

A key to the Afrotropical genera of Muscidae (Diptera)

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ABSTRACT. A key to 57 of the 58 Afrotropical Muscidae (Diptera) genera is given. The previous Catalogue of Afrotropical Diptera published about 25 years ago by Adrian C. Pont was used as a taxonomic guide, to which the more recently synonyms and taxonomic changes were updated. For each genus, geographical distribution and number of valid species in this region are also included. Some morphological diagnostic characters are illustrated in order to help the use of the key.

KEY WORDS. Afrotropical Region, Identification, taxonomy.

RESUMO. Chave para os gêneros afrotropicais de Muscidae (Diptera). Uma chave para 57 dos 58 gêneros Afrotropicais de Muscidae (Diptera) é apresentada. O catálogo afrotropical de Diptera publicado a cerca de 25 anos atrás por Adrian C. Pont foi utilizado como guia taxonômico, ao qual foram acrescentados sinônimos e mudanças taxonômicas recentes. Para cada gênero são incluídos o número de espécies válidas e a distribuição geográfica nesta região. Alguns caracteres morfológicos diagnósticos são ilustrados para facilitar a utilização da chave.

PALAVRAS-CHAVE. Identificação, Região Afrotropical, taxonomia.

The taxonomic knowledge of the Afrotropical muscids can be found in EMDEN (1939, 1940, 1941, 1942a,b, 1943, 1951) and, more recently, in ZIELKE (1971) for the Muscini, DEEMING (1971) for the "Atherigonini" and ZUMPT (1973) for the "Stomoxyinae". Species have been described by CROSSKEY; Deeming; Emden, PATERSON, Peris, Pont, Snyder, Zielke and Zumpt and keys have been presented by ZUMPT (1969) for *Aethiopomyia* Malloch, 1921; PATERSON (1960) for *Allaudinella* Giglio-Tos, 11895, SNYDER (1953) for *Mydaea* Robineau-Desvoidy, 1830 (in part); PONT & DEAR (1976) for *Ochromusca* Malloch, 1927; PONT (1974) for *Passeromyia* Rodhain & Villeneuve, 1915; CROSSKEY (1962) for *Pygophora* Schiner, 1868, among others (PONT 1980).

The latest consolidated information on the Afrotropical muscid fauna is found in PONT (1980), where about 870 valid species (herein atualized to 925) are recorded to the Region, occurring in all available habitats, except for the most arids. The muscids represent some of the most abundant and wide-spread flies in Africa (PONT 1980).

The information on the madagascan muscid fauna were updated by COURI *et al.* (2006), where 23 new species were described, seven species and three genera were newly recorded from Madagascar (*Azelia* Robineau-Desvoidy, *Phaonia* Robineau-Desvoidy and *Spilogona* Schnabl); two replacement names were given to two homonimies and one new synonym was established. The paper also presented a key for all included genera and species. Most of the material studied was collected by the "Madagascar Arthropod Biodiversity Project" developed by the California Academy of Sciences (San Francisco, California)

from the beginnig of 2001 until early 2005.

Certainly the Afrotropical muscid fauna is much richer than these numbers. Among the madagascan material there are still taxa to be described, including some *Atherigona* species, a genus well represented in the Region. More collections in the whole Region will certainly make other new taxa known.

Presently, about 75% of the recorded afrotropical muscid genera are represented for less than 10 species, while genera as *Atherigona* Rondani, 1856, *Coenosia* Meigen, 1826 and *Helina* Robineau-Desvoidy, 1830 are represented, respectively, by 126, 111 and 99 species.

For the present key, the Catalogue of Afrotropical Diptera (PONT 1980) was used as a taxonomic guide, to which, the more recently synonyms and taxonomic changes were updated (see COURI *et al.* 2006). The terminology follows McALPINE *et al.* (1981).

Table I summarizes the valid muscid genera and subgenera of the Afrotropical Region by subfamily and the number of species based on PONT (1980) for the whole Region and COURI *et al.* (2007) for Madagascar and other synonymies (including *Ophyra* Robineau-Desvoidy as a junior synonym of *Hydrotaea* Robineau-Desvoidy); COURI & PONT (1999, 2000) for Coenosiniinae and CARVALHO *et al.* (2005) for general classification.

As a result, 57 of the 58 recorded genera are keyed. Data on geographical records and number of valid species in the Afrotropical Region were included in the key. Some morphological diagnostic caracteres were illustrated in order to help the use of the key.

Table I. Valid Muscidae genera and subgenera of the Afrotropical Region and number of species (classification as in PONT 1980, COURI *et al.* 2006, COURI & PONT 2000 and CARVALHO *et al.* 2005).

Subfamily, genera and subgenera	Number of species	Subfamily, genera and subgenera	Number of species
Atherigoninae		<i>Synthesiomyia</i> Brauer & Bergenstamm	1
<i>Atherigona</i> Rondani		Phaoninae	
<i>Acritochaeta</i> Grimshaw	14	<i>Aethiopomyia</i> Malloch	5
<i>Atherigona</i> Rondani	112	<i>Allaudinella</i> Giglio-Tos	6
Muscinae		<i>Dichaetomyia</i> Malloch	
Muscini		<i>Dichaetomyia</i> Malloch	37
<i>Curranosia</i> Paterson	7	<i>Panaga</i> Curran	30
<i>Dasyphora</i> Robineau-Desvoidy	1	<i>Helina</i> Robineau-Desvoidy	99
<i>Deltotus</i> S.guy	3	<i>Ochromusca</i> Malloch	2
<i>Hennigmyia</i> Peris	3	<i>Phaonia</i> Robineau-Desvoidy	26
<i>Mitroplatia</i> Enderlein	9	Mydaeinae	
<i>Morellia</i> Robineau-Desvoidy	15	<i>Afromydaea</i> Malloch	2
<i>Musca</i> Linnaeus		<i>Brontaea</i> Kowarz	23
<i>Byomya</i> Robineau-Desvoidy	21	<i>Dimorphia</i> Malloch	5
<i>Eumusca</i> Townsend	10	<i>Graphomya</i> Robineau-Desvoidy	13
<i>Lissosterna</i> Bezzi	1	<i>Hebecnema</i> Schnabl	7
<i>Musca</i> Linnaeus	1	<i>Myospila</i> Rondani	18
<i>Philaematomyia</i> Austen	1	<i>Pseudohelina</i> Vockeroth	9
<i>Viviparomusca</i> Townsend	5	Coenosiinae	
<i>Neomyia</i> Walker	43	Limnophorini	
<i>Polietes</i> Rondani	1	<i>Andersonosia</i> Emden	2
<i>Pyrellia</i> Robineau-Desvoidy	12	<i>Camptotarsopoda</i> Strand	5
<i>Pyrellina</i> Malloch	12	<i>Limnophora</i> Robineau-Desvoidy	76
Unplaced Muscini	1	<i>Lispacoenosia</i> Snyder	4
Stomoxysiini		<i>Lispe</i> Latreille	50
<i>Bruceomyia</i> Malloch	1	<i>Spilogona</i> Schnabl	18
<i>Haematobia</i> Le Peletier & Serville	6	<i>Xenomyia</i> Malloch	15
<i>Haematobosca</i> Bezzi	9	Coenosiini	
<i>Parastomoxys</i> Zumpt	1	<i>Amicitia</i> Emden	4
<i>Prostomoxys</i> Zumpt	1	<i>Anaphalanthus</i> Loew	1
<i>Rhinomusca</i> Malloch	2	<i>Brevicosta</i> Malloch	1
<i>Stomoxys</i> Geoffroy	14	<i>Cephalispa</i> Malloch	3 *
<i>Stygeromyia</i> Austen	2	<i>Coenosia</i> Meigen	111
Azeliinae		<i>Lispocephala</i> Pokorný	3
Azeliini		<i>Microcalyptra</i> Stein	3
<i>Azelia</i> Robineau-Desvoidy	2*	<i>Orchisia</i> Rondani	1
<i>Fraserella</i> Steyskal	1*	<i>Pygophora</i> Schiner	6
<i>Hydrotaea</i> Robineau-Desvoidy	22	<i>Schoenomyza</i> Haliday	1
Reinwardtiini		<i>Spanochaeta</i> Stein	1
<i>Muscina</i> Robineau-Desvoidy	2	New genus	1
<i>Passeromyia</i> Rodhain & Villeneuve	1	Total	925

* One not identified.

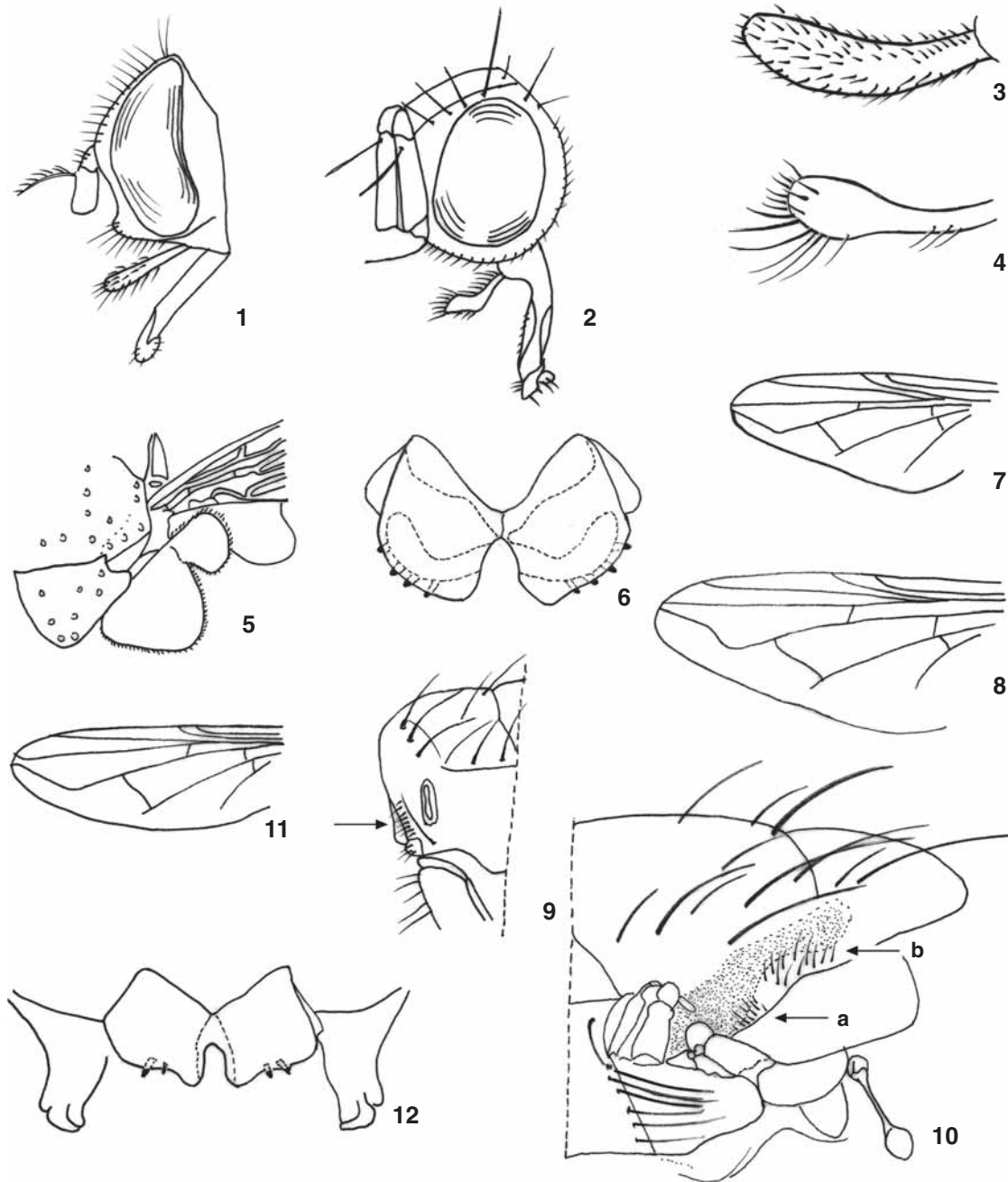
Polietes Rondani, 1866 was not included in the key, as no material was examined and the available data in literature was not sufficient. It is represented in the Afrotropical Region by only one species – *P. lardaria* (Fabricius, 1781). The genus has the prosternum haired on sides, fine hairs on the upper anterior angle of meron; female has cruciate interfrontal setae and two or more proclinate outer setae on each orbit.

The key is mainly based on COURI *et al.* (2006), where the other Afrotropical Muscidae not recorded to Madagascar were included, and has also parts modified from EMDEN (1939, 1940, 1951), ZUMPT (1973) (Stomoxyiinae), COURI & PONT (1999), CARVALHO & COURI (2002) and COURI & CARVALHO (2002).

Key to the Afrotropical genera of Muscidae

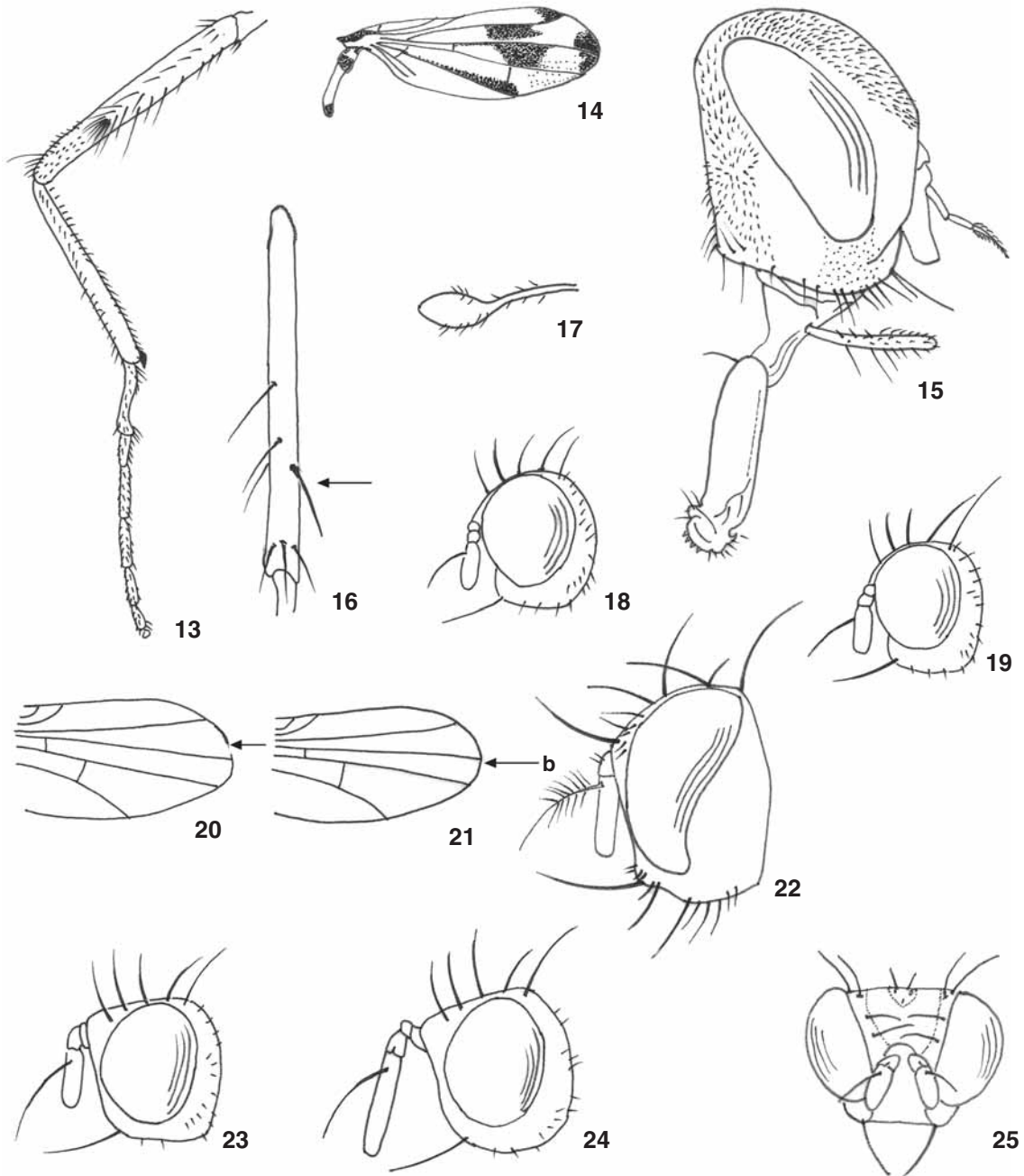
1. Proboscis usually elongated, strong sclerotized; labela reduced; mouth parts modified into a piercing organ; prosternum and anepimeron setulose; arista with long hairs on the dorsal surface and bare on ventral or, at most with 3-4 ventral cilia (except in *Rhinomusca* and *Haematobosca*) 2
- 1'. Proboscis retractile, not modified into a piercing organ, faintly or moderately sclerotized; prosternum and anepimeron setulose or bare; arista bare, with short hairs or plumose 9
2. Palpus about as long as proboscis (Fig. 1) 3
- 2'. Palpus shorter than half of the proboscis length; 14 species (widespread in Afrotropical Region, including Cape Verde Is., Madagascar, Mauritius, Réunion, Seychelles, St. Helena, South Yemen) *Stomoxys* Geoffroy
3. Palpi strap-like, not grooved internally 4
- 3'. Palpi grooved internally, strap-like or more or less dilated terminally 7
4. Postalar wall with a tuft of black hairs; arista with long dorsal and ventral hairs; propleuron setulose; katepisternal anterior seta absent; 2 species (associated with rhinoceros in east and southern Africa) (Kenya, South Africa) *Rhinomusca* Malloch
- 4'. Postalar wall bare; arista with dorsal and ventral hairs or only dorsal hairs; propleuron bare or setulose; katepisternal anterior seta present or absent 5
5. Propleuron bare; katepisternal anterior seta present; 1 species (Uganda, Sudan, Zaire) *Bruceomyia* Malloch
- 5'. Propleuron setulose; katepisternal anterior seta present or absent 6
6. Katepisternal anterior seta present; arista with dorsal hairs only; general body color black and orange; body length 6 mm; 1 species (Mozambique) *Parastomoxys* Zumpt
6. Katepisternal anterior seta absent; arista with dorsal hairs only, or with few short ones ventrally; general body color dark; body length 3.5-4.5 mm; 1 species (Zaire) *Prostomoxys* Zumpt
7. Katepisternal anterior seta absent; arista with dorsal hairs only; propleuron and notopleuron setulose; 2 species (Kenya, South Africa, South Yemen, Rhodesia, Somalia, Sudan, Zaire, widespread east to southern Afrotropical Region) *Stygeromyia* Austen
- 7'. Katepisternal anterior seta present; arista with dorsal and ventral cilia, or only dorsal; propleuron and notopleuron setulose or bare 8
8. Arista with dorsal and ventral hairs, notopleuron with covering setulae; propleuron setulose or bare; general body color from yellow to black; body length between 3.5-9.0 mm, 9 species (Cameroun, Kenya, Malawi, Rhodesia, South Africa, Tanzania, Uganda, Zaire, widespread east to southern Afrotropical Region) *Haematobosca* Bezzi
- 8'. Arista with dorsal hairs only, notopleuron without covering setulae (but setae present); propleuron bare; general body color with dense grey and oliver pollinosity; body length between 2.0-5.0 mm, 6 species (widespread Afrotropical Region, including Socotra, South Yemen) *Haematobia* Le Peletier and Serville
9. Head angular in profile; antenna long; antennal insertion above mid-level of eye (Fig. 2); dorsocentral presutural setae very short and fine, almost indistinct from the covering setulae, 126 species (widespread in Afrotropical Region, including Cape Verde Is., Comoro Is., Madagascar, Mauritius, Réunion, Seychelles, South Yemen) *Atherigona* Rondani
- 9a. Palpi of male elongated, flattened (Fig. 3); presutural acrostichal setulae often in 4-5 rows; basal lateral setae of scutellum usually almost or quite half as long as subbasal lateral seta; crossvein r-m usually at or beyond middle of cell dm; fore femur often with a shallow dorsal preapical excavation; adult males without a trifoliate process and hypopygial prominence, 14 species Subgenus *Acritochaeta* Grimshaw
- 9a'. Palpi of male club-like (Fig. 4), strikingly swollen on apical half; presutural acrostichal setulae always in 2-3 rows; basal lateral setae of scutellum at most one third as long as subbasal lateral seta; cross vein r-m always well in basal half of cell dm; fore femur without a dorsal preapical excavation; adult males with a trifoliate process and hypopygial prominence, 112 species Subgenus *Atherigona* Rondani
- 9'. Head shape not as above; antennal insertion below mid-level of eye; dorsocentral presutural setae developed or not differentiated from the covering setulae 10
10. Anepimeron setulose 11
- 10'. Anepimeron bare 27
11. Lower calypter of the *Musca*-type, i.e. the inner margin at first following the margin of the scutellum then diverging suddenly outward into the more or less broadly truncated apical margin (Fig. 5) (relative smaller in *Pyrellina*, but katepisternals 1:3) 12
- 11'. Lower calypter of the *Phaonia*-type, i.e. the inner margin

- diverging immediately and at right-angles from the supra-squamal ridge, and tongue-like in shape 22
12. Palpi yellow; tibiae yellow; antennae orange, flagellomere sometimes infuscated towards tip; arista short-plumose, the longest individual hairs equal to width of antennal flagellomere; stem-vein bare; female without proclinate orbital setae; 6 species (widespread Afrotropical Region including Fernando Póo, Madagascar, Mauritius, Réunion, Seychelles) *Alluaudinella* Giglio-Tos
- 12'. Palpi black; legs entirely black; antennae black; the other characters not present in combination 13
13. Body shining metallic green or blue; mid tibia with a strong ventral seta 14
- 13'. Body black or bluish-black, not metallic shining green or blue; mid tibia without a ventral seta 19
14. Suprasquamal ridge setulose 15
- 14'. Suprasquamal ridge bare 16
15. Infra-alar bulla setulose; 43 species (widespread in Afrotropical Region, including Cape Verde Is., Fernando Póo, Liberia, Madagascar, Mauritius, Réunion, Rodriguez) *Neomyia* Robineau-Desvoidy
- 15'. Infra-alar bulla bare; 7 species (Cameroun, Guinea-Bissau, Ivory Coast, Kenya, Mozambique, Rhodesia, Tanzania, Uganda, Zaire, widespread west Afrotropical Region, including Fernando Póo) *Curranosia* Paterson
16. Katepisternals 1:3 17
- 16'. Katepisternals different from 1:3 18
17. Lower calypter very broad; cercal plate of male without spined ventral process; 12 species (Cameroun, Kenya, Ghana, Madagascar, South Africa, Tanzania, Uganda, widespread east to southern Afrotropical Region) *Pyrellia* Robineau-Desvoidy
- 17'. Lower calypter relatively smaller; cercal plate of male with spined ventral process (Fig. 6); 12 species (widespread Afrotropical Region including Fernando Póo, Principe) ... *Pyrellina* Seguy
18. Prosternum very wide, much wider than high; 9 species (Cameroun, Mozambique, Rhodesia, South Africa, Sudan, Tanzania, Uganda, Zaire, Zambia) ... *Mitroplatia* Enderlein
- 18'. Prosternum not widened; 1 species (St. Helena) *Dasyphora* Robineau-Desvoidy
19. Eyes widely separated in both sexes; general body color brownish to yellow to rufous, the dorsum of the thorax more or less infuscated or with darker stripes; robust flies 20
- 19'. Male usually holoptic; general body color blackish, very rarely the ground color of the body pale; more delicate flies 21
20. Propleuron setulose; vein M slightly curved forward towards R_{4+5} ; 5 species (Angola, Cameroun, Kenya, Malawi, Mozambique, Tanzania, Togo, Zaire, east and widespread mainland Afrotropical Region) *Aethiopomyia* Malloch
- 20'. Propleuron bare; vein M strongly curved forward towards R_{4+5} , not much wider than length of r-m cross vein; 2 species (widespread Afrotropical Region, including Fernando Póo) *Ochromusca* Malloch
21. Vein M with an angular forward bend towards vein R_{4+5} (Figs 7 and 8); 39 species (widespread in Afrotropical Region, including Cape Verde Is., Madagascar, Mauritius, Réunion, Rodriguez, Socrota, South Yemen) *Musca* Linnaeus
- 21a. Proepisternum hairy (Fig. 9); suprasquamal ridge bare; front tibia without a submedian posteroventral seta; mid tibia without a submedian anteroventral seta; mesonotum with four black long vittae; 1 species Subgenus *Musca* Linnaeus
- 21a'. Proepisternum bare; suprasquamal ridge bare or hairy; front tibia with or without a submedian posteroventral seta; mid tibia with or without a submedian anteroventral seta 21b
- 21b. Suprasquamal ridge entirely bare 21c
- 21b'. Suprasquamal ridge with bristly hairs on anterior part or on anterior and posterior parts 21e
- 21c. C. Katepisternal setae absent; 1 species Subgenus *Lissosterna* Bezzi
- 21c'. Katepisternal setae present 21d
- 21d. Mid tibia without a distinct anteroventral submedian seta; proboscis normal or slender, mentum less than twice as high as flagellum; 21 species Subgenus *Byomya* Robineau-Desvoidy
- 21d'. Mid tibia with a distinct anteroventral submedian seta; proboscis stout, mentum about twice as high as flagellum; 1 species Subgenus *Philaematomyia* Austen
- 21e. Suprasquamal ridge without erect hairs on posterior part; 10 species Subgenus *Eumusca* Townsend
- 21e'. Suprasquamal ridge with erect bristly black hairs on anterior part and posterior (Fig. 10); 5 species Subgenus *Viviparomusca* Townsend
- 21'. Vein M with a smoothly rounded forward curve towards vein R_{4+5} as in Fig. 11; 15 species (widespread in the Afrotropical Region, including Fernando Póo and Madagascar) .. *Morellia* Robineau-Desvoidy
22. Post humeral seta absent; 15 species (Kenya, Uganda, Tanzania, South Africa, Ivory Coast, Nigeria, Ethiopia) [*X. pseudolispe* Emden, 1951 recorded from Kenya is the only *Xenomyia* species with anepimeron setulose] *Xenomyia* Malloch, p.p.
- 22'. Post humeral seta present 23
23. Palpus greatly enlarged in apical part, spoon-like; parafacial with setulae; prosternum bare; 50 species (widespread in the Afrotropical Region including Cape Verde Is, Madagascar, and Mauritius) *Lispe* Latreille
- 23'. Palpus not enlarged, narrow; parafacial bare; prosternum setulose 24



Figures 1-12. (1) *Haematobosca*, head, lateral view; (2) *Atherigona*, head, dorsolateral view (modified from PONT & MAGPAYO 1995); (3) *Atherigona (Acritochaeta) orientalis* Schiner, 1868, palpus of female (modified from EMDEN 1940); (4) *Atherigona (Atherigona) perfida* Stein, 1913, palpus of male (modified from EMDEN 1940); (5) *Musca (Musca) domestica* Linnaeus, 1758, upper and lower calypters (modified from MCALPINE 1981); (6) *Pyrellina garmsi* Zielke, 1971, cercal plate of male, frontal view (modified from ZIELKE 1971); (7) *Musca (Byomyia) afra* Paterson, 1956, wing (modified from ZIELKE 1971); (8) *Musca (Viviparomusca) gabonensis* Macquart, 1855. Wing (modified from ZIELKE 1971); (9) *Musca (Musca) domestica* Linnaeus, 1758, anterior part of thorax, lateral view (proepisternal hairs indicated) (modified from EMDEN 1939); (10) *Musca (Viviparomusca) gabonensis* Macquart, 1855, hind part of mesonotum: (a) anterior suprasquamal setae, (b) posterior suprasquamal setae (modified from EMDEN 1939); (11) *Morellia cerciformis* Zielke, 1971, wing (modified from ZIELKE 1971); (12) *Deltotus stuckenbergi* Zielke, 1972, cercal plate and surstili of male, frontal view (modified from ZIELKE 1972).

24. Vein R_1 bare dorsally 25
- 24'. Vein R_1 setulose dorsally 26
25. Wing veins setulose as follows: R with 2-3 fine setae on lower surface before humeral cross vein; R_{4+5} with 3-5 fine setae below on basal third, the setae beginning at some distance beyond the node of Rs; other veins bare above and below; 3 or 4 pairs of postsutural dorsocentral setae; acrostichals 3:3, strongly developed; 9 species (Burundi, Cameroun, Kenya, Rhodesia, São Tomé, South Africa, Tanzania, Uganda, Zaire, widespread east to southern and mainland in Afrotropical Region) *Pseudohelina* Vockeroth p.p.
- 25'. Wing veins not setulose as above; 2, 3 or 4 pairs of postsutural dorsocentral setae; acrostichals not 3:3; 67 species (widespread in the Afrotropical Region including Comoro Is., Madagascar and Seychelles) *Dichaetomyia* Malloch
- 25a. Callus prealar setulose or with some stiff hairs; 30 species Subgenus *Panaga* Curran
- 25a'. Callus prealar bare; 37 species Subgenus *Dichaetomyia* Malloch
26. Two pairs of postsutural dorsocentral setae; male cercal plate with 2 marginal spines (Fig. 12) (male of *D. facetus* unknown); female frons with a pair of proclinate orbital setae; 3 species (Madagascar) *Deltotus* Seguy
- 26'. Four pairs of postsutural dorsocentral setae; male cercal plate without spines, with normal setae and setulae; 3 species (Fernando Póo, South Africa, Tanzania, Uganda) *Hennigmyia* Peris
27. Hind coxa with setulae present on posterior apical margin; 2 species 91 not identified (Uganda, Madagascar) *Azelia* Robineau-Desvoidy
- 27'. Hind coxa bare on posterior apical margin 28
28. Wing with the subcosta running in a smooth even curve from humeral cross-vein to costa; body colour metallic black, blue or green; gena with or without a strong differentiated upcurved seta; female ocellar triangle shining, long or short, almost reaching lunula, and frons with a pair of proclinate orbital setae and inclinate interfrontal setae; 22 species (Cameroun, Ethiopia, Ghana Kenya, Mauritius, Rhodesia, South Africa, Tanzania, Uganda, Zaire, widespread in Afrotropical Region, including Fernando Póo, St. Helena, Socotra, Madagascar, Mauritania, Réunion, Rodriguez, Seychelles) *Hydrotaea* Robineau-Desvoidy
- 28'. Wing with the subcosta with a slightly sinuous course from humeral cross-vein to costa, not smoothly bowed; body colour usually not metallic black, blue or green; gena without a differentiated upcurved seta; female ocellar triangle usually short, and frons without proclinate orbital or inclinate interfrontal setae 29
29. Wing with at least one setula on ventral surface of Rs node or base of vein R_{4+5} 30
- 29'. Wing without setulae on ventral surface of Rs node or base of vein R_{4+5} 40
30. Vein R_{4+5} with several setulae on base, these sometimes absent on upper wing surface; male dichoptic; postalar wall setulose or bare, arista short, long plumose, the dorsal plumes longer and sparse than the ventrals; 1 species (Zambia, widespread mainland neotropical) .. *Passeromyia* Rodhain and Villeneuve
- 30'. Vein R_{4+5} not setulose as described above; male holoptic or dichoptic; post-alar wall not setulose; plumae of arista not as described above 31
31. Prosternum with lateral setulae; prealar seta absent; 76 species (widespread in the Afrotropical Region, including Canary Is., Cape Verde Is. Madagascar, Mauritius, Réunion, Socotra, South Yemen) *Linnophora* Robineau-Desvoidy
- 31'. Prosternum bare or only with 1-2 setulae on either side; prealar seta present or absent 32
32. Dorsocentrals postsutural usually 4; tibiae often partly creamy-white; male: mid leg modified (Fig. 13), the femora (except in *pallipes*) between middle and apex with an anterior notch, the proximal edge of which is adorned with some strong setae, the metatarsus curved owing to a broad ventral emargination, the apex somewhat tooth-shaped and with some stiff setulae; halter pale; frons with only one pair of inclinate frontal setae, which are strong; female: frons without cruciate or convergent interfrontal and proclinate orbital setae; 5 species (Burundi, Kenya, Rwanda, South Africa, Tanzania, Uganda, Zaire) ... *Camptotarsopoda* Strand
- 32'. Dorsocentrals postsutural 3 or 4; tibiae not partly creamy-white; male mid leg simple; halter pale or black; frons with 1 or 2 pairs of inclinate frontal setae, which are strong; female: frons with or without cruciate or convergent interfrontal and proclinate orbital setae 33
33. Slender *Lispidoides* forms with abnormal characters: either no posthumeral seta present, or a sub-median posterodorsal on hind tibia; or spotted (i.e. not only smoke) wings (Fig. 14); or greatly developed parafrontalia (Fig. 15); which in the male reduce the interfrontalia to a narrow groove and even in the female are much wider in front than in interfrontalia; or with setulose anepimeron (only in *X. pseudolispe* Emden, see couplet 23); or claws longer than third antennal joint or the peristomal setae small and hair like along part of the mouth margin, usually several of the characters present at the same time (modified from EMDEN 1951); 15 species (Kenya, Uganda, Tanzania, South Africa, Ivory Coast, Nigeria, Ethiopia) *Xenomomyia* Malloch p.p.
- 33'. Other combination of characters 34
34. Anterior katepisternal seta absent; lower calypter broad and truncated, *Musca*-type (see above, couplet 11a); vein R_{4+5} without dorsal setulae; 13 species (widespread in the Afrotropical Region, including Cape Verde Is., Madagascar, Mauritius) *Graphomya* Robineau-Desvoidy
- 34'. Anterior katepisternal seta present; lower calypter not broad and truncated, tonge-shaped, *Phaonia*-type (see above,



Figures 13-25. (13) *Camptotarsopoda annulitarsis* (Emden, 1951), mid leg of male, anterior view (modified from EMDEN 1951); (14) *Xenomyia calytrata* Emden, 1951, wing of male (modified from EMDEN 1951); (15) *Xenomyia edwardsi* Emden, 1951, head of male, lateral view (modified from EMDEN 1951); (16) *Phaonia*, hind leg posterior view (calcar indicated); (17) *Lispacoenosia fulvitaris* Snyder, 1949, palpus (modified from SNYDER 1949); (18) Coenosiiini, head with two pairs of reclinate orbital seta (modified from COURI & PONT 1999); (19) Coenosiiini, head with one pair of reclinate orbital seta (modified from COURI & PONT 1999); (20) *Brevicosta*, posterior part of the wing; end of Costal vein indicated (modified from COURI & PONT 1999); (21) Coenosiiini, posterior part of the wing; end of Costal vein indicated (modified from COURI & PONT 1999); (22) *Pygophora pallipalpis* (Stein, 1910), head, lateral view (modified from CROSSKEY 1962); (23) *Amicitia*, head, lateral view (modified from COURI & PONT 1999); (24) *Anaphalanthus*, head, lateral view (modified from COURI & PONT 1999); (25) *Schoenomyza*, head, frontal view (modified from COURI & PONT 1999).

- couplet 11b); R_{4+5} with a few dorsal setulae basally 35
35. Veins Sc, Rs and M setulose, usually as follows: vein R before humeral cross-vein, on both surfaces; on the basal part of Sc, on both surfaces; ventral surface of R_{4+5} almost to cross-vein r-m; on both surfaces of M to beyond cross-vein dm-cu; and on ventral surface of Cu; 5 species (widespread east to southern in the Afrotropical Region, including Mauritius, Madagascar and Congo Basin) *Dimorphia* Malloch
- 35'. Wing veins not setulose as described above 36
36. Hind tibia with a strong posterodorsal seta (calcar, Fig. 16) inserted at apical three-fourths; 26 species (widespread in the Afrotropical region, including Annobón, Mauritius and Madagascar) *Phaonia* Robineau-Desvoidy
- 36'. Hind tibia without a strong posterodorsal seta (calcar) inserted on apical three-fourths 37
37. Katepisternal setae 2:2 38
- 37'. Katepisternal setae different from 2:2 39
38. Dorsal surface of vein R_{4+5} setulose; wings not colored as below; 18 species (widespread east to west Africa, Cameroun, Cape Verde Is., Ethiopia, Ghana, Kenya, Madagascar, Nigeria, Principe, Rhodesia, Rwanda, Seychelles, South Africa, Tanzania, Uganda, Zaire) *Myospila* Rondani
- 38'. Dorsal and ventral surfaces of vein R_{4+5} strongly setulose at base; cross vein r-m with a brown cloud; cross vein dm-cu with one cloud at each end; 2 species (East Africa, Kenya, Malawi, Rhodesia Tanzania, Zaire) *Afromydaea* Malloch
39. Dorsal surface of vein R_{4+5} bare; other wing veins not setulose as below; 7 species (Burundi, Comoro Is., Kenya, Madagascar, Mauritius, Rhodesia, Rwanda, South Africa, Tanzania, Zaire, widespread east to southern in the Afrotropical Region) *Hebecnema* Schnabl
- 39'. Wing veins setulose as follows: R with 2-3 fine setae on lower surface before humeral cross vein; R_{4+5} with 3-5 fine setae below on basal third, the setae beginning at some distance beyond the node of Rs; other veins bare above and below; 9 species (Burundi, Cameroun, Kenya, Rhodesia, São Tomé, South Africa, Tanzania, Uganda, Zaire, widespread east to southern and mainland in Afrotropical Region) *Pseudohelina* Vockeroth p.p.
40. Presutural dorsocentral setae absent; palpi moderately dilated (Fig. 17); 4 species (Ghana, Madagascar, Nigeria, Tanzania, Zaire) *Lispacoenosia* Snyder
- 40'. Presutural dorsocentral setae present; palpi usually filiform 41
41. Proboscis with the labella not reduced and the prestomal teeth hardly developed, and prementum dusted; prealar seta present, but if absent then sternite 1 with setulae 42
- 41'. Proboscis with labella usually reduced and/or prestomal teeth strongly developed, and prementum shining, undusted; prealar seta absent; sternite 1 bare 46
42. Apical section of vein M distinctly curved forward towards vein R_{4+5} 43
- 42'. Apical section of vein M straight or only slightly curved forward towards vein R_{4+5} 44
43. Three pairs of presutural dorsocentral setae; arista plumose; 1 species (not identified) (Madagascar) *Fraserella* Steyskal
- 43'. Two pairs of presutural dorsocentral setae; arista with very short cilia; 1 species (widespread in the Afrotropical, including Annobón, Cape Verde Is., Mauritius, Seychelles) *Synthesiomomyia* Brauer and Bergenstam
44. Hind tibia with one strong posterodorsal seta (calcar) on its apical third; anterior intralar post-sutural seta placed posteriorly to level of supralar seta; 2 species (Cape Verde Is., Réunion, St. Helena, east, northeast and southern Africa) *Muscina* Robneau-Desvoidy
- 44'. Hind tibia without calcar; anterior intralar postsutural seta placed differently as described above 45
45. Arista bare; sternite 1 with many setulae near posterior margin; prealar seta absent; male eyes large in profile and occupying most of the head; 23 species (widespread in the Afrotropical Region, including Cape Verde Is., Canary Is., Comoro Is., Madagascar, Mauritius, Réunion, Socotra) .. *Brontaea* Kowarz
- 45'. Arista plumose, with the longest individual hairs longer than width of flagellomere; sternite 1 usually bare; male eyes in profile not unusually large; 99 species (widespread in the Afrotropical Region, including Madagascar) *Helina* Robineau-Desvoidy
46. Katepisternal setae 1+1-3; ovipositor of the *Mydaea*-type, short, with a spinose hypoproct 47
- 46'. Katepisternal setae usually 1:1:1, placed at the angles of an equilateral triangle; ovipositor long, with setulose hypoproct 48
47. Arista bare; ground-colour black, entire body whitish dusted, and the head wholly white to silvery-white; small species, wing-length about 3 mm, confined to the seashore; 1 species New genus
- 47'. Arista plumose; ground-colour brown, with postpronotum yellow, body not entirely whitish dusted and head with at least interfrontalia not silvery-white; larger species, wing-length about 6 mm, species of the inland forests; 18 species (Cameroun, Ethiopia, Kenya, Liberia, Namibia, Uganda, Rhodesia, South Africa, Sudan, Zaire, Madagascar) *Spilogona* Schnabl
48. Two pairs of reclinate orbital setae (Fig. 18) 49
- 48'. One pair of reclinate orbital setae (Fig. 19) 55
49. One pair of long presutural dorsocentral setae, sometimes preceded by a very short second pair 50
- 49'. Two pairs of more or less subequal presutural dorsocentral setae 52
50. Costal vein abbreviated ending close to tip of vein R_{4+5} (Fig. 20); 1 species (Nigeria, Uganda) *Breviscosta* Malloch
- 50'. Costal vein not shortened ending close to tip of vein M

- (Fig. 21) 51
51. Arista with long hairs on basal half (Fig. 22); scutellum with both basal and apical pairs of setae strong; fore tibia with one median seta on posterior surface; 6 species (Cameron, Ghana, Kenya, Liberia, Madagascar, Malawi, Mauricius, Mozambique, Nigeria, Seychelles, Tanzania, Togo, Zaire, widespread west to east Africa) *Pygophora* Schiner
- 51'. Arista with hairs along its entire length; scutellum with only the apical pair of setae strong, fore tibia without one median seta on posterior surface;;1 species (widespread in the Afrotropical Region, including Madagascar, Mauritius) *Orchisia* Rondani
52. Scutellum with the basal pair of setae very reduced or absent 53
- 52'. Scutellum with the basal pair of setae well developed, as long as or longer than apical pair 54
53. Hind tibia without supramedian posterodorsal setae; profrons not projected and antennal insertion on mid-level of eye; 1 species (Tanzania, Uganda) *Spanochaeta* Stein
- 53'. Hind tibia with a supramedian posterodorsal setae; profrons projected (Fig. 23) and antennal insertion above mid-level of eye; 4 species (Uganda) *Amicitia* Emden
54. Ocellar setae short, hair-like; outer margin of eye emarginated on basal half; hind tibia without a posteroventral seta; 3 species (1 not identified) (Madagascar)...*Cephalispa* Malloch
- 54'. Ocellar setae long; outer margin of eye not emarginated on basal half; hind tibia with a posteroventral seta; 3 species (Liberia, New Guinea, Socotra, Tanzania, Uganda, Kenya, Madagascar, Nigeria, Rhodesia, South Africa, widespread east to southern in the Afrotropical Region) *Lispocephala* Pokorný
55. Two pairs of postsutural dorsocentral setae; basal scutellar seta absent; 3 species (Ethiopia, Kenia) *Microcalyptra* Stein
- 55'. Three pairs of postsutural dorsocentral setae; basal scutellar seta present or absent 56
56. Antennal flagellomere very long, reaching beyond epistoma, and profrons projecting (Fig. 24); frons much longer than wide; 2 pairs of strong postsutural dorsocentral setae; costa continuing around wing to apex of vein M; 1 species (widespread in Afrotropical Region, including Madagascar; Réunion & Senegal, Somalia, South Africa, Tanzania; Yemen) *Anaphalantus* Loew
- 56'. Antennal flagellomere not as described above; profrons not projected; frons variable 57
57. Hind tibia without an anterodorsal seta in addition to the median one; 111 species (widespread in the Afrotropical Region, including Aldabra, Astove Is., Cape verde Is., Madagascar, Mauritius) *Coenosia* Meigen
- 57'. Hind tibia at least with one anterodorsal supramedian seta in addition to the median one 58

58. Frons longer than wide; antennal flagellomere long; general body color shinning; katepisternals 1:2; lower proepimeral seta replaced by 3-4 fine hairs; 2 species (Uganda, Kenia).. *Andersonosia* Emden
- 58'. Frons wider than long (Fig. 25); antennal flagellomere short, never reaching epistome; general body color not shinning; katepisternals 1:1:1; 1 species (Ethiopia, Kenia, South Africa) *Schoenomyza* Haliday

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