A List of Current Valid Blow Fly Names (Diptera: Calliphoridae) in the Americas South of Mexico with Key to the Brazilian Species*

Cecília Kossmann¹*, Rubens Pinto de Mello², Érica Sevilha Harterreiten-Souza¹, José Roberto Pujol-Luz¹

Abstract. The calliphorids flies comprise a heterogenous family found in all zoogeographical regions, with over 1,000 species and 150 genera described. The blow flies have a great medical and veterinary importance, and can be use in forensic science, especially in order to estimate the postmortem interval. Despite its wide distribution and importance, the group presents many taxonomic problems, and many conflicting records regarding the number of species in the Neotropical Region. In this paper, we list all species of Calliphoridae found in the Americas south of Mexico, based on reports in the literature between the years 1960 and 2012. There are 29 genera and 99 species recognized distributed in seven subfamilies: Calliphorinae (three genera and eight species), Chrysomyinae (seven genera and 28 species), Lucillinae (one genus and 17 species), Mesembrinellinae (nine genera and 33 species), Poleniinnae (one genus and one species), Rhiniinae (one genus and one species), and Toxotarsinae (seven genera and 11 species). An identification key for the species that occur in Brazil is presented.

Keywords: Biodiversity; Bluebottles; Checklist; Neotropical Region; Taxonomy.

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The members of the family Calliphoridae (Schizophora, Calyptratae, Oestroidea) are commonly known as blow flies, bluebottles, cluster flies or greenbottles. They are worldwide distributed, with over 1,000 species and about 150 genera described (SHEWELL 1987; VARAS & WOOD 2010). Diagnosis for the family and identification keys for the main genera from North and Central America were presented by SHEWELL (1987) and VARAS & WOOD (2010), respectively.

The family classification and its phylogeny are still very confusing. The most recent attempt (KITTY et al. 2010) reinforces the results presented by ROGERS (1997) that the family does not appear to form a monophyletic group.

The necrophagous feeding habit of the blow flies is associated with numerous miths of the human history as a pest to man, and sometimes associated with gods or divinities (THOMPSON & PONT 1993; PAPAVERO et al. 2010). The blow flies have medical and veterinary importance since their larva can cause myiasis in man and other animals. They can also act as mechanical vectors for several pathogens of human and animal’s diseases (ZUMPF 1965; GUIMARAES et al. 1983; HALL & WALL 1995). The calliphorids have a wide variety of habits, and can be found visiting flowers (JIRON & HEDSTRÖM 1985), excrement, termite nest-mounds and driver-ant columns (PONT 1980), as well as in decomposing plant and animal (BYRD & CASNER 2001; CARTER et al. 2007). The blow flies can be used as indicators of anthropogenic environments in urban ecology (NUORTeva 1963; POLVANY 1971), in the ecology of the decomposition process (CARTER et al. 2007), and as a powerful tool to the estimate the postmortem interval (PMI) in forensic entomology (KUH 1985; BENECKE 2001; MORTON & LORD 2006; AMENDT et al. 2007; PUJOL-LUZ et al. 2008).

However, the lack of studies on the diversity of the family in tropical biomes, as well as the biology and ecology of the species, seems to be an obstacle to the knowledge of this group of insects in Latin America.

Although few authors have contributed to the knowledge of Calliphoridae in the Neotropical Region, between 1960 and 2012, important partial reviews and catalogs of the blowfly species described the diversity of Calliphoridae in different biogeographical sub-regions, specially in West Indies, Venezuela,
During several decades, even today, it is common to see misidentification in the blow fly species, as some authors grouping certain taxa while other authors split them. This scenario is well observed in the subfamily Toxotarsinae (Lopes & Almeida 1982). Although there are some experts on Neotropical Calliphoridae, there is no consensus on the number of species or sub-families occurring in the tropical Americas. This obviously reflects the lack of taxonomic studies, a vicious circle.

The list of names of Calliphoridae’s taxa occurring in the Americas south of Mexico, as well as an identification key to the blow fly species found in Brazil.

**MATERIAL AND METHODS**

The geographical delimitation used in this work follows Morrone (2004). The author considers the Neotropical Region with the following sub-regions: Caribbean, Amazon, Chacoan and Paranaense. Some species mentioned here reach the limits of distribution and invade the southernmost South American transition zones and the Andean Region. Only the records of the distribution in the Neotropical Region were included.

The list of names of Calliphoridae’s taxa occurring in the Americas south of Mexico presented here is based on the available literature between 1960 and 2012. We did not examine any type material and nomenclatural problems are not discussed. Here we adopt the current opinions and eventually made some taxonomic notes based on current references (Stone et al. 1965; James 1966, 1970; Dear 1979, 1985; Mello 2003; Carvalho & Mello-Patui 2008). According to the catalog of James (1970), followed with some changes in Dear (1985) and Mello (2003) about 90 species, 22 genera and four subfamilies (Mesembrinellinae, Chrysomyinae, Calliphorinae and Toxotarsinae) were registered in the Neotropical Region.

The purpose of this paper is to provide a list of species of Calliphoridae that occur in the Americas south of Mexico, as well as an identification key to the blow fly species found in Brazil.

**RESULTS**

In the checklist we recognize 29 genera and 90 species distributed in seven subfamilies: Calliphorinae (three genera and eight species), Chrysomyinae (seven genera and 27 species), Luciliinae (one genus and 17 species), Mesembrinellinae (nine genera and 33 species), Polleniinae (one genus and one species), Rhiniinae (one genus and one species), and Toxotarsinae (seven genera and 11 species). All exotic species are marked as (E).

We listed 38 species in the key, all of them occurring in Brazil and some in the border regions of south american countrie.

**Checklist**

**Subfamily CALLIPHORINAE**

**Genus Blepharicnema** Macquart, 1843

_splendens_ Macquart, 1843:284. Type-locality: “unknown”. Neotropical: Bolivia, Colombia, Ecuador, Peru, Venezuela.

**Genus Calliphora** Townsend, 1908

_irazuana_ Townsend, 1908:118. Type-locality: Costa Rica, Irazu. Neotropical: Costa Rica, El Salvador, Guatemala, Mexico.

_lopesi_ Mello, 1962:270. Type-locality: Brazil, Rio de Janeiro, Teresópolis. Neotropical: Brazil, Uruguay.

_maestrica_ Peris, Gonzalez-Mora, Fernandez & Peris, 1998:49. Type-locality: Cuba, Santiago, Serra Maestra. Neotropical: Cuba, Dominican Republic, Jamaica.

_nigribasis_ Macquart, 1851:215. Type-locality: Colombia. Neotropical: Argentina, Bolivia, Colombia, Ecuador, Peru.
Genus *Metallicomyia* Röder, 1886

elegans (Röder), 1886:268 [Chalomyia]. Type-locality: Ecuador, RíoBamba. Neotropical: Ecuador.

Subfamily CHRYSMYINAE

Genus *Chloroprocta* Wulp, 1896

idioida (Robineau-Desvoidy), 1830:445 [Chrysomya].

*Type-locality:* Brazil. Neotropical: Argentina, Bahamas, Brazil, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, French Guyana, Guatemala, Guyana, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, USA, Venezuela. [1]

Genus *Chrysomya* Robineau-Desvoidy, 1830

albiceps (Wiedemann), 1819:38 [Musca].

*Type-locality:* South Africa, Cape of Good Hope. Neotropical (*E*): Argentina, Bolivia, Brazil, Colombia, Dominica, Guatemala, Nicaragua, Paraguay, Peru, Puerto Rico, Uruguay, Venezuela.

chloropyga (Wiedemann), 1818:44 [Musca].

*Type-locality:* South Africa, Western Cape Province, Cape of Good Hope. Neotropical (*E*): Argentina.

megacephala (Fabricius), 1794:317 [Musca].

*Type-locality:* “Guinea”, error = “Ex. Ind. Or.” See Patton, 1925:179. Neotropical (*E*): Argentina, Brazil, Colombia, Dominica, Dominican Republic, Greater Antilles, Jamaica, Nicaragua, Puerto Rico, Peru.

putoria (Wiedemann), 1818:403 [Musca].

*Type-locality:* Sierra Leone. Neotropical (*E*): Argentina, Bolivia, Brazil, Colombia, Panama, Paraguay, Peru. [2]

rufipacies (Macquart), 1843:303 [Lucilia].

*Type-locality:* “Nouvelle-Hollande”, Australia. Neotropical (*E*): Argentina, Brazil, Colombia, Cuba, Dominica, Guatemala, Jamaica, Mexico, Puerto Rico. [3]

Genus *Cochliomyia* Townsend, 1915

aldrichi Del Ponte, 1938:274.

*Type-locality:* Bahama Islands, San Salvador Is. Neotropical: Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Cuba, El Salvador, Puerto Rico, USA (Florida Keys).

hominivorax (Coquerel), 1858:173 [Lucilia].

*Type-locality:* “Guyana”. Neotropical: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, French Guyana, Greater Antilles, Guatemala, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Trinidad and Tobago, Uruguay.

macellaria (Fabricius), 1775:776 [Musca].

*Type-locality:* “West Indies”. Neotropical: Argentina, Bahamas, Belize, Bermudas, Bolivia, Brazil, Caribe, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Greater Antilles, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela. [4]

minima Shannon, 1926:124.

*Type-locality:* West Indies, Santo Domingo, San Francisco M’ts. Neotropical: British Virgin Islands, Cuba, Dominican Republic, Jamaica, Puerto Rico, Santo Domingo, USA (Florida Keys). [5]

Genus *Compsonymyiops* Townsend, 1918

alvarengai (Mello), 1968:188 [Paralucilia].

*Type-locality:* Bolivia, La Paz, El Alto. Neotropical: Bolivia, Chile, Ecuador, Peru.

arequipensis (Mello), 1968:187 [Paralucilia].

*Type-locality:* Peru, Arequipa. Neotropical: Bolivia, Colombia, Ecuador, Peru.

callipes (Bigot), 1877:249 [Somomyia].

*Type-locality:* “Mexico”. Neotropical: USA to Bolivia. [6]

fulvicura (Robineau-Desvoidy), 1830:446 [Chrysomya].

*Type-locality:* Uruguay, Montevideo. Neotropical: Mexico to Chile, Argentina, Bolivia, Brazil, Guyana, Uruguay.

melloi Dear, 1985:155.

*Type-locality:* “Mexico”. Neotropical: Colombia, Mexico.

verena (Walker), 1849:874 [Musca].

*Type-locality:* “Venezuela”. Neotropical: Argentina, Colombia, Costa Rica, Peru, Venezuela.

Genus *Hemihexia* Brauer, 1895

benoisti Séguy, 1925b:440.

*Type-locality:* “French Guyana”. Neotropical: Brazil, Colombia, Costa Rica, French Guyana, Guyana, Peru, Venezuela.

melusina Dear, 1985:134.

*Type-locality:* Peru. Neotropical: Colombia, Peru.

segmentaria (Fabricius), 1805:292 [Musca].

*Type-locality:* “South America”. Neotropical: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago.

semidiaphana (Rondani), 1850:177 [Musca].

*Type-locality:* Brazil, São Paulo, São Sebastião Is. Neotropical: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, Panama, Paraguay, Peru, Trinidad and Tobago, Venezuela. [7]

souzalopesi Mello, 1972b:132.

*Type-locality:* Brazil. Neotropical: Argentina, Brazil.

townsendi Shannon, 1926:125.

*Type-locality:* Peru, Yahuarmayo. Neotropical: Colombia, Peru.

Genus *Paralucilia* Brauer & Bergenstamm, 1891

borgmeieri (Mello), 1969b:313 [Myolucilia].

*Type-locality:* Brazil, Goiás, Campinas. Neotropical: Brazil.

fulvina (Bigot), 1877:251.

*Type-locality:* Mexico. Neotropical: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Guyana, Mexico, Peru, Venezuela.

nigrofacialis (Mello), 1969b:308 [Myolucilia].

*Type-locality:* Brazil, Rio de Janeiro, Angra dos Reis. Neotropical: Brazil.

paraeus (Mello), 1969b:305 [Myolucilia].

*Type-locality:* Brazil, Pará, Belém. Neotropical: Brazil, Colombia, Costa Rica, Guatemala, Guyana, Panama, Paraguay, Peru, Surinam, Venezuela. [8]

pseudolyrcea (Mello), 1969b:310 [Myolucilia].

*Type-locality:* Brazil, Santa Catarina, Nova Teutônia. Neotropical: Argentina, Bolivia, Brazil, Colombia, Paraguay. [9]
Genus Phormia Robineau-Desvoidy, 1830

regina (Meigen), 1826:58 [Musca]. Type-locality: Germany. Neotropical (*E): Bahamas.

Subfamily LUCILIINAE

Genus Lucilia Robineau-Desvoidy, 1830
celuiva (Walker), 1849:885 [Musca]. Type-locality: West Indies. Neotropical: Anguilla, Argentina, Colombia, Cuba, Guatemala, Honduras, Martinique, Mexico, Nicaragua, Puerto Rico, Southeastern USA.

coeleureviridis Macquart, 1855:133. Type-locality: U.S.A., Maryland, Baltimore. Neotropical: Cuba, Guatemala.

cuprina (Wiedemann), 1830:654 [Musca]. Type-locality: "China". Almost world-wide. Neotropical (*E): Argentina, Bermuda, Brazil, Colombia, Cuba, Haiti, Jamaica, Peru, Puerto Rico, Trinidad, Uruguay, Venezuela, Virgin Islands.

deceptor (Curran), 1934:166 [Viridinsula]. Type-locality: Galápagos Islands, North Seymour (Baltra). Neotropical: Ecuador.

eximia (Wiedemann), 1819:53 [Musca]. Type-locality: "Brazil". Neotropical: Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, Guatemala, Grenada, Guadeloupe, Mexico, Nicaragua, Peru, Puerto Rico, St. Vincent, Trinidad, Venezuela, Virgin Islands.

fayae Whitworth, 2010:22. Type-locality: Dominica, West Indies. Neotropical: Dominica, Puerto Rico, Saint Lucia, Saint Vincent.

ibis Shannon, 1926:132. Type-locality: Peru, Huadquíña. Neotropical: Peru.

japuhybensis Mello, 1961:274. Type-locality: Brazil, Rio de Janeiro, Angra dos Reis, Japuíba. Neotropical: Brazil.

lucigerens (James), 1971:384 [Phaenicia]. Type-locality: Jamaica. Neotropical: Jamaica.

mexicana (Macquart), 1843:300 (separate, p. 143) [Lucilia]. Type-locality: "Mexico". Neotropical: Southwestern USA, Mexico, Guatemala. Hall (1948) says south to Brazil.

pionia (Walker), 1849:880 [Musca]. Type-locality: Galápagos Islands. Neotropical: Ecuador.

problematica Johnson, 1913:448. Type-locality: Bermuda, West Indies. Neotropical: Bermuda, uncommon, according to Hall (1948).

purpurescens (Walker), 1837:355 [Musca]. Type-locality: Brazil, Santa Catarina. Neotropical: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Mexico, Peru, Venezuela.

rica Shannon, 1926:132. Type-locality: West Indies, Antigua. Neotropical: Antigua, Bermuda, Guadeloupe, Haiti, Puerto Rico, Saint Lucia.

reversa (James), 1971:382 [Phaenicia]. Type-locality: Bahamas. Neotropical: Bahamas, Cayman Islands, Cuba, Dominican Republic, Haiti, Puerto Rico.

sericata (Meigen), 1826:53 [Musca]. Type-locality: "Germany". Almost World-wide. Neotropical (*E): Argentina, Bermuda, Brazil, Chile, Colombia, Peru, Venezuela.

setosa (James), 1966:479 [Phaenicia (Viritinsula)]. Type-locality: Galápagos Islands, Darwin Island. Neotropical: Ecuador.

Subfamily MESEMBRINELLINAE

Genus Abruquequina Mello, 1967

latifrons Mello, 1967:10. Type-locality: Brazil, Rio de Janeiro, Petrópolis. Neotropical: Brazil.

Genus Eumesembrinella Townsend, 1931

benoisti (Séguy), 1925a:196 [Ochromyia]. Type-locality: French Guyana. Neotropical: Brazil, French Guyana, Guyana, Venezuela.

cyaneicincta (Surcouf), 1919:69 [Ochromyia]. Type-locality: Brazil. Neotropical: Brazil. [10]

Genus Giovanella Bonatto, 2005

bolivar Bonatto, 2005:884. Type-locality: Venezuela, Bolivar, Kayana'yén. Neotropical: Venezuela.

Genus Henriquella Bonatto, 2005

spicata (Aldrich), 1925:13. [Mesembrinella]. Type-locality: Costa Rica, La Suiza de Turrialba. Neotropical: Colombia, Costa Rica.

Genus Huaascaromusca Towsend, 1918

aeneiventris (Wiedemann), 1830:376 [Dexia]. Type-locality: Brazil. Neotropical: Brazil, Colombia, Costa Rica, Ecuador, Panama, Peru.

bequaerti (Séguy), 1925a:195 [Mesembrinella]. Type-locality: Peru. Neotropical: Peru.

decreptia (Séguy), 1925a:195 [Mesembrinella]. Type-locality: Colombia. Neotropical: Colombia, Venezuela.

lara Bonatto, 2005:888. Type-locality: Venezuela, Lara, Yacambú. Neotropical: Venezuela.

purpura (Aldrich), 1922:16 [Mesembrinella]. Type-locality: Brazil, Espírito Santo. Neotropical: Brazil, Ecuador, Peru.

semiflava (Aldrich), 1925:14 [Mesembrinella]. Type-locality: Costa Rica, La Suiza de Turrialba. Neotropical: Costa Rica.

uniseta (Aldrich), 1925:13 [Mesembrinella]. Type-locality: Costa Rica, La Suiza de Turrialba. Neotropical: Costa Rica.

vogelsangi Mello, 1967:46. Type-locality: Venezuela, Aragua. Neotropical: Venezuela.

Genus Laneella Mello, 1967

nigripes Guimarães, 1977:37. Type-locality: Brazil, São Paulo, Salesópolis. Neotropical: Brazil, Paraguay.

peris (Mariluis), 1987:107. Type-locality: Ecuador, Napo, Lago Agrio. Neotropical: Brazil, Colombia, Ecuador.

Genus Mesembrinella Giglio-Tos, 1893

abaca (Hall), 1948:68 [Huaascaromusca]. Type-locality: Barro Colorado Island, Canal Zone, Panama. Neotropical: Costa Rica, Nicaragua, Panama.

apollinaris Séguy, 1925a:196. Type-locality: Colombia,
Villavicencio. Neotropical: Colombia.

**batesi** Aldrich, 1922: 15. Type-locality: Brazil, Amazonas. Neotropical: Brazil, Peru, Argentina.

**bellardiana** Aldrich, 1922:21 [Mesembrinella (Mesembrinio)]. Type-locality: Brazil, Espírito Santo. Neotropical: Argentina, Bolivia, Brazil, Ecuador, French Guyana, Guyana, Mexico, Paraguay, Venezuela. [11]

**bicolor** (Fabricius), 1805:201 [Musca]. Type-locality: "America meridionalis", Copenhagen. Neotropical: Mexico to Panama. South America, except Chile and South Argentina.

**brunnipes** Surcouf, 1919:76. Type-locality: Bolivia. Neotropical: Bolivia.

**currani** Guimarães, 1977:27. Type-locality: Brazil, Pará, Mato Grosso. Neotropical: Brazil.

**flavicurra** Aldrich, 1925:16. Type-locality: Costa Rica, La Suiza de Turrialba. Neotropical: Costa Rica, Panama.

**peregrina** Aldrich, 1922:22. Type-locality: Brazil, Espírito Santo. Neotropical: Brazil.

**pictipennis** Aldrich, 1922:11. Type-locality: Bolivia, Yungas de la Paz. Neotropical: Bolivia.

**semiroya** Mello, 1967:73. Type-locality: Brazil, Espírito Santo, Parque Sooretama. Neotropical: Brazil.

**townsendi** Guimarães, 1977:31. Type-locality: Peru, Puno, Fundo Chela. Neotropical: Peru.

**umbrosa** Aldrich, 1922:12. Type-locality: Costa Rica, Tucurrique. Neotropical: Bolivia, Colombia, Costa Rica, Ecuador, Panama.

**xanthorrhina** (Bigot), 1887: clxxx. Type-locality: Mexico. Neotropical: Mexico, Panama.

**Sarconesia** Guimarães, 1977

**facialis** (Aldrich), 1922:17 [Mesembrinella]. Type-locality: Costa Rica, Higueto, San Mateo. Neotropical: Costa Rica, Guatemala, Honduras, Panama, Trinidad, Venezuela.

**Sarconesiomima** Guimarães, 1977

**anomala** Guimarães 1977:54. Type-locality: Venezuela, San Diego. Neotropical: Ecuador, Venezuela.

**Toxotarsus** Macquart, 1830

**pediculata** Macquart, 1834:155. Type-locality [*E*]: Bahamas. [12]

Subfamily RHININAE

Genus *Stomorhina* Rondani, 1861

**lunata** (Fabricius), 1805:292 [Musca]. Type-locality: Madeira. Neotropical (*E*): Bermuda. [13]

Subfamily TOXOTARSIINAE

Genus *Chlorobrachycoma* Townsend, 1918

**maurii** (Mariluis), 1981:104 [Sarconesia]. Type-locality: Ecuador. Neotropical: Ecuador.

**splendida** Townsend, 1918:155. Type-locality: Peru, Oroya. Neotropical: Bolivia, Colombia, Ecuador, Peru. [14]

Genus *Neta* Shannon, 1926

**chilensis** (Walker), 1837:354 [Musca]. Type-locality: “Chile”. Neotropical: Argentina. [15]

Genus *Roraimomusca* Townsend, 1935

**roraima** Townsend, 1935:70. Type-locality: Venezuela, Mt Roraima. Neotropical: Bolivia, Brazil, Colombia, Ecuador, Venezuela. [15]

Genus *Sarconesia* Bigot, 1857

**chlorogaster** (Wiedemann), 1830:359 [Sarcophaga]. Type-localities: Uruguay, Montevideo (original type-locality), Argentina, Buenos Aires, La Plata (neotype localities; see Dear, 1979:156). Neotropical: Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, Uruguay.

**versicolor** (Bigot), 1857:302 [Sarconesia]. Type-locality: Chile. Neotropical: Argentina, Bolivia, Chile. [16]

Genus *Sarconesiomima* Lopes & Albuquerque, 1955

**bicolor** Lopes & Albuquerque, 1955:105. Type-locality: Chile, Santiago. Neotropical: Chile. [17]

Genus *Sarconesiopsis* Townsend, 1918

**magallanica** (Le Guillou), 1842:316 [Calliphora]. Type-locality: “Chile”. Neotropical: Argentina, Bolivia, Chile, Colombia, Ecuador, Peru.

Genus *Toxotarsus* Macquart, 1831

**ambrosianus** (Lopes), 1961:456 [Kuschelomyia]. Type-locality: Chile, San Ambrosio Is. Neotropical: Chile. [18]

**humeralis** (Walker), 1837:348 [Stomoxys]. Type-locality: Chile, Concepción. Neotropical: Chile. [19]

**nigrocyaneus** (Walker), 1837:354 [Sarcophaga]. Type-locality: Chile. Neotropical: Argentina, Chile. [20]

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**Key to the Brazilian Species of Blow Flies**

01. Wing with vein M strongly curved (Figure 1); posterior thoracic spiracle with only one operculum .......................................................... 02

 . Wing with vein M distinctly angular (Figure 2); posterior thoracic spiracle with two opercula .......................................................... 15

02. Interfrontal setae present; dichoptic males ................................................................................................................. *Albuquerquea latifrons* Mello, 1967

 . Interfrontal setae absent; holoptic males ................................................................................................................. 03

03. Tarsal claws with a white base ......................................................................................................................... *Laneella nigripes* Guimarães, 1977

 . Tarsal claws with a different color from above ................................................................................................................. 04

04. Three (3) basal postpronotal setae (Figure 3) ............................................................................................................. 05

 . Two (2) basal postpronotal setae (Figure 4) ............................................................................................................. 10
05. Basal section of stem vein (R) with setulae on dorsal view (Figure 5) .................................................................06
   . Basal section of stem vein (R) bare on dorsal view .................................................................................................07
06. Subcostal sclerite with setulae (Figure 6) .......................................................... Mesembrinella bellardiana Aldrich, 1922 (Figure 15)
   . Subcostal sclerite bare ..................................................................................................................................................08
07. Abdomen with rough aspect, with pollinosis forming rounded spots at the base of the hairs ............................................ Mesembrinella batesi Aldrich, 1925
   . Abdomen different from above ........................................................................................................................................09
08. Wing with a strong dark band along the costal vein .......................................................... Mesembrinella semyhialina Mello, 1967
   . Wing without a dark band along the costal vein ........................................................................................................10
09. One to three (1-3) subapical scutellar setae; junction of R_{4+5} and R_{4+5} with one setula (Figure 7) ............................. Mesembrinella bicolor Fabricius, 1805 (Figure 16)
   . Subapical scutellar setae absent; junction of R_{4+5} and R_{4+5} with 2-3 setulae .......................................................... Mesembrinella curranii Guimarães, 1977
10. Tergite V without discal setae .........................................................................................................................................11
   . Tergite V with discal setae ...........................................................................................................................................12
11. Posterior ridge of the abdominal tergites with distinctly violet stripes .......................... Eumesembrinella cyaneicyncta (Surcouf, 1919)
   . Posterior ridge of the abdominal tergites without distinctly violet stripes ................................................................13
12. Tergite IV with a complete series of distinctly marginal setae; mid and hindtibiae black .................................................. Eumesembrinella quadrilineata (Fabricius, 1805)
   . Tergite IV only with lateral marginal setae ................................................................................................................14
13. Wing with a strong dark stain along the costal vein .......................................................................................................15
   . Wing without a dark stain along the costal vein ..........................................................................................................16
14. Presutural acrostichal setae absent ...................................................................................... Huascaromusca aeneiventris (Wiedemann, 1830)
   . Presutural acrostichal setae present .........................................................................................................................17
15. Stem vein (base of vein R) with setulae on dorsal view .......................................................... Huascaromusca purpurata (Aldrich, 1922)
   . Stem vein (base of vein R) without setulae on dorsal view ........................................................................................18
16. Stem vein (base of vein R) with setulae on ventral view (Figure 8) .................................................. Huascaromusca rorida (Aldrich, 1922)
   . Stem vein (base of vein R) without setulae on ventral view ........................................................................................19
17. Abdomen metallic and thorax not metallic; postsutural acrostichal setae absent; eyes bare ........................................ Sarconesia chlorogaster (Wiedemann, 1830) (Figure 17)
   . Abdomen and thorax metallic; 3 postsutural acrostichal setae; eyes with dense pilosity .............................................. Roraimomusca rorida (Townsend, 1935) (Figure 18)
18. Lower calypter with setulae in the whole surface .................................................................................................20
   . Lower calypter bare, or with setulae only in the basal third or internal half .................................................................21
19. Anterior thoracic spiracle brown or gray; male with superior ommadidia enlarged (Figure 9) ........................................... Chrysomya megacephala (Fabricius, 1794)
   . Anterior thoracic spiracle white; male with uniform ommadidia ................................................................................22
20. Proepimeral seta absent .............................................................................................................. Chrysomya albiceps (Wiedemann, 1819)
   . Proepimeral seta present (Figure 10) .......................................................................................................................23
21. Males: outer vertical setae usually absent; female: tergite V without dorsal cleft in the posterior margin ........................ Chrysomya putoria (Wiedemann, 1818)
   . Males: outer vertical setae present; female: tergite V with a dorsal cleft in the posterior margin ..................................... Chrysomya ruffiacies (Macquart, 1843)
22. Lower calypter bare in the whole surface .........................................................................................24
   . Lower calypter with setulae in the basal third or internal half ........................................................................................25
23. Black legs; wings with dark maculae restricted to the costal margin .................................................. Chloroprocta idioidea (Robineau-Devoidy, 1830) (Figure 19)
   . Yellow legs; wings with maculae in the distal third ...................................................................................................26
24. Anterior and posterior thoracic spiracles yellow; 3 presutural dorsocentral setae ..............................................................27
   . Anterior thoracic spiracle yellow and posterior thoracic spiracle brown; 2 presutural dorsocentral setae ......................28
25. 4 postpronotal bristles ............................................................... Cochliomyia macellaria (Fabricius, 1775)
   . 3 postpronotal bristles ............................................................... 28

26. Occiput black ............................................................................. Hemilucilia semidiaphana (Rondani, 1850) (Figure 20)
   . Occiput black in the superior half and yellow in the inferior half .......................... Hemilucilia souzalopesi Mello, 1972

27. Palpus short and filiform .......................................................................................................................... 28
   . Palpus normal ................................................................................................................................. 29

28. Tergite V with dense white pollinosity in ventral surface; females with brown basicosta .......................... Cochliomyia macellaria (Fabricius, 1775)
   . Tergite V with dense black pollinosity in ventral surface; females with black basicosta .................. Cochliomyia hominivorax (Coquerel, 1858)

29. Red legs; presutural dorsocentral setae absent; hair in the basal third of the dorsal surface of the lower calypter (Figure 11) ................................................................. Compsomyiops fulvictura (Robineau-Desvoidy, 1830)
   . Black legs; presutural dorsocentral setae present; hair in the internal half of the dorsal surface of the lower calypter (Figure 12) ............................................................... 30

30. Mesonotum with metallic shine; prescutum, when viewed from behind, with dense silver pollinosity, but without forming distinct longitudinal stripes .................................................. 31
   . Mesonotum without metallic shine; prescutum, when viewed from behind, with three black stripes reaching the scutellum that are separated by stripes of silver gray pollinosity .................................................. 32

31. Three (3) postsutural acrostichal setae; 1 intra-alar seta; sternite V not strongly split; upper calypter bare ................................................................. Paralucilia fulvidorsalis (Bigot, 1877)
   . One (1) postsutural acrostichal seta; 2 intra-alar setae; sternite V strongly split; upper calypter with hairs on the dorsal surface ................................................................. Paralucilia nigrofacialis (Mello, 1969)

32. Postgenal bristles shiny white ..................................................... Paralucilia borgmeieri (Mello, 1969)
   . Postgenal bristles shiny orange .......................................................... 33

33. Yellow head; fronto-orbital plate recovered with silver hairs; weak pair of ocellar bristles; 2 postsutural acrostichal setae; 3 presutural dorsocentral setae; 3 postpronotal setae ................................................................. Paralucilia paraensis (Mello, 1969)
   . Red head; fronto-orbital plate recovered with golden hairs; ocellar bristles long and proclinate; 3 postsutural acrostichal setae; 4 presutural dorsocentral setae; 4 or 5 postpronotal setae ................................................................. Paralucilia pseudolyrcea (Mello, 1969b)

34. Lower calypter bare on dorsal surface; parafacial usually entirely bare ....................................................... 35
   . Lower calyxter with hairs on dorsal surface; parafacial partially with hairs ........................................ 37

35. Two (2) postsutural acrostichal setae (Figure 13) ................................................................. Lucilia eximia (Wiedemann, 1819) (Figure 21)
   . Three (3) postsutural acrostichal setae (Figure 14) .............................................................................. 36

36. Body green or metallic blue; 6-8 postpronotal setae ................................................................. Lucilia sericata (Meigen, 1826)

37. Gena red; 3 presutural acrostichal setae; blue abdomen with silvery pollinosity ....................................................... Calliphora vicina Robineau-Desvoidy, 1830 (Figure 22)
   . Gena brown; 2 presutural acrostichal setae; blue abdomen with dark pollinosity .......................... Calliphora lopesi Mello, 1962

**Taxonomic Notes**

[1] Deár (1985) believes that Chloropocta is a monotypic genus with one species (C. idioidea) that has wide distribution and shows variation in color, which is dependent on geographical distribution.

[2] According to personal information (RPM and Dr. Arício Xavier Linhares), the specimens identified as Chrysomya chloropyga (Wiedemann, 1818) in Brazil during the 1970s and 1980s are actually Chrysomya putoria (Wiedemann, 1818). Thus, we strongly believe that C. chloropyga is not present in Brazil.

[3] Silva et al. (2012) recorded the presence of Chrysomya rufifacies for the first time in Brazil (State of Maranhão), increasing the distribution of this exotic species in the Americas. The second author RPM also confirms the presence of this species in the Rio de Janeiro State.

[4] Deár (1985) synonymized Cochliomyia fontanae with Cochliomyia macellaria, arguing that Garcia (1952) separated the two species based on size and color, characters that are quite variable in the group.

[5] Whitworth (2010) says that Deár (1985) listed Cochliomyia minima occurring in the Florida Keys and that it was probably a mistake, since he had examined numerous specimens of Cochliomyia from this locality and had never found one C. minima.

[6] Deár (1985) brings Chrysomya wheeleri Hough, 1899 as synonym of Compsomyiops callipes.

[7] Deár (1985) synonymized Hemilucilia hermalenti with Hemilucilia semidiaphana, however without looking the type.

[8] In his work of 1996, Mello synonymized Paralucilia adespota with Paralucilia paraensis based on the examination of the holotype, description, and drawings of the genitalia.
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Figures 1-8. Key characters. 1. Vein M strongly curved (Mesembrinella peregrina). 2. Vein M distinctly angular (Lucilia eximia). 3. Three basal postpronotal setae (Mesembrinella peregrina). 4. Two basal postpronotal setae (Huascaromusca aeneiventris). 5. Rt with setulae on dorsal view (Mesembrinella peregrina). 6. Subcostal sclerite with setulae in ventral view (Mesembrinella bellardiana). 7. Junction of R$_2+3$ and R$_4+5$ with one setula (Mesembrinella bicolor). 8. Stem vein with setulae in ventral view (Sarconesia chlorogaster).

Figures 9-14. Key characters (cont.). 9. Head of male with superior ommatidia enlarged (Chrysomya megacephala). 10. Proepimeral seta present (Chrysomya putoria). 11. Hair in the basal third of the dorsal surface of the upper calypter (Compsomyops fulvicrurta). 12. Hair in the internal half of the dorsal surface of the upper calypter (Paralucilia fulvinota). 13. Two postsutural acrostical setae (Lucilia eximia). 14. Three postsutural acrostical setae (Lucilia cuprina).

[9] Mello (1996), based on the type, says that the description of Paralucilia xanthogeneiates from Dear (1985) agrees perfectly with the description of Paralucilia pseudolyrcea Mello, 1969. Furthermore, the author says there is also overlap in geographic distribution of both species, reasons why he believes that this is a synonym.

[10] We considered Eumesembrinella cyaneicincta (Surcouf, 1919) as a valid name instead of the subspecies of Guimarães (1977) (Eumesembrinella cyaneicincta cyaneicincta Surcouf, 1919 and Eumesembrinella cyaneicincta pausiceta Aldrich, 1922). The choice was made based on the Systema Dipterorum.

[11] We considered Mesembrinella bellardiana (Aldrich, 1922) as a valid name instead of the subspecies of Guimarães (1977) (Mesembrinella bellardiana bellardiana Aldrich, 1922 and Mesembrinella bellardiana fuscicosta Séguy, 1925). The choice was made based on the Systema Dipterorum.

[12] Whitworth (2010) says that one specimen of Pollenia pediculata is known from Bahamas, and this presence is almost certainly the result of an introduction.
[13] This is the only Rhiniinae known in the New World, according to Whitworth (2010).
[14] Dear (1979) considered the genus Chlorobrachycoma as a synonym of the genus Sarconesia. Nevertheless, Lopes & Albuquerque (1982) restored it, based on the holotype. They were followed by Mariluis & Peris (1984).
[15] In 1978, Mello redescribed Roraimomusca roraima, with illustrations of head and genitalia that were unknown up until then. One year later, Dear made a new combination, moving the species to the genus Sarconesia without citing Mello’s work (1978). Lopes & Albuquerque (1982) considered Roraimomusca as a valid genus based on Mello’s (1978) work and on the fact that “Dear mixed in the same genus (Sarconesia), Sarconesiopsis magellanica, with typical Calliphorid-like male genitalia and Sarconesia chlorogaster with a peculiar male genitalia”. After that, in 1984, Mariluis & Peris moved the species to the genus Chlorobrachycoma without observing any type. In the Systema Dipterorum the name appears under the genus Sarconesia, but the record lacks authority and revision date. We decided to follow Mello (1978) and Lopes & Albuquerque (1982), considering the observation of type material, vast experience, and deep knowledge of the group by these authors.
[16] Lopes & Albuquerque (1982) erected Sarconesia versicolor to a new genus, Sarconesica. Later, Mariluis & Peris (1984) moved the species to the genus Chlorobrachycoma. Despite all the changes, we believe that is more conservative to maintain the species under the name of Sarconesia versicolor, since Dear (1979) was the only author who looked the lectotype.
[17] Dear (1979) said that Sarconesiomima bicolor is a synonym of Sarconesia dichroa Schiner, based on a neotype designed by himself. However, Lopes & Albuquerque (1982) affirmed that Dear (1979) didn’t look any type material of Schiner’s species and that the description may have been done based on a specimen of Sarconesia chlorogaster.
[18] Based on the holotype of Kuschelomyia ambrosiana, Dear (1979) proposed a new combination, moving the species to the genus Toxotarsus, as cited in the Systema Dipterorum.
[19] Based on the holotype of Callycyrtomyia humeralis, Dear (1979) proposed a new combination, moving the species to the genus Toxotarsus, as cited in the Systema Dipterorum.
[20] Dear (1979) said that Toxotarsus rufipalpis and Toxotarsusfuscipennis are synonyms of Toxotarsus nigrocyaneus, which Lopes & Albuquerque (1982) considered as species inquirenda of Calliphoridae. However, Mariluis & Peris (1984), based on the types, agreed with Dear (1979).

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