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## Taxonomic notes on the genus *Hyllus* C. L. KOCH, 1846 in Africa (Araneae: Salticidae)

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ABSTRACT. Redescriptions of *Hyllus africanus*, *H. brevitarsis*, *H. congoensis*, *H. leucomelas* and *H. plexippoides* are presented. Two specific names are synonymised: *H. guineensis* with *H. africanus* and *H. normanae* with *H. treleaveni*. Lectotypes for *H. africanus* and *H. congoensis* are designated. A fossil genus *Parevophrys* is considered a junior synonym of *Hyllus*, new combination is proposed (*Hyllus succini* ex *Parevophrys succini*). New faunistic records are provided.

Key words: arachnology, taxonomy, Salticidae, *Hyllus*, Africa, redescriptions, synonyms, new faunistic records.

### INTRODUCTION

The genus *Hyllus* C. L. KOCH, 1846 contains more than 50 species in Africa and several ones in other continents (PLATNICK 2008). The majority of African species were described in XIXth and at the beginning of XXth century. Their descriptions are often superficial, devoid of taxonomic drawings, and - as their types have been lost - they cannot be reliably identified any more.

The genus requires revision; at the moment it seems to be composed of groups of unrelated species. Distinguishing members of *Hyllus* and *Evarcha* SIMON, 1902 is especially problematic. Many species in both genera have “horns” formed by tufts of long bristles located at posterior median eyes. *Hyllus* includes medium-sized to large spiders with rounded carapace, clearly wider than eye field, whereas members of *Evarcha* are usually smaller and their carapace is not as wide. Male pedipalp in *Hyllus* has generally long embolus, often with accompanying *pars pendula*, whereas the majority of *Evarcha* species have short embolus, sometimes with compound terminal

apophysis. Epigyne in *Evarcha* has two pockets near epigastric furrow, which are not present in *Hyllus*, additionally the epigyne in the latter genus is more sclerotized. Both genera clearly demand further studies and complete taxonomic revisions, before a clear picture of their relationships can emerge.

This paper provides descriptions of a few African species of *Hyllus*.

The materials that form the foundation of this paper are deposited in the following collections:

BMNH - British Museum (Natural History), London  
 MHN - Muséum d'Histoire Naturelle, Geneve  
 MCZ - Museum of Comparative Zoology, Harvard University, Cambridge, Mass.  
 MRAC - Musée Royal de l'Afrique Centrale, Tervuren  
 NHM - Natural History Museum, Wrocław University  
 MNHN – Muséum Nationale d'Histoire Naturelle, Paris  
 NMZ - National Museum (Natural History) of Zimbabwe, Bulawayo  
 PPRI - Plant Protection Research Institute, Pretoria  
 SMN - State Museum of Namibia, Windhoek

Terminology is standard for Araneae. All measurements are given in millimetres.

#### TAXONOMY

### **Genus *Hyllus* C. L. KOCH, 1846**

Genus *Parevophrys* PETRUNKEVITCH, 1942, **syn. n.**

#### SYNONYMISATION OF THE GENERIC NAMES

As *Parevophrys succinea*, type species of the monotypic fossil genus *Parevophrys* PETRUNKEVITCH, 1942 was transferred to the recent genus *Hyllus* C. L. KOCH, 1846, this first generic name is a junior synonym of *Hyllus*.

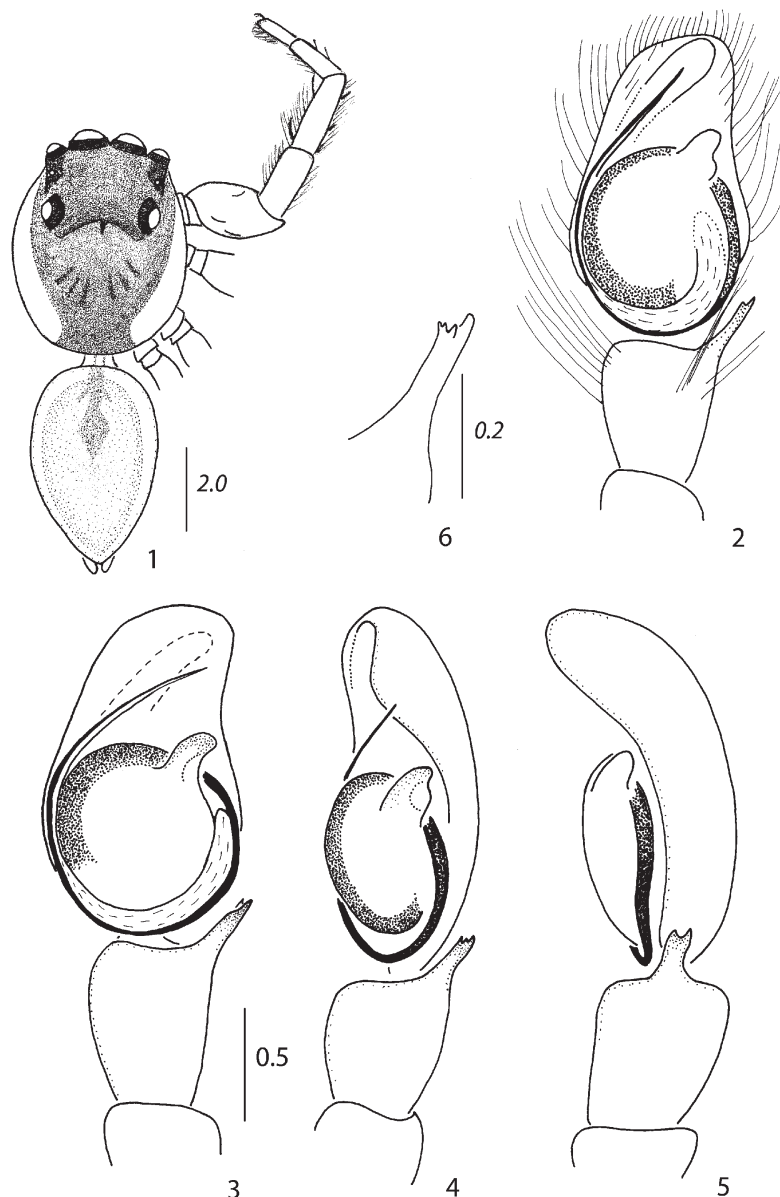
### ***Hyllus succini* (PETRUNKEVITCH, 1942), comb. n.**

*Parevophrys succini* PETRUNKEVITCH 1942: 404.

The species was described by PETRUNKEVITCH (1942) on the base of adult male from the Baltic amber. The holotype is kept in Sedgwick Museum (Cambridge, England). The specimen is well preserved and the author gives its detailed description and figures. Analysis of this documentation allows one for concluding that the species is closely related to *Hyllus congolensis* and *H. treleaveni*, therefore it should be included into the genus *Hyllus*.

***Hyllus africanus* LESSERT, 1927**

(Figs 1-6)

*Hyllus africanus* LESSERT 1927: 449.*Hyllus guineensis* BERLAND & MILLOT 1941: 335, **syn. n.**

1-6. *Hyllus africanus*, male, paralectotypes. 1 – general appearance, 2, 3 – palpal organ, ventral views, 4 – palpal organ, ventrolateral view, 5 – palpal organ, lateral view, 6 – tibial apophysis

## TYPE MATERIAL

Male (lectotype of *H. africanus* – designated here) CONGO, Poko (MHN, paralectotypes: 5 males).

## OTHER MATERIAL

CONGO: Sankuru, Komi, 3 males, leg. J. GHESQUIERE (MRAC, 11968-72); Kivu, Butembo, 1740 m, 1 male, leg. R. COLIS (MRAC, 126452); same locality, 1 male, IV.1971, leg. R. LEJEUNE (MRAC, 140770); Kivu, v.alee de la Ruindii, 1 male, 3.VII.1972, leg. R. LEJEUNE (MRAC, 144482); Tshuapa, Boende, 1 male, X.1969, leg. J. HAUWAERT (MRAC, 136148); Tshuapa, Bananya, 1 male, VII.1970, leg. R. HULSTAERT (MRAC, 140414); Tshuapa, Etata, 2 males, V-VI.1971 (MRAC, 140410); Inkusu, 1 male, leg. CLOSE (MRAC, 59275); Komi, 1 male, IV.1930, leg. J. GHESQUIERE, det. R. LESSERT (as *H. guineensis*) (MRAC, 12152); TANZANIA [Tanganika]: Marambangombe, Lake Rukwa, 3700 m a.l.s., 1 male, IV.1938, leg. E. V. FUCHS, det. D. CLARK (as *H. marleyi*) (BMNH, nr 1950.3.16.27); ZIMBABWE: Mashonaland, 1 male, leg. G. DARLING, det. D. CLARK (as *H. marleyi*) (BMNH).

## DESIGNATION OF LECTOTYPE

One male is designated as lectotype for stabilization of nomenclature. Type specimens differ from each other in size and intensity of coloration.

## DESCRIPTION

Measurements: Carapace length 4.6-5.1, width 2.7-3.3 height 1.8. Abdomen length 4.5-5.6, width 2.5-3.1. Eye field length 1.5-2.0, anterior width 2.2-2.6, posterior width 2.3-2.7.

Male. General appearance in Fig. 1. Cephalothorax rounded, dark brown, its sides with broad light belts, composed of white hairs. Tufts of long brown bristles form „horns” near eyes of second row. Clypeus low, some white hairs on it. On “cheeks”, below anterior lateral eyes, three white lines. Sternum and mouth parts dark. Abdomen narrower than carapace, light brown, covered with delicate scutum. Venter yellowish, tinged with grey, with longitudinal wide dark stripe. Spinnerets dark. Legs dark brown. First pair longer and thicker than remaining legs. All legs covered with dark brown long hairs, which are particularly dense on the ventral surface of patella and tibia I. Dark scopulae on tarsi I and II. Claws of all tarsi equal; prolateral with a few teeth, retrolateral with numerous ones. Spines on legs long, dark. Pedipalps brown, some white scales on cymbium. Bulb rounded, with process at base of embolus, embolus long, encircled bulb, with *pars pendula* (Figs 2-4). Tibial apophysis with three small teeth on tip (Fig. 6).

## DISTRIBUTION

Species known from Congo and Guinea, recorded from Tanzania and Zimbabwe for the first time.

## REMARKS

Type specimen of *H. guineensis* has not been examined, but the original description and figures in BERLAND & MILLOT (1941) are detailed enough to allow one for synonymisation of this specific name with *H. africanus*.

***Hyllus brevitarsis* SIMON, 1902**

(Figs 7-26)

*Hyllus brevitarsis* SIMON 1902: 391; CLARK 1974: 17.

*Hyllus natali* PECKHAM & PECKHAM 1903: 210; STRAND 1909: 75; LESSERT 1925: 495; CAPORACCO 1940: 863.

*Hyllus brevitarsis peckhamorum* BERLAND & MILLOT 1941: 337.

*Hyllus rubrotinctus* STRAND 1906: 665.

## TYPE MATERIAL

3 females, syntypes of *H. natali*, SOUTH AFRICA, Durban (MCZ, 22248).

## OTHER MATERIAL

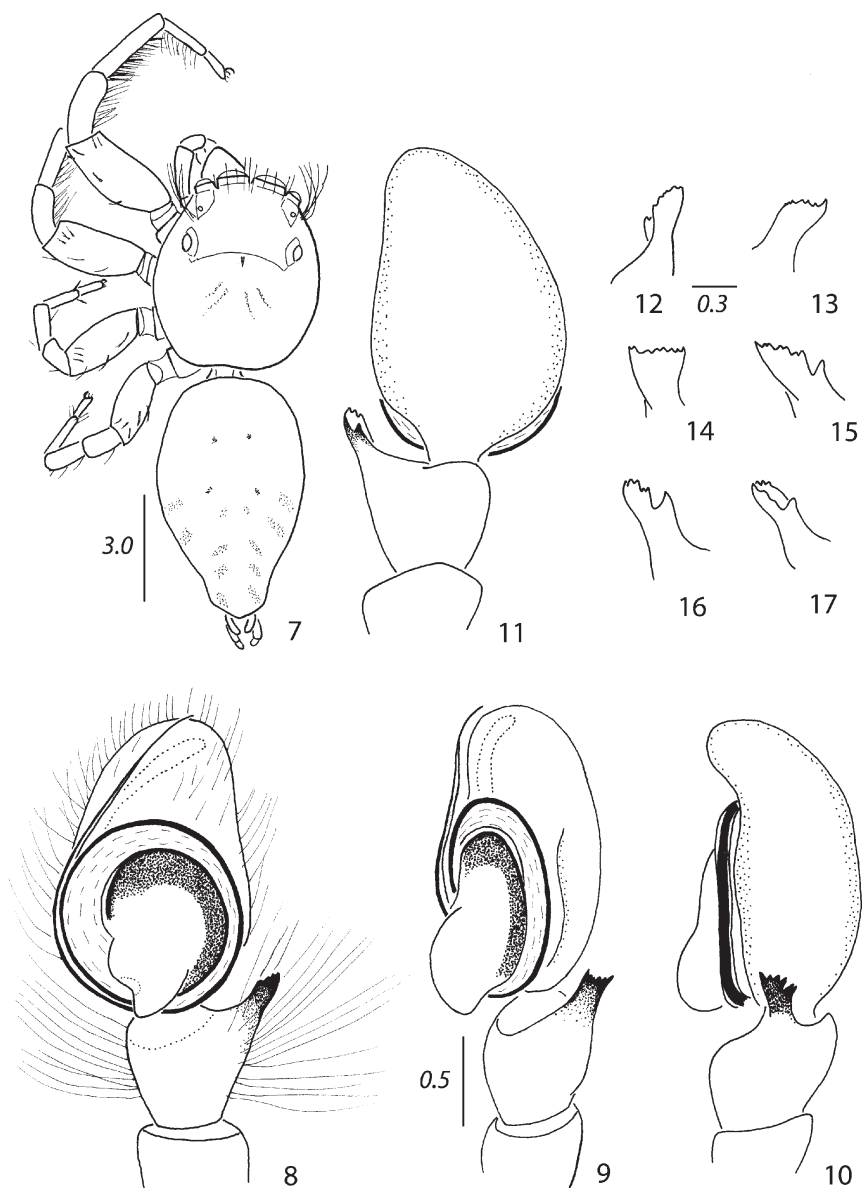
MOZAMBIQUE: Dondo Forest, 1 male, XII.1960 (BMNH); NAMIBIA: Oshivelo (E from Ethosa NP), 1 female, 8.I.1997, leg. A. RUSSELL-SMITH (SMN); SOUTH AFRICA: Richards Bay, 1 male, 1 female, 2 juv., XI-XII.1995, leg. T. WASSENAR (PPRI 97/123); Ndumu NP., 1 female, 6.XII.2000, leg. C. HADDAD (PPRI); same locality, 5 males, 27.XII.2000 (PPRI); same locality, 1 female, 29.XI.2000 (PPRI); same locality, 1 female, 6.XII.2000 (PPRI); Transvaal, 2 males, 3 females coll. R. LESSERT (MHN); ZIMBABWE: Sibizini Dam, Doddieburn Ranch, 4 males, 1 female, 18.XII.1985, leg. J. MINSHULL (NMZ A/4143); same locality, 3 males, 11.XII.1985 (NMZ A/4224); same locality, 1 female, 5 juv., 14.XII.1985 (NMZ A/4330); same locality, 1 male, 16.XII.1985 (NMZ A/10969); same locality, 4 males, 13.XII.1985 (NMZ A/4262, 4296); near Doddieburn Ranch, Umzingwane river, 1 male, 11.XII.1985, leg. J. MINSHULL (NMZ A/4053); Chizarira NP, on Muchene river, Kaswiswi I Camp, 17°41'S, 27°54'E, 1 male, 1.XII.2006, leg. D. CUMMING (NHM); Hwange NP., Main Camp, 1 male, 4.IX.2005, leg. M. CUMMING (NHM); near Harare, 1 male, 7.II.2005, leg. A. HUELIN (NHM); near Kyle NP., Pesu Gore, 20°20'S, 31°05'E, 1 female, 16.XII.1974 (NMZ A/618); Makashi Dam, Bubiana Conservancy Raleigh International, 1 female, 1.XII.1993 (NMZ A/11038); Sibuba Camp, 17°51'S, 25°23'E, 1 female, 3.XI.1982, leg. R. CHAWANDA (NMZ A/1661); Msuna, 1 female, 27.III.1987, leg. L. KONDOR (NMZ A/5405); Tsholotsho, 1 male, 1 female, 2003, leg. L. SIBANDA (NHM).

## DESCRIPTION

Measurements (male/female): Carapace length 3.3-4.4/3.3-4.6, width 2.7-3.8/2.6-3.9 height 1.6-1.7/1.6-2.0. Abdomen length 3.9-5.4/4.0-8.5, width 2.3-3.1/2.5-5.8. Eye field length 1.4-1.7/1.4-1.7, anterior width 2.0-2.5/2.1-2.6, posterior width 2.1-2.6/2.2-2.8.

Male. General appearance in Fig. 7. Big spider. Carapace rounded, high in cephalic part. Coloration of carapace brown, eyes with black rings, near eyes a few long brown

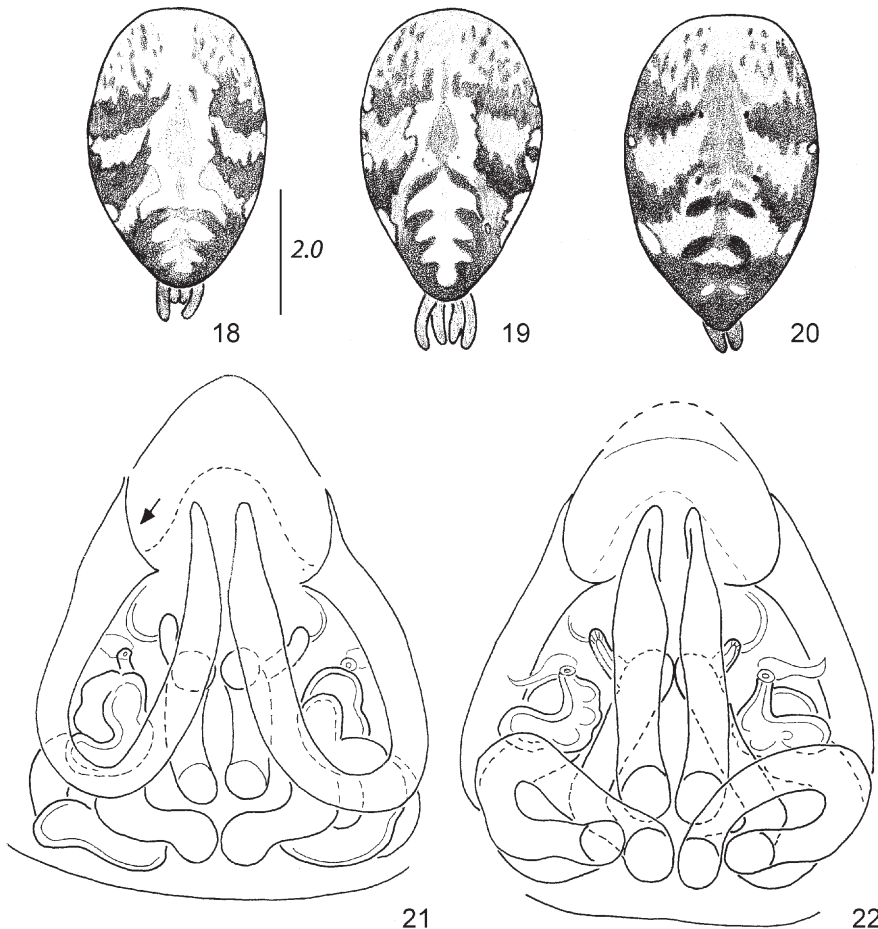
bristles, in some specimens “horns” in vicinity of posterior median eyes composed of long bristles. Fovea visible, radiating dark lines from fovea on thoracic part of carapace. Carapace covered with short light hairs, denser hairs on clypeus. Below anterior lateral eyes three parallel strips. Chelicerae brown, their dorsal surfaces with whitish hairs.



7-17. *Hyllus brevitarsis*, male. 7 – general appearance, 8 – palpal organ, ventral view, 9 – palpal organ, ventrolateral view, 10 – palpal organ, lateral view, 11 – palpal organ, dorsal view, 12-17 – tibial apophysis

Gnathocoxae brown with light inner margins, sternum light brown. Abdomen elongated, narrowing posteriorly. Dorsum of abdomen covered with delicate, dark brown, shiny scutum, anterior edge lighter, apodemes well visible. Some thin hairs on abdomen. Venter yellowish grey with darker longitudinal strip. Spinnerets long, brown. Legs long, brown, clothed in long, dense, light and dark hairs. Very long and dense hairs on patellae, tibiae and metatarsi I and II ventrally. Spines long, brown. Tarsal claws as in *H. africanus*. Pedipalps brown, hairy, some translucent scales on cymbium and tibia. Bulb small, embolus long, encircled twice bulb, with *pars pendula* wide at the base (Fig. 8). Tibial apophysis short, with serrate tip (Figs 12-17).

Female. Bigger than male. Carapace brown, slightly lighter on thoracic part, “horns” present. Clypeus low, with white hairs. Mouth parts brown, with lighter tips. Sternum brown, with darker margins. Abdomen brownish orange with blackish pattern (Figs

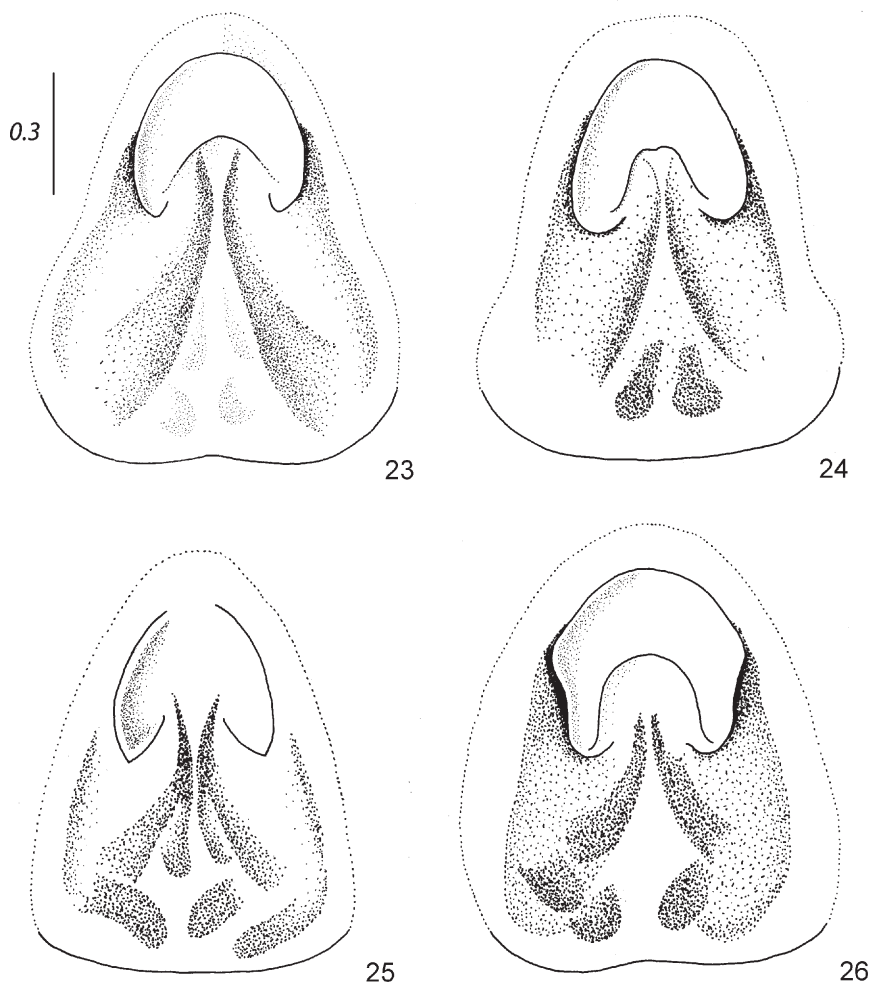


18-22. *Hyllus brevitarsis*, female. 18-20 – abdominal pattern, 21 - internal structure of epigyne, ventral view, 22 - internal structure of epigyne, dorsal view (Figs 21, 22 from WESOŁOWSKA & CUMMING 2008)

18-20). Abdominal hairs dense, some hairs - especially sparse white ones - very long. Venter yellow, tinged with grey, darker strip medially. Spinnerets dark. Legs reddish brown, femora and distal ends of other segments darker. Leg hairs long, dark. Spines numerous, brown. Pedipalps light brown. Epigyne large, triangular, with anterior depression (Figs 23-26). Internal structures in Figs 21, 22, seminal ducts very long.

#### DISTRIBUTION

Species widespread in Afrotropical region, for the first time recorded from Mozambique and Namibia.



23-26. *Hyllus brevitarsis*, female, epigynes



***Hyllus congoensis* LESSERT, 1927**

(Figs 27-36)

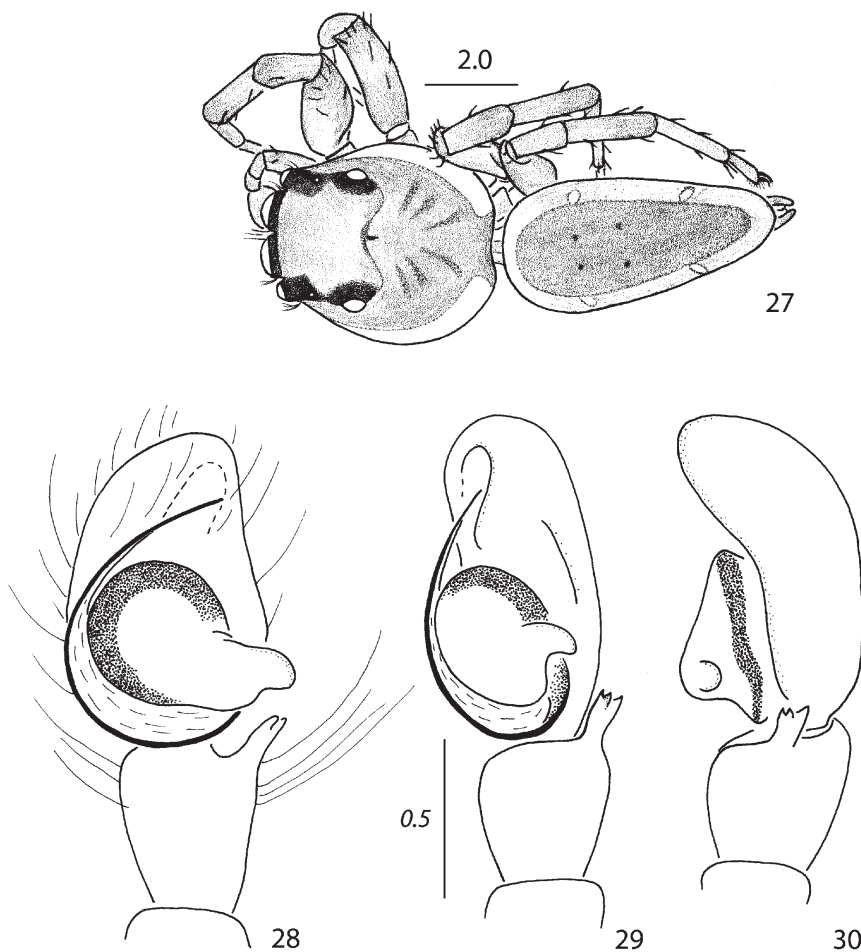
*Hyllus congoensis* LESSERT 1927: 447; BERLAND & MILLOT 1941: 334.

## TYPE MATERIAL

Male (lectotype – designated here), CONGO, Avakubi, coll. R. Lessert (MHN); paralectotypes: 7 males.

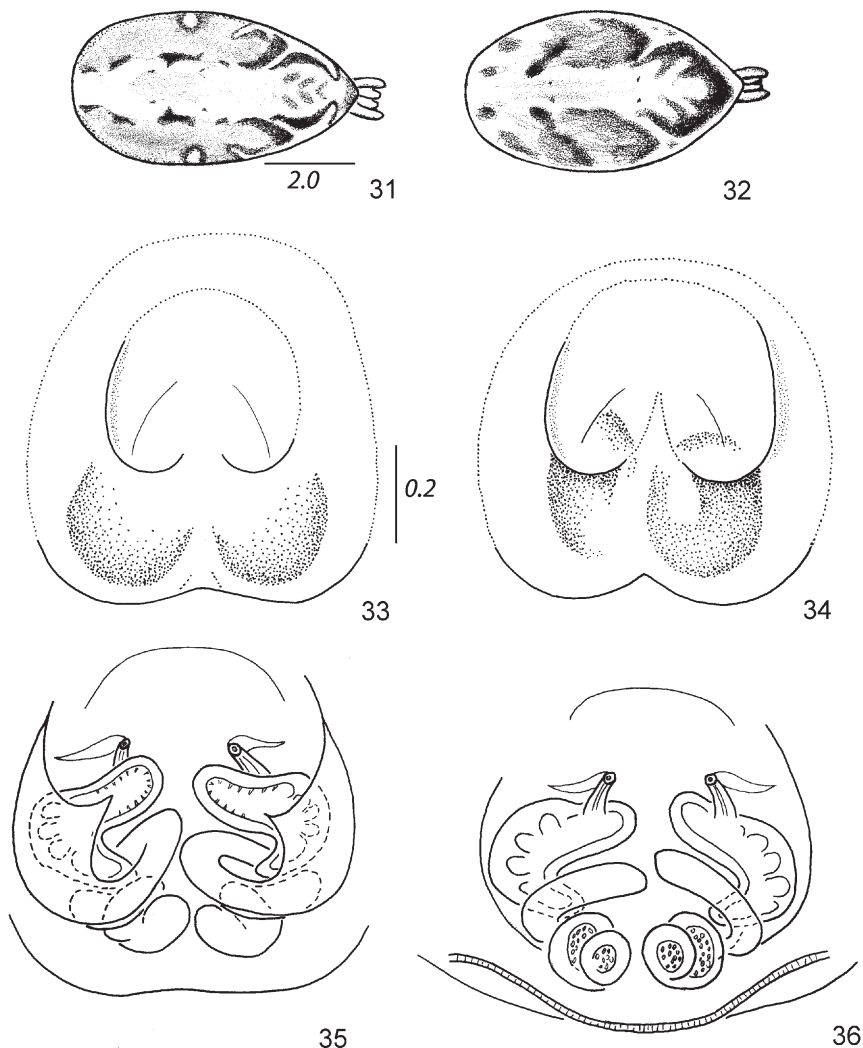
## OTHER MATERIAL

CAMEROON: Kounden, 1 male, 1 female, 1 juv., 31.XII.1975, leg. F. PUYLARET (MRAC, 148288); CONGO: Komi, 1 male, leg. J. GUESQUIERE (MRAC, 11900); same



27–30. *Hyllus congoensis*, male, paralectotype. 27 – general appearance, 28 – palpal organ, ventral view, 29 – palpal organ, ventrolateral view, 30 – palpal organ, lateral view

locality, 1 male, 2 females (MRAC, 11965-67); same locality, 5 females, 17.IV. 1930, leg. J. GUESQUIERE, det. C. ROEWER (as *H. natali*) (MRAC, 11976-80); Tshuapa, Bende, 1 male, III/IV.1970, leg. J. HAUWAERT (MRAC, 136404); same locality, 1 male, VIII/IX.1970 (MRAC, 137570); Tshuapa, Etata, 1 female, V-VI.1971, leg. J. HAUWAERT (MRAC, 140429); same locality, 1 male, V/VI.1971 (MRAC, 140436); SIERRA LEONE: Freetown, Fourach Bay, 1 male, 14.XII.1958, leg. E. WHITE, det. J. CLARK (BMNH); same locality, 2 females, 3 juv. (BMNH), Falaba, 1 male, V.1962, leg. R. SHINGLES (BMNH).



31-36. *Hyllus congoensis*, female. 31, 32 - abdominal pattern, 33-34 ; epigynes, 35 - internal structure of epigyne, ventral view, 36 - internal structure of epigyne, dorsal view

## DESIGNATION OF LECTOTYPE

One male is designated as lectotype for stabilization of nomenclature. The species is similar to *H. treleaveni*, and those two species are often mistaken.

## DESCRIPTION

Measurements (male/female): Carapace length 3.2-4.6/4.0-4.5, width 2.7-3.8/3.2-3.5 height 1.9-2.2/1.8-2.3. Abdomen length 4.0-5.2/4.7-6.4, width 1.8-2.5/2.5-3.9. Eye field length 1.7-2.0/1.8-2.0, anterior width 2.0-2.5/2.5-2.6, posterior width 2.1-2.7/2.6-2.9.

Male. Medium sized to large spider. General appearance in Fig. 27. Carapace rounded, broadest behind middle. Coloration of carapace dark brown, along its sides two broad streaks formed by white hairs, eyes surrounded black. Fovea sulciform, lines radiate from fovea on thoracic part. Chelicerae big, unidentati, dark brown. Gnathocoxae brownish with pale margins, labium and sternum light brown. Clypeus low, clothed in long white hairs. Scattered delicate hairs on carapace, only in vicinity of eyes hairs numerous. Abdomen slender, narrowing posteriorly, covered with delicate shiny scutum. Short grey hairs on anterior abdominal edge, two pairs of small white patches submarginally (Fig. 27). Venter brown. Spinnerets dark. Legs of first pair stout, hairy. Legs II-IV slightly lighter. Leg hairs and spines brown. Pedipalps shown in Figs 28-30.

Female. Larger than male. Carapace ovoid, rather high, reddish brown with slightly darker slopes and black rings around eyes. Whole carapace densely covered with whitish grey hairs, among them scattered brown bristles, tufts of long bristles near posterior median eyes. Abdomen fawn with median wide lighter belt and one-two pairs of diagonal patches touching it (Figs 31-32). Abdomen densely covered with brown and grey hairs. Venter yellowish, tinged with grey, light chevron-shape patch in front of spinnerets. Spinnerets light brown. Legs generally brown, clothed in brown long hairs. Epigyne with large depression (Figs 33, 34). Internal structure in Figs 35, 36, seminal ducts spirally coiled.

## DISTRIBUTION

Species known from Congo and Ivory Coast, for the first time recorded in Cameroon and Sierra Leone.

## REMARKS

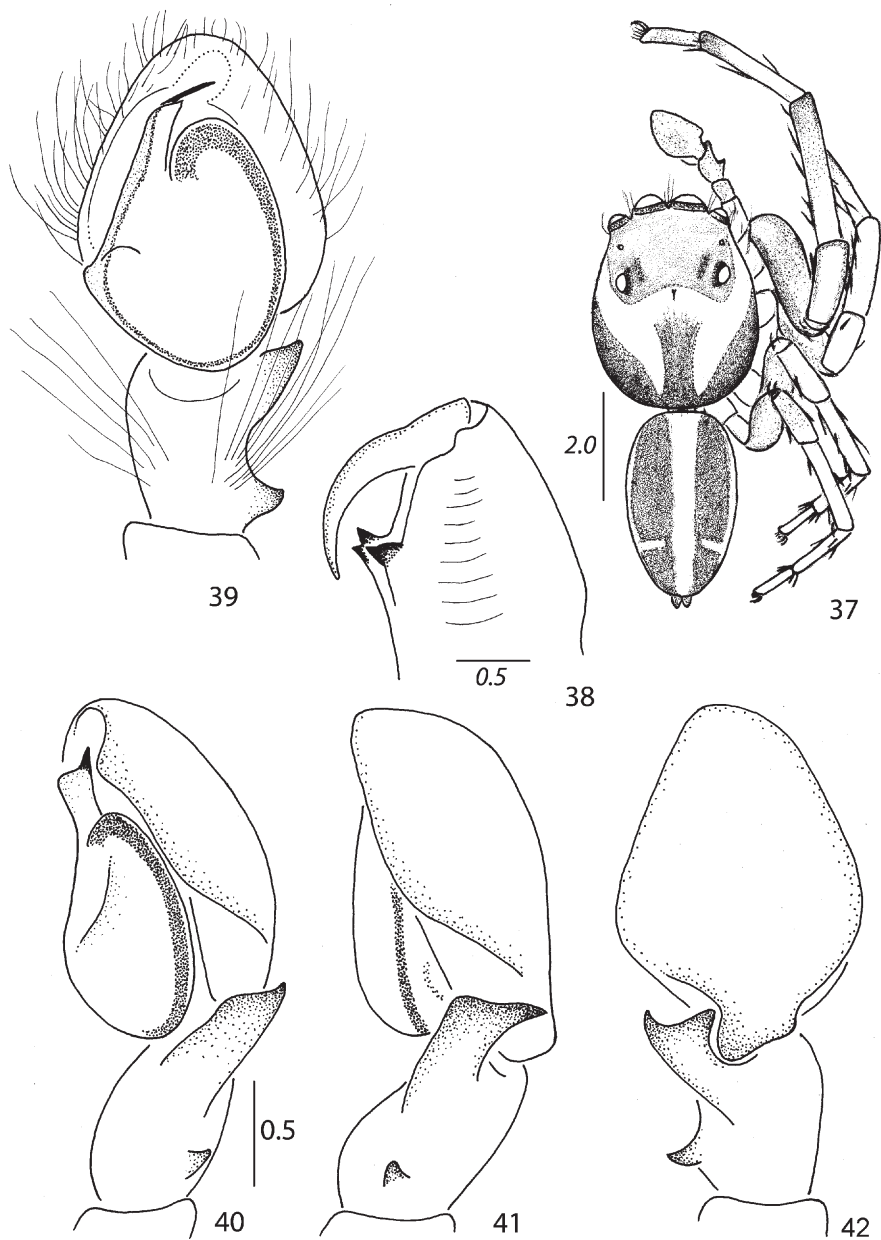
The species is closely related to *H. treleaveni*, from which is slightly smaller. The male has clearly slenderer abdomen, differs also in abdominal pattern (cf. with Fig. 1 in WESOŁOWSKA & CUMMING 2004). The bulb in *H. congoensis* differs in position of posterior lobe (cf. Fig. 28 with Figs 13, 14. in WESOŁOWSKA & CUMMING 2004). The female may be recognized by abdominal pattern and internal structure of epigyne; *H. congoensis* has long, spirally coiled seminal ducts, whereas ducts in *H. treleaveni* are short and straight (cf. Figs 35, 36 with Figs 29, 30 in WESOŁOWSKA & CUMMING 2004).

***Hyllus leucomelas* (LUCAS, 1858)**

(Figs 37-42)

*Salticus leucomelas* LUCAS 1858: 391.

*Hyllus leucomelas* SIMON 1887: 262; LESSERT 1927: 451; BERLAND & MILLOT 1941: 336.



37-42. *Hyllus leucomelas*, male, holotype. 37 – general appearance, 38 – cheliceral dentition, 39 – palpal organ, ventral view, 40 – palpal organ, ventrolateral view, 41 – palpal organ, lateral view, 42 – palpal organ, dorsal view

## MATERIAL EXAMINED

CAMEROON: Kribi, 1 male, 1968/69, leg. J. Bos (MRAC, 137739); CONGO: Malela, 1 male (+1 additional pedipalp), det. R. LESSERET (MHN).

## DESCRIPTION

Measurements. Carapace length 3.1-3.6, width 2.7-2.8 height 1.4. Abdomen length 3.6-3.9, width 2.1-2.2. Eye field length 1.4-1.5, anterior and posterior width 2.2-2.3.

Male. General appearance in Fig. 37. Carapace ovoid, broadest at coxae III, fovea visible. Coloration of carapace brown, eye field covered by colourless hairs, near first row of eyes long bristles. On thoracic area short, dense, white hairs form two triangular patches which extend narrowing onto posterior slope of carapace. Clypeus low, clothed in white hairs. Chelicerae big, robust, with bicuspid tooth on promargin and large tooth on retromargin (Fig. 38). On ventral surface of chelicera a dozen or so parallel furrows (stridulatory apparatus?). Mouth parts brownish fawn with lighter margins, sternum dark brown. Abdomen elongated, narrower than carapace, stripped, with two marginal brown streaks and median whitish streak, posteriorly with pair of small light spots touching median streak. Sides of abdomen light, venter brownish. Long hairs cover abdomen. Spinnerets brown. Legs light brown, long. Spines numerous, very long. Leg hairs long, brown. Pedipalps with broad retrolateral apophysis and second small apophysis at base of tibia (Figs 39-42). Bulb rounded, embolus short. Large dorsal process at base of cymbium (Fig. 39).

## DISTRIBUTION

Species hitherto known only from Senegal, recorded in Cameroon and Congo for the first time.

## REMARKS

Taxonomic position of this species is uncertain, its relationships with other *Hyllus* doubtful.

***Hyllus plexippoides* SIMON, 1906**

(Figs 43-48)

*Hyllus plexippoides* SIMON 1906: 1175; Clark 1974: 18; PRÓSZYŃSKI 1984: 66.

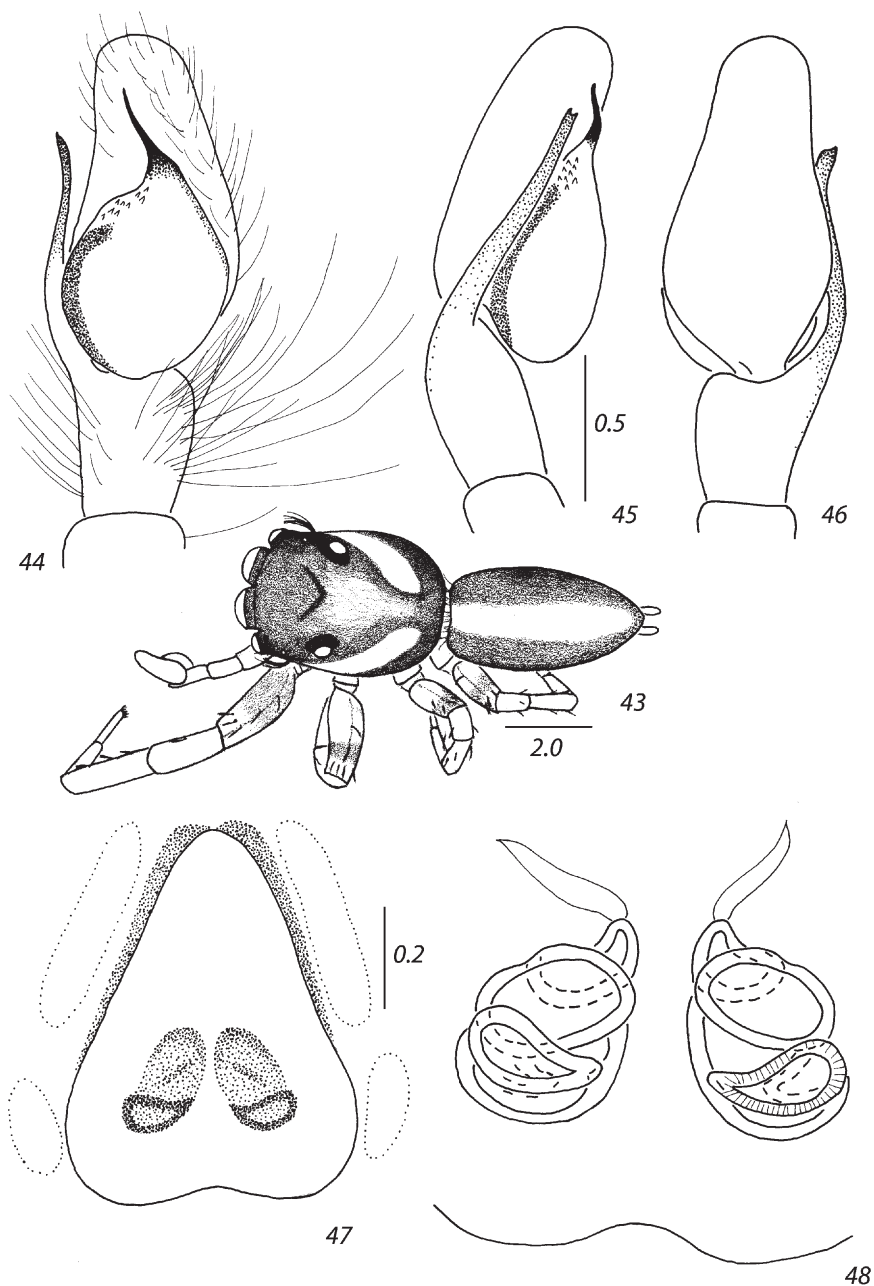
*Viciria lawrencei* LESSERT 1927: 458; BERLAND & MILLOT 1941: 382.

## MATERIAL EXAMINED

IVORY COAST, Man, 2 males, VIII.1937, leg. J. MILLOT, (MNHN), PNB(?) 3 males, 2 females (MNHN); ZAMBIA, Hillwood Farm, 1 male, 25.IX.1990, leg. D. G. BROADLEY (NMZ A/8733).

## DESCRIPTION

Measurements (male/female): Carapace length 3.6-4.5/4.0-4.4, width 2.7-3.5/2.9-3.2 height 1.5-1.8/1.5-1.6. Abdomen length 3.9-4./3.9/5.56, width 1.8-2.5/2.4-3.2.



43-48. *Hyllus plexippoides*, male and female. 43 - general appearance of male, 44 - palpal organ, ventral view, 45 - palpal organ, lateral view, 46 - palpal organ, dorsal view, 47 - epigyne, 48 - internal structure of epigyne

Eye field length 1.6-1.8/1.7, anterior width 2.2-2.6/2.4-2.5, posterior width 2.3-2.7/2.5-2.6.

Male. Medium sized spider. General appearance as in Fig. 43. Carapace oval, dark brown with blackish rings surrounding eyes, foveal area lighter. Two belts composed of white hairs run along sides of thoracic part. Tufts of long bristles form "horns" near posterior median eyes. Long white hairs cover clypeus. Chelicerae and labium brown, gnathocoxae brown with yellowish inner margins, sternum yellow. Abdomen elongated, narrow, dark brown with median whitish streak. Thin, long hairs cover abdomen, at anterior edge dense brown bristles. Venter yellowish with median broad dark streak. Spinnerets grey. Legs I robust, brown. Remaining legs yellowish with brown rings on femora distally. Leg hairs long, brown, spines long. Pedipalps thin, tibial apophysis straight, very long (Figs 44-46). Bulb rounded, at base of embolus some small teeth (Figs 44, 45).

Female. Similar to male, but first pair of leg shorter and coloration slightly lighter. Epigyne with large triangular depression (Fig. 47). Internal structure as in Fig. 48.

#### DISTRIBUTION

Hitherto species known from Egypt, Ivory Coast and Congo, for the first time recorded from Zambia.

#### REMARKS

The species resembles members of *Hyllus* in habitus, but structure of genital organs is unlike; therefore, taxonomic position of this species is uncertain.

### ***Hyllus treleaveni* PECKHAM et PECKHAM, 1902**

*Hyllus treleaveni* PECKHAM & PECKHAM 1902: 334.

*Hyllus normanae* WANLESS et CLARK 1975: 280, **syn. n.**

#### TYPE MATERIAL

Female, holotype of *H. normanae*, IVORY COAST, Bingerville, VIII.1961, leg. J. DECELLE, (MRAC, 122028).

#### REMARKS

For redescription of this species and its synonyms see WESOŁOWSKA & CUMMING (2004).

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