyene*, weakly sclerotised, with rectangular depression anteriorly (Fig. 180); internal structures similar to that in *Th. semiargentea*; seminal ducts long, delicate and membranous, forming a few loops, last chamber of receptacle heavily sclerotised, accessory glands long (Fig. 181).

Material examined: 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, on short shrubs, 28.vi.2007 (NCA 2008/1878); 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, beating, short shrubs, 12.i.2007 (NCA 2007/3023).

Distribution: This species has been recorded from western and southern Africa.

Habitat and biology: The specimens were collected from shrubs in AX and SF.

Remarks: The association of the female with the male and their conspecifity is uncertain. The female shown in Fig. 250 was observed in the mating period with a *Th. coccineovittata* male dancing for her, but that individual was not captured. Another female (Figs 179–181) was collected on a different occasion. It is clearly smaller than the male and its colouration pattern represents that of a strongly bleached, alcohol-preserved specimen.

Thyene inflata (Gerstaecker, 1873)

Figs 228, 229

Phidippus inflatus: Gerstaecker 1873: 476.
Thyene inflata: Simon 1886: 348; Strand 1908: 197; Lessert 1925*a*: 480, figs 66, 67, 69, 71; Berland & Millot 1941: 374, figs 72c, 74; Próchniewicz 1989: 222, figs 45–47; Wesołowska & Russell-Smith 2000: 105, figs 293–299; Wesołowska & Tomasiewicz 2008: 188, figs 118–120.
Thyene squamulata: Simon 1886: 347.

See Wesołowska & Russell-Smith (2000) for description of both sexes. General appearance of both sexes in Figs 228, 229.

Material examined: 2♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, beats, short bushes, 6.vii.2000 (NMBA 11599); 1♂ 1♀ Red Cliffs, Usutu R., 26°51.164'S:32°12.365'E, semiaquatic vegetation, 4.xii.2000 (NCA 2008/2758).

Distribution: A widespread Afrotropical species.

Habitat and biology: Specimens were collected from the foliage of shrubs in savannah and riverine habitats. On rare occasions specimens were found in silk retreats constructed in grass inflorescences in BW.

Thyene natalii Peckham & Peckham, 1903

Figs 230, 231

Thyene natali: Peckham & Peckham 1903: 227, pl. 25, fig. 4; Lessert 1936: 294, figs 92, 93; Wesołowska & Cumming 2008: 216, figs 171–177.
Thyene strandi Caporiacco, 1939: 376, fig. 25; Prószyński 1987: 109, 113. **Syn. n.**

See Wesołowska & Cumming (2008) for description of both sexes. General appearance of both sexes in Figs 230, 231.

Material examined: 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 24.i.2006 (NCA 2008/631); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, beats, short shrubs, 21.vi.2006 (NCA 2006/1255); 4♂ 1♀ Near pump, Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, beats, short shrubs, 27.vi.2006 (NCA 2006/1215); 1♂ same data (NCA 2006/1213); 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 6.xii.2000 (NMSA

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21882); 1♀ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, beats, short shrubs, 4.xii.2000 (NMSA 21883).

Distribution: Known from Ethiopia, Mozambique, South Africa and Zimbabwe.

Habitat and biology: This species was collected from the foliage of short shrubs and trees in various savannah (BW and ST) and wetland (AX, FF and RF) habitats.

Remarks: The female collected in Negele (South Ethiopia) determined as *Th. strandi* by Caporiacco (probably the type) is kept in the Museum of Zoology at the University of Florence. The specimen was studied by Prószyński (1987). His figures show the characteristic pattern of the abdomen and structure of the epigyne. This species is the only one in the genus that has a short abdomen and abdominal pattern composed of transverse bands. Comparison of Prószyński's figures with those in Wesołowska & Cumming (2008) shows that the name *Th. strandi* is a junior synonym of *Th. natali*.

Thyene ogdeni Peckham & Peckham, 1903

Figs 182–191, 232, 233, 251

Thyene ogdeni: Peckham & Peckham 1903: 224, pl. 25, fig. 2; Lessert 1925*a*: 488, fig. 73.

Redescription:

Measurements (male/female): Carapace length 3.6/3.7, width 3.1/3.1, height 1.7/1.6. Abdomen length 3.9/4.3, width 2.3/2.6. Eye field length 1.4/1.5, anterior width 2.0/2.1, posterior width 2.1/2.2.

Male.

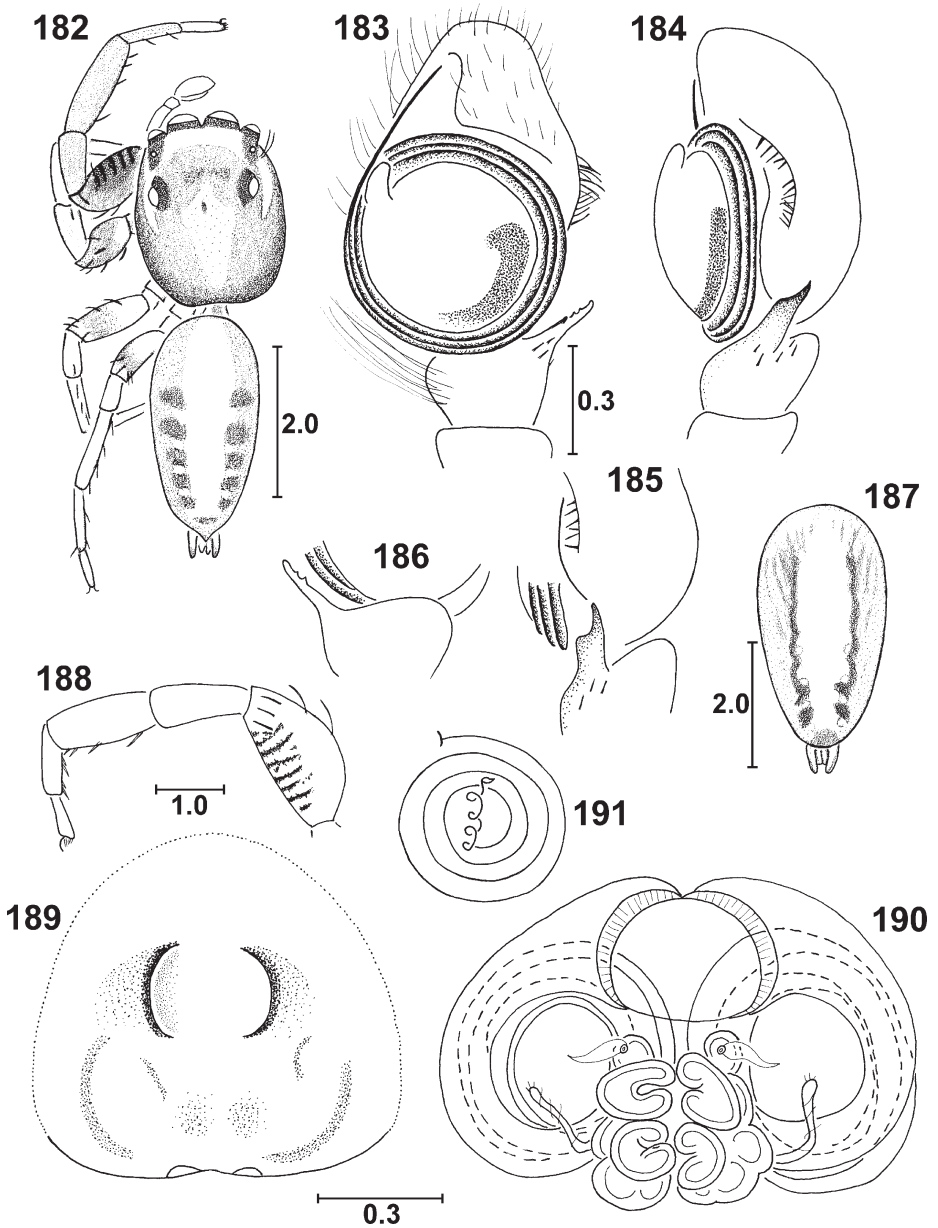
General appearance in Figs 182, 232. Carapace oval, widest behind midpoint, light brown, darker at margins; eyes surrounded by black rings, some long brown bristles near anterior eyes; white scale-like hairs form transverse band on ocular area, behind anterior eyes and two streaks laterally from eye field; scattered white hairs on middle of thoracic part of carapace. Chelicerae and clypeus dark brown, labium and endites light brown with wide white tips; sternum whitish yellow. Abdomen elongate, narrow, yellowish medially, brownish laterally, with five pairs of black patches, between them small white spots (Fig. 182); brown hairs sparsely cover dorsum of abdomen; venter whitish with silver patches of translucent guanine crystals; spinnerets light. First pair of legs larger than others, tibia with three retrolateral and four prolateral spines ventrally, metatarsus with two pairs of spines ventrally; legs generally light brown; ventral and prolateral surface of first femur decorated with black transverse stripes (Fig. 182); coxae, trochanters and basal part of femora whitish; femora II–IV tinged with grey. Pedipalps dark yellow, white scales on palpal femur; tibia short, its apophysis armed with two very small teeth (Fig. 186); at base of the apophysis few short sharp bristles (Fig. 185); cymbium with row of thick sharp setae on retrolateral edge (Fig. 184); tegulum rounded with small protuberance near base of embolus; embolus long, encircling tegulum three times (Fig. 183).

Female.

General appearance in Figs 233, 251; similar to male but lighter coloured. Abdomen with wide yellow streak medially, with two brown lines lateral of the streak, cut in posterior part by small white patches (Fig. 187); sides orange brownish. Legs yellow,

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first femur with transverse bands formed by dark spots (Fig. 188). Epigyne typical for *Thyene*, very weakly sclerotised, rounded with shallow depression (Fig. 189). Seminal ducts form a few loops, receptacles multi-chambered, complex (Figs 190, 191).



Figs 182–191. *Thyene ogdeni*: (182) habitus of male; (183) palpal organ, ventral view; (184) palpal organ, ventrolateral view; (185) tibial apophysis, lateral view; (186) tibial apophysis, dorsal view; (187) abdominal pattern of female; (188) first leg of female, prolateral surface; (189) epigyne; (190) internal structure of epigyne; (191) diagrammatic course of seminal duct.

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Material examined: 1♂ Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 6.vii.2006 (NMSA 21884); 1♀ Near pump, Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, beats, short shrubs, 27.vi.2006 (NCA 2006/1216); 1♀ same data (NCA 2006/1219); 1♀ Western shore of Shokwe Pan, 26°52.013'S:32°12.982'E, *F. sycomorus* forest, beats, short shrubs, 4.xii.2000 (NMSA 21885).

Distribution: Species known only from South Africa.

Habitat and biology: This species was collected from the foliage of shrubs and short trees in full shade of RF and FF along the Pongola River and Shokwe Pan, respectively. A single specimen was collected from fever tree bark.

Thyene pulchra Peckham & Peckham, 1903

Figs 192–195, 234

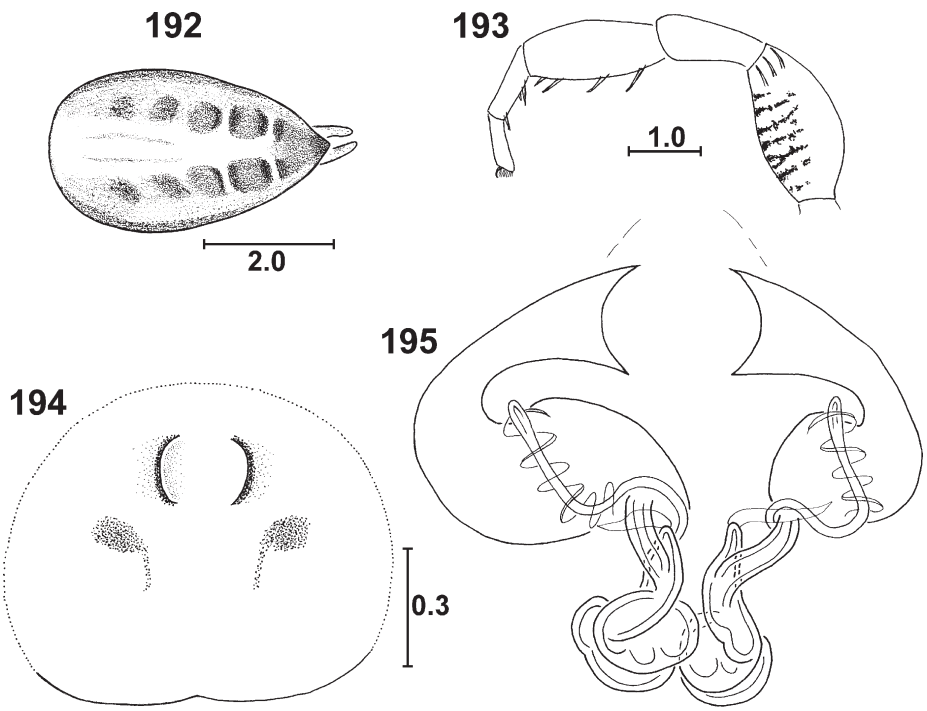
Thyene pulchra: Peckham & Peckham 1903: 226, pl. 25, fig. 3.

Redescription:

Female.

Measurements: Carapace length 3.2, width 2.8, height 1.2. Abdomen length 3.9, width 2.4. Eye field length 1.4, anterior width 1.8, posterior width 1.9.

General appearance in Fig. 234. Carapace rounded, reddish brown, eyes with black rings; anterior eyes encircled by row of white hairs; few white hairs on clypeus, three



Figs 192–195. *Thyene pulchra*: (192) abdominal pattern of female; (193) first leg of female, prolateral surface; (194) epigyne; (195) internal structure of epigyne.

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whitish transverse stripes separated by reddish ones on 'cheeks', below anterior lateral eyes; long brown bristles form 'horns' near posterior median eyes, short brown hairs densely cover ocular area; on thoracic part reddish and dark brown hairs create bands radiating from fovea to margins. Mouthparts and sternum dark brown. Abdomen brownish with four pairs of dark spots, two last pairs separated by white transverse bars edged with black (Fig. 192); medially along abdomen a longitudinal yellowish streak, its posterior half with golden lustre; sides and venter of abdomen brownish; dorsum of abdomen clothed in brown hairs, on anterior half reddish ones, among them sparse longer bristles; spinnerets greyish. Legs dark yellow, femora I–III with several black transverse streaks on ventro-prolateral surfaces (Fig. 193); tibia of first leg slightly swollen, with three retrolateral and four prolateral spines ventrally, metatarsus with two pairs of ventral spines. Epigyne very weakly sclerotised, with small shallow depression anteriorly (Fig. 194); seminal ducts membranous, their terminal parts poorly visible; accessory glands long, with winding helical structure (Fig. 195).

Male. Unknown.

Material examined: 1♀ Northern shore of Nyamiti Pan, 26°53.192'S:32°18.272'E, beats, short shrubs, 7.vii.2002 (NCA 2008/2759).

Distribution: Species known only from South Africa.

Habitat and biology: Only a single specimen was collected from short shrubs in semi-aquatic vegetation in AX.

Thyene semiargentea (Simon, 1884)

Figs 235, 236

Mithion semiargenteus: Simon 1884: 5, pl. 1, fig. 2.
Thyene semiargentea: Prószyński 1987: 111; Wesołowska & Russell-Smith 2000: 108, figs 300–306.

See Wesołowska & Russell-Smith (2000) for description of both sexes. General appearance of both sexes in Figs 235, 236.

Material examined: 1♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 8.xii.2000 (NMBA 11602); 1♀ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* savannah, leaf litter, 8.vii.2004 (NMSA 21886); 1♂ Southern boundary fence, 26°55.578'S:32°19.081'E, deep sand forest, under tree bark, 11.i.2007 (NCA 2007/3036); 1♂ 1♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NCA 2008/2760).

Distribution: Recorded from Sudan, Uganda and Tanzania; recorded for the first time from South Africa.

Habitat and biology: This species was collected from grasses in AS, and occasionally from foliage of short shrubs in BW, SF and ST.

Remarks: The individuals differ slightly from the type specimens of *Th. semiargentea* illustrated by Prószyński (1987), and are conspecific with Tanzanian specimens (Wesołowska & Russell-Smith 2000, figs 300–306). They are very similar to the type of *Modunda aperta* Peckham & Peckham, 1903 (one male and one subadult male syntypes from Zimbabwe, Mashonaland, Gazaland, deposited in Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts), but the male has a shorter palpal tibial apophysis, differently located tegular process and different shape of tibia of first leg (slightly swollen in *M. aperta*). Members of *Thyene* are very difficult to recognize, and the genus needs to be revised.

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Genus *Thyenula* Simon, 1902
Thyenula fidelis sp. n.

Figs 196–199

Etymology: From Latin *fidelis* (reliable).

Diagnosis: The male of the species is difficult to distinguish from other congeners. The palpal organ resembles that of *Thyenula ogdeni* (Peckham & Peckham, 1903) in ventral view, but the diameter of the embolic spiral is slightly narrower than the breadth of the cymbium (equal in *Th. ogdeni* – compare Fig. 196 herein with fig. 4 in Wesołowska 1993*b*) and the tibial apophysis has a distinctly hooked tip in *Th. fidelis* not seen in *Th. ogdeni*. The female may be separated by the shape and course of the seminal ducts, that are initially directed anteriorly and looping in *Th. fidelis* while directed posteriorly in *Th. ogdeni* (compare Fig. 199 herein with fig. 10 in Wesołowska 1993*b*).

Description:
Measurements (male/female): Carapace length 3.1/3.0–3.1, width 2.3/2.4–2.5, height 1.2/1.3. Abdomen length 2.7/3.3–3.6, width 2.2/2.5–3.2. Eye field length 1.4/1.3–1.4, anterior and posterior width 2.0/1.9–2.1.

Male.

Carapace brown, slightly lighter in foveal area, almost black along margins, with whitish line along lateral edges; eye field black, with some brown bristles near eyes. Chelicerae brown; labium and endites brown with whitish tips; sternum brown. Abdomen dark grey laterally (mosaic of small dark patches), with yellow median stripe; brown hairs on abdomen; sides yellowish with dark marks; venter yellowish with some small dark patches; spinnerets yellowish grey. Legs brown, spines and leg hairs brown. Pedipalps light brown, tibial apophysis straight with hooked tip, tegulum with very short posterior lobe, spermophore meandering, embolus coiled on tip of haematodocha (Figs 196, 197).

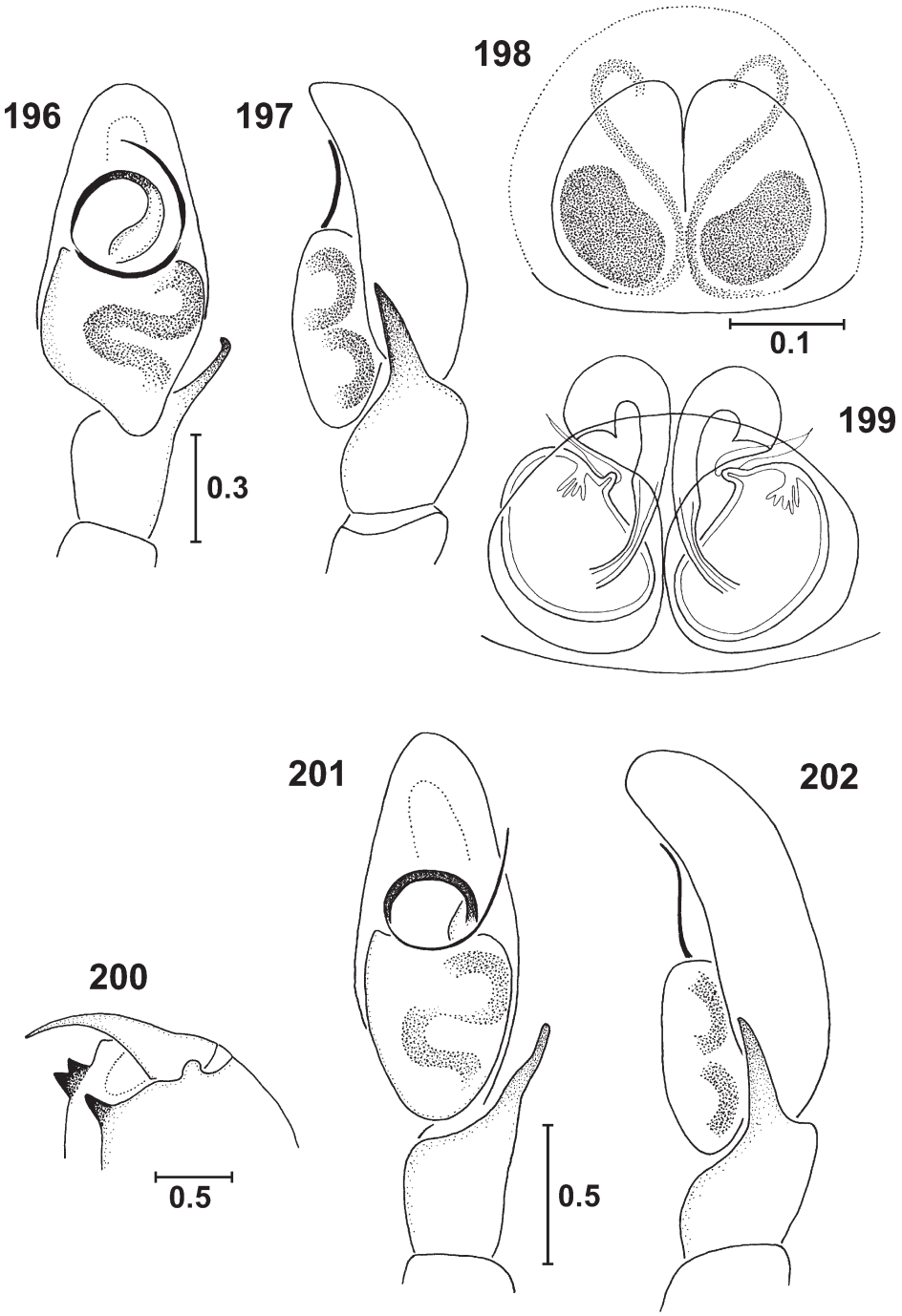
Female.

Eye field brown to black, thoracic part yellow to orange brownish, with two darker striae from fovea; clypeus with white hairs, two parallel bands formed with light hairs on 'cheeks', below anterior lateral eyes. Mouthparts and sternum yellowish orange. Abdomen brownish grey (mosaic of small dark patches) with light longitudinal median stripe (in holotype only traces of the stripe); spinnerets pale. Legs yellow to light brown; spination of leg I: femur 1-1-1 dorsally, 0-0-2 prolaterally; patella 1 prolaterally; tibia 1-1 prolaterally, 2-2-2 ventrally; metatarsus 2-2 ventrally. Short brown hairs cover whole body. Epigyne as in Fig. 198; seminal ducts membranous, weakly sclerotised initially, narrowing distally; receptacles bean-shaped (Fig. 199).

Holotype: ♀ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, sweeps, grass, 6.xii.2000 (NCA 2009/674).

Paratypes: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, leaf litter, 29.xi.2000 (NMBA 11601); 1♂ Fontana Camp, 26°51.911'S:32°09.586'E, bark of fever tree, 3.vii.2003 (some legs broken off) (MRAC 224639); 1♀ Near Fontana Camp, 26°52.072'S:32°09.545'E, *A. tortilis* savannah, leaf litter, 23.xi.2000 (NMSA 21833); 2♀ Near pump, Pongola R. floodplain, 26°54.323'S:32°19.435'E, riverine forest, leaf litter, 27.vi.2006, C. Haddad & F. Jordaan (NCA 2006/1206); 1♀ Pongola R. floodplain, 26°53.384'S: 32°19.097'E, riverine forest leaf litter, 16.i.2006 (NCA 2006/707); 2♂ Start of game count transect 8, 26°50.183'S:32°13.135'E, *F. sycomorus* bark, 11.vii.2004 (NCA 2008/1881).

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Figs 196–202. *Thyenula fidelis* sp. n., paratypes (196–199) and *Thyenula magna* sp. n., holotype (200–202): (196, 201) palpal organs, ventral view; (197, 202) palpal organs, lateral view; (198) epigyne; (199) internal structure of epigyne; (200) cheliceral dentition.

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Habitat and biology: This species was common in the leaf litter of RF along the Pongola River, particularly litter of *Ficus sycomorus* and *Breonadia salicina*. Specimens were occasionally captured from leaf litter in AS, BW and ST.

Thyenula magna sp. n.

Figs 200–202, 237

Etymology: From Latin *magna* (big); the name refers to the size of the species, largest in the genus.

Diagnosis: A distinctive species, larger than congeners. Male with large chelicerae and a narrow palpal cymbium. Female unknown.

Description:

Male.

Measurements: Carapace length 4.1, width 3.5, height 1.3. Abdomen length 4.2, width 3.0. Eye field length 2.0, anterior and posterior width 2.6.

General appearance in Fig. 237; medium-sized spiders, but clearly larger than other species in the genus. Carapace oval, dark brown, slightly lighter in vicinity of fovea, almost black along lateral margins; eye field black; two narrow parallel light lines below anterior lateral eyes, on 'cheeks'; clypeus low, dark. Chelicera dark brown, large, with bicuspid tooth on promargin and single tooth on retromarginal edge (Fig. 200); some very small protuberances on dorsal surface of chelicerae in vicinity of tooth; labium and endites brown with whitish tips; sternum dark. Abdomen dark, almost black, with broad longitudinal serrate yellowish streak medially; venter dark; short brown hairs scattered on carapace and abdomen; spinnerets yellowish grey. Legs brown, first pair stouter than rest, ventral surface of patella and tibia of first leg with dense long dark hairs and three pairs of stout spines on tibia and two pairs on metatarsus ventrally. Pedipalps relatively small, dark; palpal femur long; cymbium very narrow, tegulum short, without posterior lobe, embolus with rather close basal circle (Figs 201, 202).

Holotype: ♂ Between Main Camp and Vulture Restaurant, 26°54.276'S:32°18.664'E, broadleaf woodland, leaf litter, 2.xii.2000 (NCA 2009/675).

Habitat and biology: This species is known only from the holotype specimen, collected from leaf litter in BW.

Genus *Tusitala* Peckham & Peckham, 1902

Tusitala barbata Peckham & Peckham, 1902

Figs 203, 204

Tusitala barbata: Peckham & Peckham 1902: 330; 1903: 243, pl. 28, fig. 2; Prószyński 1984: 149; Wesołowska & Russell-Smith 2000: 110, figs 307–309; Wesołowska & Cumming 2008: 222, figs 192–195.

Tusitala hirsuta: Peckham & Peckham 1902: 330; 1903: 244, pl. 28, fig. 3; Próchniewicz 1989: 225, figs 59–66.

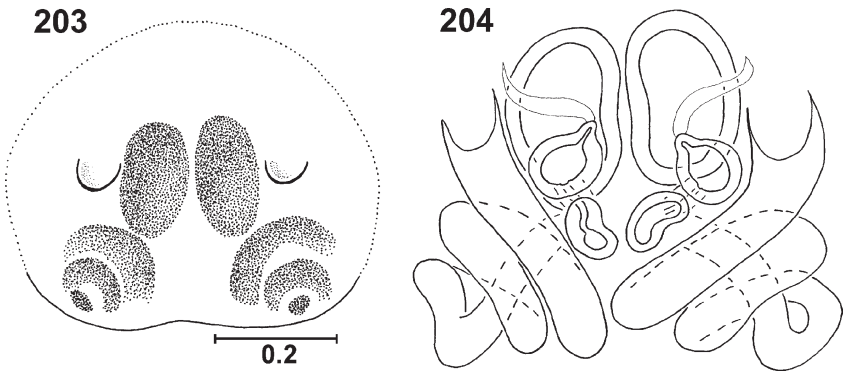
Monclova brauni: Peckham & Peckham 1902: 331.

Tusitala sansibarica: Strand 1908: 219.

Tusitala emertoni: Lessert 1925*a*: 514, figs 98–100.

See Wesołowska & Cumming (2008) for description of both sexes.

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Figs 203, 204. *Tusitala barbata*: (203) epigyne; (204) internal structure of epigyne.

Redescription:

Female.

Measurements: Carapace length 2.3–3.0, width 1.7–2.3, height 1.1–1.2. Abdomen length 2.4–4.1, width 1.6–3.2. Eye field length 1.4–1.5, anterior width 1.9–2.0, posterior width 2.1–2.2.

Carapace oval, high, brown, black in vicinity of eyes; dense white hairs on carapace, long brown bristles near eyes; clypeus clothed in white hairs. Chelicerae fissidentate; endites and labium brown with whitish tips; sternum brown. Abdomen ovoid, brown, with poorly defined lighter area medially; venter yellowish with grey streak; brown hairs cover abdomen; spinnerets yellow. Legs yellow, bearing brown spines and hairs. Epigyne rounded, copulatory openings placed anteriorly (Fig. 203); seminal ducts spirally coiled, receptacles two-chambered (Fig. 204).

Material examined: 1♀ Between Crocodile Farm and Main Camp, 26°54.431'S:32°19.045'E, broadleaf woodland, beats, short shrubs, 4.vii.2000 (NMSA 21887); 2♀ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 2.xii.2000 (NMBA 11605); 1♀ 1 imm. Crocodile Farm, Pongola R. floodplain, 26°54.426'S:32°19.185'E, *A. xanthophloea* bark, 8.vii.2004 (NCA 2008/616); 3♀ 3 imm. same data but 20.vi.2005 (NCA 2008/626); 1♀ Eastern shore of Shokwe Pan, 26°52.516'S:32°12.407'E, *A. xanthophloea* bark, 16.vi.2005 (NCA 2008/1857); 1♀ Fontana Camp, 26°51.911'S:32°09.586'E, under *A. xanthophloea* bark, 3.vii.2003 (NMSA 21888); 1♀ Near Fontana Camp, Quarry, 26°52.321'S:32°09.616'E, *A. tortilis* savannah, leaf litter, 27.vi.2003 (NMSA 21889); 1♂ 1♀ Main Camp, 26°54.581'S:32°18.798'E, broadleaf woodland, leaf litter, 20.vi.2005 (NCA 2005/983); 1♀ Near Nyamiti Bird Hide, Pongola R. floodplain, Ezikebheni, 26°53.362'S:32°18.892'E, leaf litter, 9.ii.2005 (NMSA 21890); 1♂ Southern shore of Hotwe Pan, 26°52.730'S:32°18.452'E, *A. xanthophloea* bark, 10.vii.2004 (NCA 2008/637); 2♀ same data but 7.ii.2005 (NCA 2008/641); 1♂ same data but 22.vi.2005 (NCA 2008/648); 1♀ South-western shore of Banzi Pan, 26°53.118'S:32°16.927'E, *A. xanthophloea* bark, 11.vii.2004 (NCA 2008/657); 1♀ same data but 5.ii.2005 (NCA 2008/661); 1♂ 1♀ same data but 23.i.2006 (NCA 2008/1846 & 2008/1849); 1♀ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, beats, foliage, 2.xii.2000 (NMSA 21891).

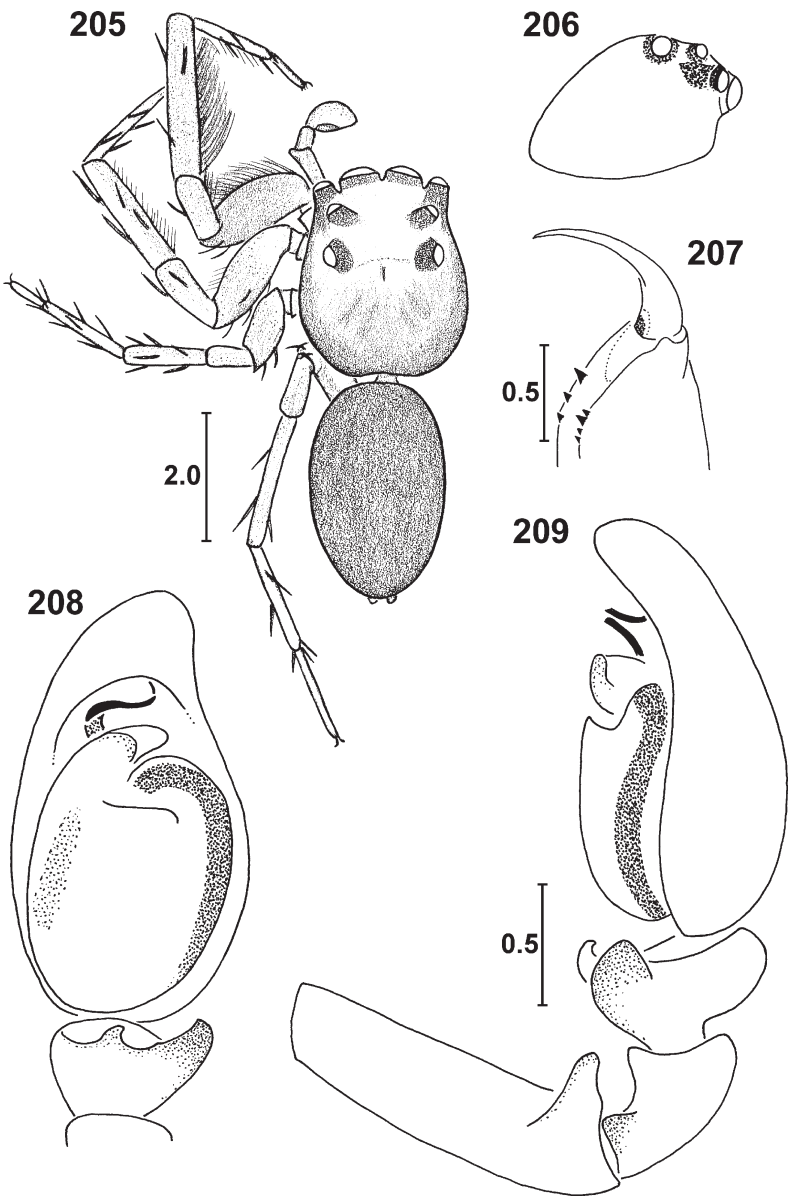
Distribution: Widely distributed in eastern and southern Africa.

Habitat and biology: This species was quite frequently collected from the foliage of herbaceous and woody plants in savannah habitats (AS, BW and ST). Often collected from fever tree bark, although in low numbers.

Tusitala lyrata (Simon, 1903)

Blaisea lyrata: Simon 1903*a*: 679, fig. 804; 1903*b*: 723.
Blaisea bicalcarata: Simon 1909: 429; Berland & Millot 1941: 358, fig. 58.
Tusitala lyrata: Wesołowska & Tomasiewicz 2003: 719, figs 1–19.

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Figs 205–209. *Veissella durbani*: (205) habitus; (206) carapace, lateral view; (207) cheliceral dentition; (208) palpal organ, ventral view; (209) palpal organ, lateral view.

See Wesołowska & Tomasiewicz (2003) for description of both sexes.

Material examined: 1♂ Crocodile Farm, 26°54.426'S:32°19.185'E, broadleaf woodland, beats, short bushes, 2.xii.2000 (NMBA 12116); 1♂ 26°51.908'S:32°14.458'E, subtropical bush, Mahemane thicket, beats, foliage, 2.xii.2000 (NCA 2008/2761).

Distribution: Species widely distributed in central Africa; recorded for the first time in South Africa.

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Habitat and biology: This species was collected from foliage of short shrubs in BW and ST.

Genus *Veissella* Wanless, 1984

Veissella durbani (Peckham & Peckham, 1903)

Figs 205–209

Portia durbani: Peckham & Peckham 1903: 183, pl. 19, fig. 2; Wanless 1978*c*: 109, figs 13a–g.
Veissella durbani: Wanless 1984*b*: 190, figs 27a–g.

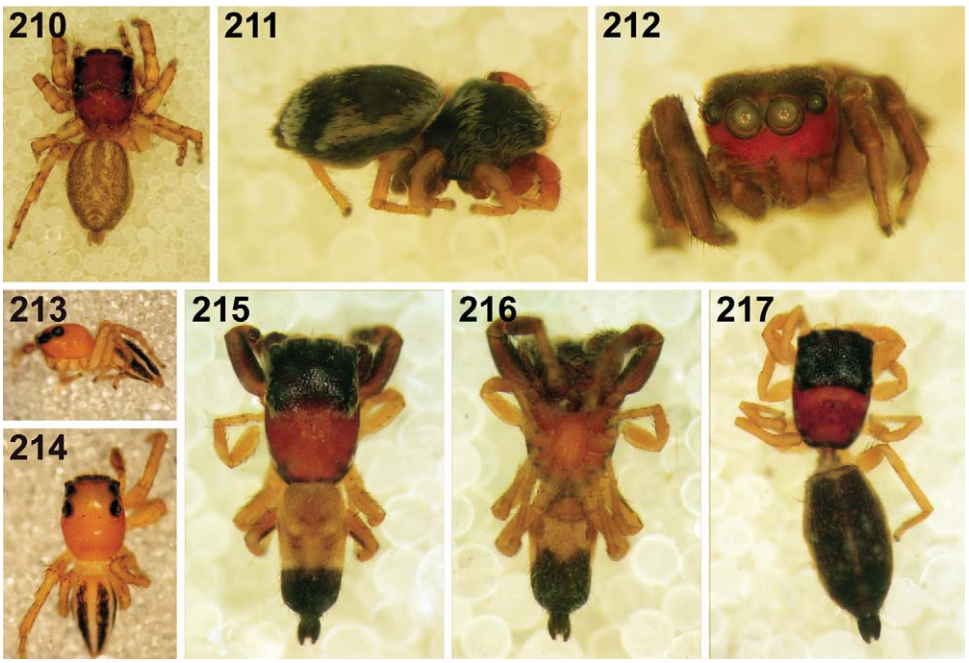
See Wanless (1978*c*) for description of both sexes.

Redescription:

Male.

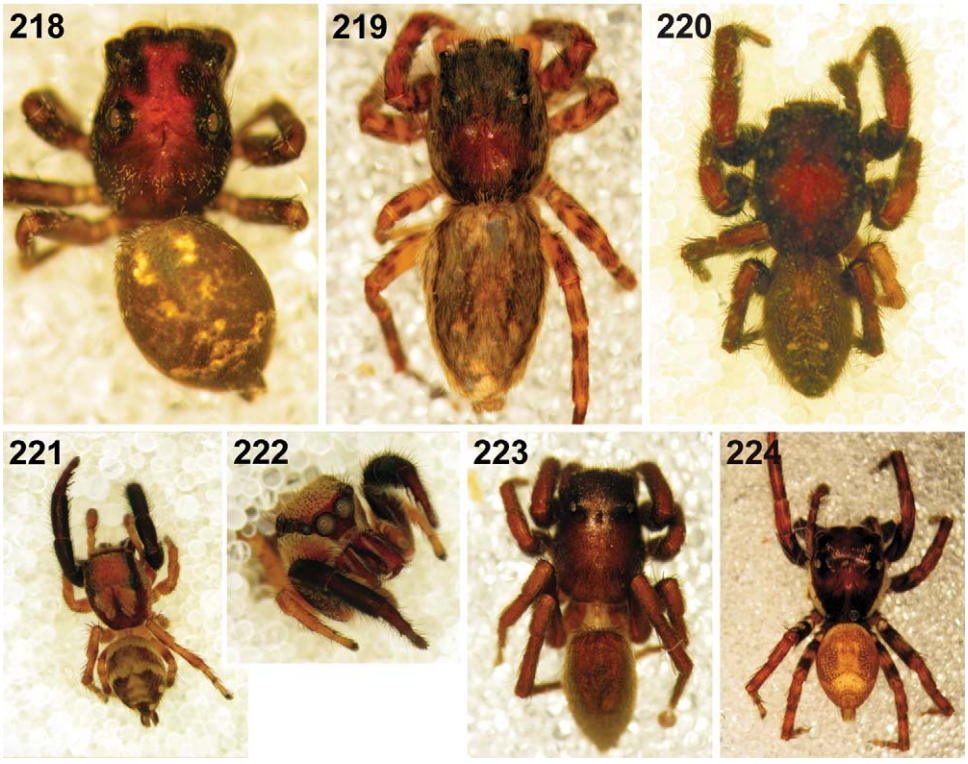
Measurements: Carapace length 3.0, width 2.5, height 1.8. Abdomen length 3.5, width 1.9. Eye field length 1.3, anterior width 1.8, posterior width 1.5.

Medium-sized spider; general appearance as in Fig. 205. Carapace high with gently sloping thoracic part (Fig. 206); posterior median eyes relatively large, set on low tubercles; anterior eyes fringed with white hairs; carapace brown, eyes surrounded by black rings; clypeus high, brownish, clothed in white hairs. Chelicerae with three teeth on promargin and four on retromargin (Fig. 207); labium and sternum brown, endites with slightly paler inner margins. Abdomen ovoid, brownish grey, sparsely covered with brown setae; venter grey, with two light longitudinal lines; spinnerets brown. Legs long, slender,



Figs 210–217. Digital microscope photographs of the habitus of jumping spiders from Ndumo Game Reserve: (210) *Aenigma incognita* sp. n., female; (211) *Bianor eximius* sp. n., female; (212) *Evarcha ignea*, face of male; (213, 214) *Evarcha striolata* sp. n., male, lateral view (213), dorsal view (214); (215–217) *Icius nigricaudus* sp. n., male, dorsal view (215), male, ventral view (216), female, dorsal view (217).

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Figs 218–224. Digital microscope photographs of the habitus of jumping spiders from Ndumo Game Reserve: (218) *Massagris natalensis* sp. n., male (photo T. Szűts); (219) *Menemerus zimbabwensis*, female; (220) *Nigorella plebeja*, male; (221, 222) *Pellenes bulawayoensis*, male, dorsal view (221), face of male (222); (223) *Phlegra arborea* sp. n., male; (224) *Pignus pongola* sp. n., male.

brown, with darker femora, bearing dark hairs and numerous spines; first femur and tibia with very long, dense hairs ventrally. Pedipalp with pronounced tubercle on venter of femur distally and smaller one on patella proximally (Fig. 209); tibial apophyses short, ventral one small, retrolateral one wide and blunt; tegulum ovoid, with small lobe on distal haematodocha, embolus sinuous (Fig. 208).

Material examined: 1♂ 26°52.464'S:32°16.050'E, subtropical bush, *A. nigrescens* woodland, beats, foliage, 8.xii.2000 (NCA 2008/2762).

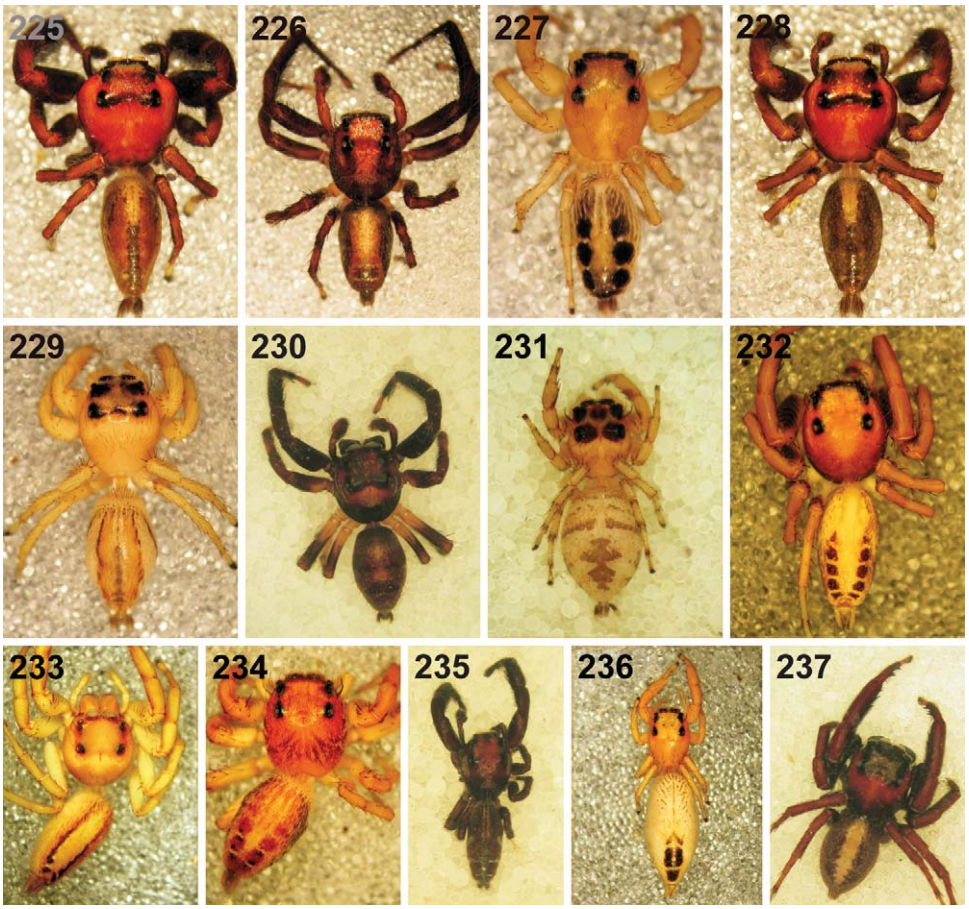
Distribution: Species known only from South Africa.

Habitat and biology: This species is presumed to be arachnophagous, belonging to the Spartaeinae, and was collected from the foliage of dense thickets.

DISCUSSION

In total, 72 salticid species of 38 genera were found in the Ndumo Game Reserve. This is much more than in the Makalali Game Reserve, northern South Africa, where only 32 species were recorded, from a savannah area of similar size (100 km^2) (Whitmore *et al*. 2002). This high species diversity of jumping spiders (and other arachnids – see Haddad *et al*. 2006) could be a result of the greater habitat heterogeneity of NGR (Haddad

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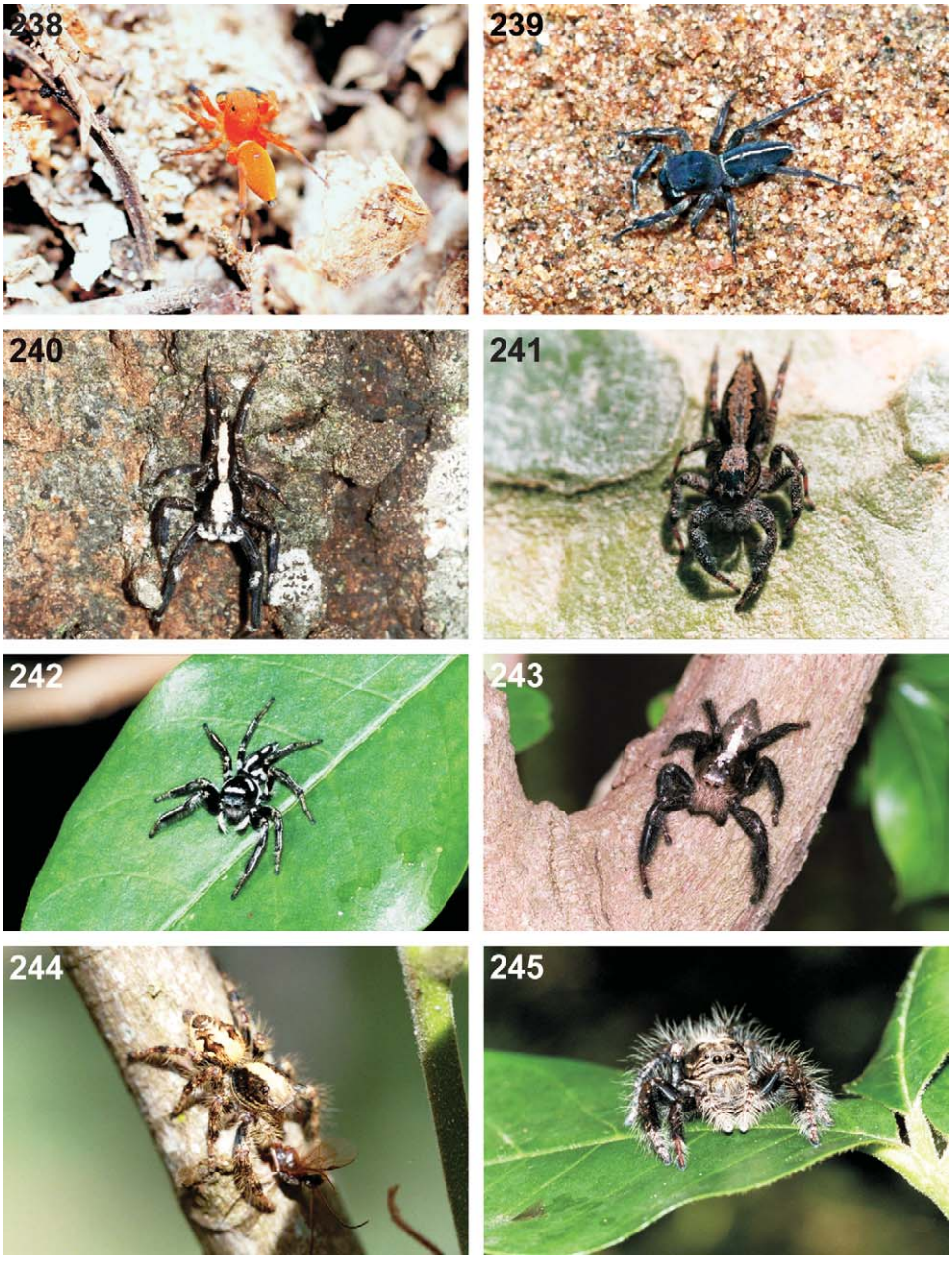


Figs 225–237. Digital microscope photographs of the habitus of jumping spiders from Ndumo Game Reserve: (225) *Thyene bucculenta*, male; (226, 227) *Thyene coccineovittata*, male (226), female (227); (228, 229) *Thyene inflata*, male (228), female (229); (230, 231) *Thyene natali*, male (230), female (231); (232, 233) *Thyene ogdeni*, male (232), female (233); (234) *Thyene pulchra*, female; (235, 236) *Thyene semiargentea*, male (235), female (235); (237) *Thyenula magna* sp. n., male.

et al. 2006). The relatively large number of newly described species (14 plus an additional one determined only to the generic level) and those newly recorded for South Africa (20 spp.) demonstrate again our incomplete knowledge of the spider fauna of this part of Africa (see also Wesołowska 2006 and Wesołowska & Cumming 2008).

Within the context of broader Maputaland ecology, NGR is a unique protected area. Many of the habitats found here, particularly Mahemane thicket and *A. tortilis* savannah, are more characteristic of inland savannahs. Similarly, the wetland habitats (*A. xanthophloea* and *F. sycomorus* forests) are also not as common in other Maputaland reserves (e.g. Phinda Resource Reserve, Mkuzi Game Reserve) or are absent (Seleza Game Reserve, Tembe Elephant Park). In contrast, more typical Maputaland habitats (sand forest and mixed woodland, see Matthews *et al.* 2001) are very restricted in their extent within NGR. Consequently, these largely unique habitats and their associated vegetation

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Figs 238–245. Jumping spiders from Ndumo Game Reserve in their natural habitats: (238) *Cyrba boveyi*, male; (239) *Cyrba lineata*, male; (240, 241) *Holcolaetis zuluensis*, male (240), female (241); (242) *Hyllus argyrotoxus*, male; (243–245) *Hyllus treleaveni*, male (243), female (244), face of female (245).

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Figs 246–251. Spiders from Ndumo Game Reserve in their natural habitats: (246) *Kima variabilis*, male; (247) *Mexcala elegans*, female; (248) *Portia schultzi*, female; (249) *Stenaelurillus natalensis*, male; (250) *Thyene coccineovittata*, female; (251) *Thyene ogdeni*, female.

structures are likely to accommodate at least several species uniquely adapted to these environments. As such, preservation of such habitats is important for conservation of the richness of the Maputaland fauna as a whole.

The composition of the salticid assemblage is generally similar to that found in other African areas. Four of the more speciose African genera are well represented, including *Evarcha* (8 spp.), *Thyene* (7 spp.), *Heliophanus* (6 spp.) and *Myrmarachne* (5 spp.). Worthy of note is the presence of five species of the Spartaeinae (genera *Cyrba*, *Portia* and *Veissella*) and three lyssomanine species (genera *Asemonea* and *Goleba*). Members of the latter subfamily are rarely recorded, as they are difficult to find (small, greenish, living among leaves). Only three species of the Aelurillinae (two *Phlegra* spp. and

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Stenaelurillus) are found in the study area; this is surprising, as the subfamily is usually well represented in other parts of Africa (e.g. Wesołowska & Russell-Smith 2000; Wesołowska & Tomasiewicz 2008).

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