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Revision of the spider genus *Mystaria* Simon, 1895 (Araneae: Thomisidae) and the description of a new genus from the Afrotropical region

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Abstract

The spider genera *Mystaria* Simon, 1895 and *Paramystaria* Lessert, 1919 are revised (Mystarini: Thomisidae). About 400 individuals were studied. The approach followed was classical taxonomy using illustrated sexual dimorphic copulatory characters and described morphological characters, photographed or measured. *Paramystaria* is considered a junior synonym of *Mystaria*, based on similarity to the type *M. rufolimbata* Simon, 1895 but with the exclusion of *M. unicolor* Simon, 1895, a species last studied in 1895. *Mystaria unicolor* is re-described and placed in a new genus, *Leroya* **gen. n.**, together with *L. silva* **sp. n.** (♂♀, DRC) which is recognised as the type species. *Mystaria* now contains 13 well-defined species, four of which are in new generic combinations. Four males are described for the first time, and eight new species. Re-described species include *M. flavoguttata* Lawrence, 1952, *M. lata* Lawrence, 1927, *M. rufolimbata* and *M. variabilis* Lessert, 1919. Subspecies elevated to species level include *M. occidentalis* Millot, 1942 and new species descriptions in-

clude *M. budongo* sp. n. (♂, Rwanda, DRC, Uganda), *M. irmatrix* sp. n. (♀♂, Mozambique, South Africa) *M. lindaicapensis* sp. n. (♀♂, South Africa), *M. mnyama* sp. n. (♀♂, South Africa), *M. oreadae* sp. n. (♀, Rwanda, DRC), *M. savannensis* sp. n. (♀♂, Botswana, South Africa, Zambia, Zimbabwe), *M. soleil* sp. n. (♀♂, Uganda, Kenya) and *M. stakesbyi* sp. n. (♀♂, Ghana, DRC, Kenya, Rwanda, Tanzania, Uganda). The insufficiently known taxa *Paramystaria decorata* Lessert, 1919 and *P. variabilis delesserti* Caporiacco, 1949 are also transferred to *Mystaria*. Keys are provided to species and related tribal genera, with geographic distributions of species recorded. Revisions of more genera are needed, in particular of those genera related to *Mystarina*, before phylogenetic relationships can be considered.

Key words: crab spiders, cheliceral teeth, *Leroya*, *Mystarina*, *Paramystaria*, synonym, taxonomy

Introduction

This paper, the 11th in a series by Dippenaar-Schoeman on the family Thomisidae of the Afrotropical region, forms part of a revision of the tribe *Mystarina*; the genera *Mystaria* Simon, 1895 and *Paramystaria* Lessert, 1919 were revised (Table 1). The genus *Mystaria* was described by Simon (1895) represented by the type species *M. rufolimbata* Simon, 1895 and *M. unicolor* Simon, 1895, both collected from Sierra Leone. In the revision, these two species were carefully studied and found to have no similar diagnostic characters which indicated that they may not be closely related, and consequently, are not considered to represent the same genus.

TABLE 1. Six tribes of the Dietinae of the Afrotropical region and their associated genera as recognised by Simon (1895) and listed by Roewer (1954).

| 1 Amyciaeini | 2 Apyretini | 3 Dietini | 4 Emplesiogonini | 5 <i>Mystarina</i> | 6 Tagulini |
|-------------------------------|--------------------------------|--------------------------------|------------------------------------|-----------------------------------|----------------------------|
| <i>Amyciaea</i> Simon, 1885 | <i>Apyretina</i> Strand, 1929 | <i>Diplotychus</i> Simon, 1903 | <i>Emplesiogonus</i> Simon, 1903 | <i>Mystaria</i> Simon, 1895 | <i>Tagulis</i> Simon, 1895 |
| <i>Hewittia</i> Lessert, 1928 | <i>Lampertia</i> Strand, 1907 | <i>Oxytate</i> Koch, 1878 | <i>Plastonomus</i> Simon, 1903 | <i>Paramystaria</i> Lessert, 1919 | |
| | <i>Zametopias</i> Thorell 1892 | <i>Phaenopoma</i> Simon, 1895 | <i>Pseudoporrhopis</i> Simon, 1886 | <i>Sylligma</i> Simon, 1895 | |
| | | <i>Ostanes</i> Simon, 1895 | | | |

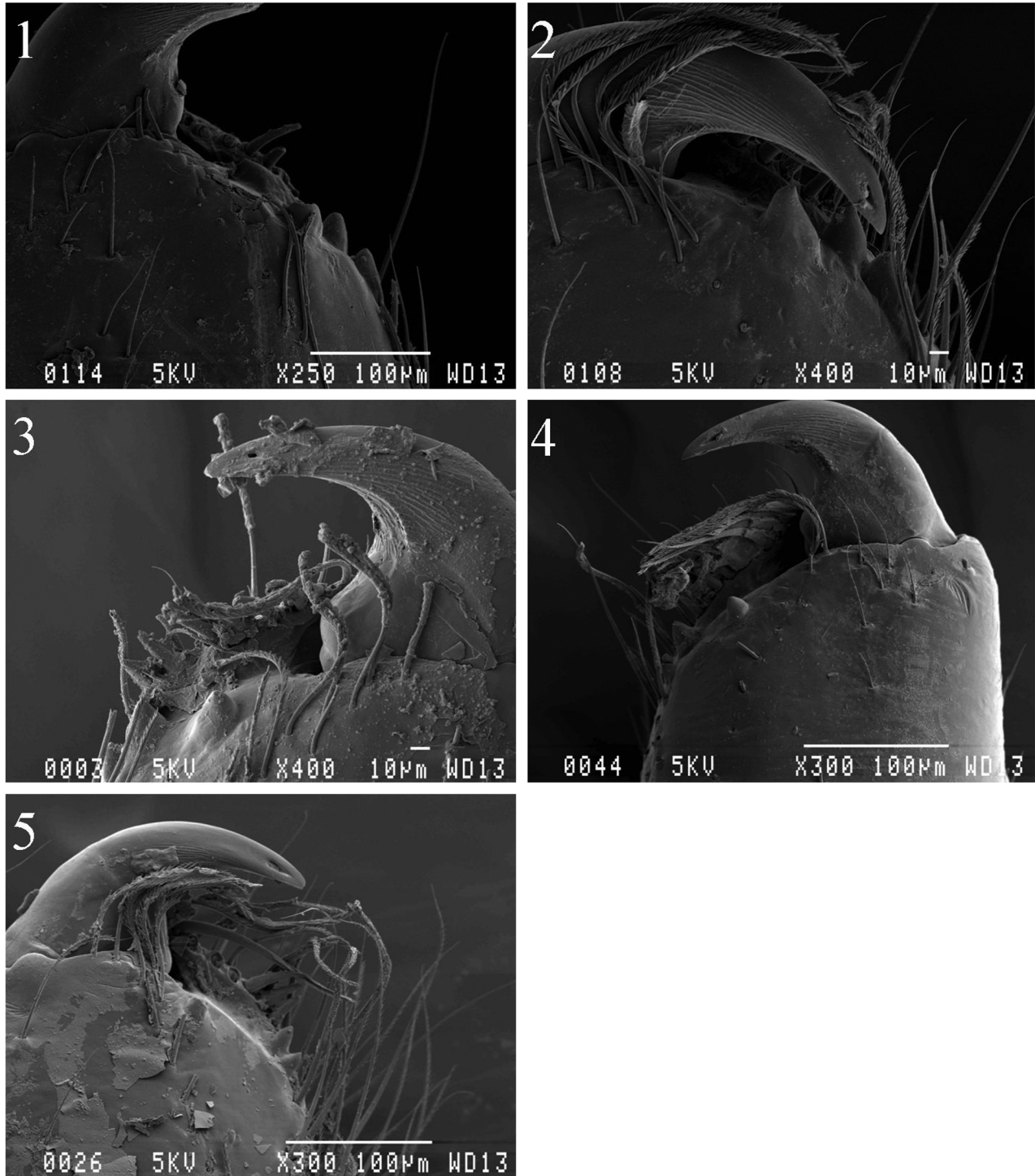
A second genus, *Paramystaria* from Tanzania was described 24 years later by Lessert (1919), and included two species, *P. variabilis* Lessert, 1919, the type species, and *P. decorata* Lessert, 1919. Another two species were subsequently added, namely, *P. lata* Lawrence, 1927 from Namibia, and *P. flavoguttata* Lawrence, 1952 from the Democratic Republic of Congo (DRC). Due to colour variation, differing eye distances and cephalothorax form in *P. variabilis*, two subspecies were recognised by Millot and Caporiacco, namely, *P. v. occidentalis* Millot, 1942 from Republic of Guinea and *P. v. delesserti* Caporiacco, 1949 from Kenya.

Lessert (1919) diagnosed *Paramystaria* and the type, *P. variabilis* on the presence of cheliceral teeth on the pro- and retromargin of the cheliceral furrow (Figs 1–5). However, after examining the type species of *Mystaria*, *M. rufolimbata*, it was also proven to have three small teeth on the cheliceral margins as was observed by Jézéquel (1964). The presence of these small teeth was observed in all the species described in *Paramystaria*. Such small characters possibly may not have been visible to Simon (1895) without modern technology such as SEM and sexually dimorphic characters such as the copulatory organs were not yet used to identify species. On the other hand, teeth on chelicerae in *M. unicolor* are absent, only long setae on the edge of the promargin are present.

Mystaria rufolimbata, and all species of *Paramystaria* share similar morphology, not only with respect to their chelicerae, but also in eye patterns, clypeal length, variable abdominal and leg patterns and copulatory organs. The median ocular quadrangle (MOQ) is small with clypeal length equal to or slightly shorter than MOQ length. Apparent individual abdominal patterns vary within and/or between species. Copulatory organs in females include simple epigynes and complex coiling intromittent canals while males have a disc-shaped tegulum, long, coiling emboli and delicate retro-lateral tibial apophysis (RTA).

Based on the similarities in all of these characters, *Paramystaria* is here recognised as a junior synonym of *Mystaria* and all the species are transferred to *Mystaria*. However, this decision entails the exclusion of *M.*

unicolor, which does not possess small cheliceral teeth, having only serrated setae on the cheliceral edge. Added to this, it differs in the above-mentioned characters as follows: posterior median eyes very small, clypeal length much shorter than MOQ length and body without patterns. Copulatory organs in females are recognised by a dark epigynal mark, without coiling intromittent canals. Males lack the coiling emboli but rather possess a short, thickened embolus and strong RTA. Therefore *M. unicolor* and *L. silva* **n. sp.** are included in the new described genus *Leroya*.



FIGURES 1–5. SEM photographs of chelicerae of *Mystaria* species. 1 *M. rufolimbata* Simon, 1895 from Democratic Republic of Congo, Walikale; 2 *M. flavoguttata* (Lawrence, 1952) **comb. n.** from South Africa, Richards Bay; 3 *M. savannensis* **sp. n.** from South Africa, Kruger National Park, Letaba Camp; 4 *M. soleil* **sp. n.** from Kenya, Kakamega; 5 *M. budongo* **sp. n.** from Kakamega. Scale lines = 100 µm (1,4,5), 10 µm (2,3).



FIGURE 6. Photograph of a *Mystaria* spider, caught in the act by Charissa de Lange.

Members of the genus *Mystaria* are plant dwellers and are well known only from the African region. Geographical records show their range to be extended from Ethiopia in the north, Republic of Guinea in the west, along the eastern shore to the Eastern Cape Province in South Africa. They commonly hang from their own silk thread while eating prey. The material examined was collected mostly from vegetation such as shrubs and grasses as well as from the tree canopy of indigenous forests, some were found near coastal beaches, estuaries, rivers, wetlands and forest areas. Members of *Leroya* **gen. n.** are rare in collections and little is known about their ecology and behaviour. Collected specimens are from tropical rainforests in Central Africa.

Material and methods

Material housed in the following collections (abbreviations in parentheses) was examined: American Museum of Natural History (AMNH), New York, U.S.A; California Academy of Science (CAS), San Francisco, U.S.A; Iziko Museums—South African Museum (SAM), Cape Town, South Africa; Koninklijk Museum voor Midden-Afrika (MRAC), Tervuren, Belgium; Musée d’Histoire Naturelle (MNHG), Geneva, Switzerland; Museum of Comparative Zoology (MCZ), Harvard University, Cambridge, U.S.A; Musée National d’Histoire Naturelle (MNHN), Paris, France; Natal Museum (NM), Pietermaritzburg, South Africa; National Collection of Arachnida (NCA), ARC-Plant Protection Research Institute, Pretoria, South Africa; National Museum (NMBA), Bloemfontein, South Africa; Senckenberg Museum of Natural History (SMF), Frankfurt, Germany and Zoologisches Forschungsmuseum Alexander Koenig (ZFMK), Bonn, Germany.

The description format and the abbreviations of morphological terms used in the present study for the most part follow terminology explained in Ono (1988). All specimens examined were preserved in alcohol, causing loss of the original bright colouring observed in live specimens (Fig. 6). The following character abbreviations were used in the present study, *Body*: AL—abdomen length; AW—abdomen width; CL—carapace length; CW—carapace width; CH—carapace height; Clyp—clypeus; CLL—clypeal length; SL—sternum length; SW—sternum width; and TL—total length. *Eyes*: AER—anterior eye row; AME—anterior median eyes; ALE—anterior lateral eyes; PER—posterior eye row; PME—posterior median eyes; PLE—posterior lateral eyes; MOQ—median ocular quadrangle; MOQ-L—median ocular quadrangle length; MOQ-W—median ocular quadrangle width; MOQ-AW—median ocular quadrangle anterior width; and MOQ-PW—median ocular quadrangle posterior width. *Legs*: Fe—femur; Pat—patella; Tib—tibia; Mt—metatarsus; and Ta—tarsus. *Palp*: VTA—ventral tibial apophysis; and RTA—retrolateral tibial apophysis.

All characters were examined using stereo and compound microscopes. Characters were examined under 40 x magnification using a Wild M3C light microscope (Wild, Heerbrugg, Switzerland) fitted with a calibrated 10x micrometer ocular lens, with measurements being recorded to the nearest 0.01 mm. A Vickers compound microscope (Vickers Instruments Limited, York, England) was used to study copulatory organs, and drawings were made with the aid of a Camera Lucida (Leica-Leitz Wetzlar, Vienna, Austria). A Nikon DXM 1200 digital camera (Nikon, Tokyo, Japan) was used for photography on both a Nikon SMZ 800 stereo microscope (Nikon, Tokyo, Japan) and a Nikon Optiphot compound microscope (Nikon, Tokyo, Japan).

For SEM, structures such as tarsal segments of the legs, chelicerae and male and female copulatory organs in spider samples preserved in ethanol, were dissected, air dried and mounted on double-sided carbon tape on aluminum stubs. These were then sputter-coated with gold to a thickness of *ca* 15–20 nm. Mounted samples were then viewed under a JEOL JSM-840 scanning electron microscope (JEOL, Tokyo, Japan) at an accelerating voltage of 5 kV in order to obtain high magnification photographs.

Quantitative morphological characters in the present study were mainly adopted from those previously defined and used by Ono (1988). Thirty three quantitative measurements per specimen were recorded using an ocular micrometer on a Wild M3C light microscope and included both linear dimensions as well as ratios. About five specimens of each sex per species were studied and measurements recorded to the nearest 0.01 mm. All measurements in study are given in millimeters.

List of measurements and ratios included in this study (Fig. 7):

Length, height and width measurements: CH—carapace height (measured on higher thoracic lateral side of carapace); CI—carapace index (length of carapace divided by width); CL—carapace length (measured from clypeus anterior edge to carapace posterior edge); CLL—clypeus length (measured from the anterior edge of clypeus to AME); and CW—carapace width (over widest part of carapace).

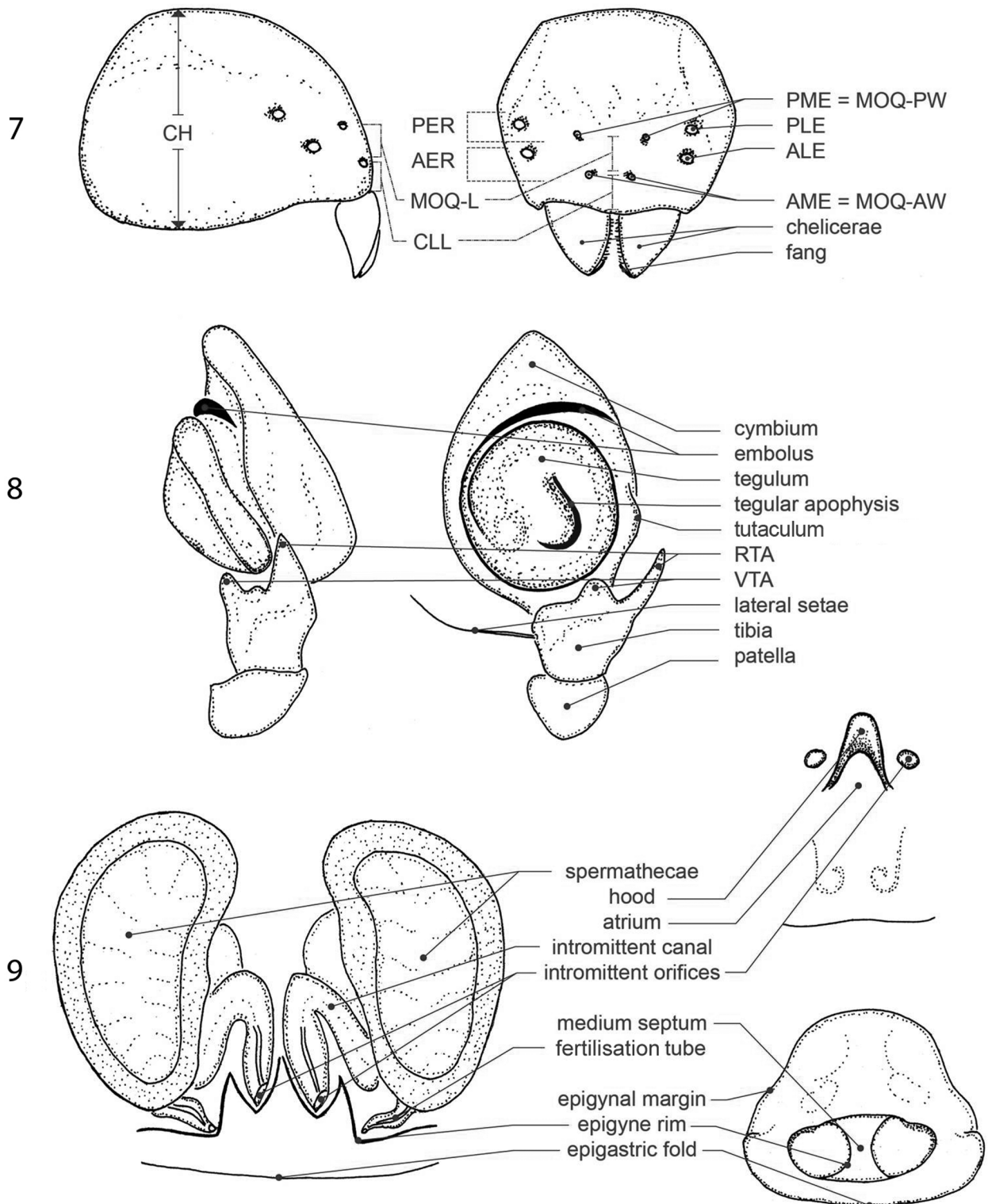
Eye distances and ratios: Anterior eye ratios: AME–AME/AME–ALE (ratio of distance between AME to distance between AME and ALE). Anterior eye row: distances between AME–AME (measured from the centre of AME = MOQ–AW) and (AME–ALE) (measured from the centre of AME to the centre of ALE). ALE/AME (ratio of the diameters of ALE and AME); Clyp/AME–AME (ratio of clypeus length to the distance between AME). MOQ: quadrangle delimited by distances between four median eyes: MOQ-L = AME–PME (distance between the centre of AME to the centre of PME); MOQ eye ratios: MOQ-AW/MOQ-PW = AME/PME (ratio of the anterior width to the posterior width of MOQ); MOQ-L/MOQ-W = MOQ-L/MOQ-AW/PW (ratio of the length to width of MOQ). Posterior eye ratios: PME–PME/PME–PLE (ratio of distance between PME to distance between PME and PLE). Posterior eye row: distances between (PME–PME) (measured from the centre of PME = MOQ–PW) and (PME–PLE) (measured from the centre of PME to the centre of PLE); and PLE/PME (ratio of the diameters of PLE and PME);

Sternum dimensions: SI—sternum index (ratio of the sternum length to its width); SL—sternum length (measured over the longest part of the sternum); and SW—sternum width (measured over the widest part of the sternum).

Leg dimensions: Fe, Pat, Tib, Mt, Ta were measured for leg I, II, III, IV on the lateral side of each segment and the sum is given as the total length of each leg. Leg formula is given from the longest to the shortest leg e.g. II:IV:I:III. *Abdomen dimensions:* AI—abdomen index (ratio of abdomen length to its width). AL—abdomen length (measured from the anterior edge along a mid–dorsal line to the posterior edge); AW—abdomen width (measured over the widest part of the abdomen);

Body length: TL—total length (the sum of CL and AL).

The copulatory organs were dissected using either tweezers or a minute needle mounted on a wooden stick. In males, the left palp (Fig. 8), where available, were removed, at the patella. In females the epigynes (Fig 9) were carefully removed by lightly poking around the epigyne margin, from the ventral side of the abdomen thereby lifting out the internal copulatory organs. The dissected male and female copulatory organs were temporarily mounted on a slide in a polyvinyl alcohol solution (PVA) (Kranz & Walter 2009) and placed under both a Vickers compound microscope and Nikon Optiphot compound microscope to study and to photograph. The dissected structures were subsequently stored together with their associated specimens in small glass vials.



FIGURES 7–9. Diagram of qualitative and quantitative characters. 7 Carapace lateral and frontal views; 8 Genital bulb retro-lateral and ventral views; 9 Epigyne dorsal and ventral views.

Taxonomy

Family Thomisidae Sundevall, 1833

Genus *Mystaria* Simon, 1895

Mystaria Simon 1895: 989; type species by original designation: *Mystaria rufolimbata* Simon, 1895. Jézéquel 1964: 1111; Ono 1988: 32.

Paramystaria Lessert 1919: 102 (**syn. n.**); type species by original designation: *Paramystaria variabilis* Lessert, 1919.

Diagnosis. Small spiders, body and/or legs usually decorated with spots or bands (Figs 12, 15, 21, 36). Median eyes equal in size, smaller than laterals, with MOQ area narrower in front. MOQ length only slightly shorter or longer than clypeal length. Chelicerae equipped with three small teeth (Figs 1–5). Epigyne rim simple with simple outlines (Figs 51, 59, 73, 81), intromittent canals with numerous complex coils (Fig. 74). Male with simple bulb, disc-shaped tegulum, long coiling embolus, tibia with VTA curved at tip and delicate RTA (Figs 71, 72, 87, 88).

Re-description. Body length 2.1–3.3 in males, 1.90–5.24 in females.

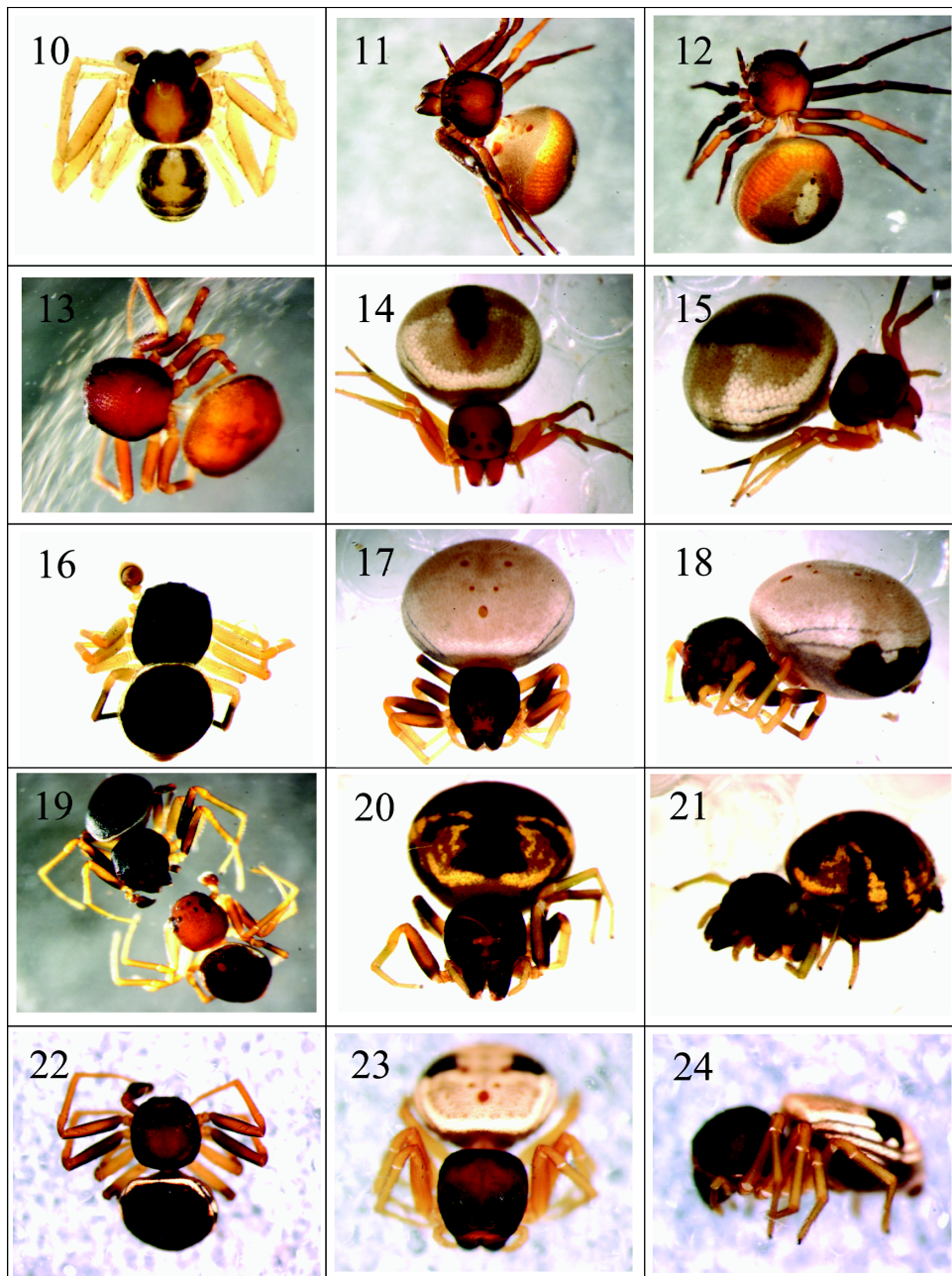
Colour. Carapace at times with patches or bands, may differ between individuals within a species or in case of males usually uniform. May have dark patches over eye region or a yellow patch on clypeus and AME area (Figs 20, 33, 40); abdomen usually with varying patterns or often uniform in case of males. Colours and bands on legs differ between species. **Carapace.** Circular to cube-shaped viewed from above, elevated in thoracic and sometimes cephalic region, truncated posteriorly, sloping slightly anteriorly (Figs 11, 12); smooth without setae to fairly dense covering of fine setae, usually more dense in cephalic region and on clypeus, sometimes with longer erectile setae on postero-thoracic and postero-lateral region, and around lateral eyes (Figs 38, 39). **Clypeus.** Vertical with or without long setae. **Chelicerae.** Three cheliceral teeth present, two on promargin and one on retromargin (Figs 1–5), with incurving serrated setae at tip on dorsal margin of chelicerae. **Mouth parts.** Labium triangular, usually longer than wide, endites converged and indented with scopula hairs on edge. **Sternum.** Heart-shaped, usually wider than long, anterior edge straight; posterior tip not extending beyond coxae IV; edge bordered. **Eyes.** AER recurved; AME < ALE; AME closest to each other; PER recurved, slightly wider than AER; PME < PLE; PME nearest to PLE; MOQ area wider than long; lateral eyes situated on small flattened tubercles. **Legs.** Long and slender, with second pair usually longest in females, leg formula: II:I:IV:III, males with first pair of legs usually longest, leg formula: I:II:IV:III, long to medium length setae present; usually two spiniform setae ventrally on tibiae and metatarsi, distally on all legs; scopula hairs denser on leg III and IV; trichobothria present in a row on all legs; two dentated tarsal claws (Figs 91–114) with a well-defined, thick base in females, less defined base in males, with approx. 12 long slender teeth present on all tarsal claws, fewer and shorter in males with the second tooth usually on legs III & IV or II modified (flattened or broadened). **Abdomen.** Round to oval, bearing numerous short setae; dorsally with seven sigillae grouped in arrow-shaped formation (Fig. 17), ventrally with small sigillae in two rows; striae present ventrally around abdomen edge and dorsally of spinnerets, males with scutum, rarely with bright patterns on body (Figs 10, 13, 16). **Spinnerets.** Small and conical, with numerous short setae; anterior pair largest. **Epigyne.** Simple or delicate rim (Fig. 47, 67, 77) and atrium with (Fig. 85) or without hood, intromittent orifices open laterally or antero-laterally on atrium; intromittent canals long and extended then curving back, forming numerous complex coils, shape usually differs slightly on both sides; spermathecae small, round, situated posteriorly; fertilisation tubes short. **Palp.** Tibia bearing long setae; bulb round, often with tutaculum (Figs 8, 61); embolus thin (Fig. 45) or thick, of medium to long length (Fig. 43), coiling approx. three times around bulb; RTA sometimes broad at base (Fig. 75), proximally tooth-like and slender (Figs 49, 53), to broad (Figs 43, 45) or long and slender, extending far beyond the tutaculum (Figs 61); VTA with curved tip, long almost similar length as RTA (Fig. 66).

Natural history. Members of *Mystaria* live on vegetation such as trees, shrubs, grasses or leaf litter in a diversity of natural areas including: savanna, woodland, grassland, canopies of rainforests, forest galleries, coastal dune-, sand- and riverine forests in river banks, swamps, wetlands, estuaries, valleys and mountains. Adults are found throughout the year.

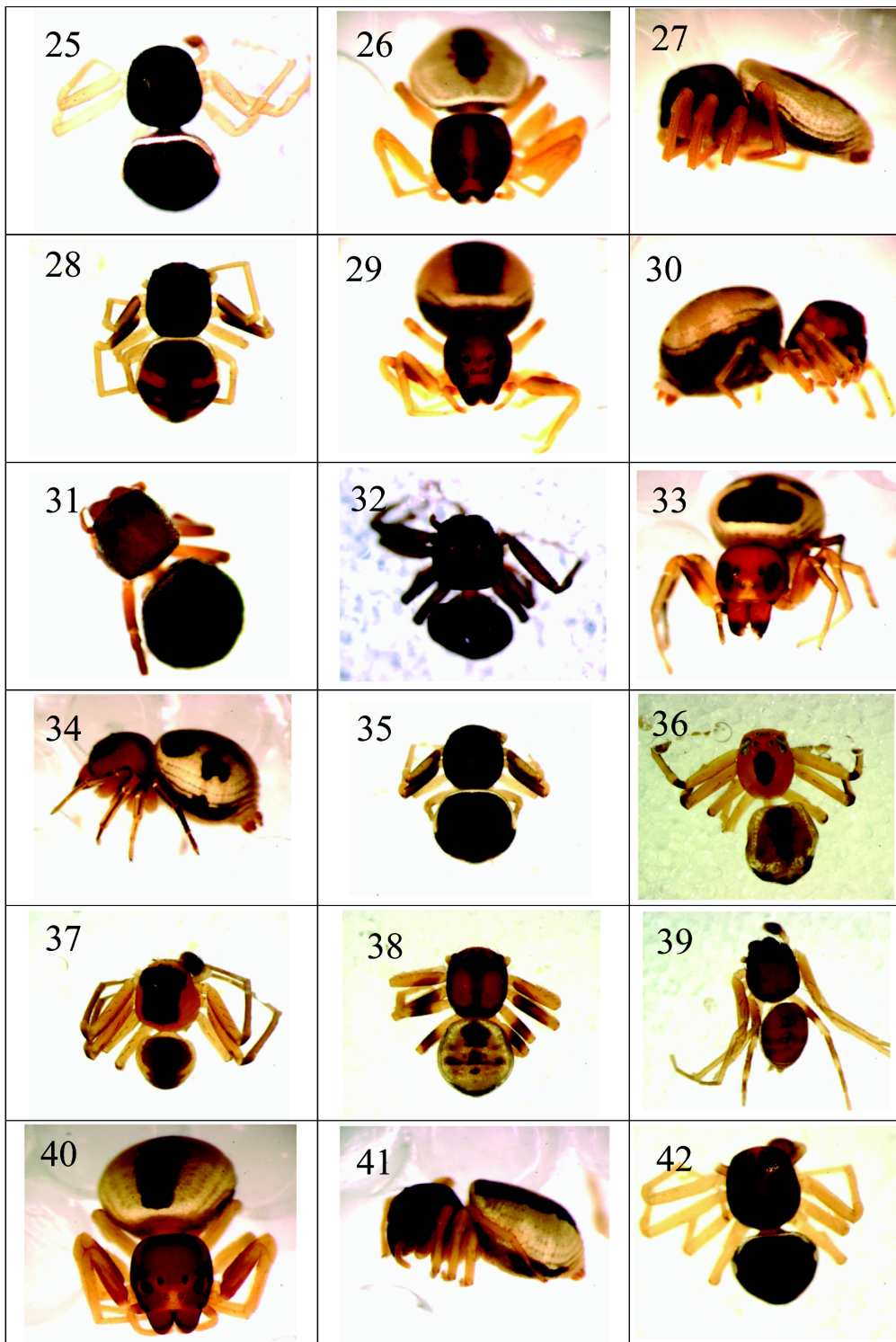
Distribution. This genus is endemic to Africa and known from the Democratic Republic of Congo (DRC), Republic of Guinea, Kenya, Mozambique, Namibia, Sierra Leone, South Africa and Tanzania. New records: Botswana, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Liberia, Malawi, Rwanda, Uganda, Zambia and Zimbabwe.

Key to species of *Mystaria*

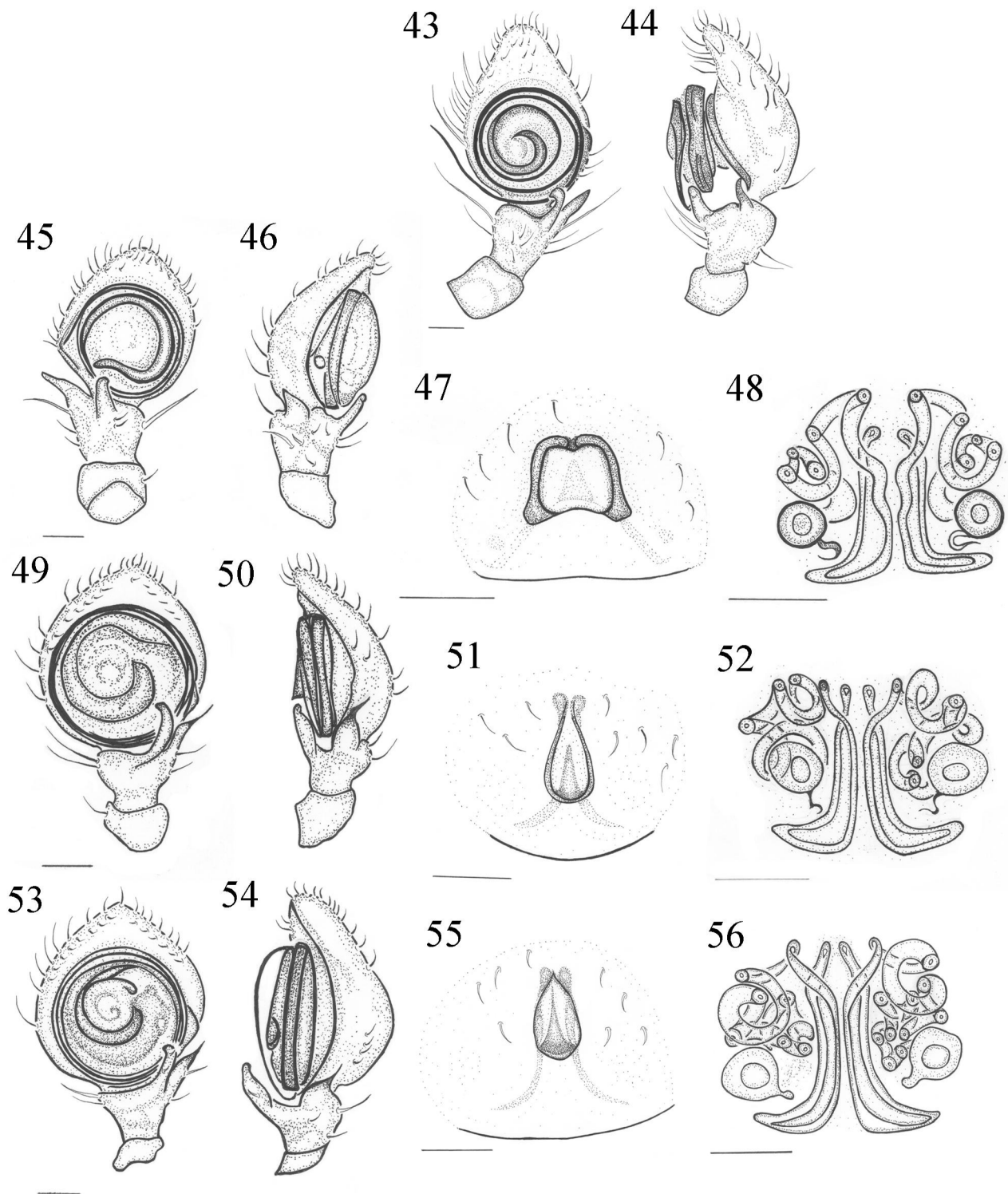
1. Females 2
- Males 14
2. Epigyne without a hood (Fig. 51) 3
- Epigyne with a hood (Fig. 81) 12
3. Rim of atrium U-shaped (Fig. 59) 11
- Rim of atrium not U-shaped 4
4. Rim of atrium not teardrop-shaped, rather darkly defined with contrasting pale atrium (Figs 47, 73); abdomen usually decorated with two spots on dorso-posterior end or with contrasting border; legs of similar colour to carapace, sometimes leg III different colour 5
- Atrium teardrop-shaped or elongated (Figs 51, 55, 67, 77, 89); colour of body and legs different 6
5. Atrium cube-shaped; fovea area with fine line of dense setae (Figs 11, 12, 47) *M. flavogutatta* **comb. n.**
- Atrium bell-shaped; more robust spider with broad carapace and no fine line of setae in fovea region (Figs 31, 73) *M. rufolimbata*
6. Atrium long-oval (Fig. 77); all leg segments except femora dorsally with a longitudinal stripe (Fig. 34) *M. savannensis* **sp. n.**
- Atrium not as above teardrop-shaped; legs without longitudinal stripes 7
7. Atrium closed anteriorly; femora dark with infuscated bands dorsoventrally; tibia IV with dark band (Figs 17, 18, 55) *M. lata* **comb. n.**
- Rim of atrium not closed anteriorly; legs of uniform colour or with a brown band on femora 8
8. Atrium elongate; metatarsi IV and sometimes tarsi dark (Figs 15, 51) *M. irmatrix* **sp. n.**
- Atrium posteriorly wide; tarsi and metatarsi not dark 9
9. Atrium almost horseshoe-shaped (Fig. 89) *M. variabilis* **comb. n.**
- Atrium more triangular (Fig. 67) *M. occidentalis* **comb. n.**
11. Atrium quadrangular with an anterior small notch (Fig. 63) *M. mnyama* **sp. n.**
- Atrium U-shaped (Fig. 59) *M. lindaicapensis* **sp. n.**
12. Atrium horseshoe-shaped, rim with small hood centrally (Fig. 69) *M. oreadae* **sp. n.**
- Atrium rim different, hood situated anteriorly, at distance from posterior rim 13
13. Epigyne with hood wide; atrium two half circles posteriorly to hood (Fig. 81) *M. soleil* **sp. n.**
- Hood narrow; atrium elongate, posteriorly to hood (Fig. 85) *M. stakesbyi* **sp. n.**
14. Males with anterior legs nearly twice the length of posterior legs; central area of body covered by an orange-yellow median band, a copper-brown median band or is uniformly brown; long, erectile setae present on carapace (Figs 10, 37, 39) 15
- Posterior legs only slightly shorter than anterior legs; body is uniformly copper brown or darker coloured, may have light patterns on abdomen; carapace sometimes with setae 17
15. Carapace pear-shaped, narrow anteriorly, distinct spiniform setae on legs, lateral eyes large (Fig. 10), bulb elongate and hairy (Fig 43); embolus long and very well-defined (Fig 44); RTA proximally blackened, and finger-like *M. budongo* **sp. n.**
- Carapace shape and eyes not as above; bulb apically widened (Figs 79, 83); embolus long, less-defined; RTA proximally finger-like, at an angle (Figs 80, 84) 16
16. Palp with VTA shorter or equal in length to RTA; carapace uniform brown as in Figs 39, 83, 84 *M. stakesbyi* **sp. n.**
- Palp with VTA longer than RTA; carapace yellow with brown median band on cephalic area, palp as in Figs 37, 79, 80 *M. soleil* **sp. n.**
17. All eight legs with longitudinal dorsal stripes over all segments starting at the patella of the leg (Fig. 34); palp as in Figs 75, 76. *M. savannensis* **sp. n.**
- Legs uniform or with bands on certain segments of legs 18
18. Carapace granular and hairy 19
- Carapace fairly smooth 21
19. Carapace with long setae on postero-thoracic edge and/or next to lateral eyes 20
- Carapace without setae on postero-thoracic edge; palp as in Figs 57, 58 *M. lindaicapensis* **sp. n.**
20. RTA finger-like, protruding from cymbium, palp as in Figs 45, 46 *M. flavogutatta* **comb. n.**
- RTA with spine-like tip, in contact with cymbium, palp as in Figs 71, 72 *M. rufolimbata*
21. Legs uniformly pale in colour, in sharp contrast to body (Fig. 25) with RTA very long, blackened, extending beyond the tutaculum of the palp, as in Figs. 61, 62 *M. mnyama* **sp. n.**
- Leg segments may be tinted, RTA not extending beyond the tutaculum 22
22. Legs with black bands only on the metatarsi and tarsi of leg IV, palp as in Figs 49, 50 *M. irmatrix* **comb. n.**
- Legs usually with bands on femora of leg I and tibia and metatarsi of leg IV 23
23. Legs with black infuscated bands dorso-ventrally on femora I, II, IV and tibia and metatarsi of leg IV; palp as in Figs 53, 54. *M. lata* **comb. n.**
- Legs with only light brown markings 24
24. Tip of RTA bent retrolateral-dorsad (Figs 65, 66) *M. occidentalis* **comb. n.**
- Tip of RTA sharp, straight (Figs 87, 88) *M. variabilis* **comb. n.**



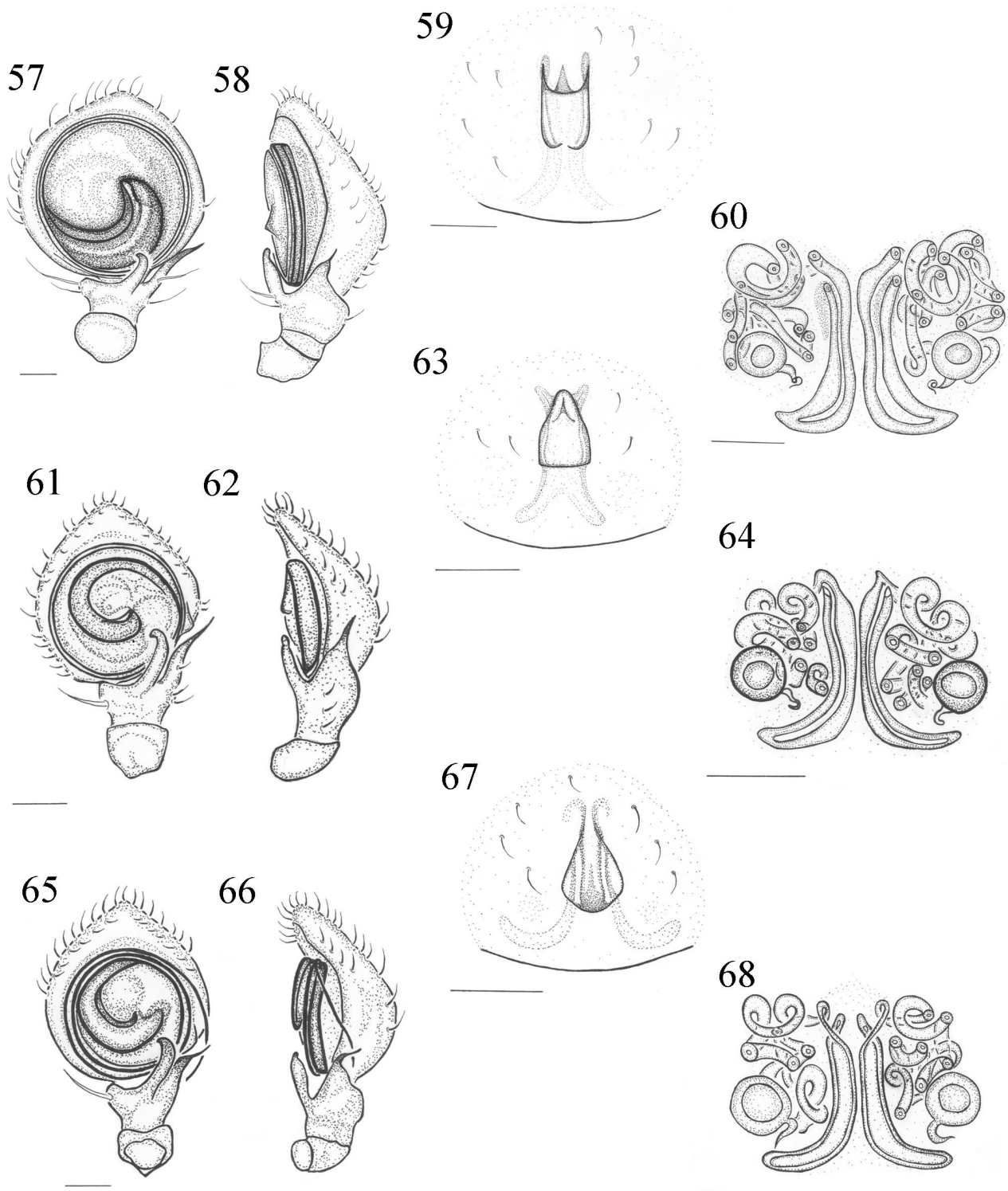
FIGURES 10–24. Microscope photographs of dorsal and lateral views of *Mystaria* species. 10 *Mystaria budongo* **sp. n.** male from Rwanda, Ibanda Makera (dorsal view); 11–13 *Mystaria flavogutatta* (Lawrence, 1952) **comb. n.** (11, 12 female from South Africa, Richards Bay antero-and postero-dorsal views, 13 male from South Africa, Punda Maria Camp dorsal view); 14–16 *Mystaria irmatrix* **sp. n.** (14, 15 female from Mozambique, Marracuene antero-and latero-dorsal views, 16 male from Marracuene postero-dorsal view); 17–19 *Mystaria lata* (Lawrence, 1927) **comb. n.** (17, 18 female from South Africa, Kei River Mouth antero-and latero-dorsal view, 19 two males from South Africa, Mazeppa Bay dorsal views); 20–22 *Mystaria lindaicapensis* **sp. n.** (20, 21 female from South Africa, Jeffreys Bay antero-and latero-dorsal views (specimen damaged on carapace), 22 male from South Africa, Knysna dorsal view); 23–24 *Mystaria mnyama* **sp. n.** (23, 24 female from South Africa, Tembe Elephant Park antero-and latero-dorsal views).



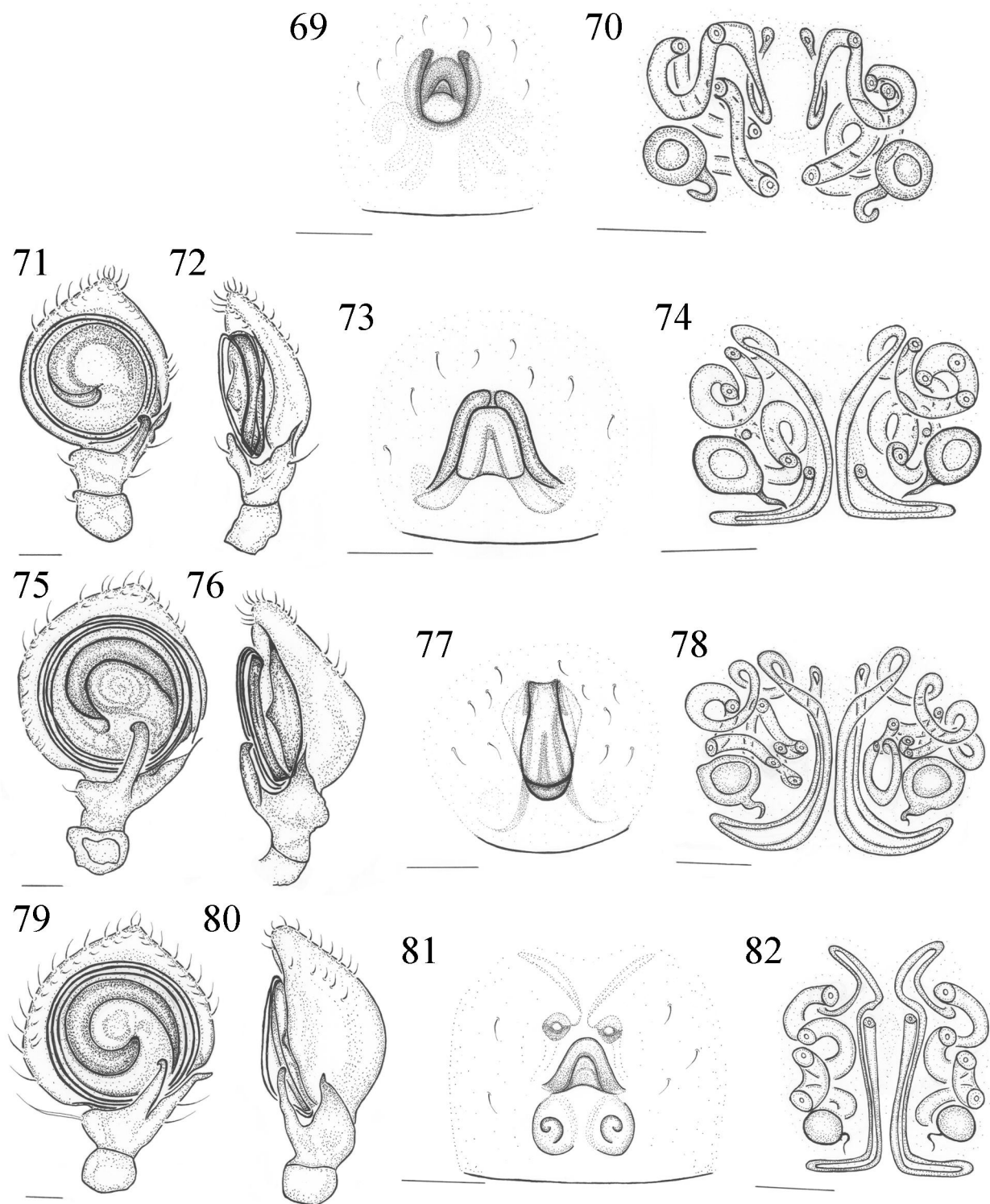
FIGURES 25–42. Microscope photographs of dorsal and lateral views of *Mystaria* species. 25 *Mystaria mnyama* **sp. n.** male from Tembe Elephant Park (dorsal view); 26–28 *Mystaria occidentalis* (Milot, 1942) **comb. n.** (26, 27 female from Democratic Republic of Congo, Kaisola antero- and latero-dorsal views, 28 male from Rwanda, Butare dorsal view); 29–30 *Mystaria oreadae* **sp. n.** female from Rwanda, Rwankuba antero- and latero-dorsal views; 31–32 *Mystaria rufolimbata* Simon, 1895 (31 female from Democratic Republic of Congo, Walikale dorsal view, 32 male from Gabon, Kinguélé dorsal view); 33–35 *Mystaria savannensis* **sp. n.** (33, 34 female from South Africa, Soutpansberg antero- and latero-dorsal views, 35 male from Soutpansberg dorsal view); 36–37 *Mystaria soleil* **sp. n.** (36 female from Kenya, Kakamega dorsal view, 37 male from Kakamega dorsal view); 38–39 *Mystaria stakesbyi* **sp. n.** (38 female from Ghana, Legon dorsal view; 39 male from Democratic Republic of Congo, Semliki dorsal view). 40–42 *Mystaria variabilis* (Lessert, 1919) **comb. n.** (40, 41 female from Democratic Republic of Congo, Kisantu antero- and latero dorsal views, 42 male from Democratic Republic of Congo, Butembo dorsal view).



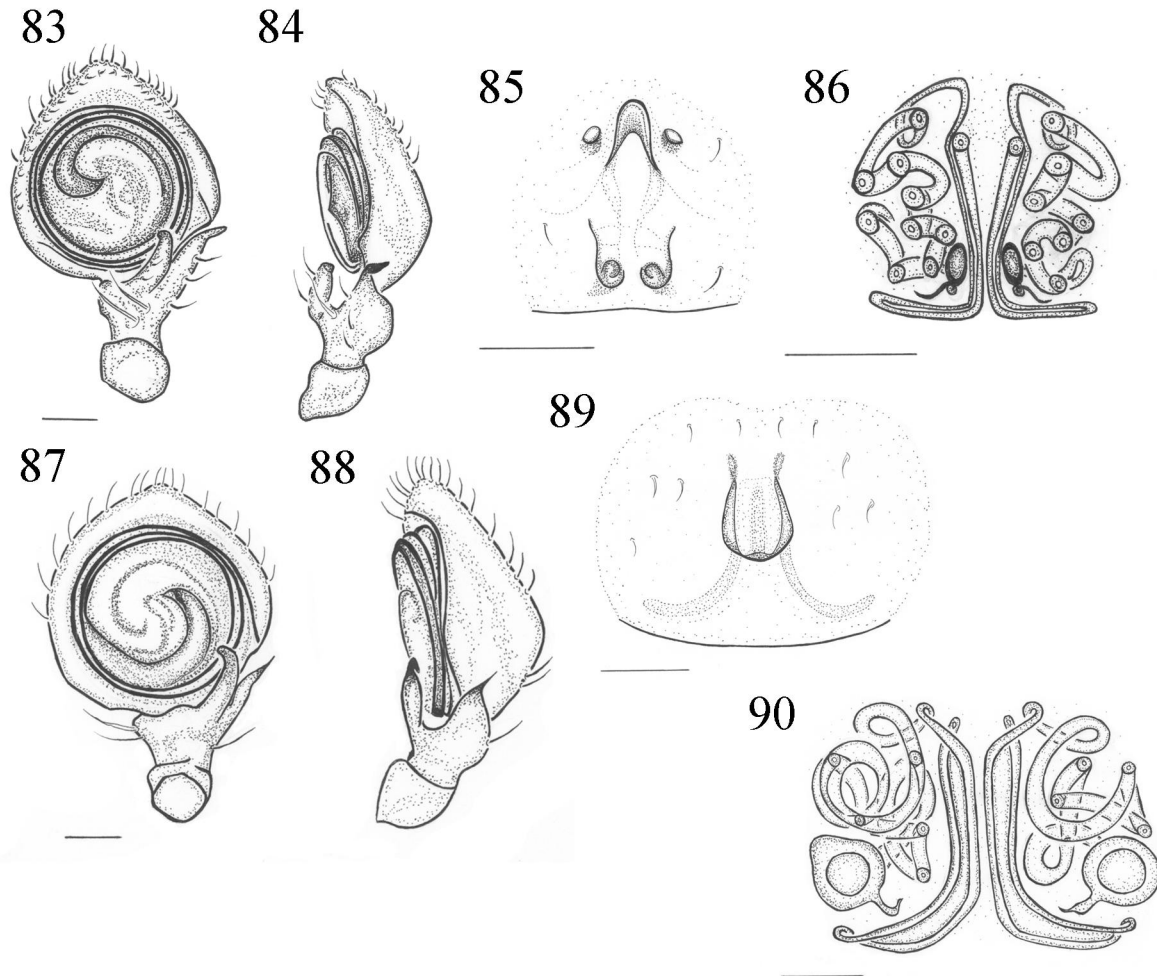
FIGURES 43–56. Line drawings of copulatory organs in male and female *Mystaria* species, with ventral- (left) and retro-lateral (right) views of male palps and ventral- (left) and dorsal (right) views of female epigynes. 43–44 *Mystaria budongo* **sp. n.** male left palp; 45–48 *Mystaria flavogutatta* (Lawrence, 1952) **comb. n.** (45, 46 male right palp, 47, 48 female epigyne); 49–52 *Mystaria irmatrix* **sp. n.** (49, 50 male left palp, 51, 52 female epigyne); 53–56 *Mystaria lata* (Lawrence, 1927) **comb. n.** (53, 54 male left palp, 55, 56 female epigyne). Scale lines = 10mm.



FIGURES 57–68. Line drawings of copulatory organs in male and female *Mystaria* species, with ventral- (left) and retro-lateral (right) views of male palps and ventral- (left) and dorsal (right) views of female epigynes. 57–60 *Mystaria lindaicapensis* sp. n. (57, 58 male left palp, 59, 60 female epigyne); 61–64 *Mystaria mnyama* sp. n. (61, 62 male left palp, 63, 64 female epigyne); 65–68 *Mystaria occidentalis* (Millot, 1942) comb. n. (65, 66 male left palp, 67, 68 female epigyne). Scale lines = 10mm.



FIGURES 69–82. Line drawings of copulatory organs in male and female *Mystaria* species, with ventral- (left) and retro-lateral (right) views of male palps and ventral- (left) and dorsal (right) views of female epigynes. 69–70 *Mystaria oreadae* **sp. n.** female epigyne; 71–74 *Mystaria rufolimbata* Simon, 1895 (71, 72 male left palp, 73, 74 female epigyne); 75–78 *Mystaria savannensis* **sp. n.** (75, 76 male left palp, 77, 78 female epigyne); 79–82 *Mystaria soleil* **sp. n.** (79, 80 male left palp, 81, 82 female epigyne). Scales = 10mm.



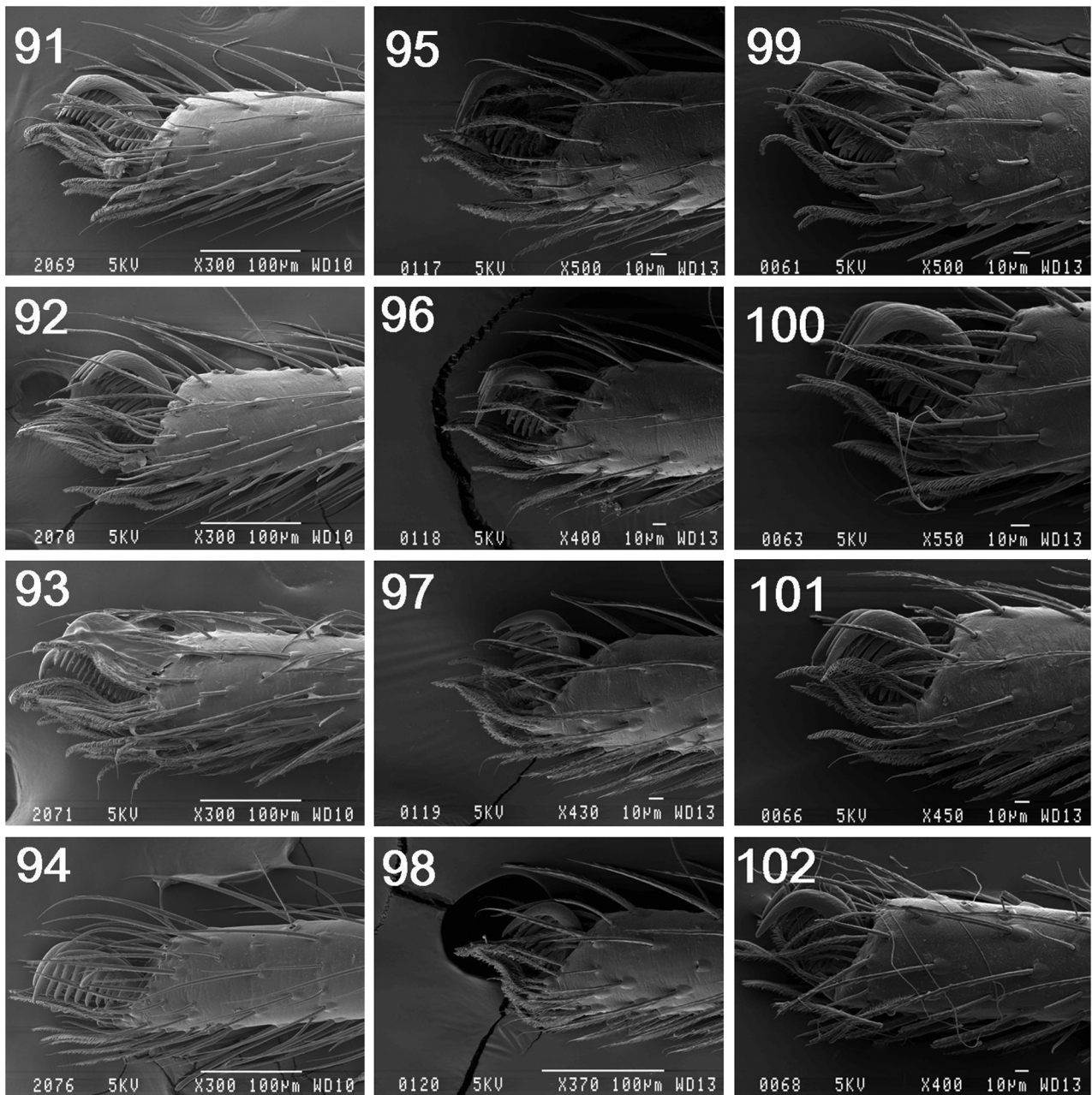
FIGURES 83–90. Line drawings of copulatory organs in male and female *Mystaria* species, with ventral- (left) and retro-lateral (right) views of male palps and ventral- (left) and dorsal (right) views of female epigynes. 83–86 *Mystaria stakesbyi* sp. n. (83, 84 male left palp, 85, 86 female epigyne); 87–90 *Mystaria variabilis* (Lessert, 1919) comb. n. (87, 88 male left palp, 89, 90 female epigyne). Scale lines = 10mm.

***Mystaria budongo* sp. n.**

Figs 5, 10, 43, 44, 111–115

Type material: Holotype: ♂, **RWANDA: Kibungo Province**, Ibanda Makera, Rusumo [02°09'S, 30°55'E], alt. 1450 m, gallery forest canopy fogging of *Teclea nobilis*, October 1993, T. Wagner (ZFMK AR 1307).

Paratypes: **DEMOCRATIC REPUBLIC OF CONGO (DRC): Orientale Region**, 1 ♂, Cyamudongo, Nyakabuye [02°34'S, 28°59'E], alt. 1750 m, canopy fogging *Carapa grandiflora*, October 1993, T. Wagner (ZFMK AR 1304). **KENYA: Western Province**, 2 ♂, Kakamega forest [00°22'N, 34°50'E], alt. 1600 m, secondary forest canopy fogging *T. nobilis*, January–February 2003, W. Freund (ZFMK AR 1305, 1306). **RWANDA: Eastern Province**, 3 ♂, Ibanda Makera, Rusumo [02°09'S, 30°55'E], alt. 1450 m, gallery forest canopy fogging *T. nobilis*, October 1993, T. Wagner (ZFMK AR 1308–1310). **UGANDA: Masindi Province**, 3 ♂, Budongo forest [01°45'N, 31°25'E], alt. 1200 m, secondary forest canopy fogging *Cynometra alexandri*, 15–25 January 1997, T. Wagner (ZFMK AR 1311, 1316, 1319); 2 ♂, Budongo forest [01°45'N, 31°25'E], alt 1200 m, primary forest canopy fogging *C. alexandri*, 15–25 January 1997, T. Wagner (ZFMK AR 1313, 1315); 1 ♂, same locality, swamp forest canopy fogging *Rinorea beniensis*, 15–25 January 1997, T. Wagner (ZFMK AR 1312); 3 ♂, Budongo forest [01°45'N, 31°25'E], alt. 1200 m, primary forest canopy fogging *R. beniensis*, 5–15 January 1997, T. Wagner (ZFMK AR 1314, 1317, 1318).



FIGURES 91–102. SEM photographs of tarsal claws and tufts on leg I–IV of female *Mystaria* species. 91–94 *M. rufolimbata* Simon, 1895 from South Africa, Hellsgate; 95–98 *M. oreadae* sp. n. from Rwanda, Rwankuba; 99–102 *M. savannensis* sp. n. from South Africa, Kruger National Park, Letaba Camp. Scale lines = 100 µm (91–94), 10 µm (95–102).

Etymology. Named after the Budongo forest, where most specimens were sampled. Noun in apposition.

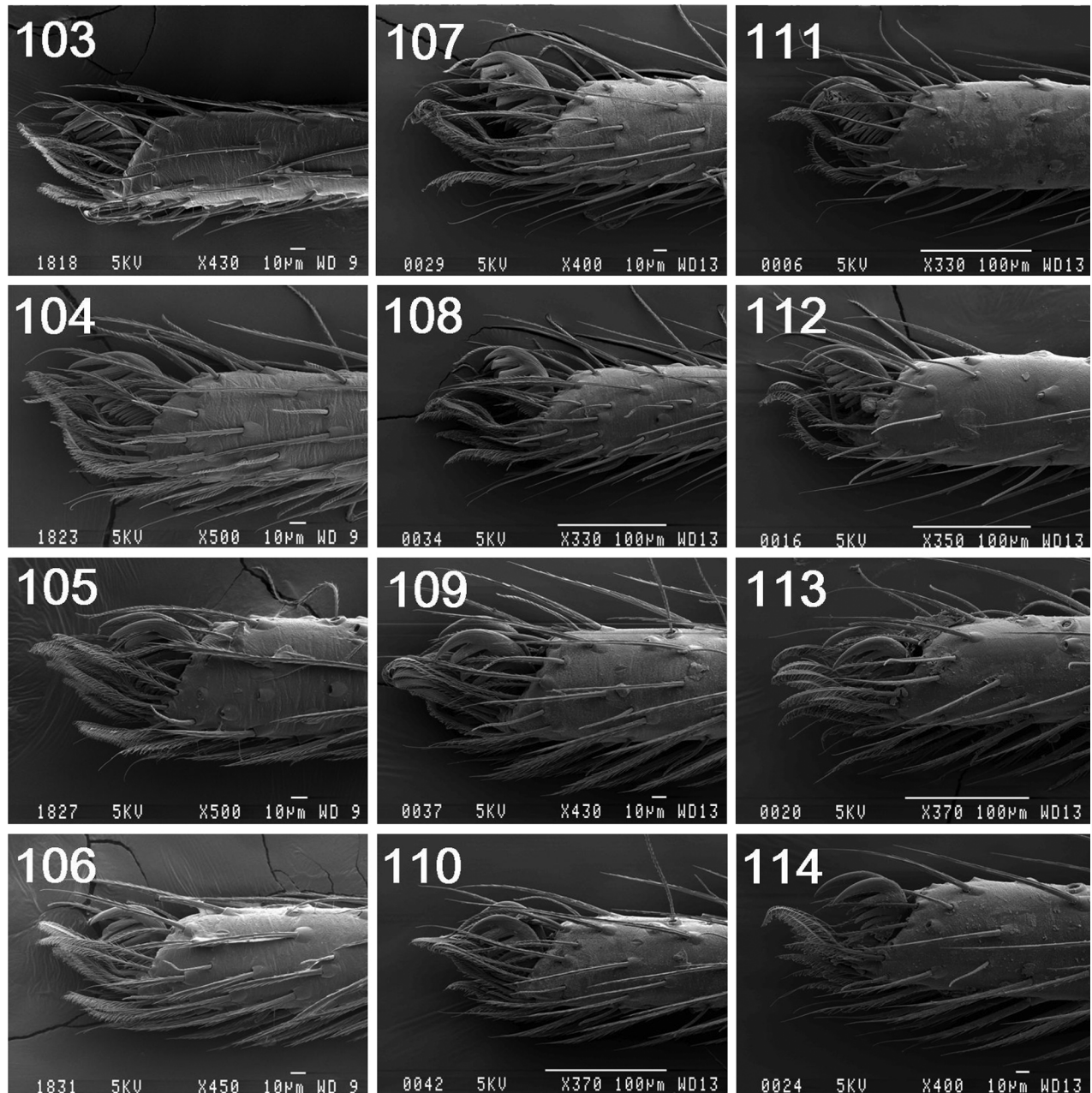
Diagnosis. Differs from other species by pear-shaped carapace, narrowed in eye region, with pale orange-yellow median band centrally, dark brown-black bands laterally (Fig. 10), lateral eyes situated closest to median eyes with AME situated on slight tubercles and carapace. Legs pale yellow with distinct spiniform setae. Bulb with long and relatively strong embolus; RTA sturdy, long, finger-shaped, VTA almost of same length as RTA, tip with distinct curve (Figs 43, 44).

Description. Female. Unknown.

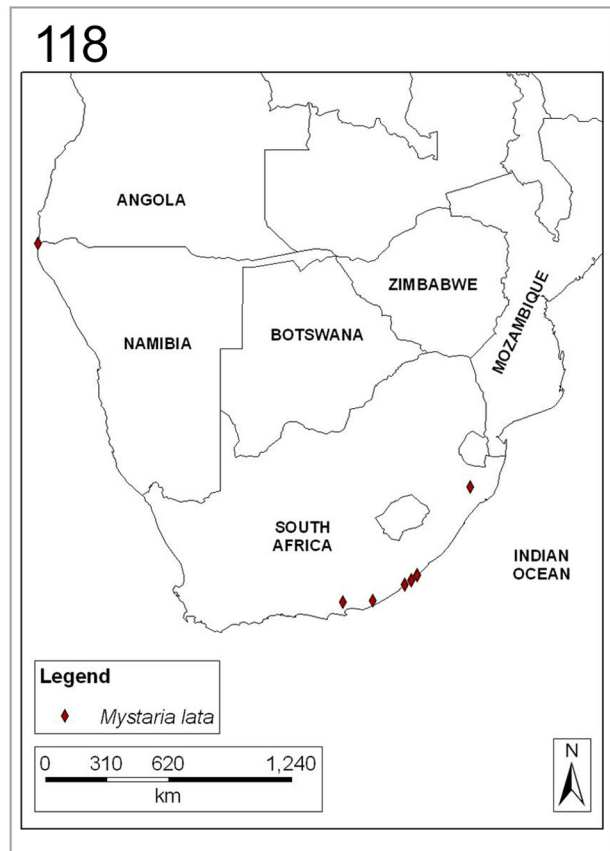
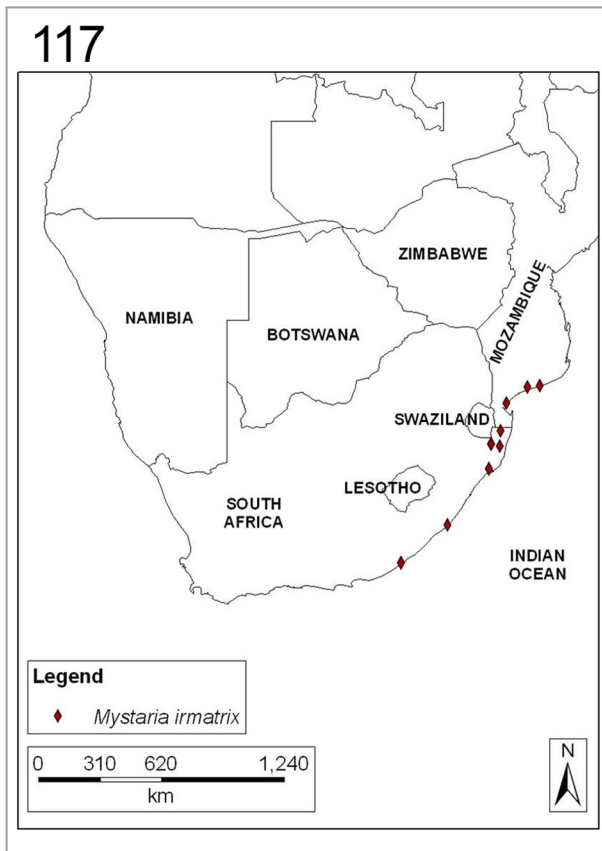
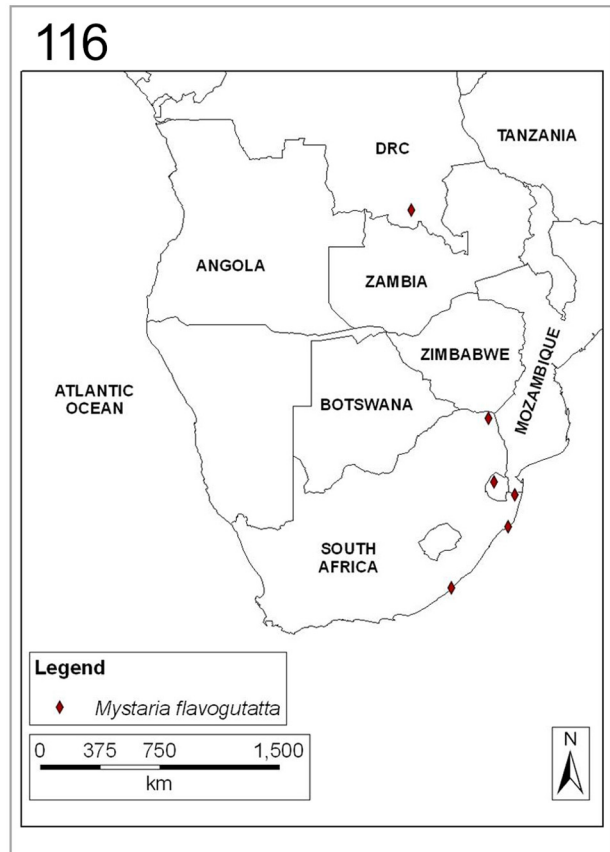
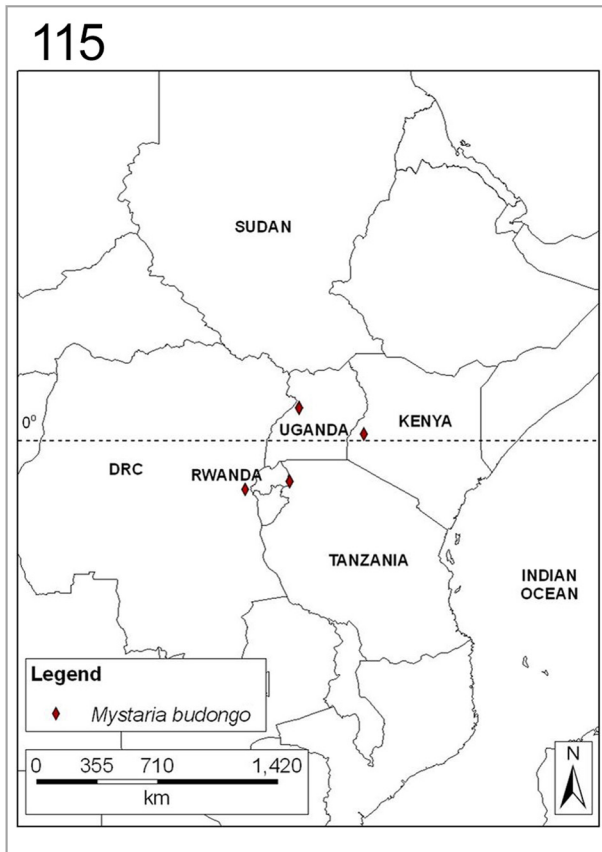
Male. Size, measurements ($n = 2$). TL: 2.80 (2.70–2.90); CL: 1.30 (1.22–1.37); CW: 1.23 (1.18–1.28); CI: 1.05 (1.03–1.07); CH: 0.65 (0.65–0.65); CLL: 0.19 (0.18–0.21); MOQ-L: 0.22 (0.22–0.22). **Colour.** Abdomen dark copper-brown laterally with orange-yellow band medially; ventrally pale. **Carapace.** Numerous long erectile setae present on postero-lateral edge of carapace and LE area. **Chelicerae.** As in (Fig 5). **Sternum.** SL: 0.70; SW: 0.64;

SI: 1.10. *Eyes*. PME nearer to each other than to PLE, lateral eyes large; eye measurements: AME–AME: 0.21; ALE–AME: 0.24; AME–AME/AME–ALE: 0.88; PME–PME: 0.25; PLE–PME: 0.31; PME–PME/PME–PLE: 0.80; ALE/AME: 1.13; PLE/PME: 1.6; MOQ–AW/MOQ–PW: 0.85; MOQ–L/MOQ–W: 0.26; Clyp/AME–AME: 0.91. *Legs*. Long with long spiniform setae present on femora and patellae of legs I–IV and ventrally on tibiae and metatarsi; spiniform setae on tibiae and metatarsi I and II often twice as long as on other leg segments; claws and claw tufts as in Figs 111–114; leg formula: II:I:III:IV; leg measurements: leg I—Fe 1.14, Pat 0.34, Tib 1.08, Mt 0.81, Ta 0.61, total 3.99; II—Fe 1.42, Pat 0.41, Tib 1.35, Mt 1.09, Ta 0.31, total 4.58; III—Fe 0.81, Pat 0.28, Tib 0.70, Mt 0.50, Ta 0.34, total 2.64; IV—Fe 0.80, Pat 0.28, Tib 0.68, Mt 0.48, Ta 0.36, total 2.60. *Abdomen*. With scutum long-oval shaped; AL: 1.51; AW: 1.10; AI: 1.40. *Palp*. Embolus long, darkly sclerotized; wide space between VTA and RTA, RTA with black tip (Fig. 44).

Female. Unknown.



FIGURES 103–114. SEM photographs of tarsal claws and tufts on leg IIV of male *Mystaria* species. 103–106 *M. rufolimbata* from South Africa, Ndumo Game Reserve; 107–110 *M. soleil* sp. n. from Kenya, Kakamega; 111–114 *M. budongo* sp. n. from Kakamega. Scale lines: 10 µm (103–106, 111–114), 100 µm (107–110).



FIGURES 115–118. Recorded geographical distribution of *Mystaria* species. 115 *Mystaria budongo* sp. n.; 116 *Mystaria flavogutatta* (Lawrence, 1952) comb. n.; 117 *Mystaria irmatrix* sp. n.; 118 *Mystaria lata* (Lawrence, 1927) comb. n. Scale lines = 1420 km (115), 1500 km (116), 1240 km (117, 118).

Natural history. Specimens were collected from primary and secondary forest canopy using fogging. They were sampled from various tree species such as *Carapa grandiflora*, *Cynometra alexandri*, *Rinorea beniensis* and *Teclea nobilis*. Only males are known and they were sampled between October and February.

Distribution. Democratic Republic of Congo (DRC), Kenya, Rwanda and Uganda (Fig. 115).

***Mystaria flavoguttata* (Lawrence, 1952) comb. n.**

Figs 2, 11–13, 45–48, 116

Paramystaria flavoguttata Lawrence 1952: 14; fig. 8 (descr. juvenile ♀). Jézéquel 1964: 1111.

Type material: Holotype (designated by Lawrence 1952): juvenile ♀, **DEMOCRATIC REPUBLIC OF CONGO (DRC): Katanga Region**, Grotte de Kakontwe [10°59'S, 26°40'E] found at entrance of cave beneath stones, 3 August 1948, N. Leleup (MRAC 81211, examined).

Other material examined. SOUTH AFRICA: Eastern Cape Province, sub-adult ♂, juvenile ♀, Cwebe Nature Reserve, The Haven [31°45'S, 29°16'E], beating of coastal dune forest, 30 October 2006, R. Lyle & C. Haddad (NCA 2007/332). **KwaZulu-Natal Province**, 1 ♀, Ndumo Game Reserve [26°54'S 32°15'E], Malaise traps in sand forest and broad leaf deciduous forest, 4–8 December 2009, A.H. Kirk-Spriggs (NMBA); 1 ♀, Richards Bay [28°47'S, 32°06'E], tree beating, 26 April 2004, T. Wassenaar (NCA 2009/5037). **Limpopo Province**, 1 ♂, Kruger National Park, Punda Maria Camp, Shipudze [22°27'S, 31°13'E], 19 December 1962, R.F. Lawrence (NM 23345). **SWAZILAND: Hhohho Region**, juvenile ♀, Piggs Peak area, Hhlehhle [25°50'S, 31°13'E], handpicked outside pit-toilet, at foot of mountain, 29 October 2011, A.S. Lewis (NCA 2012/325).

Diagnosis. Both sexes recognised by carapace with highly elevated thoracic region; in female usually with pattern (Fig. 12) or in holotype juvenile female abdomen uniform in colour with two prominent spots posteriorly. Femora I–IV with numerous short setae ventrally. Female epigyne with atrium well-defined cube-shape (Fig. 47), intromittent canals as in Fig. 48. Male palp with VTA finger-shaped, RTA tooth-like (Fig. 45) extending laterally with a slight curve (Fig. 46) and a small cymbial apophysis.

Re-description. Female. *Size, measurements* ($n = 1$). TL: 4.58; CL: 1.53; CW: 1.41; CI: 1.08; CH: 1.18; CLL: 0.24; MOQ-L: 0.31. *Colour.* Carapace and legs copper-brown to orange-yellow; leg III sometimes paler; abdomen pale copper, may resemble *M. rufolimbata* in both having two contrasting spots postero-dorsally; two spots may either be circles, or form contrasting border encircling abdomen (Fig. 12). *Chelicerae.* As in Fig. 2. *Sternum.* SL: 0.59 SW: 0.75 SI: 0.78. *Eyes.* PME fairly small; eye measurements: AME–AME: 0.29; ALE–AME: 0.35; AME–AME/AME–ALE: 0.83; PME–PME: 0.41; PLE–PME: 0.33; PME–PME/PME–PLE: 1.25; ALE/AME: 1.20; PLE/PME: 0.80; MOQ-AW/MOQ-PW: 0.71; MOQ-L/MOQ-W: 0.43; CLYP/AME–AME: 0.80. *Legs.* Two to three spiniform setae in a row, present on tibiae directed latero-ventrally to leg and dorsally on tibiae and patellae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.87, Pat 0.33, Tib 0.94, Mt 0.73, Ta 0.54, total 3.41; II—Fe 1.01, Pat 0.38, Tib 0.99, Mt 0.78, Ta 0.61, total 3.76; III—Fe 0.71, Pat 0.33, Tib 0.63, Mt 0.47, Ta 0.38, total 2.51; IV—Fe 0.89, Pat 0.35, Tib 0.73, Mt 0.54, Ta 0.40, total 2.91. *Abdomen:* AL: 3.06; AW: 2.59; AI: 1.18. *Epigyne.* Atrium well-defined cube-shaped; intromittent orifices open laterally (Fig. 47); intromittent canals complex (Fig. 48); spermathecae small, situated postero-laterally.

Male. *Size, measurements* ($n = 1$). TL: 3.43; CL: 1.36; CW: 1.36; CI: 1.00; CH: 0.96; CLL: 0.32; MOQ-L: 0.28. Resemble females but differs as follows: *Colour.* Carapace uniform reddish-brown; abdomen orange to copper. Legs uniform in colour, leg III sometimes paler. *Carapace.* With denser setae. *Clypeus.* With long and numerous setae on edge. *Sternum.* SL: 0.59; SW: 0.67; SI: 0.88. *Eyes.* Eye measurements: AME–AME: 0.28; ALE–AME: 0.32; AME–AME/AME–ALE: 0.89; PME–PME: 0.40; PLE–PME: 0.35; PME–PME/PME–PLE: 1.13; ALE/AME: 1.13; PLE/PME: 0.88; AME–AME/AME–ALE: 0.89; PME–PME/PME–PLE: 1.13; MOQ-AW/MOQ-PW: 0.71; MOQ-L/MOQ-W: 0.40; CLYP/AME–AME: 1.13. *Legs.* Leg formula: I:II:IV:III; leg measurements: leg I—Fe 1.08, Pat 0.35, Tib 0.94, Mt 0.73, Ta 0.56, total 3.67; II—Fe 1.13, Pat 0.38, Tib 0.89, Mt 0.68, Ta 0.56, total 3.64; III—Fe 0.75, Pat 0.31, Tib 0.59, Mt 0.45, Ta 0.35, total 2.44; IV—Fe 0.87, Pat 0.31, Tib 0.63, Mt 0.49, Ta 0.38, total 2.68; *Abdomen.* AL: 2.07; AW: 1.81; AI: 1.14. *Palp* (only left palp available). Embolus long, thin, coiling at least twice around bulb (Fig. 45); RTA broad at base, tip sharply pointed; VTA finger-shaped (Fig. 46).

Natural history. Sampled from trees in savanna and coastal forest habitats. The holotype was found under a stone at a cave entrance. Adults were sampled from December to April and juveniles in October.

Distribution. Democratic Republic of Congo (DRC). New record: South Africa (Fig. 116).

***Mystaria irmatrix* sp. n.**

Figs 14–16, 49–52, 117

Type material: Holotype: ♀, **MOZAMBIQUE: Maputo City**, Marracuene, Marracuene Lodge [25°53'S, 32°30'E], beating shrubs in riverine forest, 1 December 2007, R. Lyle & R. Fourie (NCA 2009/4616a).

Paratypes: MOZAMBIQUE: Maputo City, 4 ♂ (collected with holotype ♀), Marracuene, Marracuene Lodge [25°53'S, 32°30'E], beating shrubs in riverine forest, 1 December 2007, R. Lyle & R. Fourie (NCA 2009/4616b). **Gaza Province**, 1 ♂, 1 juvenile ♀, Xai-Xai, Montego's Lodge [25°03'S, 33°38'E], beating shrubs on dune forest, 2 December 2007. R. Lyle & R. Fourie (NCA 2009/4614); 1 ♂, 1 juvenile ♀, Chidenguile, Paraiso de Chidenguele [24°54'S, 34°11'E], beating shrubs in dune forest, 15 December 2007. R. Lyle, R. Fourie & C. Haddad (NCA 2009/4615). **SOUTH AFRICA: Eastern Cape Province**, 1 ♂, East London, Pineapple Research Station [32°59'S, 27°54'E], found on plants, 2 July 1977, A.S. Dippenaar-Schoeman (NCA 88/606); 1 ♂, same locality sweeping grasslands, 7 December 1977, A.S. Dippenaar-Schoeman (NCA 78/29); 1 ♀, Mkhambati Nature Reserve [31°21'S, 29°51'E], collected from butterfly traps in forest, 27 January 2008, M. Hamer (NCA 2009/5037). **KwaZulu-Natal Province**, 2 ♀, 1 ♂, Mkuze Nature Reserve [27°36'S, 32°00'E], yellow pantraps in *Terminalia sericea* woodland tree beating, 21 January–21 March 2005, M. Hamer (NCA 2006/76, 2006/273, 2006/298); 1 ♀, Empangeni, University of Zululand [28°44'S, 31°53'E], 17 September 1975, P. Reavell (NM 23344); same locality, 1 ♀, hanging on a silk thread on *Acacia sieberiana* with bee in its fangs, 20 November 1981, P. Reavell (NM 14064); 1 ♀, Tembe Elephant Park [27°01'S, 32°24'E], sand forest beating, 15 March 2003, A.S. Honiball (NCA 2003/1462); 1 ♀, Phinda Game Reserve [27°43'S, 32°03'E], tree beating, 22 March 2004, S. Lovell (NCA 2004/685).

Etymology. Named after the mother of the first author. Noun in apposition.

Diagnosis. Female can be recognised by colour patterns on body (Fig. 14), Both sexes with metatarsi and/or tarsi IV dark brown to black (Figs 15, 16), other legs yellow-orange. Epigyne with atrium rim very narrow teardrop-shaped; small intromittent orifices open antero-laterally (Fig. 51). Male palp RTA with dark, med length, narrow tip (Fig. 50); VTA slender, curving at tip (Fig. 49).

Description. Female. Size, measurements ($n = 6$). TL: 3.51 (3.15–4.14); CL: 1.27 (1.06–1.46); CW: 1.16 (1.05–1.34); CI: 1.09 (0.98–1.28); CH: 0.83 (0.87–0.96); CLL: 0.25 (0.19–0.30); MOQ-L: 0.26 (0.25–0.30). **Colour.** Carapace varies from orange with black line around postero-lateral border (Fig. 15), with or without two dark patches over LE region (Fig. 14) to blackish-copper specimens, often with orange triangular patch on clypeus, colour and body patterns may vary between individuals; abdomen very pale with dark, longitudinal central band that may expand laterally, or with two darker patches laterally; ventrally pale with pale blue stria. **Carapace.** Smooth. **Sternum.** SL: 0.52; SW: 0.56; SI: 0.93. **Eyes.** Eye measurements: AME–AME: 0.26; ALE–AME: 0.35; AME–AME/AME–ALE: 0.73; PME–PME: 0.42; PLE–PME: 0.32; PME–PME/PME–PLE: 1.30; ALE/AME: 1.38; PLE/PME: 0.78; MOQ-AW/MOQ-PW: 0.61; MOQ-L/MOQ-W: 0.43; Clyp/AME–AME: 0.96. **Legs.** Covered with fine, inconspicuous setae, spiniform setae present dorsally on femora and tibiae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.82, Pat 0.33, Tib 0.66, Mt 0.57, Ta 0.41, total 2.78; II—Fe 0.92, Pat 0.32, Tib 0.72, Mt 0.61, Ta 0.42, total 2.98; III—Fe 0.69, Pat 0.27, Tib 0.42, Mt 0.39, Ta 0.28, total 2.04; IV—Fe 0.78, Pat 0.29, Tib 0.57, Mt 0.49, Ta 0.36, total 2.49. **Abdomen.** Round; AL: 2.24; AW: 2.16; AI: 1.06. **Epigyne.** Atrium rim as in (Fig. 51); intromittent canals as in (Fig. 52).

Male. Size, measurements ($n = 3$). TL: 2.76 (2.50–3.13); CL: 1.19 (1.12–1.34); CW: 1.06 (0.96–1.20); CI: 1.13 (1.10–1.16); CH: 0.68 (0.62–0.75); CLL: 0.25 (0.22–0.28); MOQ-L: 0.26 (0.20–0.31). Differs from females as follows: **Colour.** Body dorsally orange to copper-brown or blackish-brown (Fig. 16); in light coloured specimens abdomen with central black patterns dorsally, ventrally white with blue striae; in dark coloured specimens abdomen ventrally blue metallic colour, striae decorated with white dots. **Carapace.** Sharply sloping anteriorly. **Sternum.** SL: 0.45; SW: 0.48; SI: 0.94. **Eyes.** Eye measurements: AME–AME: 0.24; ALE–AME: 0.32; AME–AME/AME–ALE: 0.74; PME–PME: 0.37; PLE–PME: 0.29; PME–PME/PME–PLE: 1.30; ALE/AME: 1.36; PLE/PME: 0.77; MOQ-AW/MOQ-PW: 0.63; MOQ-L/MOQ-W: 0.41; Clyp/AME–AME: 1.05. **Legs.** Fewer spiniform setae on femora and

tibiae, leg formula: I:II:IV:III; leg measurements: leg I—Fe 0.93, Pat 0.29, Tib 0.81, Mt 0.62, Ta 0.45, total 3.10; II—Fe 0.94, Pat 0.28, Tib 0.81, Mt 0.56, Ta 0.44, total 3.03; III—Fe 0.62, Pat 0.24, Tib 0.52, Mt 0.35, Ta 0.29, total 2.02; IV—Fe 0.71, Pat 0.21, Tib 0.53, Mt 0.43, Ta 0.32, total 2.21. *Abdomen*. Round with scutum; AL: 1.56; AW: 1.33; AI: 1.17. *Palp*. VTA and RTA almost same length; VTA very delicate (Fig. 50), embolus long (Fig. 49).

Natural history. Sampled from riverine, sand, dune and coastal forest as well as woodlands and grasslands. Samples were found in trees such as *Terminalia sericea* and *Acacia sieberiana*. Most adults were sampled between September and March, while juveniles were sampled in December. One of the specimens sampled was hanging on its own silk thread from a tree while feeding on a bee (P. Reavell, *pers. comm.*).

Distribution. Mozambique and eastern parts of South Africa (Fig. 117).

***Mystaria lata* (Lawrence, 1927) comb. n.**

Figs 17–19, 53–56, 118

Paramystaria lata Lawrence 1927: 32, pl. 1 fig. 20, pl 2 fig. 42 (descr. ♀).

Type material: Lectotype (by present designation): ♀, **NAMIBIA: Kunene Region**, Kunene river (Kaokoland) bordering Namibia and Angola [17°15'S, 11°47'E], March 1923, R. F. Lawrence (SAM/ARAN 2463) (specimens not well-preserved, bleached). Syntype series from SAM was examined. A female from the syntype series is elected as a new lectotype.

Paralectotypes: 3 ♀, same data as lectotype (SAM/ARAN 2463). Other material listed by Lawrence in same publication (no type label) (Lawrence, 1927), **SOUTH AFRICA: Eastern Cape**, 2 ♀, Dunbrody [33°28'S, 25°33'E], 1901–1902, J. O'Neil (SAM/ARAN 2464).

Other material examined. SOUTH AFRICA: Eastern Cape Province, 2 ♀, 4 ♂, Cwebe Nature Reserve [32°11'S, 28°55'E], beating coastal dune forests, 10 October–30 October 2006, R. Lyle & C. Haddad (NCA 2007/330, 2007/331, 2007/339); 2 ♂, 1 ♀, 2 juvenile, Mazeppa Bay [32°27'S, 28°38'E], beating coastal dune forest, 28 October 2006, R. Lyle & C. Haddad (NCA 2007/434, 2007/435, 2007/437); 1 ♂, 2 ♀, between East London and Port Alfred [33°26'S, 26°55'E], sweeping in bushes (1 December 1977), A.S. Dippenaar-Schoeman (NCA 77/1191); 3 ♀, 6 ♂, 1 juvenile, Kei River Mouth [32°41'S, 28°21'E], sweeping coastal forest, 8 December 2005, C. Haddad (NCA 2007/1441, 2007/1435, 2007/1429). **KwaZulu-Natal Province**, 1 ♀, Vryheid Nature Reserve [27°53'S, 30°54'E], grassland and wooded grassland, beating and sweeping, 31 January 2007, A.P. Marais (NCA 2009/5845).

Diagnosis. Female can be recognised by the distinct colour patterns on body (Fig. 17–19); both sexes with infuscated bands on femora (Figs 17–19) and a band on tibia IV, epigyne atrium small, teardrop-shaped to oval, closed anteriorly (Fig. 55). Male with broad RTA base (Fig. 53); resemble *M. irmatrix* sp. n. but copulatory organs and colour of body and legs different.

Re-description. Female. *Size, measurements* ($n = 5$). TL: 3.13 (1.91–3.68); CL: 1.01 (0.14–1.36); CW: 1.26 (1.14–1.36); CI: 0.81 (0.11–1.06); CH: 0.83 (0.70–0.96); CLL: 0.26 (0.23–0.26); MOQ-L: 0.29 (0.28–0.30). *Colour.* Carapace varies from mottled copper-brown to bright orange, copper-red or very dark copper, sometimes tinted with black, patterns and colour differ between individuals; clypeus either pale or with orange area extending onto cephalic area as a fine line; cheliceral tips may be dark; labium and mouth-parts dark; abdominal marks vary from dorsally uniformly pale to being decorated with a range of dark patterns (Fig. 17): a thin longitudinal central band, a big patch covering the anterior region and most of abdomen, or a longitudinal central band expanding laterally into two parts with or without small white patches within the darker band; abdomen ventrally very pale or yellow with metallic, dark blue or purple striae; metatarsi and/or tarsi IV or only tibia IV proximally dark. *Carapace.* Broad; smooth. *Sternum.* SL: 0.56; SW: 0.59; SI: 0.95. *Eyes.* Eye area wide, with eyes wider apart from each other in comparison to *M. occidentalis*, eye measurements: AME–AME: 0.29; ALE–AME: 0.36; AME–AME/AME–ALE: 0.81; PME–PME: 0.43; PLE–PME: 0.33; PME–PME/PME–PLE: 1.35; ALE/AME: 1.26; PLE/PME: 0.75; MOQ-AW/MOQ-PW: 0.67; MOQ-L/MOQ-W: 0.43; Clyp/AME–AME: 0.90. *Legs.* All leg segments bearing dense setae; femora and tibiae with a few short spiniform setae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.88, Pat 0.30 Tib 0.68, Mt 0.57, Ta 0.43, total 2.86; II—Fe 0.89, Pat 0.31, Tib 0.69, Mt 0.59, Ta 0.40, total 2.88; III—Fe 0.65, Pat 0.26, Tib 0.45, Mt 0.38, Ta 0.29, total 2.02; IV—Fe 0.75, Pat 0.28, Tib

0.56, Mt 0.46, Ta 0.33, total 2.38. *Abdomen*. AL: 2.12; AW: 2.00; AI: 1.06. *Epigyne*. Atrium oval to teardrop-shaped with small flap posteriorly, closed anteriorly (Fig. 55); differ from *M. irmatrix* sp. n. in that the rim of the latter species is more slender and longer whilst intromittent canals of *M. lata* sp. n. is thicker and more complex (Fig. 56).

Male. *Size, measurements* ($n = 2$). TL: 2.86 (2.68–3.03); CL: 1.20 (1.16–1.25); CW: 1.09 (1.08–1.10); CI: 1.10 (1.07–1.13); CH: 0.55 (0.38–0.73); CLL: 0.21 (0.15–0.26); MOQ-L: 0.28 (0.26–0.30). Differ from female as follows: *Colour*. Carapace uniform dark copper-red or orange (Fig. 19); sternum copper-brown; abdomen dorsally copper-red or dark with a narrow white or blue anterior border; ventrally pale cream or blue with shiny black to pinkish-blue metallic striae, sometimes with white spots on or between striae; eyes usually surrounded by a thin orange-red border; lateral eyes situated on small black tubercles; legs yellow-orange to copper-brown with dark infuscated bands dorso-ventrally on femora I, II and IV including patella, and on tibiae, metatarsi and/or tarsi IV. *Carapace*. Smooth. *Sternum*. SL: 0.49 SW: 0.56 SI: 0.89. *Eyes*. Eye measurements: AME–AME: 0.21; ALE–AME: 0.30; AME–AME/AME–ALE: 0.71; PME–PME: 0.36; PLE–PME: 0.28; PME–PME/PME–PLE: 1.31; ALE/AME: 1.40; PLE/PME: 0.76; MOQ-AW/PW: 0.59; MOQ-L/MOQ-W: 0.49; Clyp/AME–AME: 0.94. *Legs*. Covered densely with setae, slightly longer spiniform setae present on femora and tibiae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.99, Pat 0.30, Tib 0.71, Mt 0.61, Ta 0.43, total 3.02; II—Fe 1.04, Pat 0.46, Tib 0.80, Mt 0.69, Ta 0.50, total 3.50; III—Fe 0.65, Pat 0.30, Tib 0.54, Mt 0.41, Ta 0.33, total 2.23; IV—Fe 0.75, Pat 0.26, Tib 0.55, Mt 0.52, Ta 0.35, total 2.43. *Abdomen*. With slightly granular scutum, dorsal view almost oval, anteriorly border straight, slightly pointed posteriorly; AL: 1.65; AW: 1.47; AI: 1.12. *Palp*. RTA base broad, tip extending diagonally (Fig. 53); VTA almost equal in length to RTA (Fig. 54); tutaculum present.

Natural history. Specimens were sampled by beating and sweeping vegetation in grass- and wooded grasslands of coastal dune forests, they were also found near rivers and estuaries. Adults were sampled between October and January and juveniles in December.

Distribution. Namibia and South Africa (Eastern Cape Province, new record: KwaZulu-Natal Province) (Fig. 118).

Mystaria lindaicapensis sp. n.

Figs 20–22, 57–60, 119

Type material: Holotype: ♀, **SOUTH AFRICA: Eastern Cape Province**, Jeffreys Bay [34°02'S, 24°55'E], in garden, 15 July 2008, L. Wiese (NCA 2009/5036).

Paratypes: 1 ♂, same locality data as holotype, L. Wiese (NCA 2009/5036); **Western Cape Province**, 1 ♂, Knysna [34°00'S, 23°20'E] beating, 7 December 1989, L.N. Lotz (NMBA 3317).

Etymology. Named after Linda Wiese who collected the holotype in the Eastern Cape Province, the southernmost locality for this genus in South Africa. Adjective.

Diagnosis. Females can be recognised by the distinct colour patterns on body (Figs 20, 21); epigyne with atrium well defined, rim oval to U-shaped (Fig. 59); intromittent orifices open antero-laterally, intromittent canals very long and complex (Fig. 60). In male palp, the bulb is large and round; RTA with slender tip extending dorso-laterally (Figs 57, 58).

Description. Female. *Size, measurements* ($n = 1$). TL: 3.90; CL: 1.26; CW: 1.31; CI: 0.96; CH: 0.94; CLL: 0.28; MOQ-L: 0.31. *Colour*. Carapace brown to dark copper, clypeus with small orange area; sternum dark; abdomen dorsally pale yellow to copper-blue, a broad, black longitudinal band centrally that expands laterally; ventrally blue with brown striae; femora I–III with infuscate brown bands dorsally and ventrally; femur IV distally with brown band; patellae yellow-orange, tibiae and metatarsi greenish, tarsi pale yellow. *Carapace*. Texture granular and hairy. *Clypeus*. Sloping. *Sternum*. SL: 0.64; SW: 0.67; SI: 0.95. *Eyes*. MOQ eye area fairly wide, eye tubercles small, PLE not very big, almost equal in size to AME; ALE>PLE>AME>PME; eye measurements: AME–AME: 0.33; ALE–AME: 0.36; AME–AME/AME–ALE: 0.92; PME–PME: 0.52; PLE–PME: 0.34; PME–PME/PME–PLE: 1.54; ALE/AME: 1.09; PLE/PME: 0.65; MOQ-AW/MOQ-PW: 0.64; MOQ-L/MOQ-W: 0.49; Clyp/AME–AME: 0.84. *Legs*. With very dense setae; femora with two medium spiniform setae, tibiae I–IV with two short spines; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.96, Pat 0.26, Tib 0.76, Mt 0.62, Ta 0.46, total 3.06; II—Fe 0.96, Pat 0.31, Tib 0.79, Mt 0.66, Ta 0.48, total 3.20; III—Fe 0.72, Pat 0.29, Tib 0.49, Mt

0.40, Ta 0.31, total 2.21; IV—Fe 0.78, Pat 0.34, Tib 0.60, Mt 0.52, Ta 0.36, total 2.59. *Abdomen*. Large, round; AL: 2.64; AW: 2.76; AI: 0.96. *Epigyne*. Rim extending slightly antero-laterally where intromittent orifices are situated (Fig. 59); intromittent canals longer than in other species (Fig. 60).

Male. *Size, measurements* ($n = 3$). TL: 2.83 (2.78–2.87); CL 1.20 (1.15–1.25); CW: 1.13 (1.12–1.14); CI: 1.06 (1.03–1.09); CH: 0.83 (0.82–0.84); CLL: 0.26 (0.25–0.26); MOQ-L: 0.28 (0.28–0.29). Differs from female as follows: *Colour*. Abdomen dorsally blackish-brown with slight orange-red pattern, small blue or whitish border around abdomen (Fig. 22); ventrally metallic blue, with striae slightly darker. Femora I–II dark or with infusate dark brownish bands; femora III–IV distally slightly darker; patellae, tibiae, metatarsi and tarsi of leg IV with darker tint, remainder of leg segments yellow or orange. *Carapace*. Granular and/or hairy, with few long, erectile setae present on postero-thoracic edge and laterally of ALE and PLE. *Sternum*. SL: 0.49 SW: 0.55 SI: 0.90. *Eyes*. Eye measurements: AME–AME: 0.28; ALE–AME: 0.30; AME–AME/AME–ALE: 0.92; PME–PME: 0.39; PLE–PME: 0.28; PME–PME/PME–PLE: 1.38; ALE/AME: 1.09; PLE/PME: 0.72; MOQ-AW/MOQ-PW: 0.71; MOQ-L/MOQ-W: 0.40; Clyp/AME–AME: 0.93. *Legs*. With dense fine setae; few long spiniform setae present on femora and tibiae I–IV, those on tibia IV especially long and erectile; tibia II & III or I–IV with numerous spiniform setae present dorsally, also present ventrally; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.90, Pat 0.30, Tib 0.74, Mt 0.65, Ta 0.50, total 3.09; II—Fe 1.01, Pat 0.34, Tib 0.85, Mt 0.73, Ta 0.47, total 3.40; III—Fe 0.64, Pat 0.26, Tib 0.50, Mt 0.37, Ta 0.31, total 2.08; IV—Fe 0.77, Pat 0.27 Tib 0.58, Mt 0.47, Ta 0.36, total 2.45. *Abdomen*. AL: 1.63; AW: 1.48; AI: 1.10. *Palp*. With tegulum large and round; RTA with dark tip, situated slightly behind bulb (Fig. 57); VTA curved tip; RTA slightly longer than VTA (Fig. 58).

Distribution. South Africa (Eastern Cape and Western Cape Provinces) (Fig. 119).

Natural history. Sampled from vegetation in forests and garden. Adults collected between December and July.

Mystaria mnyama sp. n.

Figs 23–25, 61–64, 120

Type material: Holotype: ♀, **SOUTH AFRICA: KwaZulu-Natal Province**, Tembe Elephant Park, sparse woodland, sweeping grasses [26°52'S, 32°27'E], 7 July 2007, C. Haddad (NCA 2008/2839). **Paratype:** 1 ♂, Tembe Elephant Park [27°03'S, 32°24'E], open woodland, beating short shrubs, 7 July 2007, C. Haddad (NCA 2008/2822).

Etymology. 'Mnyama' means black in Zulu, as this species is recognised by the black-tinted areas on the cephalic and eye area. The name is to be treated as a noun in apposition.

Diagnosis. Females can be recognised by the distinct colour patterns on body (Fig. 23); epigyne with atrium bullet-shaped and small notch anteriorly (Fig. 63). Male is very dark with pale legs (Fig. 25); bulb with sturdy RTA (Fig. 62); RTA with long tip directed antero-laterally, tutaculum present retro-laterally (Fig. 61).

Description. Female. *Size, measurements* ($n = 1$). TL: 2.64; CL: 1.06; CW: 0.94; CI: 1.13; CH: 0.73; CLL: 0.23; MOQ-L: 0.24. *Colour*. Carapace copper-red, black tint in eye region and postero-lateral side of carapace (Fig. 23, 24); clypeus with orange patch; sternum dark; abdomen dorsally very pale with two dark spots laterally; ventrally blue tint with metallic purplish-blue to pinkish-brown striae; legs uniform yellow with femora I–II a darker orange (Fig. 24). *Carapace*. Slightly granular. *Sternum*. SL: 0.43; SW: 0.46; SI: 0.95. *Eyes*. AME large; eye measurements: AME–AME: 0.22; ALE–AME: 0.29; AME–AME/AME–ALE: 0.75; PME–PME: 0.34; PLE–PME: 0.26; PME–PME/PME–PLE: 1.27; ALE/AME: 1.33; PLE/PME: 0.79; MOQ-AW/PW: 0.64; MOQ-L/MOQ-W: 0.37; Clyp/AME–AME: 1.06. *Legs*. All legs with medium-length setae; spiniform setae present on the following leg segments: on femora I–III three short, thick setae; tibiae I–IV with at least three setae; tibiae III–IV dorsally and ventrally with setae; leg formula: I:II:IV:III; leg measurements: leg I—Fe 0.74, Pat 0.29, Tib 0.64, Mt 0.52, Ta 0.40, total 2.58; II—Fe 0.76, Pat 0.29, Tib 0.61, Mt 0.50, Ta 0.37, total 2.53; III—Fe 0.50, Pat 0.20, Tib 0.40, Mt 0.30, Ta 0.24, total 1.64; IV—Fe 0.60, Pat 0.23, Tib 0.49, Mt 0.41, Ta 0.29, total 2.02. *Abdomen*. AL: 1.58; AW: 1.58; AI: 1.00. *Epigyne*. Atrium small, bullet-shaped, small notch anteriorly (Fig. 63); intromittent orifices small, open antero-laterally; intromittent canals as in (Fig. 64).

Male. *Size, measurements* ($n = 1$). TL: 2.29; CL: 0.97; CW: 0.88; CI: 1.11; CH: 0.66; CLL: 0.22; MOQ-L: 0.22. Differ from female as follows: *Colour*. Body dark blackish to copper with a white border in anterior half of abdomen; ventrally greyish to brownish-purple striae; legs uniformly pale-yellow in contrast to body (Fig. 25).

Carapace. Round. *Sternum*. SL: 0.40 SW: 0.44 SI: 0.89. *Eyes*. Eye measurements: AME–AME: 0.20; ALE–AME: 0.28; AME–AME/AME–ALE: 0.74; PME–PME: 0.31; PLE–PME: 0.23; PME–PME/PME–PLE: 1.37; ALE/AME: 1.35; PLE/PME: 0.73; MOQ-AW/MOQ-PW: 0.65; MOQ-L/MOQ-W: 0.33; Clyp/AME–AME: 1.06. *Legs*. With dense short to medium setae on all segments; femora I–III with three spiniform setae; patella and tibiae I–IV with fairly long, thick and erectile spiniform setae; leg formula: II:I:III (leg IV damaged); leg measurements: leg I—Fe 0.77, Pat 0.25, Tib 0.68, Mt 0.55, Ta 0.42, total 2.68; II—Fe 0.84, Pat 0.26, Tib 0.76, Mt 0.55, Ta 0.42, total 2.83; III—Fe 0.52, Pat 0.23, Tib 0.46, Mt 0.31, Ta 0.29, total 1.80; IV—Fe 0.60. *Abdomen*. Round, anteriorly straight border, posteriorly slightly pointed; scutum with fine setae; AL: 1.32; AW: 1.18; AI: 1.12. *Palp*. With RTA longer than VTA, with sharp blackened tip (Fig. 61, 62).

Natural history. Sampled from sweeping and beating vegetation in open woodlands of Tembe Elephant Park. Known from only two adults sampled in July, during Winter.

Distribution. South Africa (KwaZulu-Natal Province) (Fig. 120).

Mystaria occidentalis (Millot, 1942) comb. n.

Figs 26–28, 65–68, 121

Paramystaria variabilis occidentalis Millot 1942: 8, fig. 3 (descr. ♀).

Type material: Lectotype (by present designation): ♀, **REPUBLIC OF GUINEA: Mamou Region**, Kouroussa [11°15'N, 11°59'W], August 1937, J. Millot (MNHN) (material not well-preserved, bleached). Syntype series from MNHN was examined. A female from the syntype series is elected as a new lectotype.

Paralectotypes: 2 ♀, same data as lectotype (MNHN)

Other material examined. CAMEROON: Adamawa Region, 1 ♂, Chabal Mbabo [07°25'N, 12°49'E], alt 1250 m, SW-slope, 7–13 April 1983, R. Bosmans & J. Van Stalle (MRAC 162.638); 1 ♂, 1 juvenile ♀, Mbam mountain near Koutoupi [07°25'N, 12°49'E], W-slope alt. 1100 m, Ndop plateau, forest litter, sweeping, 31 March 1983, R. Bosmans & J. Van Stalle (MRAC 162.645). **East Region**, 1 juvenile, Letta [04°55'N, 13°51'E], alt. 1100 m, 50 km N of Bertoua, sweeping, 3 March 1983, R. Bosmans & J. Van Stalle (MRAC 162.732). **DEMOCRATIC REPUBLIC OF CONGO (DRC): Katanga Region**, 1 ♀, Likasi (Jadotville), 11.2 km NW [10°59'S, 26°44'E], alt 1350 m, 27 January 1958, E.S. Ross & R.E. Leech (CAS). **Nord-Kivu Region**, 1 ♀, 1 ♂, Ishanga spillway of Lake Edward into Semliki [00°08'S, 29°36'E], 26–29 December 1968, R.P.M. Lejeune (MRAC 135.362, 135.368); 2 ♀, Semliki middle valley [01°13'N, 30°32'E], sweeping, 8 August 1968, R.P.M. Lejeune (MRAC 135.463, 135.439); 6 ♀, 5 ♂, Lulimbi, river mouth Ishasha into Lake Edward, SE [00°32'S, 29°40'E], gallery forest beating dense shrub, July–August 1976, R.P.M. Lejeune (MRAC 168.314, 169.056, 169.031); 1 ♂, same locality, sweeping meadow, July–August 1976 (MRAC 169.079); 1 ♀, Sake [01°34'S, 29°02'E], March 1936, L. Lippens (MRAC 20737); 1 ♀, N'Zulu, Lake Kivu [01°37'S, 29°06'E], 13–14 February 1934, G.F. De Witt (MRAC 22219). **Oriente Region**, 3 ♀, Kivu, valley of Kaisola, Plain of Ruindi [00°47'S, 29°17'E], beating, alt. 1100 m, 3 July 1972, R.P.M. Lejeune (MRAC 144.494, 144.595). **Sud-Kivu Region**, 1 ♀, Bukavu [02°27'S, 28°43'E], December 1954, H. Bomans (MRAC 85564). **MOZAMBIQUE: Tete Province**, 1 ♀, 1 ♂, Tete [16°09'S, 33°34'E], April 1947 (SMF 9976, 10-034); 1 ♀, Ponta Torres, Inhaca Island [26°00'S, 32°56'E], coastal beach forest, 22 December 1992, T. Steyn (NCA 93/240). **RWANDA: Est Province**, 1 ♀, Gabiro [01°31'S, 30°28'E], November 1985, R. Jocqué, J. Nsengimana & J.P. Michiels (MRAC 165.867); 1 ♀, PN. Akagera, Lake Ihema, fisheries [01°55'S, 30°45'E], sweeping, alt. 1298 m, 8 December 1985, R. Jocqué, J. Nsengimana & J.P. Michiels (MRAC 165.830); 2 ♂, 2 ♀, same locality, beating on three tree spp. *Acacia*, *Ziziphus* and *Commiphora*, 1 July–29 November 1985, R. Jocqué, J. Nsengimana & J.P. Michiels (MRAC 165.370, 165.460); 1 ♀, same locality, 6 km south of fisheries [01°40'S, 30°35'E], dry forest, 5 December 1985, R. Jocqué, J. Nsengimana & J.P. Michiels (MRAC 165.670). **Sud Province**, 1 ♂, Butare [02°36'S, 29°43'E], April 1968, E. Vertriest (MRAC 134.811). **SOUTH AFRICA: KwaZulu-Natal Province**, 1 ♂, 1 ♀, Mtunzini, Twin Streams Farm [28°57'S, 31°46'E], 15 December 1963, W. Lawson & O. Bourquin (NM); 1 ♀, Hellsgate [28°07'S, 32°18'E], blue traps, tsetse fly survey, 15 February 2004, J. Esterhuizen (NCA 2009/4613); 1 ♀, 1 juvenile, Umtamvuna Nature Reserve [32°11'S, 28°58'E], L. Berio (MNHG). **TANZANIA: Morogoro Province**, 1 ♀, Tanganyika territory [09°06'S, 35°38'E], October 1926, A. Loveridge (MCZ). **UGANDA: Jinja District**, 1 ♀, Busaga district, Mount Kisunyi [00°40'N, 33°18'E], February

1967, T.Ruabunesa (MRAC 131.591). *Kampala District*, 3 ♂, 1 ♀, sub-adult ♂ Rubaga [00°18'N, 32°33'E], sweeping, April–August 1994, D. Penney (MRAC 210194, 210216, 210206); 1 ♂, 3 ♀, same locality, found on flowers, 6 August 1994, D. Penney (MRAC 210192).

Remarks. Millot (1942) described *Paramystaria variabilis occidentalis* as a subspecies of *P. variabilis*, based mainly on colour variation. A critical examination of *P. v. occidentalis* revealed that the epigyne differs from that of *P. variabilis* and these differences necessitate the recognition of *P. occidentalis* as a distinct species within *Mystaria*.

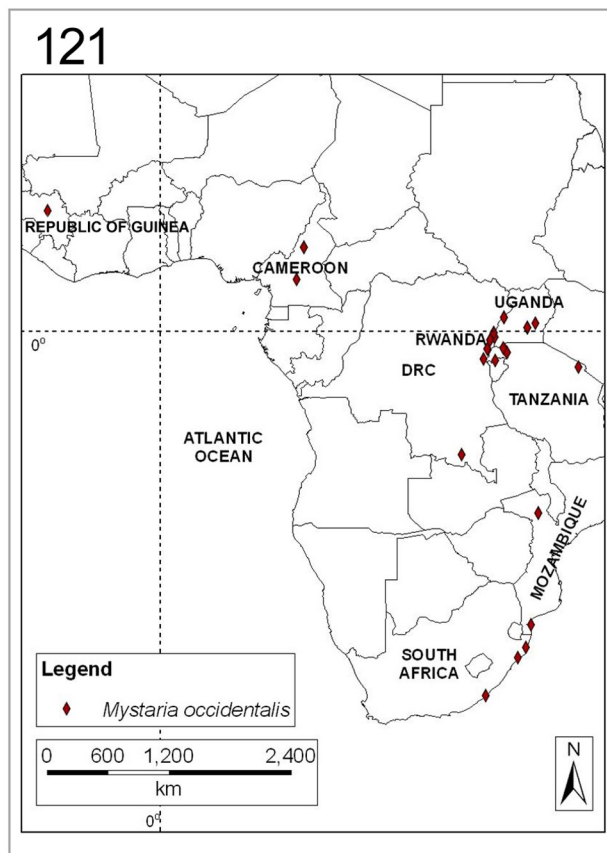
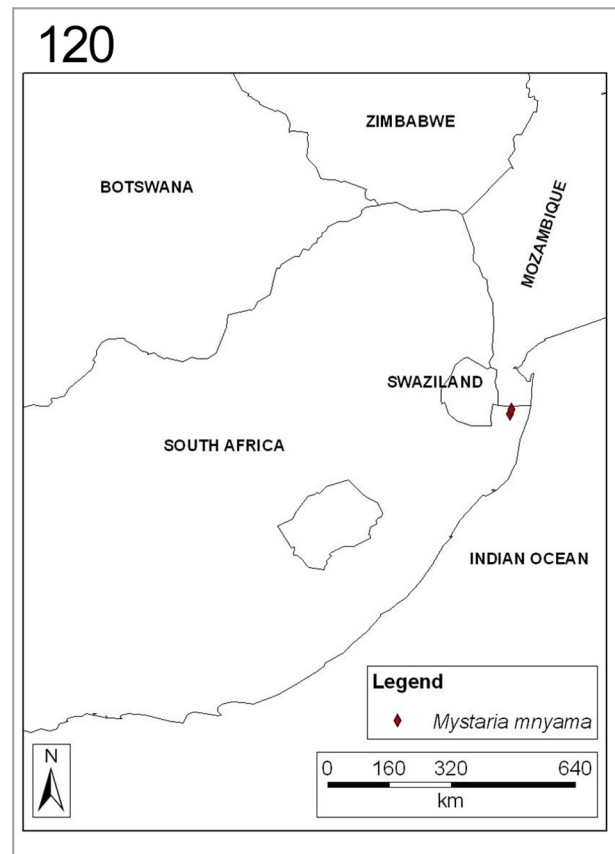
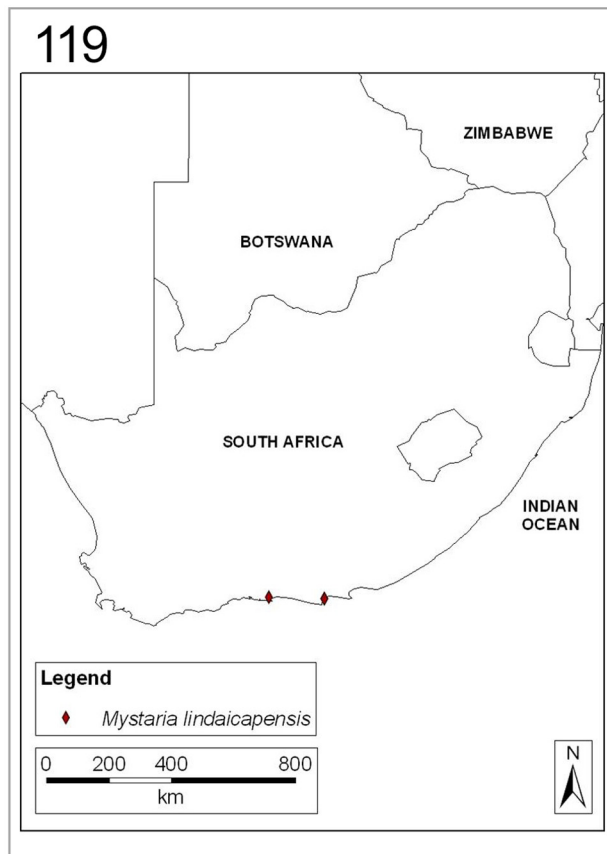
Diagnosis. Females recognised by colour patterns on body (Fig. 26); differ from other species which may have similar abdominal patterns by slightly larger lateral eyes which are situated closer to PME; epigyne with atrium rim teardrop-shaped, small flap posteriorly; small intromittent orifices open antero-laterally (Fig. 67). Male dark with pale legs, femora I and II may have dark infuscated bands (Fig. 28); RTA with long slender tip directed laterally with slight curve anteriorly (Fig. 65); VTA slender (Fig. 66).

Re-description. Female. *Size, measurements* ($n = 21$). TL: 2.99 (2.56–3.76); CL: 1.12 (1.05–1.33); CW: 1.01 (0.92–1.20); CI: 1.11 (1.04–1.20); CH: 0.70 (0.60–0.86); CLL: 0.22 (0.15–0.27); MOQ-L: 0.24 (0.20–0.28). *Colour.* Carapace varies from dark copper-brown to orange-red, colour and patterns vary between individuals, may be uniform in colour or tinted darker on certain areas: usually with two darker bands dorso-laterally (Fig. 26) or darker areas in eye region, may have two small lightly coloured triangles on postero-lateral sides and/or dark bands on thoracic area, in orange specimens carapace dark postero-laterally; clypeus and anterior eye area paler or brighter colour; chelicerae sometimes orange at base and dark distally; labium dark; sternum orange-brown or sometimes with darker brown pattern; abdomen varies: dorsally pale or with blue tint, may have a darker brown medial band or lateral patterns; ventrally striae striped; legs I–IV uniform pale yellow (Fig. 27), or femora I–II often with darker tint; tibiae, metatarsi and tarsi II or IV sometimes dark. *Carapace.* Smooth, not granular. *Sternum.* SL: 0.48; SW: 0.51; SI: 0.95. *Eyes.* Eye measurements: AME–AME: 0.22; ALE–AME: 0.30; AME–AME/AME–ALE: 0.72; PME–PME: 0.35; PLE–PME: 0.28; PME–PME/PME–PLE: 1.26; ALE/AME: 1.40; PLE/PME: 0.81; MOQ-AW/MOQ-PW: 0.63; MOQ-L/MOQ-W: 0.39; Clyp/AME–AME: 1.01. *Legs.* Two or three small setae on femora, rest of leg segments covered densely with fine setae, few small strong setae dorsally and ventrally on patellae and tibiae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.77, Pat 0.27, Tib 0.58, Mt 0.50, Ta 0.39, total 2.51; II—Fe 0.79, Pat 0.28, Tib 0.63, Mt 0.52, Ta 0.37, total 2.59; III—Fe 0.58, Pat 0.25, Tib 0.42, Mt 0.33, Ta 0.28, total 1.86; IV—Fe 0.67, Pat 0.25, Tib 0.50, Mt 0.43, Ta 0.31, total 2.16. *Abdomen.* Covered with short setae embedded in small tubercles; AL: 1.87; AW: 1.76; AI: 1.06. *Epigyne.* Wide posteriorly with small flap centrally, almost closed anteriorly (Fig. 67); intromittent canals complex, as in Fig. 68.

Male. *Size, measurements* ($n = 12$). TL: 2.39 (2.10–2.64); CL: 1.02 (0.90–1.14); CW: 0.92 (0.80–1.00); CI: 1.11 (1.05–1.19); CH: 0.62 (0.54–0.72); CLL: 0.22 (0.18–0.24); MOQ-L: 0.22 (0.20–0.24). Resemble females but differ as follows: *Colour.* Body dark or rich copper-brown; abdomen dorsally with or without patterns, sometimes with narrow bluish or white border anteriorly; ventrally uniform metallic blue, pinkish-purple or pale with blue and white striped striae; legs either pale or femora I–II and tibiae, metatarsi and tarsi IV darker (Fig. 28). *Sternum.* SL: 0.42 SW: 0.46 SI: 0.92. *Eyes.* Large; eye measurements: AME–AME: 0.21; ALE–AME: 0.27; AME–AME/AME–ALE: 0.79; PME–PME: 0.31; PLE–PME: 0.25; PME–PME/PME–PLE: 1.26; ALE/AME: 1.29; PLE/PME: 0.80; MOQ-AW/MOQ-PW: 0.68; MOQ-L/MOQ-W: 0.34; Clyp/AME–AME: 1.05. *Legs.* Usually with short setae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.84, Pat 0.26, Tib 0.73, Mt 0.59, Ta 0.43, total 2.85; II—Fe 0.91, Pat 0.28, Tib 0.75, Mt 0.60, Ta 0.42, total 2.95; III—Fe 0.56, Pat 0.23, Tib 0.48, Mt 0.35, Ta 0.29, total 1.92; IV—Fe 0.64, Pat 0.32, Tib 0.52, Mt 0.44, Ta 0.31, total 2.23. *Abdomen.* AL: 1.36; AW: 1.17; AI: 1.17. *Palp.* Embolus long with at least three coils; VTA and RTA almost same length (Figs 65, 66).

Natural history. Sampled from sweeping and beating vegetation such as trees shrubs and from forest litter in coastal beach forest, gallery forests, marshy areas near lakes and mountainous areas. Collected material suggested adults to be abundant from July to April whereas juveniles appeared from March to June.

Distribution. Republic of Guinea. New records: Cameroon, Democratic Republic of Congo (DRC), Mozambique, Rwanda, South Africa, Tanzania and Uganda (Fig. 121).



FIGURES 119–122. Recorded geographical distribution of *Mystaria* species. 119 *Mystaria lindaicapensis* sp. n.; 120 *Mystaria mnyama* sp. n.; 121 *Mystaria occidentalis* (Millot, 1942) comb. n.; 122 *Mystaria oreadae* sp. n. Scale lines = 800 km (119), 640 km (120), 2400 km (121), 1120 km (122).

***Mystaria oreadae* sp. n.**

Figs 29, 30, 69, 70, 95–98, 122

Type material: Holotype: ♀, **RWANDA: Nord Province**, Rwankuba [01°45'S, 29°51'E], alt. 2200 m, 23 August 1953, A.E. Bertrand (MRAC 78855).

Paratypes: 2 ♀, same locality data as holotype (MRAC 78856-7). **DEMOCRATIC REPUBLIC OF CONGO (DRC): Orientale Region**, 1 ♀, Ituri, Mount Bugera [00°10'S, 29°14'E], November 1953, R.P. Bergmans & R.P. Celis (MRAC 76630).

Etymology. This species, which was sampled exclusively from mountainous regions is named after 'Oread', a mountain nymph in old Greek mythology. Noun in genitive case.

Diagnosis. Females can be recognised by the colour patterns on body. Femora I–IV infuscated totally or partially with brown band (Figs 29, 30). Epigyne with atrium rim horseshoe-shaped, small hood centrally (Fig. 69). Male unknown.

Description. Female. *Size, measurements* ($n = 3$). TL: 3.20 (2.74–3.53); CL: 1.14 (1.01–1.27); CW: 1.09 (0.97–1.22); CI: 1.05 (1.04–1.07); CH: 0.66 (0.63–0.70); CLL: 0.23 (0.20–0.26); MOQ-L: 0.24 (0.24–0.25). *Colour.* Carapace varies from red to orange copper, may be tinted darker on thoracic region with paler triangles postero-laterally or darkened on posterior edge, colour and patterns varies between individuals; chelicerae orange to copper, with tinted black tips; sternum dark copper; abdomen dorsally pale white, may have a median longitudinal band which extends to spinnerets and striae; ventrally uniformly metallic blue to turquoise or slightly dark pink; striae blue-grey; all legs segments except femora I–IV uniform orange-yellow (Fig. 30). *Carapace.* Slightly granular; setae present on clypeal edge and laterally of ALE and PLE. *Sternum.* SL: 0.48; SW: 0.53; SI: 0.91. *Eyes.* Eye measurements: AME–AME: 0.22; ALE–AME: 0.31; AME–AME/AME–ALE: 0.72; PME–PME: 0.37; PLE–PME: 0.28; PME–PME/PME–PLE: 1.35; ALE/AME: 1.40; PLE/PME: 0.74; MOQ-AW/MOQ-PW: 0.60; MOQ-L/MOQ-W: 0.41; Clyp/AME–AME: 1.04. *Legs.* Short setae present on all legs; spiniform setae present on the following segments: femora laterally with two or three medium-length setae; tibia ventrally or dorsally with many scattered, erectile and long setae; tibiae ventrally with two fairly long setae situated distally; tarsal claws as in Figs 95–98; leg formula: II:I:IV:III; leg measurements: leg I—Fe 1.75, Pat 0.30, Tib 0.59, Mt 0.50, Ta 0.40, total 2.53; II—Fe 0.75, Pat 0.30, Tib 0.62, Mt 0.50, Ta 0.40, total 2.57; III—Fe 0.58, Pat 0.26, Tib 0.43, Mt 0.34, Ta 0.29, total 1.89; IV—Fe 0.66, Pat 0.24, Tib 0.50, Mt 0.42, Ta 0.30, total 2.12. *Abdomen.* Slightly wider posteriorly; AL: 2.06; AW: 1.80; AI: 1.14. *Epigyne.* Intromittent orifices small, open antero-laterally (Fig. 69); intromittent canals visible ventrally, postero-laterally to rim; intromittent canals as in Fig. 70.

Male. Unknown.

Natural history. Specimens have been sampled from mountainous regions. Females were found to occur from August to November.

Distribution. Rwanda and Democratic Republic of Congo (DRC) (Fig. 122).

***Mystaria rufolimbata* Simon, 1895**

Figs 1, 31, 32, 71–74, 91–94, 103–106, 123

Mystaria rufolimbata Simon 1895: 989; Jézéquel 1964: 1111, fig. 9 (descr. ♀).

Type material: Lectotype (by present designation): ♀, **SIERRA LEONE** (MNHN). Syntype series (designated by Simon 1895) from MNHN is examined. One female is elected as a new lectotype from the syntype series.

Paralectotypes: 1 ♀, same data as lectotype (MNHN).

Other material examined. **CAMEROON: Centre Region**, 1 ♂, Yaonde [03°52'N, 11°30'E] (SMF10916). **COTE D'IVOIRE: Moyen-Cavally Region**, 1 ♀, Park National de Tai, 15 km ESE of Tai [05°52'N, 07°27'W], alt 170 m, collected from branches of trees in primary rainforest, 5 January 1989, A.J. de Winter (MRAC 174.331). **DEMOCRATIC REPUBLIC OF CONGO (DRC): Bandundu Region**, 1 juvenile, Kasonga, Maniema [04°27'S, 26°40'E], 24 August 1959, P.L.G. Benoit (MRAC 114.963). **Equateur Region**, 1 ♀, Tshuapa, Etata [00°40'S, 19°22'E], 5 June 1971, J. Hauwaert (MRAC 140.398). **Nord-Kivu Region**, 1 ♀, 39 km S of Walikale [01°24'S, 28°03'E], 25 July 1957, E.S. Ross & R.E. Leech (CAS). **Orientale Region**, 1 ♀, Costermansville

[02°29'S, 28°51'E], March 1934, H.J. Bredo (MRAC 21427). **Sud-Kivu Region**, 1 ♀, Ibanda [02°13'S, 28°55'E], 1952, M. Vandelannoite (MRAC 78438). **GABON: Estuaire Region**, 2 ♀, 10 km N of Kinguélé [00°29'N, 10°20'E], 6 April 1986, A. Pauly (MRAC 173.085, 173.084); 1 ♀, Kougouleu [00°22'N, 09°55'E], 12 April 1985, A. Pauly (MRAC 168.767); 1 ♂, 1 ♀, between Atogafina and Kingaélé [00°29'N, 10°20'E], 23 March 1986, A. Pauly (MRAC 172.896). **MOZAMBIQUE: Sofala Province**, 1 ♀, Maputo, 16 km S of Villa Franca, Marnbone [21°11'S, 34°51'E], 29 June 1971–3 July 1971, F. Farquharson (NCA 2009/4612). **SOUTH AFRICA: KwaZulu-Natal Province**, 1 ♀, Hellsgate [28°07'S, 32°18'E], tsetse fly survey, 3 May 2004, J. Esterhuizen (NCA 2006/1332); 1 ♀, Oribi Gorge, 21 km W of Port Shepstone [30°45'S, 30°20'E], alt 200–350 m, 27 November 1983, C.E. Griswold (NM); 1 ♂, Ndumo Game Reserve [26°54'S, 32°15'E], fever tree forest, 21 June 2006, A.S. Honiball (NCA 2006/1331). **North West Province**, 1 ♂, Buffelspoort dam [25°12'S, 27°16'E], July 1988, L. Prendini (NCA 91/579).

Diagnosis. Female abdomen dark with two spots postero-laterally (Fig. 31) or with border encircling the abdomen; males uniform copper-red or black (Fig. 32). Carapace with dense short setae; at least two long postero-lateral setae on thoracic edge, laterally or near clypeal region more distinct than in *M. flavogutatta*. Epigyne with bell-shaped atrium (Fig. 73). Male palp with RTA tip sharply pointed, directed anteriorly, situated close to bulb and tutaculum (Figs 71, 72).

Re-description. Female. *Size, measurements* ($n = 7$). TL: 4.28 (3.10–5.24); CL: 1.16 (1.39–1.95); CW: 1.54 (1.22–1.86); CI: 1.08 (1.05–1.14); CH: 1.08 (0.86–1.2); CLL: 0.29 (0.23–0.35); MOQ-L: 0.31 (0.24–0.46). *Colour.* Carapace dark reddish-brown to almost blackish-brown; legs yellow to orange, femora I–II may be dark brown, metatarsi and tarsi IV with a reddish shade. *Carapace.* Slightly wider than long, texture varies from smooth to granular studded with small holes; dense, flat lying setae. *Chelicerae.* As in Fig. 1. *Sternum.* SL: 0.70; SW: 0.72; SI: 0.97. *Eyes.* Eye measurements: AME–AME: 0.31; ALE–AME: 0.41; AME–AME/AME–ALE: 0.77; PME–PME: 0.44; PLE–PME: 0.37; PME–PME/PME–PLE: 1.19; ALE/AME: 1.30; PLE/PME: 0.84; MOQ-AW/MOQ-PW: 0.71; MOQ-L/MOQ-W: 0.45; Clyp/AME–AME: 0.93. *Legs.* Legs I–II almost twice the length of legs III–IV; tarsal claws with long teeth, as in Figs 91–94; leg formula: II:I:IV:III; leg measurements: leg I—Fe 1.00, Pat 0.45, Tib 0.85, Mt 0.74, Ta 0.54, total 3.58; II—Fe 1.34, Pat 0.44, Tib 1.01, Mt 0.88, Ta 0.50, total 4.17; III—Fe 0.87, Pat 0.35, Tib 0.59, Mt 0.53, Ta 0.36, total 2.71; IV—Fe 0.93, Pat 0.32, Tib 0.63, Mt 0.55, Ta 0.35, total 2.76. *Abdomen.* AL: 2.62; AW: 2.16; AI: 1.28. *Epigyne.* See Fig. 73; intromittent orifices open laterally of atrium; intromittent canals extended antero-laterally (Fig. 74).

Male. *Size, measurements* ($n = 4$). TL: 2.60 (2.09–2.91); CL: 1.12 (0.87–1.29); CW: 1.04 (0.84–1.18); CI: 1.07 (1.05–1.10); CH: 0.76 (0.61–0.94); CLL: 0.21 (0.17–0.24); MOQ-L: 0.24 (0.19–0.26). Similar to female but smaller in size and differs as follows: *Colour.* Body uniform copper-brown, black or brown (Fig. 32). *Carapace.* Longer than wide, with two long, erectile setae on postero-thoracic edge. *Sternum.* As wide as long; SL: 0.49; SW: 0.49; SI: 1. *Eyes.* Eye measurements: AME–AME: 0.22; ALE–AME: 1.27; AME–AME/AME–ALE: 0.82; PME–PME: 0.31; PLE–PME: 0.26; PME–PME/PME–PLE: 1.21; ALE/AME: 1.22; PLE/PME: 0.83; MOQ-AW/MOQ-PW: 0.72; MOQ-L/MOQ-W: 0.34; Clyp/AME–AME: 0.94. *Legs.* tarsal claws as in Figs 103–106; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.89, Pat 0.41, Tib 0.84, Mt 0.72, Ta 0.57, total 3.44; II—Fe 1.06, Pat 0.32, Tib 0.95, Mt 0.74, Ta 0.39, total 3.46; III—Fe 0.66, Pat 0.23, Tib 0.50, Mt 0.39, Ta 0.31, total 2.10; IV—Fe 0.68, Pat 0.25, Tib 0.54, Mt 0.44, Ta 0.33, total 2.23. *Abdomen.* Fairly round; AL: 1.47; AW: 1.29; AI: 1.14. *Palp.* Embolus long, coiling around bulb at least twice; RTA short, delicate with tip very slender (Fig. 71), RTA slightly longer than VTA; VTA long, flattened (Fig. 72).

Natural history. Collected from vegetation, more specifically records from rainforests and *Acacia xanthophloea* forests. Sampled material suggests adults to occur from November to July and juveniles emerge during August.

Distribution. Sierra Leone. New records: Cameroon, Cote d'Ivoire, Democratic Republic of Congo (DRC), Gabon, Mozambique and South Africa (Fig. 123).

***Mystaria savannensis* sp. n.**

Figs 3, 33–35, 75–78, 99–102, 124

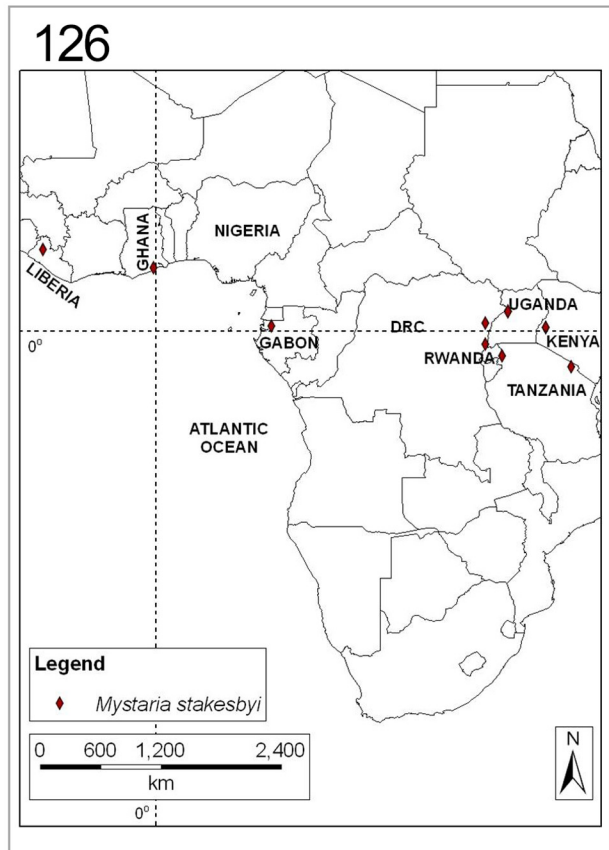
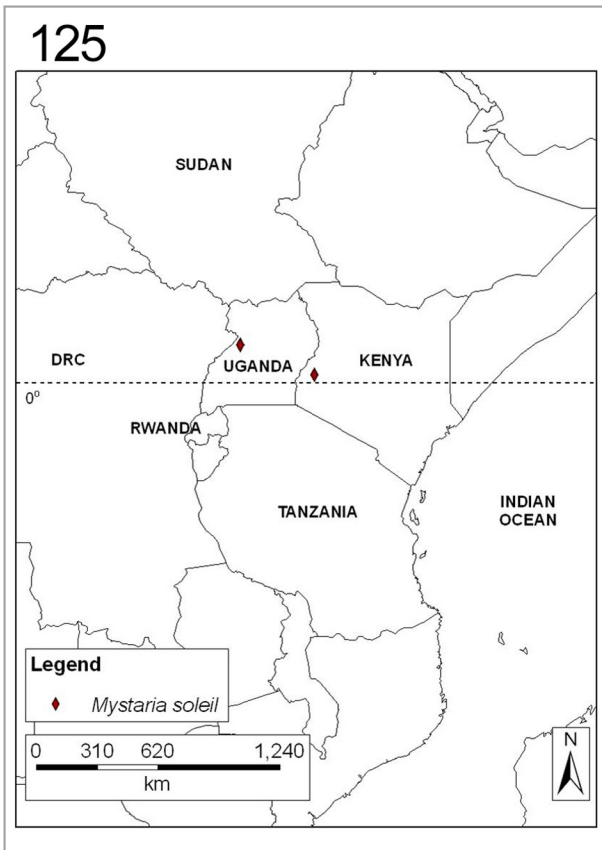
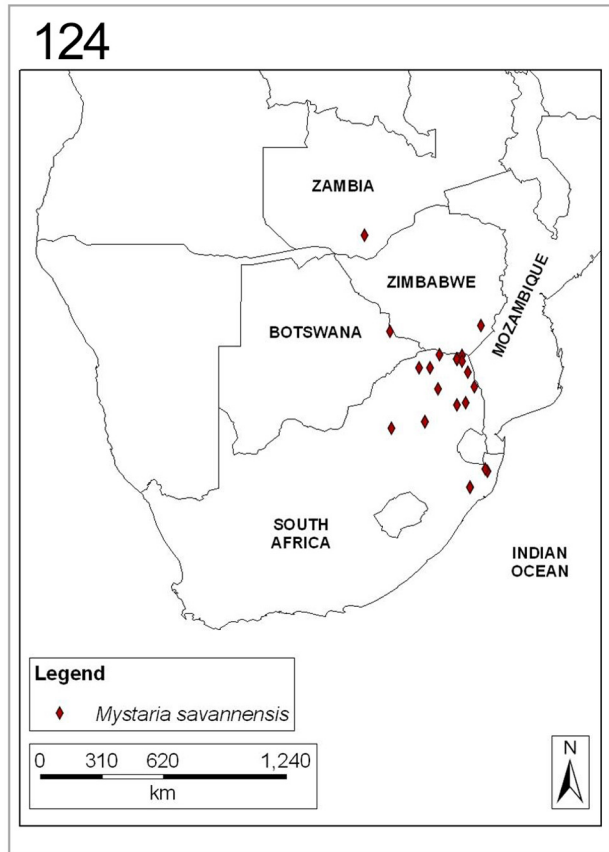
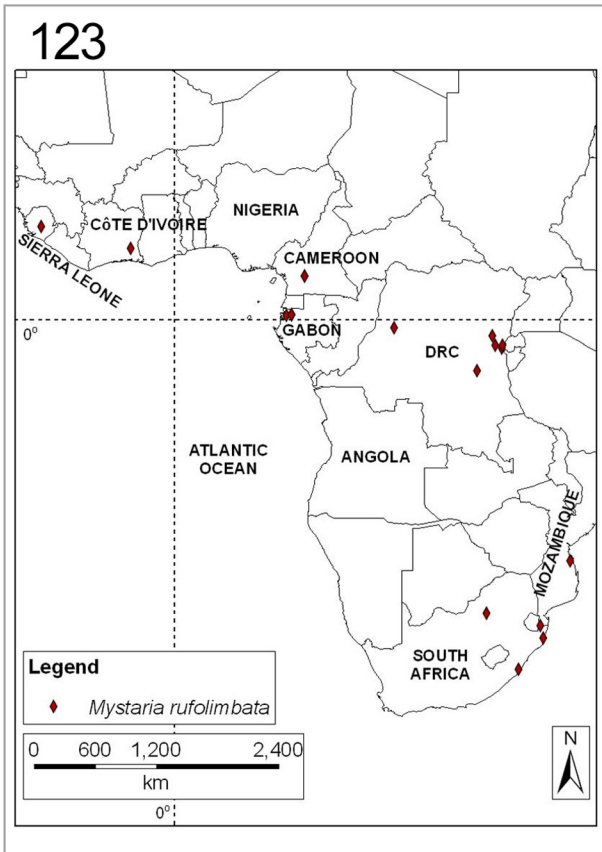
Type material: Holotype: ♀, **ZAMBIA: Southern Province**, near Choma Wildlives Game Farm [16°50'S, 26°59'E], beating short shrubs, 4 December 2006, C. Haddad & R. Lyle (NCA 2007/530).

Paratypes: BOTSWANA: North-East District, 3 ♀, 1 juvenile Selkirk Mine, near Francistown [21°10'S, 27°30'E], 29 February–May 2008, D.H. Jacobs & M. Stiller (NCA 2009/5033, 2009/5034, 2009/5035). **SOUTH AFRICA: Gauteng Province**, 1 ♀, Hartbeespoortdam [25°43'S, 27°50'E], 10 March 1966, A. Capener (NCA 78/33). **KwaZulu-Natal Province**, 1 ♀, Ubombo [27°33'S, 32°05'E], 16km N, 4 April 1958, E.S. Ross & R.E. Leech (CAS); 1 ♀, Mkuze Game Reserve [27°39'S, 32°10'E], alt 30 m, 13 June 1985, C.E. Griswold (NM); 2 ♀, 2 ♂, 4 juveniles Ophathe Game Reserve, river bed [28°29'S, 31°27'E], alt 455 m beating short shrubs, 2 October 2008, C. Haddad (NCA 2008/4179, 2008/4175). **Limpopo Province**, 5 ♂, Blouberg Nature Reserve [23°06'S, 28°59'E], beating *Sclerocarya birrea*, 29 November 2005–26 March 2006, P. Tshivhandekano, V. Gelebe, M. Muelelwa & F. Mbedzi (NCA 2009/4617, 2009/4621, 2009/4622, 2009/4623); 2 ♀, 8 ♂, same locality, sweeping *Spirostachys africana*, 26 March 2006, S. Foord & N Hahn (NCA 2009/4618, 2009/4619, 2009/4620, 2009/4624, 2009/5024); 4 ♂, same locality, sweeping *Kirkia acuminata*, 24 March 2006, S. Foord (NCA 2009/5025); 1 ♂, Klasserie, Bokmakierie Game Farm [24°34'S, 31°12'E], open grass lands, 8 April 2001, R. Jocqué (MRAC 210095); 4 ♂, 4 ♀, 1 sub-adult ♂, Wallers Camp, near Pafuri [22°25'S, 31°02'E], alt 261 m, canopy fogging, 16 February 2008, R. Jocqué and team (NCA 2009/5039); 1 ♂, 1 ♀, Kruger National Park, Punda Maria Camp [22°40'S, 31°01'E], Shipudze on road to Dunyadgiba, 2 May 1962, R.F. Lawrence (NM 23346); 2 ♂, Strydomtunnel [22°23'S, 30°00'E], tree beating, 22 February 1978, E.A. Ueckermann (NCA 88/592); 11 ♀, 30 ♂, 7 juvenile ♀, Tshulu Research Reserve [22°34'S, 30°48'E], alt 38 m, canopy fogging, 18 February 2008. R. Jocqué and team (NCA 2009/5040, 2009/5041, 2009/5042, 2009/5043, 2009/5044, 2009/5843, 2009/5844); 1 ♀, 2 ♂, Western Soutpansberg, Farm Little Leigh [23°05'S, 29°00'E], alt 108 m, beating *Kirkia wilmsii*, 24 November 2005–21 March 2006, F. Maanda (NCA 2009/4625, 2009/5027, 2009/5029); 1 ♀, same locality beating *Pterocarpus rotundifolius*, 22 March 2006, M. Muelelwa (NCA 2009/5026); 1 ♂, 1 ♀, same locality, beating gallery forest, 22 December 2005–19 March 2006, E. Stam (NCA 2009/5028, 2009/5031); 1 ♀, same locality, beating *Burkea africana*, 23 February 2005, S. Foord (NCA 2009/5030); 1 ♂, 1 ♀, Wolkberg, Haenertsburg [23°57'S, 29°56'E], sweeping shrubs, 15 July 1993, A. Leroy (NCA 2004/522). **Mpumalanga Province**, 2 ♀, Loskopdam, Farm Ranch 2D [25°26'S, 29°20'E], bush beating, 27 February 1994, A. Leroy (NCA 2004/524, 2009/5032); 1 ♀, Kruger National Park, Letaba Camp [23°51'S, 31°35'E], 19 February 1962, R.F. Lawrence (NM); 1 juvenile ♀, Bourke's Luck [24°50'S, 30°46'E], sifting leaf litter, 29 March 1991, M. Filmer (NCA 92/144). **ZIMBABWE: Masvingo Province**, 1 ♀, Malilangwe Estate, Hakamela Camp [21°05'S, 32°00'E], active search on the ground, 26 March 2000, M. Cumming (NCA 2004/1424); 1 ♂, 1 ♀, same locality, SE low veld, sweeping dense grassland, 25 March 2004, M. Cumming (NCA 2004/1423).

Etymology. Named after the Savanna Biome, which signifies a favourable habitat of most individuals of the species. Adjective.

Diagnosis. Both sexes differ from any other species by the presence of a dark longitudinal stripe present on all legs, which extends from tibia or patella until tarsi (Fig. 34). Epigyne with atrium long-oval, teardrop-shaped, differ from other species by having the longest and largest atrium; intromittent orifices open antero-laterally (Fig. 77). Bulb large with RTA very broad base, differ from other species by a leaf-shaped RTA base, slender tip directed anteriorly (Figs 75, 76).

Description. Female. *Size, measurements.* ($n = 9$). TL: 3.76 (3.15–5.08); CL: 1.38 (1.20–1.65); CW: 1.33 (1.20–1.53); CI: 1.03 (0.93–1.11); CH: 0.93 (0.84–1.10); CLL: 0.26 (0.21–0.33); MOQ-L: 0.29 (0.27–0.33). *Colour.* Carapace orange-red or dark brown with a yellow or orange patch on clypeus, may have dark patches over lateral eyes or with a black eye spot on PME (Fig. 33); abdomen pale, may be decorated dorsally as follows: longitudinal band centrally, broader anteriorly than posteriorly extending laterally, or with only dark areas on lateral sides; ventrally pale with striae dark blue to black, white in between; legs I–IV femora may have infuscated bands dorso-ventrally. *Carapace.* Smooth to slightly granular. *Chelicerae.* As in Fig. 3. *Sternum.* SL: 0.56; SW: 0.61; SI: 0.92. *Eyes.* Eye measurements: AME–AME: 0.27; ALE–AME: 0.38; AME–AME/AME–ALE: 0.70; PME–PME: 0.45; PLE–PME: 0.35; PME–PME/PME–PLE: 1.29; ALE/AME: 1.43; PLE/PME: 0.77; MOQ-AW/MOQ-PW: 0.59; MOQ-L/MOQ-W: 0.49; Clyp/AME–AME: 0.98. *Legs.* Covered with fine short setae on all segments, femora I–IV with two medium spiniform setae dorsally; tibiae with two short spiniform setae dorsally; tarsal claws as in Figs 99–102; leg formula: I:II:IV:III; leg measurements: leg I—Fe 0.89, Pat 0.36, Tib 0.75, Mt 0.62, Ta 0.43, total 3.05; II—Fe 0.93, Pat 0.36, Tib 0.69, Mt 0.62, Ta 0.42, total 3.03; III—Fe 0.68, Pat 0.30, Tib 0.47, Mt 0.42, Ta 0.31, total 2.19; IV—Fe 0.84, Pat 0.29, Tib 0.58, Mt 0.53, Ta 0.35, total 2.61. *Abdomen.* AL: 2.38; AW: 2.27; AI: 1.05. *Epigyne.* With flap posteriorly (Fig. 77); intromittent canals antero-laterally extended (Fig. 78).



FIGURES 123–126. Recorded geographical distribution of *Mystaria* species. 123 *Mystaria rufolimbata* Simon, 1895; 124 *Mystaria savannensis* sp. n.; 125 *Mystaria soleil* sp. n.; 126 *Mystaria stakesbyi* sp. n. Scale lines = 2400 km (123, 126), 1240 km (124, 125).

Male. Size, measurements. ($n = 9$). TL: 2.74 (2.50–3.27); CL: 1.17 (1.06–1.32); CW: 1.10 (0.98–1.34); CI: 1.07 (1.02–1.15); CH: 0.74 (0.66–0.85); CLL: 0.27 (0.24–0.31); MOQ-L: 0.27 (0.25–0.31). Resemble female but differ as follows: *Colour*. Carapace dark or pale copper-brown; abdomen dorsally dark orange or black, with narrow whitish border anteriorly, may have an orange-brown pattern or with spots posteriorly (Fig. 35); legs reddish-brown or orange, yellow or pale-green, femora I–II with infuscated bands, tibiae, metatarsi and tarsi IV darker brown. *Sternum*. SL: 0.46 SW: 0.52 SI: 0.90. *Eyes*. MOQ big, long wide; eye measurements: AME–AME: 0.24; ALE–AME: 0.31; AME–AME/AME–ALE: 0.76; PME–PME: 0.37; PLE–PME: 0.29; PME–PME/PME–PLE: 1.29; ALE/AME: 1.33; PLE/PME: 0.78; MOQ-AW/MOQ-PW: 0.63; MOQ-L/MOQ-W: 0.43; Clyp/AME–AME: 1.16. *Legs*. Patellae may have medium spiniform setae; tibiae III–IV with medium spiniform setae dorsally and ventrally; leg formula: I:II:IV:III; leg measurements: leg I—Fe 0.91, Pat 0.28, Tib 0.81, Mt 0.70, Ta 0.49, total 3.17; II—Fe 0.86, Pat 0.26, Tib 0.75, Mt 0.62, Ta 0.42, total 2.91; III—Fe 0.61, Pat 0.24, Tib 0.49, Mt 0.40, Ta 0.30, total 2.04; IV—Fe 0.68, Pat 0.23, Tib 0.53, Mt 0.49, Ta 0.33, total 2.27. *Abdomen*. AL: 1.57; AW: 1.47; AI: 1.06. *Palp*. RTA widened at base (Fig. 75); VTA fairly long, almost equal in length to RTA (Fig. 76).

Natural history. Specimens have been collected mostly from trees or sometimes shrubs by means of sweeping, beating or fogging. Other methods include active searching on the ground and leaf litter sifting. Individuals have been observed (*pers. comm.*) to be frequently hanging on their own silk thread when disturbed from a branch or twig. Some individuals occur in mountainous areas, but seem to be more prevalent in the savanna biome in southern Africa. Individuals prefer living on a variety of indigenous tree species such as *Sclerocarya birrea*, *Spirostachys africana*, *Kirkia acuminata*, *K. wilmsii* and *Pterocarpus rotundifolius*. Adults occur from October until July, while juveniles occur from October until February.

Distribution. Botswana, South Africa, Zambia and Zimbabwe (Fig. 124).

Mystaria soleil sp. n.

Figs 4, 36, 37, 79–82, 107–110, 125

Type material: Holotype: ♀, **UGANDA: Masindi District**, Budongo forest [01°45'N, 31°25'E], alt 1200 m, secondary forest canopy fogging of *Cynometra alexandri*, 15–25 January 1997, T. Wagner (ZFMK AR1287).

Paratypes: KENYA: Western Province, 2 ♂, 1 ♀, Kakamega forest [00°22'N, 34°50'E], alt. 1600 m, middle-aged secondary forest canopy fogging of *Teclea nobilis*—12 m canopy height, January–February 2002, 2003, W. Freund (ZFMK AR 098, 147, 1274); 1 ♂, same locality, old secondary-aged forest canopy fogging *T. nobilis*—10 m canopy height, September–October 2001, W. Freund (ZFMK AR 1273). **UGANDA: Masindi District**, 5 ♀, 6 ♂, Budongo forest [01°45'N, 31°25'E], alt. 1200 m, secondary forest canopy fogging of *Rinorea beniensis*—14.5 m canopy height, 5–25 January 1997, T. Wagner (ZFMK AR 1275, 1277, 1278, 1279, 1282, 1286, 1289); 7 ♀, 9 ♂, same locality, secondary forest canopy fogging *C. alexandri*, 15–25 January 1997, T. Wagner (ZFMK AR 1288, 1290, 1291, 1292, 1294); 4 ♀, 1 ♂, same locality, 35 m canopy height, June–July 1995, T. Wagner (ZFMK AR 1283, 1284, 1285, 1293); 1 ♂, same locality, primary forest canopy fogging *C. alexandri*—35 m canopy height, 1–10 July 1995, T. Wagner (ZFMK AR 1280); 2 ♀, 1 ♂, same locality, swamp forest canopy fogging *R. beniensis*, 11–31 July 1995, T. Wagner (ZFMK AR 1295, 1276); 1 ♀, same locality, swamp forest canopy fogging *T. nobilis*—16 m canopy height, 1–10 July 1995, T. Wagner (ZFMK AR 1281).

Etymology. ‘*Soleil*’ is French for the sun, as this species is characteristically yellow in colour. Noun in apposition.

Diagnosis. Both sexes distinct and recognised by the orange-yellow carapace decorated with a brown patch centrally on cephalic and thoracic region, abdomen with brown longitudinal median band (Figs 36, 37). Females differ by having the largest eye tubercles of any species, all eyes situated on silver-white tubercles. Female epigyne with wide, curved hood, situated anteriorly (Fig. 81), differ from *M. stakesbyi* n. sp. that have a narrow hood. Male palp with RTA short and slender, situated close to bulb, tip extending laterally (Fig. 79); VTA slender and small (Fig. 80).

Description. Female. Size, measurements ($n = 8$). TL: 3.32 (3.13–3.48); CL: 1.32 (1.20–1.41); CW: 1.15 (1.13–1.20); CI: 1.15 (1.06–1.25); CH: 0.77 (0.71–0.80); CLL: 0.21 (0.19–0.24); MOQ-L: 0.27 (0.27–0.28). *Colour*. Abdomen dorsally pale brown with darker band, a whitish border with two small dark spots posterolaterally (Fig. 36); legs orange-yellow, patellae with dark brown patches. *Carapace*. With highest part in foveal

region sloping laterally and anteriorly; texture granulate with small holes; covered with fine, short setae, a few long, erectile spiniform setae on posterior edge and laterally of lateral eyes. *Chelicerae*. Cheliceral teeth as in Fig. 4. *Sternum*. Longer than wide; SL: 0.59; SW: 0.52; SI: 1.15. *Eyes*. Eye measurements: AME–AME: 0.24; ALE–AME: 0.28; AME–AME/AME–ALE: 0.83; PME–PME: 0.33; PLE–PME: 0.29; PME–PME/PME–PLE: 1.15; ALE/AME: 1.20; PLE/PME: 0.87; MOQ-AW/MOQ-PW: 0.71; MOQ-L/MOQ-W: 0.39; Clyp/AME–AME: 0.90. *Legs*. Leg I–II nearly twice the length of leg III–IV; femora, patellae and tibiae with few medium to short spiniform setae; metatarsi and tarsi with fine, shorter setae, small spiniform setae on postero-ventral side; leg formula: I:II:IV:III; leg measurements: leg I—Fe 1.26, Pat 0.42, Tib 1.06, Mt 0.84, Ta 0.52, total 4.10; II—Fe 1.25, Pat 0.44, Tib 1.05, Mt 0.81, Ta 0.48, total 4.03; III—Fe 0.88, Pat 0.32, Tib 0.65, Mt 0.43, Ta 0.32, total 2.60; IV—Fe 0.92, Pat 0.31, Tib 0.70, Mt 0.50, Ta 0.32, total 2.74. *Abdomen*. Wider posteriorly than anteriorly. AL: 2.00; AW: 1.59; AI: 0.26. *Epigyne*. Atrium wide with postero-laterally rounded rims (Fig. 81). Intromittent orifices visible as two small circular openings antero-laterally from hood; intromittent canals as in Fig. 82.

Male. Size, measurements ($n = 2$). TL: 2.60 (2.46–2.70); CL: 1.18 (1.08–1.25); CW: 1.05 (1.00–1.08); CI: 1.12 (1.08–1.15); CH: 0.78 (0.72–0.85); CLL: 0.21 (0.20–0.21); MOQ- L: 0.23 (0.23–0.24). Differ from female as follows: *Colour*. Carapace with a larger copper-brown patch (Fig. 37); eye tubercles dark; abdomen dorsally orange-yellow with large band starting anteriorly narrowing posteriorly, two spots postero-laterally and; ventrally pale yellow. Legs orange-yellow, patellae I–IV partially brown, femora I–II distally brown and tibiae, metatarsi and tarsi I–II brown. *Carapace*. Elevated in thoracic area; texture smooth, with few long erectile setae present on postero-lateral thoracic edge. *Sternum*. SL: 0.56; SW: 0.47; SI: 1.19. *Eyes*. Eye tubercles not as large as in females; eye measurements: AME–AME: 0.21; ALE–AME: 0.26; AME–AME/AME–ALE: 0.82; PME–PME: 0.30; PLE–PME: 0.27; PME–PME/PME–PLE: 1.12; ALE/AME: 1.23; PLE/PME: 0.89; MOQ-AW/MOQ-PW: 0.70; MOQ-L/MOQ-W: 0.34; Clyp/AME–AME: 0.99. *Legs*. All legs except tarsi I–IV with dense short setae and medium spiniform setae dorsally and laterally; tibia and metatarsi I–IV with shorter spiniform setae distally on ventral side; tibiae III–IV with longer spiniform setae; tarsal claws differ from other species, in 2nd comb strongly curved at tip (Figs 107–110); leg formula: I:II:IV:III; leg measurements: leg I—Fe 1.23, Pat 0.36, Tib 1.13, Mt 0.92, Ta 0.57, total 4.21; II—Fe 1.26, Pat 0.36, Tib 1.16, Mt 0.86, Ta 0.54, total 4.17; III—Fe 0.79, Pat 0.27, Tib 0.62, Mt 0.43, Ta 0.33, total 2.43; IV—Fe 0.80, Pat 0.24, Tib 0.62, Mt 0.49, Ta 0.32, total 2.47. *Abdomen*. Long-oval, with oval scutum. AL: 1.43; AW: 1.05; AI: 1.36. *Palp*. Bulb large with a well-defined, dark tegulum, slightly tilted to the lateral side (Fig. 79), differs from *M. stakesbyi* sp. n. whose tegulum is less sclerotized and smaller; VTA slender, slightly longer than RTA (Fig. 80).

Natural history. Newly sampled material suggests that individuals occur in secondary- and middle-aged primary rainforests and swamp forests. Canopy fogging indicated that they occur on trees species such as *Teclea nobilis*, *Rinorea beniensis* and *Cynometra alexandri*. Adults were present from January until October.

Distribution. Uganda and Kenya (Fig. 125).

***Mystaria stakesbyi* sp. n.**

Figs 5, 38, 39, 83–86, 126

Type material: Holotype: ♀, GHANA: *Greater Accra Region*, Legon [05°39'N, 00°11'W], 10 December 1969, P.A. Room (MRAC 135.996).

Paratypes: DEMOCRATIC REPUBLIC OF CONGO (DRC): *Kasai-Occidental Province*, 1 ♀, Luebo [05°20'S, 21°25'E], 1992, D.H Schouteden (MNHG). *Nord-Kivu Region*, 1 ♂, Kivu, Semliki, Valley of Djuma [00°43'N, 29°45'E], leaf litter sifting, 15 July 1968, R.P.M. Lejeune (MRAC 135.812); 1 ♀, Rutshuru [01°10'S, 29°27'E], April 1937, J. Ghesquierie (MRAC 20812/20816). **GABON:** *Estuaire Region*, 1 ♂, Kinguele [00°29'N, 10°20'E], 10 km N of Kinguélé, 6 April 1986, A. Pauly (MRAC 173.087). **KENYA:** *Western Province*, 1 ♀, Kakamega forest [00°22'N, 34°50'E], alt. 1600 m, secondary forest canopy fogging of *Heinsia diervilleoides*, 17 January 2003, W. Freund (ZFMK AR 137); 1 ♀, same locality, canopy fogging *Teclea nobilis*, 7–11 February 1999, T. Wagner (ZFMK AR 1297). **LIBERIA:** *Gbarpolu County*, 1 ♀, Banga [07°16'N, 10°03'W], 26 October 1926, R.P. Strong & G.M. Allen (MCZ). **RWANDA:** *Est Province*, 1 ♀, Ibanda Makera, Rusumo [02°09'S, 30°55'E], alt. 1450 m, gallery forest canopy fogging of *T. nobilis*, October 1993, T. Wagner (ZFMK AR 1303). **TANZANIA:** *Kilimanjaro Region*, 1 ♀, Kibongoto [03°10'S, 37°06'E] (MNHG). **UGANDA:** *Masindi District:* 1 ♂, 1 ♀,

Budongo forest [01°45'N, 31°25'E], alt. 1200 m, secondary canopy fogging of *Cynometra alexandri*, 15–25 January 1997, T. Wagner (ZFMK AR 1298, 1302); 1 ♂, same locality, 21–31 July 1995, T. Wagner (ZFMK AR 1300); 1 ♂, same locality, primary forest canopy fogging of *Rinorea beniensis*, 19–30 June 1995, T. Wagner (ZFMK AR 1301); 1 ♂, same locality, swamp forest canopy fogging of *T. nobilis*, 1–10 July 1995, T. Wagner (ZFMK AR 1299).

Etymology. Named after the husband of the first author, Eduard Stakesby. Noun in genitive gender.

Diagnosis. Females may be recognised by carapace that is often decorated with darker brown patch centrally, laterally and/or posteriorly (Fig. 38); epigyne with narrow, curved hood anteriorly, differs from *M. soleil* **n. sp.** that have a wider hood; intromittent orifices two circular openings, antero-laterally (Fig. 85), intromittent orifices as in Fig. 86. Male palp with RTA fairly broad at base, tip curving gradually laterally, situated close to bulb (Figs 83, 84).

Description. Female. *Size, measurements* ($n = 6$). TL: 3.15 (2.72–4.07); CL: 1.22 (1.06–1.39); CW: 1.10 (0.99–1.30); CI: 1.11 (1.06–1.20); CH: 0.74 (0.63–0.88); CLL: 0.21 (0.16–0.25); MOQ-L: 0.25 (0.21–0.28). *Colour.* Carapace dorsally varies from dark copper-red, orange to brown; usually with dark brown central band or patch which may extend from eye area or clypeus posteriorly; laterally with paler orange-brown to yellow areas; abdomen paler than carapace, unevenly brownish to pale, with faint white border, may be decorated with pale, purple-grey or dark brown triangular patterns; ventrally pale with dark brown striae; all legs yellow-orange, with brown band partially present over width of femora I–IV. *Carapace.* With fine granules or small holes; few long, erectile setae on postero- or postero-lateral edge and laterally of LE. *Sternum.* Slightly longer than wide; SL: 0.54; SW: 0.50; SI: 1.09. *Eyes.* Eye measurements: AME–AME: 0.23; ALE–AME: 0.33; AME–AME/AME–ALE: 0.69; PME–PME: 0.36; PLE–PME: 0.32; PME–PME/PME–PLE: 1.13; ALE/AME: 1.46; PLE/PME: 0.89; MOQ–AW/MOQ–PW: 0.63; MOQ-L/MOQ-W: 0.39; Clyp/AME–AME: 0.92. *Legs.* Long and slender; femora, patellae and tibiae I–IV with few medium spiniform setae dorsally and laterally; tibiae with long and short spiniform setae; metatarsi and tarsi III–IV with numerous fine setae and small spiniform setae, also present ventrally on tibiae I–IV and latero-dorsally on metatarsi I–IV; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.91, Pat 0.32, Tib 0.74, Mt 0.58, Ta 0.44, total 2.99; II—Fe 1.00, Pat 0.35, Tib 0.73, Mt 0.60, Ta 0.44, total 3.12; III—Fe 0.64, Pat 0.28, Tib 0.46, Mt 0.36, Ta 0.30, total 2.05; IV—Fe 0.74, Pat 0.29, Tib 0.57, Mt 0.41, Ta 0.29, total 2.30. *Abdomen.* Round. AL: 1.93; AW: 1.73; AI: 1.12. *Epigyne.* With well-defined, small hood centrally and narrow atrium (Fig. 85) small circular intromittent orifices situated laterad of hood; intromittent canals as in Fig. 86.

Male. *Size, measurements* ($n = 3$). TL: 2.50 (2.34–2.76); CL: 1.12 (1.03–1.20); CW: 0.98 (0.90–1.40); CI: 1.15 (1.14–1.15); CH: 0.66 (0.54–0.72); CLL: 0.19 (0.18–0.22); MOQ-L: 0.23 (0.23–0.24). Similar to female but differs as follows: body smaller and more slender. *Colour.* Carapace uniform dark copper-red (Fig. 39); abdomen slightly paler brown with faint black tinted marks; femora I–IV, tibiae and metatarsi IV with partially copper or brown tint. *Carapace.* With fewer long setae. *Sternum.* SL: 0.49 SW: 0.48 SI: 1.02. *Eyes.* ALE large; PME equally close to PLE than to each other; eye measurements: AME–AME: 0.20; ALE–AME: 0.28; AME–AME/AME–ALE: 0.70; PME–PME: 0.31; PLE–PME: 0.30; PME–PME/PME–PLE: 1.01; ALE/AME: 1.43; PLE/PME: 0.99; MOQ–AW/MOQ–PW: 0.64; MOQ-L/MOQ-W: 0.37; Clyp/AME–AME: 0.99. *Legs.* Spiniform setae longer than in female, with short, fine, dense setae scattered in between, all leg segments with spiniform setae dorso-laterally and ventrally on metatarsi and tarsi; leg formula: I:II:IV:III; leg measurements: leg I—Fe 1.90, Pat 0.30, Tib 0.92, Mt 0.76, Ta 0.41, total 3.28; II—Fe 0.99, Pat 0.37, Tib 0.77, Mt 0.50, Ta 0.33, total 2.97; III—Fe 0.62, Pat 0.23, Tib 0.54, Mt 0.42, Ta 0.30, total 2.12; IV—Fe 0.70, Pat 0.21, Tib 0.57, Mt 0.44, Ta 0.31, total 2.22. *Abdomen.* Longer than wide; scutum narrow oval; AL: 1.38; AW: 0.95; AI: 1.45. *Palp.* With cymbial apophysis, retro-laterally (Fig. 83); VTA nearly equal in length to RTA (Fig. 84); bulb differ from *M. soleil* **sp. n.** in that the tegulum of *M. stakesbyi* **sp. n.** is not as darkly sclerotized and bulb not as wide apically as in *M. soleil* **sp. n.**

Natural history. Sampled material suggest that the following tree species are preferred, *Heinsia diervilleoides*, *Teclea nobilis*, *Cynometra alexandri* and *Rinorea beniensis* in swamp, primary-, secondary- and gallery rainforests as well as some individuals were found among leaf litter. Most individuals were obtained by means of canopy fogging. Adults were sampled from October to July.

Distribution. Democratic Republic of Congo (DRC), Liberia, Gabon, Ghana, Kenya, Rwanda, Tanzania and Uganda (Fig. 126).

***Mystaria variabilis* (Lessert, 1919) comb. n.**

Figs 40–42, 87–90, 127

Paramystaria variabilis Lessert 1919: 103, fig. 2, 3, 4 (descr. ♂); pl.2 figs 14, 21, 27 (descr. ♀); 1925: 323; 1936: 253; 1943: 313.

Type material: Holotype (designated by Lessert 1919): ♂, **TANZANIA: Kilimanjaro Region**, Kibongoto [03°10'S, 37°05'E] (MNHG). Type series from MNHG was examined.

Other material examined. TANZANIA: Kilimanjaro Region, 2 ♀, same locality as holotype (MNHG). **DEMOCRATIC REPUBLIC OF CONGO (DRC): Bass-Congo Region**, 2 ♂, 6 ♀, Kisantu [05°06'S, 15°05'E], 1919, R.P. Vanderyst (MNHG). **Equateur Region**, 1 ♀, Bokuma [0°39'S, 21°01'E], February 1925, R.P. Lootens (MRAC 81635); 1 ♀, Bokungu, Boende [00°13'S, 20°52'E], 1950, Dupuis (MRAC 67392); 1 ♀, Bamba [06°49'S, 17°18'E], January 1940, H. De Saeger (MRAC 20088). **Katanga Region**, 2 ♀, Kalemie (Albertville) [05°56'S, 29°12'E], 18 November 1925, D.H. Schouteden (MNHG). **Nord-Kivu Region**, 1 ♀, Rwankwi [01°20'S, 29°22'E], July 1951, J. Leroy (MRAC 71571); 4 ♂, 4 ♀, 2 juveniles, Butembo, valley of Musosa [00°09'N, 29°17'E], May 1967, R.P.M. Lejeune (MRAC 132.856); 5 ♂, 2 ♀, 2 juveniles, Butembo region [00°09'N, 29°17'E], September–October 1965, M.J. Celis (MRAC 130.120); 4 ♀, Rutshuru [00°36'S, 29°27'E], March 1937, J. Gherquien (MRAC 21091, 21096, 21103, 21108). **Oriente Region**, 2 ♀, Watsa Niangara [03°01'N, 29°31'E], L. Burgeon (MNHG); 2 ♂, 2 ♀, Kisangani (Stanleyville) [00°31'N, 25°11'E], 28 April 1928. A. Collart (MRAC 11512/11516); 2 ♀, Saki [02°31'N, 27°25'E], March 1936. L. Lippens (MRAC 20950/20951). **ETHIOPIA: Shewa Province**, 1 ♂, Awash river [08°25'N, 39°25'E], sweeping, November 1966, (AMNH). **KENYA: Rift Valley Province**, 1 ♀, Baringo Lake, [00°28'N, 35°57'E], found on dead grass, 20 December 1979, P. Reavell (NM 13347); 1 ♂, Lodwar [03°07'N, 35°35'E], 60 km W of Lake Rudolf, 16–26 August 1963, B. Patterson (MCZ). **MALAWI: Northern Region**, 1 ♂, Chintheche [11°49'S, 34°10'E], 1 December 1977, R. Jocqué (MRAC 153.378). **MOZAMBIQUE: Sofala Region**, 1 ♀, Sangadze [17°26'S, 34°51'E], May, (MNHG). **RWANDA: Kigali Province**, 1 ♀, no exact locality data, (SMF); 1 ♀, Kigali [01°56'S, 30°04'E], 28–31 January 1976, J. Decelle (MRAC 147.909). **Eastern Province**, 1 ♂, Bugesera-Kibungo [02°09'S, 30°32'E], 22.vii.1975, P. Nyalugaka (MRAC 155.506). **SOUTH AFRICA: Eastern Cape Province**, 1 ♀, Port Alfred [33°36'S, 26°54'E], sweeping, 30 November 1977, A.S. Dippenaar-Schoeman (NCA 88/485). **UGANDA: Masaka District**, 2 ♀, Rakai [00°43'S, 31°24'E], sweeping, July 1994, D. Penney (MRAC 210209). **Iganga District**, 1 ♀, on banks of marsh river Tabu [00°45'N, 33°30'E], February 1967, J. Ruabunesa (MRAC 131.565). **Mbarara District**, 1 ♀, on bank of river Lutebe [00°27'S, 30°22'E], February 1967, J. Ruabunesa (MRAC 131.552).

Diagnosis. Epigyne with atrium horseshoe-shaped; (Fig. 89); intromittent canals as in Fig. 90. Bulb round with VTA broad at base; RTA thickened at base, extending straight, directed antero-laterally (Fig. 87).

Re-description: Female. *Size, measurements* ($n = 6$). TL: 3.14 (3.06–3.45); CL: 1.22 (1.18–1.34); CW: 1.11 (1.12–1.22); CI: 1.10 (1.04–1.18); CH: 0.75 (0.63–0.82); CLL: 0.24 (0.18–0.27); MOQ-L: 0.25 (0.23–0.28). *Colour.* Carapace often with dark copper markings on thoracic, cephalic region and eye area, paler postero-laterally; uniform specimens with orange colour and postero-thoracic edge tinted; eyes on black tubercles; clypeus with yellow patch (Fig. 40); sternum brown and chelicerae uniform copper. Carapace and abdomen colour and patterns may vary between individuals. Abdomen pale with variable pattern dorsally: a grey longitudinal band with slightly zig-zag edge, or band extending wider anteriorly and centrally; ventrally pale white with pale blue to darker grey striae; legs usually uniform pale yellow-orange, femora I–II may have infuscated brown bands; femora III–IV brown distally (Figs 40, 41). *Carapace.* Broad. *Sternum.* SL: 0.50; SW: 0.52; SI: 0.97. *Eyes.* Eye measurements: AME–AME: 0.22; ALE–AME: 0.30; AME–AME/AME–ALE: 0.75; PME–PME: 0.37; PLE–PME: 0.30; PME–PME/PME–PLE: 1.24; ALE/AME: 1.34; PLE/PME: 0.81; MOQ-AW/MOQ-PW: 0.61; MOQ-L/MOQ-W: 0.41; Clyp/AME–AME: 1.06. *Legs.* With numerous fine setae, dark erectile setae present dorsally, ventrally and laterally on all segments; tibia and femora with five long spiniform setae; leg formula: II:I:IV:III; leg measurements: leg I—Fe 0.81, Pat 0.29, Tib 0.64, Mt 0.54, Ta 0.43, total 2.71; II—Fe 0.79, Pat 0.31, Tib 0.66, Mt 0.55, Ta 0.42, total 2.72; III—Fe 0.63, Pat 0.28, Tib 0.45, Mt 0.37, Ta 0.29, total 2.01; IV—Fe 0.73, Pat 0.27, Tib 0.56, Mt 0.47, Ta 0.34, total 2.37. *Abdomen.* Round to slightly wider posteriorly. AL: 1.92; AW: 1.75; AI: 1.11. *Epigyne.* Intromittent orifices open antero-laterally; intromittent canals long and complex with large coils anteriorly on both sides (Fig. 90).

Male. *Size, measurements* ($n = 3$). TL: 2.49 (2.34–2.59); CL: 1.08 (1.08–1.09); CW: 0.96 (0.90–1.01); CI: 1.13 (1.08–1.20); CH: 0.66 (0.66–0.66); CLL: 0.22 (0.21–0.24); MOQ-L: 0.23 (0.20–0.26). Differ from female as follows: *Colour.* Body orange or copper-red, abdomen dorsally dusted with blackish-brown pattern, usually with pale border anteriorly (Fig. 42); ventrally pale blue or slightly metallic blue, with striae darker blue; clypeus lighter yellow or orange area; legs usually uniform pale, with shades of brown or orange-yellow; femora I–II, tibiae and/or metatarsi IV may be slightly darker. *Carapace.* Smooth. *Sternum.* SL: 0.44; SW: 0.45; SI: 0.98. *Eyes.* Eye measurements: AME–AME: 0.19; ALE–AME: 0.28; AME–AME/AME–ALE: 0.67; PME–PME: 0.33; PLE–PME: 0.27; PME–PME/PME–PLE: 1.21; ALE/AME: 1.49; PLE/PME: 0.83; MOQ-AW/MOQ-PW: 0.56; MOQ-L/MOQ-W: 0.42; Clyp/AME–AME: 1.18. *Legs.* Leg segments covered with very fine medium length setae; femora and tibiae I–IV with few medium length, spiniform setae; leg formula: I:II:IV:III; leg measurements: leg I—Fe 0.91, Pat 0.26, Tib 0.78, Mt 0.61, Ta 0.31, total 2.87; II—Fe 0.61, Pat 0.19, Tib 0.53, Mt 0.41, Ta 0.29, total 2.03; III—Fe 0.65, Pat 0.26, Tib 0.49, Mt 0.22, Ta 0.20, total 1.82; IV—Fe 0.69, Pat 0.23, Tib 0.57, Mt 0.30, Ta 0.22, total 2.02. *Abdomen.* AL: 1.41; AW: 1.20; AI: 1.17. *Palp.* RTA directed antero-laterally (Fig. 87); RTA slightly shorter than VTA (Fig. 88).

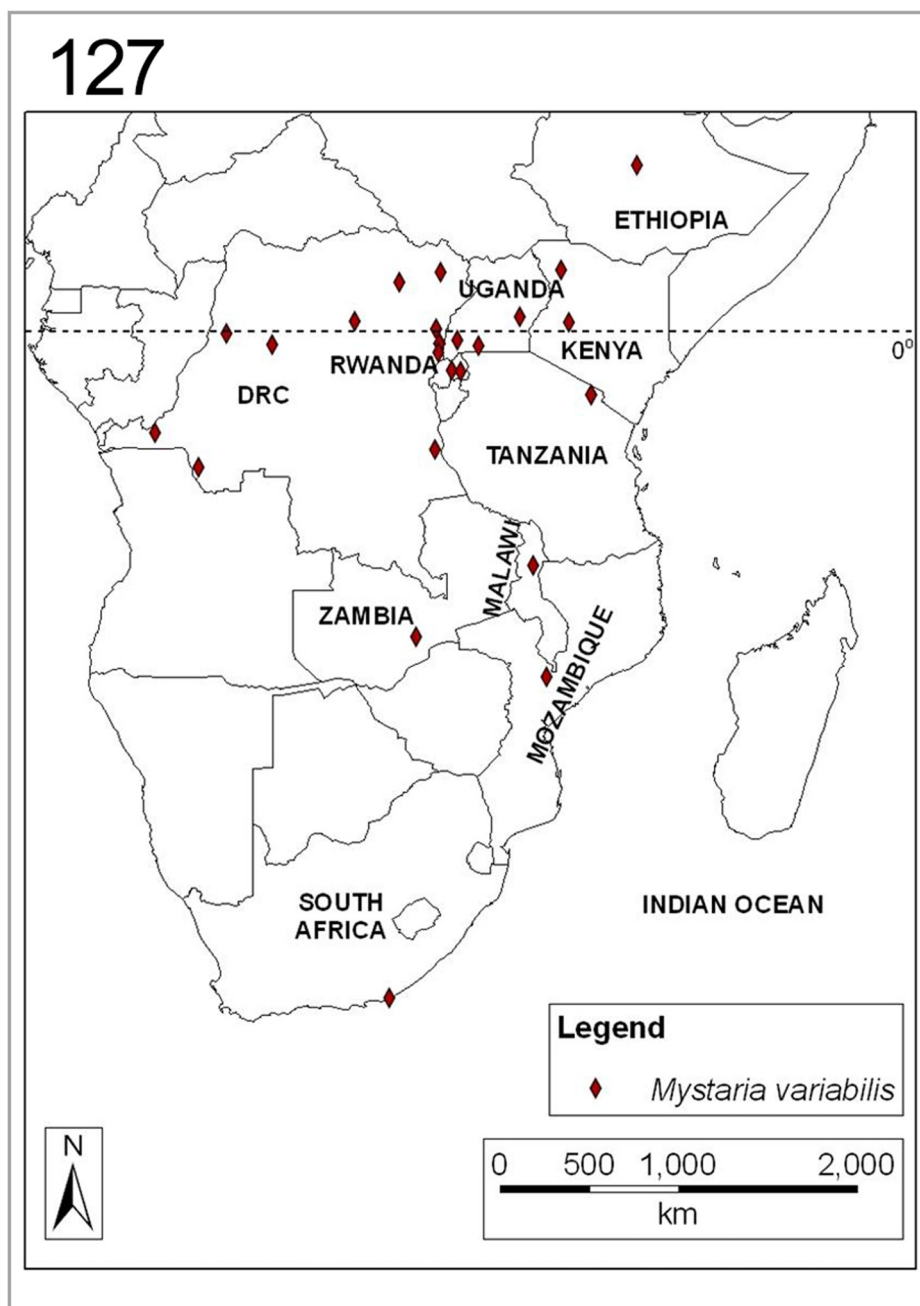


FIGURE 127. Recorded geographical distribution of *Mystaria variabilis* (Lessert, 1919) **comb. n.** Scale line = 2000 km.

Natural History. Specimens were sampled from vegetation. Adults were sampled throughout the year, and juveniles were sampled from May until October.

Distribution. Mozambique, South Africa, Tanzania. New records: Democratic Republic of Congo (DRC), Ethiopia, Kenya, Malawi, Rwanda, and Uganda (Fig. 127).

Insufficiently known species

Mystaria decorata (Lessert, 1919) comb. n.

Paramystaria decorata Lessert 1919: 106, pl. 2, figs 25, 33 (descr. ♀).

Remarks. The female holotype of this species is described from **Tanzania: Kilimanjaro Region**, Kibongoto, but the specimen could not be located. The species cannot be positively identified without the holotype. According to Lessert (1919), this species resembles *Mystaria rufolimbata* in the colour of the legs but differs from it in size and stronger abdominal spots.

Mystaria variabilis delesserti (Caporiacco, 1949) comb. n.

Paramystaria variabilis delesserti Caporiacco 1949: 454 (descr. ♀)

Remarks. Two female specimens from **Kenya: Nairobi Province**, Nairobi (collected in 1944) were listed as belonging to this subspecies, but the material could not be traced. This species could not be positively identified from the original description of Caporiacco (1949). They are probably a variety of a form described by Lessert (1919) having a black abdomen and marginal white spots.

Genus *Leroya* gen. n.

Type species: *Leroya silva* sp. n.

Etymology. Named after John and Astri Leroy, John, who sampled a specimen of *L. unicolor* at the age of six when accompanying Dr. Sedel during an expedition in the then Belgian Congo, now the Democratic Republic of Congo (DRC).

Diagnosis. Carapace with granular texture; dorsally planar, uniformly dark in colour (Figs 133, 135, 137); sturdier and larger than in *Mystaria*; AME situated very close to clypeal edge, lateral eyes large, situated on carapace lateral edge and on small tubercles; clypeal length very short, much shorter than MOQ (in contrast to *Mystaria*), (Figs 139, 140). Chelicerae with retromargin smooth and without cheliceral teeth or appendages. Anterior legs stronger than in *Mystaria*, posterior legs pale with dark band over distal part of femur and partly on patella (Figs 133, 135, 137), leg colour is genus specific, varies from variable leg colouration in *Mystaria*; Female epigyne darkly sclerotised (Figs 136, 138), intromittent canals curve and open into large kidney-shaped spermathecae from behind (Figs. 143, 145), in contrast to numerous very long complex coils opening into small round spermathecae in *Mystaria*. Male bulb with large swollen tegulum (Figs 134, 142), embolus thickened and sclerotised in contrast to long thin coiling embolus in *Mystaria*; RTA originate well below VTA, long, rigid with sharp tip curving antero-laterally (Figs 134, 141).

Description. Body length 3.04–3.92 in males, 3.46–5.21 in females.

Colour. Carapace a shiny-metallic copper-red to darker copper-brown or black in females; darker and shiny metallic copper to dark turquoise in males; abdomen pale brown or darker blue-green (turquoise); leg I–II similar colour as carapace, with leg III–IV femora distally, patellae proximally, metatarsi and tarsi red to dark copper-brown, remaining leg segments pale white sometimes with a faint brown line laterally on both sides of tibiae III–IV; palp with femur and tarsus brown, tibia paler with longitudinal brown stripe dorsally. *Carapace.* Without coloured patterns or marks; slightly elevated in thoracic area; steeply sloping anteriorly and posteriorly; with dense,

short setae; long, erectile setae on postero-thoracic edge, laterally on carapace and/or on lateral eye area. *Clypeus*. Vertical, long, erectile setae on edge. *Chelicerae*. Obtuse, fairly small, broadened at base narrowing to tip with long serrated setae on promargin (Fig. 128). *Mouth parts*. Labium cube-shaped to oval, endites indented with few scopula hairs. *Sternum*. Heart-shaped covered with fine setae. *Palp*. With single dentated claw; setae on all segments. *Eyes*. Both eye rows re-curved, AER=PER; ALE>AME; AME closest to each other; PLE>PME; MOQ eye area wider than long, narrower in front; PME nearer to lateral eyes than to each other; LE large, usually sessile sometimes with a black spot; situated laterally on edge of carapace. *Legs*. Medium to long; leg segments densely covered with short setae; spiniform setae present dorsally on femora, patellae, tibiae of leg I–IV and ventrally of tibiae III–IV; shorter spiniform setae present ventrally and/or laterally or distally on tibiae and metatarsi I–IV; scopula hairs present ventrally on metatarsi and tarsi I–IV, denser on legs III–IV; trichobothria dorsally in single rows on tibiae, metatarsi and tarsi I–IV; tarsal claws and tufts both at a sharp angle from tarsi, differ as follows from *Sylligma* (Figs 150–153), tufts not presented at an angle, and from *Mystaria* (Figs 91–114) in which claws have a thicker base with modified claws, whereas *Leroya* has uniform claws and an even base (Figs 129–132); claw base curved with claws of legs I–II with >8 teeth and legs III–IV <8 teeth. *Abdomen*. Round with numerous setae; five sigillae present dorsally, grouped in an arrow-shape formation; ventrally with stria. *Spinnerets*. Small, conical, anterior pair largest, median pair smallest. *Epigyne*. Without rim or atrium (Figs 136, 138); intromittent orifices as in Figs 144, 146. *Palp*. Bulb heavily sclerotised; embolus of medium-length (Figs 134, 141); RTA shorter than VTA; VTA with curve, thickened tip (Fig. 142).

Natural history. Members of the genus *Leroya* **gen. n.** have been sampled from rain forests and primary canopy forests by hand or fogging.

Distribution. This genus is endemic to the Afrotropical region, known from very few localities in the Democratic Republic of Congo (DRC), Cote d’Ivoire, Rwanda and Uganda (Figs 147, 148).

Remarks. Simon (1895) diagnosed the genus *Mystaria* based on its carapace shape, variation in eye size and distance, cheliceral spinules, labium and leg characters. In the present revision, it is revealed that the species *M. unicolor* was wrongly placed in this genus and that a number of new characters such as sexual dimorphic characters, smooth cheliceral margins, eye arrangement, PME size, clypeal length, leg and body colour warrant the species to be placed into its own genus.

***Leroya silva* sp. n.**

Figs 128–136, 139, 143–144, 147

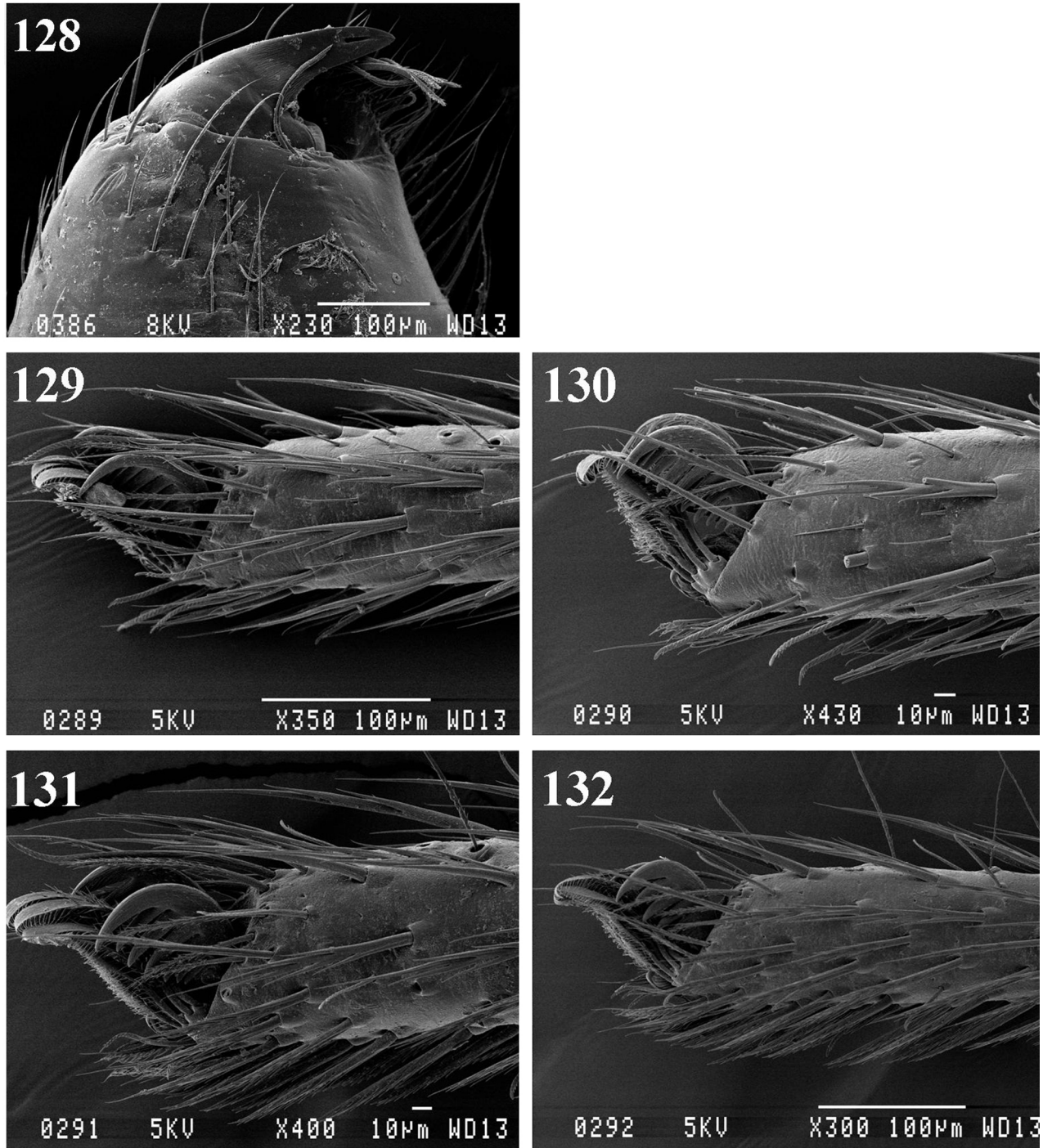
Type material: Holotype: ♂, **DEMOCRATIC REPUBLIC OF CONGO (DRC): Bas Congo-Region,** Mayombe, Luki Forest Reserve [5°37’S, 13°05’E], fogging, 5–10 November 2006, D. De Bakker & J.P. Michiels (MRAC 222238a).

Paratypes: DEMOCRATIC REPUBLIC OF CONGO (DRC): 2 ♂, 1 ♀, collected with holotype (MRAC 222238b); 1 juvenile ♀, 2 ♂ same locality data as holotype (MRAC 220995). **RWANDA: Est Province,** 1 ♀, Ibanda Makera [02°09’S, 30°55’E], October 1993, T. Wagner (ZFMK AR 1320). **UGANDA: Masindi Province,** 1 ♂, Budongo forest [01°45’N, 31°25’E], 15–25 January 1997, T. Wagner (ZFMK AR 1321). **Etymology.** “*Silva*” is the Latin word that means forest, and it refers to the habitat where all known individuals were sampled. Noun in apposition.

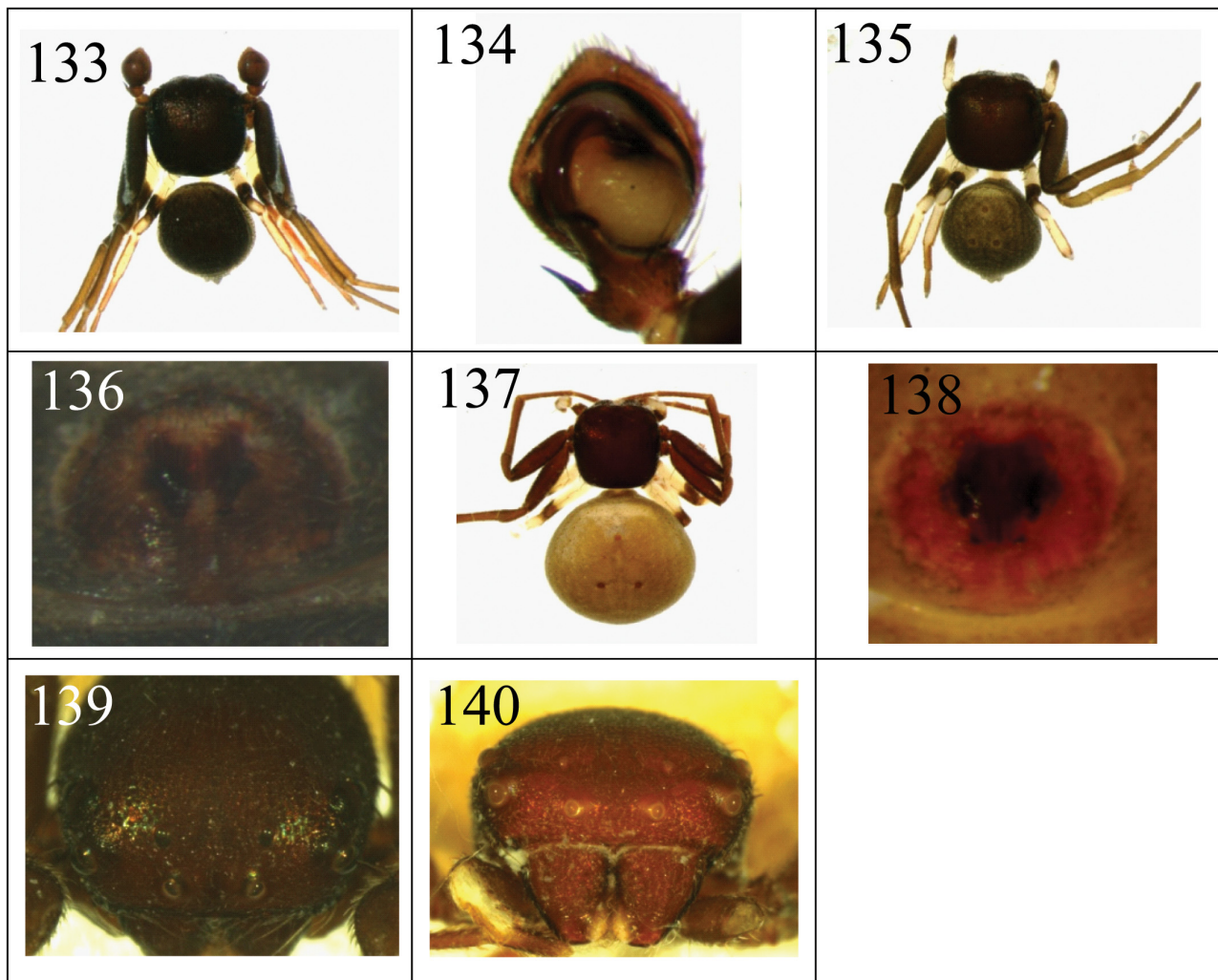
Diagnosis. Body without patterns (Figs 133, 135). Differs from *L. unicolor* in slightly darker body, shape of copulatory organs and carapace that is wider than long. Epigyne visible as two sclerotised areas (Figs 136, 143), in *L. unicolor* visible as one large sclerotised area. Male bulb as in Figs 134, 141, 142.

Description. Female. *Size, measurements* ($n = 3$). TL: 4.10 (3.89–4.22); CL: 1.98 (1.91–2.04); CW: 2.00 (1.96–2.05); CI: 0.99 (0.97–1.03); CH: 0.99 (0.74–1.11); CLL: 0.20 (0.19–0.23); MOQ-L: 0.37 (0.34–0.37). *Colour.* Carapace with metallic-shine to copper-brown; eye tubercles copper; abdomen dorsally and ventrally pale brown (Fig. 135). *Carapace.* Slightly wider than long. *Clypeus.* With numerous thick, long setae on edge. *Chelicerae.* With short setae (Fig. 128). *Sternum.* SL: 0.85; SW: 0.84; SI: 1.02. *Eyes.* Eye spots on all eyes or only on LE; ALE and PLE situated on very flatish tubercles; eye measurements: AME–AME: 0.57; ALE–AME: 0.60; AME–AME/AME–ALE: 0.94; PME–PME: 0.72; PLE–PME: 0.68; PME–PME/PME–PLE: 1.07; ALE/AME: 1.07; PLE/PME: 0.94; MOQ-AW/MOQ-PW: 0.97; MOQ-L/MOQ-W: 0.46; Clyp/AME–AME: 0.36. *Legs.* With

trichobothria, tarsal claws with long tufts that extend densely towards claws (Figs 129–132); leg formula: I:II:III:IV; leg measurements: leg I—Fe 1.47, Pat 0.57, Tib 1.39, Mt 1.14, Ta 0.81, total 5.38; II—Fe 1.48, Pat 0.46, Tib 1.28, Mt 1.15, Ta 0.80, total 5.17; III—Fe 1.10, Pat 0.38, Tib 0.78, Mt 0.62, Ta 0.51, total 3.40; IV—Fe 1.04, Pat 0.37, Tib 0.81, Mt 0.67, Ta 0.50, total 3.39. *Abdomen*. With numerous long and shorter setae, spiniform setae scattered in between, all embedded in distinct tubercles; sigillae bigger than other species. AL: 2.12; AW: 2.05; AI: 1.03. *Epigyne*. Spermathecae and intromittent canals as in Figs. 143, 144.



FIGURES 128–132. SEM photographs of *Leroya silva* sp. n. from the DRC, Mayombe. 128 Chelicerae; 129–132 Tarsal claws and tufts (129 leg I, 130 leg II, 131 leg III, 132 leg IV). Scale lines = 100 μm (128, 129, 132), 10 μm (130, 131).

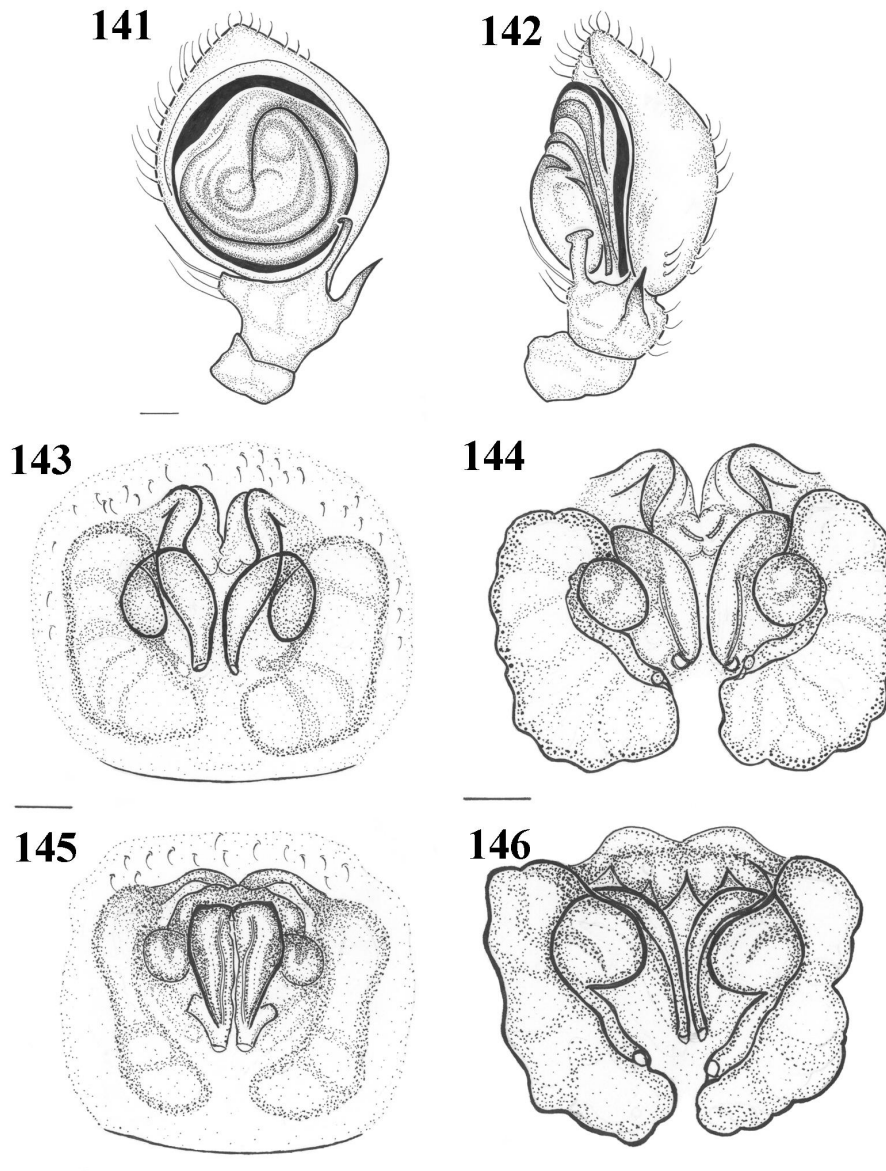


FIGURES 133–140. Photographs of the body, copulatory organs, eye pattern and clypeal length of *Leroya* **gen. n.** 133–136. *L. silva* **sp. n.** from DRC, Mayombe (133 male dorsal view, 134 male right palp ventral view, 135 female dorsal view, 136 female epigyne ventral view); 137–138. *L. unicolor* (Simon, 1895) **comb. n.** from DRC, Rwankwi (137 female dorsal view, 138 epigyne ventral view); 139 *L. silva* male frontal view; 140 *L. unicolor* female frontal view.

Male. *Size, measurements* ($n = 3$). TL: 3.39 (3.04–3.92); CL: 1.63 (1.42–1.94); CW: 1.68 (1.49–2.00); CI: 0.97 (0.95–0.99); CH: 0.82 (0.68–0.93); CLL: 0.20 (0.15–0.26); MOQ-L: 0.31 (0.28–0.35). Resemble females but differ as follows: *Colour*: Metallic-shine, copper or blackish-turquoise; abdomen dorsally and ventrally dark brown (Fig. 133). *Clypeus*. As in Fig. 139. *Sternum*. SL: 0.67 SW: 0.70 SI: 0.96. *Eyes*. Eye measurements: AME–AME: 0.47; ALE–AME: 0.50; AME–AME/AME–ALE: 0.93; PME–PME: 0.56; PLE–PME: 0.59; PME–PME/PME–PLE: 0.95; ALE/AME: 1.08; PLE/PME: 1.05; MOQ-AW/MOQ-PW: 0.83; MOQ-L/MOQ-W: 0.37; Clyp/AME–AME: 0.41. *Legs*. Leg formula: II:I:III:IV; leg measurements: leg I—Fe 0.99, Pat 0.28, Tib 1.00, Mt 0.84, Ta 0.54, total 3.65; II—Fe 1.50, Pat 0.41, Tib 1.44, Mt 1.20, Ta 0.77, total 5.32; III—Fe 0.97, Pat 0.29, Tib 0.71, Mt 0.57, Ta 0.45, total 2.98; IV—Fe 0.86, Pat 0.28, Tib 0.72, Mt 0.56, Ta 0.45, total 2.87. *Abdomen*. AL: 1.75; AW: 1.67; AI: 1.05. *Palp*. Bulb with slight swelling laterally; tibia with long setae; RTA and VTA long (Figs 134, 141, 142).

Natural history. This species lives in the canopy of rainforests. Adults and juveniles were collected from October until January.

Distribution. Democratic Republic of Congo (DRC), Rwanda, Uganda (Fig. 147).



FIGURES 141–146. Line drawings of female and male copulatory organs in *Leroya* **gen. n.** 141–144. *L. silva* **sp. n.** (141 male left palp ventral view, 142 male left palp retro-lateral view, 143 epigyne ventral view, 144 epigyne dorsal view.); 145–146. *L. unicolor* (Simon, 1895) **comb. n.** (145 epigyne ventral view, 146 epigyne dorsal view). Scales lines = 10mm.

***Leroya unicolor* (Simon, 1895) comb. n.**

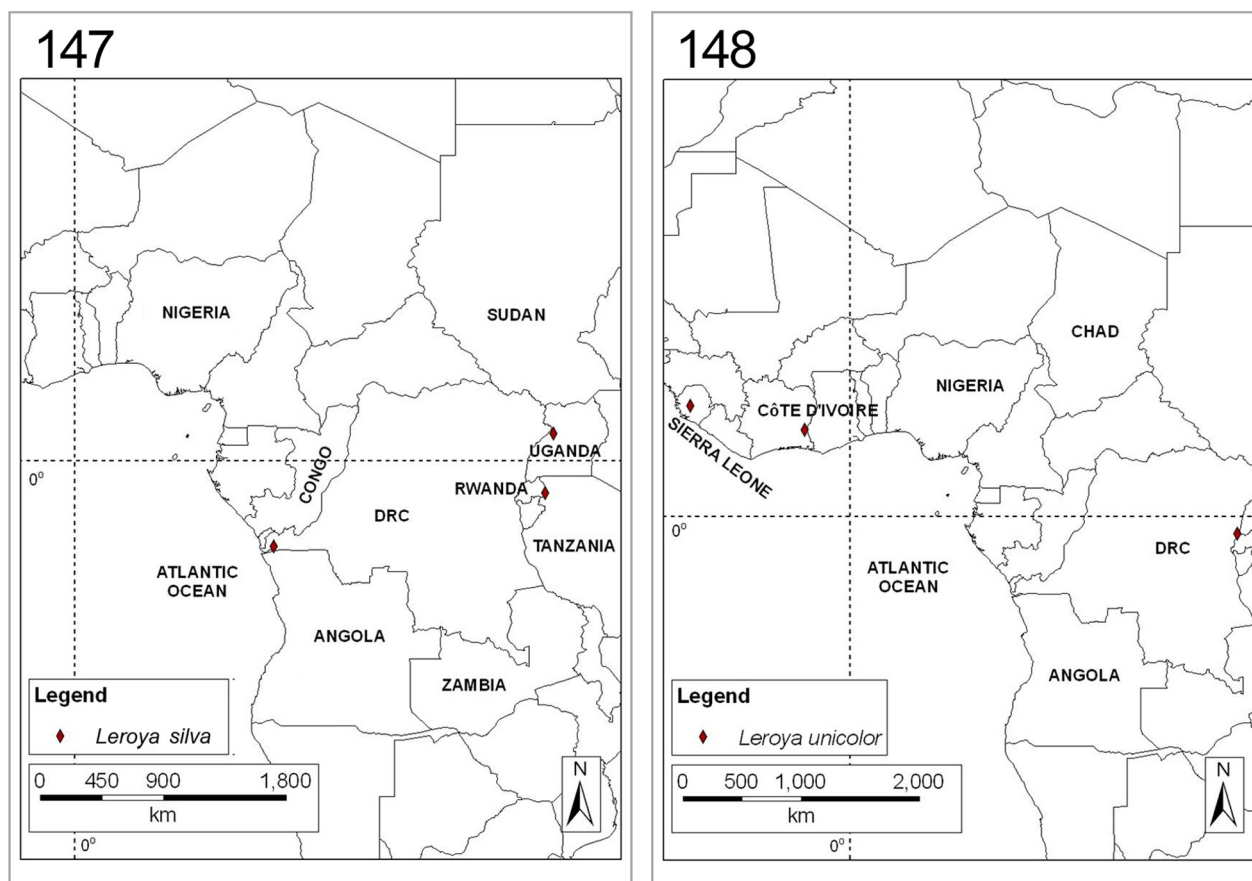
Figs 137, 138, 140, 145, 146, 148

Mystaria unicolor Simon 1895: 989–990 (descr. ♀).

Type material: Holotype: (designated by Simon 1895): ♀ specimen was collected from West Africa, **Sierra Leone**. Type series from MNHN was examined.

Other material examined. DEMOCRATIC REPUBLIC OF CONGO (DRC): *Orientale Region*, 1 ♀, Rwankwi [01°20'S, 29°22'E], July 1951, J. Leroy (MRAC 71632). **CÔTE D'IVOIRE:** *Moyen-Comoé Region*, 1 sub-adult ♂, Appouesso, F.C. Bossematie [6°37'N, 3°26'W], collected by hand in rainforest, 13 February 1997, R. Jocqué & L. Baert (MRAC 205.408).

Diagnosis. Carapace orange to copper; abdomen pale brown (Fig. 137); carapace with few, short setae; body larger than *L. silva*. Female epigyne a solid circular sclerotised area, extending to a very short straight distance, centrally to posteriorly (Figs 138, 145).



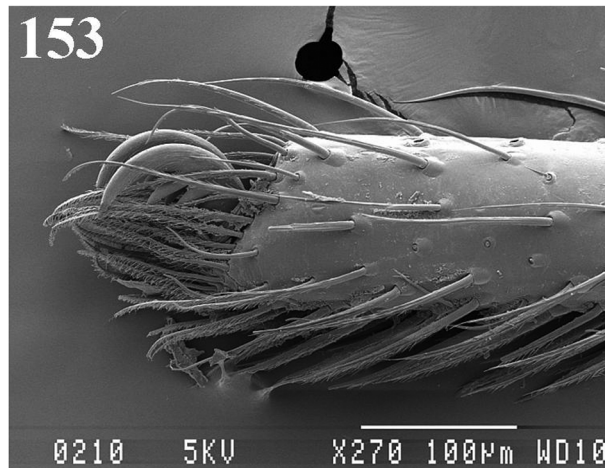
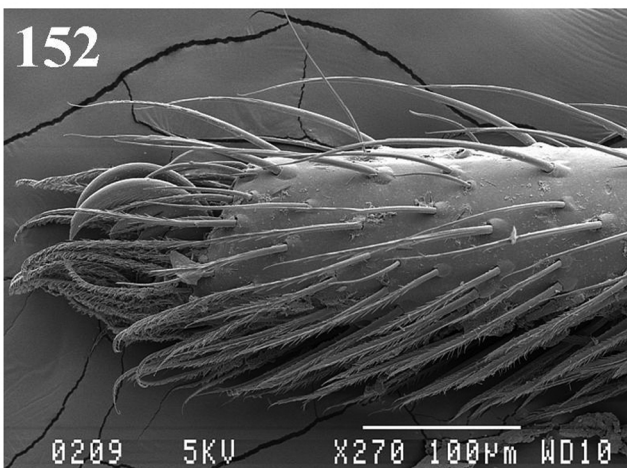
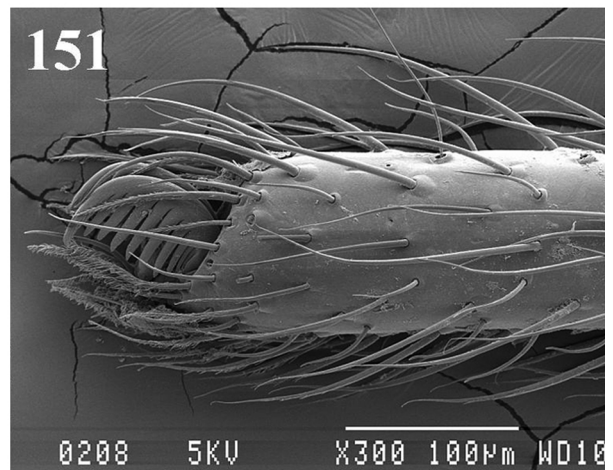
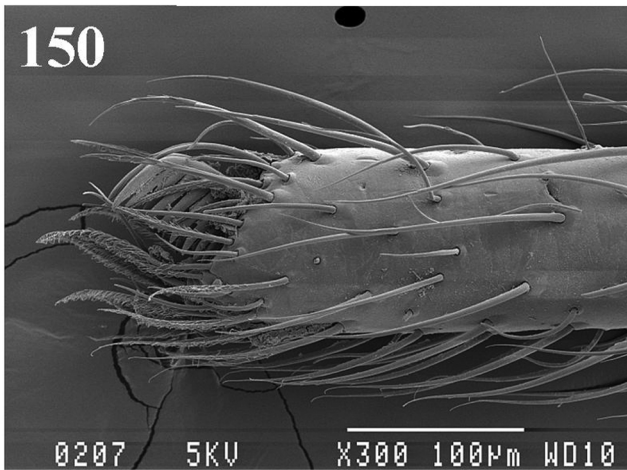
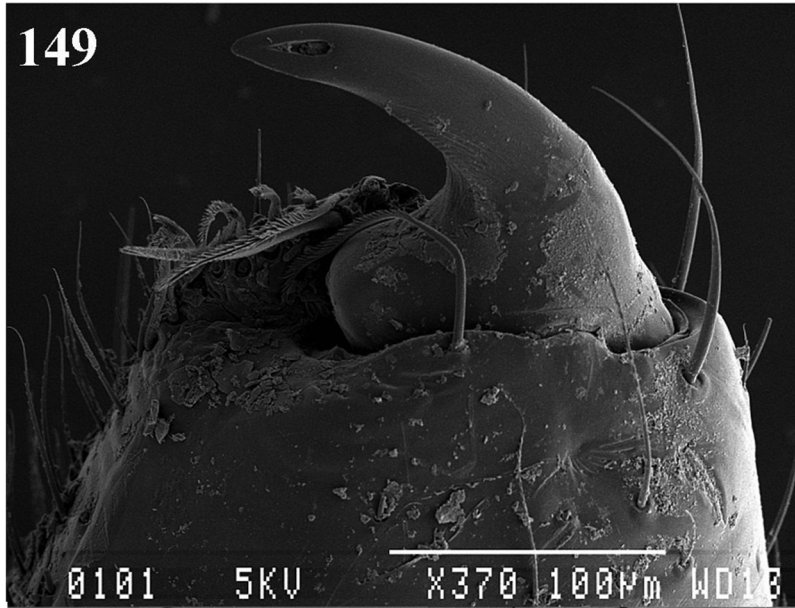
FIGURES 147–148. Recorded geographical distributions of *Leroya* gen. n. 147 *L. silva* sp. n.; 148 *L. unicolor* (Simon, 1895) comb. n. Scale lines = 1800 km (147), 2000 km (148).

Re-description. Female. Size, measurements: ($n = 2$). TL: 4.77 (3.46–5.21); CL: 1.81 (1.49–1.92); CW: 1.77 (1.38–1.91); CI: 1.03 (1.01–1.08); CH: 0.94 (0.71–1.02); CLL: 0.19 (0.10–0.22); MOQ-L: 0.32 (0.26–0.34). *Colour.* carapace metallic shine, orange to copper; abdomen pale brown. *Carapace.* slightly longer than wide (Fig. 137). *Sternum.* SL: 0.72; SW: 0.77; SI: 0.93. *Clypeus.* as in Fig. 140. *Eyes.* not situated on tubercles, no eye spots; eye measurements: AME–AME: 0.56; ALE–AME: 0.54; AME–AME/AME–ALE: 1.03; PME–PME: 0.68; PLE–PME: 0.61; PME–PME/PME–PLE: 1.11; ALE/AME: 0.97; PLE/PME: 0.91; MOQ-AW/MOQ-PW: 0.83; MOQ-L/MOQ-W: 0.39; Clyp/AME–AME: 0.32. *Legs.* dense setae on all leg segments; trichobothria not very conspicuous probably present on all legs, seen on metatarsi and tarsi II–III; leg formula: II:I:III:IV; leg measurements: leg I—Fe 1.23, Pat 0.47, Tib 1.20, Mt 1.02, Ta 0.76, total 4.57; II—Fe 1.31, Pat 0.46, Tib 1.22, Mt 1.03, Ta 0.72, total 4.73; III—Fe 1.11, Pat 0.27, Tib 0.73, Mt 0.54, Ta 0.45, total 3.10; IV—Fe 1.03, Pat 0.28, Tib 0.66, Mt 0.54, Ta 0.44, total 2.95. *Abdomen.* large in comparison to carapace; covered with fine setae, small sigillae; AL: 2.96; AW: 2.97; AI: 1.00. *Epigyne.* intromittent canals and spermathecae as in Fig. 146.

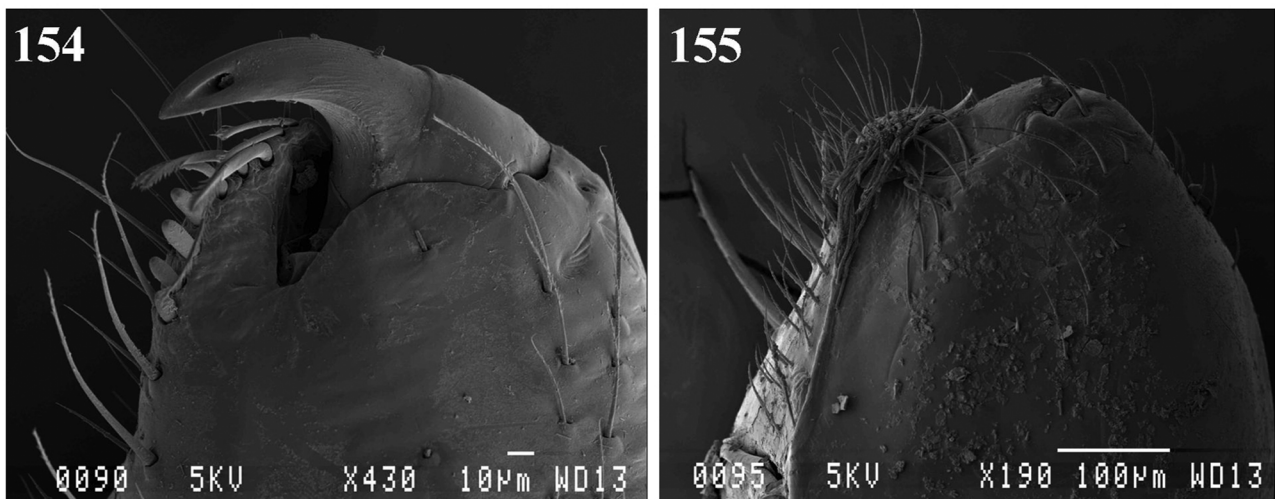
Male. Unknown.

Natural history. This species was collected in rainforests. Adult females were sampled during July and a sub-adult male during February.

Distribution. Sierra Leone. New records: Democratic Republic of Congo (DRC) and Côte d'Ivoire (Fig. 148).



FIGURES 149–153. SEM photographs of *Sylligma* species. 149 *Sylligma ndumi* Lewis & Dippenaar-Schoeman, 2011 male from South Africa, Brits, chelicerae with incurving serrated setae; 150–153 *S. franki* Lewis & Dippenaar-Schoeman, 2011 female from Democratic Republic of Congo, Equateur, tarsal claws and claw tufts of leg I–IV, (150 leg I, 151 leg II, 152 leg III, 153 leg IV) with tenent hair and scopula hairs prominent in leg III–IV. Scale lines: 100 µm = (149–153).



FIGURES 154–155. SEM photographs of chelicerae in Apyretini and Tagulini. 154 *Apyretina* Strand, 1929 from Madagascar; 155 *Tagulis* Simon, 1895 from South Africa. Scale lines = 10 µm (154), 100 µm (155).

Conclusion

The Thomisidae is a large family, represented by 174 genera (Platnick 2014). In the Afrotropical region, 18 of 70 genera known from this region have been revised. Following qualitative and quantitative morphological studies *Paramystaria* was found to be a junior synonym of *Mystaria*. A new genus is proposed to host the species *Leroya unicolor*, a species removed from *Mystaria*, and *Leroya silva* **sp. n.**, the newly designated type species. The genus *Mystaria* now contains 13 well-defined species of which eight species are new, four re-described, one subspecies elevated to species level, and in four species the previously unknown males were described. In addition, two insufficiently known taxa are formally transferred from *Paramystaria*. The fogging of the forest canopy has contributed to a large number of new species found in several spider families such as the Corinnidae (Lyle & Haddad 2009); Oonopidae (Fannes *et al.* 2008) and Linyphiidae (Seyfulina & Jocqué 2009; Seyfulina & De Bakker 2008). In this study alone five new species were discovered through fogging tree canopies.

The main problem in thomisid systematics is probably the lack of good systematic revisions. Presently, much emphasis is placed on a single character system, such as genitalic morphology, that is fairly simple and uniform and therefore insufficiently informative (Benjamin *et al.* 2008) to be used in systematic studies. Eye arrangement has a high phylogenetic and taxonomic value and has always been considered a main character system in Thomisidae (Benjamin 2011). With good illustrations, descriptions and an understanding of diagnostic characters in the family, one is able to successfully identify Thomisidae species, and therefore taxonomy remains a safe procedure. However cladistic analysis of the still unresolved crab spiders tribes and genera within the *Thomisus* clade (Benjamin *et al.* 2008) will remain a challenge for future systematists.

This study covered only a small fraction of Afrotropical thomisids, but it revealed hidden diversity and helped to clarify the identity of insufficiently known taxa. Thorough taxonomic revisions remain a prerequisite for serious phylogenetic analyses. With each revision the high percentage of new species described indicates that new and updated inventories are desperately needed.

Key to genera of the Mystarini-Apyretini-Tagulini tribes of the Afrotropical crab spiders

1. Median eyes unequal in size, PME very small 2
- MOQ eyes fairly equal in size. 4
2. Carapace wide with long erectile setae situated on small tubercles on posterior-thoracic edge; PME situated nearer to PLE than to each other. *Apyretina* Strand, 1929 (Apyretini)
- Carapace convex to square or dorsally planar; long setae absent; posterior eyes almost equidistant from each other 3
3. MOQ area much wider than long, wider anteriorly than posteriorly *Zametopias* Thorell 1892 (Apyretini)

- MOQ area slightly wider than long, anteriorly slightly narrower than posteriorly (Figs 139, 140) *Leroya* **gen. n.**
- 4. Carapace with leaf-shaped setae next to lateral eyes. *Tagulis* Simon, 1895 (Tagulini)
- Carapace without leaf-shaped setae next to lateral eye area 5
- 5. Carapace with numerous long erectile setae on posterior-thoracic edge, fovea and laterad to eye region, ant-like, chelicerae without cheliceral teeth, body and legs usually uniform brown *Sylligma* Simon, 1895 (Mystarini)
- Carapace only sometimes with a few long setae, not ant-like, but with large abdomens compared to carapace, chelicerae with three cheliceral teeth, body and legs usually with markings. *Mystaria* Simon, 1895 (Mystarini)

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