

New Afrotropical eumerine flower fly synonyms (Diptera: Syrphidae)

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ABSTRACT

The following new synonymies are proposed: *Eumerus argenteus* Walker (= *E. quadrimaculatus* Macquart syn. nov.); *E. assimilis* Doesburg (= *E. griseus* Hull syn. nov.); *E. astropilops* Hull (= *E. nigrocoeruleus* Hull syn. nov., *E. hypopygialis* Doesburg syn. nov.); *E. bidentatus* Keiser (= *E. tridentatus* Keiser syn. nov.); *E. breijeri* Doesburg (= *E. speiseri* Hull syn. nov.); *E. cistanchei* Efflatoun (= *Paragus parasiticus* Séguay syn. nov., *E. caboverdensis* Barkemeyer syn. nov.); *E. erythrocerus* Loew (= *E. axinecerus* Speiser syn. nov., *E. obscurus* Hull syn. nov.); *E. jacobi* Hervé-Bazin (= *E. connexus* Hull syn. nov.); *E. obliquus* (Fabricius) (= *E. lugens* Wiedemann syn. nov.); *E. unicolor* Loew (= *Citabaena wainwrighti* Curran syn. nov.); *E. varipennis* (Curran) (= *E. toamasinaensis* Keiser syn. nov.). Lectotypes are designated for *Pipiza aurifrons* Wiedemann, *Eumerus cistanchei* Efflatoun, *Eumerus erythrocerus* Loew, *Eumerus lugens* Wiedemann, *Milesia obliqua* Fabricius, *Eumerus quadrimaculatus* Macquart and *Eumerus unicolor* Loew.

Keywords: Diptera, Syrphidae, flower flies, synonyms, Afrotropical, Oriental

INTRODUCTION

Eumerine flower flies are common and speciose in the Afrotropical Region. The larvae are saprophagous or more rarely (partly) phytophagous, and the adults are flower visitors and may be expected to be pollinators. A few species are agricultural and horticultural pests (e.g. Ricarte, Marcos-Garcia & Rotheray, 2008). Today the focus for biodiversity studies is often the description of new taxa (higher groups and species). Few authors appear inclined to ask whether those taxa that seem to be new and different have already been recognized and described before. Many papers focus on new taxa, especially species, but to properly account for and tabulate our knowledge of biodiversity, we should also resolve earlier work. This paper is on new synonyms, and in the proper tabulation of worldwide flower flies we propose the subtraction of 14 nominal taxa from the known total of *Eumerus* species (now at 253).

Leif Lyneborg (1932–2006) (Pape, 2007) began a revision of the Afrotropical fauna of *Eumerus* (Meigen, 1822: 202), but unfortunately died before it was finished. He did leave a comprehensive, monographic key that treated 127 species of which 74 were considered to be new. We hope others will finish and publish this work. The junior authors (TP & FCT) here publish the new synonyms discovered by the senior author (LL) based on his studies of a very extensive material of undissected males. Also, we take this opportunity to select lectotypes for a couple of older names that represent widespread, common species.

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Format for the catalog follows the standard of the *Systema Dipteroorum* (Pape & Thompson, 2014). Where primary types were examined this is indicated by an asterisk. Range includes first an indication for the area of occurrence of the type followed after a colon by the area(s) of other included specimens (key: AF, Afrotropical; AU, Australasian; OR, Oriental; PA, Palaearctic). Comments are appended where necessary. On lectotype (LT) designations, we follow the International Code of Zoological Nomenclature (ICZN, 4th edition) and reject the assumption of holotype logic, which despite the authority and logic of the Code, many curators and researchers continue to accept and follow. The Code (ICZN Art. 73.1) defines a holotype (HT) as a specimen designated as such (that is, as Holotype or THE Type (singular), ICZN Art. 73.1.1) in the original description or as a unique specimen listed (ICZN Art. 73.1.2). Where there is no indication of the number of specimens in the original description, all extant specimens are to be considered syntypes, and a lectotype designation is required to restrict the name-bearing type to a single specimen.

Acronyms for depositories: AMNH, American Museum of Natural History, New York, USA; BMNH, Natural History Museum, London, United Kingdom; EDCU, Entomology Department, Cairo University, Cairo, Egypt; MNHN, Muséum national d'Histoire naturelle, Paris, France; MRAC, Royal Museum for Central Africa, Tervuren, Belgium; NRS, Naturhistoriska riksmuseet, Stockholm, Sweden; NMSA, KwaZulu-Natal Museum, Pietermaritzburg, South Africa; NMW, Naturhistorisches Museum Wien, Vienna, Austria; OUMH, Department of Entomology, Oxford University, Oxford, U.K.; ZMUC, Natural History Museum of Denmark, Zoological Museum, University of Copenhagen, Denmark; ZIL, Zoological Museum, University of Lund, Sweden.

SPECIES AND THEIR SYNONYMS

argenteus: (Range, AF: AF) South Africa.

Eumerus argenteus Walker, 1852: 224. Type Locality (TL): South Africa (LT* Male BMNH here designated). Kertész, 1910: 313 (catalog record); Smith & Vockeroth, 1980: 497 (catalog record); Dirickx, 1998: 37 (catalog record).

Eumerus quadrimaculatus Macquart, 1855: 111, pl. 5, fig. 3 (head, wing). TL: South Africa. Cape [as 'Cap de Bonne-Espérance'] (LT* Male UMO [Bigot]). Kertész, 1910: 318 (catalog record); Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 47 (catalog record). New Synonym

assimilis: (AF: AF) Zimbabwe to South Africa.

Eumerus assimilis Doesburg, 1955: 365. TL: Zimbabwe. Umtali District (HT* Male NMSA). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 38 (catalog record). The type was originally stated to be deposited in the Transvaal Museum, but was later transferred to NMSA.

Eumerus griseus Hull, 1964: 468. TL: South Africa. Cape: Ceres (HT* Male BMNH). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 42 (catalog record). New Synonym

astropilops: (AF: AF) Kenya, south to South Africa.

Eumerus astropilops Hull, 1964: 471. TL: South Africa. Natal: Royal Natal National Park (HT* Male ZIL). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 38 (catalog record).

Eumerus nigrocoeruleus Hull, 1964: 484. TL: Kenya. Mt Kenya, western slope, on Meru-Nyeri Road, 6000–8500ft (HT* Male BMNH). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 45 (catalog record). New Synonym

Eumerus hypopygialis Doesburg, 1966: 129. TL: South Africa. Natal: Cathedral Peak Forest Reserve, Indumeni River (HT* Male NMSA). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 42 (catalog record). New Synonym

- aurifrons*: (OR: OR AU AF) Ivory Coast east to Kenya and Madagascar, south to South Africa; India to Philippines, s. Indonesia, Australia (NT, Qld.), Hawaii.
- Pipiza aurifrons* Wiedemann, 1824: 32. TL: India. Tamil Nadu: Tharangambadi [as 'Ind. orient.'] (LT* Male UZMC here designated). Figs 1–3.
- Eumerus aurifrons*. Wiedemann, 1830: 114 (redescription); Kertész, 1910: 314 (catalog record); Zimsen, 1954: 18 (one type in Copenhagen); Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 38 (catalog record).
- Eumerus albipes* Keiser, 1971: 302. TL: Madagascar. Nosy Be: Ambanoro (HT* Male MNHN). Syn. Smith & Vockeroth, 1980: 498.
- bidentatus*: (AF: AF) Madagascar.
- Eumerus bidentatus* Keiser, 1971: 304. TL: Madagascar. East (Tam.): Perinet (HT* Male MNHN). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 39 (catalog record).
- Eumerus tridentatus* Keiser, 1971: 316. TL: Madagascar. North (D.-S.): Joffreville (HT* Male MNHN). Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 50 (catalog record). New Synonym
- breijeri*: (AF: AF) Botswana, South Africa.
- Eumerus breijeri* Doesburg, 1955: 361. TL: South Africa. Kraaifontein (HT* Male NMSA). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 39 (catalog record). The type was originally stated to be deposited in the Transvaal Museum, but was later transferred to NMSA.
- Eumerus speiseri* Hull, 1964: 477. TL: South Africa. Cape: Cape Town, Table Mountain (HT* Male ZIL). Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 49 (catalog record). New Synonym
- cistanchei*: (PA: PA AF) Egypt, Mauretania, Cape Verde Is.
- Eumerus cistanchei* Efflatoun, 1926: 297, figs (heads, abdomens). TL: Egypt. South Galala Plateau: Wadi Araba (LT Male EDCU here designated).
- Paragus parasiticus* Séguy, 1955: 162. TL: Mauretania: Atar (HT* Male MNHN). New Synonym
- Eumerus parasiticus*. Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 46 (catalog record). Holotype examined by Dieter Doczkal.
- Eumerus caboverdensis* Barkemeyer, 2002: 16, figs 1–5 (head, antenna, wing, metaleg, abdomen). TL: Cape Verde Is. Santo Antão (HT Male NMSA). Paratypes examined. New Synonym
- erythrocerus*: (AF: AF PA) DR Congo to Kenya, south to South Africa.
- Eumerus erythrocerus* Loew, 1858: 377. TL: South Africa. Eastern Cape [as 'Caffraria'] (LT* Female NRS here designated). Kertész, 1910: 314 (catalog record); Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 41 (catalog record).
- Eumerus axinecerus* Speiser, 1910: 129. TL: Tanzania. Mount Meru, lowlands [as 'aus der Niederung am Meru'] (HT* Female NRS). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 39 (catalog record). New Synonym
- Eumerus obscurus* Hull, 1964: 467. TL: South Africa. Cape: Skoorsteenkop, Hout Bay (HT* Female ZIL). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 45 (catalog record). New Synonym
- jacobi*: (AF: AF) Nigeria to Kenya, south to DR Congo.
- Eumerus jacobi* Hervé-Bazin, 1913: 72. TL: Congo. Katwamba (HT* Male MRAC). Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 42 (catalog record).
- Eumerus connexus* Hull, 1964: 490. TL: Kenya. South Kavirondo, Kuja Valley, 4000ft (HT* Male BMNH). Dirickx, 1998: 40 (catalog record). New Synonym
- obliquus*: (AF: AF PA AU) Southern Europe (Mediterranean), south to South Africa, St. Helena & Madagascar; Australia (introduced).
- Milesia obliqua* Fabricius, 1805: 194. TL: Ghana. Teshi [as 'Guinea'] (LT* Male UZMC here designated). Zimsen, 1964: 473 (one type in Copenhagen). Figs 4–6.
- Eumerus obliquus*. Wiedemann, 1830: 112 (syn., redescription); Kertész, 1910: 316 (catalog record); Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 45 (catalog record).

Eumerus lugens Wiedemann, 1830: 113. TL: St. Helena (LT* Male UZMC here designated). Kertész, 1910: 316 (catalog record); Zimsen, 1954: 18 (one type in Copenhagen); Smith & Vockeroth, 1980: 498 (catalog record); Dirickx, 1998: 43 (catalog record). New Synonym

unicolor: (AF: AF) South Africa.

Eumerus unicolor Loew, 1858: 377. TL: South Africa. Eastern Cape [as 'Caffraria'] (LT* Female NRS here designated). Kertész, 1910: 321 (catalog record); Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 51 (catalog record).

Citabaena wainwrightii Curran, 1938: 9. TL: South Africa. Johannesburg (HT* Female AMNH). Arnaud & Owen, 1981: 95 (type data); Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 52 (catalog record). New Synonym

varipennis: (AF: AF) DR Congo to Tanzania, south to Namibia and South Africa; Madagascar and Réunion.

Citabaena varipennis Curran, 1938: 10. TL: Mozambique [as 'Lourenco Marques'] (HT* Male BMNH). Arnaud & Owen, 1981: 95 (type data); Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 51 (catalog record).

Eumerus toamasinaensis Keiser, 1971: 315. TL: Madagascar. East (Tam.): Tamatave (HT* Male MNHN). Smith & Vockeroth, 1980: 499 (catalog record); Dirickx, 1998: 50 (catalog record). New Synonym

LECTOTYPE DESIGNATIONS

(Figs 1–6)

Eumerus argenteus Walker was described from an unspecified number of alleged female specimens from 'Cape' and in the Saunders Collection, which now are in the Natural History Museum. In London today, there is a specimen labeled 'Holotype' [red circular label], 'Type' [green circular label], 'Cape / ?Cansp' and 'Eumerus / argenteus. / Wlk' [in E.E. Austen's handwriting] and it is here designated the lectotype of *argenteus* Walker to ensure consistent interpretation of this name. The lectotype was mis-sexed by Walker and is a male.

Pipiza aurifrons Wiedemann was described from an unspecified number of male specimens from 'Ind. orient.' and in 'Museo regio'. In Copenhagen today, there is a specimen (Figs 1–3) labeled 'Pipiza aurifrons W. Ind. or.', 'TYPE', and 'LECTOTYPE Pipiza aurifrons Wied Desig. Thompson 1974' and it is here designated the lectotype of *aurifrons* Wiedemann to ensure consistent interpretation of this name. As this specimen was in the Royal Museum of the Danish Government, we can infer that the specimen came from the Danish colony in India and restrict the type-locality to India, Tamil Nadu, Tharangambadi (formerly 'Tranquebar' [Danish: 'Trankebar']). We here confirm the earlier synonymy of *Eumerus albipes* Keiser (Smith & Vockeroth, 1980: 498).

Eumerus cistanchei Efllatoun was described from a series of adults reared from larvae feeding on *Cistanche phelypaea* (Linnaeus) found in Egypt, Wadi Araba. In the Efllatoun Collection, there is a specimen labeled 'EM 18.4.1926 / FROM CISTANCHE / LUTEA HOFFMG', 'WADI ARABA / GALALA 1.3.26', and 'EGYPTE', and it is here designated lectotype of *cistanchei* to ensure consistent interpretation of this name. There are also additional syntypes, now paralectotypes.

Eumerus erythrocerus was described from an unspecified number of female specimens from 'Caffraria' and collected by Johan August Wahlberg. This collection is now in Stockholm, where there is a specimen labeled '226', '186' and 'Lectotypus Eumerus erythrocerus Loew 1858, design.: Barkemeyer 2002', which is here



Figs 1–6. — *Eumerus* spp.: 1–3, *Eumerus aurifrons* (Wiedemann), Lectotype, ♂: 1, dorsal habitus; 2, lateral habitus; 3, labels; 4–6, *Eumerus obliquus* (Fabricius), Lectotype, ♂: 4, lateral habitus; 5, dorsal habitus; 6, labels.

designated the lectotype of *erythrocerus* Loew to ensure consistent interpretation of this name.

Eumerus lugens Wiedemann was described from an unspecified number of male specimens from ‘Sct. Helena’ collected by Dr. Trentepohl and in ‘Westermann’s Sammlung’. This collection is now in Copenhagen, where there is a specimen labeled ‘E. lugens Wied. Isle Sn Helena Trentepohl’, which is here designated the lectotype of *lugens* Wiedemann to ensure consistent interpretation of this name.

Milesia obliqua Fabricius was described from an unspecified number of specimens from 'Guinea' and in 'Mus. Dom. Lund'. The latter refers to the collection built up by O.R. Sehested and Niels Tønder Lund, both of whom studied under Fabricius in Kiel (Tuxen, 1967), and which is now in Copenhagen together with the Fabrician material, with the two parts kept separately. Zimsen (1964) mentions only 'Copenhagen 1 specimen' under *Milesia obliqua*, but today there are two male specimens, here assessed to be conspecific, in a unit tray marked as Sehested-Tønder Lund material. One male is labeled '♂', 'Mus. Westerm.' [printed], 'Guinea' [handwritten, not Fabricius' hand], 'zmuc00026496' and 'Eumerus/ P.H.v. Doesburg jr. det. 19' [a standard black bordered determination label]. The other male is labeled 'M. obliqua, e Guinea Kriegon' [in Fabricius' hand], 'zmuc00026497', and 'Milesia ♂, obliqua Fabr, holotype, P. H. v. Doesburg jr. det. 1972' [a standard black bordered determination label]. The male labeled by Fabricius is undoubtedly an original syntype, and as Zimsen found only one specimen, the other male has most likely been transferred to the unit tray from the Westermann collection. We are here designating the specimen labeled by Fabricius (Figs 4–6) as lectotype of *obliqua* Fabricius to ensure consistent interpretation of this name. As the collector is known, we can properly infer that the type locality is the modern country of Ghana, part of which was in Fabrician times a Danish colony. So, we here restrict the type locality to the city Teshie, south-east Ghana, which in our opinion is the most likely place where the lectotype was collected.

Eumerus quadrimaculatus Macquart was described from an unspecified number of alleged female specimens from 'Du cape de Bonne-Esperance' in the collection of Bigot. There is a specimen now in Oxford, which is labeled 'Holo-, type' [round red bordered circular label], 'Eumerus, Q.maculatus, ♀ S Afracey', 'G. Eumerus. Meig.', 'E. quadrimaculatus. [circle with down-arrow] Africa Macq', 'E. quadrimaculatus, EX COLL. BIGOT', and 'Eumerus, argenteus Wlk., Lyneborg det. 2006' and it is here designated the lectotype of *quadrimaculatus* Macquart to ensure consistent interpretation of this name. The lectotype was missexed by Macquart and is a male.

Eumerus unicolor Loew was described from an unspecified number of female specimens from 'Caffraria' and collected by Johan August Wahlberg. This collection is now in Stockholm, where there is a specimen labeled '228', '185' and 'Lectotype Eumerus unicolor Loew 1858, design.: Barkemeyer 2002', which is here designated the lectotype of *unicolor* Loew to ensure consistent interpretation of this name.

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d'Histoire naturelle, Paris (MNHN); Dr Marc De Meyer, Entomology, Royal Museum for Central Africa, Tervuren (MRAC); Dr Mike Mostovski, Dr Burgert Muller and the late Dr Brian Stuckenberg, KwaZulu-Natal Museum, Pietermaritzburg (NMSA); Mr Peter Schnal, Naturhistorisches Museum Wien, Vienna (NMW); Mr Yngve Brodin, Naturhistoriska riksmuseet, Stockholm (NRS); Mr Roy Danielsson and Mr Rune Bygebjerg, Institute of Ecology, Lund (ZIL). We also thank Mr David K.-B. Cheung (ZMUC) for the images of the lectotypes of *Pipiza aurifrons* and *Milesia obliqua*. We are grateful to Dr Snežana Radenković, University of Novi Sad, and Mr Dieter Doczkal, Zoologische Staatssammlung München, for valuable comments on the manuscript.

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