

## Illustrations and redescriptions of Simon's little known salticid taxa from West-Africa (Araneae: Salticidae)

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**Abstract.** Redescriptions and illustrations are given for following taxa: *Hermotimus* Simon, 1903 – type species *H. coriaceus* Simon, 1903 from West Africa, *Longarenius* Simon, 1903 – type species *L. brachycephalus* Simon, 1903 from Gabon and *Uxuma* Simon, 1902 – type species *U. impudica* Simon, 1902 from Gabon. The genus *Polemus* Simon, 1902 from Sierra Leone is revised: *P. chrysochirus* Simon, 1902 – the type species and *P. galeatus* Simon, 1902 are redescribed, furthermore *P. squamulatus* Simon, 1902 is transferred to *Evarcha* Simon, 1902. The following species are also redescribed: *Encymachus livingstonei* Simon, 1902 – type species of *Encymachus* Simon, 1902 from along the Zambezi River and *Rhene sulfurea* (Simon, 1885) from Senegal. With 42 original figures.

Eugène Simon, the famous arachnologist, has described a massive number of spider species. This is also true for jumping spiders where he described many taxa from Africa, and especially from West Africa (where France had colonies). Simon's descriptions – as it was quite usual in his era – were focusing mainly on the somatic characters, making almost impossible to recognize his taxa, since many species differs only in the male palp or in the female epigyne. Moreover they were noting the copulatory organs only if they were very special, and almost always without any illustrations. Therefore, considering the number of his species with the lack of their illustrations it is not surprising to see how far is behind the exploration of West Africa to compare it with other regions like South America.

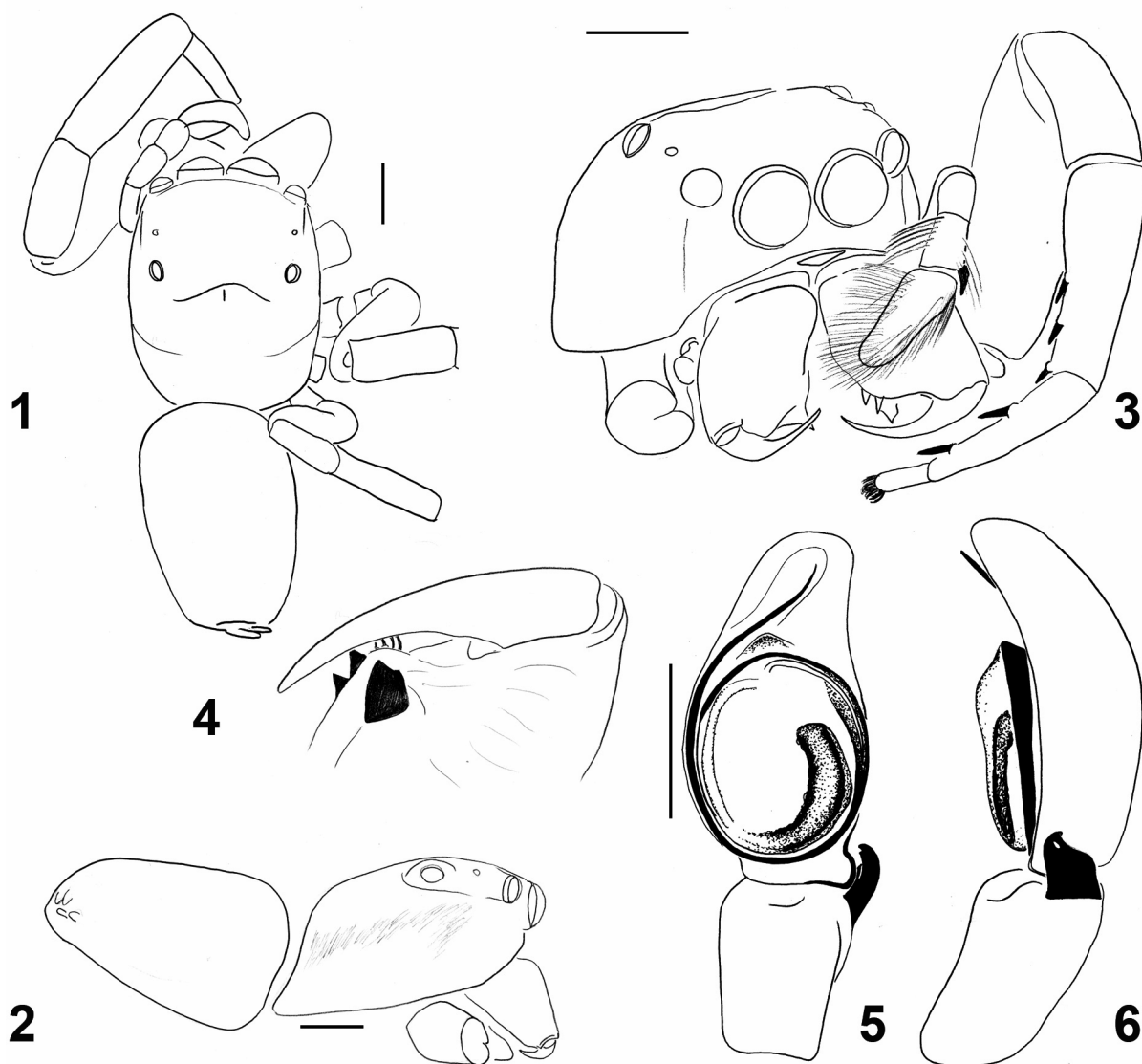
During two visits funded by the IHP programme (COL-PARSYST and SYNTHESYS) I was able to study Simon's types at the Musée national d'Histoire Naturelle, in Paris. From both visits I have gained lots of drawings and digital images about unrelated salticids, only connected by their author, Eugène Simon. My intention with this paper is to continue the redescriptions of little known West African genera I have started earlier (Szűts & Scharff 2005) and try to make their names available for common usage. Majority of the taxa I am presenting now is known from very few papers or even by the original descriptions only. This hinders the description of new taxa, since we still don't know what have already been

described. Probably the lack of intensive studies are responsible for those disjunct geographical distributions as well, reported recently in the case of several genera, e.g. *Orsima* Simon, 1901 (*O. constricta* – *O. ichneumon* see Berland & Millot, 1941 and Žabka 1992), *Depreissia* Lessert, 1942 (*D. myrmex* – *D. decipiens* see Szűts & Wesołowska, 2003 and Deeleman-Reinhold & Floren 2003) and *Bristowia* Reimoser, 1934 (*B. afra* – *B. heterospinosa* see Szűts 2004) all having two species: one in West Africa and one in South East Asia. Although all of them are easy to recognize, they still haven't been found anywhere between these two areas.

I tried to focus illustrating taxa that are representatives of a genus as well like type species (marked with asterisk) or monotypic genera. The specimens I was to deal with are in very poor condition, so I focused mainly on the copulatory organs and illustrations.

The specimens were studied with traditional methods. Drawings made with a camera lucida attached to a stereo microscope. First drafts were made with a "photoblue" pencil, and then were outlined with ink and 2B pencils. Digital images were taken with a Nikon COOLPIX 900 attached to the Leica MZ16A microscope and edited using the software package Adobe Photoshop version 8.0. All morphological measurements are given in millimetres. Specimens are deposited in Musée national d'Histoire Naturelle, in Paris.

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Figures 1-6. *Encymachus livingstonei* holotype: 1 = habitus, dorsal view, 2 = habitus, lateral view, 3 = habitus, antero-lateral view, 4 = chelicera, ventral view, 5 = male palp, ventral view, 6 = male palp, retrolateral view (scale bar: 1 mm)

## TAXONOMY

*Encymachus* Simon, 1902

*Encymachus livingstonei* Simon, 1902\*  
(Figs 1-6)

*E. livingstonei* Simon, 1902: 370.

*Material examined.* Holotype male, Hand-written labels in the tube: "2179 *Encymachus*

*livingstonei* E. S: *Zambési*"; "2179" (MNHN, Paris; no. 2179).

*Diagnosis.* Male palp with long, filiform embolus situated around tegulum (Figs 5-6). Male with robust chelicerae (Figs 2-4).

*Description.* Male holotype. Type specimen bleached by ethanol, in poor condition. Large and robust spiders (Fig. 1). Carapace brown with

white lateral hairs, ocular area dark brown. Chelicerae with one retro- and two prolateral bifid teeth (Fig. 4). Abdomen white, with brown dotted pattern, and with a light median stripe. First two legs brown, other legs light brown.

*Measurements.* Total length 8.75. Cephalothorax 4.30 long, 3.50 wide, 2.5 high at PLE. Abdomen 4.1 long, 2.75 wide. OCA 1.8 long, 2.75 wide (anterior), 2.68 wide (posterior).

*Pedipalp.* Embolus medium sized (Figs 5-6), tibial apophysis short and stout.

*Distribution.* Known only from “Zambézi”.

*Remarks.* The genus is poorly known as mentioned only by two paper: Simon (1902) and Lawrence (1947). The other species, *E. hesperus* (known only by a female from Namibia) is very likely belongs elsewhere, although not much could be said before females of *E. livingstonei* have been found. The genus is most similar to the African *Hyllus* Koch C.L., 1848.

#### ***Hermotimus* Simon, 1903**

*Hermotimus coriaceus* Simon, 1903\*  
(Figs 7-15)

*H. coriaceus* Simon, 1903b: 120; Simon, 1903a: 762, f. 901-903; Prószyński, 1987: 43.

*Material examined.* *Syntype series:* 1 male and 1 female from Ogooué. Handwritten labels in the tube: “20238 *Herm coriaceus* E. S: Ogooué (Mcq)”; “20238”; “*Typus? M. E. Galiano VIII. 1959*” (MNHN, Paris; no. 20238).

One female from Cameroon. Handwritten labels in the tube: “22088 *Herm. coriaceus* E. S: Cameroon (Mcq)”; “22088”; (MNHN, Paris; no. 22088).

*Diagnosis.* Both sexes with elevated carapace (Figs 9-10). Thoracic slope very steep, almost vertical (Fig. 12). Thoracic region same level as ocular area. Male chelicerae long, with conspicuous bifid teeth (Fig. 11). Male palp with unique configuration (Figs 14-15). Embolus very short, blunt, ejaculatory openings visible from the lateral side. Epigynum of female with elongated openings (Fig. 13).

*Description.* Male syntype (Fig. 7). Type specimen bleached by ethanol, in poor condition (abdomen damaged). Carapace dark brown. The thoracic area at same level as ocular area, light brown. Thoracic slope steep. White hairs on the lateral side, and below the edge of carapace, on the clypeus and on the chelicerae. Chelicerae long, with two prolateral and one retrolateral teeth. Retrolateral teeth bifid, conspicuous (Fig. 11). Abdomen pale yellow, with light brown markings, but without any clearly visible patterns. First two legs brown, second two legs light brown with dark brown rings.

*Measurements.* Total length cannot be measured since abdomen damaged. Cephalothorax 3.0 long, 2.65 wide, 1.5 high at PLE. Abdomen 2.7 long, 1.75 wide. OCA 1.65 long, 1.87 wide (anterior), 1.62 wide (posterior).

*Pedipalp.* Tibial apophysis long and thin. Embolus short and blunt (Figs 14-15).

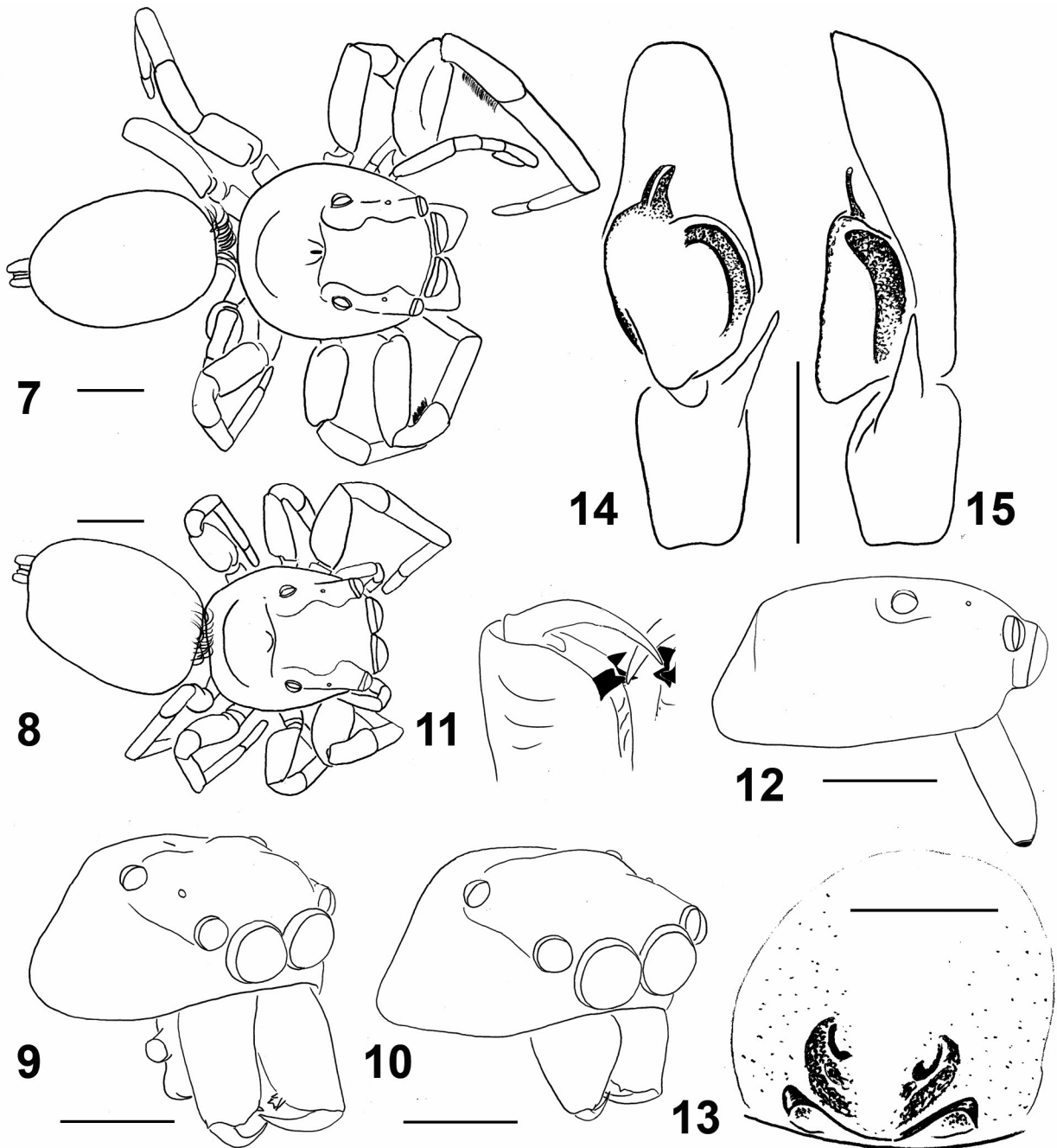
*Female syntype* (Fig. 8). Colour as in male, but paler, with fewer white hairs. Abdomen yellow, with a darker pattern. All legs light brown, almost yellow.

*Measurements.* Total length 5.7. Cephalothorax 2.75 long, 2.1 wide, 1.12 high at PLE. Abdomen 2.72 long, 2.37 wide. OCA 1.37 long, 1.75 wide (anterior), 1.6 wide (posterior).

*Epigyne* as in Fig. 13.

*Distribution.* Known from Ogooué (Gabon) and Cameroon.

*Remarks.* Prószyński examined a non-type female – tube Nr 22088 – in 1987. He illustrated the female vulva, which is excellent for identification of the females, therefore I don't repeat that drawing. I also examined that very same specimen. Since curating policy of MNHN does not allow dissection of primary types, only the epigyne illustrated here for comparison to show the conspecificity of the female with the one illustrated by Prószyński (1987).



Figures 7-15. *Hermotimus coriaceus* syntype series: 7 = male habitus, dorsal view, 8 = female habitus, dorsal view, 9 = male carapace, antero-lateral view, 10 = female carapace, antero-lateral view, 11 = male chelicera, ventral view, 12 = male carapace, lateral view, 13 = female epigyne, 14 = male palp, ventral view, 15 = male palp, rentrolateral view (scale bar: 1 mm)

**Longareus** Simon, 1903

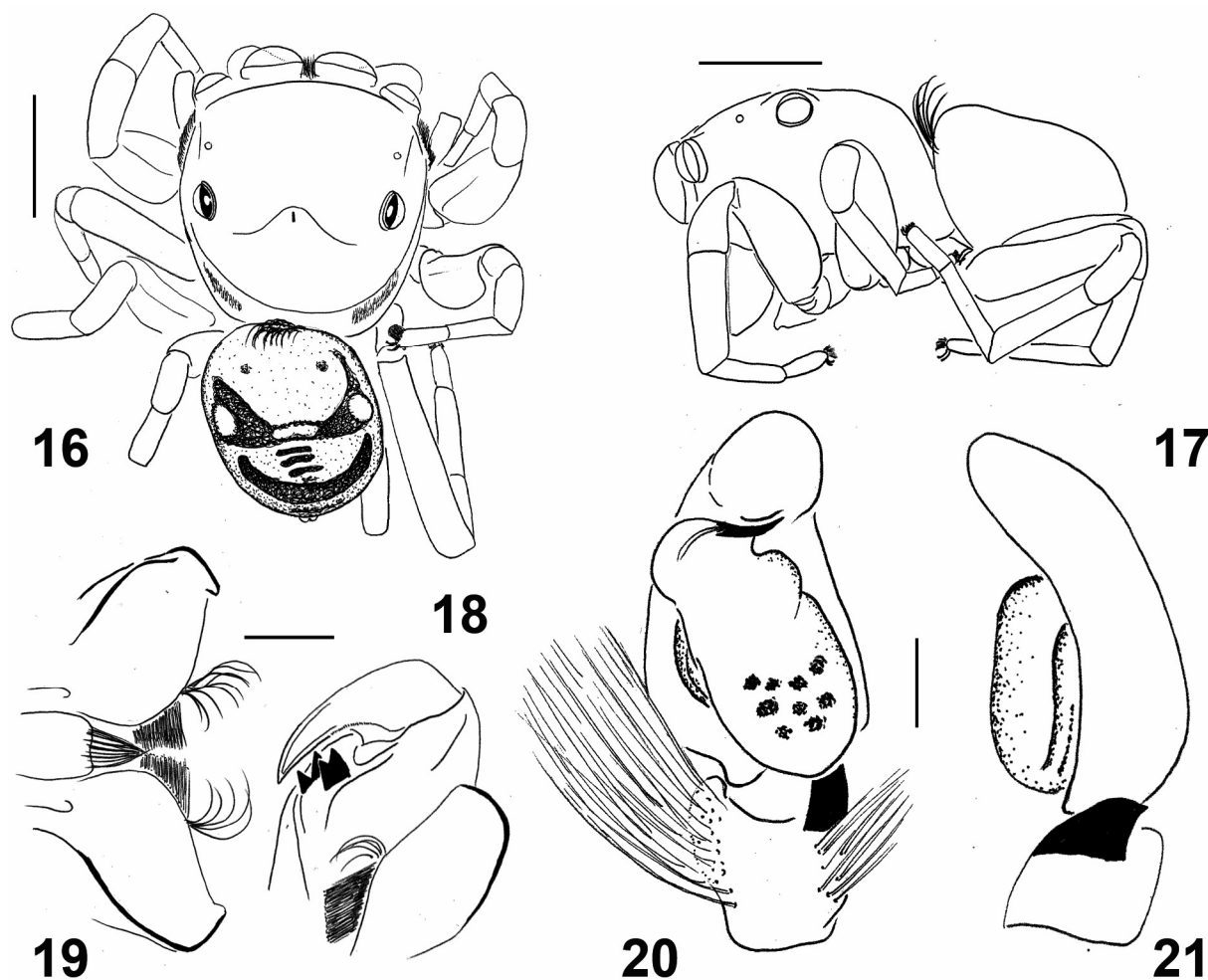
*Longareus brachycephalus* Simon, 1903\*  
(Figs 16-21)

*L. brachycephalus* Simon, 1903b: 122; 1903a: 798, f. 924.

*Material examined.* Holotype male from Gabon. Handwritten labels in the tube: "20295 *Long brachycephalus* E. S: Ogoué (Mcq)"; "20295"; "Typus? M. E. Galiano IX. 1959" (MNHN, Paris; no. 20295).

*Diagnosis.* Small fissidentate salticid. Male palp with short and bent embolus (Figs 20-21).

*Description.* Holotype male (Fig. 16). Type material bleached out by ethanol but in good condition (both palps removed). Carapace light brown, ocular area darker. Lateral side of carapace with white hairs posteriorly and brownish hairs anteriorly. Thoracic slope steep (Fig. 17), cephalothorax squat. Chelicerae robust, with two prolateral and one retrolateral teeth. Retrolateral teeth bifid (Fig. 18). Gnathocoxae with a small anterior tip (Fig. 19). Abdomen whitish with two dark stripes and with several white dots (Fig. 16). Legs yellowish with darker markings.



**Figures 16-21.** *Longareus brachycephalus* holotype male: 16 = male habitus, dorsal view, 17 = male habitus, lateral view, (Scale bar: 1 mm) 18 = chelicerae, ventral view, 19 = gnathocoxae, ventral view, 20 = male palp, ventral view, 21 = male palp retrolateral view (scale bar: 0.2 mm)

*Measurements.* Total length 3.75. Cephalothorax 2.0 long, 1.88 wide, 1.9 high at PLE. Abdomen 1.5 long, 1.37 wide. OCA 1.25 long, 1.8 wide (anterior), 1.67 wide (posterior).

*Pedipalp.* Embolus short and stout (Figs 20-21) curved upwards.

*Distribution.* Known only from the type locality, Gabon.

*Remarks.* The specimen much resembles those of *Habrocestum* Simon, 1876. The bifid cheliceral tooth, the long third femur (Fig. 18), the stout carapace are also characteristic for both genera. However both male and female copulatory organs should be compared before concluding a solid opinion. Nevertheless the male palp differs significantly; therefore any concern about synonymy shall wait until females will be known.

***Polemus* Simon, 1902**

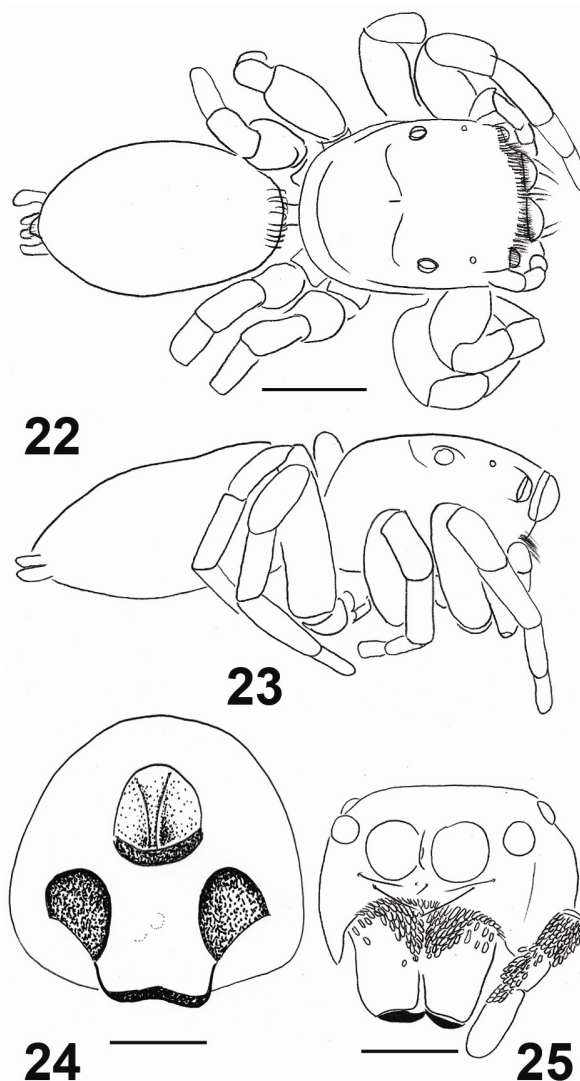
***Polemus chrysochirus* Simon, 1902\*  
(Figs 22-25)**

*P. chrysochirus* Simon, 1902: 43; Prószyński, 1987: 80

*Material examined.* Syntype series: 3 females from Freetown. Handwritten labels in the tube: "20018 *Pol. chrysochirus* E. S: Freetown (Mcq)"; "20018"; (MNHN, Paris; no. 20018).

*Diagnosis.* Medium sized salticids, with stout carapace. Chelicera and palp densely covered with scale hairs (Fig. 25). Thoracic slope steep (Fig. 23). Epigyne with the openings situated in a central pit (Fig. 24).

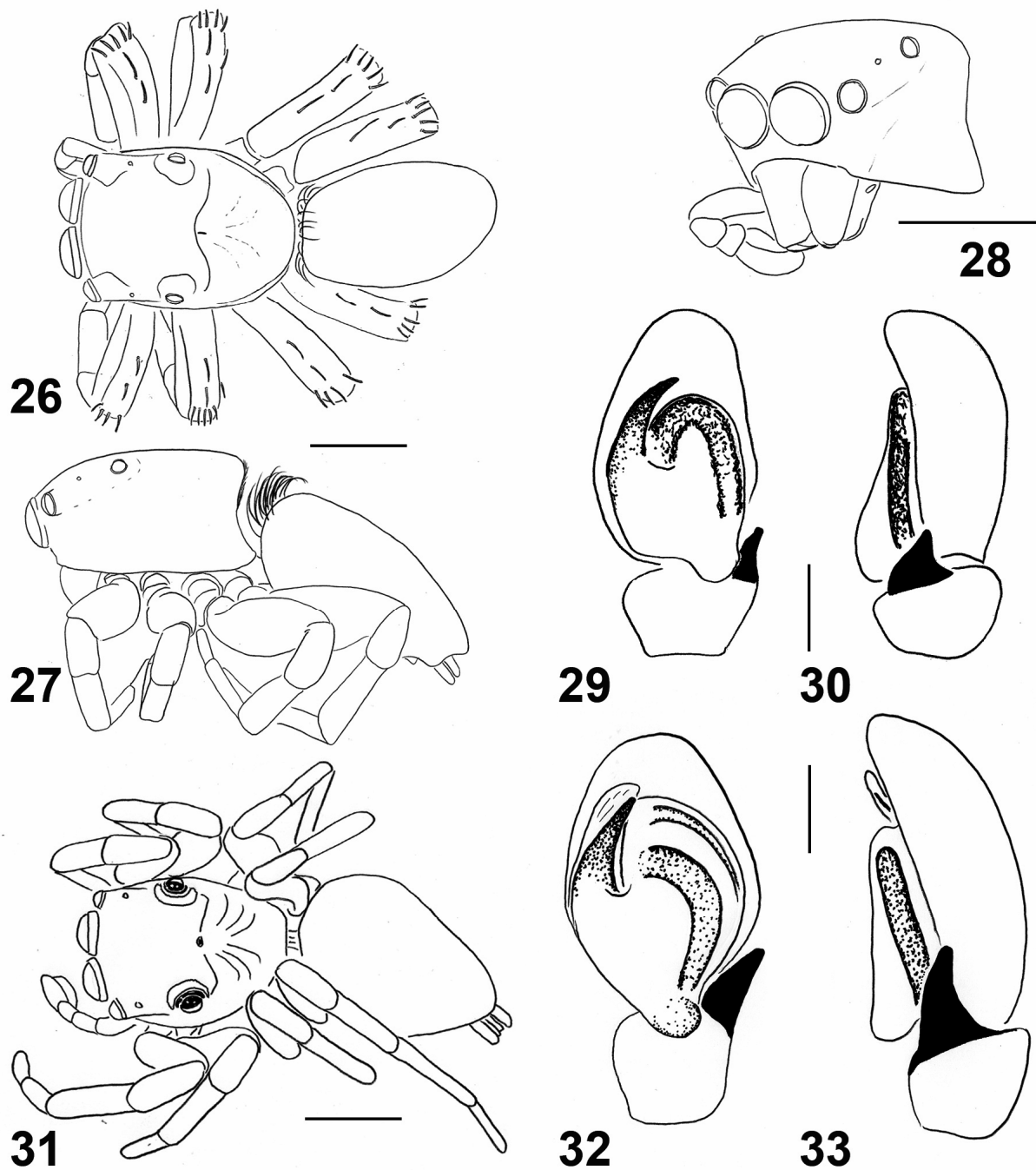
*Description.* Female syntype (Fig. 7). Type specimens old and bleached by ethanol, but in fair condition. Carapace dark brown. Thoracic slope steep. Basal segment of the chelicera, palp and prolateral side of the first leg covered with thick scales (with physical colour). Abdomen dark brown, with an unclear pattern, most likely with a yellow stripe. Legs dark brown, leg I and leg III with prolateral scales.



**Figures 22-25.** *Polemus chrysochirus* female syntype. 22 = female habitus dorsal view, 23 = same, lateral view, 24 = epigyne, ventral view, 25 = carapace, anterolateral view (scale bar: 22-23: 1 mm, 24: 0,1 mm)

*Measurements.* Total length 5.8. Cephalothorax 2.8 long, 2.0 wide, 1.64 high at PLE. Abdomen 2.8 long, 1.6 wide. OCA 1.6 long, 1.56 wide (anterior) 1.2 wide (posterior).

*Epigyne.* With one shallow pit accommodating the openings (Fig. 24), and with a central plate. Vulva and epigyne as illustrated by Prószyński (1987: p. 80).



**Figures 26-30.** *Polemus galeatus*: 26 = male habitus, dorsal view, 27 = same, lateral view, 28 = male carapace, antero-lateral view, 29 = male palp, ventral view, 30 = male palp, retrolateral view.  
**Figures 31-33.** *Evarcha squamulata*: 31 = male habitus, dorsal view, 32 = male palp, ventral view, 33 = male palp, retrolateral view. (scale bar 26-28, 31: 1 mm 29-30, 32-33: 0.2 mm)

*Distribution.* Known only from the type locality, Sierra Leone.

*Remark.* Prószyński has examined one of the syntype females. – tube 20018 – in 1987. He did not mention any of the other specimens.

*Polemus galeatus* Simon, 1902  
(Figs 26-30)

*P. galeatus* Simon, 1902: 44; Simon, 1903a: 680.

*Material examined.* Type material seems to be lost. One male from Freetown. Handwritten labels in the tube: “20718 *Pol. galeatus* E. S: Freetown (Mcq)”; “20718” “20718”; (MNHN, Paris; no. 20178).

*Diagnosis.* Medium sized salticids, unique carapace shape: carapace stout, thoracic slope with a hump (Fig. 28), carapace quadrangular as seen from lateral side, thoracic slope vertical (Fig. 27). Male palp simple (Figs 29-30).

*Description.* Male (Figs. 26-27). Specimen old and bleached by ethanol, but in fair condition. Carapace light brown. The thoracic area as high as the ocular area, thoracic slope vertical, carapace quadrangular as seen from the lateral side (Fig. 27). Pedipalp and prolateral side of the first legs covered with thick scales (with physical colour only, but could have other on the living specimens). Abdomen light brown, with black anterior side. Abdomen without any pattern.

Legs dark brown, leg I and leg III with prolateral scales.

*Measurements.* Total length 4.7. Cephalothorax 2.37 long, 1.7 wide, 1.25 high at PLE. Abdomen 2.5 long, 1.25 wide. OCA 1.05 long, 1.45 wide (anterior) 1.3 wide (posterior).

*Pedipalp.* With simple structure: embolus short, tegulum with proximal lobe (Figs. 29-30).

*Distribution.* Known only from Sierra Leone.

*Remarks.* The type material seems to be lost. I was unable to find them where they should be: the same jar as the other *Polemus* specimens. It is

noticeable the type locality and the label of the examined male is the same, and the carapace (Simon 1902) is very similar. There is a slight chance that Simon has overlooked the male and described as a female (without mentioning the epigyne). Both *P. chrysochirus* and *P. galeatus* possess conspicuous scales at the same places (pedipalps, first legs). They are known from the other sexes, so there is a chance that they belong to the same species. As for the other cases newly identified material is required for any nomenclatural changes.

*Evarcha* Simon, 1902

*Evarcha squamulata* (Simon, 1902) **comb. nov.**  
(Figs 31-33)

*Polemus squamulatus* Simon, 1902: 45.

*Material examined.* Holotype male from Freetown. Handwritten labels in the tube: “20151 *Pol. squamulatus* E. S: Freetown (Mcq)”; “20151”; (MNHN, Paris; no. 20151).

*Diagnosis.* Medium sized salticids (Fig. 31). Male palp with a short embolus and a membranous conductor (Fig. 32).

*Description.* Male syntype (Fig. 7). Type specimen is old, but in fair condition. Carapace dark brown. Fovea circular. Abdomen dark brown, with black anterior side, with a dotted pattern. Legs dark brown.

*Measurements.* Total length 4.5. Cephalothorax 2.4 long, 1.8 wide, 1.2 high at PLE. Abdomen 2.9 long, 1.7 wide. OCA 1.1 long, 1.56 wide (anterior) 1.4 wide (posterior).

*Pedipalp.* Embolus short. Bulbus with a conductor (Figs. 31-32) behind the embolar base.

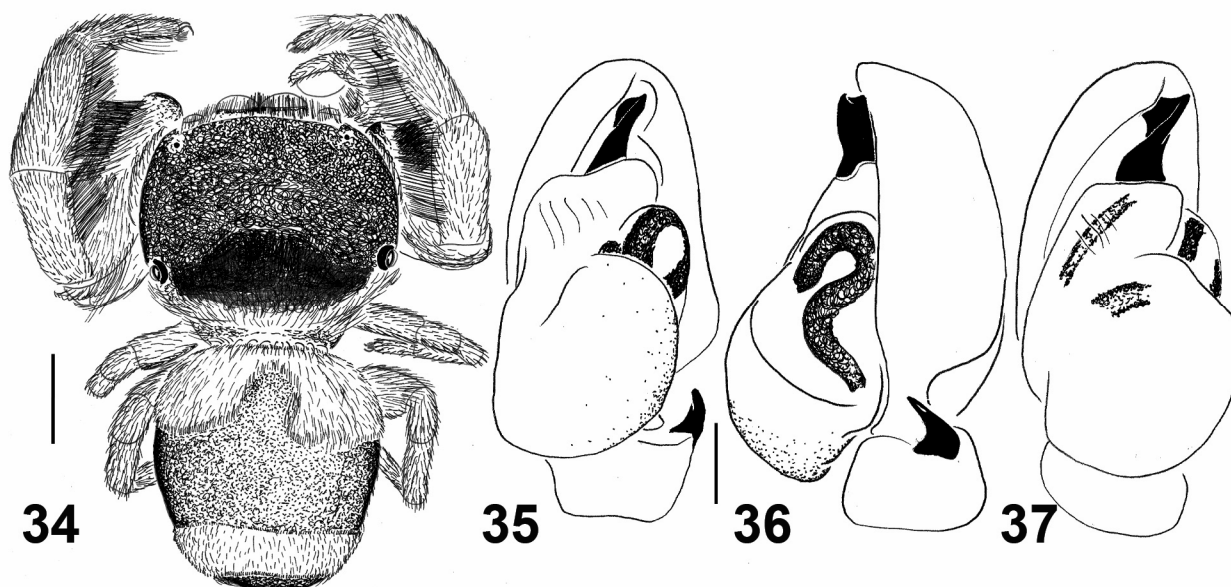
*Distribution.* Known only from Sierra Leone.

*Remarks.* The presence of the conductor and the habitus show similarity to *Evarcha* (species like: *E. culicivora*, *E. praeclara*, *E. picta*) so I propose to place *P. squamulatus* there. The species clearly does not belong to *Polemus*, neither according to somatic nor copulatory characters.



The genus *Baryphas* also could be a candidate (see *B. jullieni*). Both genera need a revision. The placement to *Evarcha* seems to be more convenient,

than to *Baryphas* as more species with very similar appearance belong to *Evarcha*. On the other hand, *Evarcha* is an older name.



Figures 34-37. *Rhene sulfurea* male holotype: 34 = male habitus, dorsal view, 35 = male palp, ventral view, 36 = male palp, retrolateral view, 37 = male palp, oblique view (scale bars: 34: 1 mm, 35-37: 0.2 mm)

*Rhene* Thorell, 1869

*Rhene sulfurea* (Simon, 1886)

(Figs 34-37)

*R. sulfurea* Simon, 1886: 352; Simon 1901: 635, 638, f. 747-748.

*Material examined.* Holotype male from Senegal. Handwritten labels in the tube: "7293 *Rh. Sulfurea* E. S: *St. Luis*"; "7293"; (MNHN, Paris; no. 7293).

*Diagnosis.* Typical *Rhene* species, with a twisted embolus (Figs. 35-37).

*Description.* Holotype male (Fig. 34). Type specimen in good condition. Carapace dark brown. Cephalothorax flat, densely covered with fine hairs. Abdomen dark orange, white dense

hairs constitute two anterior spots of and a transversal stripe. Legs dark brown.

*Measurements.* Total length 6.4. Cephalothorax 3.4 long, 3.4 wide, 1.75 high at PLE. Abdomen 3.1 long, 2.9 wide. OCA 2.5 long, 2.12 wide (anterior) 3.24 wide (posterior).

*Pedipalp.* Embolus short, twisted (Figs. 35-37). Tibial apophysis short, curved forward.

*Distribution.* Known only from Senegal.

*Remarks.* There are a number of *Rhene* species known from West-Africa by females only. *Rhene sulfurea* may be a matching male for one of them. It also possesses a straight and twisted embolus, which is not typical for the genus, therefore worth to note.

*Uxuma* Simon, 1902

*Uxuma impudica* Simon, 1902\*  
(Figs 38-42)

*U. impudica* Simon, 1902: 372; 1903a: 797, f. 931.

*Material examined.* Holotype male from Gabon. Handwritten labels in the tube: “17391 *Uxuma impudica* Gabon”; (MNHN, Paris; no. 17391).

*Diagnosis.* Small sized salticids (Fig. 38). Male palp with a twisted embolus (Figs. 41-42).

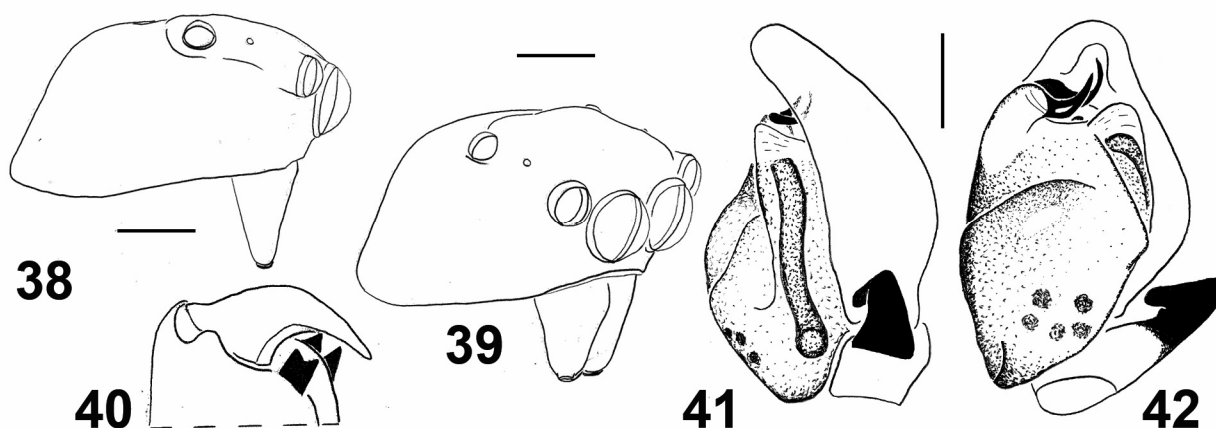
*Description.* Male holotype (Fig. 34). Type specimen bleached by ethanol, in poor condition: abdomen badly damaged. Carapace dark brown. Thoracic slope steep, starting well behind the ocular area. Legs dark brown.

*Measurements.* Total length cannot be measured. Cephalothorax 2.3 long, 1.2 wide, 1.0 high at PLE. OCA 1.1 long, 1.2 wide (anterior) 1.1 wide (posterior).

*Pedipalp.* Embolus short. Bulbus with a conductor (Fig. 41-42) behind the embolar base.

*Distribution.* Known only from Gabon.

*Remarks.* The specimen resembles those of *Habrocestum superbum* Wesołowska, 1999, but the “conductor” is unique. It is not possible to draw any significant conclusion before females are known.



**Figures 38-42:** *Uxuma impudica* male holotype: 38 = male carapace, lateral view, 39 = same, antero-lateral view, 40 = chelicerae ventral view, 41 = male palp, retrolateral view, 42 = male palp, ventral view (scale bars: 38-39: 1 mm, 40-42: 0.2 mm)

## DISCUSSION

The huge diversity of spiders is far from full exploration. Although jumping spiders are belonging to the most species rich family, there are still a large number of new taxa to be discovered and described. The works in the last and in the 19<sup>th</sup> century do provide us with a largest number of names, but unfortunately a smaller portion could be used without any doubt or type examination. As rumour says M. E. Galiano has spent a half a year in the Musée national d'Histoire Natu-

relle only checking all the Salticidae types described by Simon. Her publication (Galiano 1963) has founded the salticid taxonomy in South America, since many known taxa were illustrated. Recently her labels are still good hints to find out whether a specimen is a name-bearer or not, since Simon did not distinguished his types from other material. Such a basic work for West-Africa is not exists, although the Diagnostic Drawing Library of Prószyński (2007), which is a web-based collection of original drawings of different salticid taxa, covers pretty much of the genera. My aim

was to fill out the remaining parts, with even an iconographic paper. If one could use this paper to identify African fresh material, there would be a new basis for future nomenclatural changes, which I am reluctant to do now, because of insufficient material and the specimens' poor condition.

During the study, a number of characters have been found which need further examination to resolve relationships among the genera.

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