

# Five new species of the genus *Chrysosoma* Guerin-Meneville (Diptera: Dolichopodidae) from Tropical Africa

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*C. kuznetzovi* sp. n. and *C. zaitzevi* sp. n. from Zambia, *C. stubbsi* sp. n. and *C. tanasijtshuki* sp. n. from Kenya and Uganda, *C. zinovjevi* sp. n. from Nigeria are described. New records, catalogue and a key to known species of Afrotropical *Chrysosoma* (s.s.) are given.

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## Introduction

The old genus *Chrysosoma* was greatly restricted by Bickel (1994), who made a generic revision of the world fauna of the subfamily Sciapodinae. After the redefinition, *Chrysosoma* is confined mainly to the Old World tropics. Prior to Bickel's revision more than 100 species of Afrotropical Sciapodinae were referred to *Chrysosoma* (Dyde & Smith, 1980). He removed 4 species to *Ethiosciapius* Bickel, 11 species to *Amblypsilopus* Bigot and 16 species to *Plagiozopelma* Enderlein. *Megistostylus* Bigot and *Kalocheta* Becker were placed in synonymy with *Chrysosoma*. Grichanov (in litt.) transferred 10 species to the new genus, 4 species to *Amblypsilopus* and 1 species to *Plagiozopelma*. Grichanov (1995) reestablished *Kalocheta* as the subgenus of *Chrysosoma*. While processing unidentified material from the collection of the Natural History Museum, London (NHML), eighteen species of the genus *Chrysosoma* were found. In this paper descriptions of five new species from Tropical Africa and new records for known African species are given. Oriental *C. lacteum* is excluded from Afrotropical fauna; *C. saphirum* (Bigot) and *C. mixtum* Curran are synonymized with *C. senegalense* (Macquart). A few names are still awaiting synonymization, removing or declaring Nomina Dubia in future revision of type specimens. Now seventy one Afrotropical species are known from all parts of Africa south of Sahara.

There are only doubtful records for two continental species from Madagascar. The genus is poorly represented in South Africa. It is very interesting, that species of *Chrysosoma* are practically absent on Atlantic Ocean (St. Helena) and West Indian Ocean (Seychelles et al.) islands. Only *C. leucopogon* is widespread from East African coast throughout the Indian and western Pacific Ocean. About 120 mostly endemic species are registered in Oriental and Australasian Regions and on Taiwan (Bickel, 1994). Holotypes and paratypes of the new species are conserved in the Natural History Museum (London). List of Afrotropical species of *Chrysosoma* (for references see Dyde & Smith, 1980; Bickel, 1994)

## I. Subgenus *Chrysosoma* Guerin-Meneville

- aequatoriale* Parent, 1933: 2 — Zaire, Uganda
- aequilobatum* Parent, 1933: 15 — Zaire, Congo
- aestimabile* Parent, 1934: 18 — Nigeria, Gambia, ?Madagascar
- albilimbatus* Bigot, 1890: 287 (*Psilopus*) — Ivory Coast, Congo, Gabon, Ghana, Nigeria, Sierra Leone, Zaire
- albocrinatum* Curran, 1925: 109 — Zaire, Congo
- alboguttatum* Parent, 1930: 93 — Cameroun
- angolense* Parent, 1934: 113 — Angola, Zaire
- asperum* Parent, 1934: 114 — South Africa
- bacchi* Dyde, 1957: 37 — Tanzania
- benignum* Parent, 1934: 115 — Nigeria

- biciliatum* Parent, 1931: 45 — Nigeria, Ghana  
*breddi* Parent, 1933: 21 — Zaire  
*carum* Walker, 1849: 643 (*Psilopus*) — Sierra Leone, Nigeria, Congo, Zaire, Tanzania, Mozambique, South Africa  
 = *flexum* Loew, 1858: 371 (*Psilopus*)  
*centrale* Becker, 1923: 25 — Cameroun  
*cilifemoratum* Parent, 1934: 115 — Malawi, Zaire  
*consentium* Curran, 1925: 111 — Zaire, Congo  
*continuum* Curran, 1927: 255 — Zaire, Congo  
*corruptor* Parent, 1933: 24 — Zaire  
*crinipes* Parent, 1933: 25 — Zaire, Cameroun (!)  
*fortunatum* Parent, 1933: 1 — Zaire, Angola (!), Zambia (!)  
*garambaensis* Vanschuytbroeck, 1959: 37 — Zaire  
*gemmeum* Walker, 1849: 644 (*Psilopus*) — Nigeria, Sierra Leone  
*gracile* Vanschuytbroeck, 1959: 29 — Zaire  
*gromieri* Parent, 1930: 92 — Cameroun  
*hargreacesi* Curran, 1927: 9 — Sierra Leone  
*hirsutulum* Parent, 1933: 27 — Zaire  
*ituriense* Parent, 1933: 29 — Zaire, Malawi  
*katangense* Curran, 1925: 107 — Zaire, Sudan  
*kuznetzovi* sp. n. — Zambia  
*laeae* Bigot, 1891: 373 (*Psilopodius*) — ?Guinea, Ivory Coast  
*lavinia* Curran, 1927: 260 — Zaire, Tanzania  
*leucopogon* Wiedemann, 1824: 40 (*Dolichopus*) — Tanzania, Kenya (!), Madagascar, Seychelles, Reunion, Mauritius, Rodriguez, Aldabra, Maldives (!), Chagos Archipelago, Burma, Sri Lanka, Taiwan, India, Indochina, Java, Sumatra, Thailand, Queensland, New Caledonia, Tahiti  
 = *apicalis* Wiedemann, 1830: 227 (*Psilopus*)  
 = *conicornis* Macquart, 1846: 120 (*Psilopus*)  
 = *loewi* Enderlein, 1912: 378  
 = *snelli* Curran, 1927: 5  
*liberia* Curran, 1929: 4 — Liberia, Zaire  
*marginatum* Becker, 1923: 29 — Sierra Leone  
*mesotrichum* Bezzi, 1908: 380 (*Psilopus*) — Zaire, Sierra Leone, Uganda (!)  
 = *senegalense* Becker, 1923: 20, 33 nec Macquart (misidentification)  
 = *senegalense* Curran, 1925: 107 nec Macquart (misidentification)  
*micantifrons* Speiser, 1910: 108 (*Agonosoma*) — Tanzania  
*minusculum* Becker, 1923: 29 — Cameroun, Equatorial Guinea, ?Zaire, ?Sierra Leone, ?Madagascar  
*norma* Curran, 1927: 257 — Zaire  
*ostentatum* Becker, 1923: 30 — Cameroun  
*pallidicorne* Curran, 1927: 252 — Kenya, Zaire  
 = *puma* Dyte & Smith, 1980: 445 (unnecessary)  
*pauperculum* Parent, 1933: 30 — Zaire  
*petersi* Dyte, 1957: 37 — Tanzania  
*pomeroyi* Curran, 1927: 7 — Nigeria, Cameroun (!)  
*praecipuum* Parent, 1936: 319 — Zaire  
*praelatum* Becker, 1923: 31 — Equatorial Guinea, Tanzania, Zaire, Malawi  
*repertum* Becker, 1923: 31 — Equatorial Guinea, Nigeria  
*schoutedeni* Curran, 1927: 258 — Congo, Zaire, Tanzania  
*senegalense* Macquart, 1834: 450 (*Psilopus*) — Congo, Zaire, Gabon, Senegal, Sierra Leone, Nigeria (!)  
 = *smaragdinum* Walker, 1849: 642 (*Psilopus*)  
 = *saphirum* Bigot, 1858: 362 (*Psilopus*)  
 = *mixtum* Curran, 1927: 3, syn. n.  
*singulare* Parent, 1933: 3 — Zaire  
*speciosum* Parent, 1933: 32 — Zaire  
*stubbisi* sp. n. — Kenya, Uganda  
*tarsiciliatum* Parent, 1930: 91 — Cameroun, Sierra Leone, Zaire, Gabon  
*tanasijshtshuki* sp. n. — Kenya  
*tenuipenne* Curran, 1927: 254 — Senegal, Nigeria, Congo, Zaire, Uganda (!)  
*tractatum* Becker, 1923: 35 — Togo  
*tricrinium* Parent, 1933: 33 — Zaire, Burundi, Mozambique, Malawi (!)  
 = *flexum* Curran, 1926: 384 nec Loew (misidentification)  
*trigemmans* Walker, 1849: 650 (*Psilopus*) — no locality  
*triumphator* Parent, 1933: 33 — Zaire  
*ungulatum* Parent, 1941: 207 — Principe  
*vagator* Becker, 1923: 36 — Togo, Zaire  
*varicittatum* Curran, 1925: 112 — Zaire  
*vividum* Becker, 1923: 36 — Equatorial Guinea  
*woodi* Parent, 1935: 82 — Zambia  
*zaitzevi* sp. n. — Zambia  
*zephyrum* Bigot, 1858: 361 (*Psilopus*) — Gabon  
*zinovjevi* sp. n. — Nigeria

## II. Subgenus *Kalocheta* Becker

- collarti* Parent, 1933: 35 (*Kalocheta*) — Zaire, Tanzania, Kenya, Uganda  
*cucana* Negrobov et Kulibali, 1983: 1121 (*Kalochaeta*) — Zaire, Uganda  
*neoliberalia* Bickel, 1994: 212 — Liberia  
 = *liberia* Curran, 1929: 5 (*Kalocheta*) nec Curran, 1929: 4 (preoccupied)  
*passiva* Becker, 1923: 42 (*Kalocheta*) — Cameroun, ?Congo, ?Zaire  
*cilliersi* Vanschuytbroeck, 1970: 267 (*Kalocheta*) — Congo

## Descriptions and new records

### *Chrysosoma crinipes* Parent

(Fig. 1)

*Material examined.* Male, **Cameroon Republic**: West Cameroons, Bolo, 30.I.1970, R.H.L. Disney.

*Diagnosis.* *C. crinipes* is related with a group of species having a row of cilia on middle basitarsomere, those cilia 3 or 4 times as long as tarsomere diameter. Frons with a few black hairs; ratio of first to second tarsomere of fore tarsus, 3:1. Cercus with fine dorsal hairs, with somewhat stronger setae on apicoventral prominence; apicolateral internal projection with a few short hairs. Surstylus relatively narrow, with shallow excavation on apex and long apical hairs. Specimen examined is identical with detailed description of *C. crinipes*, though published descriptions of *C. tarsiciliatum*, *C. consentium* and *C. vividum* do not permit sure recognition of all those species.

*Distribution.* Zaire, Cameroun (!).

### *Chrysosoma gemmeum* (Walker)

(Fig. 2)

*Material examined.* Male, **Sierra Leone**: Manawa, 12.VIII.1912, Jas.J. Simpson.

*Diagnosis.* *C. gemmeum* is associated with a group of species having more than four long setae and a white preapical ring on middle basitarsomere. Characters omitted in the description are as following. Frons with one whitish vertical hair; fore basitarsomere with ventral pile of short hairs; middle basitarsomere with white ring covered with very short yellow pectination on dorsal side. Cercus dorsally setosed, with thin pointed apophysis in basal half and leaf-like apical projection. Surstylus with fine apical setae and distinct apico-dorsal dens.

*Distribution.* Nigeria, Sierra Leone.

### *Chrysosoma tricinutum* Parent

*Material examined.* Male, **Nyassaland**: [?]Ruov, 25.X.1913, S.A. Neave.

*Diagnosis.* *C. tricinutum* is close to *C. gemmeum* except mostly yellow femora, only 3 long setae on middle basitarsomere and 1 long seta on the same tibia. Frons with one whitish vertical hair; fore basitarsomere with ventral pile of very short hairs; middle basitarsomere with white preapical ring covered with yellow setulae on dorsal side; hind femora with long ventral and posterior hairs in basal half.

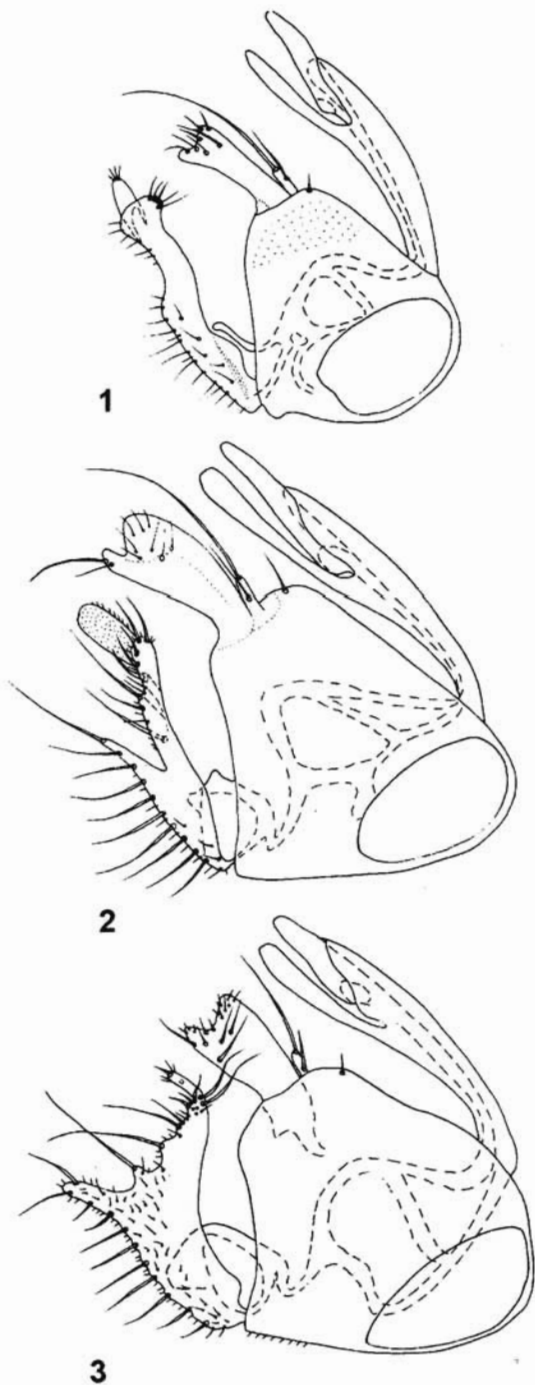
*Distribution.* Zaire, Burundi, Mozambique, Malawi (!).

### *Chrysosoma zinovjevi* sp. n.

(Fig. 3)

*Holotype.* Male, **W.Nigeria**: Iloro, 13.X.1954, C.H. Andrewes. B.M. 1955—68.

*Description.* Frons broad, metallic blue-green, with a group of black lateral hairs; strong postvertical and short postocular setae; ventral postcranium covered with dense irregular white hairs. Face metallic green, clypeus bulging, weakly grey pollinose, separated from eyes; face narrowed, 1.3 times as high as wide under antennae. Palpi and proboscis black-brown, with pale hairs and black bristles. Antenna blackish-brown, 1.7 times as long as height of head. Pedicel with short but strong bristles. First flagellomere subtriangular, as long as high, with short hairs. Arista apical, bare and simple. Length ratio of scape to pedicel to first flagellomere to arista — 8.6:11:17.5. Mesonotum metallic blue-green with copper and violet reflection; pleura bronze-green, grey pollinose. Two strong posterior and a few hair-like anterior dorso-central setae; 3 strong acrostichals. Scutellum with two strong bristles. Legs mostly black-brown. Fore femora in apical half and middle femora in apical fourth, anterior four tibiae and basitarsomeres dirty-yellow. Fore coxa from the front with numerous white hairs and 3 black preapical setae. Middle and hind coxae with black hairs and setae. Fore and middle femora with pale ventral hairs, which as long as femora diameter, hind femora with short ventral hairs in basal half. Fore tibia with 1—2 antero-dorsal, 1 postero-dorsal bristles. Fore basitarsomere with ventral pale pile of very short hairs. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 3.7 : 5.8 : 6.8 : 5.0 : 1.2 : 0.7 : 0.5 : 0.5. Middle tibia with 2—3 postero-dorsal, 4 antero-dorsal, 1—2 ventral and 3—4 apical bristles. Middle basitarsomere with 1 very long dorsal preapical seta, other tarsomeres simple. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 3.0 : 8.0 : 11.3 : 8.5 : 2.2 : 1.4 : 0.5 : 0.5. Hind tibia with 3—4 anterior and numerous dorsal and ventral setae. Hind basitarsomere with 1 basoventral seta. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 2.5 : 9.4 : 13.7 : 6.8 : 2.3 : 1.5 : 0.7 : 0.7. Wing mostly brownish, with hyaline median transverse stripe, longitudinal stripe between  $R_{4+5}$  and  $M_{1+2}$  and broad space along posterior edge; veins brown.  $M_1$  almost straight.  $M_{1+2}$  and  $M_1$  form obtuse internal angle. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 22 : 10.  $M_2$  present as short stub vein and faint fold on membrane. Crossvein *m-cu* strongly sinuate. Ratio of crossvein *m-cu*, measured along sinuation, to apical part of  $M_{1+2}$  (fork-handle) — 93 : 48. Anal vein



Figs 1—3. *Chrysosoma*, hypopygium, lateral view.  
1, *crinipes* Parent; 2, *gemmeum* (Walker); 3, *zinovjevi*  
sp. n.

faint, anal lobe and alula present. Anal angle sharp. Lower calipter brown, with black cilia. Halteres black-brown, halter stem thin, twice as long as knob, with a row of black setulae. Abdomen bronze-green, with black bands along sutures, with black hairs and bristles. First tergum with pale lateral hairs; sternum with pale and dark hairs. 1st—6th segments together 1.7 times as long as mesonotum. Hypopygium small, black. Cercus black, broad and broadened apicad, with thin short-setosed apico-ventral and apico-dorsal digits; dorsal and distal borders of cercus with strong brownish setae. Surstylus shallow excavated on apex, with short apical setulae and a few strong preapical setae.

Female. Unknown.

Length: body 6.9 mm; antenna 3.0 mm; wing-length 6.8 mm; wing-width 2.1 mm.

Distribution. Nigeria.

Etymology. The species is named for Russian dipterologist Dr. A. G. Zinovjev.

Diagnosis. *C. zinovjevi* is associated with a group of species having a few very long dorsal setae on middle basitarsomere. Male of the new species differs by broad, shallow excavated on apex, densely haired cercus and other characters such as following: antenna brown; *m-cu* strongly sinuate; all femora mostly black; middle tibia without long setae; middle basitarsomere with 1 long seta.

### *Chrysosoma biciliatum* Parent

Material examined. Male, Nigeria: Jan. 1959, C.H. Andrewes. B.M. 1959—200 / Ajouye, Lagos, 30.I.1959.

Diagnosis. *C. biciliatum* is associated with a group of species having a few very long dorsal setae on middle basitarsomere differing by lacking of long setae on middle tibia, only 2 long setae on middle basitarsomere, femora blackish-brown in basal half and simple cercus. Frons with a group of black lateral hairs; wing hyaline; fore basitarsomere with ventral pile. *C. tractatum* is possible synonym with the species (see remark under *C. zaitzevi*).

Distribution. Nigeria, Ghana.

### *Chrysosoma senegalense* (Macquart)

Material examined. 3 males and 2 females, Nigeria: Ilorin, 17.V.1912, J.W. Scott-Macfie. Male, N.Nigeria: Ilorin, 21.IV.1912, Dr. J.W. Scott-Macfie. Male, N.Nigeria: Zaria, Samaru, 28.VIII.1968 / J.C. Deeming, m.v. trap. Male, [Nigeria:] Kwali nr. Jos, 29.VII.1972.

Diagnosis. Males of *C. senegalense* can be well recognized by deeply bifurcated cercus with thin equal lobes. Vein *m-cu* strongly sinuate; middle tibia with

5 to 8 long setae; middle basitarsomere yellow, with 5 to 7 long setae. Females (contrary to males) with entirely yellow femora; *m-cu*, measured along sinuation, approximately as long as fork-handle  $M_{1+2}$ .

**Remark.** Becker (1923) synonymized *C. saphirum* with *C. senegalense*. Dyte & Smith (1980) mentioned *C. saphirum* in their Catalogue as true species. I didn't find reasons for reviving the species. Curran (1927) described lower calipter with black cilia in *C. senegalense* and those with white cilia in *C. mixtum*, while Parent's description (1933) of *C. senegalense* included indication on partly pale and partly black cilia. There was no other significant difference between the two descriptions. Bickel (1994) compared directly the male holotype of *C. mixtum* with identified specimens of *C. senegalense* at the NHML and didn't find difference. Thus I consider both names as synonyms.

**Distribution.** Congo, Zaire, Gabon, Senegal, Sierra Leone, Nigeria (!).

### *Chrysosoma albilimbatus* (Bigot)

**Material examined.** 2 males, N. Nigeria: Nr. Abuja, Idu Forest Reserve, 22.XI.1970, J.C. Deeming, kurmi. Male, N. Nigeria: Nr. Mokwa, Zugurma, 26.XII.1971, J. C. Deeming, kurmi. Male, N. Nigeria: [?]Idanu, 9.XII.1956 / Pres. by G. H. Andrewes. B.M. 1957—77.

**Diagnosis.** *C. albilimbatus* is associated with a group of species having yellow antenna and numerous long setae on middle tibia and basitarsomere. Frons with a group of black lateral hairs; fore tarsus with ventral pile of very short hairs; femora entirely yellow; cercus strongly curved, gradually thinned towards apex, without apophysis; wings mostly blackish.

**Distribution.** Congo, Zaire, Gabon, Sierra Leone, Ivory Coast, Ghana, Nigeria.

### *Chrysosoma tanasijtshuki* sp. n.

(Fig. 4)

**Holotype.** Male. [Kenya:] Van Someren, Ngong K.C., April 1936.

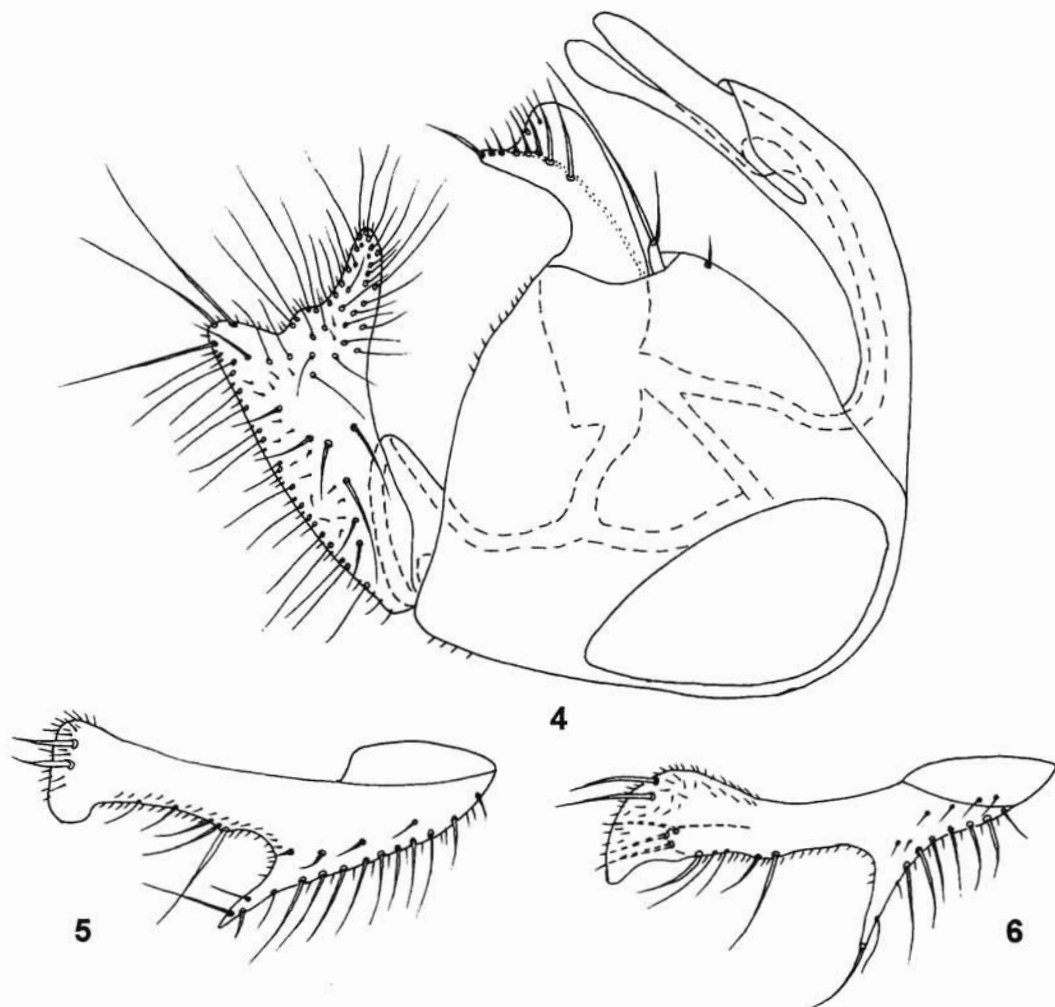
**Description.** Frons broad, metallic blue-green, with a group of black lateral hairs; fine postvertical and postocular setae; ventral postcranium covered with dense irregular white hairs. Face violet-green, clypeus bulging, grey pollinose, separated from eyes; face narrowed, 1.5 times as high as wide under antennae. Palpi and proboscis black-brown, with brownish hairs and (?) bristles. Antenna black, 1.6 times as long as height of head. Pedicel with short but strong bristles. First flagellomere subtriangular, as long as high, with short hairs. Arista apico-dorsal,

bare and simple. Length ratio of scape to pedicel to first flagellomere to arista — 11 : 7 : 13 : 190. Thorax blackish with metallic blue-green reflection; pleura grey pollinose. Two strong posterior dorsocentral bristles; 3 strong acrostichals. Scutellum with two strong bristles (broken). Legs mostly black. Fore and middle femora at apex and anterior four tibiae dark-brown. Fore coxa from the front with numerous dirty-white hairs and 3 black apical setae. Middle and hind coxae with dirty-yellow hairs, hind coxa with black external bristle. Fore and middle femora with pale brownish ventral hairs along entire length, which as long as femora diameter, hind femora with shorter ventral hairs in basal half. Fore tibia with 5 or 6 dorsal bristles. Fore tarsus simple. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 4.2 : 7.0 : 9.2 : 6.2 : 1.5 : 0.9 : 0.6 : 0.5. Middle tibia with 8 long postero-dorsal setae decreasing basad, 3 antero-dorsal, 3 ventral and 2 or 3 apical bristles. Middle basitarsomere with 6 long dorsal setae, 3d to 5th tarsomeres with short brownish dorsal hairs. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 4.0 : 10.0 : 15.3 : 10.8 : 2.6 : 1.4 : 0.9 : 0.7. Hind tibia with 6—7 setae on each of postero-dorsal, antero-dorsal and ventral sides. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 2.7 : 12.0 : 18.0 : 8.6 : 3.0 : 2.0 : 1.1 : 0.9. Wing mostly brown and brownish, with hyaline median transverse stripe, longitudinal stripe between  $R_{4+5}$  and  $M_{1+2}$  and broad space along posterior edge; veins black.  $R_{4+5}$  and  $M_1$  almost straight.  $M_{1+2}$  and  $M_1$  form obtuse internal angle. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 28 : 15.  $M_2$  present as short stub vein and faint fold on membrane. Crossvein *m-cu* strongly sinuate. Ratio of crossvein *m-cu*, measured along sinuation, to apical part of  $M_{1+2}$  (fork-handle) — 11 : 6. Anal vein faint, anal lobe and alula present. Anal angle sharp. Lower calipter brown-black, with black cilia. Halteres black, haltere stem thin, twice as long as knob, with a row of black setulae. Abdomen bronze-black, with black hairs and bristles. First tergum with white lateral hairs; sternum with white hairs only. 1st—6th segments together 1.5 times as long as mesonotum. Hypopygium small, black. Cercus black, broad and broadened apicad, shallow excavated on apex, with numerous dark hairs on either side except baso-ventral half of cercus. Surstylus curved and relatively short, with apico-dorsal dens and dorso-lateral row of strong setae, the first and the last of which are the longest.

**Female.** Unknown.

Length: body 8.2 mm; antenna 3.1 mm; wing-length 8.9 mm; wing-width 2.7 mm.



Figs 4—6. *Chrysosoma*.

4, *C. tanasijtshuki* sp. n.; hypopygium, lateral view; 5—6, cercus, left lateral view: 5, *C. mesotrichum* (Bezzi); 6, *C. fortunatum* Parent.

**Distribution.** Kenya.

**Etymology.** The species is named for Russian dipterologist Dr. V. N. Tanasijtshuk.

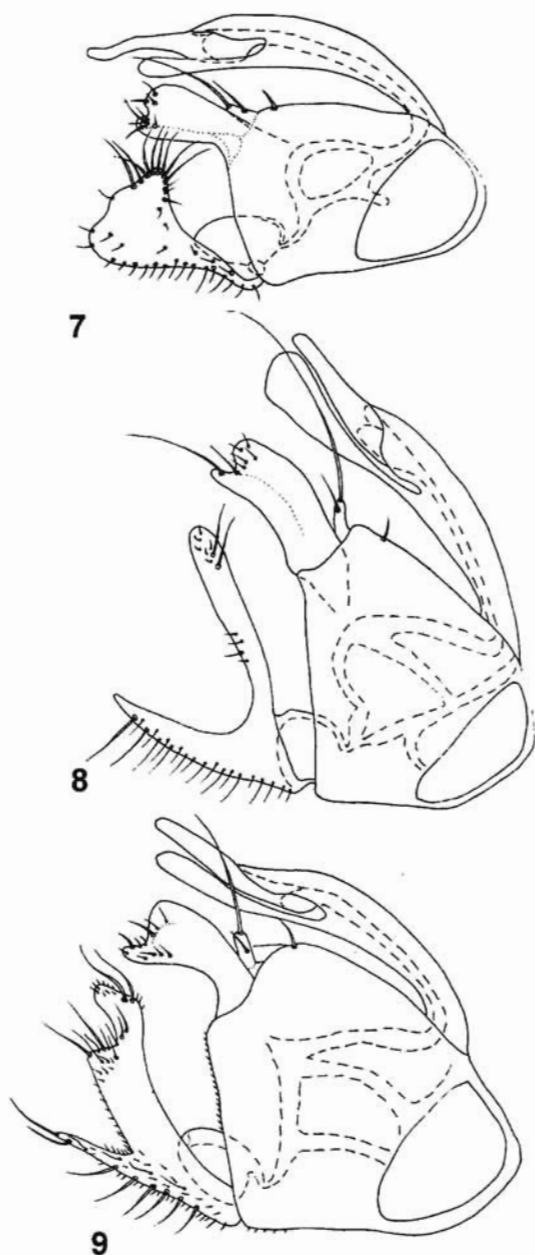
**Diagnosis.** *C. tanasijtshuki* is associated with large group of species having numerous and very long dorsal setae on middle tibia and basitarsomere. Male of the new species differs by unusually broad and broadened apicad, shallow excavated on apex, densely haired cercus and other characters such as following: antenna black; *m-cu* strongly sinuate; all femora black except apex; middle tibia with 8 long setae; middle basitarsomere with 6 setae.

### *Chrysosoma mesotrichum* (Bezzi)

(Fig. 5)

**Material examined.** 2 males and 1 female, Uganda: Tororo dist., Sukulu, 11.VIII & 28.XI.1963, E. Burt. B.M. 1964—40. 1 male and 1 female, Uganda: West Nile Dist., Paidha, 20—21.X.1964, R.W. Crosskey. Male, Uganda: Arua, 1919, Dr. R.E. McConnell / Pres. by Imp. Bur. Ent. / 1919—314. 3 males, Uganda: Entebbe, 3.IX & 7—9.V.1912, C.C. Gowdey.

**Diagnosis.** *C. mesotrichum* is associated with a group of species having black antenna and numerous long



Figs 7—9. *Chrysosoma*, hypopygium, lateral view.  
7, *C. stubbsi* sp. n.; 8, *C. kuznetzovi* sp. n.; 9, *C. zaitzevi* sp. n.

setae on middle tibia and basitarsomere. It differs from other species by strongly sinuouse vein *m-cu*, which 1.5—2 times as long as fork-handle *M*<sub>1+2</sub>; also by simple cercus with rounded apex and pointed dorsal apophysis, and additional row of short dorsal hairs on first and second joints of middle tarsus, which hardly longer than tarsomere diameter. Cercus with a row of dorsal setae in basal half, with 1 strong and a few fine dorsal setae in apical half, with 2 strong setae and short hairs on apex, which evenly cut and slightly broadened; dorsal dens with 3 or 4 preapical setae. Males with a group of lateral hairs on frons and mostly black femora, while females have strong vertical seta and yellow femora.

*Distribution.* Zaire, Sierra Leone, Uganda (!)

### *Chrysosoma fortunatum* Parent

(Fig. 6)

*Material examined.* Male, **Angola** (A 27): Duque de Braganca Falls, 11—12.III.1972 / Southern African Exp. B.M. 1972—1. Male, **Angola**: Benguella, F.C. Wellman. B.M. 1906—139. 2 males and 1 female, **N. Rhodesia**: Lake Bangweulu, Chilwi Island, 26.XI. 1946. 1 male and 2 females, **N. Rhodesia**: Lake Bangweulu dist., IX—XII.1946.

*Diagnosis.* *C. fortunatum* is closely related to *C. mesotrichum*, differing by additional row of dorsal hairs on first and second joints of middle tarsus, which quarter as long as setae on basitarsomere. Cercus with a row of strong setae in basal third, semilunulate in apical third, having here a group of strong dorsal and internal setae and two apico-ventral setae; thin dorsal dens with 1 strong apical and 1 fine preapical setae. Sexual variability as in *C. mesotrichum*; females of both species have no difference. Most characters, previously mentioned as diagnostic for *C. schoutedeni* and *C. fortunatum*, are very variable in examined specimens, and the two species are possible synonyms.

*Distribution.* Zaire, Angola (!), Zambia (!).

### *Chrysosoma stubbsi* sp. n.

(Fig. 7)

*Holotype.* Male. **Kenya**: 20.XII.1970, A. E. Stubbs, B.M. 1972—211 / Kakamega Forest, 5200 feet. Paratype. Male, **Uganda**: Budongo Forest, 7—8.II.1935, F.W. Edwards. B.M. 1935—203.

*Description.* Frons broad, shining metallic green-violet, slightly pollinose. A fine whitish front vertical hair on frons; long black postvertical seta is positioned as a linear continuation of the row of short postocular setae. Ventral postcranium covered

with dense irregular white hairs. Face blue, epistome slightly pollinose, clypeus densely white pollinose, separated from eyes; face narrowed, 1.3 times as high as wide under antennae. Palpi and proboscis orange, palpus with light hairs and 2 black bristles. Antenna black-brown, twice as long as height of head. Pedicel with short but strong bristles. First flagellomere subtriangular, with thinned apex, 1.5 times as long as high, with short hairs. Arista apical, bare and simple. Length ratio of scape to pedicel to first flagellomere to arista — 5 : 5 : 9 : 135. Mesonotum and scutellum metallic blue-green. Pleura bronze-green, silvery-white pollinose. 2 strong posterior and 3 hair-like anterior dorsocentral setae; 3 long acrostichals. Scutellum with two strong bristles. Legs light-yellow. Middle and hind coxae bronze-black, the same trochanters and apical segments of tarsi brown. Fore coxa from the front with numerous white hairs and two yellow preapical setae. Middle and hind coxae with a few white hairs. Fore femora with a few short white ventral hairs in basal fifth, other femora bare. Fore tibia and basitarsomere with a row of somewhat elongated postero-ventral setulae. Fore basitarsomere ventrally with dense pale pile of very short hairs. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 3.3 : 6.0 : 6.9 : 4.5 : 1.7 : 0.9 : 0.5 : 0.5. Middle tibia with 2 anterior, 1 dorsal and 2 or 3 apical short bristles, tarsus simple. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 2.3 : 6.3 : 9.7 : 7.2 : 1.9 : 1.4 : 0.7 : 0.6. Hind tibia with dorsal and ventral weak setae. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 1.6 : 7.7 : 11.8 : 5.4 : 2.3 : 1.2 : 0.8 : 0.6. Wings hyaline, veins brown.  $R_{4+5}$  gently curved to  $M_1$  in apical fifth.  $M_{1+2}$  and  $M_1$  form the right angle.  $M_1$  with gentle curvation to apex. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 24:6.  $M_2$  present as faint fold on membrane. Crossvein m-cu slightly sinuate. Ratio of crossvein m-cu to apical part of  $M_{1+2}$  (fork-handle) to apical part of  $CuA$  — 50 : 53 : 20. Anal vein faint, anal lobe and alula present. Anal angle sharp. Lower calipter yellow, with brown edging and white hairs. Halteres whitish-yellow, haltere stem thin, twice as long as knob, with a row of short setulae at apex. Abdomen shining green-violet, with silvery reflection somewhere, with black hairs and bristles. Apical border of segments narrowly black (paratype without black bands); first tergum with narrow membranous excavation and short white lateral hairs; sternum with white hairs only. 1st—6th segments together nearly thrice as long as mesonotum. Hypopygium small, black-brown. Cercus brown, subtriangular, widest and slightly convex on apex, with short pale dorsal hairs and a fan of strong setae

on apico-ventral angle. Surstylus digitiform, with shallow incision and short setae on apex.

*Female.* Unknown.

Length: body 6.1 mm; antenna 1.9 mm; wing-length 6.1 mm; wing-width 1.5 mm.

*Distribution.* West Kenya, Uganda.

*Etymology.* The species is named for the collector, A. E. Stubbs.

*Diagnosis.* *C. stubbsi* is an allied species for *C. unguatum*, differing by shape of cercus and other characters as following: all femora, tibiae and basitarsomeres light-yellow, middle tibia with 2 anterior and 1 dorsal setae in middle part; 3rd to 5th tarsomeres of fore tarsus without long hairs, fore basitarsomere with ventral pile.

### *Chrysosoma tenuipenne* Curran

*Material examined.* Male, N. Nigeria: Ilorin, 1912, Dr. J. W. Scott-Macfie. Male, Uganda: Arua, 1919, Dr. R. E. McConnell / Pres. by Imp. Bur. Ent. / 1919—314.

*Diagnosis.* *C. tenuipenne* is associated with a group of species having black coxae and simple middle leg. Frons with one vertical and one postvertical whitish hairs; antenna black; wing hyaline, but with a brown round spot at apex;  $M_2$  as faint fold; lower calipter with white cilia; cercus bifurcated, with densely setosed branches, ventral branch with blade-like setae.

*Distribution.* Senegal, Nigeria, Congo, Zaire, Uganda (!).

### *Chrysosoma leucopogon* (Wiedemann)

*Material examined.* 1 male and 1 female, Kenya: Diani Beach, VII—VIII.1951, N. L. H. Krauss. B.M. 1951—541; 1 male, Tanganyika T.: Morogoro, 29.I. 1917, A. Loveridge / Pres. by Imp. Inst. Ent. Brit. Mus. 1932—301. 3 males and 13 females, Chagos Archipelago: Diego Garcia: East Point, Eclipse Point, Pointe Marianne, Simpson's Point, 25.III—14.VI.1971 / A. M. Hutson, B.M. 1971—346 [some specimens with additional labels: freshwater pool; broad leaved woodland by inland marsh; dried inland marsh]; 3 females, Chagos Archipelago: Egmont Atoll, Ile Sudest, 4.XI—XII.1972 / M.J.D. Hirons, Joint Services Expedition. B.M. 1974—481. 1 male and 2 females, Maldive Is.: Addu Atoll, 13.X.1958 / W. W. Phillips. B.M. 1958—654.

*Diagnosis.* *C. leucopogon* is the only Afrotropical species having black callus at basal 1/5 of male hind tibia. Frons with a group of whitish hairs; coxae black; femora mostly black; male middle leg without long setae; middle basitarsomere mostly yellow



but white in distal 1/5, with a row of curved antero-ventral setae, second tarsomere black with crocheted setae, fourth and fifth tarsomeres with flattened white hairs forming distinct dorsal crest. Wing hyaline; *m-cu* slightly sinuate; lower calipter with pale cilia. Females can be easily recognized by 3 strong dorsal and 1 strong ventral setae on fore tibia, 2 strong and long postero-dorsal and 2—3 strong ventral setae on middle tibia.

**Distribution.** Tanzania, Kenya (!), Madagascar, Seychelles, Reunion, Mauritius, Rodriguez, Aldabra, Maldives (!), Chagos Archipelago, Burma, Sri Lanka, Taiwan, India, Indochina, Java, Sumatra, Thailand, Queensland, New Caledonia, Tahiti.

*Chrysosoma kuznetzovi* sp. n.  
(Fig. 8)

**Holotype.** Male. N. Rhodesia: Lake Bangweulu, Nr. Monfuli, 2.X.1946.

**Description.** Frons broad, shining metallic green-violet, slightly pollinose. A fine whitish front vertical hair on frons; long black postvertical seta is positioned as a linear continuation of the row of short postocular setae. Ventral postcranium covered with dense irregular white hairs. Face green-violet, epistome bulging, slightly pollinose, clypeus white pollinose, separated from eyes; face narrowed, 1.3 times as high as wide under antennae. Palpi and proboscis orange, palpus with light hairs and 2 black bristles. Antenna black. Pedicel with short but strong bristles. First flagellomere subtriangular, as long as high, with short hairs. Arista apical (broken). Length ratio of scape to pedicel to first flagellomere — 6 : 5 : 8. Thorax metallic green-violet. Pleura grey pollinose. 2 strong posterior and 3 hair-like anterior dorsocentral setae; 3 long acrostichals. Scutellum with two strong bristles. Legs mostly yellow. Middle and hind coxae and trochanters and basal 2/3 of fore coxa bronze-black, apical segments of tarsi brown. Fore coxa from the front with numerous white hairs and two yellow preapical setae. Middle and hind coxae with a few white hairs. Fore and middle femora with a row of long white ventral hairs in basal 2/3, those hairs twice as long as femora diameter, hind femora with short ventral hairs. First and second tarsomeres of fore tarsus ventrally with dense pale pile of short hairs. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 3.0 : 5.3 : 5.4 : 4.5 : 1.5 : 0.9 : 0.7 : 0.6. Middle tibia with a row of short erected postero-dorsal setulae, tarsus simple but fifth tarsomere with a few short white hairs. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 1.9 : 6.0 : 8.4 : 7.1 : 2.2 : 1.4 : 0.6 : 0.5. Hind tibia

with 2—3 weak dorsal setae, basitarsomere with short basoventral seta. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 1.4 : 7.2 : 10.5 : 5.4 : 2.4 : 1.5 : 0.7 : 0.6. Wings hyaline, veins brown.  $R_{4+5}$  gently curved to  $M_1$  at apex.  $M_{1+2}$  and  $M_1$  form the right angle.  $M_1$  with gentle curvature to apex. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 27 : 5.  $M_2$  present as short stub vein and faint fold on membrane. Crossvein *m-cu* moderately sinuate. Ratio of crossvein *m-cu*, measured along sinuation, to apical part of  $M_{1+2}$  (fork-handle) to apical part of *CuA* — 60 : 49 : 30. Anal vein faint, anal lobe and alula present. Anal angle sharp. Lower calipter yellow, with brown edging and white hairs. Halteres yellow-brown, haltere stem thin, twice as long as knob, with a row of short setulae in apical half. Abdomen shining green-violet, with black hairs and bristles. Apical border of segments narrowly black; first tergum with narrow membranous excavation and white lateral hairs; sternum with white hairs only. 1st—6th segments together nearly twice as long as mesonotum. Hypopygium black-brown. Cercus orange-brown, dorsally haired and deeply bifurcated with longer ventral thin arm, which has two strong preapical setae and two groups of short setulae. Surstylus with fine apical hairs and with apico-dorsal dens having long strong seta. Hypandrial hood and arm unusually broad at apex.

**Female.** Unknown.

Length: body 5.2 mm; postabdomen 1.0 mm; wing-length 5.4 mm; wing-width 1.6 mm.

**Distribution.** Zambia.

**Etymology.** The species is named for Russian dipterologist Dr. S. Yu. Kuznetsov.

**Diagnosis.** Keeping in mind variability of some characters within *Chrysosoma*, the new species could be keyed as *C. singulare*, *C. corruptor* or *C. cili-femoratatum*, differing from all those species by shape of cercus and other characters as following: legs mostly yellow; anterior fore femora with long ventral hairs, first and second tarsomeres of fore tarsus with ventral pile; middle tibia with short erect postero-dorsal setulae; middle tarsus simple.

*Chrysosoma pomeroyi* Curran

**Material examined.** Male, Cameroon Republic: West Cameroons, Bolo, 9.II.1970, R. H. L. Disney. Male, Nigeria: N.W. State, Kontagora River, 3 mls from Niger, 13.VIII.1970, P. H. Ward. B.M. 1970—604.

**Diagnosis.** *C. pomeroyi* is associated with a group of species having black coxae and simple middle tibia and basitarsomere. Frons with one whitish vertical hair; antenna yellow-brownish; wings vari-

ously maculated, usually with brownish bands along costa and other veins; *m-cu*, measured along sinuation, twice as long as fork-handle of  $M_{1+2}$ ; lower calipter with white cilia; second to fifth tarsomeres of middle tarsus with squamous dorsal comb of white hairs; cercus densely haired, having short dorsal dens in the middle, broadened and rounded on apex, with one dorsal thickened seta at apical 1/3, one apicoventral thickened seta and a few apical blade-like setae.

*Distribution.* Nigeria, Cameroun.

***Chrysosoma zaitzevi* sp. n.**

(Fig. 9)

*Holotype.* Male. N. Rhodesia: Lake Bangweulu, Mbawala Island, X—XI.1946.

*Paratypes.* 3 males, the same label.

*Description.* Frons broad, metallic green-violet, slightly pollinose. Two fine whitish front vertical hairs on frons; strong black postvertical seta is positioned as a linear continuation of the row of short postocular setae. Ventral postcranium covered with dense irregular white hairs. Face blue-green, epistome convex, slightly pollinose, clypeus bulging, densely white pollinose, separated from eyes; face narrowed, 1.2 times as high as wide under antennae. Palpi and proboscis orange, palpus with light hairs and 2 black bristles. Antenna black, 1.3 times as long as height of head. Pedicel with short but strong bristles. First flagellomere subtriangular, as long as high, with short hairs. Arista apical, bare and simple. Length ratio of scape to pedicel to first flagellomere to arista — 7 : 5 : 10 : 135. Mesonotum and scutellum metallic blue-green. Pleura bronze-green, white pollinose. 2 strong posterior and 3 hair-like anterior dorsocentral setae; 3 long acrostichals. Scutellum with two strong bristles. Legs mostly yellow. Coxae and trochanters, fore femora in basal 1/3, middle femora in basal 1/5, hind femora, apex of hind tibia and hind tarsus black, apical segments of other tarsi brownish. Fore coxa from the front with numerous white hairs and two black preapical bristles. Middle and hind coxae with pale hairs, hind coxa with fine black external seta. All femora ventrally and hind femora postero-dorsally with white hairs in basal half, longest on fore and hind femora, where they 1.5 times as long as femora diameter. Fore tibia with 2 weak dorsal and 1—2 apical setae. Fore tarsomeres ventrally with dense pale pile of very short hairs. Length ratio of fore coxa to femora to tibia to tarsus (segments from first to fifth) — 3.5 : 6.3 : 7.0 : 4.8 : 1.5 : 0.9 : 0.7 : 0.6. Middle tibia with 4 anterior, 1—2 dorsal, 1 ventral and 4 or 5 apical short bristles. Middle basitarsomere with

1—2 short and weak dorsal setae in middle third; fourth and fifth tarsomeres with comb of white hairs. Length ratio of middle coxa to femora to tibia to tarsus (segments from first to fifth) — 2.4 : 7.5 : 11.5 : 7.7 : 2.5 : 1.6 : 0.8 : 0.7. Hind tibia with anterior, dorsal and ventral weak setae. Hind basitarsomere with weak basoventral seta. Length ratio of hind coxa to femora to tibia to tarsus (segments from first to fifth) — 1.8 : 9.0 : 13.5 : 6.0 : 2.7 : 1.7 : 0.8 : 0.7. Wings mostly hyaline, with brownish bands and spots along costa and other veins, veins brown-black.  $R_{4+5}$  nearly straight.  $M_{1+2}$  and  $M_1$  form obtuse angle.  $M_1$  slightly concave. Ratio of parts of costa between  $R_{2+3}$  and  $R_{4+5}$  to those between  $R_{4+5}$  and  $M_1$  — 24 : 5.  $M_2$  present as short stub vein and faint fold on membrane. Crossvein *m-cu* strongly sinuate. Ratio of crossvein *m-cu*, measured along sinuation, to apical part of  $M_{1+2}$  (fork-handle) to apical part of *CuA* (upto the wing border) — 80 : 45 : 30. Anal vein faint, anal lobe and alula present. Anal angle sharp. Lower calipter orange, with black edging and pale hairs. Halteres brown, haltere stem thin, thrice as long as knob, with a row of short setulae at apex. Abdomen shining green-violet, with silvery reflection somewhere, with black hairs and bristles. Apical border of segments narrowly black; first tergum with narrow membranous excavation and white lateral hairs; sternum mainly with long white hairs. 1st—6th segments together nearly twice as long as mesonotum. Hypopygium small, black. Cercus black, rounded on apex, with pale dorsal and dark apical hairs, with pointed dorsal apophysis; a row of setae extending to the tip of thin dorsal apophysis; at apex cercus with two strong apicoventral setae and with wide setosed apicoventral incision. Surstylus with shallow excavation and short hairs on apex.

*Female.* Unknown.

Length: body 5.7—6.1 mm; antenna 2.4 mm; wing-length 5.8—6.5 mm; wing-width 1.7—1.9 mm.

*Distribution.* Zambia.

*Etymology.* The species is named for Russian dipterologist Dr. V. F. Zaitzev.

*Diagnosis.* *C. zaitzevi* is keyed as *C. tractatum* and can be distinguished by combination of characters such as following. Antenna black; wing with brown bands and spots along veins; lower calipter with pale cilia, all coxae and hind femora entirely black; all femora with white hairs in basal half; fore tarsus with ventral pile; middle leg without long setae or short erect setulae, fourth and fifth tarsomeres of middle tarsus white haired; cercus not bifurcated, but with pointed dorsal apophysis.

*Remark.* In his key to the species of *Chrysosoma*, Becker (1923) mentioned for *C. tractatum* 2 ventral bristles on middle basitarsomere. This position of bristles is unusual for the genus. In species diagno-

sis Becker described 2 elongated hairs, one at base and another at apex of the same tarsomere, without indication of their position. If those hairs referred to dorsal side of the tarsomere, little difference between *C. tractatum* and *C. biciliatum* could be found.

### Key to Afrotropical species of *Chrysosoma* (s.s.)

(Some pairs of species cannot be distinguished using published descriptions. Females usually cannot be identified without males of the same series. *?C. laeve*, known only from female, and species of the subgenus *Kalocheta* are not included)

1. Male middle basitarsomere dorsally ornamented with long fine setae or cilia, which at least thrice as long as tarsomere diameter . . . . . 2
  - Middle basitarsomere without long setae, sometimes with short erect ciliation (some species are known only from females) . . . . . 26
2. Middle basitarsomere with a row of cilia, which 3 or 4 times as long as tarsomere diameter . . . . . 3
  - Middle basitarsomere with setae much longer . . . . . 6
3. First flagellomere as long as head height . . . . . *?C. garambaensis* (*?Plagiozopelma*)
  - First flagellomere approximately as long as high . . . . . 4
4. Second tarsomere of fore tarsus 2/3 to 3/4 as long as basitarsomere, the last swollen and ventrally ciliated in apical half . . . . . *albocrinatum*
  - Second tarsomere of fore tarsus 2/5 to 2/7 as long as basitarsomere . . . . . 5
5. First and second tarsomeres of fore tarsus with ventral pile of short fine cilia . . . . . *crinipes*; *tarsiciliatum*
  - Fore tarsus not ciliated . . . . . *consentium*; *vividum*
6. Middle basitarsomere with white preapical ring, which usually covered with very short yellow pectination on dorsal side . . . . . 7
  - Middle basitarsomere dark or yellow, without white preapical ring covered with yellow pectination . . . . . 9
7. Middle basitarsomere with five long setae; middle tibia with five to seven long setae; hind femora entirely or almost entirely black . . . . . *gemmeum*; *hargreavesi*
  - Middle basitarsomere with only three long setae; middle tibia with one or two long setae . . . . . 8
8. Middle tibia with one long seta; hind femora black in basal sixth, with long ventral and posterior hairs . . . . . *tricinatum*
  - Middle tibia with two long setae; hind femora black except apical quarter and bare . . . . . *bacchi*
9. Middle basitarsomere with no more than three

- long setae; middle tibia usually without long setae . . . . . 10
- Middle basitarsomere with at least four long setae; middle tibia usually with numerous long setae . . . . . 13
- 10. Middle basitarsomere with one long seta; cercus broad and broadened apicad, with thin short-setosed apico-ventral and apico-dorsal digits . . . . . *zinovjevi*
  - Middle basitarsomere with two long setae; cercus either simple, without apophysis, or shallow bifurcated, with dorsal lobe having apical bundle of long hairs . . . . . 11
  - Middle basitarsomere with three long setae; cercus simple, with short dorsal apophysis . . . . . 12
- 11. Cercus shallow bifurcated, with equal lobes; hind femora black . . . . . *aequilobatum*
  - Cercus simple, without apophysis; femora blackish in basal half . . . . . *biciliatum*
- 12. Middle tibia without long setae; middle tibia and tarsus without erect pectination . . . . . *breddoi*
  - Middle tibia with 3 long setae; middle tibia and tarsus with erect pectination . . . . . *hirsutulum*
- 13. Wing vein *m-cu* slightly sinuate . . . . . *katangense*
  - Wing vein *m-cu* strongly sinuate . . . . . 14
- 14. Cercus deeply bifurcated, with thin equal lobes; middle tibia with 5 to 8 long setae; middle basitarsomere with 5 to 7 long setae; second to fourth tarsomeres with 1 or 2 apico-dorsal setae; fifth tarsomere white haired . . . . . *senegalense*
  - Cercus usually not bifurcated, with or without short dorsal apophysis . . . . . 15
- 15. Antenna yellow, sometimes partly reddish-brown . . . . . 16
  - Antenna black, sometimes partly brown . . . . . 20
- 16. Cercus strongly curved, gradually thinned towards apex, without apophysis; wing blackish, with whitish median transverse band; femora entirely reddish-yellow; second to fifth tarsomeres of middle tarsus without remarkable hairs . . . . . *albilimbatum*
  - Cercus with one dorsal apophysis; hind femora at least partly black-brown; apical tarsomeres of middle tarsus usually white haired . . . . . 17
- 17. Wing vein *m-cu*, measured along sinuation, thrice as long as fork-handle . . . . . 18
  - Wing vein *m-cu*, measured along sinuation, no more than twice as long as fork-handle . . . . . 19
- 18. Fore femora widely black at base; middle tibia with 7 or 8 long setae; middle basitarsomere with 7 long setae; second to fifth tarsomeres with a row of white hairs, without black hairs . . . . . *continuum*
  - Fore femora narrowly black at base; middle tibia

- with 6 long setae decreasing towards base; middle basitarsomere with 6 long setae; second and third tarsomeres with black dorsal setation; third to fifth tarsomeres with white hairs . . . . . *varivittatum*
19. Middle tibia with 10 long setae; middle basitarsomere with 7 long setae; other tarsomeres simple; femora reddish, narrow base and apex of hind femora brown . . . . . *liberia*
- Middle tibia with 6 long setae; middle basitarsomere with 5 long setae; last tarsomeres with dorsal comb of white hairs; femora reddish-brown with blackish dorsal stripe . . . *reptum*
20. Cercus long and thin, truncated and widest at apex, with apophysis in apical quarter; middle tibia with 5 to 7 long setae, decreasing in length towards base; middle basitarsomere with 5 long setae; second to fourth tarsomeres with one apical seta; fifth and sometimes fourth tarsomeres white haired; femora reddish-yellow . . . . . *lavinia*
- Cercus broad and broadened apically, shallow excavated on apex, with numerous dark hairs on either side except baso-ventral half of cercus; middle tibia with 8 long setae; middle basitarsomere with 6 long setae; other tarsomeres with short black hairs, brownish on fifth article; femora black . . . . . *tanasijskii*
- Cercus usually thin and thinned towards apex, with apophysis in basal half; other features various . . . . . 21
21. Cercus very thin in apical half and pointed on apex . . . . . 22
- Cercus rounded on apex . . . . . 23
22. Cercus with apophysis at base; middle tibia with 5 antero-dorsal and 8 or 9 postero-dorsal long setae; middle basitarsomere with 8 long setae . . . . . *triumphator*
- Cercus with apophysis in front of the middle; middle tibia with 7 antero-dorsal, 8 postero-dorsal and 1 apico-ventral long setae; middle basitarsomere with 4 long setae . . . *angolense*
23. Middle tibia with 4 long postero-dorsal setae; second to fifth tarsomeres of middle tarsus without remarkable ciliation . . . . . *speciosum*
- Middle tibia with 5 to 10 long posterodorsal setae, sometimes decreasing in length towards base; second to fifth tarsomeres of middle tarsus with elongated hairs . . . . . 24
24. First and second tarsomeres of middle tarsus with additional row of short dorsal hairs, which hardly longer than tarsomere diameter; middle tibia with 5 to 8 long setae; middle basitarsomere with 6 to 8 long setae . . . . . *mesotrichum*
- First and second tarsomeres of middle tarsus with additional row of short dorsal hairs, which more than twice as long as tarsomere diameter; middle tibia with 7 to 10 long postero-dorsal setae; middle basitarsomere with 6 to 10 long setae . . . . . 25
25. Part of cercus from dens upto the apex 7—8 times as long as cercus width at apex . . . . . *schoutedeni*
25. Part of cercus from dens upto the apex thrice as long as cercus width at apex . . . . . *fortunatum*
26. At least fore coxa yellow . . . . . 27
- All coxae black, sometimes fore coxa yellow at apex . . . . . 46
27. All coxae yellow . . . . . 28
- Only fore coxa yellow . . . . . 31
28. Abdomen entirely metallic; fore and middle legs without erect hairs . . . . . 29
- Abdomen partly yellow; fore and middle tibiae and tarsi with erect pubescence . . . . . 30
29. All basitarsomeres yellow . . . . . *aestimabile*
- Tarsi entirely black (female) . . . ? *C. micantifrons*
30. Antenna yellow; frons brilliant; fore coxa with yellow apical bristles; first to fourth abdominal segments at least partly yellow . . . . . ? *C. trigemmans*
- Antenna black; frons entirely pollinose; fore coxa with black apical bristles; only first abdominal segment yellow . . . . . *asperum*
31. Antenna yellow-brownish . . . . . 32
- Antenna black . . . . . 35
32. Wing brownish with round white spots in the middle and along posterior edge . . . . . *marginatum*
- Wing hyaline or monochrome; fore basitarsomere flattened . . . . . 33
33. Wing vein *m-cu* sinuate; fore basitarsomere with curved basal seta . . . . . *vagator*
- Vein *m-cu* straight . . . . . 34
34. Fore tibia with 3 long apico-ventral bristles; last tarsomeres of fore tarsus simple . . . . . *pallidicorne*
- Fore tibia without long bristles; last tarsomeres of fore and hind tarsi slightly enlarged . . . . . ? *C. centrale* (? *Amblypsilopus*)
35. Wing distinctly maculated . . . . . 36
- Wing hyaline, monochrome or evenly darkened along costa . . . . . 37
36. Wing with three separated spots . . . . . *carum*
- Wing brown with two windows and hyaline posterior edge (female) . . . . . *alboguttatum*
37. Wing vein *m-cu* straight (female) . . . . . *benignum*
- Vein *m-cu* sinuate or distinctly convex . . . 38
38. Middle tibia and tarsus with erect pubescence . . . . . 39
- Middle tibia and tarsus without erect pubescence . . . . . 40



39. Apical part of  $CuA_1$  nearly half as long as  $m-cu$  . . . . . *singulare*  
 — Apical part of  $CuA_1$  approximately as long as  $m-cu$  . . . . . *woodi*
40. Cercus short and pointed; 4 or 5 dorsocentral setae; size 3 mm . . . . . *praelatum*  
 — Cercus not pointed; 2 or 3 dorsocentrals; size about 5 mm . . . . . 41
41. Cercus not bifurcated . . . . . 42  
 — Cercus bifurcated . . . . . 44
42. Cercus digitiform, with short dens in the middle . . . . . *pauperculum*  
 — Cercus subtriangular, widest at apex . . . . . 43
43. Cercus with wide apical excavation; middle tibia with 1 basodorsal seta . . . . . *ungulatum*  
 — Cercus slightly convex on apex; middle tibia with 2 anterior and 1 dorsal setae in the middle . . . . . *stubbisi*
44. First abdominal segment densely snow-white pollinose; haltere yellow-brown with black apex of knob . . . . . *minusculum*  
 — First abdominal segment metallic; haltere monochrome . . . . . 45
45. Middle and hind coxae with pale ciliation . . . . . *corruptor*  
 — Middle and hind coxae with black ciliation . . . . . *gracile*
46. Wing hyaline but with a brown round spot at apex . . . . . *tenuipenne*  
 — Wing with another type of maculation . . . . . 47
47. Lower calipter with pale cilia . . . . . 48  
 — Lower calipter with black cilia . . . . . 57
48. Male hind tibia with basal ring-shaped callus; fourth tarsomere of middle tarsus white; female anterior four tibiae with a few long dorsal and ventral setae . . . . . *leucopogon*  
 — Legs without such characters . . . . . 49
49. Femora yellow, sometimes yellow-brownish . . . . . 50  
 — At least hind femora black . . . . . 55
50. Females . . . . . 51  
 — Males . . . . . 52
51. Vein  $m-cu$  as long as fork-handle  $M_{1+2}$  . . . . . *senegalense*  
 — Vein  $m-cu$ , measured along situation, 1.5—2 times as long as fork-handle  $M_{1+2}$  . . . . . *schoutedeni*; *mesotrichum*
52. Middle tarsus with simple setulae; middle tibia with short postero-dorsal erect setulae; cercus deeply bifurcated . . . . . *kuznetzovi*  
 — Middle tarsus with erect pectination and/or white hairs . . . . . 53
53. Antenna brownish; second to fifth tarsomeres of middle tarsus with a squamous dorsal comb of white hairs; middle tibia and tarsus without erect pectination; cercus not bifurcated . . . . . *pomeroi*  
 — Antenna black; second to fifth tarsomeres of middle tarsus without white hairs; middle tibia and tarsus with erect pectination . . . . . 54
54. Cercus deeply bifurcated; middle leg along entire length with short dorsal ciliation, becoming erect apicad . . . . . *cilifemoratum*  
 — Cercus not bifurcated; middle leg without dorsal ciliation . . . . . *ituriense*
55. Wing black-brown, whitish along posterior edge, with narrow white transverse band, falling down from  $R_1$  (female) . . . . . *praecipuum*  
 — Wing hyaline; male middle tibia and tarsus with irregular erect setulae . . . . . *gromieri*  
 — Wing with brown bands and spots along costa and other veins . . . . . 56
56. Middle basitarsomere with two ventral bristles, other tarsomeres without remarkable hairs . . . . . *tractatum*  
 — Middle basitarsomere without ventral bristles, fourth and fifth tarsomeres of the same tarsus with white dorsal hairs . . . . . *zaitzevi*
57. Antenna at least partly yellow-red; cercus usually simple . . . . . 58  
 — Antenna black; cercus bifurcated . . . . . 60
58. Cercus fairly bifurcated; fore and middle femora black except apical quarter; first three tarsomeres of middle tarsus brownish . . . . . *norma*  
 — Cercus not bifurcated; fore femora black in basal quarter, middle femora black in basal 3/5; middle tarsus whitish . . . . . 59
59. Antenna pale-yellow; mesonotum with two bronze stripes; middle femora with exclusively yellow ventral setae; hind tibia yellow . . . . . *zephyrum*  
 — Antenna red-brown; mesonotum without distinct stripes; middle femora with black ventral setae in the middle; hind tibia black . . . . . *aequatoriale*
60. First abdominal segment with snow-white band; middle tarsus without remarkable hairs . . . . . *ostentatum*  
 — Abdomen metallic; third and fourth tarsomeres of middle tarsus ornamented with black and white setae . . . . . *petersi*

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## References

- Becker, Th.** 1923. Dipterologische Studien: Dolichopodidae. D. Aethiopische Region. *Entomol. Mitteilungen*, 12(1): 1—50.
- Bickel, D. J.** 1994. The Australian Sciapodinae (Diptera: Dolichopodidae), with a review of the Oriental and Australasian faunas, and a world conspectus of the subfamily. *Rec. Austral. Mus., Suppl.* 21: 1—394.
- Curran, C. H.** 1927a. New Dolichopodidae from the Ethiopian Region. *Ann. Mag. Nat. Hist.*, 9 (19): 1—16.
- Dyte, C. E. & K. G. V. Smith.** 1980. Family Dolichopodidae. In: R. W. Crosskey (ed.). *Catalogue of the Diptera of the Afrotropical Region*. Brit. Mus. (Nat. Hist.), London: 443—463.
- Grichanov, I. Ya.** 1995. Afrotropical species of the subgenus *Kalocheta* Becker (Diptera: Dolichopodidae: *Chrysosoma* Guerin-Meneville). *Int. J. Dipter. Res.*, 6(4): 365—368.
- Grichanov, I. Ya.** 1996. Four new species of the genus *Amblypsilopus* Bigot (Diptera: Dolichopodidae) from Tropical Africa and Papua New Guinea. *Int. J. Dipter. Res.*, 7(4): 285-294.
- Grichanov, I. Ya.** 1997. *Gigantosciapus* (Diptera: Dolichopodidae), a new genus from Tropical Africa. *Int. J. Dipter. Res.*, 8(1):
- Grichanov, I. Ya.** 1997. A brief review of Ethiopian fauna of the subfamily Sciapodinae (Diptera: Dolichopodidae) with descriptions of the new species. *Int. J. Dipter. Res.* (In press).
- Parent, O.** 1933. Quelques Dipteres Dolichopodides exotiques du Musee de Bruxelles. *Bull. Mus. roy. Hist. nat. Belg.*, 9(20): 1—9.

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