

urn:lsid:zoobank.org:pub:9BF8EC0C-8711-446B-A8C9-05E3EA49AA77

# Belgian Journal of Entomology

## **New Tachydromiinae (Diptera: Empidoidea: Hybotidae) from different types of forests along the Congo river (D. R. of the Congo)**

Patrick GROOTAERT<sup>1</sup> & Igor SHAMSHEV<sup>2</sup>

<sup>1</sup> Entomology, Royal Belgian Institute of Natural Sciences, Rue Vautier 29, B-1000 Brussels, Belgium  
(e-mail: [Patrick.Grootaert@naturalsciences.be](mailto:Patrick.Grootaert@naturalsciences.be)).

<sup>2</sup> All-Russian Institute of Plant Protection, shosse Podbel'skogo 3, 188620, St. Petersburg, Russia.  
Temporary address: Royal Belgian Institute of Natural Sciences, Brussels (e-mail: [shamshev@mail.ru](mailto:shamshev@mail.ru))

## **New Tachydromiinae (Diptera: Empidoidea: Hybotidae) from different types of forests along the Congo river (D. R. of the Congo)**

Patrick GROOTAERT & Igor SHAMSHEV

ISSN : 1374-5514 (Print Edition)

ISSN : 2295-0214 (Online Edition)



Le Belgian Journal of Entomolgy est édité par la Société royale belge d'Entomologie, association sans but lucratif, fondée le 9 avril 1855.

Siège social : rue Vautier 29, B-1000 Bruxelles

De Belgian Journal of Entomology is uitgegeven door de Koninklijke Belgische Vereniging voor Entomologie, vereniging zonder winst oogmerk, opgericht op 9 april 1855.

Sociale zetel : Vautierstraat 29, B-1000 Brussel

Les publications de la Société sont financées avec le concours de la Fondation Universitaire de Belgique

De publicaties van de Vereniging worden gefinancierd met de steun van de Universitaire Stichting van België.

In compliance with Article 8.6 of the ICZN, printed versions of all papers are deposited in the following libraries :

- Bibliothèque royale de Belgique, 4 Boulevard de l'Empereur, B-1000 Bruxelles
- Bibliothèque de l'Institut royal des Sciences naturelles de Belgique, Rue Vautier 29, B-1000 Bruxelles
- American Museum of Natural History Library, Central Park West at 79th street, New York, NY 10024-5192, USA
- Bibliothèque centrale du Museum national d'Histoire naturelle, 38 rue Geoffroy Saint-Hilaire, 75005 Paris, France
- Naturalis – Library, PO Box 9517, 2300 RA Leiden, The Netherlands
- Zoological Record, Thomson Reuters, Enterprise Hous, Heslington, York, YO10 5NQ, UK

# New Tachydromiinae (Diptera: Empidoidea: Hybotidae) from different types of forests along the Congo river (D. R. of the Congo)

Patrick GROOTAERT<sup>1</sup> & Igor SHAMSHEV<sup>2</sup>

<sup>1</sup>Entomology, Royal Belgian Institute of Natural Sciences, Rue Vautier 29, B-1000, Brussels, Belgium (e-mail: [Patrick.Grootaert@naturalsciences.be](mailto:Patrick.Grootaert@naturalsciences.be))

<sup>2</sup>All-Russian Institute of Plant Protection, shosse Podbel'skogo 3, 188620, St. Petersburg, Russia. Temporary address: Royal Belgian Institute of Natural Sciences, Brussels (e-mail: [shamshev@mail.ru](mailto:shamshev@mail.ru))

## Abstract

Different types of forest under different human pressure were investigated for the diversity of Tachydromiinae (Diptera: Hybotidae) in the D. R. Congo. Forty one species were recorded. Thirteen species are new for science: *Drapetis denticulata* sp. nov., *D. yangambensis* sp. nov., *Elaphropeza albistylus* sp. nov., *E. aseta* sp. nov., *E. asquamata* sp. nov., *E. dudui* sp. nov., *E. elasi* sp. nov., *E. kinshasensis* sp. nov., *E. leponcei* sp. nov., *E. pachystylus* sp. nov., *E. pulchra* sp. nov., *E. verheyeni* sp. nov. and *E. wetsii* sp. nov. All species are described and male genitalia illustrated. Keys for *Drapetis* and *Elaphropeza* (GROOTAERT & SHAMSHEV, 2013) have been updated to include the new species described here. *Crossopalpus nyaka* Smith, 1969 described from South Africa is reported for the first time in D. R. Congo. It is re-described and illustrated. Females of *Drapetis congoensis* Grootaert & Shamshev, 2013 and *D. yaekelaensis* Grootaert & Shamshev, 2013 are described for the first time. 24 barcodes of the COI gene from 14 species recorded in this study have been generated and are available at GenBank.

**Keywords:** Diptera, Hybotidae, Tachydromiinae, new species, D. R. Congo.

## Introduction

The present paper is the result of a short sampling campaign in the first half of June 2012 in the surroundings of Yangambi (D. R. Congo, Oriental Province). Here we limit ourselves to describe the new Tachydromiinae found in the samples, simply because almost no Hybotinae were collected during the campaign. Collections were made in a gradient of forest types ranging from garden patches, bamboo, over young forest to mixed primary and monodominant *Gilbertiodendron* forest. The study was in the scope of the PODO project COBIMFO (Congo Basin Integrated Monitoring for Forest Carbon Mitigation and Biodiversity) in which a relation is being sought between carbon fixation and biodiversity. The aim of this project is to get baseline reference data on the Carbon balance and biodiversity in pristine and intervened dense tropical forests of the Congo Basin and to increase our understanding of the relationship between both variables as a function of forest management.

The present work is a supplement to the monograph published by GROOTAERT & SHAMSHEV (2013) on the Hybotidae collected during the Boyekoli Ebale Congo 2010 Expedition. During that expedition collections were made at the beginning of the dry season in wet to very wet forest a little West of the present survey in Yangambi. In Yangambi the forest soil was much drier and collections were made a little later in the dry season. The descriptions of a few species collected in a garden (park) in Kinshasa are added in order to see the differences between sites with strong human impact and with less human perturbation.

Barcodes of most hybotid species described by GROOTAERT & SHAMSHEV (2013) and the new Tachydromiinae from the present paper have been published in GenBank (NAGY *et al.*, 2013).

## Material and methods

The material is housed in the Collections of the Biodiversity Centre (Centre de Surveillance de la Biodiversité) in Kisangani (D. R. Congo), while voucher specimens are deposited in the Royal Belgian Institute of Natural Sciences, Brussels, Belgium (RBINS). In the descriptions we cite under 'reg.' the register number that is a unique identifier referring to the locality, date and microhabitat. When we cite the holotype we indicate also the MS name or code that was used throughout the description process e.g. EC4 is the fourth *Elaphropeza* species found in the Congo samples. All specimens were collected by the first author (PG) and are conserved in 70% alcohol. The specimens from which DNA was extracted are conserved in our tissue collection with the cuticular parts still being recognisable. We refer to the barcode of the tube in the tray in which it is conserved; e.g. tube AB31515301 stored in tray called Congo2.

The terminology and descriptive format used in the descriptions follow GROOTAERT & SHAMSHEV (2012). In describing the sclerites of the thorax the terminology used by previous authors is often indicated in brackets. The scale bar represents 0.1 mm, but this is only an indicative measure because the drawings are projections of structures that are usually not in a horizontal plane.

The following abbreviations are used in the illustrations: a: apodeme; hy: hypandrium; lc: left cercus; le: left epandrial lamella; ls: left surstylus; ph: phallus; rc: right cercus; re: right epandrial lamella; rs: right surstylus.

## Systematics

### Family HYBOTIDAE

#### Subfamily Tachydromiinae

#### Genus *Crossopalpus* Bigot, 1857

REMARKS. Currently the world fauna of *Crossopalpus* numbers 84 species. Seventeen species are known from the Afrotropical Realm (3 from D. R. Congo). RAFFONE (1994) provided a key to the Afrotropical species of *Crossopalpus*. GROOTAERT & SHAMSHEV (2013) reported 4 species from D. R. Congo: one new species, records for two previously described species and an unnamed female. Here below we report on a species described from South Africa – *C. nyaka* Smith, 1969.

#### *Crossopalpus nyaka* Smith, 1969

(Figs 1–3)

*Crossopalpus nyaka* Smith, 1969: 35, Fig. 36.

MATERIAL EXAMINED: D. R. Congo: Kinshasa, 3♂, 2♀, large garden in city centre, 3 June 2012 (reg. 32001; leg. P. Grootaert; MS reference Crosso 4). A complete female in tray Congo 2 at position E7 with barcode AB42405565 and a complete male in tray Congo2 at position E6 with barcode AB42405559 were extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. Medium-sized (about 2.0 mm) black species with yellow legs including all coxae, only apical tarsomere of all legs darkened; male hind basitarsus with brownish stripe ventrally on basal half (not in female). Antenna with scape and pedicel yellow, postpedicel brown; pedicel with long yellow ventral seta. Palpus yellowish.

DESCRIPTION. Since SMITH (1969) made a detailed description we only give here some clarifications to conform with the current style of description.

*Male*. Head: antenna with postpedicel nearly 1.5 times as long as wide; stylus about 5.0 times as long as postpedicel.

Thorax: prothoracic episterna with long upturned seta just above fore coxa.

Legs: hind basitarsus with narrow, brownish, ventral stripe on about basal half.

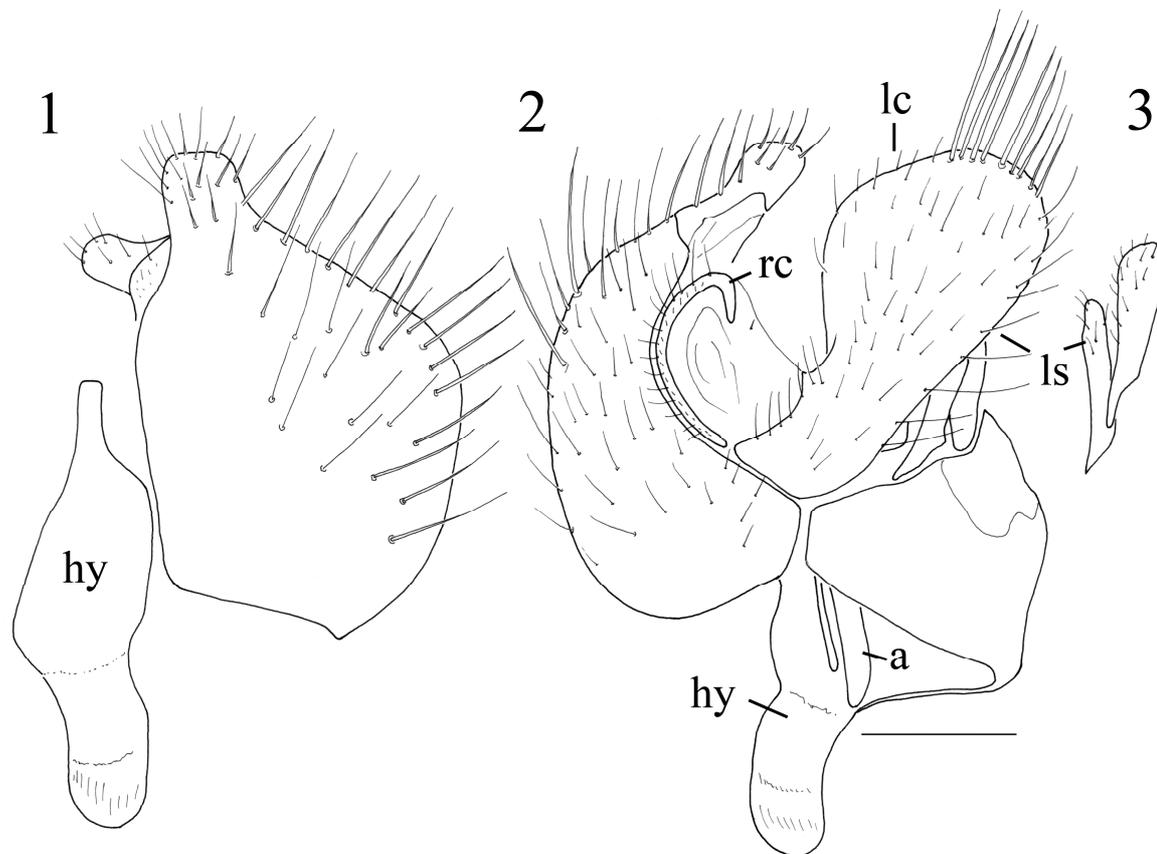
Wing normally developed, uniformly finely infusate. Costal bristle moderately long, brownish yellow. Costal index: 50/27/34. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  somewhat convergent near wing apex,  $R_{4+5}$  slightly bowed,  $M_{1+2}$  somewhat undulate. Crossvein  $bm-cu$  oblique. Crossvein  $r-m$  near middle of cell  $bm$ . Halter yellow.

Abdomen: tergite 1 pale, tergite 2 unmodified; tergite 3 slightly broader than other tergites, with 2 small posteromarginal excisions dorsally; tergites 4–5 with similar excisions and also weaker sclerotised medially; tergites 6–7 weakly sclerotised; setation ordinary, minute; sternites undivided. Gland-like structure between tergites 3–4 and 4–5. Terminalia (Figs 1–3) small, brown. Cerci separated; right cercus very narrow; left cercus large, with broadened tip bearing long setae. Epandrium completely divided. Right surstylus represented by 2 sclerites, with short unmodified setae. Left epandrial lamella fused to hypandrium, lacking setation apically. Left surstylus represented by 2 small sclerites (Fig. 9), with short unmodified setae. Hypandrium narrow, attenuated apically, with long, narrow gonocoxal apodeme. Phallus short. Two rod-shaped apodemes.

*Female*. Hind basitarsus entirely yellow; abdominal tergites 3–7 normally sclerotised, subrectangular; gland-like structures not prominent; tergite 8 dark brown, short, with sclerites separated; cercus small, subglobular, brownish yellow.

REMARKS. Our specimens fit very well with the description given by Smith (1969). In our specimens the wing is faintly brownish tinged but was described as clear in the South African specimens. Finally, Smith (l.c.: Fig. 36) did not figure the long setae on the left cercus. In having legs almost entirely yellow (at most last tarsomere darkened) *C. nyaka* is similar to *C. montalentii* Raffone, 1994 described from Sierra Leone (Raffone, 1994). However, the latter has a strong anteroventral bristle on the hind tibia.

DISTRIBUTION. South Africa (Natal), D. R. Congo.



Figs 1–3. *Crossopalpus nyaka* Smith, 1969, 1. Right epandrial lamella and hypandrium, lateral view; 2. Terminalia, dorsal view; 3. Left surstylus, lateral view.

## Genus *Drapetis* Meigen, 1822

REMARKS. Currently, *Drapetis* includes about 82 species worldwide, with only 11 species known from the Afrotropical Realm and 5 species recorded from D. R. Congo including two new species described below.

### Updated key to Afrotropical species of *Drapetis*

1. Head and thorax reddish-brown ..... *D. inquilina* Séguy
- Head and thorax black..... 2
  
2. Vein R<sub>2+3</sub> strongly curved towards wing margin and meeting costa closer to R<sub>1</sub>, distance between apices of R<sub>2+3</sub> and R<sub>4+5</sub> at least 1.5 times longer than distance between apices of R<sub>1</sub> and R<sub>2+3</sub> ..... 3
- Vein R<sub>2+3</sub> weakly curved towards wing margin, distance between apices of R<sub>2+3</sub> and R<sub>4+5</sub> nearly as long as distance between apices of R<sub>1</sub> and R<sub>2+3</sub> ..... 6
  
3. Legs entirely yellow ..... 4
- Legs partly brown ..... 5
  
4. Palpus yellow ..... *D. hiatus* Whittington
- Palpus brownish ..... *D. yaekelaensis* Grootaert & Shamshev  
[the undescribed *Drapetis* mentioned in GROOTAERT & SHAMSHEV, 2012 would key here]
  
5. Legs with hind femur entirely brown ..... *D. congoensis* Grootaert & Shamshev
- Legs with hind femur largely yellow, brownish yellow toward apex ..... *D. denticulata* sp. nov.
  
6. Antenna entirely brown ..... 7
- Antenna with scape and pedicel yellow, postpedicel brown to black ..... 8
  
7. Halter yellow. Legs almost entirely yellow, only tarsomeres 5 brownish (more distinctly on fore and mid legs)..... *D. yangambensis* sp. nov.
- Halter brown. Legs entirely yellow ..... *D. zamba* Grootaert & Shamshev
  
8. Palpus brown..... *D. flavipes* Macquart
- Palpus yellow ..... *D. capensis* Smith

### *Drapetis denticulata* sp. nov.

(Figs 4–6)

ETYMOLOGY. The specific epithet refers to the denticulate inner left surstyler appendage.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Kinshasa, 3 June 2012 (Park, Hotel Invest Presse), (reg. 32001, leg. P. Grootaert, MS reference Drap5) (RBINS). Mid leg in tray Congo2 at F1 was extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. Small species with brown antenna and palpus; legs robust, largely yellow, hind femur brownish yellow towards apex, mid and hind tibiae (except base) and tarsi of all legs brownish; hind tibia without bristles; halter with yellow knob.

#### DESCRIPTION.

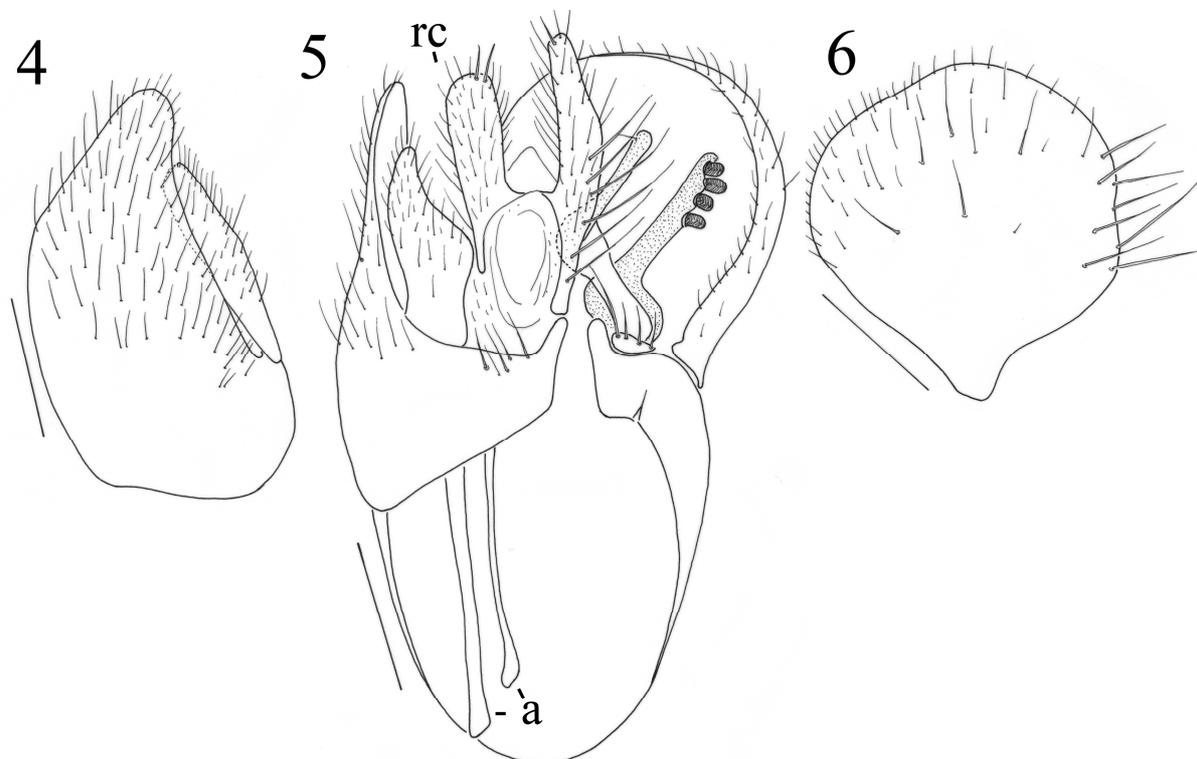
*Male*. Occiput black, pollinose, viewed laterally rather subshining; with longer setae brownish; inner verticals long, inclinate. Ocellars of different length, anterior pair moderately long, inclinate and cruciate; posterior pair very short, latero-inclinate. Frons narrow, above antennae narrower than anterior ocellus, widened toward ocellar tubercle, subshining. Antenna brown; postpedicel conical, with lower

margin convex; 2.0 times as long as wide; stylus apical, long, 4.3 times as long as postpedicel. Proboscis brown. Palpus brown, small, rounded, bearing scattered setulae, subapical seta short, thin. Thorax black, shining, larger bristles brownish. Prothoracic episterna without long upturned seta just above fore coxa, with several setulae on upper part. Postpronotal seta not prominent. Anepisternum (= mesopleuron) with numerous setulae on upper part. Mesonotum with 2 notopleurals, 1 postsutural supra-alar, 1 postalar and 4 scutellars (apical pair very long, cruciate; lateral pair minute); acrostichals and dorsocentrals undifferentiated, scutum evenly covered with numerous setulae, 1 pair of prescutellars long.

Legs robust, largely yellow, hind femur rather brownish yellow towards apex, mid and hind tibiae (except base) and tarsi of all legs brownish (somewhat darker on hind leg). Coxae and trochanters with unmodified setation. Fore femur with rows of minute anteroventral and posteroventral setulae, 1 long thin seta near base and some longer and stronger setulae dorsally on subapical part. Fore tibia lacking prominent bristles (except subapicals). Mid femur with rows of minute anteroventral and posteroventral setae, 1 moderately long subapical seta anteriorly. Mid tibia lacking ventral spinules and prominent setae (except subapicals). Hind femur with 2–3 moderately long anteroventrals subapically and some short erect dorsal setae near base. Hind tibia lacking prominent setae, with longer setulae dorsally; apical projection small, rounded. Tarsi of all legs unmodified, with unmodified setation.

Wing normally developed, finely infusate. Costal bristle moderately long, brown. Costal index: 44/15/23. Vein  $R_{2+3}$  rather strongly curved. Veins  $R_{4+5}$  and  $M_{1+2}$  divergent near wing apex, both slightly bowed. Crossvein bm-cu somewhat oblique. Crossvein r-m before middle of cell bm. Halter with yellow knob and darkened stem.

Abdomen. Tergite 1 pale, otherwise tergites brown; tergites 2–3 of subequal width (viewed laterally), with ordinary setae; tergite 4 broadest, with squamiform setae laterally; tergite 5 very narrow dorsally, with ordinary setae; tergites 6–7 of subequal width, with ordinary setae, tergite 7 with short posteromarginal setae. Sternites well sclerotised, undivided, sternites 3–6 broadly convex posteriorly, bearing scattered setulae. Gland-like structure present between tergites 4–5. Terminalia (Figs 4–6) moderately large, brown. Cerci separated; right cercus moderately broad, digitiform, with ordinary



Figs 4–6. *Drapetis denticulata* sp. nov., 4. Right epandrial lamella, lateral view; 5. Terminalia, dorsal view; 6. Left surstylus, lateral view.

setae of different lengths; left cercus somewhat narrower but longer than right cercus, with ordinary setae of different lengths. Epandrium completely divided. Right epandrial lamella elongate ovate, with ordinary setae; right surstylus elongate, narrowed toward apex, with short ordinary setae. Left epandrial lamella fused to hypandrium, lacking setation apically; left surstylus large, subglobular, with ordinary setae. Phallus short. Two rod-shaped apodemes.

*Length* (mm). Body 2.2, wing 1.8.

*Female* unknown.

COMPARISON. The new species is similar to *D. congoensis* Grootaert & Shamshev, 2013 differing primarily by largely yellow hind femur (cf. hind femur entirely brown in *D. congoensis*).

DISTRIBUTION. D. R. Congo.

### *Drapetis yangambensis* sp. nov.

(Figs 7–11)

ETYMOLOGY. The specific epithet refers to the type locality Yangambi.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 7 June 2012 (reg. 32004, leg. P. Grootaert, MS reference Drap6) (RBINS). Mid leg in tray Congo2 at C1 was extracted for DNA and a COI barcode is available at GenBank.

Paratypes: 1♀ same provenance as holotype; 1♂, Yangambi, 13 June 2012 (reg. 32036, leg. P. Grootaert) (RBINS).

DIAGNOSIS. Small species with brown antenna and palpus; legs almost entirely yellow only tarsomere 5 of all legs brownish; halter yellow.

#### DESCRIPTION.

*Male*. Occiput black, pollinose, viewed laterally rather subshining; with longer setae brownish; inner verticals long, inclinate. Anterior ocellars short, inclinate and cruciate; posterior ocellars slightly shorter, latero-clinate. Frons narrow, above antennae narrower than anterior ocellus, widened toward ocellar tubercle, subshining. Antenna brown; postpedicel conical, with lower margin convex; nearly 2.0 times as long as wide; stylus apical, darker basally and paler apically, long, nearly 3.0–3.5 times as long as postpedicel. Proboscis brown. Palpus brown, small, rounded, bearing scattered setulae, subapical seta short, thin.

Thorax black, shining, larger bristles yellow to brownish yellow. Prothoracic episterna without long upturned seta just above fore coxa, with several setulae on upper part. Postpronotal seta not prominent. Anepisternum (= mesopleuron) with numerous setulae on upper posterior corner. Mesonotum with 2 notopleurals, 1 postsutural supra-alar, 1 postalar and 4 scutellars (apical pair very long, cruciate; lateral pair minute); acrostichals and dorsocentrals undifferentiated, scutum evenly covered with numerous setulae, 1 pair of prescutellars long.

Legs robust, almost entirely yellow, only tarsomere 5 of all legs brownish (more distinctly on fore and mid legs). Coxae and trochanters with unmodified setation. Fore femur with rows of minute anteroventral and posteroventral setulae, 1 long thin seta near base. Fore tibia lacking prominent setae (except subapicals). Mid femur with rows of anteroventral and posteroventral setulae (the latter dark and spinule-like on about basal half), 1 short subapical seta anteriorly. Mid tibia with double row of dark, ventral, spinule-like setulae, lacking long setae (except subapicals). Hind femur with 2 moderately long anteroventrals subapically and some short erect dorsal setae near base. Hind tibia lacking prominent setae; apical projection small, rounded. Tarsi of all legs unmodified, with unmodified setation.

Wing normally developed, almost uniformly finely infuscate (slightly darker on central part), paler near base, veins brownish on darkened part, otherwise pale yellow. Costal bristle moderately long, brownish. Costal index: 34/20/20. Vein  $R_{2+3}$  rather evenly curved. Veins  $R_{4+5}$  and  $M_{1+2}$  divergent near wing apex, both slightly bowed. Crossvein bm-cu perpendicular. Crossvein r-m before middle of cell bm. Halter yellow.

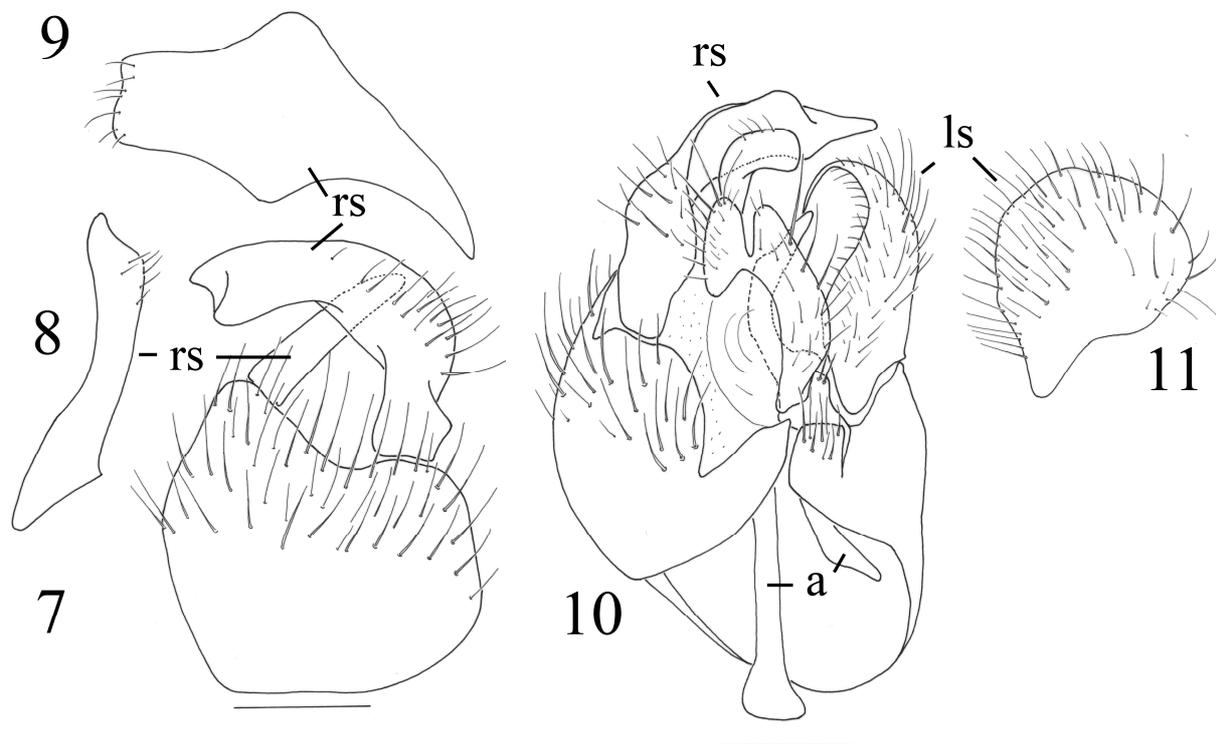
Abdomen. Tergite 1 pale, otherwise tergites brown; tergites 2–3 of subequal width (viewed laterally), with ordinary setae; tergite 4 broadest, with squamiform setae laterally; tergite 5 very narrow dorsally, with ordinary setae; tergites 6–7 of subequal width, with ordinary setae, tergite 7 with moderately long posteromarginal setae laterally. Sternites well sclerotised, sternites 4–5 divided medially, sternite 3 broadly convex posteriorly, bearing scattered setulae. Gland-like structure present between tergites 4–5. Terminalia (Figs 7–11) moderately large, brown. Cerci separated; right cercus short, digitiform, with ordinary setae; left cercus longer than right cercus, digitiform, with ordinary setae. Epandrium completely divided. Right epandrial lamella covered with numerous ordinary setae; right surstylus divided into 2 sclerites; dorsal sclerite rather falciform, broadened on middle part, narrowed and pointed apically (dorsal view), with some short ordinary setae; ventral sclerite digitiform, pointed on apex (dorsal view), with several short ordinary setae. Left epandrial lamella fused to hypandrium, with several short setae apically; left surstylus large, subglobular, with ordinary setae. Phallus short. Two rod-shaped apodemes.

*Length* (mm). Body 2.1, wing 1.7.

*Female*. Mid tibia without dark ventral spinule-like setulae; tergites 3–5 with squamiform setae laterally; tergite 7 with subglobular excisions leaving furcate median part posteriorly; sternites 4–5 undivided; segment 8 rather narrow; cercus small, rounded, brownish. Otherwise as in male.

COMPARISON. The new species is similar to *D. zamba* Grootaert & Shamshev, 2013 described from D. R. Congo (GROOTAERT & SHAMSHEV, 2013). However, *D. yangambensis* sp. nov. has a yellow halter (cf. brown in *D. zamba*) and brownish tarsomere 5 of all legs (cf. yellow in *D. zamba*).

DISTRIBUTION. D. R. Congo.



Figs 7–11. *Drapetis yangambensis* sp. nov., 7. Right epandrial lamella, lateral view; 8. Ventral sclerite of right surstylus, dorsal view; 9. Dorsal sclerite of right surstylus, dorsal view. 10. Terminalia, dorsal view; 11. Left surstylus, lateral view.

***Drapetis congoensis* Grootaert & Shamshev, 2013**

*Drapetis congoensis* Grootaert & Shamshev, 2013: 14, Figs 13–15.

MATERIAL EXAMINED. 2♀, D. R. CONGO, Yangambi, 7 June 2012, mixed primary forest (near WWF) (reg. 32004, leg. P. Grootaert): Mid leg of a female in tray Congo2 at position C6 with barcode AB42405557 was extracted for DNA and a COI barcode is available at GenBank. Mid leg of a second female in tray Congo2 at position C5 with barcode reference AB42405539 was extracted for DNA; 1♂, Yangambi, 9 June 2012, mixed primary forest (near WWF), (reg. 32014, leg. P. Grootaert) hind leg in tray Congo2 at position D4 with barcode reference AB42405546 was extracted for DNA.

## DESCRIPTION.

*Female* (described for the first time). Similar to male. Segment 8 elongate, with sclerites separated; sternites 2–7 undivided, sternite 8 narrowly divided medially; cercus elongate ovate, brownish.

REMARKS. GROOTAERT & SHAMSHEV (2013) described this species after a male only. Among new materials taken from D. R. Congo a female of *D. congoensis* was found.

***Drapetis yaekelaensis* Grootaert & Shamshev, 2013**

*Drapetis yaekelaensis* Grootaert & Shamshev, 2013: 16, Figs 16–18.

MATERIAL EXAMINED. ♀: D. R. CONGO, Yangambi, 8 June 2012, mixed primary forest (reg. 32007, leg. P. Grootaert) (RBINS).

## DESCRIPTION.

*Female* (described for the first time). Similar to male. Segment 8 rather short; cercus subglobular, brownish yellow.

REMARKS. GROOTAERT & SHAMSHEV (2013) described this species after a male only. Among new materials taken from D. R. Congo a female of *D. yaekelaensis* was found.

**Genus *Elaphropeza* Macquart, 1827**

REMARKS. *Elaphropeza* is the second largest genus of Tachydromiinae after *Platypalpus* and the largest among Drapetini genera. It has a circumtropical distribution and currently includes 212 named species worldwide. In the Afrotropics *Elaphropeza* remains poorly studied with only 40 known species (excluding the 11 new species described here) (GROOTAERT & SHAMSHEV, 2013). However, it is evident from the large amount of material from different parts of the Afrotropics which we have seen, but which cannot be treated here, that this group is very diverse in this region and many new species await description. We describe here 11 new species from the D. R. Congo and, thus, we increase the number of Afrotropical species of *Elaphropeza* to 51. SHAMSHEV & GROOTAERT (2007) arranged all species of *Elaphropeza* into two informal species groups, namely the *E. ephippiata* and *E. biuncinata* groups, keyed below. We follow that subdivision here again.

**Updated key to species of *Elaphropeza* from D. R. Congo**

1. Proepisternum with long upturned bristle just above fore coxa. Abdominal tergite 3 with numerous squamiform setae (*E. biuncinata*-group).....2
- Proepisternum bare just above fore coxa. Abdominal tergite 3 with unmodified setae, lacking squamiform setae [when scattered, slightly flattened setae present on tergite 3 then tergite 4 broadest, *E. aeta* sp. nov. and *E. pachystylus* sp. nov.] (*E. ephippiata*-group)..... 15
2. Thorax largely yellow to reddish yellow ..... 3

– Thorax entirely black to blackish brown.....	10
3. Hind tibia lacking anterodorsal bristles.....	4
– Hind tibia with 1 anterodorsal bristle.....	6
4. Scutellum with brown mark.....	<i>E. wetsii</i> sp. nov.
– Scutellum entirely reddish yellow.....	5
5. Head black though paler around mouth. Antenna with stylus black; postpedicel about 1.5 times as long as wide. Katepisternum and meron entirely yellow. Male: left cercus strap-like, truncate apically, with short setae.....	<i>E. baeloi</i> Grootaert & Shamshev
– Head yellowish with brown mark on occiput. Antenna with stylus white; postpedicel about 3 times longer than wide. Katepisternum and meron brownish on lower part. Male: left cercus narrowed on apical half, pointed, with 4 very long setae on right side .....	<i>E. albistylus</i> sp. nov.
6. Scutellum, postnotum and meron brown .....	<i>E. leponcei</i> sp. nov.
– At least scutellum yellow.....	7
7. Halter yellow. Postnotum brown, meron with brownish markings. Legs with tarsomeres 5 brownish.....	<i>E. dudui</i> sp. nov.
– Halter brown to black. Different combination of characters .....	8
8. Scutum with indistinct brownish mark laterally at anterior margin; metapleuron yellowish brown. Male: left cercus branched apically, with strong subapical seta. Halter blackish.....	<i>E. mai</i> Grootaert & Shamshev
– Scutum uniformly reddish yellow; metapleuron yellow .....	9
9. Antenna with scape and pedicel yellow, postpedicel brownish. Larger, body 2.8 mm. Male: left cercus narrow at base but otherwise strongly broadened .....	<i>E. verheyeni</i> sp. nov.
– Antenna brownish yellow. Smaller, body 1.6 mm. Male: left cercus digitiform.....	<i>E. zamba</i> Grootaert & Shamshev
10. Hind femur entirely yellow.....	<i>E. angulata</i> Grootaert & Shamshev
– Hind femur blackish brown apically.....	11
11. Hind femur blackish brown on apical 2/3.....	12
– Hind femur blackish brown on apical 1/2.....	13
12. Wing with vein R <sub>2+3</sub> evenly bowed, uniformly sclerotized .....	<i>E. moyindo</i> Grootaert & Shamshev
– Wing with vein R <sub>2+3</sub> angulate, pale on middle part.....	<i>E. interrupta</i> Grootaert & Shamshev
13. Wing somewhat deeper infuscate near base of veins R <sub>2+3</sub> and R <sub>4+5</sub> , with vein R <sub>2+3</sub> angulate .....	<i>E. infuscata</i> Grootaert & Shamshev
– Wing uniformly finely infuscate, with vein R <sub>2+3</sub> evenly bowed.....	14
14. Abdominal tergite 7 broadly deeply concave dorsally, bearing minute posteromarginal setae .....	<i>E. excavata</i> Grootaert & Shamshev
– Abdominal tergite 7 subrectangular, bearing moderately long posteromarginal setae. Male: left surstylus furcate.....	<i>E. furcate</i> Grootaert & Shamshev
15. Thorax largely or entirely brown to black (when scutum broadly yellow anteriorly, the species included here, a colour form of <i>E. pulchra</i> sp. nov.).....	16
– Thorax yellow to reddish yellow, at most with brownish markings.....	20
16. Halter entirely yellow .....	17

- Halter at least with blackish knob ..... 18
- 17. Fore tibia brownish..... *E. ghesquierei* Collart
- Fore tibia yellow ..... *E. pachystylus* sp. nov.
- 18. Hind tibia with 2 anterodorsal setae. Antenna brownish, postpedicel about 2.5 times as long as wide. Thorax with prothoracic sclerites, anterior corners of scutum, postalar tubercle and katepisternum anteriorly yellow, otherwise dark brown; acrostichals biserial, clearly separated from 1–2-serial dorsocentrals ..... *E. elasia* sp. nov.
- Hind tibia without anterodorsal setae. Different combination of characters ..... 19
- 19. Postpedicel short, about 2.5 times as long wide. Antenna brownish. Thorax with prothoracic sclerites, anterior corners of scutum and katepisternum anteriorly yellow, otherwise dark brown; acrostichals 2–3-serial, clearly separated from 1–2-serial dorsocentrals..... *E. pulchra* sp. nov.
- Postpedicel long, about 4.0 times as long as wide. Antenna with scape and pedicel yellow, postpedicel brownish. Thorax entirely black; acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, except 1 pair of long prescutellars ..... *E. aseta* sp. nov.
- 20. Hind tibia without anterodorsal setae, entirely black. Abdominal tergites lacking squamiform setae ..... *E. nuda* Grootaert & Shamshev
- Hind tibia with anterodorsal bristle(s), yellow. At least abdominal tergite 4 with squamiform setae ..... 21
- 21. Hind tibia with 1 anterodorsal bristle..... 22
- Hind tibia with 2–3 anterodorsal bristles ..... 23  
[In *E. monoseta* the number of anterodorsal bristles on the hind tibia varies (1–3 but usually 2) and it is included in both sections of the couplet.]
- 22. Scutum on each side with brownish subtriangular mark extending from level of anterior notopleural bristle to base of scutellum and narrowly connecting along base of scutellum ..... *E. monoseta* Grootaert & Shamshev
- Scutum entirely yellow ..... *E. asquamata* sp. nov.
- 23. Hind tibia with 3 anterodorsal and 1 dorsal bristles ..... 24
- Hind tibia with only 2–3 anterodorsal bristles ..... 25
- 24. Postnotum brownish, metapleuron yellow ..... *E. laudisoitae* Grootaert & Shamshev
- Postnotum yellow, metapleuron brownish on upper ..... *E. kona* Grootaert & Shamshev
- 25. Thorax entirely yellow ..... 26
- Thorax with brown markings..... 27
- 26. Hind tibia with 3 anterodorsal bristles. Halter blackish ..... *E. motane* Grootaert & Shamshev
- Hind tibia with 2 anterodorsal bristles. Halter with brown knob and yellow stem..... *E. plagiata* Bezzi
- 27. Hind tibia with 3 anterodorsal bristles; hind femur yellow. Scutum with brownish mark above wing on each side; scutellum and metapleuron brownish; anepisternum brownish posteriorly ..... *E. monoseta* Grootaert & Shamshev
- Hind tibia with 2 anterodorsal bristles ..... 28
- 28. Scutum and scutellum uniformly yellow to reddish yellow ..... 29
- Scutum with more or less distinct brownish mark above wing on each side; scutellum yellowish brown to brown..... 30

29. Thoracic pleura with anepisternum on posterior half, anepimeron and metapleuron on upper part brownish..... *E. kinshasensis* sp. nov.  
– Thoracic pleura only with anepimeron brownish.....*E. juakalyi* Grootaert & Shamshev
30. Hind femur brownish on apical 1/3. Thoracic pleura almost entirely dark brown, only katepisternum narrowly yellow anteriorly..... *E. yaekela* Grootaert & Shamshev  
– Hind femur entirely yellow. Thoracic pleura brown marked .....31
31. Metapleuron yellow. Tergite 5 without squamiform setae. Larger, about 4 mm.....  
..... *E. incerta* Grootaert & Shamshev  
– Metapleuron yellowish brown to brown. Tergite 5 with squamiform setae. Smaller, 2–2.5 mm .....  
..... 32
32. Thoracic pleura viewed laterally with two broad, dark brown vertical stripes .....  
.....*E. congoensis* Grootaert & Shamshev  
– Thoracic pleura with different pattern ..... *E. monoseta* Grootaert & Shamshev

### ***Elaphropeza biuncinata*-group**

#### ***Elaphropeza albistylus* sp. nov.**

(Figs 12–14)

ETYMOLOGY. The name *albistylus* refers to the white stylus.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 10 June 2012 (reg. 32019, leg. P. Grootaert, MS reference EC33) (RBINS).

Paratypes: 1♂, 1♀ same provenance as holotype (RBINS); 1♂, 11 June 2012 (reg. 32023, leg. P. Grootaert), mid leg in tray Congo2 at position B1 was extracted for DNA and a COI barcode is available at GenBank (RBINS).

DIAGNOSIS. Small species of *E. biuncinata* group. Occiput yellowish with large dark brown mark above neck; postpedicel brown; stylus almost white except for brown base. Thorax reddish yellow but postnotum and metapleuron brownish, katepisternum and meron brownish on lower part, anepisternum and anepimeron with indistinct brownish marks posteriorly. No anterodorsal seta on hind tibia. Male: left cercus brown, spine-like with long black setae on right side.

#### DESCRIPTION.

*Male*. Occiput with large, dark brown, rounded mark above neck, otherwise yellow, densely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons yellow, shining, above antennae about 2.0 times as broad as anterior ocellus. Antenna with scape and pedicel reddish yellow, postpedicel brownish, stylus largely pale only brownish basally; pedicel with circlet of subequally short setulae; postpedicel subtriangular, nearly 3.0 times (3.2 in holotype) longer than wide; stylus with short pubescence, long, 3.4 times longer than postpedicel, nearly 2.0 times as long as scape, pedicel and postpedicel combined. Proboscis yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

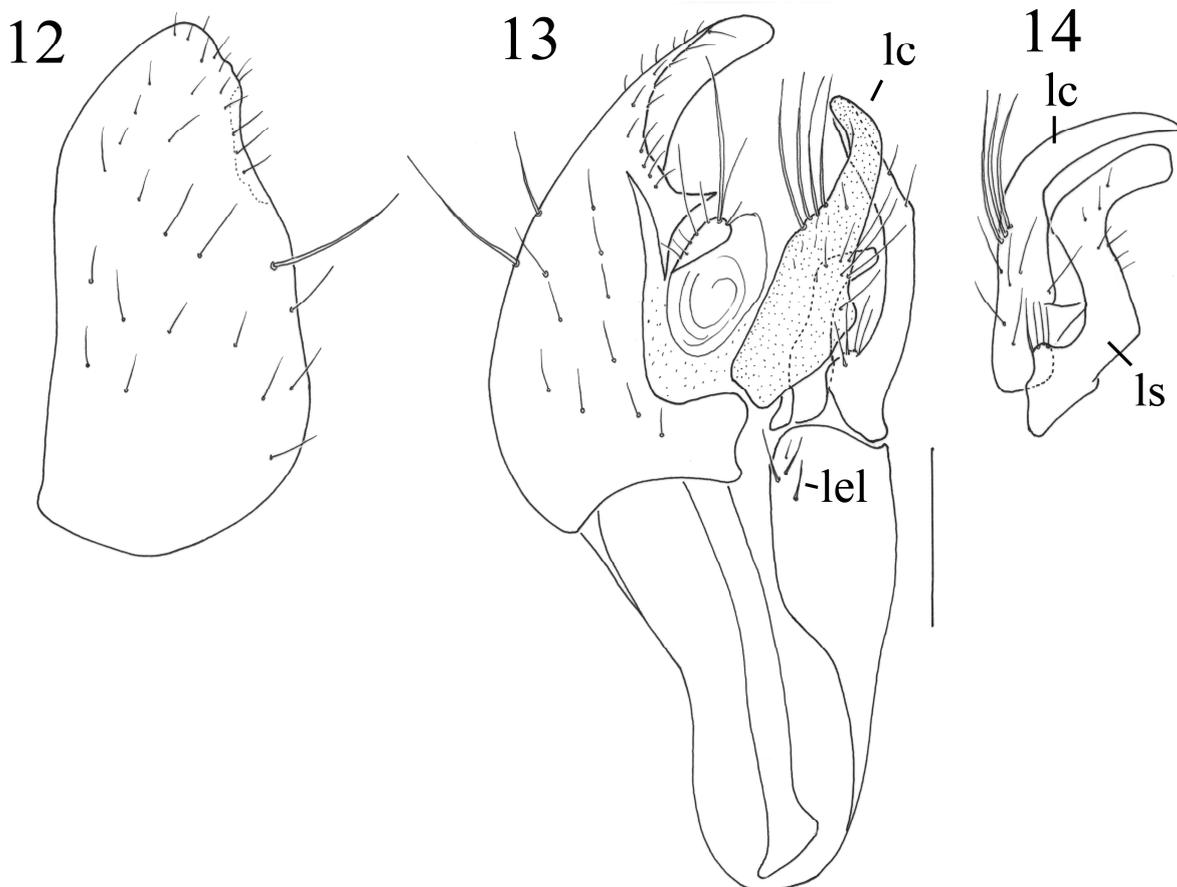
Thorax with scutum almost entirely reddish yellow (only small indistinct brownish marks on anterior corners), scutellum reddish yellow; postnotum and metapleuron brownish; katepisternum (= sternopleuron) and meron (= hypopleuron) brownish on lower part, anepisternum (= mesopleuron) and anepimeron (= pteropleuron) with indistinct brownish marks posteriorly; otherwise thorax reddish yellow. Prothoracic episterna with long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long,

cruciate; lateral pair short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, entirely yellow, hind femur somewhat paler basally. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, 2 long setae near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circle of subapicals). Mid femur slender, with row of very short yellowish anteroventrals, row of stronger and longer posteroventrals, 1 long dark seta near base and 1 short subapical seta anteriorly. Mid tibia with black ventral spinules, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia lacking prominent setae; apical projection rather large, truncate, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly brownish infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 16/17/17. Vein  $R_s$  somewhat longer than crossvein  $bm-cu$ .  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed, almost straight. Veins  $R_{4+5}$  and  $M_{1+2}$  somewhat convergent near wing apex, less sclerotised just before wing margin,  $R_{4+5}$  almost straight,  $M_{1+2}$  bowed. Crossvein  $bm-cu$  oblique. Crossvein  $r-m$  near middle of cell  $bm$ . Halter dark.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave dorsally, with unmodified short setae, subtriangular viewed laterally; tergites 3–5 of subequal width, tergites 6 and 7 somewhat narrower; tergites 3 and 4 with squamiform setae; tergites 7 with rather short posteromarginal setae. Sternites 3–5 divided medially. Gland-like structures present between tergites 3–4, plate-like. Terminalia (Figs 12–14) moderately large, left cercus brown, otherwise yellow. Right cercus very small, with ordinary setae. Left cercus rather long, narrow, falciform viewed



Figs 12–14. *Elaphropeza albistylus* sp. nov., 12. Right epandrial lamella, lateral view; 13. Terminalia, dorsal view; 14. Left surstylus and left cercus, lateral view.

laterally, on right side with 4 very long brown setae. Epandrium completely divided. Right epandrial lamella elongate ovate, covered with numerous ordinary setae. Left epandrial lamella fused to hypandrium, with several short setae apically; left surstylus narrow and twisted, with several short ordinary setae. One rod-shaped apodeme.

*Length* (mm). Body 1.8, wing 1.6.

*Female*. Mid tibia without ventral spinules; segment 8 modified, with sclerites strongly sclerotised; long, dark brown ovipositor; cercus rather small, subglobular. Otherwise as in male.

COMPARISON. The new species is easily recognised by the occiput being largely yellowish and the stylus being white. It is similar to *E. baeloi* Grootaert & Shamshev described from D. R. Congo (GROOTAERT & SHAMSHEV, 2013) and the main differences between these species have been noted in the key.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza dudui* sp. nov.

(Figs 15–17)

ETYMOLOGY. The species is dedicated to Prof. Benjamin Dudu Akaibe, head of the ‘Centre pour la surveillance de la Biodiversité’ at UNIKIS (Université de Kisangani).

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Kinshasa, 3 June 2012 (Park, Hotel Invest Presse), (reg. 32001, leg. P. Grootaert, MS reference EC29) (RBINS). Mid leg in tray Congo2 at E4 was extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. Species of *E. biuncinata* group. Thorax yellow, but postnotum blackish brown and brownish markings on meron. Legs yellow with apical tarsomere of all legs brownish; hind tibia with 1 brown anterodorsal bristle on basal third. Halter yellow.

#### DESCRIPTION.

*Male*. Occiput entirely black, densely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae about as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brownish; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, 2.2 times longer than wide; stylus with short pubescence, long, 3.3 times longer than postpedicel, 2.2 times as long as scape, pedicel and postpedicel combined. Proboscis yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely yellow, postnotum brown, meron with brownish markings; longer setae brownish yellow. Prothoracic episterna with long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, almost entirely yellow, only tarsomeres 5 of all legs brownish. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, 2 long setae near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circlet of subapicals). Mid femur slender, with row of very short yellowish anteroventrals, row of stronger and longer posteroventrals, 1 long dark seta near base and 1 short subapical seta anteriorly. Mid tibia with black ventral spinules, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia with 1 anterodorsal seta; apical projection rather large, truncate, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 34/31/21. Vein Rs somewhat

longer than crossvein bm-cu.  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  parallel near wing apex, both slightly bowed. Crossvein bm-cu oblique. Crossvein r-m near middle of cell bm. Halter yellow.

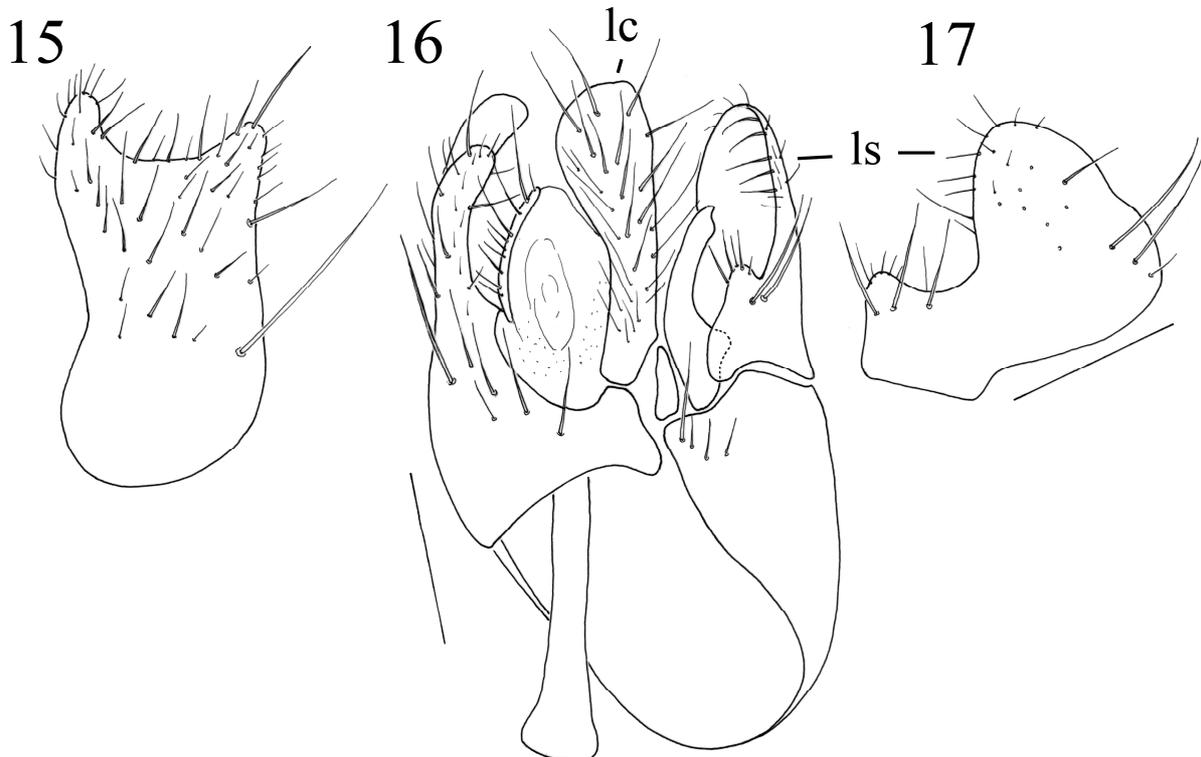
Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave anteriorly, with unmodified short setae, subtriangular viewed laterally; tergites 3–7 subrectangular; tergite 3 broadest, tergites 3–5 brown, with squamiform setae; tergites 6 and 7 brownish yellow, with unmodified setation; tergite 7 with short posteromarginal setae. Sternites 3–4 divided medially. Gland-like structures present between tergites 3–4 and 4–5, plate-like. Terminalia (Figs 15–17) small, cerci, left surstylus, and apical part of right epandrial lamella brown. Cerci separated. Right cercus very narrow, rather long, with ordinary setae. Left cercus rather long, digitiform, broadened on apical half, with ordinary setae. Epandrium completely divided. Right epandrial lamella subrectangular, broadly concave apically, covered with numerous ordinary setae. Left epandrial lamella fused to hypandrium, with several short setae apically; left surstylus as in Fig. 17. One rod-shaped apodeme.

*Length* (mm). Body 2.0, wing 1.7.

*Female* unknown.

COMPARISON. The new species is similar to *E. mai* Grootaert & Shamshev, 2013 described from D. R. Congo. The main differences between these species have been noted in the key.

DISTRIBUTION. D. R. Congo.



Figs 15–17. *Elaphropeza dudui* sp. nov., 15. Right epandrial lamella, lateral view; 16. Terminalia, dorsal view; 17. Left surstylus, lateral view.

***Elaphropeza leponcei* sp. nov.**

(Figs 18–20)

ETYMOLOGY. This species is dedicated to Dr. Ir. Maurice Leponce (RBINS) long-time friend and great companion in several expeditions.

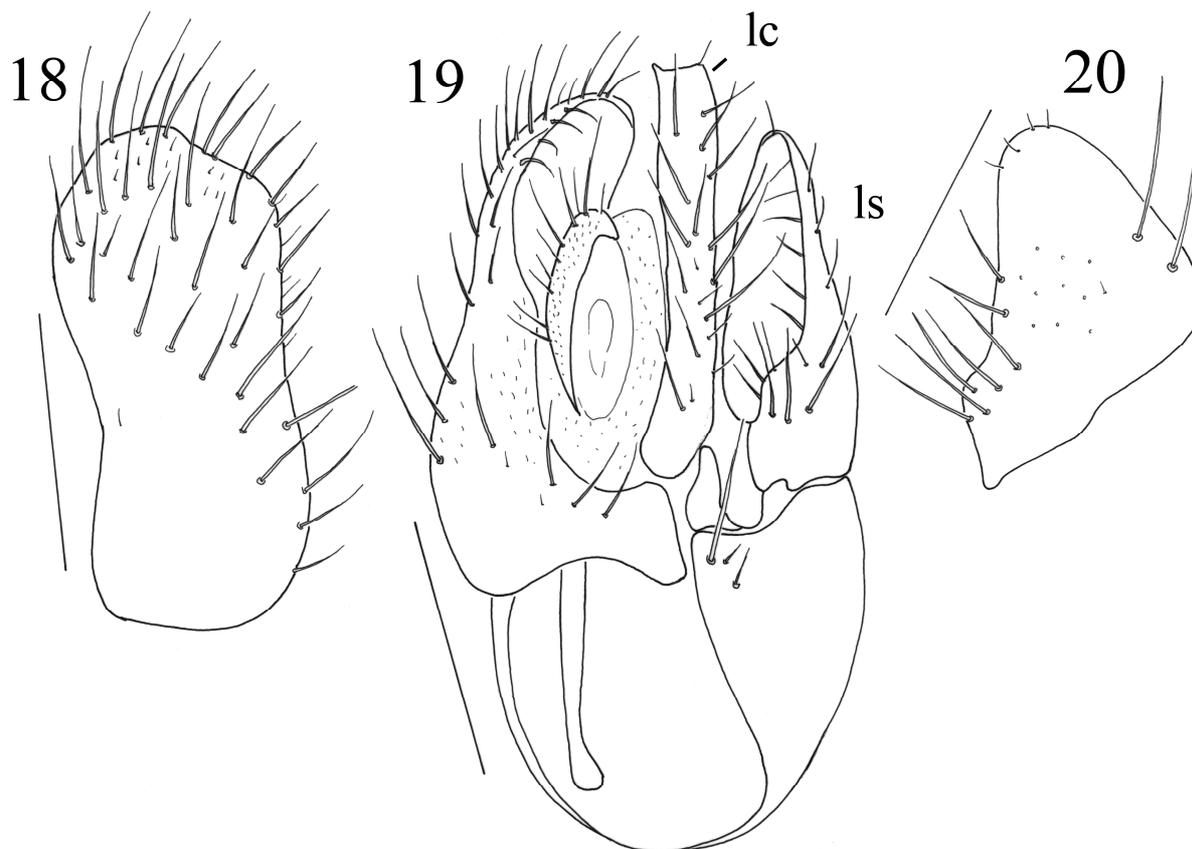
TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Kinshasa, 3 June 2012 (Park, Hotel Invest Presse), (reg. 32001, leg. P. Grootaert, MS reference EC28) (RBINS). Mid leg in tray Congo2 at E3 with barcode AB42405541 was extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. Species of *E. biuncinata* group. Thorax yellow but scutellum, postnotum and meron brown. Hind tibia with 1 anterodorsal bristle. Halter yellow.

DESCRIPTION.

*Male*. Occiput entirely black, densely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae about as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brownish; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, 2.0 times longer than wide; stylus with short pubescence, long, 4.0 times longer than postpedicel, 2.2 times as long as scape, pedicel and postpedicel combined. Proboscis yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely reddish yellow, scutellum, postnotum and meron (= hypopleuron) brown; longer setae brownish. Prothoracic episterna with long upturned seta just above fore coxa.



Figs 18–20. *Elaphropeza leponcei* sp. nov., 18. Right epandrial lamella, lateral view; 19. Terminalia, dorsal view; 20. Left surstylus, lateral view.

Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, almost entirely yellow, only tarsomere 5 of all legs brownish. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, 2 long setae near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circlet of subapicals). Mid femur slender, with row of very short yellowish anteroventrals, row of stronger and longer posteroventrals, 1 long dark seta near base and 1 short subapical seta anteriorly. Mid tibia with black ventral spinules, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia with 1 anterodorsal seta; apical projection rather large, truncate, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 25/24/21. Vein Rs somewhat longer than crossvein bm-cu.  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  somewhat divergent near wing apex, both slightly bowed. Crossvein bm-cu oblique. Crossvein r-m near middle of cell bm. Halter yellow.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave anteriorly, with unmodified short setae, subtriangular viewed laterally; tergites 3–7 subrectangular; tergite 3 broadest, tergites 4–5 rather narrow, of subequal width; tergites 3–5 brown, with squamiform setae; tergites 6 and 7 brownish yellow, with unmodified setation; tergite 7 with short posteromarginal setae. Sternites 3–4 divided medially. Gland-like structures present between tergites 3–4 (ampoule-like) and 4–5 (plate-like). Terminalia (Figs 18–20) rather small, largely brown, right epandrial lamella at base and left epandrial lamella yellow. Cerci separated. Right cercus very narrow, rather long, with ordinary setae. Left cercus long strap-shaped with truncate tip, right corner pointed, with ordinary setae. Epandrium completely divided. Right epandrial lamella elongate ovate, covered with numerous ordinary setae. Left epandrial lamella fused to hypandrium, with 1 long and 2 short setae apically; left surstylus rather subtriangular, moderately large, with 2 long submarginal setae on dorsal part and several shorter setae along ventral margin closer to base. One rod-shaped apodeme.

*Length* (mm). Body 1.9, wing 1.5.

*Female* unknown.

COMPARISON. In having the hind tibia with an anterodorsal bristle and yellow halter the new species is similar to *E. dudui* sp. nov. described above. However, in *E. leponcei* sp. nov. the scutellum is yellow (cf. brown in *E. dudui* sp. nov.).

DISTRIBUTION. D. R. Congo.

### *Elaphropeza verheyeni* sp. nov.

(Figs 21–23)

ETYMOLOGY. The species is dedicated to Dr. Erik Verheyen (RBINS) who is from the Belgian side the driving force behind many cooperative programmes at the University of Kisangani.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 8 June 2012, (reg. 32007, leg. P. Grootaert, MS reference EC26) (RBINS). Mid leg in tray Congo2 at position F7 with barcode AB42405561 was extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. Species of *E. biuncinata* group. Thorax reddish yellow, but postnotum brown and meron with indistinct brownish mark on lower part. Legs entirely yellow including apical tarsomere of all legs. Hind tibia with 1 anterodorsal seta. Halter darkened.

DESCRIPTION.

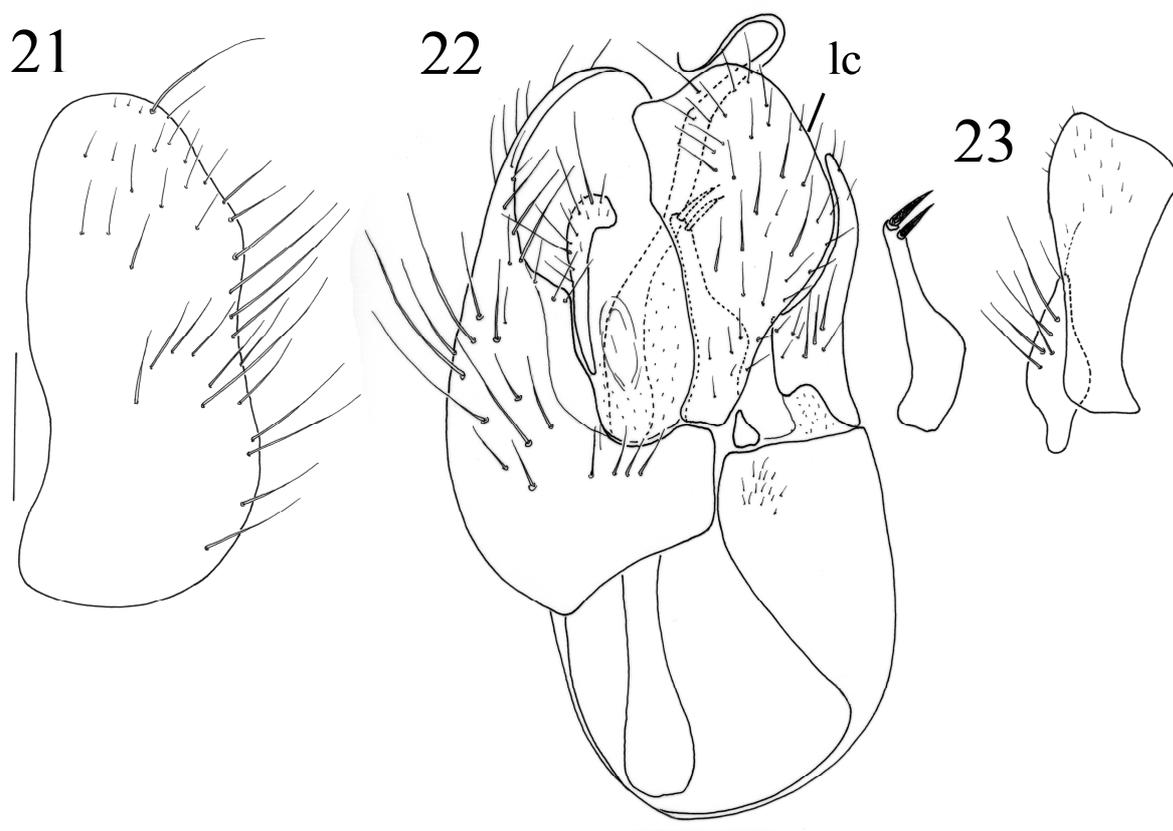
*Male*. Occiput entirely black, densely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and

cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae about as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brownish; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, 2.3 times longer than wide; stylus with short pubescence, long, 4.2 times longer than postpedicel, 2.5 times as long as scape, pedicel and postpedicel combined. Proboscis yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely reddish yellow, postnotum brown, meron (= hypopleuron) with indistinct brownish mark on lower part; longer setae brownish. Prothoracic episterna with long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (missing); acrostichals and dorsocentrals undifferentiated, scutum almost entirely covered with uniform setulae (lacking in front of scutellum), 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, entirely yellow, hind femur somewhat paler basally. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, 2 long setae near base, and short subapical seta anteriorly. Fore tibia lacking prominent bristles (except circlet of subapicals). Mid femur slender, with row of very short yellowish anteroventrals, row of stronger and longer posteroventrals, 1 long dark seta near base and 1 short subapical seta anteriorly. Mid tibia with black ventral spinules, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia with 1 anterodorsal seta; apical projection rather large, truncate, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 39/36/29. Vein Rs somewhat longer than crossvein bm-cu.  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  parallel near wing apex, both slightly bowed. Crossvein bm-cu oblique. Crossvein r-m near middle of cell bm. Halter darkened.



Figs 21–23. *Elaphropeza verheyeni* sp. nov., 21. Right epandrial lamella, lateral view; 22. Terminalia, dorsal view; 23. Left surstylus, lateral view.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave dorsally, with unmodified short setae, subtriangular viewed laterally; tergites 3–5 becoming gradually narrower from 3rd to 5th, with squamiform setae; tergites 6 and 7 brownish yellow, with unmodified setation; tergite 7 with moderately long posteromarginal setae. Sternites 3–4 broadly divided medially. Gland-like structures present between tergites 3–4 and 4–5, plate-like. Terminalia (Figs 21–23) moderately large, yellow. Cerci separated. Right cercus very narrow, short, with ordinary setae. Left cercus long narrow at base but otherwise strongly broadened, with ordinary setae. Epandrium completely divided. Right epandrial lamella elongate ovate, covered with numerous ordinary setae longer along dorsal margin. Left epandrial lamella fused to hypandrium, with numerous setulae apically; left surstylus rather small, subrectangular, broader on apical part, with short ordinary setae. Phallus long. One rod-shaped apodeme.

*Length* (mm). Body 2.8, wing 2.1.

*Female* unknown.

COMPARISON. The new species is similar to *E. zamba* Grootaert & Shamshev described from D. R. Congo (GROOTAERT & SHAMSHEV, 2013). The main differences between these species have been given in the key.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza wetsii* sp. nov.

(Figs 24–26)

ETYMOLOGY. This species is dedicated to Drs Jean Lambert Wetsi Lofete (UNIKIS) specialist of saturniid silk moths. He was our very helpful companion during the expedition of 2012 and 2013 in Yangambi.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 8 June 2012 (reg. 32007, leg. P. Grootaert as EC27). Mid leg in tray Congo2 at F4 with barcode AB42405530 was extracted for DNA.

Paratype: 1♂, D. R. CONGO, Yangambi, 8 June 2012, mixed primary forest near WWF, (reg. 32007, leg. P. Grootaert as EC25), leg in tray Congo2 at position F5 with barcode AB42405566 extracted for DNA.

DIAGNOSIS. Species of *E. biuncinata* group. Thorax reddish yellow but scutellum with brown central mark, postnotum brown, meron brownish below. Hind tibia without long bristles.

#### DESCRIPTION.

*Male*. Occiput entirely black, densely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae about as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brownish; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, 2.3 times longer than wide; stylus with short pubescence, long, 4.5 times longer than postpedicel, 2.5 times as long as scape, pedicel and postpedicel combined. Proboscis yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely reddish yellow, scutellum with brown mark, postnotum brown, meron (= hypopleuron) with indistinct brownish mark on lower part; longer setae brownish. Prothoracic episterna with long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, entirely yellow, hind femur somewhat paler basally. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, 2 long setae near base, and short subapical seta anteriorly. Fore tibia lacking

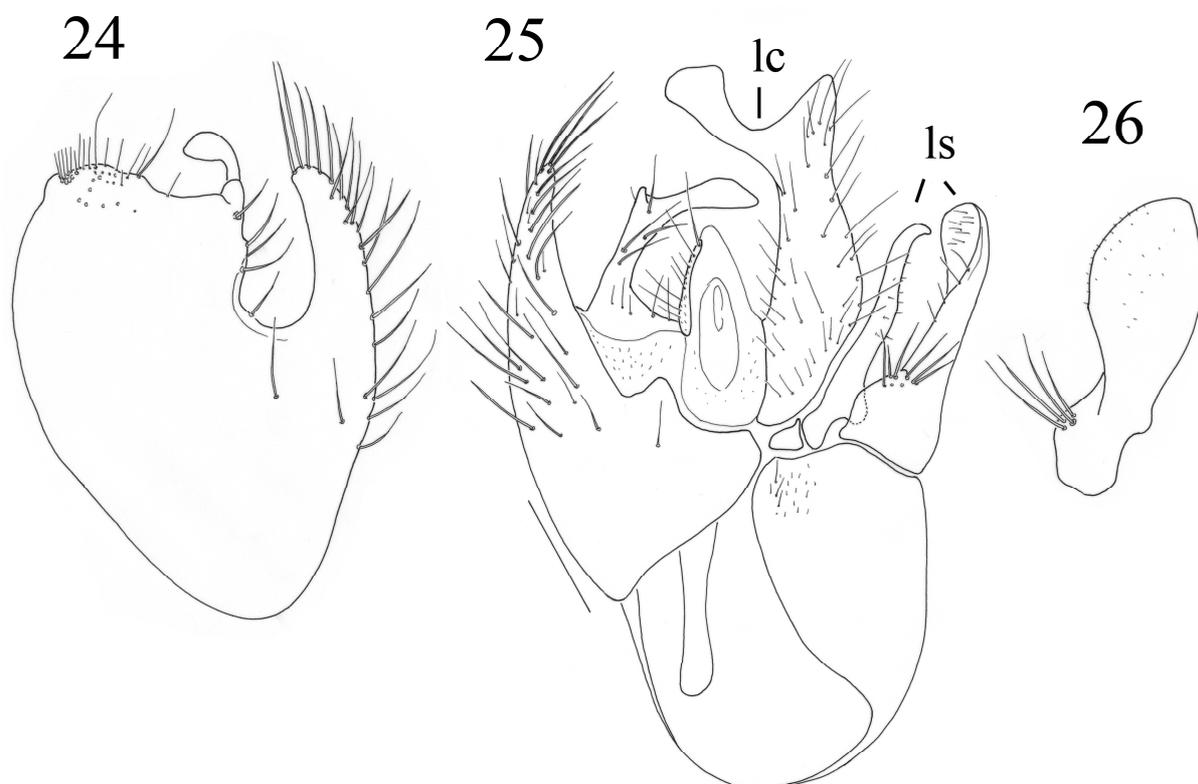
prominent setae (except cirlet of subapicals). Mid femur slender, with row of very short yellowish anteroventrals, row of stronger and longer posteroventrals, 1 long dark seta near base and 1 short subapical seta anteriorly. Mid tibia with black ventral spinules, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia lacking prominent setae; apical projection rather large, truncate, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 43/37/30. Vein Rs somewhat longer than crossvein bm-cu.  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  somewhat divergent near wing apex, both slightly bowed. Crossvein bm-cu oblique. Crossvein r-m near middle of cell bm. Halter darkened.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave anteriorly, with unmodified short setae, subtriangular viewed laterally; tergites 3–7 subrectangular; tergite 3 broadest, tergites 4–7 of subequal width; tergites 3–5 brown, with squamiform setae; tergites 6 and 7 yellowish brown, with unmodified setation; tergite 7 with moderately long posteromarginal setae. Sternites 3–4 divided medially. Gland-like structures present between tergites 3–4 and 4–5, plate-like. Terminalia (Figs 24–26) moderately large, yellow. Cerci separated; right cercus very narrow, short, with ordinary setae; left cercus long, branched apically, with ordinary setae. Epandrium completely divided. Right epandrial lamella as in Fig. 24, deeply concave apically. Left epandrial lamella fused to hypandrium, with numerous setulae apically; left surstylus rather small, narrow at base, otherwise somewhat broadened, with several long setae closer to base. One rod-shaped apodeme.

Length (mm). Body 2.5, wing 2.2.

Female unknown.



Figs 24–26. *Elaphropeza wetsii* sp. nov., 24. Right epandrial lamella, lateral view; 25. Terminalia, dorsal view; 26. Left surstylus, lateral view.

COMPARISON. Since the new species has a yellow thorax and has no long bristles on the hind tibia it could be compared only with *E. baeloi* Grootaert & Shamshev and *E. albistylus* sp. nov. The latter species can be readily distinguished from *E. wetsii* sp. nov. by largely yellow occiput and by white stylus. In *E. baeloi* Grootaert & Shamshev described from D. R. Congo, the scutellum and meron are entirely yellow.

DISTRIBUTION. D. R. Congo.

### ***Elaphropeza ehippiata*-group**

#### ***Elaphropeza aseta* sp. nov.**

(Figs 27–29)

ETYMOLOGY. The specific epithet refers to the absence of anterodorsal setae on the hind tibia.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 11 June 2012, mixed primary forest near administration building IFA (reg. 32023, leg. P. Grootaert, MS reference “near EC23”) (RBINS).

DIAGNOSIS. A small black species of the *E. ehippiata* group; postpedicel long, almost 4 times as long as wide. Legs almost entirely yellow, only tarsomere 5 brown; hind tibia without anterodorsal setae.

#### DESCRIPTION.

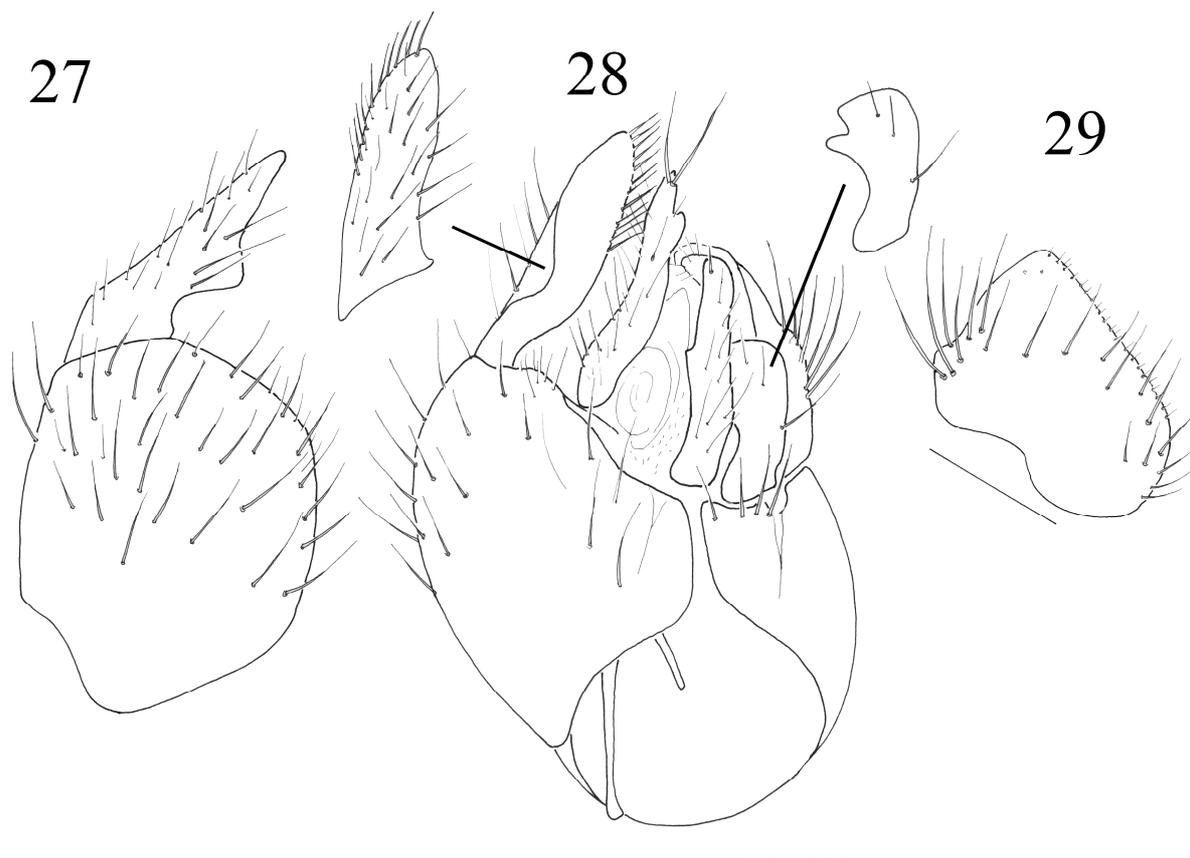
*Male*. Occiput entirely black, subshining; with yellowish setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, narrow, above antennae narrower than anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brown; pedicel with circlet of subequally short setulae; postpedicel subtriangular, long, nearly 4.0 times longer than wide; stylus with longer pubescence basally, otherwise short pubescent, nearly 1.5 times longer than postpedicel, about as long as scape, pedicel and postpedicel combined. Proboscis yellowish brown. Palpus pale yellow, small, rounded, bearing scattered pale setulae.

Thorax entirely black; longer setae yellow. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, almost entirely yellow, only tarsomere 5 of all legs brown. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and posteroventral setae, 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circlet of short subapicals). Mid femur slender, with rows of anteroventral and posteroventral setulae, 3 moderately long anteroventral subapicals, and 1 long seta near base. Mid tibia covered with ordinary setulae ventrally, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals, near base bearing 5–6 brownish yellow ventral spinule-like setae and 3 short erect dorsal setae. Hind tibia without anterodorsal setae; apical projection rather small, rounded, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 29/16/28. Vein  $R_s$  longer than crossvein  $bm-cu$ .  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  rather strongly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  somewhat divergent near wing apex, both slightly bowed. Crossvein  $bm-cu$  perpendicular. Crossvein  $r-m$  near middle of cell  $bm$ . Halter darkened.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave anteriorly, with unmodified short setae, subtriangular viewed laterally; tergite 3 somewhat broader than tergite 2, with scattered squamiform and more numerous ordinary setae; tergite 4 broadest, with squamiform setae; tergite 5 very narrow, with squamiform setae; tergites 6 and 7 with unmodified short setae. Sternite 3 deeply concave posteriorly, sternites 4–5 divided medially. Gland-like structures present between tergites 4–5, plate-like. Terminalia (Figs 27–29) large, brown. Cerci separated; right



Figs 27–29. *Elaphropeza asea* sp. nov., 27. Right epandrial lamella and right surstylus, lateral view; 28 Terminalia, dorsal view; 29. Left surstylus, lateral view.

cercus digitiform, moderately long, with short projection on apical part, bearing ordinary setae (2 subapicals longer); left cercus nearly as long as right cercus, digitiform, with ordinary setae. Epandrium completely divided. Right epandrial lamella rather subglobular, with numerous ordinary setae; right surstylus digitiform (dorsal view), with numerous short ordinary setae. Left epandrial lamella fused to hypandrium, with 4 moderately long setae apically; left surstylus moderately large, rather subtriangular, broad at base, with numerous ordinary setae. Two rod-shaped apodemes.

*Length* (mm). Body 1.6, wing 1.5.

*Female* unknown.

COMPARISON. The new species is similar to *E. pulchra* sp. nov. described below. The main differences between these species have been noted in the key.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza asquamata* sp. nov.

(Figs 30–32)

ETYMOLOGY. The specific epithet refers to the absence of squamiform bristles on the abdominal tergites.

TYPE MATERIAL. Holotype ♂: D. R. Congo, Yangambi, 13 June 2012, mixed primary forest MIX3 (reg. 32036, leg. P. Grootaert as EC24).

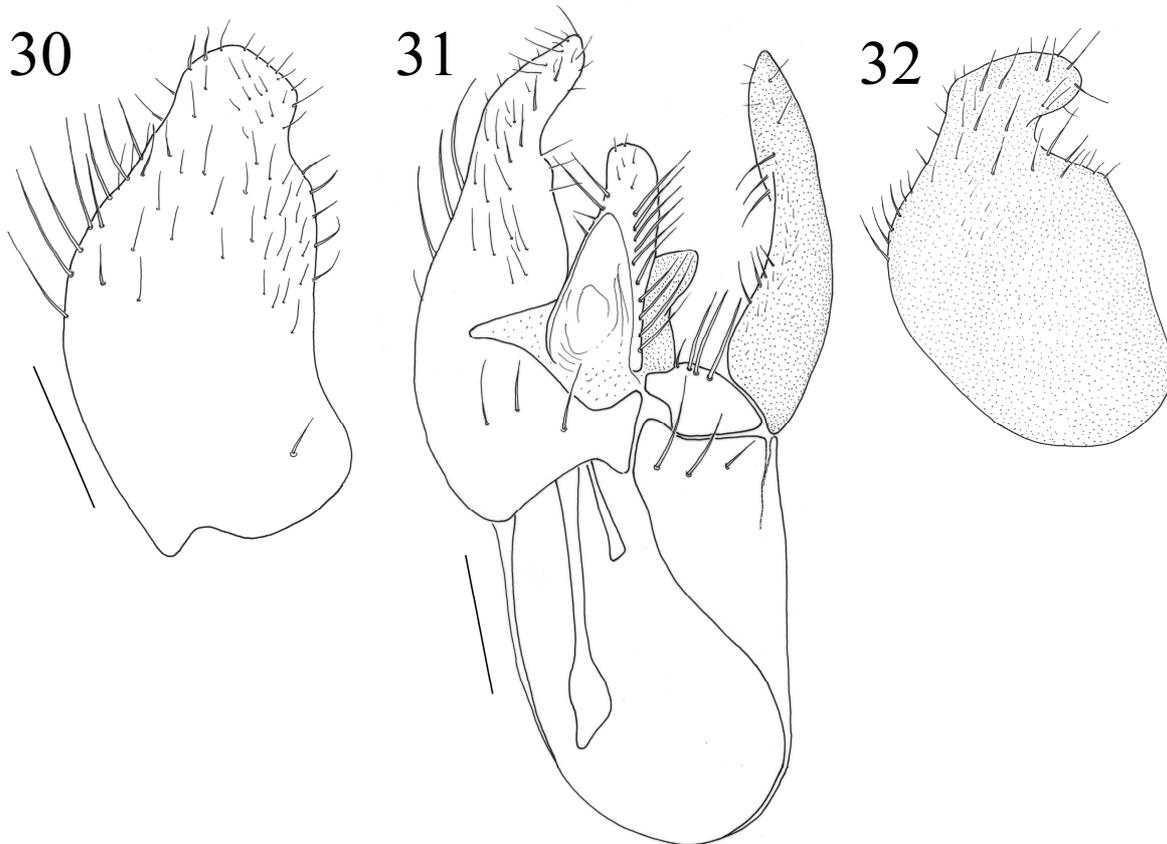
Paratypes: 2♀, same provenance as holotype; 1♀, Yangambi, 7 June 2012, mixed primary forest MIX3 (reg. 32004); 1♀, 7 June 2012 (reg. 32004) as EC21 mid leg in tray Congo2 at position A4 with barcode AB42405537 extracted for DNA; 1♀, Yangambi, 7 June 2012 (reg. 32004) as EC24 in tray

Congo2 at position A7 with barcode AB42405543; 1♂, Yangambi, 9 June 2012, mixed primary forest near WWF (reg. 32010, leg. P. Grootaert as EC24 mid leg in tray Congo2 at position D1 with barcode AB42405534 extracted for DNA; 1♂, Yangambi, 8 June 2012 (reg. 32007) as EC24 in tray Congo2 at position F6 with barcode AB42405551 extracted for DNA. The genetic variation between the four specimens was very low.

**DIAGNOSIS.** A small species of *E. ephippiata* group. Thorax yellow but scutellum, postnotum and meron brown. Hind tibia with 1 anterodorsal bristle. No squamiform setae on abdominal tergites.

**DESCRIPTION. Male.** Occiput entirely black, finely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae nearly as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brown; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, nearly 2.5 times (2.3 in holotype) longer than wide; stylus with short pubescence, long, nearly 4.0 times longer than postpedicel, about 2.5 times as long as scape, pedicel and postpedicel combined. Proboscis brownish yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely yellow, scutellum, postnotum and meron (= hypopleuron) (except lower part) brown; longer setae brown. Prothoracic episterna without long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 postsutural supra-alar, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals arranged in 2 irregular rows, broadly spaced rows, short, lacking on prescutellar depression; dorsocentrals arranged in 1–2 rows, short, 2 pairs of long prescutellars.



Figs 30–32. *Elaphropeza asquamata* sp. nov. holotype male, 30. Right epandrial lamella, lateral view; 31. Terminalia, dorsal view; 32. Left surstylus, lateral view.

Legs long, slender, entirely yellow. Coxae and trochanters with ordinary setae. Fore femur with rows of anteroventral and somewhat longer posteroventral setulae, 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circlet of subapicals). Mid femur slender, with rows of dark spinule-like anteroventral and posteroventral setae, 1 long seta near base and 1 long subapical seta anteriorly. Mid tibia without black ventral spinules, lacking prominent setae (except subapicals). Hind femur with short anteroventrals and 3 short erect dorsal setae near base. Hind tibia with 1 anterodorsal seta near middle; apical projection rather small, rounded, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, finely uniformly infuscate; crossveins r-m, bm-cu and basal section of M pale. Costal vein with rather short setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 49/23/38. Vein Rs somewhat longer than crossvein bm-cu. R<sub>1</sub> of uniform thickness throughout. Vein R<sub>2+3</sub> evenly bowed. Veins R<sub>4+5</sub> and M<sub>1+2</sub> divergent near wing apex, both almost straight. Crossvein bm-cu somewhat oblique. Crossvein r-m before middle of cell bm. Squama brownish black, with brown setae. Halter darkened.

Abdomen. Tergite 1 represented by two very narrow, lateral stripes; tergites 2–3 broadly divided dorsally, represented by lateral subtriangular brownish marks, with ordinary short setae tergites 4–7 of subequal width, with ordinary setae; tergites 4 and 5 brownish, without squamiform setae; tergites 6–7 yellow, weaker sclerotised, tergite 7 with moderately long posteromarginal setae. Gland-like structures absent. Terminalia (Figs 30–32) moderately large, left surstylus brown, right epandrial lamella yellowish brown, otherwise yellow. Cerci entirely fused forming short broad lobe bearing ordinary setae (more numerous on left side); Epandrium completely divided. Right epandrial lamella rather elongate ovate, with numerous ordinary setae longer along ventral margin; right surstylus not prominent. Left epandrial lamella fused to hypandrium, with 3 moderately long setae apically; left surstylus rather large, elongate ovate, attenuated apically, with numerous short ordinary setae on apical part. Two rod-shaped apodemes.

*Length* (mm). Wing 2.3.

*Female*. Similar to male, but all tergites brownish. Segment 8 with separated sclerites. Cercus small, rounded, brownish yellow.

COMPARISON. *Elaphropeza asquamata* sp. nov. should be compared only with *E. monoseta* Grootaert & Shamshev, 2013. The latter species has however squamiform setae on tergites 4 and 5 and a brown triangular mark on each side of the scutum. In *E. asquamata* sp. nov. abdominal tergites 4 and 5 bear squamiform setae and the scutum is completely yellow.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza elasi* sp. nov.

(Figs 33–35)

ETYMOLOGY. This species is dedicated to Mr. Elasi Ramazani Kitima head, of the famous herbarium (INERA) in Yangambi who was very helpful during the 2012 expedition.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 13 June 2012, mixed primary forest (below IFA building) (reg. 32036, leg. P. Grootaert, MS reference EC36) (RBINS). Mid leg in tray Congo2 at A1 was extracted for DNA and a COI barcode is available at GenBank.

Paratypes: 1♂ (as EC22) Yangambi, 7 June 2012, mixed primary forest (Mix3), (reg. 32004, P. Grootaert) (RBINS). Mid leg in tray Congo2 at A5 was extracted for DNA and a COI barcode is available at GenBank.

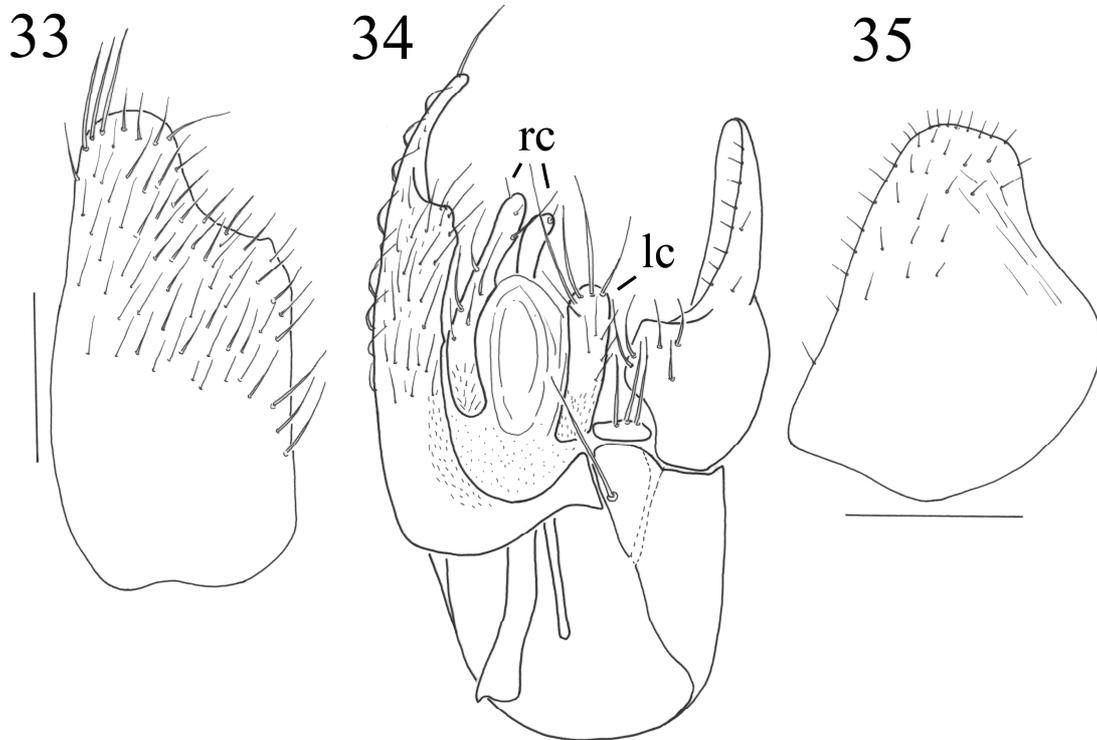
DIAGNOSIS. Small brown species of *E. ephippiata* group. Antenna completely brown. Thorax almost entirely brown except for prothoracic sclerites, anterior corners of scutum, postalar callus and anterior part of katapisternum yellow. Hind tibia with 2 anterodorsal bristles.

## DESCRIPTION.

*Male.* Occiput entirely black, finely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae somewhat narrower than anterior ocellus. Antenna brownish; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, nearly 2.5 times longer than wide; stylus with short pubescence, long, nearly 3.0 times longer than postpedicel, about 2.0 times as long as scape, pedicel and postpedicel combined. Proboscis brownish yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely dark brown, prothoracic sclerites, anterior corners of scutum, postalar tubercle and katepisternum (= sternopleuron) anteriorly yellow; longer setae brown. Prothoracic episterna without long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postsutural supra-alar, 1 postalar and 4 scutellars (apical pair long, cruciate; lateral pair minute); acrostichals arranged in 2 almost regular, broadly spaced rows, rather long, lacking on prescutellar depression; dorsocentrals arranged in 1–2 rows, rather long, 1 pair of very long prescutellars.

Legs long, slender, almost entirely yellow, only tarsomere 5 of all legs brownish. Coxae and trochanters with ordinary setae. Fore femur with rows of spinule-like anteroventral and somewhat longer posteroventral setae, 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circlet of subapicals). Mid femur slender, with rows of dark spinule-like anteroventral and posteroventral setae, 1 long seta near base and 1 long subapical seta anteriorly. Mid tibia with black ventral spinules, black subapical spine, lacking prominent setae (except subapicals). Hind femur with short anteroventrals and 2–3 short erect dorsal setae near base. Hind tibia with 2 anterodorsal setae; apical projection rather small, rounded, brownish yellow. Tarsi of all legs unmodified.



Figs 33–35. *Elaphropeza elasio* sp. nov., 33. Right epandrial lamella, lateral view; 34. Terminalia, dorsal view; 35. Left surstylus, lateral view.

Wing normally developed, uniformly infusate; crossveins r-m, bm-cu and basal section of M pale. Costal vein with rather short setulae along anterior margin. Costal seta short, brownish. Costal index: 40/24/37. Vein Rs somewhat longer than crossvein bm-cu. R<sub>1</sub> of uniform thickness throughout. Vein R<sub>2+3</sub> evenly bowed. Veins R<sub>4+5</sub> and M<sub>1+2</sub> divergent near wing apex, both almost straight. Crossvein bm-cu somewhat oblique. Crossvein r-m before middle of cell bm. Squama brownish yellow, with brown setae. Halter dark.

Abdomen. Tergite 1 pale; tergites 2–3 broadly divided dorsally, represented by lateral subtriangular brownish marks, with ordinary short setae; tergite 4 broadest, dark brown, with squamiform setae; tergite 5 very narrow, with ordinary setae; tergites 6–7 of subequal width, with ordinary setae; tergite 7 with moderately long posteromarginals. Sternites undivided medially. Gland-like structures present between tergites 4–5, ampoule-like. Terminalia (Figs 33–35) moderately large, brown; cerci yellowish. Cerci separated; right cercus digitiform, moderately long, with ordinary setae; left cercus digitiform, somewhat shorter than right cercus, with ordinary setae. Epandrium completely divided. Right epandrial lamella rather subrectangular, deeply concave on subapical part dorsally, with numerous ordinary setae and 3 stronger subapical setae; right surstylus not prominent. Left epandrial lamella fused to hypandrium, with 1 long seta apically; left surstylus rather large, subtriangular, broadly ovate apically, with numerous short ordinary setae. Two rod-shaped apodemes.

Length (mm). Wing 2.1.

Female unknown.

COMPARISON. In the structure of the male terminalia *E. elasio* sp. nov. is very similar to *E. congoensis* Grootaert & Shamshev, 2013 and *E. monoseta* Grootaert et Shamshev, 2013 described from D. R. Congo. Additionally, all these species have 2 anterodorsal bristles on the hind tibia. However, *E. elasio* sp. nov. can be readily distinguished from *E. congoensis* and *E. monoseta* by its brownish antenna and almost entirely dark brown thorax.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza kinshasensis* sp. nov.

(Figs 36–38)

ETYMOLOGY. The specific epithet refers to the type locality, Kinshasa.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Kinshasa, 3 June 2012, park in city centre (Hotel Invest Presse) (reg. 32001, leg. P. Grootaert, MS reference EC35) (RBINS). Mid leg in tray Congo2 at position E2 with AB42405528 was extracted for DNA and a COI barcode is available at GenBank.

DIAGNOSIS. A yellow species of *E. ephippiata* group; thorax with postalar tubercle, postnotum, anepisternum on posterior half, anepimeron and metapleuron on upper part brownish; legs entirely yellow; hind tibia with 2 strong anterodorsal bristles.

#### DESCRIPTION.

*Male*. Occiput entirely black, finely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals long, strong, inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, rather narrow, above antennae nearly as broad as anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brown; pedicel with circlet of subequally short setulae; postpedicel subtriangular, short, nearly 2.0 times longer than wide; stylus with short pubescence, long, 4.5 times longer than postpedicel, about 2.5 times as long as scape, pedicel and postpedicel combined. Proboscis brownish yellow, labrum brown apically. Palpus yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

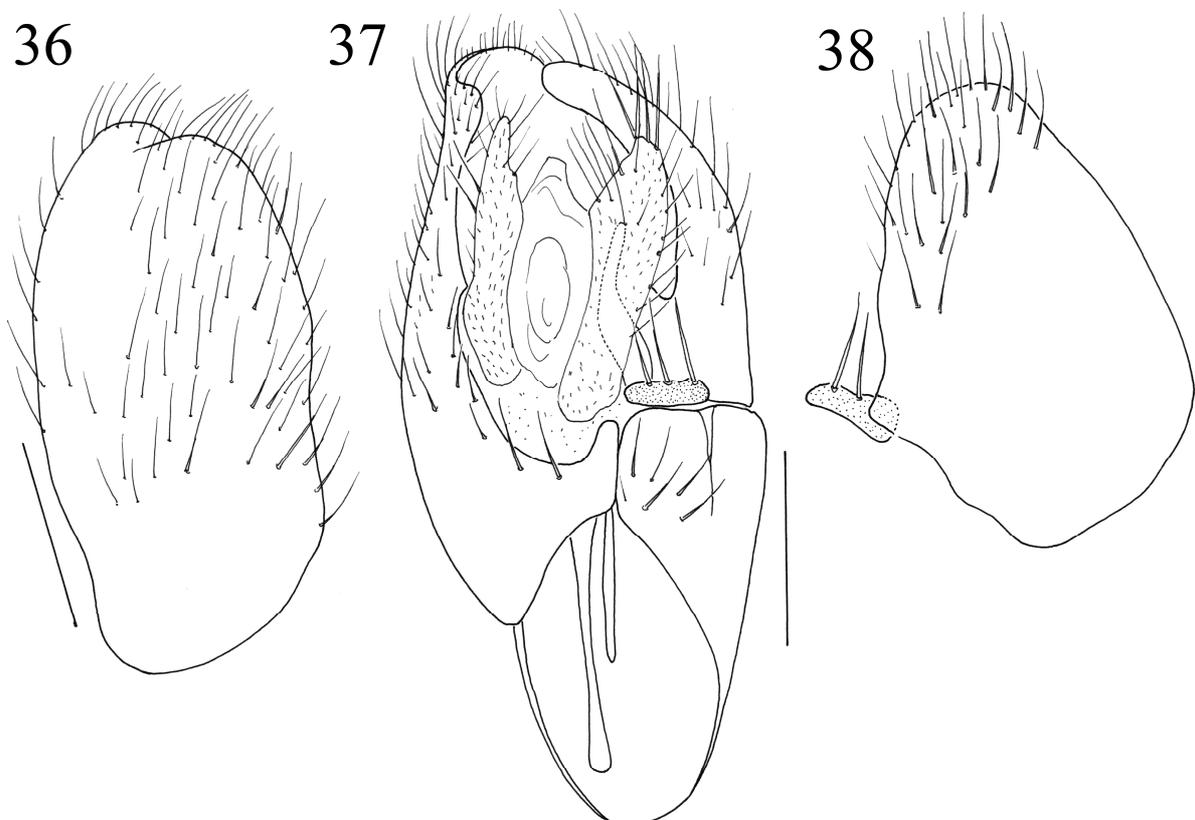
Thorax almost entirely reddish yellow, postalar tubercle, postnotum, anepisternum (= mesopleuron) on posterior half, anepimeron (= pteropleuron) and metapleuron on upper part brownish; longer setae brown. Prothoracic episterna without long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 postsutural supra-alar, 1 short postalar and

4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals arranged in 2 irregular rows, broadly spaced rows, short, lacking on prescutellar depression; dorsocentrals arranged in 1–2 rows, short, 1 pair of long prescutellars.

Legs long, slender, entirely yellow. Coxae and trochanters with ordinary setae. Fore femur with rows of anteroventral and somewhat longer posteroventral setulae, 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except cirlet of subapicals). Mid femur slender, with rows of dark spinule-like anteroventral and posteroventral setae, 1 long seta near base and 1 long subapical seta anteriorly. Mid tibia with black ventral spinules and subapical spine, lacking prominent setae (except subapicals). Hind femur with short anteroventrals and 5–6 short erect dorsal setae near base. Hind tibia with 2 strong anterodorsal setae near middle; apical projection rather small, rounded, brownish yellow. Tarsi of all legs unmodified, hind basitarsus with some ventral spinule-like setae.

Wing normally developed, finely uniformly infuscate; crossveins r-m, bm-cu and basal section of M pale. Costal vein with rather short setulae along anterior margin. Costal seta moderately long, brown. Costal index: 48/25/40. Vein  $R_s$  somewhat longer than crossvein bm-cu.  $R_1$  of uniform thickness throughout. Vein  $R_{2+3}$  evenly bowed. Veins  $R_{4+5}$  and  $M_{1+2}$  divergent near wing apex, the former slightly bowed, the latter almost straight. Crossvein bm-cu somewhat oblique. Crossvein r-m before middle of cell bm. Squama brown, with brown setae. Halter darkened.

Abdomen. Tergite 1 pale; tergites 2–3 broadly divided dorsally, represented by small lateral subtriangular brownish marks, with ordinary short setae; tergite 4 broadest, brown, with squamiform setae; tergite 5 very narrow, with squamiform setae; tergites 6–7 weaker sclerotised, tergite 7 broader, with long posteromarginal setae. Gland-like structures present between tergites 4–5, ampoule-like. Terminalia (Figs 36–38) moderately large, yellow. Cerci separated; right cercus digitiform, moderately long, somewhat narrowed on apical part, with ordinary setae; left cercus digitiform, slightly longer and broader than right cercus, with ordinary setae. Epandrium completely divided. Right epandrial lamella rather elongate ovate, almost truncate apically, with numerous ordinary setae; right surstylus not prominent. Left epandrial lamella fused to hypandrium, with several moderately long setae apically;



Figs 36–38. *Elaphropeza kinshasensis* sp. nov., 36. Right epandrial lamella, lateral view; 37. Terminalia, dorsal view; 38. Left surstylus, lateral view.

left surstylus large, elongate ovate, with numerous ordinary setae on subapical part. Two rod-shaped apodemes.

Length (mm). Wing 2.2.

Female unknown.

COMPARISON. The new species is similar to *E. juakalyi* Grootaert & Shamshev, 2013. The main differences between these species have been noted in the key.

DISTRIBUTION. D. R. Congo.

### *Elaphropeza pachystylus* sp. nov.

(Figs 39–41)

ETYMOLOGY. The specific epithet refers to the thick pubescent stylus.

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 10 June 2012, primary mixed forest (below IFA building) (reg. 32019, leg. P. Grootaert, MS reference EC39) (RBINS). Hind leg in tray Congo2 at position D7 with barcode AB42405564 was extracted for DNA and a COI barcode is available at GenBank.

Paratypes: 1 ♀ (as EC23) Yangambi, 7 June 2012, primary mixed forest (reg. 32004, leg. P. Grootaert) (RBINS).

DIAGNOSIS. Small black species of *E. ephippiata* group; antenna with postpedicel long, 4 times as long as wide; stylus thick pubescent basally, 1.5x as long as postpedicel; legs almost completely yellow, only tarsomere 5 brown; hind tibia without prominent bristles.

#### DESCRIPTION.

*Male*. Occiput entirely black, subshining; with yellowish brown to yellow setation; inner verticals long inclinate, outer verticals short. Anterior ocellars long proclinate and cruciate, posterior ocellars short. Frons shining, narrow, above antennae narrower than anterior ocellus. Antenna with scape and pedicel yellow, postpedicel and stylus brown; pedicel with cirlet of subequally short setulae; postpedicel subtriangular, long, nearly 4.0 times longer than wide; stylus with longer pubescence basally, otherwise short pubescent, nearly 1.5 times longer than postpedicel, about as long as scape, pedicel and postpedicel combined. Proboscis yellowish brown. Palpus pale yellow, small, rounded, bearing scattered pale setulae.

Thorax entirely black; longer setae brownish. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals and dorsocentrals undifferentiated, scutum entirely covered with uniform setulae, 1 pair of long prescutellars (nearly as long as notopleurals).

Legs quite robust, almost entirely yellow, only tarsomere 5 of all legs brown. Coxae and trochanters with ordinary setae. Fore femur thickened, with rows of minute anteroventral and posteroventral setae (3–4 posteroventral subapicals moderately long), 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except cirlet of short subapicals). Mid femur slender, somewhat concave on basal half; with rows of anteroventral and posteroventral spinule-like setulae, 3 moderately long anteroventral subapicals, and 1 long seta near base. Mid tibia covered with ordinary setulae ventrally, lacking prominent setae (except subapicals). Hind femur and tibia somewhat thickened. Hind femur with short anteroventrals, near base bearing 6 black ventral spinules and 3 short erect dorsal setae. Hind tibia without anterodorsal setae; apical projection rather small, rounded, brownish yellow. Tarsi of all legs unmodified.

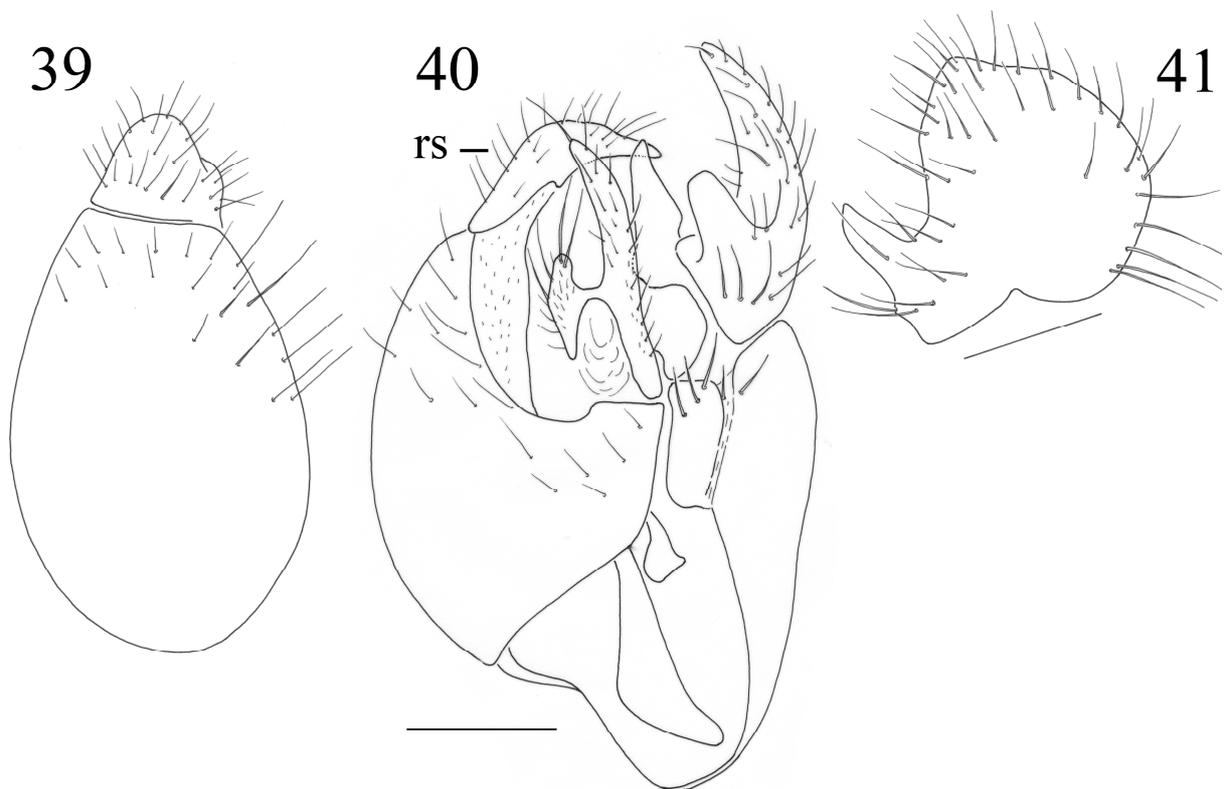
Wing normally developed, finely uniformly infusate. Costal vein with moderately long setulae along anterior margin. Costal seta moderately long, brownish. Costal index: 26/14/28. Vein Rs longer than crossvein bm-cu. R<sub>1</sub> of uniform thickness throughout. Vein R<sub>2+3</sub> rather strongly bowed. Veins R<sub>4+5</sub> and M<sub>1+2</sub> somewhat divergent near wing apex, both slightly bowed. Crossvein bm-cu perpendicular. Crossvein r-m near middle of cell bm. Halter yellow.

Abdomen. Tergite 1 represented by very small narrow lateral stripes; tergite 2 broadly concave anteriorly, with unmodified short setae, subtriangular viewed laterally; tergite 3 somewhat broader than tergite 2, with slightly flattened setae; tergite 4 broadest, with squamiform setae; tergite 5 very narrow, with squamiform setae; tergites 6 and 7 with unmodified short setae. Sternite 3 deeply concave posteriorly, sternites 4–5 divided medially. Gland-like structures present between tergites 4–5, plate-like. Terminalia (Figs 39–41) large, dark brown. Cerci narrowly fused; right cercus digitiform, small, with ordinary setae; left cercus digitiform, pointed, considerably longer than right cercus, with ordinary setae. Epandrium completely divided. Right epandrial lamella elongate ovate, with ordinary setae; right surstylus small, with ordinary setae. Left epandrial lamella fused to hypandrium, with several moderately long setae apically; left surstylus large, ovoid but with pointed protuberance at right side, with numerous ordinary setae on subapical part. Two rod-shaped apodemes. *Length* (mm). Body 1.8, wing 1.5.

*Female*. Mid femur slender; hind femur without ventral spinules near base; tergites 3–4 of subequal width, tergite 5 unmodified; tergite 7 stronger sclerotised, dark brown; tergite 8 dark brown, with sclerites fused anteriorly; sternites undivided; cerci small, rounded, brown. Otherwise as in male.

COMPARISON. In the key *E. pachystylus* sp. nov. is most likely to be confused with *E. ghesquierei* Collart, but the latter has fore tibiae brownish while yellow in the new species. The long postpedicel and the pubescent stylus distinguish it from most other *Elaphropeza*.

DISTRIBUTION. D. R. Congo.



Figs 39–41. *Elaphropeza pachystylus* sp. nov., 39. Right epandrial lamella, lateral view; 40. Terminalia, dorsal view; 41. Left surstylus, lateral view.

***Elaphropeza pulchra* sp. nov.**

(Figs 42–44)

ETYMOLOGY. The specific epithet refers to the beauty of this species (*pulcher* means beautiful in Latin).

TYPE MATERIAL. Holotype, ♂: D. R. CONGO, Yangambi, 9 June 2012, mixed primary forest (below WWF building) (reg. 32010, leg. P. Grootaert, MS reference EC19) (RBINS). Mid leg in tray Congo2 at C7 with barcode AB42405563 was extracted for DNA and a COI barcode is available at GenBank. Paratypes: 2♂, Yangambi, 12 June 2012, mixed primary forest (path to GIL4) (reg. 32030, leg. P. Grootaert) (RBINS); 1♂, 1♀, Yangambi, 9 June 2012, mixed primary forest (reg. 32029, leg. P. Grootaert); 1♂, Yangambi, 7 June 2012, mixed primary forest MIX3 (reg. 32004) with mid leg in tray Congo2 at position A3 with barcode AB42405531 was extracted for DNA; 1♂, Yangambi, 12 June 2012 (reg. 32030) with mid leg in tray Congo2 at position F2 with barcode AB42406425 was extracted for DNA.

DIAGNOSIS. A medium-sized black species of the *E. ephippiata* group; antenna blackish brown; thorax black, but prothoracic sclerites, anterior corners of scutum and katapisternum contrastingly yellow; legs almost entirely yellow, only tarsomere 5 brownish; hind tibia without prominent bristles.

DESCRIPTION.

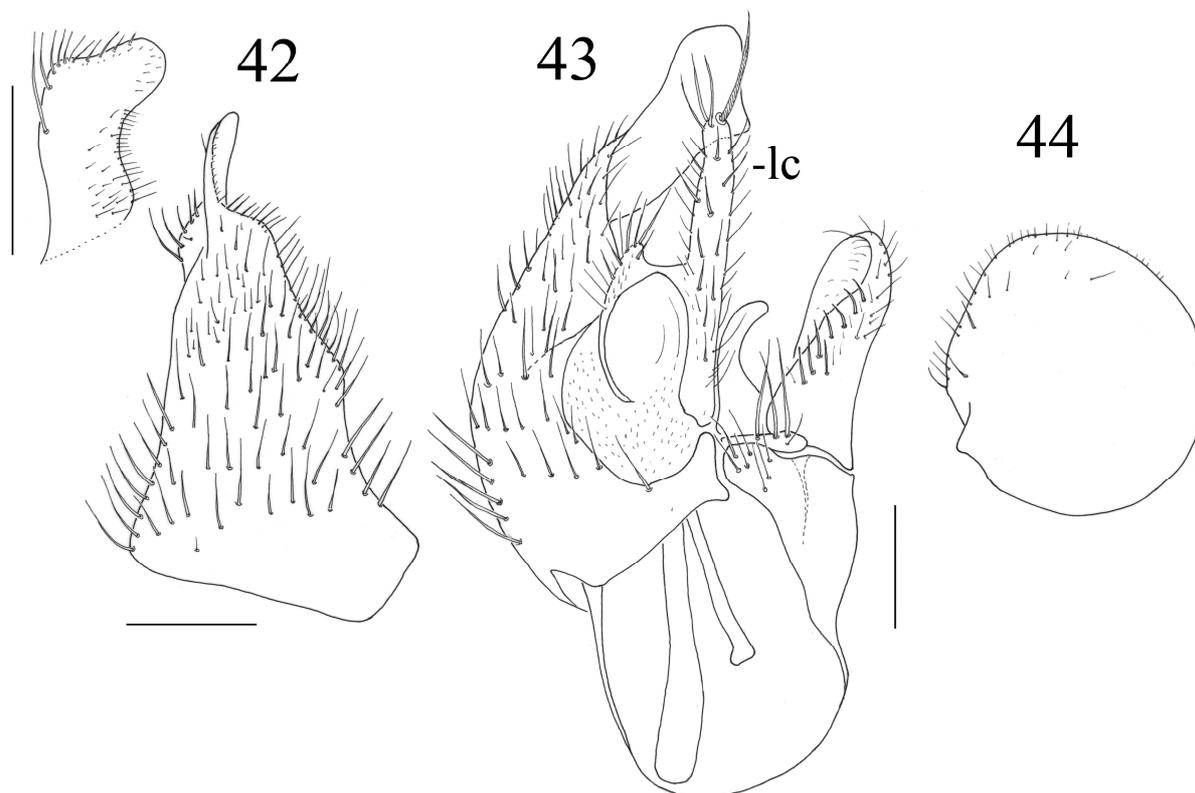
*Male*. Occiput entirely black, finely pollinose (including vertex); with yellowish brown to yellow setation; inner verticals very short inclinate, outer verticals not prominent. Anterior ocellars very short proclinate and cruciate, posterior ocellars minute. Frons shining, rather narrow, above antennae narrower than anterior ocellus. Antenna brownish; pedicel with circler of subequally short setulae; postpedicel subtriangular, short, nearly 2.5 times (2.3 in holotype) longer than wide; stylus with short pubescence, long, nearly 4.0 times longer than postpedicel, about 2.5 times as long as scape, pedicel and postpedicel combined. Proboscis brownish yellow, labrum brown apically. Palpus brownish yellow, small, rounded, bearing scattered dark setulae, subapical seta thin, moderately long.

Thorax almost entirely dark brown, prothoracic sclerites, anterior corners of scutum and katapisternum (= sternopleuron) anteriorly yellow (the extent of the coloration is variable); longer setae brown. Prothoracic episterna without long upturned seta just above fore coxa. Postpronotal seta not prominent. Mesonotum with 2 long notopleurals, 1 short postalar and 4 scutellars (apical pair long, cruciate; lateral pair very short); acrostichals arranged in 2–3 irregular rows (more numerous anteriorly), broadly spaced rows, short, lacking on prescutellar depression; dorsocentrals arranged in 1–2 rows, short, 1 pair of longer prescutellars.

Legs long, slender, almost entirely yellow, only tarsomere 5 of all legs brownish apically. Coxae and trochanters with ordinary setae. Fore femur with rows of spinule-like anteroventral and somewhat longer posteroventral setae, 1 long seta near base, and short subapical seta anteriorly. Fore tibia lacking prominent setae (except circler of subapicals). Mid femur slender, with rows of dark spinule-like anteroventral and posteroventral setae, 1 long seta near base and 1 long subapical seta anteriorly. Mid tibia with black ventral spinules, black subapical spine, lacking prominent setae (except subapicals). Hind femur with short anteroventrals and 2–3 short erect dorsal setae near base. Hind tibia lacking prominent setae (except subapicals); apical projection rather large, rounded, brownish yellow. Tarsi of all legs unmodified.

Wing normally developed, uniformly infusate; crossveins r-m, bm-cu and basal section of M pale. Costal vein with rather short setulae along anterior margin. Costal seta short, brownish. Costal index: 65/32/47. Vein Rs somewhat longer than crossvein bm-cu. R<sub>1</sub> of uniform thickness throughout. Vein R<sub>2+3</sub> evenly bowed. Veins R<sub>4+5</sub> and M<sub>1+2</sub> divergent near wing apex, both almost straight. Crossvein bm-cu somewhat oblique. Crossvein r-m before middle of cell bm. Squama brownish yellow, with brown setae. Halter with blackish knob and yellow stem.

Abdomen. Tergite 1 pale; tergites 2–3 broadly divided dorsally, represented by lateral subtriangular brownish marks, with ordinary short setae; tergite 4 broadest, dark brown, with squamiform setae; tergite 5 very narrow, with ordinary setae; tergites 6–7 of subequal width, with ordinary setae; tergite 7



Figs 42–44. *Elaphropeza pulchra* sp. nov., 42. Right epandrial lamella, lateral view; 43. Terminalia, dorsal view; 44. Left surstylus, lateral view.

with moderately long posteromarginals. Sternites undivided medially. Gland-like structures present between tergites 4–5, consisting of two ampoule-like reservoirs. Terminalia (Figs 42–44) moderately large, brownish black, cerci yellow. Cerci narrowly fused; right cercus very small, with ordinary setae; left cercus digitiform, long, with ordinary short and 2–3 stronger black subapical setae (1 longest). Epandrium completely divided. Right epandrial lamella subtriangular, long, with twisted tip that looks bifid in lateral view, covered with numerous ordinary setae; right surstylus not prominent. Left epandrial lamella fused to hypandrium, with several moderately long setae apically; left surstylus large, circular. Two rod-shaped apodemes.

*Length* (mm). Wing 2.8 mm.

*Female*. Similar to male. Gland-like structures plate-like. Segment 8 with separated sclerites; cercus small, rounded, brownish.

**COMPARISON.** The new species is similar to *E. aseta* sp. nov. and main differences between these species have been noted in the key. In *E. pulchra* sp. nov. the extent of the dark coloration of the anterior part of the thorax is variable from yellow to almost completely black. There are two specimens with broadly yellow scutum anteriorly (up to level of anterior notopleural seta).

**DISTRIBUTION.** D. R. Congo.

#### Check-list of the Tachydromiinae of D. R. of the Congo

Actually about 120 species of Tachydromiinae are known for the Afrotropical Region including the 41 species reported here below (YANG *et al.*, 2007). This means that about one third of the actual known Afrotropical Tachydromiine species are found in the D. R. of the Congo.

*Crossopalpus aenescens* (Wiedemann, 1830)

*Crossopalpus nyaka* Smith, 1969

*Crossopalpus quadripina* (Collart, 1934)

*Crossopalpus yaekela* Grootaert & Shamshev, 2013  
*Drapetis congoensis* Grootaert & Shamshev, 2013  
*Drapetis denticulata* sp. nov.  
*Drapetis yaekelaensis* Grootaert & Shamshev, 2013  
*Drapetis yangambensis* sp. nov.  
*Drapetis zamba* Grootaert & Shamshev, 2013

*Elaphropeza albistylus* sp. nov.  
*Elaphropeza angulata* Grootaert & Shamshev, 2013  
*Elaphropeza aseta* sp. nov.  
*Elaphropeza asquamata* sp. nov.  
*Elaphropeza baeloi* Grootaert & Shamshev, 2013  
*Elaphropeza congoensis* Grootaert & Shamshev, 2013  
*Elaphropeza dudui* sp. nov.  
*Elaphropeza elasii* sp. nov.  
*Elaphropeza excavata* Grootaert & Shamshev, 2013  
*Elaphropeza ghesquierei* Collart, 1934  
*Elaphropeza furcata* Grootaert & Shamshev, 2013  
*Elaphropeza incerta* Grootaert & Shamshev, 2013  
*Elaphropeza infuscata* Grootaert & Shamshev, 2013  
*Elaphropeza interrupta* Grootaert & Shamshev, 2013  
*Elaphropeza juakalyi* Grootaert & Shamshev, 2013  
*Elaphropeza kinshasensis* sp. nov.  
*Elaphropeza laudisoitae* Grootaert & Shamshev, 2013  
*Elaphropeza leponcei* sp. nov.  
*Elaphropeza mai* Grootaert & Shamshev, 2013  
*Elaphropeza monoseta* Grootaert & Shamshev, 2013  
*Elaphropeza motane* Grootaert & Shamshev, 2013  
*Elaphropeza moyindo* Grootaert & Shamshev, 2013  
*Elaphropeza nuda* Grootaert & Shamshev, 2013  
*Elaphropeza pachystylus* sp. nov.  
*Elaphropeza pulchra* sp. nov.  
*Elaphropeza plagiata* Bezzi, 1908  
*Elaphropeza verheyeni* sp. nov.  
*Elaphropeza wetsii* sp. nov.  
*Elaphropeza yaekela* Grootaert & Shamshev, 2013  
*Elaphropeza zamba* Grootaert & Shamshev, 2013

*Stilpon congoensis* Grootaert & Shamshev, 2013  
*Stilpon variabilis* Grootaert & Shamshev, 2013

## Acknowledgements

The first author (P.G.) thanks Maurice Leponce (RBINS) and Jean Lambert Wetsi Lofete (Université de Kisangani) for support in the field. P.G. also thanks Prof. Dudu Akaibe for help to obtain the research permits. The help of colleague Erik Verheyen who is the driving motor behind the recent research cooperation between the University of Kisangani and RBINS is also much appreciated. Jonas Mortelmans and the JEMU team of RBINS, Gontran Sonet and Zoltan Nagy helped with the sequencing of the species. Dr. Adrian Plant and an anonymous reviewer gave many interesting comments.

## References

GROOTAERT P. & SHAMSHEV I.V., 2012. - The fast-running flies (Diptera, Hybotidae, Tachydromiinae) of Singapore and adjacent regions. *European Journal of Taxonomy*, 5: 1-162.  
<http://dx.doi.org/10.5852/ejt.2012.5>

- GROOTAERT P. & SHAMSHEV I.V., 2013. -The flies of the family Hybotidae (Diptera, Empidoidea) collected during the Boyekoli Ebale Congo 2010 Expedition in Democratic Republic of Congo. *Zootaxa*, 3603: 61 pp. <http://dx.doi.org/10.11646/zootaxa.3603.1>.
- NAGY Z., SONET G., MORTELMANS J., VANDEWINKEL C. & GROOTAERT P., 2013. - Using DNA barcodes for diversity assessment in Hybotidae (Diptera, Empidoidea). *ZooKeys*, 365: 263-278. doi: 10.3897/zookeys.365.6070
- RAFFONE, G., 1994. - Terzo contributo alla conoscenza dei ditteri Hybotidi della Sierra Leone. *Accademia Nazionale dei Lincei*, 267: 219–229.
- SHAMSHEV I.V. & GROOTAERT P., 2007. - Revision of the genus *Elaphropeza* Macquart (Diptera: Hybotidae) from the Oriental Region, with a special attention to the fauna of Singapore. *Zootaxa*, 1488: 1-164.
- SMITH K.V.G., 1969. - The Empididae of southern Africa (Diptera). *Annals of the Natal Museum*, 19: 1-342.
- YANG D., ZHANG K.Y., YAO G. & ZHANG J.H., 2007. - World catalog of Empididae (Insecta: Diptera). China Agricultural University Press, Beijing, 599 pp.