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Source: African Invertebrates, 53(1) : 187-203

Published By: KwaZulu-Natal Museum

URL: https://doi.org/10.5733/afin.053.0112

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African Invertebrates Vol. 53 (1) Pages 187–203 Pietermaritzburg June, 2012

Revision of the genus *Pyrgotomyia* Hendel (Diptera: Pyrgotidae)

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ABSTRACT

Based on the study of type and exhaustive non-type material from many entomological collections, six species of the Afrotropical genus *Pyrgotomyia*, viz. *P. callosa* sp. n. (Cameroon), *P. terebrans* sp. n. (Ivory Coast), *P. stuckenbergi* sp. n. (Nigeria), *P. ciliata* Hendel, 1934, *P. richteri* (Steyskal, 1972) comb. n., and *P. temporalis* (Enderlein, 1942) comb. n., are described or redescribed, illustrated and keyed. *Metropina* Enderlein, 1942 (type species *Metropina temporalis* Enderlein, 1942) is shown to be a junior synonym of *Pyrgotomyia* Hendel, 1934 (type species *Pyrgotomyia ciliata* Hendel, 1934). The possibility that *P. ciliata*, based on a single male holotype specimen, could be a senior synonym of either *P. richteri* or *P. temporalis*, each based on female specimens alone, is discussed.

KEY WORDS: Pyrgotidae, *Pyrgotomyia*, *Metropina*, Afrotropical Region, morphology, identification key, new species, new synonymy.

INTRODUCTION

Pyrgotidae Schiner, 1868 are medium to large-sized (4–18 mm) acalyptrate flies, which usually can be recognized by a rather slender (often wasp-like) body, pictured or hyaline wings with short lobate cell bcu, oblique face, genal groove prolongated postero-dorsally to the middle of occiput height, and stiletto-like aculeus that is much shorter than the oviscape. The World fauna includes about 365 valid species names in about 55 genera, with the greatest number of species in the tropics (Korneyev, unpubl. data).

While preparing the Catalogue of the Pyrgotidae of the World (Korneyev, in prep.), material from the Afrotropical Region deposited in several European and American collections was examined. This study has revealed 31 specimens of the poorly known genera *Pyrgotomyia* Hendel and *Metropina* Enderlein, which were then found to be very similar and obviously congeneric. Korneyev (2006) has synonymised *Metropina nigra* Vanschuytbroeck, 1963, with *Eupyrgota spinifemur* (Hendel, 1934), and has, therefore, excluded it from the present study.

MATERIAL AND METHODS

The specimens examined in this study are deposited in the following collections:

BMNH – Natural History Museum, London, UK;
CNC – Canadian National Collection, Ottawa, Canada;
NMSA – KwaZulu-Natal Museum, Pietermaritzburg, South Africa;
MNHN – Muséum national d'Histoire naturelle, Paris, France;
NHMW – Naturhistorisches Museum, Wien, Austria;
NMKE – National Museum, Nairobi, Kenya;
RBINH – Royal Belgian Institute of Natural History, Brussels, Belgium;
RMCA – Royal Museum of Central Africa, Tervuren, Belgium;
SANC – South African National Collection of Insects, Pretoria, South Africa;
SMNS – Staatliches Museum für Naturkunde, Stuttgart, Germany;

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USNM – National Museum of Natural History, Smithsonian Institution, Washington, DC, USA;
ZMHB – Museum für Naturkunde, Berlin, Germany.

The slash character (/) is used to indicate separate lines, and square brackets are for deciphered abbreviations in the literally quoted labels. The non-type material is arranged alphabetically by country names, then from the West to the East and from the North to the South within each country; and finally, by the year, month and day of collecting.

Pictures of wings were taken from intact specimens rather than from slides. Stack photographs were combined using CombineZM software (Hadley 2007). Abdomens detached from softened specimens were macerated in potassium hydroxide solution on a water bath and after washing in distilled water examined as temporary slides, and stored in glycerol in the microvials pinned underneath the flies.

TAXONOMY

Genus *Pyrgotomyia* Hendel, 1934

Pyrgotomyia: Hendel 1934: 154; Vanschuytbroeck 1963: 23; Steyskal 1980: 560. (Type species: *Pyrgotomyia ciliata* Hendel, 1934, by original designation.)
Metropina Enderlein, 1942: 108; Vanschuytbroeck 1963: 23; Steyskal 1972: 5; 1980: 559. (Type species *Metropina temporalis* Enderlein, 1942, by original designation.) **Syn. n.**

Diagnosis: Species of *Pyrgotomyia* can be recognized from the other Old World Pyrgotini by a combination of the following: face oblique, concave without medial carina; gena with large subocular sclerite; palp short oval; lateral vertical seta lacking; presternum simple saddle-like, without finger-like lobes; mesonotum with 4–6 dorsocentral setae (including 1 or 2 presutural), 2 pairs of scutellar setae; wing narrow with dorsal surface of vein R_{4+5} setulose over all its length, and very short posteroapical lobe of cell bcu; femora without long or thickened setae; oviscape simple, slightly curved dorsally and densely setulose at its apex but bearing no sclerotized hooks; elongate, apically barbed, arrow-like aculeus in female; posteriorly directed finger-like surstyli in male.

Pyrgotomyia shares such characters as concave face without medial carina, short rounded palp, more than 2 dorsocentral setae, posteriorly directed surstyli of male, apically setulose oviscape and arrow-like aculeus with *Gelomyia* Hendel, 1908, *Paragelomyia* Hendel, 1933 and *Trichempodia* Enderlein, 1942; these characters apparently are synapomorphies of these four taxa. *Pyrgotomyia* readily differs from them by the long pedicel and flagellomere 1, and at least this character is a synapomorphy supporting its monophyly.

Superficially similar species of the genera *Euphya* Wulp, 1885 and *Eupyrgota* Coquillett, 1898 (the *spinifemur* group of species), which share the concave face without carina, long antenna, lacking lateral vertical seta and similarly slender appearance, clearly differ from *Pyrgotomyia* by the presence of two ventrolateral rows of short spurious setae on the femora, elongate bar-like palp, bare vein R_{4+5} and only 2 dorsocentral setae.

Description:

Slender flies of moderate size (wing length 4.0–6.5 mm) of yellow or yellow-and-brown body coloration; wings with brown or pale brown subapical crossband and faintly darkened area along apical portion of costal vein.

Head slightly longer than or as long as high, and wider than long and high; short setose; ocelli absent and ocellar triangle very poorly defined or absent; parafacial bare,

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with large subocular dilation; face concave, without facial carina, with lateroventral corner slightly produced anteriorly beyond facialium and visible in profile; supraclypeal sclerite moderately high (0.33× as high as face), poorly separated from face; lateral vertical seta indistinguishable; antenna as long as face, flagellomere 1 micropubescent rounded to almost acute apically, as long as or slightly longer than pedicel; arista micropubescent, 2-segmented; palpus wide and short, 0.7× as long as flagellomere 1, 1.7–1.9× as long as wide, rounded; labellum 0.7× as long as oral cavity; 1 proclinate or lateroclinate orbital seta 0.5–0.7× as long as, and 1 ocellar and 1 postocellar setae 0.7–1.1× as long as numerous (8–10) strong irregular seta-like setulae in anterior portion of frons; 1 medial vertical as long as flagellomere 1, lateral vertical seta lacking or indistinguishable from postocular and occipital setulae; presternum simple saddle-like without projected lobes, with 2–4 pairs of fine setulae; postpronotal lobe with 10–14 setulae and 0–1 seta; proepimeron slender, with 2–5 tiny setulae; mesonotum shining or subshining, non-microtrichose, sparsely and short setulose on sides, with 1–7 moderately long presutural and 2–4 postsutural setulae or setae forming regular row; presutural supra-alar and prescutellar acrostichal setae absent; scutellum with 2 pairs of setae; 1 anepisternal, 1 anepimeral and 1 katepisternal seta; wing moderately narrow, 2.7–2.9× as long as wide, with humeral and subcostal breaks; costa reaching medial vein; Sc straight, narrowly broken before costa; vein R_{2+3} with (rarely without) spurious ("stump") vein; vein R_{4+5} setose over whole length; Cu_2 reaching wing margin; haltere yellow; coxae and trochanters sparsely setulose without brushes of combs of setae; femora and tibiae uniformly short setulose, fore and hind femora dorsally with 1 or 2 short and fine setae hardly distinguishable from setulae; female mid femur without bare femoral organ; hind tibia with sub-basal constriction; hind tarsi in both sexes almost symmetrical, hind tibia and basal tarsomere apicoventrally with combs of dense setulae on medial surfaces; empodium short microtrichose; syntergite 1+2 not narrowed at middle; female preabdominal sternites moderately narrow, conspicuously widening from 2 to 6, each with 2 groups of setae and setulae separated by bare medial area; oviscape narrow, almost cylindrical, curved dorsally, as long as or longer than preceding abdominal tergites, its apex with row of moderately long setae around its perimeter, often with longer and somewhat curled setae on dorsal side; apex without papillae, hooks, spinules or taenia-like structures on eversible membrane, except rudimentary ventromedial and ventro-lateral lobes in *P. callosa* sp. n. and *P. stuckenbergi* sp. n.; aculeus short (nearly as long as oviscape width in its medial portion), flattened dorsoventrally, with wider, bulky base and narrow, often barbed apex; 3 oval, smooth spermathecae; male abdomen elongate oval, not periolate, sternites 3–4 very narrow, linear, setulose, sternite 5 almost equal-sided triangular; sternite 8 setulose, hypandrium narrow, with gonites flap-like, microtrichose; phallapodeme narrow, vanes separate; ejaculatory apodeme fan-shaped; epandrium and surstyli densely covered with microscopic setulae mounted on small papillae, but without setae; lateral (outer) surstylus flat, long and broadly oval, directed posteriorly; medial (inner) surstylus short, without prensisetae; phallus long, bare; glans without filaments of acrophallus, with single tubular sclerite of praeputium.

Distribution: The genus is restricted to the Afrotropical Region. Five species are recognized in this paper to occur in the mainland Afrotropical Region from Ivory Coast in the west to Ethiopia in the east and South Africa in the south.

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Remarks: *Pyrgotomyia* has a well developed subocular sclerite (assumed synapomorphy with almost all Afrotropical genera except *Tephritopyrgota* Hendel, 1914 and allied *Tylotrypes* Bezzi, 1914, *Pyrgotina* Malloch, 1929, and *Rhagostira* Enderlein, 1942) and belongs to the group of genera with three or more dorsocentral setae, elongated posteriorly directed lateral surstyli (possible synapomorphies with *Geloemyia*, *Parageloemyia*, *Trichempodia* and *Porpomastix* Enderlein, 1942), an arrow-like subapically barbed or extended aculeus (possible synapomorphy with *Geloemyia*, *Parageloemyia* and *Trichempodia*) and setulose vein R_{4+5} (possible synapomorphy with most species of the three latter genera except *Parageloemyia wonjuensis* Kim & Han, 2001); setulae on R_{4+5} are not found elsewhere in the tribe Pyrgotini. Species of *Pyrgotomyia* share the long antenna (pedicel and flagellomere 1 long), long oviscape, and eversible membrane of the ovipositor with rudimentary (or without any) sclerotized structures, and I consider these characters to support monophyly of the genus. Possible phylogenetic relationships of it and related genera are beyond the scope of this paper and will be considered elsewhere (Korneyev, in prep.).

Vanschuytbroeck (1963) compared *Pyrgotomyia* and *Metropina* based on descriptions alone and one specimen of *Metropina nigra* Vanschuytbroeck, 1963 erroneously placed there (synonym of *Eupyrgota spinifemur* Hendel, 1934, see Korneyev 2006); the differences he noted were between *Pyrgotomyia* and *Eupyrgota*, except the presence or absence of the postpronotal (=humeral) seta, which is variable in species of the genus *Pyrgotomyia*, and of no taxonomic value.

Enderlein (1942) separated *Metropina* and *Pyrgotomyia* based on chaetotaxy characters, which are considered variable in this study.

Metropina temporalis, the type species of the nominal genus *Metropina* is found to be very similar or possibly identical to *Pyrgotomyia ciliata*, the type species of *Pyrgotomyia* (see below). I therefore consider these generic names to be synonyms.

Known females of *Pyrgotomyia* species show no essential characters to associate them with the nominal species based on males, except when both sexes were collected together or in an area where only one species is known to occur. For this reason, *P. ciliata* based on the male is not considered to be a synonym of another nominal species based on female(s). As further access to more extensive material could bring up differences between males, I formally do not consider *P. ciliata* to be a *nomen dubium.*

Key to species of *Pyrgotomyia*
(females only; *P. ciliata* based on male not included)

1 Oviscape as long as or longer than distance from wing base to apex of vein R_1. Wing with pale brown crossband. Body uniformly yellow to reddish yellow 2

– Oviscape conspicuously shorter, as long as or at most slightly longer than distance from wing base to apex of Sc. Wing with brownish spots, not forming entire crossbands. Body sometimes with dark brown pattern 3

2 Supraclypeal sclerite twice as high as wide at its narrowest place. Oviscape longer than distance from wing base to apex of vein R_1 and as long as distance from wing base to stump vein or *dm–cu* crossvein. Ivory Coast.....**terebrans** sp. n.

– Supraclypeal sclerite as high as wide at its narrowest place. Oviscape as long as or slightly longer than distance from wing base to apex of vein R_1, and shorter

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than distance from wing base to crossvein *dm–cu*. Togo, Kenya, Tanzania, Congo (Zaïre)..... **temporalis**

3 Oviscape apex narrow, at most 0.4× as wide as its base. Body uniformly yellow. Wing pattern pale brown. Kenya to South Africa .....**richteri**

– Oviscape apex wide, at least 0.6× as wide as its base. Body with dark brown areas 4

4 Oviscape apex swollen, with ventroapical callus. Presutural dorsocentral setae fine, setula-like. [Frons yellow.] Cameroon .....**callosa** sp. n.

– Oviscape apex not swollen, without calluses. Presutural dorsocentral setae strong. [Frons brown.] Nigeria..... **stuckenbergi** sp. n.

Pyrgotomyia callosa sp. n.

Figs 4, 8, 14, 18, 52

Etymology: From Latin *callosus, -a, -um* (like a callus), referring to the oviscape with callus-like subapical convexity.

Description:

Female.

Head: Length : height : width = 1.0:1.0:1.2; pale orange-yellow, except occiput with brown Π-like mark and flagellomere 1 brown in apical two-thirds. Frons shining dark yellow, without brown areas, 1.7× as long as wide in its narrowest part; with 1 short proclinate orbital seta and 12–16 irregular setulae at each side 1–1.5× as long as orbital seta, forming 3 irregular transverse rows posterior of lunule. Parafacial and subocular sclerite entirely shining yellow, without brown areas. Face deeply concave, 1.6× as high as wide, shining; supraclypeal sclerite (Fig. 4) poorly separated from face, 0.8× as high as wide (in its dorsalmost part). Eye 1.15× as high as long and 3.3× as high as gena. Ocellar triangle not defined, ocellar seta moderately developed, twice as long as orbital and postocellar seta and 0.25× as long as medial vertical seta; lateral vertical seta absent. Antenna elongate, pedicel and flagellomere 1 combined about half as long as face; flagellomere 1 slightly shorter than pedicel and 1.4× as long as proboscis and palp.

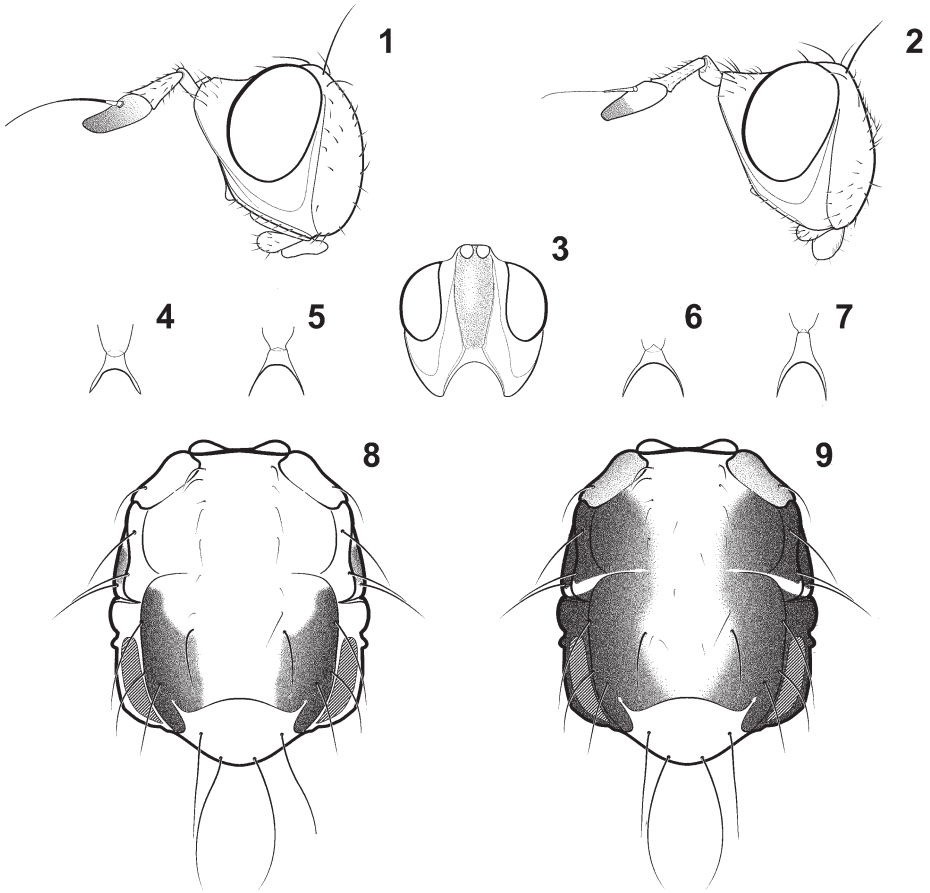
Thorax: Shining orange-yellow, with pair of reddish brown vittae on postsutural part of mesonotal scutum lateral to dorsocentral setae (Fig. 8); anepisternum with wide brownish yellow vertical spot; mediotergite slightly brownish yellow; setae and setulae black or brown. Postpronotal seta present on both sides. One strong presutural dorsocentral (scapular) and 2 postsutural dorsocentral setae (only one partly broken seta and 3 large alveoli present in holotype); other dorsocentral setulae smaller, at most half as long as setae.

Wing (Fig. 14): 5.7 mm long, with hyaline costal cell; pterostigma and cell r_1 posterior to it yellow; vein R_{2+3} slightly deepened but without stump vein; vein R_{4+5} setulose from base to at least middle of distance between *dm–cu* level and apex; crossvein *r–m* pale brown emarginated; wing in apical part with brown crossband, unbroken and narrowed through vein *dm–cu* to posterior margin and brown apical portion of r_1 cell; apices of cells r_{2+3}, r_{4+5} and m with narrow, pale brown apical band. Upper calypter long black ciliate, longest ciliae as long as alula width. Distance between wing base and apex of vein R_1 2.6 mm.

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Legs: With yellow coxae, trochanters and femora, and brown tibiae and tarsi. All setae and setulae uniformly black, short; no pale dense "grooming brushes". Claws short.

Abdomen: Shining reddish brown, black setulose. Sternites as in Fig. 18. Oviscape (Figs 34, 35) moderately short and wide, 1.6 mm long, almost as long as thorax and conspicuously shorter than distance from wing base to vein R_1 apex, and equal to distance from wing base to vein Sc apex; ventrally on basal 0.7, dorsally on whole length short black setulose, apicoventrally and apicolaterally with dense whitish or yellowish microsetulae; in profile curved dorsally, subapically swollen, about 0.8× as wide as at base, with subapicoventral callus. Apex of oviscape rounded, with suberect setae on lateroapical sides (Fig. 35); base of eversible membrane with short but conspicuous ventromedial lobe and two very short lateroventral lobes (rudimentary ventral taeniae) (Fig. 36). Aculeus (Fig. 45) 0.26 mm long, wide, gradually tapered apically, not barbed; conspicuously curved ventrally in profile. One spermatheca (of 3?) found in holotype, oval, poorly sclerotized, with short neck (Fig. 37).



Figs 1–9. *Pyrgotomyia* spp.: (1) *P. ciliata*, holotype; (2, 6) *P. richteri*; (3) *P. temporalis*; (4, 8) *P. callosa* sp. n., holotype; (5, 9) *P. stuckenbergi* sp. n., holotype; (7) *P. terebrans* sp. n., holotype. (1, 2) head, left view; (3) head, latero-ventral view (antennae, mouthparts and setae not shown); (4–7) supraclypeal sclerite, latero-ventral view; (8, 9) mesonotum, dorsal view.

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Male. Unknown.

Holotype: ♀ CAMEROON: "Cameroon / N'Colbisson [3.86403°N 11.46302°E] / 19.xi.1970 / L. Tsacas leg.", "Piège lumineux" (MNHN).

Pyrgotomyia ciliata Hendel, 1934

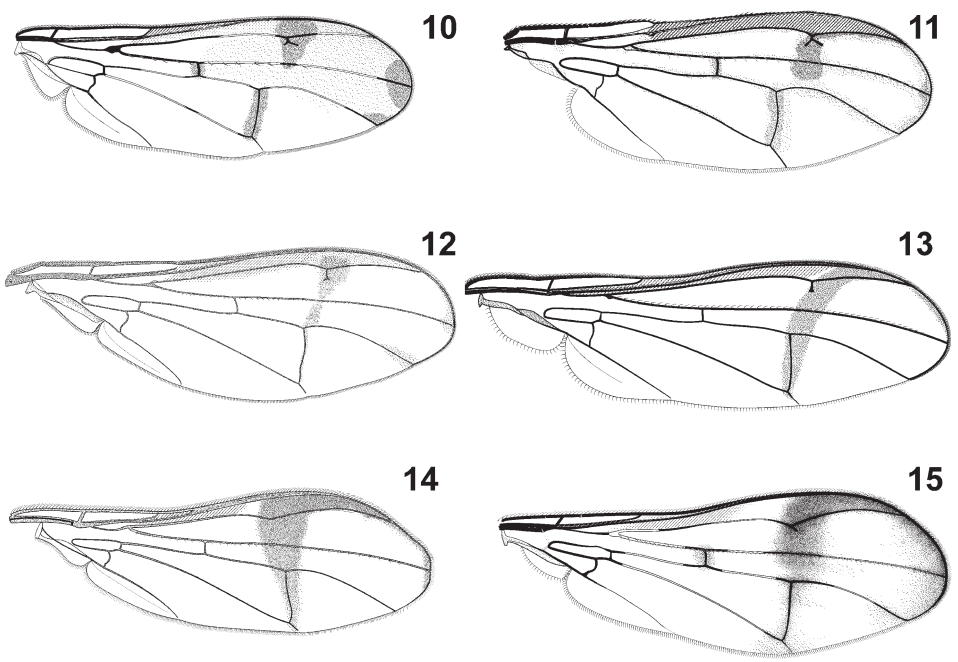
Figs 1, 10

Pyrgotomyia ciliata: Hendel 1934: 154; Vanschuytbroeck 1963: 23; Steyskal 1980: 560.

Description:

Male.

Head: Length : height : width = 1.0:1.0:1.1; pale orange-yellow, except occiput sides somewhat darker reddish yellow and flagellomere 1 brown in apical half. Frons shining yellow, without brown areas, 1.3× as long as wide in its narrowest part; with 1 proclinate orbital seta and 6 irregular setulae as long as orbital seta, on its anterior portion. Parafacial and subocular sclerite entirely shining yellow, without brown areas. Face deeply concave, twice as high as wide, shining; supraclypeal sclerite poorly separated from face, 0.85× as high as wide (in its dorsalmost part). Eye 1.4× as high as long and 2.7× as high as gena. Ocellar triangle poorly defined, ocellar and postocellar seta moderately developed, longer than orbital seta and as long as lateral vertical seta and half as long as medial vertical seta; lateral vertical seta present. Antenna elongate, pedicel and flagellomere 1 about half as long as face and 1.5× as long as proboscis and palp.



Figs 10–15. *Pyrgotomyia* spp., wing: (10) *P. ciliata*, holotype; (11) *P. richteri*; (12) *P. temporalis*; (13) *P. terebrans* sp. n., holotype; (14) *P. callosa* sp. n., holotype; (15) *P. stuckenbergi* sp. n., holotype.

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Thorax: Shining, almost uniformly pale reddish yellow, with deeper reddish brown vittae on mesonotal scutum (at muscle attachment) and slightly brownish yellow mediotergite; setae and setulae black or brown. Postpronotal seta lacking. One presutural dorsocentral (scapular) and 2 postsutural dorsocentral setae; smaller dorsocentral setae and/or setulae indistinguishable or missing.

Wing (Fig. 10): 6.0 mm long, with hyaline costal cell; pterostigma and most of cell r_1 yellow; vein R_{2+3} with short, bifurcate stump vein slightly distal to *dm–cu* level; vein R_{4+5} setulose from base to at least middle of distance between *dm–cu* level and apex; stump vein with brown triangular spot separated from brown spot around vein *dm–cu*; crossvein *r–m* brown spotted; apices of veins R_{4+5} and M with 2 brown spots narrowly connected by pale brown shadow at apex of r_{4+5} cell. Upper calypter long black ciliate.

Legs: With yellow coxae, trochanters and femora, and pale brown tibiae and tarsi. All setae and setulae uniformly black. Claws short.

Abdomen: Shining reddish brown, black setulose. Male abdomen (*in situ*, not dissected) as in all other male specimens of *Pyrgotomyia* figured in this paper.

Female. Unknown.

Holotype (examined): ♂ KENYA: "Afr. Or. Angl. (Wa-Kikuyu) / Wambogo [0.637368°N 36.979444°E] / Alluaud et Jeannel / Janv. 1912 — 1750 m — St. 32", "Pyrgotosoma ciliata H. / F. Hendel det." (NHMW).

Remarks: The holotype male of *P. ciliata* cannot be distinguished with certainty from the only known male of *P. richteri* from South Africa, from two males of *P.* sp. cf. *ciliata* from Mozambique and a male of *P.* sp. cf. *temporalis*, also from Kenya. It may be conspecific either with *P. richteri* or with *P. temporalis*, but existing material is insufficient to synonymise them. Further detailed study of this species in its type location could show that *P. ciliata* is a senior synonym of one of those two species based on females.

Pyrgotomyia sp. cf. *ciliata*

Description:

Male. As described for *P. ciliata.*

Wing: 4.8–5.6 mm long, paler than described for *P. ciliata* holotype; vein R_{2+3} with short, bifurcate or simple stump vein or without it, without conspicuous brown spots at R_{4+5} and M apices.

Male genitalia: As described for the genus (Figs 20, 21).

MOZAMBIQUE: 1♂ (dissected) "Port.[ugese] E Africa, Monapo [14.91694°S 40.30222°E], 5.x.1918, G.D.H. Carpenter, 1919–36" (BMNH); 1♂ Amatongas [19.16861°S 33.76028°E], 6.x.1961, D. Cookson (NMSA).

Remarks: These specimens with higher probability may be conspecific with those listed below as *P. richteri*, the latter nominal species occurring in Ethiopia and South Africa; other species are known to occur in the subequatorial regions only. However, as no females from Mozambique are known so far, there is also a possibility that they belong to *P. temporalis*.

Pyrgotomyia richteri (Steyskal, 1972), **comb. n.**

Figs 2, 6, 11, 16, 20, 23–27, 41

Metropina richteri: Steyskal 1972: 5; 1980: 559.

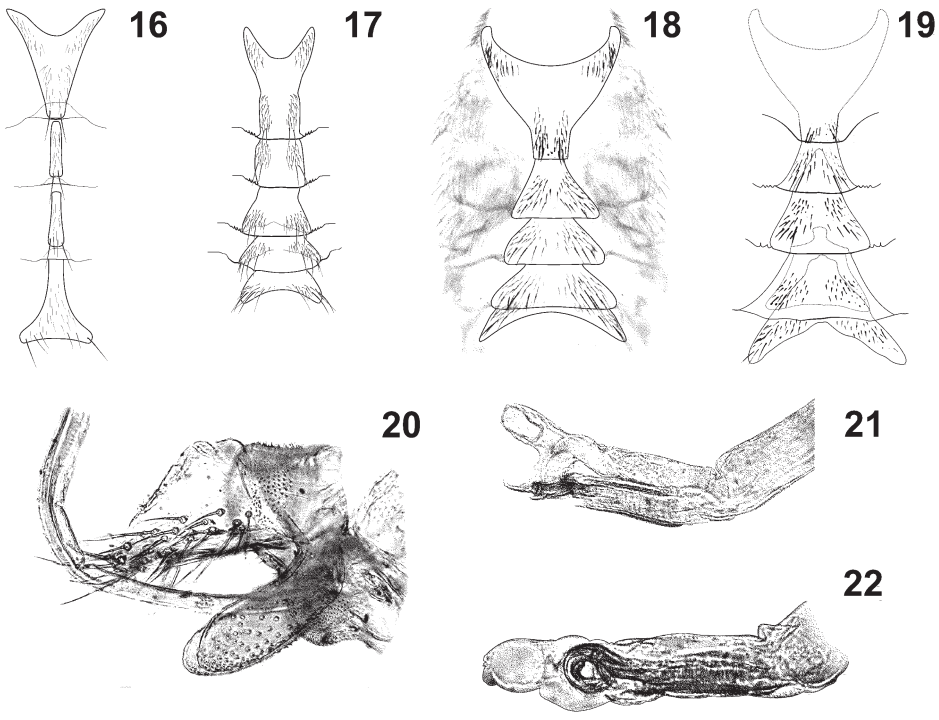
Description:

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Female. Similar to *P. callosa* sp. n. except as follows.

Head: Length : height : width = 1.00 : 0.95–1.00 : 1.10; uniformly orange to pale brownish yellow, except flagellomere 1 brown on apical one-third. Frons shining dark yellow, without brown areas, 1.7× as long as wide in its narrowest part; with 1 short proclinate orbital seta and 10–15 irregular setulae at each side on its anterior portion 0.8–1.1× as long as orbital seta. Parafacial and subocular sclerite entirely shining yellow, without brown areas. Face deeply concave, 1.6–2.0× as high as wide, shining; supraclypeal sclerite 0.9–1.1× as high as wide (in its dorsalmost part). Eye 1.2–1.4× as high as long and 2.0–3.3× as high as gena. Ocellar triangle not defined, ocellar seta moderately developed, twice as long as orbital seta and 0.7× as long as medial vertical seta; postocellar seta absent (in holotype) or present (in 60% of specimens); lateral vertical seta absent (in holotype and 70% of specimens) or present at one or both sides. Antenna: pedicel and flagellomere 1 subequal, about half as long as face; flagellomere 1 slightly narrowed to apex, 1.4× as long as proboscis and palp.

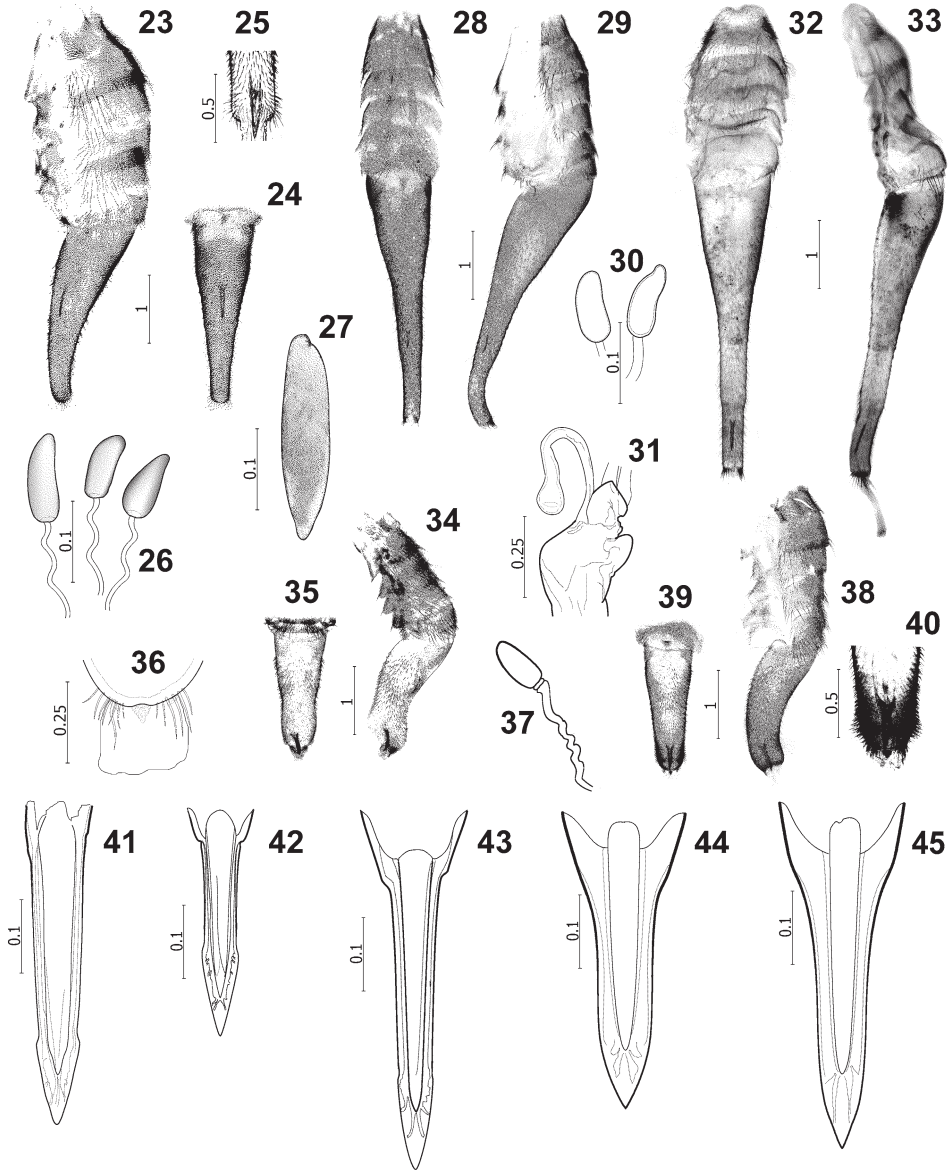
Thorax: Shining orange-yellow, without darker spots in holotype, or with brownish mediotergite in 20% of examined specimens. Postpronotal seta present on both sides (60% of specimens), absent on both sides (30%) or on one side only (10%). One strong anterior presutural dorsocentral (scapular), 1–2 anterior and 2–3 strong postsutural dorsocentral setae; other dorsocentral setulae smaller, at most half as long as setae.



Figs 16–22. *Pyrgotomyia* spp.: (16, 20) *P. richteri*, male; (17) *P. richteri*, female; (18) *P. callosa* sp. n., female; (19) *P. stuckenbergi* sp. n., female; (20–22) *P.* sp. cf. *temporalis*, male. (16–19) abdominal sternites; (20) epandrium, right view; (21, 22) glans of phallus, right and ventral views (slightly enlarged compared to 20).

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Wing (Fig. 11): 4.8–6.1 mm (mean 5.4) long, pterostigma and cell r_1 posterior to it yellow; vein R_{2+3} with stump vein, often bifurcated at apex; vein R_{4+5} setulose from base to level of R_{2+3} apex; crossvein *r–m* on hyaline background; wing in apical part with pale brown band from anterior margin to M vein; vein *dm–cu* either on hyaline background



Figs 23–45. *Pyrgotomyia* spp.: (23–27, 41) *P. richteri*; (28–30, 42) *P. temporalis*; (31–33, 43) *P. terebrans* sp. n.; (34–37, 44) *P. callosa* sp. n.; (38–40, 45) *P. stuckenbergi* sp. n., female. (23, 29, 34, 38) abdomen dissected, left view; (28, 32), abdomen dissected, dorsal view; (24) oviscape, dorsal view; (35, 39), oviscape, ventral view; (25, 36, 40), oviscape apex; (26, 30, 37) spermathecae; (27) egg; (31) ventral receptacle and part of vagina; (41–45) aculeus, ventral view. Scale bars in mm.

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or pale brownish, in that case with crossband broken along vein M. Apical portion of r_1 cell and apices of cells r_{2+3}, r_{4+5} and m hyaline or pale yellow. Distance between wing base and apex of vein R_1 2.6–3.3 mm (mean 3.0).

Legs: Uniformly yellow, at most tarsi pale brownish, with brown setae and setulae.
Abdomen: shining reddish brown, black setulose. Oviscape short, 1.7–2.3 mm (mean 2.0) long, as long as thorax, approximately as long as preabdomen and 0.7–0.8× (mean 0.76) as long as distance from wing base to vein R_1 apex, and equal to distance from wing base to vein Sc apex; oviscape in profile curved dorsally and narrowed to apex, about 0.8× as wide as at base, without calluses. Oviscape uniformly pale brown setulose, apically with whitish or yellowish setulae. Aculeus 0.37–0.43 mm long, slightly barbed at apex. Spermathecae elongate oval, narrowed to apex (Fig. 26).

Egg (Fig. 27): Elongate oval, 4.3× as long as wide, without peduncle.

Male. Similar to female, except as follows.

Wing: Length 4.7–5.1 mm; subapical crossband broken into 2 spots, wing apex dark microtrichose, with or without darker brownish spots at apices of veins R_{4+5} and M.
Abdomen: Tergites either uniformly yellow or brownish yellow at sides.

Male genitalia: *In situ* (not dissected) as described for the genus.

Holotype (examined): ♀ ETHIOPIA: "Ethiopia, Sidamo / Jrga-Alen [=Yrgalem] / 38°23' E 6°45' N, 4–12. II.1960 / W. Richter" (SMNS).

Paratypes (examined): 1♀ labels as in holotype (SMNS); 1♀ "Ethiopia, Sidamo / Jlubabor, Gore / 2007 m / 35°13' E 8°8' N, 8-19.XI.1959 / W.Richter & Schäufelle" (SMNS).

Other material examined: NIGERIA: 1♀ Ibadan [7.3878°N 3.8964°E], 5.vii.1962, D.C. Eliot, Malaise trap (CNC). SOUTH AFRICA: *Limpopo*: 1♀ Fiesta Motel 20 km S Mokopane [= Potgietersrus, 24.17°S 28.51°E], 1100 m, 16.xi.1992, H. Hötzel, P. Ohm & M.W. Mansell; 1♂ Lephalale [Ellisras] Distr., Mokolo [Moloko, Mogol] Nature Reserve, 23.58°S 27.45°E, 19–23.xi.1979, S.J. van Tonder (SANC). *Mpumalanga*: 2♀ Barberton [25.7884°S 31.0532°E], 16.i.1911, A.J.T.Janse (NMSA). *Gauteng*: 2♀ Pretoria [25.7069°S 28.2294°E], xi.1977, L.E.O. Braack, light trap (SANC). *KwaZulu-Natal*: 1♀ Kube Yini Game Res., 27°48'S 32°14'E, 360 m, 10–14.i.1994, Natal Museum Expedition, at light; 1♀ Cathedral Peak area, Tarn Hill [28.9667°S 29.2167°E], 1550 m, 30.x.1988, I. Pajor, on *Protea caffra*; 1♂ 1♀ same data but 10.xi.1988, I. Pajor, on *Protea caffra*; 1♀ Ramsgate [30.8943°S 30.3451°E], 3030CD, 6–16.i.1983, J.G.H. Londt; 1♀ Oribi Gorge Reserve, Umzimkulvana Valley [30.7179°S 30.2539°E], 21–28.xi.1960, B. & P. Stuckenberg; 2♀ Amanzimtoti [30.0521°S 30.8853°E], i.1951, "SAIMR, 1♀ (dissected)" (all NMSA).

Remarks: This species resembles *P. temporalis* and *P. terebrans* sp. n. in having the oviscape gradually narrowed towards the apex and bearing a fringe of long setulae at its dorsal margin, but readily differs from them by the length of the oviscape not exceeding the length of the thorax. No characters to distinguish males of these three species with certainty have been found.

Pyrgotomyia temporalis (Enderlein, 1942), **comb. n.**

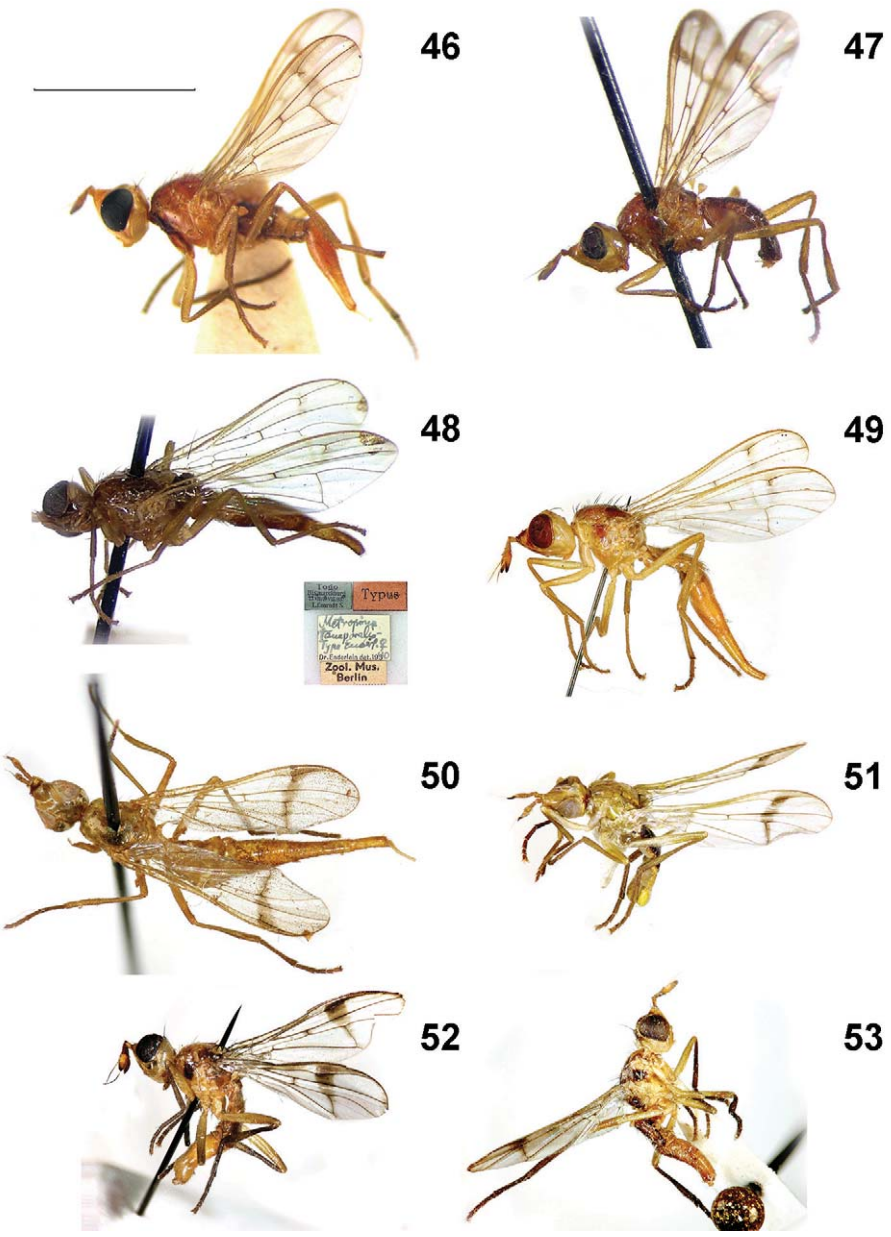
Figs 3, 28–30, 42, 48

Metropina temporalis: Enderlein 1942: 108; Steyskal 1972: 5; 1980: 559.

Description:

Female. In general features, as described for *P. callosa* sp. n.
Head: Length : height : width = 1.0:(0.8)1.0–1.1:1.1–1.2(1.2), flagellomere 1 brown on apical 0.3–0.5 (missing in holotype). Frons without brown areas, (1.9)1.8× as long as wide in its narrowest part; with 1 proclinate orbital seta and 8–10 irregular setulae as long as orbital seta, on its anterior portion. Face 2.0–2.4× as high as wide; supraclypeal

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Figs 46–53. *Pyrgotomyia* spp., habitus: (46) *P. richteri*, female, KwaZulu-Natal; (47) *P.* sp. cf. *temporalis*, male, Kenya; (48) *P. temporalis*, holotype female, Togo; (49) *P. temporalis*, female, Tanzania; (50) *P. terebrans* sp. n., holotype female, Ivory Coast; (51) *P.* sp. cf. *terebrans*, male, Nigeria; (52) *P. callosa* sp. n., holotype female, Cameroon; (53) *P. stuckenbergi* sp. n., holotype female, Nigeria. Scale bar = 5 mm.

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sclerite 1.1× as high as wide. Eye 1.4× as high as long and 1.8–3.0× as high as gena. Ocellar triangle poorly defined, ocellar and postocellar seta moderately developed, longer than orbital seta and as long as lateral vertical seta and half as long as medial vertical seta; lateral vertical seta present. Flagellomere 1.0–1.1× as long as pedicel and 1.4–1.5× as long as proboscis and palp.

Thorax: Shining, almost uniformly pale reddish yellow, with more-reddish vittae on mesonotal scutum (at muscle attachment) and slightly brownish yellow mediotergite; setae and setulae black or brown. Postpronotal seta lacking or present. One presutural dorsocentral (scapular) and 2 postsutural dorsocentral setae, rarely 1 additional presutural seta; smaller dorsocentral setae and/or setulae (indistinguishable or missing in holotype) about half as long as setae in other specimens.

Legs: Yellow coxae, trochanters and femora, and pale brown tibiae and tarsi. All setae and setulae uniformly black, short; no pale dense "grooming brushes". Claws short.

Wing (Fig. 12): As described for *P. richteri* except as follows: 5.7–6.9 mm (mean 6.5) long, pterostigma and cell r_1 posterior to it yellow; vein R_{2+3} with stump vein, often bifurcated at apex; vein R_{4+5} setulose from base to level of R_{2+3} apex; crossvein *r–m* on hyaline background; wing in apical part with pale brown band from anterior margin to M vein; vein *dm–cu* either on hyaline background or pale brownish, then with crossband broken along vein M. Apical portion of r_1 cell and apices of cells r_{2+3}, r_{4+5} and m hyaline or pale yellow. Distance between wing base and apex of vein R_1 2.6–3.7 mm (mean 3.3). Upper calypter long black ciliate.

Abdomen: Shining reddish brown, brownish setulose. Sternites short and finely setulose. Oviscape (Figs 28, 29) 2.9–4.0 mm (mean 3.5) long, 1.4–1.7× as long as thorax, and about 1.5–1.7× as long as preabdomen, conspicuously longer than distance from wing base to vein R_1 apex but shorter than distance from wing base to vein *dm–cu*; ventrally on apical 0.85, dorsally on apical 0.8 short brownish setulose; subapically not swollen, about 0.25× as wide as at base and almost parallel-sided in apical one-fifth. Apex of oviscape in profile conspicuously curved dorsally, laterally and laterodorsally with fringe of long setulae 0.6–0.7× as long as oviscape diameter at apex. No trace of sclerotized lobes at base of eversible membrane. Aculeus (Fig. 42) elongate, slightly barbed subapically, 0.48 mm long and 1.2× as long as diameter of oviscape at apex. Spermathecae (two of the three found in the dissected female) as in Fig. 30. Ventral receptacle as in Fig. 31.

Holotype (examined): ♀ "TOGO / Bismarckburg [8.1833°N 0.6833°E], 27.VII–10.VIII.[18]93 / L. Conradt S." (ZMHB).

Other material examined: KENYA: 2♀ Kattita [= Kathita] River, Meru [0.2661°S 38.0032°E], iv.1979, P. Kinyanjvi (NMKE); 1♀ Ngong [1.3618°S 36.6566°E], ii.1964, van Someren, VGL at light (NMSA). TANZANIA: 1 ♀ "Makoa T.T.O-Afr." [?3.2722°S 37.22178°E], "Lichtfang", 22.ii.1959, Lindner (SNMS). DEMOCRATIC REPUBLIC OF CONGO: 1 ♀ "Haut Uelé: Tuku, 238" [2.3996°N 27.9024°E], 27.iii.1919, P. Van den Plas (RMCA).

Pyrgotomyia sp. cf. *temporalis*

Fig. 21

Description:

Male. In general features, as described for *P. ciliata*, except as follows:

Body and legs: Entirely yellow, except hind tibia dark yellow (only one fore and one hind leg present in examined specimen).

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Wing: 6.2–6.8 mm long, with hyaline costal cell; vein R_{2+3} with short, simple stump vein distal to *dm–cu* level; vein R_{4+5} setulose from base to at least middle of distance between *dm–cu* level and apex; stump vein with pale brown spot separated from pale brown spot around vein *dm–cu*; crossvein *r–m* pale brown spotted; wing apex with very pale brown shadow.

Male genitalia: As depicted for *P. ciliata*.

Material examined: KENYA: 1♂ (dissected) Ngong [1.3618°S 36.6566°E], x.1957, van Someren (BMNH). DEMOCRATIC REPUBLIC OF CONGO: "Congo-belge / Rutshuru [1.1842°S 29.4489°E] – 4-7-1937 / J. Ghesquière / 3583", "R. Mus. Hist. Nat. Belg. I.G. 10.482" (RBINH).

Remarks: The only available specimen has a paler wing pattern and body than the males identified in this work as *P. ciliata*; it may be conspecific with that species or with *P. terebrans*, but cogent evidence for none of the two options is found.

Pyrgotomyia terebrans sp. n.

Figs 7, 13, 31–33, 43, 50

Etymology: From Latin *terebrans* (drilling, piercing), referring to its long oviscape.

Description:

Female. Long-bodied species (Fig. 50), in general features, as described for *P. callosa* sp. n. and *P. ciliata*.

Head (holotype somewhat shrivelled, no reliable measurements of length : height : width available, but looking conspicuously longer than high): pale orange-yellow, except flagellomere 1 brown in apical half. Frons subshining yellow, without brown areas, twice as long as wide in its narrowest part; all large setae broken off, except 8 or 9 irregular setulae on its anterior portion. Parafacial and subocular sclerite entirely shining yellow, without brown areas. Face deeply concave, 1.75× as high as wide, shining; supraclypeal sclerite (Fig. 7) poorly separated from face, twice as high as wide (in its dorsalmost part). Eye 1.3× as high as long and 3.2× as high as gena. Antenna elongate, pedicel and flagellomere 1 combined about half as long as face; flagellomere 1 slightly shorter than pedicel and 1.2× as long as palp.

Thorax: Shining yellow, without brown areas. Almost all setae except 1 short presutural dorsocentral (scapular) and 1 setula-like prescutellar postsutural dorsocentral setae broken off in the holotype; 1 moderately long supra-alar seta present.

Wing (Fig. 13): 6.7 mm long; with hyaline costal cell; pterostigma yellow; distance from wing base to apex of vein R_1 4 mm; vein R_{2+3} in holotype with apically slightly bifurcated stump vein; vein R_{4+5} setulose, but most setulae distally of *r–m* broken off; crossvein *r–m* not dark emarginated; wing in apical part with brown crossband, unbroken and narrowed through vein *dm–cu* to posterior margin and brown apical portion of r_1 cell; apices of cells r_{2+3}, r_{4+5} and m hyaline, without conspicuous marginal darkening. Upper calypter long black ciliate, as in *P. callosa* sp. n.

Legs: Yellow, with dark yellow tarsi.

Abdomen (Figs 32, 33): Shining reddish brown, brownish setulose. Sternites short and fine setulose. Oviscape 4.6 mm long, 1.9× as long as thorax, about twice as long as preabdomen, conspicuously longer than distance from wing base to vein R_1 apex and equal to distance from wing base to vein *dm–cu*; ventrally in apical 0.95, dorsally in apical 0.8 short brownish setulose; subapically not swollen, about 0.3× as wide as at

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base and almost parallel-sided in apical 0.4. Apex of oviscape in profile very slightly curved dorsally, laterally and laterodorsally with fringe of long setulae 0.8× as long as oviscape diameter at apex. No trace of scleritized lobes at base of eversible membrane. Aculeus (Fig. 43) elongate, slightly barbed subapically, 0.48 mm long and 1.4× as long as diameter of oviscape at apex. Spermathecae and ventral receptacle not examined.

Male. Unknown.

Holotype: ♀ IVORY COAST: "LAMTO (Toumodi) [6.5580°N 5.0177°W] / Côte d'Ivoire / Juill. Aout. 1968 / C. Girard Hl.", "Pyrgotidae / L. Matile det." (MNHN).

Remarks: The new species is described based only on the holotype. The abdomen after maceration in potassium hydroxide was found to be full of mites, which had eaten its contents, possibly including the spermathecae.

Pyrgotomyia sp. cf. *terebrans*

Fig. 51

Description:

Male. Similar to female of *P. terebrans* sp. n. (wing with oblique crossband) and male of *P. ciliata*, except as follows:

Face: With supraclypeal sclerite as high as wide.

Wing: 5.9 mm long, with hyaline costal cell; pterostigma and basal half of cell r_1 yellow; distance from wing base to apex of vein R_1 3.9 mm; vein R_{2+3} with apically slightly bifurcated (left wing) or simple (right wing) stump vein; crossvein *r–m* in hyaline area; wing in apical part with entire oblique brown crossband, unbroken and narrowed from R_{2+3} vein through vein *dm–cu* to posterior margin and pale brown apical portion of r_1 cell; wing apex hyaline, without conspicuous marginal darkening. Upper calypter long black ciliate, as in *P. callosa* sp. n.

Body and legs: Yellow, except tibiae and tarsi brownish yellow; abdomen with blackish brown tergites 1+2, 3 and 4 (except lateral margins yellow) and yellow tergite 5.

Male genitalia (*in situ*; not dissected): As depicted for *P. ciliata*.

Material examined: 1♂ NIGERIA: "Jema'a" [9.4667 °N 8.3833 °E], 15.ix.1971, H. Polizar, "Metropina n. sp." (G.C. Steyskal's handwriting) (USNM).

Remarks: This specimen shares the elongate wing with oblique crossband with the female holotype of *P. terebrans* sp. n. and very probably is conspecific with it, but further evidence for its identity is needed.

Pyrgotomyia stuckenbergi sp. n.

Figs 5, 9, 15, 19, 38–40, 45, 53

Etymology: Named for Brian Stuckenberg, in recognition of his great contribution to the study of Afrotropical Diptera.

Description:

Female (Fig. 53). Generally similar to *P. callosa*, differing as follows.

Head: Length : height : width = 1.0:0.9:1.1; pale orange-yellow, except frons broadly brown, occiput with brown transverse mark in its dorsal portion and flagellomere 1 at apex brown. Frons subshining brown (only anterior margin, narrow median vitta,

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vertical plates and area corresponding to ocellar triangle yellow), 2.7× as long as wide in its narrowest part; with 1 short proclinate orbital seta and 8–12 setulae at each side 1–1.5× as long as orbital seta, forming 2 irregular transverse rows on its anterior portion. Parafacial and subocular sclerite entirely shining yellow, without brown areas. Face twice as high as wide; supraclypeal sclerite (Fig. 5) 0.8× as high as wide. Eye 1.24× as high as long and 4.5× as high as gena. Ocellar triangle not defined, ocellar seta either broken off or lacking; postocellar seta present, 0.25× as long as medial vertical seta; lateral vertical seta absent. Antenna with flagellomere 1 apically blunt, brown in apical one-third.

Thorax: Shining orange-yellow, mesonotum (Fig. 9) with pair of reddish brown vittae on both presutural and postsutural part of scutum lateral to dorsocentral setae; anepisternum with wide brownish yellow vertical spot; postpronotal lobe pale brownish; katatergite, anatergite, mediotergite and postscutellum brown; setae and setulae black or brown. Postpronotal seta present on left side only. One strong presutural (scapular) dorsocentral and one postsutural dorsocentral seta slightly posterior to level of supra-alar seta; other dorsocentral setulae fine, at most half as long as setae.

Wing (Fig. 15): Length 5.4 mm. Distance between wing base and apex of vein R_1 2.8 mm.

Abdomen: Abdominal sternites as in Fig. 19; sternites 5 and 6 with anteromedial apodemes. Oviscape (Figs 38–40) moderately short and wide, 1.8 mm long, almost as long as thorax and preabdomen, conspicuously shorter than distance from wing base to vein R_1 apex and equal to distance from wing base to vein Sc apex; at apex about 0.8× as wide as at base; in profile curved dorsally, very slightly tapered to apex and without subapical callus. Aculeus (Fig. 45) short triangular, not barbed subapically, 0.46 mm long and 1.1× as long as diameter of oviscape at apex. Spermathecae and ventral receptacle not found.

Male. Unknown.

Holotype: ♀ (dissected) NIGERIA: "Ile-Ife [7.4667°N 4.5667°E], Nigeria / 15 Aug. 1970 / Col. T.J.Medler" (USNM).

Remarks: The variation in the body coloration and wing pattern can exist in larger series.

CONCLUSIONS

Pyrgotomyia, like many other pyrgotid genera, is poorly represented in collections. Moreover, males can scarcely be associated with females without special field studies, observations *in copula* or rearing. This study is only a preliminary review of existing collection materials to provide an illustrated key to facilitate identification of newly collected specimens.

Species of the genus *Pyrgotomyia*, which are believed to be parasites of adult lamellicorn beetles active at dusk (as some specimens were collected at light), probably oviposit with their abdomen and oviscape bowed anteriorly; this is the only position, in which the oviscape curved dorsally, can direct the aculeus into the host body. Observations on their biology, including preferences of biotopes, range of hosts and their size are of great interest for future studies.

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ACKNOWLEDGEMENTS

I appreciate the assistance of curators of collections, who kindly put valuable material at my disposal: David Notton & Kim Goodger (BMNH); Jeff Skevington (CNC); Robert S. Copeland (NMKE); Mikhail B. Mostovski (NMSA); Peter Sehnal (NHMW); Christophe Daugeron (MNHN); Patrick Grootaert (RBINH); Eliane De Coninck & Marc De Meyer (RMCA); Ros Urban (SANC); Hans-Peter Tschorsnig (SMNS); Allen L. Norrbom (USNM); Joachim Ziegler (ZMHB). This paper partly resulted from studies supported by a stipend from the Belgian Federal Office for Scientific, Technical and Cultural Affairs Research Fellowship and conducted in the Royal Museum for Central Africa, Tervuren, Belgium in 2005–2006. I thank Ho-Yeon Han and Ramon Luciano de Mello for valuable comments and corrections that improved this paper, and Mikhail B. Mostovski for his criticism and patience.

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