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Catalogue of Neotropical Diptera. Scatopsidae

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Abstract. An updated catalogue of the Scatopsidae of the Neotropical region is presented. It includes 62 species, of which seven are unplaced or unrecognizable at the level of family or tribe, and one is not formally described. The subtribe Holoclematina, *subtr.n.* is proposed for the genus *Holoclema* Amorim & Haenni, 1996. A total of 12 new combinations is proposed: *Thripomorpha blantoni* (Cook, 1955b) is transferred from *Rhegmoclema*; *Neorhegmoclemina abruptinervis* (Duda, 1928), *Neorhegmoclemina acrolophia* (Cook, 1978), *Neorhegmoclemina asymmetrica* (Cook, 1955b), *Neorhegmoclemina constricta* (Edwards, 1930), *Neorhegmoclemina trichioneura* (Duda, 1928), *Neorhegmoclemina* ?*willistoni* (McAtee, 1921), and *Neorhegmoclemina sp.* Cook, 1990 are transferred from *Rhegmoclemina*; *Cookella brauni* (Speiser, 1921) is transferred from *Holoplagia*; *Quateiella auricularis* (Duda, 1928), *Quateiella diabolica* (Duda, 1928), and *Brahemyia costaricana* (Duda, 1928) are transferred from *Rhexosa*. Two synonymies are proposed: *Procolobostema incisum* Cook, 1971 and *P. obscurum* Cook, 1971 are synonymized with *P. hurdi* Cook, 1971. The fossils *Scatopse bilaminata* Cook, 1971 and *Scatopse primula* Cook, 1971 are placed as unrecognizable Rhegmoclematini and *Scatopse maritima* Duda, 1928 is transferred from *Scatopse* to unrecognizable Scatopsidae.

Introduction

Scatopsids are tiny, dark midges, from 0.6 to 3.0 mm long, quite unnoticed sometimes even by specialists. They are not good flyers and use to run rather agilely over the substrate. Scatopsid larvae live in decaying plant or animal material, humid wood holes etc. Pupae are sometimes found envolved in the exuvia of the last larval instar.

The Scatopsidae have been associated with Bibionomorpha based on the simplified wing venation (Hennig, 1954, 1973), while larval features (Wood & Borkent, 1989) and the fusion of the meron to the thoracic pleural sclerites (Amorim, 1994) strongly suggest a relationship to the suborder Psychodomorpha (see Amorim & Yeates, 2006). The connections of Scatopsidae and Canthyloscelidae have never been questioned (e.g., Hennig, 1954, 1973; Wood & Borkent, 1989; Amorim, 1994). Recently, the family Valeseguyidae has been proposed by Amorim & Grimaldi (2006) to be the sister group of the clade composed of Canthyloscelidae + Scatopsidae.

The Scatopsidae presently include 33 genera in the world. Amorim (1994) proposed a phylogenetic classification for the family based on Amorim (1982), with four subfamilies, the Psectrosciarinae with two tribes and the Scatopsinae enclosing four tribes. Aspistinae has two Holarctic genera; Ectaetiinae is monobasic, with species in most regions; Psectrosciarinae includes the genera *Psectrosciara* Kieffer and *Anapausis* Enderlein; Scatopsinae is more diverse, with the tribes Rhegmoclematini, Scatopsini, Colobostematini, and Swammerdamellini. Rhegmoclematini is further divided into four subtribes, Holoclematina *subtr.n.*, Diamphidicina, Rhegmoclematina, and Parascatopsina. The entire subfamily Aspistinae is absent from the Neotropical region. *Ectaetia* Enderlein and both Psectrosciarinae genera are present in the region. In the Rhegmoclematini, *Holoclema* Amorim & Haenni is endemic to the Neotropical region and *Diamphidicus* Cook is present in Chile and Australia. *Parmaferia* Cook is absent in the neotropics, while both other genera, *Thripomorpha* Enderlein and

Rhegmoclema Enderlein are known in the region, as are *Parascatopse* Cook and *Neorhegmoclemina* Cook. *Austroclemina* Cook is absent from the Neotropical region, while *Rhegmoclemina* is restricted to Mexico. The Scatopsini genera *Apiloscatopse* Cook, *Reichertella* Enderlein and *Pharsoreichertella* Cook are entirely unknown in the region, while *Scatopse notata* Linnaeus has been most certainly introduced. In the Colobostematini, the genera *Colobostema* Enderlein, *Cookella* Freeman, and *Holoplagia* Enderlein are present in the recent fauna, while *Procolobostema* Cook is known from Mexico and Dominican Republic amber fossils; the genera *Ferneiella* Cook, *Borneoscatopse* Freeman, and *Lumpuria* Edwards are absent in the Neotropics. Of the Swammerdamellini genera, *Pararhexosa* Freeman, *Swammerdamella* Enderlein, *Coboldia* Melander, *Akorhexoza* Cook, *Abrhexosa* Freeman, *Quateiella* Cook and *Brahemyia* Amorim are present, while *Hawomersleya* Cook is exclusive from Australia, and *Rhexosa* Enderlein is known from the Holarctic regions.

Protoscatopse jurassica Rohdendorf (in Rohdendorf, 1946) and *Mesoscatopse rohdendorfi* Kovalev, known of compression fossils from the Upper Jurassic/Lower Cretaceous (in Kalugina and Kovalev, 1985), have been included in an extinct family Protoscatopsidae. Both seem to have a branched R_5 and, hence, would not fit into the Scatopsidae crown-group. True scatopsid compression fossils were described by Kovalev (1986) from the Lower Cretaceous. Cretaceous amber fossils of the subfamily Ectaetiinae are known from different deposits (Amorim & Grimaldi, unpublished data). Other described scatopsid fossils include five species in Eocene/Oligocene Baltic amber, seven in Oligocene/Miocene Mexican Chiapas amber, one in Oligocene American compression fossil, and one in Dominican Oligocene/Miocene amber, one in Czech Paleogene amber, and one in France Eocene amber (see reviews in Amorim, 1998, and Nel, A. & J. Prokop, 2004). As discussed elsewhere, intercontinental disjunction in many genera can be associated to plate tectonics, as is the case of *Diamphidicus*, *Psectrosciara*, and *Anapausis*.

The number of Neotropical species in each genus is given below.

Ectaetiinae	
***Ectaetia* Enderlein**	2
Psectrosciarinae	
***Psectrosciara* Kieffer**	7
***Anapausis* Enderlein**	5
Scatopsinae	
Rhegmoclematini	
***Holoclema* Amorim & Haenni**	1
***Diamphidicus* Cook**	1
***Thripomorpha* Enderlein**	2
***Rhegmoclema* Enderlein**	1
***Parascatopse* Cook**	2
***Rhegmoclemina* Enderlein**	1
***Neorhegmoclemina* Cook**	7
Unrecognizable and Unplaced Rhegmoclematini	2
Scatopsini	
***Scatopse* Geoffroy**	1
Colobostematini	
***Colobostema* Enderlein**	5
***Efcookella* Haenni**	1
***Holoplagia* Enderlein**	1
***Procolobostema* Cook**	2
Swammerdamellini	
***Pararhexosa* Freeman**	1
***Swammerdamella* Freeman**	7
***Coboldia* Melander**	1
***Akorhexoza* Cook**	2
***Abrhexosa* Freeman**	1
***Quateiella* Cook**	2
***Brahemyia* Amorim**	2
Unrecognizable and Unplaced Scatopsidae	5
Total	**62**

The acronyms of the depositary institutions of the types are given below. The symbol "†" along the catalogue indicates fossil species.

AMNH – American Museum of Natural History, Department of Entomology, New York
BMNH – The Natural History Museum, Department of Entomology, London
DEI – Deutsches Entomologisches Institut, Deutsche Akademie der Landwirts-wissenschaften zu Berlin, Eberswalde
CAIM – Collection of Arthropods with Medical Importance (CAIM), Instituto de Diagnóstico y Referencia Epidemiológicos< Mexico, D.F.
CAS – California Academy of Sciences, Department of Entomology, San Francisco
CUI – Cornell University, Cornell University Insect Collection, Cornell
MNM – Magyar Természettudományi Múzeum (Hungarian Natural History Museum), Budapest
MHNN – Muséum d'Histoire Naturelle Neuchâtel, Neuchâtel
MNHNP – Muséum National d'Histoire Naturelle, Paris
MZSP – Museu de Zoologia da Universidade de São Paulo, São Paulo
NMNH – National Museum of Natural History, United States National Museum of Natural History, Washington
PAN – Polish Academy of Science, Museum of the Institute of Zoology, Varsovia
UCMP – University of California Museum of Paleontology, Berkeley
UMIC – University of Minnesota Insect Collection, St. Paul
ZMB – Zoologisches Museum Berlim, Berlim

Family SCATOPSIDAE Newman, 1834

Scatopsites Newman, 1834: 379, 387. Type-genus: *Scatopse* Geoffroy, 1762.
Scatopsinae Schiner, 1864: xvii, 1864b: 10.
Scatopsidae Enderlein, 1911: 122.
Scatopsoidea Rohdendorf, 1951: 68.

Ref. – Cook, 1981; Haenni, 1997.

Subfamily **Ectaetiinae** Enderlein, 1936

Ectaetinae Enderlein, 1936: 56. Type-genus: *Ectaetia* Enderlein, 1912.

Genus **Ectaetia** Enderlein, 1912

Ectaetia Enderlein, 1912: 279. Type-species: *Scatopse clavipes* Loew, 1846 (orig. des.).

cornuta Edwards, 1930: 98, pl. X, figs. 9, 10 (wing, ♂ term.). Type-locality: Chile, Llanquihue, Casa Pangue. Distr. – Chile (Llanquihue). Ref. – Cook, 1967: 5 (cat.); Amorim & Haenni, 1996 (redescr.), figs. 1-5 (♂ term.). Holotype ♂, BMNH.
lasiopa Duda, 1928b: 294. Type-locality: Costa Rica, La Suiza de Turrialba. Distr. – Costa Rica. Ref. – Cook, 1967: 5 (cat.). Type ♀, MNM.

Subfamily **Psectrosciarinae** Cook, 1963

Psectrosciarinae Cook, 1963: 5-6. Type-genus: *Psectrosciara* Kieffer, 1911.

Tribe **Psectrosciarini** Cook, 1963

Psectrosciarini Cook, 1963: 5-6. Type-genus: *Psectrosciara* Kieffer, 1911.

Genus **Psectrosciara** Kieffer, 1911

Psectrosciara Kieffer, *in* Enderlein, 1911: 192 (also Kieffer, 1912: 192). Type-species: *Psectrosciara mahensis* Kieffer, 1912 (orig. des.) = *P. brunnipes* (Brunetti).

Ref. – Cook, 1958 (rev.).

arnaudi Cook, 1978: 33, fig. 5 (♂ term.). Type-locality: Mexico, Baja California, 22 mi S San Vicente, 300 ft. Distr. – Mexico (Baja California). Holotype ♂, CAS.
californica (Cole, 1912): 150, fig. 85 (adult) (*Scatopse*). Type-locality: U.S.A., California, Laguna Beach. Distr. – U.S.A. (Arizona, California), Mexico (Córdoba). Ref. – Cook, 1958: 593 (redescr.), figs. 2F-G (meso- and metathoracic first tarsus), 3A-C (♂ term.), 5a (♀ term.); Cook, 1967: 5 (cat.). Type ?.
mexicana Duda, 1928b: 294, pl., fig. 25 [♂ term., misidentified as ♀ term.] (as *scatopsiformis* ssp.). Type-locality: Mexico, Chapingo. Ref. – Cook, 1958: 593 (syn.); Cook, 1967: 5 (cat.). Type ♂, MNM.
jamaicensis Cook, 1958: 595, figs. 4G (♀ term.), 4H (spermatheca). Type-locality: Jamaica, Ocho Rios. Distr. – Jamaica. Ref. – Cook, 1967: 5 (cat.). Holotype ♂, NMNH.
rossi Cook, 1958: 595, figs 3D-E (♂ term.). Type-locality: Chile, Coquimbo, Laguna Dam. Distr. – Chile (Coquimbo). Ref. –

Cook, 1967: 5 (cat.). Holotype ♂, CAS.

scatopsiformis Enderlein, 1912: 281, fig. 14 (wing). Type-locality: "Costa Rica". Distr. – Costa Rica, Panama. Ref. – Melander, 1916: 16; Duda, 1928b: 290, figs. 21-22 (♂ term.), Pl. IV, fig. 6 (wing); Cook, 1958: 593 (resdescr.), figs. 2B-C (♂ term.), 5E (♀ term.), F (spermathecal), G (thorax); Cook, 1967: 5 (cat.). Type ♀, PAN. Comments. A male specimen improperly identified as a female of *P. scatopsiformis* by Duda (1928b: 292, fig. 23) most certainly represents an undescribed species.

serrata Cook, 1958: 594, figs. 5B (spermatheca), 5D (♀ term.). Type-locality: U.S.A., Texas, Los Fresnos. Distr. – U.S.A. (Texas), Mexico. Ref. – Cook, 1967: 5 (cat.). Holotype ♂, NMNH.

stradivarius Haenni & Rapp, 2003: 236, figs. 1-6 (head, wing, ♂ segment 7, ♂ term.). Type-locality: Belize, Shipstern Landing, Shipstern Nature Reserve. Distr. – Belize. Type ♂, MHNN.

Tribe **Anapausiini** Amorim, 1994

Anapausiini Amorim, 1994: 110. Type-genus: *Anapausis* Enderlein, 1912.

Genus **Anapausis** Enderlein, 1912

Anapausis Enderlein, 1912: 278. Type-species: *Scatopse soluta* Loew, 1846 (orig. des.).

Orthanapausis Enderlein, 1936: 55. Type-species: *Scatopse inermis* Ruthe, 1931 (orig. des.). Ref. – Cook, 1965a: 7 (syn.).

Ref. – Cook, 1965a (rev.); Amorim & Balbi, 2006 (phylogenenetic relationships).

clivicola Amorim & Balbi, 2006: 14, figs. 20 (maxillary palpus), 21 (thorax), 22 (wing), 23 (♂ term.), 24-25 (♀ term.). Type-locality: Brazil, State of São Paulo, São José do Barreiro. Distr. – Brasil (São Paulo). Holotype ♂, MZSP.

fuscinervis (Edwards, 1930): 97, p. X, figs. 11-12 (♂ term., wing) (*Psectrosciara*). Type-locality: Chile, Llanquihue, Casa Pangue. Distr. – Chile (Llanquihue). Ref. – Cook, 1965a: 16, figs. 42-43 (♂ term.), 45 (wing) (N. comb.); Cook, 1967 (cat.); Amorim & Haenni, 1996: 39, figs. 6 (♂ term.), 7 (tergites 7-10); Amorim & Balbi, 2006: 20, figs. 28 (ommatidia), 29 (maxillary palpus), 30 (labella), 31 (thorax), 32 (wing), 33 (♂ term.), 34-36 (♀ term.). Holotype ♂, BMNH.

mayana Amorim & Balbi, 2006: 11, figs. 12 (thorax), 13 (wing), 14 (tergite 2), 15 (sternite 4), 16(♂ term.), 17-19 (♀ term.). Type-locality: Panama, C.Z, Barro Colorado Isd. Distr. – Panama. Holotype ♂, NMNH.

mourei Amorim & Balbi, 2006: 18, figs. 26 (wing), 27 (♀ term.). Type-locality: Brasil, State of São Paulo, Ribeirão Grande, Parque Estadual Intervales. Distr. – Brasil (São Paulo). Holotype ♂, MZSP.

wirthi Amorim & Balbi, 2006: 8, figs. 6 (wing), 7-10 (♂ term.), 11 (♀ term.). Type-locality: Costa Rica, San Marcos, Higuito. Distr. – Costa Rica. Holotype ♂, NMNH.

Subfamily **Scatopsinae** Newman, 1834

Scatopsinae Newman, 1834: 379, 387. Type-genus: *Scatopse* Geoffroy, 1762.

Tribe **Rhegmoclematini** Cook, 1965b

Rhegmoclemini Cook, 1955: 351. Type-genus: *Rhegmoclema* Enderlein, 1912.

Rhegmoclematini Cook, 1965b: 238. Type-genus: *Rhegmoclema* Enderlein, 1912.

Subtribe **Holoclematina** Amorim, subtr. n.

Holoclematina, subtr.n. Type-genus: *Holoclema* Amorim & Haenni, 1996.

Amorim & Haenni (1996) proposed the genus *Holoclema* for *Scatopse setifera* Edwards. Their analysis concluded

that the genus was sister to all remaining Rhegmoclematini. Because of the tribal status of Diamphidicina, Rhegmoclematina, and Parascatopsina, a new tribe is necessary to accommodate *Holoclema*.

Diagnosis. The diagnosis of the tribe is the same of the genus: antenna with 10 flagellomeres; maxillary palpus small; R5 long, parallel, but not close to C; M1 complete; CuA rather sinuous, with some macrotrichia; membrane posterior to CuA with macrotrichia; a fold between the medial fork and CuA; tergite 1 without reticulation; gonocoxites with macrotrichia, well developed laterally; parameres absent; aedeagus quite wide, gradually tapering to the apex; a pair of spiracle dorsally on T9 of the ♂ terminalia; no cerci.

Genus **Holoclema** Amorim & Haenni, 1996

Holoclema Amorim & Haenni, 1996: 42. Type-species: *Scatopse setifera* Edwards, 1930 (orig. des.).

setifera (Edwards, 1930): 95, pl. IX, figs. 3-4 (wing, ♂ term.) (*Scatopse*). Type-locality: Argentina, Rio Negro, Lago Correntoso. Distr. – Argentina (Rio Negro). Ref. – Cook, 1967 (cat.) (as *Rhegmoclema*); Amorim & Haenni, 1996: 42 (redescr., N. comb.), figs. 13 (♂ segment 7), 14-18 (♂ term.), 19-20 (♀ term.). Holotype ♂, BMNH.

Subtribe **Diamphidicina** Amorim, 1994

Diamphidicina Amorim, 1994: 110. Type-genus: *Diamphidicus* Cook, 1971.

Genus **Diamphidicus** Cook, 1971

Diamphidicus Cook, 1971b: 48. Type-species: *Diamphidicus australis* Cook, 1971 (orig. des.).

Ref. – Amorim, 1989 (rev.).

chilensis Amorim, 1989: 479, figs. 1 (head), 2 (labella), 3 (mx. palpus), 4 (thorax), 5 (wing), 6 (tergite 2), 7 (sternite 4), 8-9 (♂ segment 7), 10-12 (♂ term.). Type-locality: Chile, Prov. Magallanes, Rio Las Minas. Distr. – Chile (Magallanes). Holotype ♂, NMNH.

Subtribe **Rhegmoclematina** Cook, 1965

Rhegmoclematina Cook, 1965a: 238. Type-genus: *Rhegmoclema* Enderlein, 1912.

Genus **Thripomorpha** Enderlein, 1905

Thripomorpha Enderlein, 1905: 448. Type-species: *Thripomorpha paludicola* Enderlein, 1905 (orig. des.).
Aldrovandiella Enderlein, 1912: 278. Type-species: *Scatopse halterata* Meigen, 1838 (orig. des.). Ref. – Haenni, 1995: 331 (syn.)

Ref. – Cook, 1955a (rev.).

blantoni (Cook, 1955b): 363, pl. IV i-k (♂ segment 7, ♂ term., wing) (*Rhegmoclema*). Type-locality: Panama, Bocas del Toro Prov., Almirante. Distr. – Panama. Holotype ♂, NMNH. **N. comb.**
chaboti Haenni & Rapp, 2003: 238, figs. 7-12 (habitus, wing, tergite 2, ♂ segment 7, ♂ term.). Type-locality: Belize, Shipstern Landing, Shipstern Nature Reserve. Distr. – Belize, México (Yucatán). Ref. – Huerta & Ibáñez-Bernal, 2008: 62, Figure 12 (♂ term.). Type ♂, MHNN.

Genus **Rhegmoclema** Enderlein, 1912

Rhegmoclema Enderlein, 1912: 276. Type-species: *Rhegmoclema rufithorax* Enderlein, 1912 (orig. des.).

Ref. – Cook, 1955a (rev.).

caudata (Duda, 1928b): 289, text-fig. 20 (♂ term.), pl. IV, fig. 5 (wing) (*Aldrovandiella*). Type-locality: Costa Rica, La Suiza de Turrialba. Distr. – Costa Rica. Ref. – Cook, 1955a: 249 (n. comb.); Cook, 1967: 3 (cat., as *caudatum*, error). Syntypes 1♂, 1♀, MNM [destroyed].

Subtribe **Parascatopsina** Amorim, 1994

Parascatopsina Amorim, 1994: 110. Type-genus: *Parascatopse* Cook, 1955 (orig. des.).

Genus **Parascatopse** Cook, 1955

Parascatopse Cook, 1955b: 362. Type-species: *Parascatopse wirthi* Cook, 1955 (orig. des.).

flavida Cook, 1955: 363, Figure 4C (♂ term.). Type-locality, U.S.A., Florida. Distr. – U.S.A. (Florida, Mississippi), Mexico (Yucatán). Ref. - Cook (1965b) (cat.); Huerta & Ibáñez-Bernal (2008), Figure 10 (♂ term.) (redescr., distr.). Holotype ♂, NMNH.

wirthi Cook, 1955b: 363 (♂ term.). Type-locality: U.S.A., Florida, Fort Lauderdale. Distr. – U.S.A. (Florida), Jamaica, Mexico (Yucatán). Holotype ♂, NMNH.

sp. Huerta & Ibáñez-Bernal, 2008: 61, Figure 11 (♂ term.) (from Mexico, Yucatán, similar to *P. wirthi*).

Genus **Rhegmoclemina** Enderlein, 1936

Rhegmoclemina Enderlein, 1936: 55. Type-species: *Scatopse vaginata* Lundström, 1910 (orig. des.).

Ref. – Cook, 1955b (rev.); Amorim, 1994 (redefinition).

clavicrus (Duda, 1928b): 282, pl. IV, fig. 4 (wing) (*Scatopse*). Type-locality: Costa Rica, La Suiza de Turrialba. Ref. – Cook, 1955b: 358 (redescr.), figs. IE (♂ term.), IIE (♂ segment 7); Cook, 1967: 3 (cat.). Distr. – Costa Rica. Holotype ♀, MNM.

Genus **Neorhegmoclemina** Cook, 1955

Rhegmoclemina (Neorhegmoclemina) Cook, 1955: 358. Type-species: *Rhegmoclemina parva* Cook, 1955 (orig. des.).

Ref. – Cook, 1955b (rev.); Amorim, 1994 (generic status).

abruptinervis (Duda, 1928b): 279, pl. IV, fig. 2 (wing) (*Scatopse*). Type-locality: Costa Rica, La Suiza de Turrialba. Distr. – Costa Rica, Panama. Ref. – Cook, 1955b: 360, pls. ID (♂ term.), IIH (♂ segment 7); Cook, 1967: 3 (cat., as *Rhegmoclemina* (*Neorhegmoclemina*)). Syntypes, 1 ♂, 1 ♀, MNM. **N. comb.**

acrolophia (Cook, 1978): 35, figs. 6 (♂ sternite 7), 7-8 (♂ term.) (*Rhegmoclemina*). Type-locality: Peru, West Crest Carpish Mountain, 40 mi. SW Tingo-María. Distr. – Peru (Tingo-María). Holotype ♂, CAS. **N. comb.**

asymmetrica (Cook, 1955b): 360, figs. pls. Ig, IIf, IIIe (♂ term., ♂ segment 7, wing) (*Rhegmoclemina*) (as *asymmetricum*, error). Type-locality: Jamaica, Ocho Rios. Distr. – Jamaica. Ref. – Cook, 1967: 3 (cat., as *Rhegmoclemina* (*Neorhegmoclemina*)). Holotype ♂, NMNH. **N. comb.**

constricta (Edwards, 1930): 96, pl. IX, figs. 5, 7 (♂ term., wing) (*Scatopse*). Type-locality: Chile, Llanquihue. Distr. – Chile

(Llanquihue). Ref. – Cook, 1967: 3 (cat., as *Rhegmoclemina* (*Neorhegmoclemina*)); Amorim & Haenni, 1996: 40, figs. 8 (♂ segment 7), 9-10 (♂ term.), 11 (♀ term.), 12 (spermathecal). Holotype ♂, BMNH. **N. comb.**

trichioneura (Duda, 1928b): 288, text-fig. 19 (wing) (*Scatopse*). Type-locality: Costa Rica, La Suiza de Turrialba. Ref. – Cook, 1967: 3 (cat., as *Rhegmoclemina* (*Neorhegmoclemina*), N. comb.). Distr. – Costa Rica. Holotype ♀, MNM. Comments. Cook (1955b: 352) comments that he did not examine the type of *Scatopse trichioneura* Duda, but he believed that it seemed "probable" that the species would belong in *Rhegmoclemina*. In the catalogue, Cook (1967: 3) listed the species in *Rhegmoclemina* (*Neorhegmoclemina*), but did not formally indicate that it constituted a new combination. **N. comb.**

?willistoni (McAtee, 1921): 144 (*Scatopse*) (nom.nov. for *pygmaea* Williston). Type-locality: British West Indies, St. Vincent. Ref. – Cook, 1967: 4 (cat.). **N. comb.**

pygmaea Williston, 1896: 269 (Scatopse) (preocc. Loew, 1864). Type-locality: British West Indies, St. Vincent. Type, ?.

†sp. Cook, 1990: 390, fig. 321 (photograph of male and female in copula). Dominican Republic (in Early Miocene amber). **N. comb.**

Unrecognizable and Unplaced Rhegmoclematini Species

†bilaminata Cook, 1971a: 58 (*Scatopse*), figs 1-2 (♂ term.), 3 (wing, part). Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Ref. – Amorim, 1998: (N. comb.). Holotype ♂, UCMP.

†primula Cook, 1971a: 58 (*Scatopse*), figs. 4 (♀ term.), 5 (wing). Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Probably a *Neorhegmoclemina*. Ref. – Amorim, 1998: (N. comb.). Holotype ♀, UCMP.

Tribe **Scatopsini** Newman, 1834

Scatopsini Newman, 1834: 379. 387. Type-genus: *Scatopse* Geoffroy, 1762.

Genus **Scatopse** Geoffroy, 1762

Scatopse Geoffroy, 1762: 450. Type-species, *Tipula albipennis* Fabricius, 1794 [= *Tipula notata* Linnaeus, 1758] (Generic name validated by I.C.Z.N., 1957: 86). In Sabrosky (1999: 276), two notes are added concerning *Scatopse*. "Note 1. Geoffroy (1762) was non-binominal, and generic names in Diptera (*Scatopse* and others) were conserved and type species designated to agree with modern usage (ICZN 1957). See Introduction, in Notes on Certain Publications, on Geoffroy 1762. Note 2. There were two original spellings in Geoffroy (1762), but I have not traced a possible first reviser, if any. *Scatopse* has been almost universally used, and this was the spelling conserved in ICZN's Opinion 441 under the plenary power, and the type species designated as *Tipula notata*, which was not an originally included nominal species."

Ceria Scopoli, 1763: 351. Type-species, *Ceria decemnodia* Scopoli (des. Coquillett, 1910: 520) [=*Tipula notata* Linnaeus].

Scathopse, incorrect spelling of *Scatopse* (Geoffroy, 1762: 544). [Rejected by I.C.Z.N., 1957: 86]

Scatops, error.

Ref. – Cook, 1957 (rev.); Cook, 1974.

notata (Linnaeus, 1758): 588 (*Tipula*). Type-locality: "Europe". Distr. – Cosmopolitan. Refs. – Kertész, 1902: 131 (cat., syn., bibl.); Enderlein, 1912, 267; Melander, 1916: 7; Edwards, 1925: 272; Duda, 1928a: 32; Edwards, 1929: 94; Lyall, 1929: 630 (larval disc); Séguy, 1940: 296; Cook, 1957: 598, figs. 1A (♂ term.), 2G (♂ metathoracic tarsus), 3C (spiracular sclerite), 4A (♀ term.), 5C (♂ segment 7), 6E (wing); Cook, 1963: 16, figs. 51 (♂ segment 7), 53 (♀ term.), 54 (♂ term.), 58 (wing); Haenni & Vaillant, 1994 (biol.). Type, ?.

decemnodia Scopoli, 1763: 588 (*Ceria*). Type-locality: not given. Ref. – Krivosheina & Haenni, 1986: 308.

nectarea Linnaeus, 1767: 983 (*Musca*). Type-locality: not given. Ref. – Hutson, 1970: 118 (syn.); Krivosheina & Haenni, 1986: 308.

latrinarium DeGeer, 1776: 430 (*Tipula*). Type-locality: not given. Ref. – Krivosheina & Haenni, 1986: 308.

Scathopse Schrank, 1781: 881 (*Tipula*). Type-locality: Austria. Ref. – Krivosheina & Haenni, 1986: 308.

albipennis Fabricius, 1794: 250 (*Tipula*). Type-locality: "Hafniae" [Copenhagen]. Ref. – Krivosheina & Haenni, 1986: 308.
dubia Meigen, 1804: 106. Type-locality: not given. Ref. – Krivosheina & Haenni, 1986: 308.
punctata Meigen, 1818: 301. Type-locality: not given. Ref. – Krivosheina & Haenni, 1986: 308.
minuta Meigen, 1818: 301. Type-locality: not given. Ref. – Krivosheina & Haenni, 1986: 308.
glabra Meigen, 1838: 54. Type-locality: "Aus hiesiger Gegend" (Stolberg bei Aachen?), "Baiern" [= Bavaria]. Ref. – Krivosheina & Haenni, 1986: 308.
femoralis Meigen, 1838: 55. Type-locality: "Hiesige Gegend" (Stolberg bei Aachen?), "Baiern" [= Bavaria]. Ref. – Krivosheina & Haenni, 1986: 308.
nitens Walker, 1848: 114. Type-locality: Canada, Ontario.
carolina Blanchard, 1852: 359. Type-locality: Chile, Chiloé Isd., Ancud [= San Carlos]. Ref. – Cook, 1967 (cat.); Edwards, 1930: 94.
carbonaria Philippi, 1865: 640. Type-locality: Chile, Santiago, Corral. Ref. – Cook, 1967 (cat.); Edwards, 1930: 94.
longipennis Skuse, 1889: 1303. Type-locality: Australia (New South Wales). Ref. – Cook, 1989: 183 (cat.).

Tribe **Colobostematini** Amorim, 1994

Colobostematini Amorim, 1994: 111. Type-genus: *Colobostema* Enderlein, 1926.

Genus **Colobostema** Enderlein, 1926

Colobostema Enderlein, 1926: 140. Type-species: *Colobostema oldenbergi* Enderlein, 1926 (orig. des.).

Ref. – Cook, 1956c (rev.).

arizonense Cook, 1956c: 331, figs. 1E (♂ term.), 2F (♂ segment 7), 3F (wing). Type-locality: U.S.A., Arizona, Texas Pass, Dragoon Mts. Distr. – USA (Arizona), Mexico (Baja California). Holotype ♂, CUI.
bijleveldi Haenni & Rapp, 2003: 242, figs. 13-17 (habitus), ♂ segment 7, ♂ term.). Type-locality: Belize, Shipstern Landing, Shipstern Nature Reserve. Distr. – Belize. Type ♂, MHNN.
hoffmannae Huerta & Ibáñez-Bernal, 2008: 58, figs. 1 (head), 2 (antenna), 3 (mx. palpus), 4 (spiracular sclerite), 5 (wing), 6-7 (♂ segment 7), 8-9 (♂ term.). Type-locality: Mexico, Yucatán, Municipio Tizimin, Ría Lagartos Reserve, 4.2 km S Biological Station El Cuyo "Zac-bo". Type, CAIM.
rotundum Cook, 1956c: 332, figs. 1F, 2E (♂ term., ♂ segment 7). Type-locality: Panama, Tocumen. Distr. – Panama. Ref. – Cook, 1967 (cat.). Holotype ♂, NMNH.
variatum Cook, 1956c: 330, figs. 1D, 2D, 3C (♂ term., ♂ segment 7, wing). Type-locality: U.S.A., Texas, Juno. Distr. – USA (Texas), Mexico (Mérida). Ref. – Cook, 1967 (cat.); Frost, 1964 (biol.). Holotype M, CUI.

Genus **Efcookella** Haenni, 1998

Efcookella Haenni, 1998: 142. Type-species: *Scatopse albitarsis* Zetterstedt, 1850 (orig. des.) (replacement name for *Cookella* Freeman, 1985, preocc. Chamberlim, 1941).
Cookella Freeman, 1985: 40. Type-species: *Scatopse albitarsis* Zetterstedt (orig. des.).

Ref. – Enderlein, 1912 (in part) Cook, 1957 (in part).

brauni (Speiser, 1921): 82 (*Holoplagia*). Type-locality: Brazil, State of Santa Catarina, Blumenau. Distr. – Brazil (Santa Catarina). Ref. – Cook, 1967 (cat.). Type, ?. **N. comb.**

Genus **Holoplagia** Enderlein, 1912

Holoplagia Enderlein, 1912: 267. Type-species: *Scatopse transversalis* Loew, 1846 (orig. des.) (= *Scatopse lucifuga* Loew).

Ref. – Cook, 1957 (rev.); Freeman, 1990 (redefinition).

guamensis (Johannsen, 1948): 187. 1a-e [wing (the wing figured is that of *Coboldia fuscipes*, not of *H. guamensis*], ♂ term.) (*Scatopse*). Type-locality: "Guam". Distr. – Micronesia, Hawaii, Truk, Ghana, Accra, Panama, Colombia, Brazil. Ref. – Hardy, 1956: 91 (redescr., n. comb.), figs. 2a (mx. palpus), 2b (wing), 2c (♂ segment 7 and term.), 2d-e (♀ segment 7 and term.). Cook, 1957: 610 (redescr.), figs. 7C (♂ term.), 7E (♀ term.), 7K (wing); Cook, 1967 (cat.); Cook, 1989 (cat.). Type, CUI.

Genus **Procolobostema** Cook, 1971

Procolobostema Cook, 1971a: 60. Type-species: *Procolobostema hurdi* Cook, 1971 (orig. des.).

Ref. – Amorim, 1998 (rev.).

†**hurdi** Cook, 1971a: 60, figs. 7 (wing), 8 (♀ term.) [mistakenly taken for a ♂]. Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Ref. – Amorim (1998). Holotype ♂, UCMP.

†*longicorne* Cook, 1971a: 60. Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Ref. – Amorim (1998), as synonym of *P. hurdi*. Holotype ♂(?), UCMP.

†*incisum* Cook, 1971a: 61, figs. 9 (wing), 10 (♀ tergite 7) (as *incisa*, error). Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Ref. – Amorim, 1998 (as probable synonym of *P. hurdi*). Holotype ♀, UCMP. **N. syn.**

†*obscurum* Cook, 1971a: 61, Pl. 3A-B (specimen), figs. 11 (♂ tergite 7), 12 (♂ term.), 13 (spiracular sclerite). Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Ref. – Amorim, 1998 (as probable synonym of *P. hurdi*). Holotype ♂, UCMP. **N. syn.**

†**roseni** Amorim, 1998: 5, figs. 1-14 (entire ♂ and ♀ specimens, head and thorax dorsally, thorax laterally, ♀ antenna, wing, tergite 7, ♂ term., ♀ term.). Type-locality: Dominican Republic (in Early Miocene amber). Holotype ♂, AMNH.

Tribe **Swammerdamellini** Cook, 1972

Swammerdamellini Cook, 1972: 625. Type-genus: *Swammerdamella* Enderlein, 1912.

Genus **Pararhexosa** Freeman, 1990

Pararhexosa Freeman, 1990: 14. Type-species: *Scatopse flavipalpis* Edwards, 1928 (orig. des.).

Ref. – Amorim (2007): 43.

tubifera (Edwards, 1930): 95, figs. 1f, 2e (wing, ♀ term. –incorrectly recognized by Edwards as a ♂) (*Scatopse*). Type-locality: Chile, Llanquihue, Casa Pangue. Ref. – Cook, 1967 (cat., as *Scatopse*); Amorim & Haenni, 1996, figs. 21-22 (♀ term.) (type redescr., N. comb.). Holotype ♂, BMNH.

Genus **Swammerdamella** Enderlein, 1912

Swammerdamella Enderlein, 1912: 277. Type-species: *Scatopse brevicornis* Meigen (orig. des.).

Ref. – Cook, 1956b (rev.).

approximata Edwards, 1924: 571. Type-locality: Trinidad, St. Augustine. Distr. – Trinidad. Ref. – Cook, 1967: 4 (cat.). Type, BMNH.

glochis Cook, 1978: 35, figs. 9 (♂ segment 7), 10 (♂ term.), 11 (♀ term.). Type-locality: El Salvador, Quezaltepeque, 500 m. Holotype ♂, CAS.

grogani Huerta & Ibáñez-Bernal, 2008: 62, Figures 13-14 (wing), 15-16 (♂ segment 7), 17 (♂ term.). Type-locality: Mexico, Yucatán, Municipio Tizimin, Ría Lagartos Reserve, 4.2 km S Biological Station El Cuyo "Zac-bo". Type, CAIM.

marginata Cook, 1956b: 24, figs. 1D (♂ term.), 2D (♂ segment 7), 3G (wing), 4E (♂ segment 6), 5H (♀ term.). Type-locality: U.S.A., New Mexico, Las Vegas. Distr. – U.S.A. (New Mexico), Mexico (Guadalajara). Ref. – Cook, 1967: 4 (cat.). Holotype ♂, NMNH.

mojingae Cook, 1956b: 29, figs. 5J (♂ segment 7), 5K (♂ term.). Type-locality: Panama, Canal Zone, Mojinga Swamp, Fort Sherman. Distr. – Panama. Ref. – Cook, 1967: 4 (cat.). Holotype ♂, NMNH.

†**prima** Cook, 1971a: 58, fig. 6 (♂ segment 7). Type-locality: Mexico, Chiapas, Las Cruces, Simojovel area (Late Oligocene / Early Miocene amber). Holotype ♂, UCMP.

sagitata Cook, 1956b: 24, figs. 1F (♂ term.), 2G (♂ segment 7), 4F (♂ segment 6), 5B (♀ term.). Type-locality: U.S.A., Texas, Kirbyville. Distr. – U.S.A. (Texas, Georgia, Florida, Illinois, Virginia), Mexico (Cuautla). Holotype ♂, NMNH.

Genus **Coboldia** Melander, 1916

Coboldia Melander, 1916: 17. Type-species: *C. formicarum* Melander, 1916 (orig. des.) = *Scatopse fuscipes* Meigen, 1830.
Rhaeboza Enderlein, 1936: 55. Type-species: *Scatopse fuscipes* Meigen, 1830 (orig. des.).
Masatierra Enderlein, 1938: 666. Type-species: *M. ferruginea* Enderlein, 1938 (orig. des.) = *Scatopse fuscipes* Meigen.

Ref. – Cook, 1974 (rev.), 1981; Meade & Cook, 1961 (biology of immatures).

fuscipes (Meigen, 1830): 314 (*Scatopse*). Type-locality: "Europe". Distr. – Cosmopolitan. Ref. – Hardy, 1956: 99 (as *Scatopse*) (redescr., illustr.); Cook, 1957: figs. 3A-B (♂ term.), 3D (spiracular sclerite), 3N (♀ sternite 7), 5D (♀ term.), 5F (♂ segment 7), 6B (wing), 6G (♂ tergite 8); Cook, 1963: 17, figs. 47 (♀ term.), 48 (♂ segment 7), 49 (♂ term.), 59 (wing); Rabello & Forattini, 1962: 303 (as *Rhexoza coutinhoi*) (descr., immature, biol.); Cook, 1974: 70, figs. 78 (♂ term.); 79 (♀ term.); Cook, 1967 (cat., as *Scatopse*); Haenni & Vaillant, 1994 (biol.). Type, MNHNP (Duda, 1928a: 22).

recurva (Loew, 1846): 330 (*Scatopse*). Type-locality: "Deutschland, bei Posen" [= Poznañ] (Poland) and "Insel Rhodus (Greece)". Ref. – Krivosheina & Haenni, 1986: 309.

flavitarsis Zetterstedt, 1850: 3406 (*Scatopse*). Type-locality: Scandinavia meridionali, ... Dania" (Denmark, by lectotype des. of Andersson, 1978: 236). Ref. – Krivosheina & Haenni, 1986: 309 (cat.).

parvula Blanchard, 1852: 359. Type-locality: Chile, Coquimbo. Type MNHNP, probably lost.

simplex (Walker, 1856): 144 (*Scatopse*). Type-locality: "England". Ref. – Krivosheina & Haenni, 1986: 309 (cat.).

fenestralis Skuse, 1889: 1384 (*Scatopse*). Type-locality: Australia, New South Wales. Ref. – Cook, 1974: 70 (syn.; cat.).

peruana (Enderlein, 1912): 275, fig. 7 (wing) (*Reichertella*). Type-locality: Peru, Mollendo. Type ♀, ZMD. Ref. – Edwards, 1925 (syn.); Duda, 1928b; Cook, 1967 (cat.).

formicarium Melander, 1916: 17, fig. 4 (whole specimen). Type-locality: U. S. A., Wisconsin, Madison.

barrus (McAtee, 1921): 123 (*Rhegmoclema*). Type-locality: U. S. A., Washington, D.C. Ref. – Cook, 1974: 70 (syn.). Type ♂, NMNH.

capensis (Enderlein, 1923): 67 (*Reichertella*). Type-locality: South Africa, Cape Town, Lightfoot. Ref. – Duda, 1928b (syn.). Type ♀?, MNM.

acuticornis (Enderlein, 1926): 139 (*Reichertella*). Type-locality: Australia, New South Wales, Victoria Mountain. Ref. – Duda, 1928b (syn.). Types 2 ♀, MNM; Cook, 1989: 185 (cat.).

tunesica (Enderlein, 1926): 138 (*Reichertella*). Type-locality, Tunisia, El Ariana. Ref. – Duda, 1928b (syn.); Krivosheina & Haenni, 1986: 309 (cat.). Type ♀, MNM.

algerica (Enderlein, 1926: 139) (*Reichertella*). Type-locality, Algeria, Blidah-Medeah. Ref. – Duda, 1928b (syn.); Krivosheina & Haenni, 1986: 309 (cat.). Type ♀, MNM.

ferruginea Enderlein, 1938: 666 (*Masatierra*). Type-locality: Juan Fernandez Isd., Masatierra. Ref. – Cook, 1957 : 49 (syn.); Cook, 1967 (cat.). TYPE ?.

coutinhoi (Rabello & Forattini, 1962): 303, figs. 1a (wing), 1hl (halter), 2 A-A'' (♂ term.), 2B-B' (♀ term.), 3A-B (♂ segment 7), 3C (det. ♂ term.), 4A (larva), 4B (pupa) (*Rhexosa*). Type-locality: Brazil, State of São Paulo, Salesópolis, Estação Biológica de Boracéia. Ref. – Cook, 1967 (cat.); Cook, 1974: 70 (syn.). Type ♂, MZSP.

Genus **Akorhexoza** Cook, 1978

Akorhexoza Cook, 1978: 31. Type-species: *Scatopse dampfi* Duda, 1928 (orig. des.).

Ref. – Amorim, 2007: 44.

cactivora Cook, 1978: 32, fig. 1 (♂ term.), 2 (♂ segment 7), 3 (♂ tergite 8), 4 (♀ term.). Type-locality: Mexico, Guanajuato, San Miguel de Allende. Distr. – Mexico (Guanajuato). Holotype ♂, UMIC.

dampfi (Duda, 1928b): 280, fig. 11 (♂ term.), pl. IV, fig. 3 (wing) (*Scatopse*). Type-locality: Mexico, Popotea. Distr. – Mexico (Popotea), U.S.A. (Texas). – Ref.: Cook, 1956a: 10 (resdescr.), figs. 5B (♂ term.), 5C (♂ segment 7); Cook, 1967: 4 (cat., as "*Rhexoza*"). Werner, 1997: 124 (types). Syntypes (10 males, 11 females), ZMB.

Genus **Abrhexosa** Freeman, 1990

Abrhexosa Freeman, 1990: 18. Type-species: *Scatopse thripsoides* Edwards, 1928 (orig. des.).

Ref. – Amorim, 2007: 46.

panamensis (Cook, 1956): 8, figs. 1C (♂ term.), 2C (♂ segment 7), 3C (♀ term.) (*Rhexoza*). Type-locality: Panama, Canal Zone, Ancon. Ref. – Cook, 1967: 4 (cat., as "*Rhexoza*") Holotype ♂, NMNH.

Genus **Quateiella** Cook, 1975

Quateiella Cook, 1975: 63. Type-species: *Rhexosa quatei* Cook, 1955 (orig. des.). Ref. – Amorim (2007).

Ref. – Amorim, 2007: 46.

auricularis (Duda, 1928b): 283, text-figs. 12 (wing), 13-14 (♂ term.) (*Scatopse*). Type-locality: Mexico, Chapultepec, 2300 m. Ref. – Cook, 1967: 4 (cat., as "*Rhexoza*"). Syntypes 2 ♂, ZMB. **N. comb.**

diabolica (Duda, 1928b): 285, text-figs. 15 (♂ term.), 16 (wing) (*Scatopse*). Type-locality: Mexico, Huizquilican. Distr. – Mexico (Huizquilican, Chapingo). Ref. – Cook, 1967: 3 (cat., as *Rhegmoclemina* (*Neorhegmoclemina*)). Syntypes 5 ♂, ZMB. **N. comb.** Comments. The absence of macrotrichia on the posterior wing veins and the shape of the male terminalia indicate that the species clearly fits into the Swammerdamellini, most certainly belonging to *Quateiella*, as shown by the shape of T9 (see Amorim, 2007).

Genus **Brahemyia** Amorim, 2007

Brahemyia Amorim, 2007: 48. Type-species: *Rhexoza lobata* Cook, 1956 (orig. des.).

Ref. – The larva attributed to the genus has been illustrated in Guimarães & Amorim, 2006.

costaricana (Duda, 1928b): 286, figs. 17 (♂ term.), 18 (wing) (*Scatopse*). Type-locality: Costa Rica, La Suiza de Turrialba; Mexico, Vera Cruz, Córdoba. Ref. – Cook, 1967 (cat., as *Scatopse*). Syntypes, 2 ♂, 2 ♀, MNM; ZMB. **N. comb.** Comments. Duda (1928b) called attention to the similarity of this species with *R. subnitens*; its inclusion in Swammerdamellini can be confirmed by the original description and the illustrations, especially of the wing. Inside the tribe, the extension of R_5 and the shape of CuA points to its inclusion in *Brahemyia*.

lobata (Cook, 1956a): 8, figs. 1G (♂ term.), 2F (♂ segment 7). Type-locality: Mexico, Córdoba, Vera Cruz. Ref. – Amorim, 2007: 50, figs. 17 (head), 18 (wing), 19 (thorax), 20 (♂ segment 7), 21-22 (♂ term.) (redescr.). Holotype ♂, NMNH.

Unrecognizable and Unplaced Scatopsidae Species

fulvitarsis Macquart of Lynch Arribálzaga, 1878: 298 (*Scatopse*). Type-locality: . Argentina, Buenos Aires. Inadequately described for recognition. Ref. – Cook, 1967: 5 (cat.).Type probably lost.

hyalinata Philippi, 1865: 640 (*Scatopse*). Type-locality: "Chile". Unrecognizable. Ref. – Cook, 1967: 5 (cat.). Type probably lost.

maritima Duda, 1928b: 278, figs. 9 (leg), 10 (part of wing) (*Scatopse*). Type-locality: Mexico, Vera Cruz. Ref. – Cook, 1967 (cat., as *Scatopse*.). Type ♀, DEI. Comment. This is most certainly a Scatopsinae, but the features available in the description do not allow a precise placement. The wing venation suggests a Swammerdamellini, but it does not seem necessary to guess a tribal or generic placement without examining the type.

pallidipes Lynch Arribálzaga, 1878: 298 (*Scatopse*). Type-locality: Argentina, Buenos Aires, Baradero. Unrecognizable. Ref. – Cook, 1967: 5 (cat.). Type probably lost.

transatlantica Philippi, 1865: 640 (*Scatopse*). Type-locality: Chile, Santiago. Unrecognizable –maybe an *Ectaetia*. Ref. – Cook, 1967: 5 (cat.). Type probably lost.

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