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The world Polleniidae (Diptera, Oestroidea): key to genera and checklist of species

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Abstract

A key to the world genera and a checklist of the world species for the family Polleniidae, including distributions, are provided. The following taxonomic and nomenclatural changes are proposed: *Nitellia hermoniella* Lehrer, 2007 = *Pollenia mediterranea* Grunin, 1966, **syn. nov.**, *Pollenia bentalia* Lehrer, 2007 = *Pollenia semicinerea* Villeneuve, 1911, **syn. nov.**, *Dasypoda angustifrons* Jacentkovský, 1941 = *Pollenia tenuiforceps* Séguy, 1928, **syn. nov.**; *Anthracomyza* Malloch, 1928, **resurrected name** (monotypic; type species *Anthracomyia atratula* Malloch) is considered a valid name and tentatively assigned to Polleniidae, giving *Anthracomyza atratula* (Malloch, 1927) as a **resurrected combination**; *Morinia crassitarsis* (Villeneuve, 1936), **stat. rev.** is considered a valid species, and *Micronitellia* Enderlein, 1936, **stat. nov.** is considered an available name.

Keywords

Calliphoridae, Calyptratae, catalogue, cluster flies, key, parasitoids, taxonomy

Introduction

The family Polleniidae (cluster flies) is a small group of oestroid flies comprising 147 species (Cerretti et al. 2019 and present paper). The family group name was originally proposed by Brauer and Bergenstamm (1889) to include the single genus *Pollenia* Robineau-Desvoidy. Later, the Old World *Pollenia sensu lato* (i.e., including the morphologically diverging New Zealand *Pollenia* species), the Oriental genera *Dexopollenia* Townsend and *Xanthotryxus* Aldrich, and the Nearctic genus *Melanodexia* Williston were treated in Calliphoridae as composing the subfamily Polleniinae (or tribe Polleniini) (e.g., Hall 1965; Dear 1986; Schumann 1986; Kurahashi 1989). The group was then re-circumscribed by Rognes (1991a) to include *Morinia* Robineau-Desvoidy, *Nesodexia* Villeneuve and (tentatively) *Wilhelmina* Villeneuve, the latter being reassigned to the calliphorid subfamily Phumosiinae by Rognes (2011), which is followed here. More recently, Cerretti et al. (2019) elevated the group to full family rank and gave morphological and molecular evidence to support both the monophyly of the Polleniidae and the inclusion of six taxa previously assigned to the Rhinophoridae, namely *Alvamaja chlorometallica* Rognes and five Afrotropical species moved from the genus *Phyto* Robineau-Desvoidy into *Morinia* (Cerretti et al. 2020).

During the last few years molecular data consistently retrieved the Polleniidae (almost always represented only by *Pollenia*) as sister to the Tachinidae and phylogenetically distant from the 'core' Calliphoridae (e.g., Singh and Wells 2013; Winkler et al. 2015; Cerretti et al. 2017; Blaschke et al. 2018; Kutty et al. 2019; Stireman et al. 2019) but this sister group relationship has remained practically without support from morphological evidence: the currently most convincing non-molecular synapomorphy could well be the breeding habit as parasitoids of soil-dwelling invertebrates. Tachinids are parasitoids of other arthropods, and groups near the base of the family develop on soil-dwelling insect larvae (Cerretti et al. 2014; Stireman et al. 2019); the natural history and host range information of polleniids is limited to a handful of *Pollenia* species (Keilin 1915; Tawfik and El-Husseini 1971; Yahnke and George 1972; Rognes 1991a; Szpila 2003; Grzywacz et al. 2012; El Husseini 2019), and all of these develop as endoparasitoids in earthworms. Marshall (2020) observed a native New Zealand *Pollenia* displaying what can only be interpreted as oviposition behaviour, extending the ovipositor into a mixture of loose soil and organic debris. Recent field observations of adults of an unidentified species of *Melanodexia* revealed that females have a similar behaviour to that observed for several *Pollenia* and other parasitoids of soil-dwelling organisms: they can be seen walking frenetically on bark lying on the ground, keeping wings folded on their back (SG pers. obs. 2019, California).

We recognise 147 species of Polleniidae classified into eight genera (Fig. 1). *Pollenia* is the most species-rich and widespread genus, with 95 species described from the Palaearctic, Oriental and Australasian regions [and seven species known from the Nearctic Region as introductions (Rognes 1991a; Whitworth 2006; Jewiss-Gaines et al. 2012, Bowser 2015)] (Fig. 2). The remaining seven genera are considerably less diverse: the single species assigned to *Alvamaja* Rognes (*A. chlorometallica* Rognes) is recorded from a few localities in southeastern Europe, *Dexopollenia* comprises 21 species from the southeastern Palaearctic and the Oriental Region, the Nearctic endemic genus *Melanodexia* includes eight species, *Morinia* contains 13 species from the Afro-

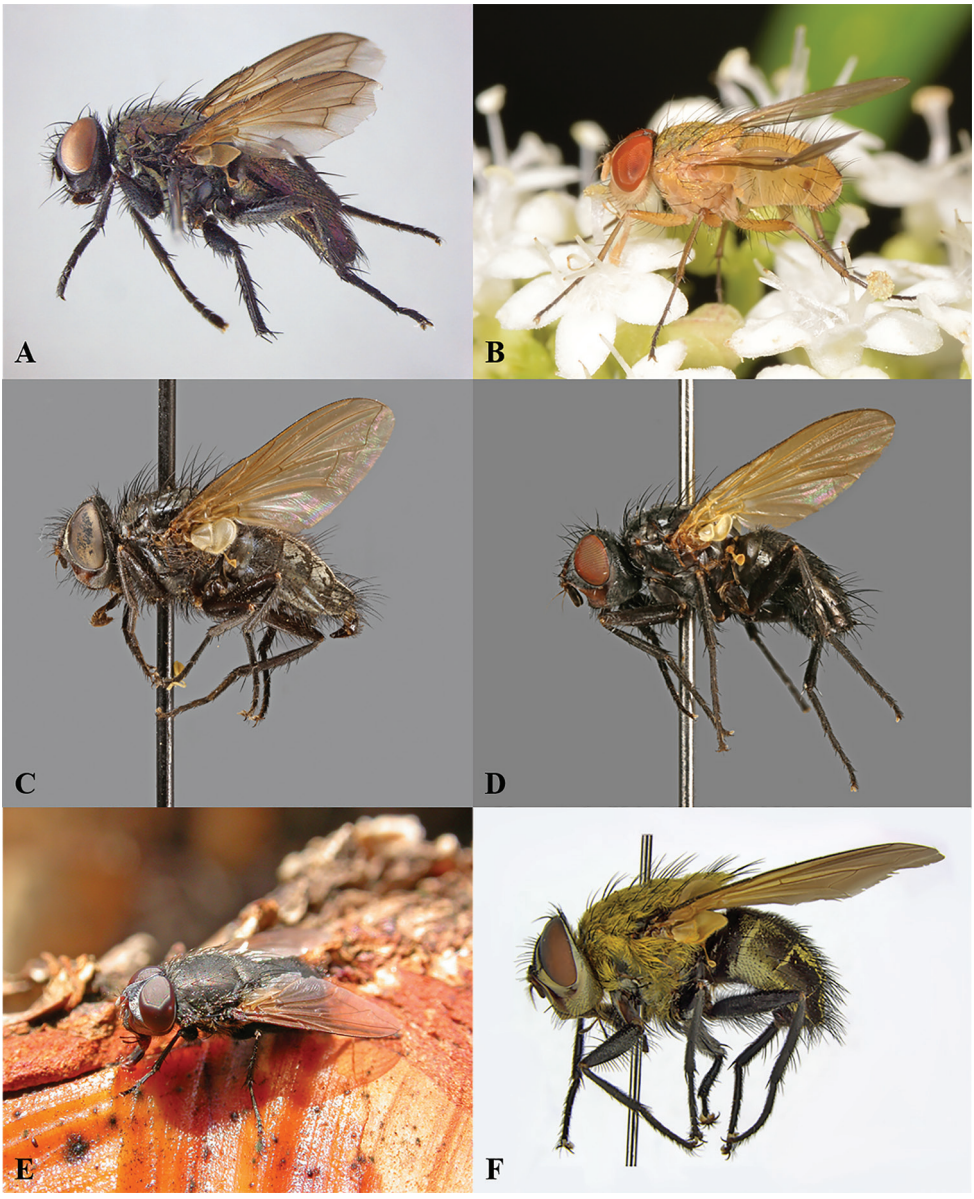

Figure 1. Representative species for all genera of Polleniidae. **A** *Alvamaja chlorometallica* Rognes [Romania] **B** *Dexopollenia* cf. *flava* (Aldrich) [Japan: Honshu] **C** *Melanodexia satanica* Shannon [USA: California] **D** *Morinia tsitsikamma* Cerretti et al. [South Africa] **E** *Pollenia* sp. [Italy] **F** *Xanthotryxus mongol* Aldrich [China]. Photographs: Cerretti et al. (2019) (**A**), K. Oomori (**B**), P. Cerretti (**E**), K. Szpila (**F**).

tropical and Palaearctic regions and *Xanthotryxus* includes seven species from southeastern Palaearctic and the Oriental Region. The remaining genera, the monotypic Australian *Anthracomyza* Malloch and the Palaearctic *Nesodexia* Villeneuve, are here tentatively assigned to the family. Remarkably, there are no Polleniidae recorded from the Neotropical Region, neither native nor introduced.

Many regional catalogues and keys to polleniid genera (and species) have been published in the recent decades (e.g., Hall 1948; James 1955, 1970, 1977; Lehrer 1972; Pont 1980; Shewell 1987; Rognes 1991a, 1998; Kurahashi 1995; Jewiss-Gaines et al. 2012; Pape et al. 2015), and an incomplete key to genera is available from Peris (2004). The aim of the present paper is to lay the foundation for future taxonomic and phylogenetic studies by producing a key to the world genera of the family Polleniidae and a checklist of the world species.

Materials and methods

Key to genera

A dichotomous key to the adults of both sexes was constructed to contain the genera here considered members of the Polleniidae. This means that we are excluding the monotypic genera *Wilhelmina* Schmitz & Villeneuve, 1932 and *Nepenthomyia* Kurahashi & Beaver, 1979, both associated with pitcher plants of the genus *Nepenthes* and not considered polleniids. *Wilhelmina* was considered a possible member of Polleniidae (or Polleniinae, or Polleniini) by Schmitz and Villeneuve (1932), Fan (1965, 1992,

Figure 2. Diversity of the genus *Pollenia*. **A** *Pollenia pediculata* Macquart [New Zealand] **B** *Pollenia pernix* (Hutton) [New Zealand] **C** *Pollenia* nr. *pernix* [New Zealand] **D** *Pollenia uniseta* Dear [New Zealand]. Photographs: S. Kerr (**A, B, D**), S. Marshall (**C**).

1997) and Rognes (1991a), but we follow Rognes (2011) in suggesting its reassignment to Phumosiinae. *Nepenthomyia* was considered "closely related" to *Wilhelmina* by Kurahashi and Beaver (1979), although with no indication of subfamily assignment, and a position within the Polleniinae was not accepted by Rognes (1991a). The key was constructed through direct examination of available material and from literature data. No specimens of *Anthracomyza* were examined and characters for it were derived from the original description by Malloch (1927).

Digital images of the specimens shown in Fig. 1C, D were taken using a Canon EOS 6D camera equipped with Canon Photo lens MP-E 65 mm 1.2.8 and processed by Canon Digital Photo Professional (Canon: Ōta, Tokyo, Japan), Combine ZM by Alan Hadley and GIMP 2.10.4 by Alexandre Prokoudine.

World checklist

The world checklist is based on original literature, though following the papers by Rognes (1987b, 1991a, 1998, 2010), Evenhuis et al. (2004, 2010, 2015, 2016), O'Hara et al. (2011), Cerretti et al. (2019) and literature therein. It lists all currently valid nominal genera and species of the family Polleniidae including their synonyms and associated *nomina nuda*. Incorrect subsequent spellings have been entered to the extent they have come to our knowledge. Valid names of taxa are arranged alphabetically according to genus and species (no subfamilial or tribal classification is recognised here). Each genus-group name is listed with author, year, page, type species with author and date, and form of type fixation with author and date. Each type species is given in its original binomen (ICZN 1999; recommendation 67B), and if that name is a junior synonym it is followed by the valid name of the species in square brackets. Each species-group name is listed with author, year, page, type locality in standardised modern spelling (original quote in parenthesis if needed to avoid confusion), and relevant nomenclatural details (homonymy, lectotype designations, etc.). Unavailable names are listed with an explanation as to their unavailability, and incorrect subsequent spellings are given with the relevant reference. New specific synonyms are based on comparisons of the original descriptions of the nominal species in question with material (specimens, photos, illustrations) available to the authors. Additional information may be given under "Remarks". Distributional data are based on the literature and online databases (Fauna Europaea [Pape et al. 2015] for Palaearctic species) but we do not refer all records to their original sources. Records have been entered to the extent they have come to our knowledge and they are reported for countries and major islands, except that larger countries are recorded at the level of state or province.

Caveat for key users

Notwithstanding strong molecular evidence suggesting the monophyly of Polleniidae, members of the group apparently do not share any unique morphological apomorphy. For this reason, it is not possible to provide a simple and clear-cut diagnosis of this oestroid family since several exceptions have to be taken into account once given a

common set of characters. Therefore, we refer to Cerretti et al.'s (2019) diagnosis of the Polleniidae, though highlighting all the uncertainties related to it.

Diagnosis. Small to medium-sized oestroid flies varying from yellow to black in ground colour. Facial sclerite at least weakly carinate [with few exceptions, e.g. *Pollenia griseotomentosa* (Jacentkovský)]. Stem vein bare dorsally. Anal vein not reaching wing margin. Posterodorsal margin of hind coxa bare. Prosternum and proepisternal depression bare. Postalar wall setose (occasionally bare in small specimens of *Morinia*). Female: ovipositor sclerite length moderate; sternite 8 of ovipositor elongate with posterior margin entire; cerci long and narrow. Male: ventral and ventrolateral surface of distalmost parts of distiphallus smooth.

A comprehensive phylogeny including all the eight genera recognised as cluster flies is still awaiting, as well as a thorough revision of the family, therefore generic boundaries within this family are still labile due to the absence of molecular evidence and strong morphological characters. For these reasons, we are here applying a traditional generic division without proposing any subfamilial or tribal classification nor any new generic synonyms. We anticipate future rearrangements, such as *Dexopollenia* synonymised with *Pollenia*, or the exclusion of *Nesodexia*. Moreover, the New Zealand *Pollenia* are still entirely untouched in a phylogenetic context.

Results

Key to genera

1 Simultaneously: body ground colour entirely or largely yellow or testaceous; thorax (occasionally also abdomen) with sparse golden crinkly hair-like setae; parafacial bare below anteriormost frontal seta; subcostal sclerite with only a few pale setulae or without setulae among micropubescence; lower calypter broad ..... ***Dexopollenia*** **Townsend [in part]**

– Body ground colour prevalently black, sometimes with metallic reflections; if abdomen largely yellow, then parafacial bare. Other combination of characters **2**

2 Simultaneously: body ground colour black with metallic green or bronze-violet reflections; parafacial bare; thorax without sparse golden crinkly hair-like setae; lower calypter narrow, tongue-shaped; anterior and posterior fringes of metathoracic spiracle subequal in size; node at base of R_{4+5} with 1–3 fine setulae; slender bodied flies ..... ***Alvamaja*** **[*chlorometallica*] Rognes**

– Body colouration without metallic reflections; if body black with bronze, green, blue or violet metallic reflections then other combination of characters **3**

3 Thorax with numerous golden crinkly hair-like setae in addition to ground setulae **4**

– Thorax without golden crinkly hair-like setae **7**

4 Simultaneously: scutum usually with 1 + 2 intra-alar setae [0 + 2 in some New Zealand species]; hind tibia with posterodorsal preapical seta not differentiated. Parafacial setulose on nearly whole length. Body ground colour varying from metallic or non-metallic black [Palaearctic species] to metallic green/blue or violet [New Zealand species], rarely abdomen yellow [*P. bicolor* Robineau-Desvoidy]. Lower calypter broad. Subcostal sclerite usually with a bundle of long black or yellow setae among the micropubescence [usually absent in New Zealand species] ..... ***Pollenia*** **Robineau-Desvoidy [in part]**

– Simultaneously: scutum with 0 + 2 intra-alar setae; hind tibia with anterodorsal, dorsal and posterodorsal preapical setae subequal in size. Parafacial setulose or bare. Body colouration not metallic. Lower calypter broad or narrow. Subcostal sclerite with or without a bundle of long black or yellow setae among the micropubescence **5**

5 Parafacial entirely setulose ..... ***Pollenia*** **Robineau-Desvoidy [in part, Australia]**

– Parafacial bare or with at most a few setulae in the upper half [Palaearctic and Oriental] **6**

6 Parafacial bare except for the extreme uppermost part where a few short setulae are usually present below the anteriormost frontal seta. One or 2 presutural acrostichal setae. Two to 4 postpronotal setae. Subcostal sclerite with numerous black or yellow setulae among the micropubescence. Coxopleural streak absent. Lappets of metathoracic spiracle dark brown. Large-sized species [except for *X. ludigensis* Fan] ..... ***Xanthotryxus*** **Aldrich**

– Parafacial entirely bare below anteriormost frontal seta. One presutural acrostichal seta. Two postpronotal setae. Subcostal sclerite bare or at most with a few pale setulae among micropubescence. Coxopleural streak absent or present. Lappets of metathoracic spiracle yellow or dark. Small to medium-sized species ..... ***Dexopollenia*** **Townsend [in part]**

7 Node at base of R_{4+5} setulose dorsally **8**

– Node at base of R_{4+5} bare dorsally. [Lower calypter narrow. Scutum with 0 + 2 intra-alar setae. Hind tibia with 3 preapical setae (i.e., anterodorsal, dorsal and posterodorsal), all approximately the same size] **9**

8 Parafacial bare. Scutum with 1 + 3 intra-alar setae and 4 postsutural acrostichal setae. Large, robust species with white microtomentose stripes on thorax and a chequered abdomen ..... ***Nesodexia*** **Villeneuve [tentatively assigned to Polleniidae, see below]**

– Parafacial setulose. Scutum with 0–1 + 2 intra-alar setae, 2 or 3 postsutural acrostichal setae. Thorax and abdomen shiny black. Small to medium sized species ..... ***Anthracomyza*** **Malloch [tentatively assigned to Polleniidae, see below]**

9 Two marginal scutellar setae [Old World] ..... ***Morinia*** **Robineau-Desvoidy**

– Three to 5 marginal scutellar setae [New World] ..... ***Melanodexia*** **Williston**

World checklist

Family Polleniidae Brauer & Bergenstamm, 1889

Polleniidae Brauer & Bergenstamm, 1889: 85 (17). Type genus *Pollenia* Robineau-Desvoidy, 1830. Without description or definition, but available "by an indication" i.e., by being formed before 1931 "from an available generic name" (ICZN 1999; articles 12.1 and 12.2.4).
Moriniini Townsend, 1919: 546. Type genus *Morinia* Robineau-Desvoidy, 1830.
Melanodexiini Hall, 1948: 351. Type genus *Melanodexia* Williston, 1893.

Genus *Alvamaja* Rognes, 2010

Alvamaja Rognes, 2010: 4. Type species: *Alvamaja chlorometallica* Rognes, 2010, by original designation.

Alvamaja chlorometallica Rognes, 2010

Alvamaja chlorometallica Rognes, 2010: 4. Type locality: Serbia, Pčinja District, Vranjska Banja.

Distribution. Palaearctic – Romania, Serbia.

Genus *Dexopollenia* Townsend, 1917

Dexopollenia Townsend, 1917: 201. Type species: *Dexopollenia testacea* Townsend, 1917, by original designation.

Dexopollenia aurantifulva Feng, 2004

Dexopollenia aurantifulva Feng, 2004: 806. Type locality: China, Sichuan, Ya'an, Mt. Zhougong, 1760 m.

Distribution. Palaearctic – China (Sichuan).

Dexopollenia bicolor Malloch, 1935

Dexopollenia bicolor Malloch, 1935: 671. Type locality: Malaysia, Perak, Bukit Larut (Larut Hills).

Pollenia mallochi Blackith, 1991: 271. Unnecessary new replacement name for *Dexopollenia bicolor* Malloch, 1935.

Distribution. Oriental – Malaysia (West Malaysia), Thailand.

Dexopollenia bicoloripes Malloch, 1931

Dexopollenia bicoloripes Malloch, 1931: 199. Type locality: Malaysia, Selangor, Bukit Kutu.

Distribution. Oriental – Malaysia (West Malaysia).

Dexopollenia chrysothrix Bezzi, 1927

Dexopollenia chrysothrix Bezzi, 1927: 231. Type locality: Australia, New South Wales, Kiuskin [sic] (locality not found).

Distribution. Australasian – Australia (New South Wales).

Dexopollenia disemura Fan & Deng, 1993

Dexopollenia disemura Fan & Deng in Fan, Feng & Deng, 1993: 201. Type locality: China, Sichuan, Mt. Emei, Jinding.

Distribution. Palaearctic – China (Sichuan).

Dexopollenia fangensis Kurahashi, 1995

Dexopollenia fangensis Kurahashi, 1995: 141. Type locality: Thailand, Fang, Doi Huai Hwer, 1231 m.

Distribution. Oriental – Thailand, Vietnam.

Dexopollenia flava (Aldrich, 1930)

Lispoparea flava Aldrich, 1930: 5. Type locality: China, Sichuan, Mt. Emei.

Distribution. Oriental – India, Taiwan. Palaearctic – China (Sichuan), Japan (Honshu).

Dexopollenia geniculata Malloch, 1935

Dexopollenia geniculata Malloch, 1935: 671. Type locality: China, Sichuan, Mt. Emei.

Distribution. Oriental – China (Yunnan), Laos. Palaearctic – China (Sichuan).

Dexopollenia hirtiventris Malloch, 1935

Dexopollenia hirtiventris Malloch, 1935: 669. Type locality: Malaysia, Pahang, Bukit Fraser (= Fraser's Hill).

Distribution. Oriental – Malaysia (West Malaysia).

Dexopollenia luteola (Villeneuve, 1927)

Pollenia luteola Villeneuve, 1927: 393. Type locality: Taiwan, Kosempo and Taihorinsho.

Distribution. Oriental – Taiwan.

Dexopollenia maculata (Villeneuve, 1933)

Lispoparea maculata Villeneuve, 1933b: 196. Type locality: China, Sichuan, Mt. Emei.

Distribution. Oriental – Taiwan. Palaearctic – China (Sichuan).

Dexopollenia monsdulitae (Senior-White, Aubertin & Smart, 1940)

Pollenia monsdulitae Senior-White, Aubertin & Smart, 1940: 131. Type locality: Malaysia, Sarawak, Mt. Dulit, 1219 m.

Distribution. Oriental – Malaysia (Sabah, Sarawak).

Dexopollenia nigra Kurahashi, 1987

Dexopollenia nigra Kurahashi, 1987: 66. Type locality: Papua New Guinea, Southern Highlands, Margarima, Walk River.

Distribution. Australasian – Papua New Guinea.

***Dexopollenia nigriscens* Fan, 1992**

Dexopollenia nigriscens Fan, 1992: 530. Type locality: China, Xizang, Bomi, Yegong, 3050 m.

Distribution. Oriental – Nepal. Palaearctic – China (Xizang).

***Dexopollenia papua* Kurahashi, 1987**

Dexopollenia papua Kurahashi, 1987: 64. Type locality: Papua New Guinea, Southern Highlands, Margarima ("Margarima Farm"), 2000 m.

Distribution. Australasian – Papua New Guinea.

***Dexopollenia sakulasi* Kurahashi,1987**

Dexopollenia sakulasi Kurahashi, 1987: 68. Type locality: Papua New Guinea, Sandaun Province (= West Sepik Province), Torricelli Mts, 900 m.

Distribution. Australasian – Papua New Guinea.

***Dexopollenia testacea* Townsend, 1917**

Dexopollenia testacea Townsend, 1917: 201. Type locality: India, Assam, Mangaldai District, Assam-Bhutan Frontier, Jany [sic] (locality not found).

Distribution. Oriental – India, Nepal.

***Dexopollenia tianmushanensis* Fan, 1997**

Dexopollenia tianmushanensis Fan in Fan (Ed.), 1997: 430. Type locality: China, Zhejiang, Mt. Tianmushan.

Distribution. Palaearctic – China (Zhejiang).

***Dexopollenia trifascia* (Walker, 1861)**

Musca trifascia Walker, 1861: 245. Type locality: Indonesia, Western New Guinea (= Irian Jaya), Dorey.

Distribution. Oriental – Indonesia (Western New Guinea).

Dexopollenia uniseta Fan, 1992

Dexopollenia uniseta Fan in Fan (Ed.), 1992: 529. Type locality: China, Xizang, Cuona.
Dexopollenia wyatti Kurahashi, 1992: 24. Type locality: Malaysia, Sabah, Mt. Kinabalu, Lumu Lumu, 152 m.

Distribution. Oriental – Malaysia (Sabah). Palaearctic – China (Xizang).

Dexopollenia yuphae Kurahashi, 1995

Dexopollenia yuphae Kurahashi, 1995: 140. Type locality: Thailand, Kanchana Buri, near Sai Yok.

Distribution. Oriental – Laos, Thailand, Vietnam.

Genus *Melanodexia* Williston, 1893

Melanodexia Williston, 1893: 256. Type species: *Melanodexia tristis* Williston, 1893, by monotypy.
Melanodexiopsis Hall, 1948: 351. Type species: *Melanodexiopsis tristina* Hall, 1948, by original designation.
Mellanodexmia: Sidhu et al. (2018: 22). Incorrect subsequent spelling of *Melanodexia* Williston, 1893.

Melanodexia californica Hall, 1948

Melanodexia californica Hall, 1948: 354. Type locality: USA, California, Placerville.

Distribution. Nearctic – USA (California).

Melanodexia glabricula (Bigot, 1887)

Nitellia glabricula Bigot, 1887: clxxiv. Type locality: USA, California.

Distribution. Nearctic – USA (California).

***Melanodexia grandis* (Shannon, 1926)**

Melanodexiopsis grandis Shannon, 1926: 138. Type locality: USA, California, Monterey County.
Melanodexiopsis pacifica Hall, 1948: 359. Type locality: USA, California, Monterey County, Pacific Grove.

Distribution. Nearctic – USA (California).

***Melanodexia idahoensis* (Hall, 1948)**

Melanodexiopsis idahoensis Hall, 1948: 357. Type locality: USA, Idaho, Genesee.

Distribution. Nearctic – USA (Idaho).

***Melanodexia nox* (Hall, 1948)**

Melanodexiopsis nox Hall, 1948: 358. Type locality: USA, Oregon, Hood River.

Distribution. Nearctic – USA (California, Oregon, Washington).

***Melanodexia satanica* Shannon, 1926**

Melanodexia satanica Shannon, 1926: 138. Type locality: USA, California, Fresno County, Los Gatos Canyon.

Distribution. Nearctic – USA (California, Washington).

***Melanodexia tristina* (Hall, 1948)**

Melanodexiopsis tristina Hall, 1948: 359. Type locality: USA, California, San Bernardino County.

Distribution. Nearctic – USA (California, Colorado).

***Melanodexia tristis* Williston, 1893**

Melanodexia tristis Williston, 1893: 257. Type locality: USA, California, "southern California" and Monterey County.

Distribution. Nearctic – USA (California).

Genus *Morinia* Robineau-Desvoidy, 1830

Morinia Robineau-Desvoidy, 1830: 264. Type species: *Morinia velox* Robineau-Desvoidy, 1830 [= *Musca doronici* Scopoli, 1763], by subsequent designation (Rondani, 1862: 159).

Calobatemyia Macquart, 1855b: 33. Type species: *Calobatemyia nigra* Macquart, 1855b [= *Musca doronici* Scopoli, 1763], by original designation.

Anthracomya Rondani, 1856: 87. Type species: *Anthracomya geneji* Rondani, 1856 [= *Musca doronici* Scopoli, 1763], by original designation.

Morjnia Rondani, 1862: 151. Unjustified emendation of *Morinia* Robineau-Desvoidy, 1830, *teste* O'Hara et al. (2011).

Antracomya Lioy, 1864: 881. Unjustified emendation of *Anthracomya* Rondani, 1856.

Anthracomyia Rondani, 1868: 50. Unjustified emendation of *Anthracomya* Rondani, 1856.

Disticheria Enderlein, 1934: 188. *Nomen nudum*. [Type species given as *Musca melanoptera* Fallén, 1817, but no description.]

Anthromyia: Sidhu et al. (2018: 22). Incorrect subsequent spelling of *Anthracomya* Rondani, 1856.

Morinia argenticincta (Senior-White, 1923)

Idiopsis argenticincta Senior-White, 1923: 48. Type locality: India, Himachal Pradesh, Shimla.

Distribution. Oriental – India, Nepal. Palaearctic – Japan (Honshu)

Morinia carinata (Pape, 1987)

Phyto carinata Pape, 1987: 378. Type locality: South Africa, Western Cape, Cape Point Nature Reserve.

Distribution. Afrotropical – South Africa.

Morinia doronici (Scopoli, 1763)

Musca doronici Scopoli, 1763: 333. Type locality: Slovenia [as "Carniola"].

Musca melanoptera Fallén, 1817: 253. Type locality: Sweden, Östergötland or Västergötland. [Lectotype designated by Rognes (1991a: 211).] Junior primary homonym of *Musca melanoptera* Gmelin, 1790: 2833 [Bombyliidae].

Morinia velox Robineau-Desvoidy, 1830: 265. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.
Morinia fuscipennis Robineau-Desvoidy, 1830: 265. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.
Anthracomya geneji Rondani, 1856: 87 [as *Genèji*]. Type locality: Italy.
Calobatemyia nigra Macquart, 1855b: 34. Type locality: Switzerland.

Distribution. Palaearctic – Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine.

Morinia crassitarsis (Villeneuve, 1936)

Anthracomyia crassitarsis Villeneuve, 1936: 7. Type locality: China, Sichuan. Stat. rev. [as var. of *Anthracomyia melanoptera* (Fallén, 1817). Subspecific status according to ICZN 1999; article 45.6.4.]

Distribution. Palaearctic – China (Sichuan).

Remarks. The name-bearing type of *M. crassitarsis* has not been located, but unpublished studies (by TP) of Chinese specimens matching the original description would seem to support a status for this nominal species as valid.

Morinia lactineala (Pape, 1997)

Phyto lactineala Pape, 1997: 160. Type locality: South Africa, Western Cape, 10 km S Citrusdal, Koornlandskloof.

Distribution. Afrotropical – South Africa.

Morinia longirostris (Crosskey, 1977)

Phyto longirostris Crosskey, 1977: 44. Type locality: South Africa, Western Cape, Cape Town, Table Mountain, slopes above cable house.

Distribution. Afrotropical – South Africa.

Morinia nigerrima (Herting, 1961)

Anthracomyia nigerrima Herting, 1961: 9. Type locality: Japan, Hoshi-Gunma [sic] (likely Gunma prefecture, locality not found).

Anthromyia nigrerrima: Sidhu et al. (2018: 22). Incorrect subsequent spelling of *Anthracomyia nigerrima* Herting, 1961.

Distribution. Palaearctic – Japan (?Honshu).

Morinia piliparafacia Fan, 1997

Morinia piliparafacia Fan in Fan et al. 1997: 438. Type locality: China, Sichuan, Mt. Gongga, 2500 m.

Distribution. Palaearctic – China (Sichuan).

Morinia proceripenisa Feng, 2004

Morinia proceripenisa Feng, 2004: 806. Type locality: China, Sichuan, Mt. Erlang, 2670 m.

Distribution. Palaearctic – China (Sichuan).

Morinia royi (Pape, 1997)

Phyto royi Pape, 1997: 163. Type locality: South Africa, Western Cape, Overberg District, De Hoop Nature Reserve.

Distribution. Afrotropical – South Africa.

Morinia skufyini Khitsova, 1983

Morinia skufyini Khitsova, 1983: 1588. Type locality: Russia, Krasnodar Krai, Caucasus Nature Reserve, Kozlinaya balka [sic] (locality not found).

Distribution. Palaearctic – Russia (Krasnodar).

Morinia stuckenbergi (Crosskey, 1977)

Phyto stuckenbergi Crosskey, 1977: 44. Type locality: South Africa, Western Cape, Bredasdorp District, Arniston coastal dunes.

Distribution. Afrotropical – South Africa.

***Morinia tsitsikamma* Cerretti, Stireman, Badano, Gisondi, Rognes, Lo Giudice & Pape, 2019**

Morinia tsitsikamma Cerretti, Stireman, Badano, Gisondi, Rognes, Lo Giudice & Pape, 2019: 964. Type locality: South Africa, Western Cape, Bloukrans Pass.

Distribution. Afrotropical – South Africa.

Genus *Pollenia* Robineau-Desvoidy, 1830

Pollenia Robineau-Desvoidy, 1830: 412. Type species: *Musca rudis* Fabricius, 1794, by original designation.

Nitellia Robineau-Desvoidy, 1830: 417. Type species: *Musca vespillo* Fabricius, 1794, *sensu* Coquillett [misidentification, = *Musca atramentaria* Meigen, 1826 *teste* Rognes (1991a: 215)], by designation of Coquillett (1910: 576). *Remarks.* The type species has been misidentified, and we here follow ICZN 1999 (*Code* Article 70.3.2) and designate the taxonomic species actually involved in the misidentification.

Cephysa Robineau-Desvoidy, 1863: 655, 677. Type species: *Cephysa muscidea* Robineau-Desvoidy, 1863, by monotypy.

Orizia Robineau-Desvoidy, 1863: 655, 678. Type species: *Orizia conjuncta* Robineau-Desvoidy, 1863, by subsequent designation (Townsend, 1916: 8).

Chaetopollenia Enderlein, 1936: 211 [as *Chætopollénia*]. Type species: *Musca vespillo* Fabricius, 1794, *sensu* Enderlein [misidentification, = *Musca amentaria* Scopoli, 1763 *teste* Rognes (1991a: 218)], by monotypy. *Remarks*. The type species has been misidentified, and we here follow ICZN 1999 (*Code* Article 70.3.2) and designate the taxonomic species actually involved in the misidentification.

Micronitellia Enderlein, 1936: 211 [as *Micronitéllia*]. Type species: *Musca varia* Meigen, 1826, by monotypy. Stat. nov. *Remarks.* We here consider Enderlein's (1936) type fixation for *Micronitellia* valid, therefore we do not regard Lehrer (1967) as the first reviser as previously suggested by Rognes (1991a).

Trichopollenia Enderlein, 1936: 211 [as *Trichopollénia*]. Type species: *Musca vagabunda* Meigen, 1826, by monotypy.

Polleniella Jacentkovský, 1941a: 15, 16. *Nomen nudum*. [No description.]

Buresiella Jacentkovský, 1941b: 21, 22 [as *Burešiella*]. Type species: *Pollenia pallida* Rodendorf, 1926, by monotypy.

Dasypollenia Jacentkovský, 1941b: 20, 22. *Nomen nudum*. *Remarks*. Genus-group name proposed after 1930 without designation of type species from four included species.

Polleniella Jacentkovský, 1941b: 20, 22. Type species: *Polleniella distincta* Jacentkovský, 1941 [= *Pollenia mayeri* Jacentkovský, 1941], by monotypy. Unavailable name; type species a *nomen nudum*. Validated by Jacentkovský (1942).

Polleniomyia Jacentkovský, 1941b: 20, 23. *Nomen nudum*. *Remarks*. Genus-group name proposed after 1930 without designation of type species from two included species.

Pseudopollenia Jacentkovský, 1941b: 21, 22. Type species: *Pollenia vera* Jacentkovský, 1936, by monotypy.

Bureschiella Jacentkovský, 1941c: 31. Unjustified emendation of *Buresiella* Jacentkovský, 1941. Type species: *Pollenia pallida* Rohdendorf, 1926, automatic.

Chaetopollenia Jacentkovský, 1941c: 31. *Nomen nudum*. [No description.]

Dasypollenia Jacentkovský, 1941c: 31. *Nomen nudum*. [No description. No type species designated.]

Polleniomyia Jacentkovský, 1941c: 31. *Nomen nudum*. [No description. No type species designated.]

Polleniella Jacentkovsky, 1942: 209 (17). Type species: *Pollenia mayeri* Jacentkovský, 1941a: 14.

Dasypollenia Jacentkovský, 1942: 210 (18). *Nomen nudum*. *Remarks*. Genus-group name proposed after 1930 without designation of type species from four included species.

Polleniomyia Jacentkovský, 1942: 220 (28). Type species: *Pollenia labialis* Robineau-Desvoidy, 1863, by original designation.

Polleniomyma Jacentkovský, 1944b: 119. Unnecessary new replacement name for *Polleniomyia* Jacentkovský, 1942.

Eupollenia Lehrer, 1963: 290. Type species: *Musca rudis* Fabricius, 1794, by original designation.

Jacentkovskyiomyia Lehrer, 1963: 292. Type species: *Polleniella griseotomentosa* Jacentkovský, 1944a, by original designation.

Mariomyia Lehrer, 1963: 292. Type species: *Pollenia mayeri* Jacentkovský, 1941, by original designation.

Parapollenia Lehrer, 1963: 290. Type species: *Pollenia dasypoda* Portschinsky, 1881, by original designation.

Rohdendorfiomyia Lehrer, 1963: 292. Type species: *Musca vespillo* Fabricius, 1794 *sensu* Lehrer [misidentification, = *Musca amentaria* Scopoli, 1763 *teste* Rognes (1991a: 218)], by original designation. *Remarks*. The type species has been misidentified, and we here follow ICZN 1999 (*Code* Article 70.3.2) and designate the taxonomic species actually involved in the misidentification.

Sachtlebeniola Lehrer, 1963: 291, 300. *Nomen nudum*. *Remarks*. Genus-group name proposed after 1930 without designation of type species from five included species.

Seguyiomyia Lehrer, 1963: 293 [as *Séguyiomyia*]. Type species: *Musca vagabunda* Meigen, 1826, by original designation.

Zumptiomyia Lehrer, 1963: 292. Type species: *Pollenia bisulca* Pandellé, 1896, by original designation.

Dasypollenia Lehrer, 1967: 256. Type species: *Pollenia dasypoda* Portschinsky, 1881, by original designation.

Sepimentum Hutton, 1901: 66. Type species: *Sepimentum fumosum* Hutton, 1901, by designation of Townsend (1916: 8).

Huttonophasia Curran, 1927: 354. Type species: *Gymnophania pernix* Hutton, 1901, by original designation.

***Pollenia advena* Dear, 1986**

Pollenia advena Dear, 1986: 32. Type locality: New Zealand, Three Kings Islands, Great Island, Castaway Camp.

Distribution. Australasian – New Zealand.

***Pollenia aerosa* Dear, 1986**

Pollenia aerosa Dear, 1986: 33. Type locality: New Zealand, South Island, Westland District, Lake Paringa.

Distribution. Australasian – New Zealand.

***Pollenia agneteae* Rognes, 2019**

Pollenia agneteae Rognes, 2019: 380. Type locality: Armenia, Aragatsotn, River Kasakh between Alagyaz and Aparan.

Distribution. Palaearctic – Armenia.

***Pollenia alajensis* Rohdendorf, 1926**

Pollenia alajensis Rohdendorf, 1926: 101 [as subspecies of *Pollenia rudis* (Fabricius, 1794)]. Type locality: Kyrgyzstan, Alayskiy Range (Alai or Alay Mts), Fergana ("Kchi Alai") [given by Rohdendorf (1928: 338), see Rognes (1987a).]
Pollenia sytshevskajae Grunin, 1970: 480. Type locality: Kyrgyzstan, Terskey-Alatau Range, Chon-kyzylsu River, 2650 m.
Pollenia sytshevskiae: Schumann (1986: 47). Incorrect subsequent spelling of *Pollenia sytshevskajae* Grunin, 1970.

Distribution. Palaearctic – Kyrgyzstan.

***Pollenia amentaria* (Scopoli, 1763)**

Musca amentaria Scopoli, 1763. Type locality: Slovenia, road below Kranjska Gora and Tolbin. [Neotype designated by Rognes (1991a: 218).]
Pollenia micans Robineau-Desvoidy, 1830: 416. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.

Musca nigrina Meigen, 1838: 305. Type locality: Germany, Nordrhein-Westfalen, probably Stolberg, near Aachen [as "Hiesige Gegend"]. Junior primary homonym of *Musca nigrina* Fallén, 1817 [Tachinidae]. [Lectotype designated by Rognes (1991a: 221; as "holotype").]

Musca nitens Zetterstedt, 1845: 1340. Type locality: probably Denmark. Junior primary homonym of *Musca nitens* Villers, 1789: 549 [Syrphidae]. [Lectotype designated by Rognes (1991a: 221).]

Chaetopollenia soudeki Jacentkovský, 1941b: 21, 22. Type locality: Czech Republic, Brno, Skolny Statek Adamov, Kanice. [Lectotype designated by Rognes (1991a: 221).]

Distribution. Palaearctic – Albania, Andorra, Armenia, Austria, Belgium, Bulgaria, China (Xinjiang), Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Iran, Ireland, Italy, Macedonia, Morocco, Netherlands, Norway, Poland, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, Yugoslavia.

Pollenia angustigena Wainwright, 1940

Pollenia angustigena Wainwright, 1940: 444 [as subspecies of *Pollenia rudis* (Fabricius, 1794)]. Type locality: England, Worcestershire, Abberley Hill. [Lectotype designated by Rognes (1987b: 482).]

Distribution. Nearctic [introduced] – Canada (British Columbia, Ontario, Quebec); USA (California, Colorado, Idaho, Maine, New Jersey, North Carolina, Ohio, Oregon, South Dakota, Utah, Virginia, Washington, Wisconsin). Oriental [introduced] – China (Guangdong). Palaearctic – Andorra, Austria, Belgium, Croatia, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Italy, Netherlands, Norway, Poland, Portugal (Madeira, mainland), Russia, Slovakia, Spain, Sweden, Switzerland, Ukraine.

Pollenia antipodea Dear, 1986

Pollenia antipodea Dear, 1986: 34. Type locality: New Zealand, South Island, Southland District, Tiwai Point.

Distribution. Australasian – New Zealand.

Pollenia astrictifrons Dear, 1986

Pollenia astrictifrons Dear, 1986: 34. Type locality: New Zealand, South Island, Nelson District, Mt. Murchison, 1350–1440 m.

Distribution. Australasian – New Zealand.

Pollenia atramentaria (Meigen, 1826)

Musca atramentaria Meigen, 1826: 65. Type locality: Austria.
Pollenia levis Rondani, 1862: 195. Type locality: Italy, Parma or Lombardy [as "Insubria"]. [Lectotype designated by Rognes (1991c: 365).]

Distribution. Palaearctic – Andorra, Austria, Belarus, Czech Republic, France, Germany, Italy, Latvia, Lithuania, Netherlands, Poland, Romania, Russia, Slovakia, Spain, Switzerland, Ukraine.

Pollenia atricoma Dear, 1986

Pollenia atricoma Dear, 1986: 34. Type locality: New Zealand, South Island, Buller District, Lewis Pass, 1050 m.

Distribution. Australasian – New Zealand.

Pollenia atrifemur Malloch, 1930

Pollenia atrifemur Malloch, 1930: 321. Type locality: New Zealand, South Island, Mid Canterbury District, Upper Hororata.

Distribution. Australasian – New Zealand.

Pollenia bartaki Rognes, 2016

Pollenia bartaki Rognes, 2016: 572. Type locality: Jordan, NW Ajlun, 32°19.877'N, 35°43.110'E, 850 m.

Distribution. Palaearctic – Jordan.

Pollenia bezziana Rognes, 1992

Pollenia bezziana Rognes, 1992: 98. Type locality: Italy, Novara, Masera Commune, Rogna Hamlet.

Distribution. Palaearctic – Italy.

Pollenia bicolor Robineau-Desvoidy, 1830

Pollenia bicolor Robineau-Desvoidy, 1830: 415. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.

Pollenia guernica: Lehrer (2007c: 21). Unavailable name; proposed without a statement that the name-bearing type will be (or is) deposited in a named collection, here listed under *Pollenia bicolor* Robineau-Desvoidy, 1830.

Distribution. Palaearctic – Andorra, France, Morocco, Portugal, Spain.

Pollenia bulgarica Jacentkovský, 1939

Pollenia bulgarica Jacentkovský, 1939: 190. Type locality: Bulgaria, Sliven and Kloster Bachkovo.

Distribution. Palaearctic – Armenia, Azerbaijan, Bulgaria, Greece, Hungary, Iran, Moldova, Poland, Romania, Slovakia, Turkey, Ukraine.

Pollenia calamisessa Hardy, 1932

Pollenia calamisessa Hardy, 1932: 340. Type locality: Australia, Queensland, Brisbane.

Distribution. Australasian – Australia (Queensland).

Pollenia chotei Kurahashi & Tumrasvin, 1979

Pollenia chotei Kurahashi & Tumrasvin, 1979: 303. Type locality: Thailand, Nakhon Nayok Province, Khao Yai.

Distribution. Oriental – Thailand.

Pollenia commensurata Dear, 1986

Pollenia commensurata Dear, 1986: 35. Type locality: New Zealand, South Island, Mid Canterbury District, Mt. Somers.

Distribution. Australasian – New Zealand.

***Pollenia consanguinea* Dear, 1986**

Pollenia consanguinea Dear, 1986: 35. Type locality: New Zealand, South Island, Central Otago District, Old Man Range, Hyde Rock, 1550–1650 m.

Distribution. Australasian – New Zealand.

***Pollenia consectata* Dear, 1986**

Pollenia consectata Dear, 1986: 35. Type locality: New Zealand, North Island, Auckland District, Huia.

Distribution. Australasian – New Zealand.

***Pollenia contempta* Robineau-Desvoidy, 1863**

Pollenia contempta Robineau-Desvoidy, 1863: 676. Type locality: France, Var, Callian. [Neotype designated by Rognes (1992: 109).]

Distribution. Palaearctic – France, Italy, Portugal, Spain, Tunisia.

***Pollenia cuprea* Malloch, 1930**

Pollenia cuprea Malloch, 1930: 323 [as var. of *demissa* Hutton, 1901]. Type locality: New Zealand, North Island, Whanganui District, Whanganui.

Distribution. Australasian – New Zealand.

***Pollenia dasypoda* Portschinsky, 1881**

Pollenia dasypoda Portschinsky, 1881: 143. Type locality: Georgia, Mtskheta.
Dasypollenia landrocki Jacentkovský, 1941b: 20, 22 [key]. Type locality: Czech Republic, Lednice [Eisgrub].

Distribution. Oriental – India, Pakistan. Palaearctic – Austria, Bulgaria, Czech Republic, Egypt, Georgia, Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan,

Lebanon, Moldova, Poland, Romania, Russia, Saudi Arabia, Slovakia, Syria, Tajikistan, Turkey, Ukraine, West Bank.

Pollenia demissa (Hutton, 1901)

Sepimentum demissa Hutton, 1901: 67. Type locality: New Zealand, North Island, Wellington.

Pollenia minor Malloch, 1930: 323 [as var. of *demissa* Hutton, 1901]. Type locality: New Zealand, North Island, Whanganui District, Whanganui.

Distribution. Australasian – New Zealand.

Pollenia dysaethria Dear, 1986

Pollenia dysaethria Dear, 1986: 37. Type locality: New Zealand, North Island, Auckland District Titirangi.

Distribution. Australasian – New Zealand.

Pollenia dyscheres Dear, 1986

Pollenia dyscheres Dear, 1986: 37. Type locality: New Zealand, South Island, Nelson District, Mt. Owen, 1500 m.

Distribution. Australasian – New Zealand.

Pollenia enetera Dear, 1986

Pollenia enetera Dear, 1986: 38. Type locality: New Zealand, South Island, Fiordland District, Fiordland National Park, Milford.

Distribution. Australasian – New Zealand.

Pollenia erlangshanna Feng, 2004

Pollenia erlangshanna Feng, 2004: 803. Type locality: China, Sichuan, Mt. Erlang, 2750 m.

Distribution. Palaearctic – China (Sichuan).

***Pollenia eurybregma* Dear, 1986**

Pollenia eurybregma Dear, 1986: 38. Type locality: New Zealand, South Island, Central Otago District, Old Man Range, Hyde Rock, 1550–1650 m.

Distribution. Australasian – New Zealand.

***Pollenia flindersi* Hardy, 1932**

Pollenia flindersi Hardy, 1932: 338. Type locality: Australia, Victoria, Flinders.

Distribution. Australasian – Australia (Victoria).

***Pollenia fulviantenna* Dear, 1986**

Pollenia fulviantenna Dear, 1986: 38. Type locality: New Zealand, South Island, Buller District, Nelson Lakes National Park, west side of Lake Rotoit.

Distribution. Australasian – New Zealand.

***Pollenia fulvipalpis* Macquart, 1835**

Pollenia fulvipalpis Macquart, 1835: 270. Type locality: France, Gironde, Bordeaux.
Pollenia bisulca Pandellé, 1896: 152. Type locality: France, Hautes-Pyrénées, Tarbes.
Pollenia flavipalpis: Rondani (1862: 202). Incorrect subsequent spelling of *Pollenia fulvipalpis* Macquart, 1835.

Distribution. Palaearctic – Channel Islands, France, Slovakia, Spain, Switzerland.

***Pollenia fumosa* (Hutton, 1901)**

Sepimentum fumosum Hutton, 1901: 67. Type locality: New Zealand, South Island, "Christchurch or Ashburton".

Distribution. Australasian – New Zealand.

Pollenia griseotomentosa (Jacentkovský, 1944)

Polleniella griseotomentosa Jacentkovský, 1944a: 45. Type locality: Poland, Struga. [Neotype designated by Rognes (1991a: 225).]

Distribution. Nearctic [introduced] – Canada (British Columbia, Ontario); USA (New York, Western Virginia). Palaearctic – Andorra, Austria, Belarus, Belgium, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Italy (mainland, Sardinia), Latvia, Netherlands, Poland, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine.

Pollenia grunini Rognes, 1988

Pollenia grunini Rognes, 1988: 318. Type locality: Russia, Karachay-Cherkess Republic (Karachayevo-Cherkesskaya Respublika), 5 km S Teberda.

Distribution. Palaearctic – Armenia, Georgia, Russia.

Pollenia haeretica Séguy, 1928

Pollenia haeretica Séguy, 1928: 374. Type locality: Algeria, Skikda ("Philippeville"). [Lectotype designated by Rognes (2010: 46).]

Distribution. Palaearctic – Algeria, Tunisia, Italy (Sardinia).

Pollenia hazarae (Senior-White, 1923)

Dexopollenia hazarae Senior-White, 1923: 51. Type locality: Pakistan, Abbottabad, 1256 m.

Distribution. Oriental – India, Pakistan.

Pollenia hirticeps Malloch, 1927

Pollenia hirticeps Malloch, 1927: 318. Type locality: Australia, New South Wales, Blue Mts.

Distribution. Australasian – Australia (New South Wales, South Australia).

***Pollenia hispida* Dear, 1986**

Pollenia hispida Dear, 1986: 39. Type locality: New Zealand, South Island, Central Otago District, Old Man Range, Hyde Rock, 1550–1650 m.

Distribution. Australasian – New Zealand.

***Pollenia huangshanensis* Fan & Chen, 1997**

Pollenia huangshanensis Fan & Chen in Fan et al. 1997: 415. Type locality: China, Anhui, Huangshan Mt., 850 m.

Distribution. Palaearctic – China (Anhui).

***Pollenia hungarica* Rognes, 1987**

Pollenia hungarica Rognes, 1987b: 483. Type locality: Hungary, Albertirsa.

Distribution. Palaearctic – Austria, China (Shanghai) [introduced], Czech Republic, Finland, France, Germany, Hungary, Italy, Latvia, Netherlands, Norway, Poland, Russia, Saudi Arabia, Slovakia, Sweden, Switzerland, Ukraine, Yugoslavia.

***Pollenia ibalia* Séguy, 1930**

Pollenia ibalia Séguy, 1930: 148. Type locality: Morocco, Moyen Atlas, Ras el Ksar, 900 m.
Pollenia rungsi Séguy, 1953: 88. Type locality: Morocco, Rabat.
Pollenia funebris Villeneuve, 1933a: 284. Type locality: Morocco, Marrakech. Junior primary homonym of *Pollenia funebris* Robineau-Desvoidy, 1863 [*nomen dubium*, *teste* Schumann, 1986].

Distribution. Nearctic [introduced] – Alaska. Palaearctic – Morocco.

***Pollenia immanis* Dear, 1986**

Pollenia immanis Dear, 1986: 40. Type locality: New Zealand, South Island, Central Otago District, Old Man Range, 1550–1650 m.

Distribution. Australasian – New Zealand.

Pollenia insularis Dear, 1986

Pollenia insularis Dear, 1986: 40. Type locality: New Zealand, Stewart Island, Table Hill, 425–715 m.

Distribution. Australasian – New Zealand.

Pollenia japonica Kano & Shinonaga, 1966

Pollenia japonica Kano & Shinonaga, 1966: 223. Type locality: Japan, Honshu, Miyagi Prefecture, Mt. Zao.

Distribution. Palaearctic – Japan (Honshu, Kyushu).

Pollenia labialis Robineau-Desvoidy, 1863

Pollenia labialis Robineau-Desvoidy, 1863: 67. Type locality: France, Yvelines, Rambouillet. [Neotype designated by Rognes (1991a: 228).]
Pollenia excarinata Wainwright, 1940: 442. Type locality: United Kingdom, Wales, Tan-y-Bwlch.

Distribution. Nearctic [introduced] – Canada (British Columbia, Ontario, Quebec); USA (Colorado, Indiana, Maine, Michigan, New Hampshire, New Mexico, Oregon, Pennsylvania, Vermont, Washington). Palaearctic – Andorra, Austria, Belgium, Bosnia and Herzegovina, China (Anhui, Henan) [introduced], Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine.

Pollenia lativertex Dear, 1986

Pollenia lativertex Dear, 1986: 41. Type locality: New Zealand, Stewart Island, Table Hill, 425–715 m.

Distribution. Australasian – New Zealand.

Pollenia leclercqiana (Lehrer, 1978)

Nitellia leclercqiana Lehrer, 1978: 139. Type locality: Spain, Madrid, Valdemoro.

Distribution. Palaearctic – France, Spain (Balearic Islands, mainland), Morocco.

Pollenia limpida Dear, 1986

Pollenia limpida Dear, 1986: 41. Type locality: New Zealand, South Island, Southland District, Mt. Barber, 1155 m.

Distribution. Australasian – New Zealand.

Pollenia luteovillosa Rognes, 1987

Pollenia luteovillosa Rognes, 1987b: 490. Type locality: Morocco, Haut Atlas, Jbel Ayachi, Mikdane.

Distribution. Palaearctic – Algeria, Morocco, Portugal, Spain.

Pollenia mayeri Jacentkovský, 1941

Pollenia mayeri Jacentkovský, 1941a: 14. Type locality: Czech Republic, Brno-Bystrec, Lednice (Eisgrub).
Polleniella distincta Jacentkovský, 1941b: 20, 22. *Nomen nudum*.

Distribution. Palaearctic – Belarus, Czech Republic, Germany, Hungary, Netherlands, Poland, Romania, Slovakia, Ukraine.

Pollenia mediterranea Grunin, 1966

Pollenia mediterranea Grunin, 1966: 899. Type locality: Italy, "Vittoria-Liguria" [possibly = Nostra Signora della Vittoria, Appennino Ligure, Liguria].
Nitellia hermoniella Lehrer, 2007a: 24. Type locality: Israel, Mt. Hermon, 1600–2000 m. Syn. nov.

Distribution. Palaearctic – Israel, Italy.

Pollenia mesopotamica Mawlood & Abdul-Rassoul, 2009

Pollenia mesopotamica Mawlood & Abdul-Rassoul, 2009: 59. Type locality: Iraq.

Distribution. Palaearctic – Iraq.

***Pollenia moravica* (Jacentkovský, 1941)**

Chaetopollenia moravica Jacentkovský, 1941b: 21. Type locality: Czech Republic, Brno, Skolny Statek Adamov, Hády.
Chaetopollenia pseudobisulca Jacentkovský, 1941b: 21, 23 [key]. Type locality: Czech Republic, Brno.

Distribution. Palaearctic – Austria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia, Ukraine, Yugoslavia.

***Pollenia moretonensis* Macquart, 1855**

Pollenia moretonensis Macquart, 1855a: 136. Type locality: Australia, Queensland, Moreton Bay.

Distribution. Australasian – Australia (Queensland).

***Pollenia mystica* Rognes, 1988**

Pollenia mystica Rognes, 1988: 322. Type locality: Georgia, Tskhratskaro, 2460 m.

Distribution. Palaearctic – Armenia, Georgia.

***Pollenia nigripalpis* Dear, 1986**

Pollenia nigripalpis Dear, 1986: 41. Type locality: New Zealand, Three Kings Islands, Great Island.

Distribution. Australasian – New Zealand.

***Pollenia nigripes* Malloch, 1930**

Pollenia nigripes Malloch, 1930: 320. Type locality: New Zealand, South Island, Westland District, Kumara.

Distribution. Australasian – New Zealand.

***Pollenia nigrisquama* Malloch, 1930**

Pollenia nigrisquama Malloch, 1930: 319. Type locality: New Zealand, South Island, Westland District, Kumara.

Distribution. Australasian – New Zealand.

***Pollenia nigrita* Malloch, 1936**

Pollenia nigrita Malloch, 1936: 22. Type locality: Australia, New South Wales, Yaouk, 1067 m.

Distribution. Australasian – Australia (New South Wales).

***Pollenia notialis* Dear, 1986**

Pollenia notialis Dear, 1986: 43. Type locality: New Zealand, Stewart Island, Table Hill, Hut Creek, 300 m.

Distribution. Australasian – New Zealand.

***Pollenia opalina* Dear, 1986**

Pollenia opalina Dear, 1986: 43. Type locality: New Zealand, South Island, Nelson District, Takaka Hill, 610 m.

Distribution. Australasian – New Zealand.

***Pollenia oreia* Dear, 1986**

Pollenia oreia Dear, 1986: 43. Type locality: New Zealand, South Island, Central Otago District, Dunstan Range, summit, 1590–1650 m.

Distribution. Australasian – New Zealand.

***Pollenia paragrunini* Rognes, 1988**

Pollenia paragrunini Rognes, 1988: 325. Type locality: Azerbaijan, Syunik, Betschenagsku Pass.

Distribution. Palaearctic – Armenia, Azerbaijan.

Pollenia paupera Rondani, 1862

Pollenia paupera Rondani, 1862: 196, 200. Type locality: Malta and Gozo. [Lectotype designated by Rognes (1991c: 366).]
Pollenia longitheca Rognes, 1987b: 487. Type locality: Cyprus, Amathus.

Distribution. Palaearctic – Algeria, Cyprus, France (Corsica), Greece (Crete, Dodekanisos, mainland), Iran, Israel, Italy (mainland, Sardinia, Sicily), Malta, Turkey, Ukraine.

Pollenia pectinata Grunin, 1966

Pollenia pectinata Grunin, 1966: 899. Type locality: Russia, Primorskiy Kray, east slope of Sikhote-Alin, valley of Sankhobe River.

Distribution. Palaearctic – China (Liaoning), Mongolia, Poland, Russia.

Pollenia pediculata Macquart, 1834

Pollenia pediculata Macquart, 1834: 19(155). Type locality: France, Nord, near Lille. *Remarks*. Rognes (1991a: 234) acted as First Reviser giving *pediculata* precedence over *coerulescens*.
Pollenia coerulescens Macquart, 1834: 17(153) [as *cærulescens*]. Type locality: France, Nord, near Lille.
Pollenia obscura Bigot, 1887: 173. Type locality: North America. Junior secondary homonym of *Musca obscura* Fabricius, 1794: 315 (= *Musca rudis* Fabricius, 1794).
Pollenia pseudorudis Rognes, 1985: 90. New replacement name for *P. obscura* Bigot, 1887.

Distribution. Afrotropical [introduced] – South Africa. Australasian [introduced] – New Zealand. Nearctic [introduced] – Canada (British Columbia, Ontario, Quebec, Saskatchewan); USA (Arkansas, California, Colorado, Delaware, Idaho, Illinois, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Dakota, Utah, Virginia, Washington, Wisconsin, Wyoming). Neotropical [introduced] – Bahamas. Oriental – India, Pakistan. Palaearctic – Andorra, Armenia, Austria, Belgium, Bosnia and Herzegovina, China (Shanghai, Xinjiang, Zhejiang), Croatia, Cyprus, Czech Republic, Denmark, Finland, France (Corsica, mainland), Germany, Great Britain, Greece, Hungary, Italy, Macedonia, Netherlands, Norway, Poland, Portugal (Madeira, mainland), Romania, Russia, Saudi Arabia, Slovakia, Spain, Sweden, Switzerland, Ukraine, Yugoslavia.

***Pollenia pernix* (Hutton, 1901)**

Gymnophania pernix Hutton, 1901: 61. Type locality: New Zealand, South Island, Mid Canterbury District, Christchurch.

Distribution. Australasian – New Zealand.

***Pollenia ponti* Rognes, 1991**

Pollenia ponti Rognes, 1991b: 457. Type locality: Spain, Granada, 3 km NE Granada.

Distribution. Palaearctic – Italy (mainland, Sicily), Morocco, Portugal, Slovakia, Spain, Ukraine.

***Pollenia primaeva* Dear, 1986**

Pollenia primaeva Dear, 1986: 44. Type locality: New Zealand, South Island, Mid Canterbury District, Mt. Somers.

Distribution. Australasian – New Zealand.

***Pollenia pseudintermedia* Rognes, 1987**

Pollenia pseudintermedia Rognes, 1987a: 382. Type locality: Spain, Granada, Rio Guadalfeo, Orgiva.

Distribution. Palaearctic – Greece, Israel, Italy (Sardinia), Macedonia, Portugal, Spain.

***Pollenia pseudomelanurus* (Feng, 2004)**

Xanthotryxus pseudomelanurus Feng, 2004: 805. Type locality: China, Sichuan, Mt. Erlang, 3100 m.

Distribution. Palaearctic – China (Sichuan).

***Pollenia pulverea* Dear, 1986**

Pollenia pulverea Dear, 1986: 45. Type locality: New Zealand, Stewart Island, Table Hill, 425–715 m.

Distribution. Australasian – New Zealand.

Pollenia rudis (Fabricius, 1794)

Musca rudis Fabricius, 1794: 314. Type locality: Germany, Schleswig-Holstein, Grömitz. [Neotype designated by Rognes (1987b: 498).]
Musca obscura Fabricius, 1794: 315. Type locality: Germany. [See Rognes (1987b: 496) for details.]
Musca varia Meigen, 1826: 66. Type locality: Germany, Nordrhein-Westfalen, probably Stolberg, near Aachen. Junior primary homonym of *Musca varia* Gmelin, 1790: 2843.

Distribution. Australasian [introduced] – New Zealand. Nearctic [introduced] – Bermuda; Canada (British Columbia, Ontario, Quebec, Terranova and Labrador); USA (Arizona, California, Colorado, Delaware, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Utah, Virginia, Washington, Western Virginia, Wisconsin). Oriental [introduced] – China (Guangdong), India, Nepal, Pakistan. Palaearctic – Albania, Algeria, Andorra, Austria, Belarus, Belgium, China (Shanghai) [introduced], Cyprus, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Greece (Crete, mainland), Hungary, Ireland, Italy (mainland, Sardinia, Sicily), Japan (widespread), Lithuania, Morocco, Netherlands, Norway, Poland, Portugal (Azores Islands, Madeira, mainland), Romania, Russia, Saudi Arabia, Slovakia, Spain (Canary Islands, mainland), Sweden, Switzerland, Turkey, Ukraine, Uzbekistan.

Pollenia ruficrura Rondani, 1862

Pollenia ruficrura Rondani, 1862: 196, 202. Type locality: Italy, Parma.
Nitellia ospedaliana: Lehrer (2007a: 21). Unavailable name; proposed without a statement that the name-bearing type will be (or is) deposited in a named collection, here listed under *Pollenia ruficrura* Rondani, 1862.

Distribution. Palaearctic – France (Corsica), Italy (mainland, Sardinia), Morocco.

Pollenia rufifemorata Rognes & Baz, 2008

Pollenia rufifemorata Rognes & Baz, 2008: 391. Type locality: Spain, Sierra de Guadarrama Mts, Madrid Province, between Lozoya and Puerto de Navafria, 1400 m.

Distribution. Palaearctic – Spain.

***Pollenia sakulasi* (Kurahashi, 1987)**

Dexopollenia sakulasi Kurahashi, 1987: 68. Type locality: Papua New Guinea.

Distribution. Australasian – Papua New Guinea.

***Pollenia sandaraca* Dear, 1986**

Pollenia sandaraca Dear, 1986: 45. Type locality: New Zealand, Stewart Island, Rakeahua Valley.

Distribution. Australasian – New Zealand.

***Pollenia scalena* Dear, 1986**

Pollenia scalena Dear, 1986: 46. Type locality: New Zealand, Snares Islands, Biological Station.

Distribution. Australasian – New Zealand.

***Pollenia semicinerea* Villeneuve, 1911**

Pollenia semicinerea Villeneuve, 1911b: 51. Type locality: Syria, between Homs and Bahret Homs [Quattinah Lake]. [Lectotype designated by Rognes (1988: 333).]
Pollenia bentalia Lehrer, 2007c: 23. Type locality: Israel, Golan Heights, Mt. Hermon, 2000 m. Syn. nov.

Distribution. Palaearctic – Israel, Lebanon, Syria.

***Pollenia shaanxiensis* Fan & Wu, 1997**

Pollenia shaanxiensis Fan & Wu in Fan et al. 1997: 418. Type locality: China, Shaanxi, Huanglong.

Distribution. Palaearctic – China (Shaanxi).

***Pollenia sichuanensis* Feng, 2004**

Pollenia sichuanensis Feng, 2004: 804. Type locality: China, Sichuan, Mao County, 2300 m.

Distribution. Palaearctic – China (Sichuan).

Pollenia similis (Jacentkovský, 1941)

Dasypollenia similis Jacentkovský, 1941b: 20. Type locality: Czech Republic, Brno, Lednice, Ráječek.

Distribution. Palaearctic – Albania, Austria, Czech Republic, Germany, Hungary, Poland, Slovakia, Ukraine.

Pollenia stigi Rognes, 1992

Pollenia stigi Rognes, 1992: 104. Type locality: Morocco, Azzou-Ifrane area.

Distribution. Palaearctic – Morocco.

Pollenia stolida Malloch, 1936

Pollenia stolida Malloch, 1936: 21. Type locality: Australia, New South Wales.

Distribution. Australasian – Australia (New South Wales).

Pollenia tenuiforceps Séguy, 1928

Pollenia tenuiforceps Séguy, 1928: 375. Type locality: not given, probably France.
Dasypoda angustifrons Jacentkovský, 1941b: 8 (Czech), 58 (German). Type locality: Czech Republic, Brno, Ráječek. Syn. nov.

Distribution. Palaearctic – Algeria, Bosnia and Herzegovina, Czech Republic, France, Hungary, Romania, Slovakia, Slovenia, Switzerland, Ukraine.

Pollenia townsendi Senior-White, Aubertin & Smart, 1940

Pollenia townsendi Senior-White, Aubertin & Smart, 1940: 119. Type locality: India, Himachal Pradesh.

Distribution. Oriental – India.

***Pollenia umbrifera* (Walker, 1861)**

Musca umbrifera Walker, 1861: 267. Type locality: Indonesia, Sulawesi, Tondano.

Distribution. Oriental – Indonesia.

***Pollenia uniseta* Dear, 1986**

Pollenia uniseta Dear, 1986: 46. Type locality: New Zealand, South Island, Central Otago District, Old Man Range, Hyde Rock, 1550–1650 m.

Distribution. Australasian – New Zealand.

***Pollenia vagabunda* (Meigen, 1826)**

Musca vagabunda Meigen, 1826: 72. Type locality: Germany, Nordrhein-Westfalen, probably Stolberg, near Aachen. [Lectotype designated by Rognes (1991a: 238).]
Pollenia pulvillata Rondani, 1862: 195, 198. Type locality: Italy, Parma.
Pollenia hasei Séguy, 1928: 370. Type locality: Spain, Madrid Province, Cercedilla.
Nitellia norwegiana: Lehrer (2007b: 5). Unavailable name; proposed without a statement that the name-bearing type will be (or is) deposited in a named collection, here listed under *Pollenia vagabunda* (Meigen, 1826).

Distribution. Nearctic [introduced] – Canada (British Columbia, Nova Scotia, Ontario, Prince Edward Island, Quebec); USA (Alaska, Connecticut, Maine, Massachusetts, New Hampshire, New Mexico, New York, Pennsylvania, Virginia). Oriental [introduced] – India. Palaearctic – Andorra, Austria, Belarus, Belgium, China (Shanghai) [introduced], Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Italy, Latvia, Lithuania, Morocco, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Spain, Sweden, Tunisia, Ukraine.

***Pollenia venturii* Zumpt, 1956**

Pollenia venturii Zumpt, 1956: 79. Type locality: Italy, Florence Province, Tavarnuzze.
Pollenia solitaria Grunin, 1970: 480. Type locality: Russia, Krasnodar Krai: Lvovskoye, 18 km NNW Severskaya Station.

Distribution. Palaearctic – France, Germany, Greece, Iran, Italy (mainland, Sardinia), Netherlands, Poland, Russia.

Pollenia vera Jacentkovský, 1936

Pollenia vera Jacentkovský, 1936: 114. Type locality: Bulgaria, Vitosha and Sliven.
Pollenia vera var. *latifrons* Jacentkovský, 1941b: 21. Type locality: not stated, probably Bulgaria, Vitosha and Sliven.

Distribution. Palaearctic – Austria, Bulgaria, Czech Republic, France, Greece, Hungary, Moldova, Poland, Romania, Slovakia, Ukraine, Yugoslavia.

Pollenia verneri Rognes, 1992

Pollenia verneri Rognes, 1992: 98. Type locality: Spain, Jaen, 10 km W La Carolina.

Distribution. Palaearctic – Portugal, Spain.

Pollenia viatica Robineau-Desvoidy, 1830

Pollenia viatica Robineau-Desvoidy, 1830: 413. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye. [Lectotype designated by Rognes (1991b: 486).]
Pollenia fulvicornis Robineau-Desvoidy, 1830: 413. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.
Pollenia vivida Robineau-Desvoidy, 1830: 413. Type locality: not stated, probably France, Yonne, Saint-Sauveur-en-Puisaye.
Pollenia pallida Rohdendorf, 1926: 103. Type locality: Uzbekistan, Tashkent District, Ak-Tash Mts, 50 km NE Tashkent ["Ak-Tash-Gebirge, Turkestan (50 km nordöstlich von Tashkent)" as given by Rohdendorf (1928: 338)]. [Lectotype designated by Rognes (1991a: 230).]
Pollenia luciensis Mercier, 1930: 320. Type locality. France, Calvados, Luc-sur-Mer. [As subspecies of *Pollenia rudis* (Fabricius, 1794).]
Pollenia carinata Wainwright, 1940: 442. Type locality: United Kingdom, East Sussex, Lewes, Malling Hill. [As subspecies of *Pollenia rudis* (Fabricius, 1794).]

Distribution. Palaearctic – Armenia, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Great Britain, Greece, Hungary, Iran, Israel, Italy, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Malta, Moldova, Netherlands, Poland, Romania, Slovakia, Sweden, Syria, Turkey, Ukraine, Uzbekistan, West Bank, Yugoslavia.

Pollenia viridiventris Macquart, 1847

Pollenia viridiventris Macquart, 1847: 100. Type locality: Australia, Tasmania.

Distribution. Australasian – Australia (Tasmania).

Nomen dubium and incerta sedis

Volucella cervina Schrank, 1803: 136. Type locality: near Ingolstadt, Germany.

Genus *Xanthotryxus* Aldrich, 1930

Xanthotryxus Aldrich, 1930: 3. Type species: *Xanthotryxus mongol* Aldrich, 1930, by original designation.

***Xanthotryxus auratus* (Séguy, 1934)**

Pollenia aurata Séguy, 1934: 22. Type locality: China, Xizang, Moupin.

Distribution. Palaearctic – China (Xizang).

***Xanthotryxus bazini* (Séguy, 1934)**

Pollenia bazini Séguy, 1934: 23. Type locality: China, Jiangxi, Kou-ling.

Distribution. Palaearctic – China (Jiangxi).

***Xanthotryxus draco* Aldrich, 1930**

Xanthotryxus draco Aldrich, 1930: 4. Type locality: China, Sichuan, Yellow Dragon Gorge.

Distribution. Palaearctic – China (Sichuan).

***Xanthotryxus ludingensis* Fan, 1992**

Xanthotryxus ludingensis Fan in Chen, Fan & Fang, 1992: 1204. Type locality: China, Sichuan, Luding.

Distribution. Palaearctic – China (Sichuan).

Xanthotryxus melanurus Fan, 1992

Xanthotryxus melanurus Fan in Chen, Fan & Fang, 1992: 1205. Type locality: China, Sichuan, Mt. Gonggashan, Yanzigou.

Distribution. Palaearctic – China (Sichuan).

Xanthotryxus mongol Aldrich, 1930

Xanthotryxus mongol Aldrich, 1930: 3. Type locality: China, Sichuan.

Distribution. Palaearctic – China (Sichuan), Japan (Kyushu), South Korea (Quelpart Island).

Xanthotryxus uniapicalis Fan, 1992

Xanthotryxus uniapicalis Fan in Chen, Fan & Fang, 1992: 1206. Type locality: China, Yunnan, Weixi.

Distribution. Oriental – China (Yunnan).

Taxa tentatively assigned to Polleniidae

Genus *Anthracomyza* Malloch, 1928, resurrected name

Anthracomyia Malloch, 1927: 319. Type species: *Anthracomyia atratula* Malloch, 1927, by original designation. Junior homonym of *Anthracomyia* Rondani, 1868.

Anthracomyza Malloch, 1928: 360. New replacement name for *Anthracomyia* Malloch, 1927.

Anthracomyza atratula (Malloch, 1927)

Anthracomyia atratula Malloch, 1927: 319. Type locality: Australia, New South Wales, Killara.

Distribution. Australasian – Australia (New South Wales).

Remarks. The Australian Faunal Directory lists the species as *Anthracomyia atratula* Malloch, 1927 (Elliot 2007), while it is listed as *Morinia atratula* Malloch, 1927 in the Catalogue of Life (Roskov et al. 2019). Malloch (1928: 360) proposed *Anthracomyza*

as a new replacement name for his own *Anthracomyia*, correctly arguing that the latter is "preoccupied by *Anthracomyia* Rondani". *Anthracomyza* was later listed as an unnecessary new name in the catalogue of Australasian Diptera (Kurahashi 1989), probably because Rondani (1856) originally gave the spelling *Anthracomya*, which differs by one letter and therefore does not enter into homonymy (ICZN 1999; article 56.2). However, as given by O'Hara et al. (2011), Rondani (1868) later emended his own spelling to *Anthracomyia*, and although this is now recognised as an unjustified emendation, it is an available name with separate authorship and therefore preoccupies *Anthracomyia* of Malloch (1927).

We here maintain *Anthracomyza* as a valid, monotypic genus; however, a careful examination of male and female terminalia is necessary to ascertain whether *Anthracomyza* belongs to Polleniidae.

Genus *Nesodexia* Villeneuve, 1911

Nesodexia Villeneuve, 1911a: 123. Type species: *Nesodexia corsicana* Villeneuve, 1911, by monotypy.

Nesodexia corsicana Villeneuve, 1911

Nesodexia corsicana Villeneuve, 1911a: 123. Type locality: France, Corsica, Ajaccio, Campo d'Oro.

Distribution. Palaearctic – France (Corsica).

Remarks. According to Rognes (1991a) *Nesodexia corsicana* has the ventral and lateroventral surface of distalmost parts of acrophallus provided with scale-like spinules (Rognes 1991a), thus the species does not share a key synapomorphic character state supporting monophyly of Polleniidae. Moreover, the general habitus and, in particular, the head profile, characterised by a prominent lower facial margin, of *N. corsicana* are reminiscent of many phumosiine calliphorids. However, unlike all phumosiines, the katatergite of *Nesodexia* is bare (Rognes 1997), and more data are needed to resolve its phylogenetic position.

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References

Aldrich JM (1930) New two-winged flies of the family Calliphoridae from China. Proceedings of the United States National Museum 78: 1–15. https://doi.org/10.5479/si.00963801.78-2844.1

Bezzi M (1927) Some Calliphoridae (Dipt.) from the South Pacific islands and Australia. Bulletin of Entomological Research 17: 231–247. https://doi.org/10.1017/S0007485300019283

Bigot JMF (1887) [No title. Note in Séance du 9 novembre 1887: "– M. J.-M.-F. Bigot présente les diagnoses abrégées de quelques diptères nouveaux, provenant de l'Amérique du Nord, dont les descriptions détaillées seront publiées ultérieurement"]. Bulletin Bimensuel de la Société Entomologique de France [1887] (21): clxxii–clxxiv.

Blackith R (1991) *Pollenia bicolor* Robineau-Desvoidy, 1830; un diptère énigmatique du Midi de la France (Dipt. Calliphoridae). Bulletin de la Société Entomologique de France 96: 271–274.

Blaschke JD, Stireman JO III, O'Hara JE, Cerretti P, Moulton JK (2018) Molecular phylogenetics and piercer evolution in the bug-killing flies (Diptera: Tachinidae: Phasiinae). Systematic Entomology 43: 218–238. https://doi.org/10.1111/syen.12272

Bowser M (2015) First record of a cluster fly (Calliphoridae: *Pollenia*) in Alaska. Newsletter of the Alaska Entomological Society 8(1): 1–2.

Brauer F, Bergenstamm JE von (1889) Die Zweiflügler des kaiserlichen Museums zu Wien. IV. Vorarbeiten zu einer Monographie der Muscariae Schizometopa (exclusive Anthomyidae). Pars I. Denkschriften der Kaiserlichen Akademie der Wissenschaften. Wien. Mathematisch-Naturwissenschaftliche Klasse, 1889, 56: 69–180.

Cerretti P, O'Hara JE, Wood DM, Shima H, Inclàn DJ, Stireman JO III (2014) Signal trough the noise? Phylogeny of the Tachinidae (Diptera) as inferred from morphological evidence. Systematic Entomology 39: 335–353. https://doi.org/10.1111/syen.12062

Cerretti P, Stireman JO III, Pape T, O'Hara JE, Marinho MAT, Rognes K, Grimaldi DA (2017) First fossil of an oestroid fly (Diptera: Calyptratae: Oestroidea) and the dating of oestroid divergences. PLoS ONE 12: e0182101. https://doi.org/10.1371/journal.pone.0182101

Cerretti P, Stireman JO III, Badano D, Gisondi S, Rognes K, Lo Giudice G, Pape T (2019) Reclustering the cluster flies (Diptera: Oestroidea, Polleniidae). Systematic Entomology 44: 957–972. https://doi.org/10.1111/syen.12369

Cerretti P, Badano D, Gisondi S, Lo Giudice G, Pape T (2020) The world woodlouse flies (Diptera: Rhinophoridae). Zookeys 903: 1–130. https://doi.org/10.3897/zookeys.903.37775

Chen Z-Z, Fan Z-D, Fang J-M (1993) Diptera: Calliphoridae. In: Chen S (Ed.) Insects of Hengduan Mountains Region (Vol. 2) ["Dec. 1992"], 1183–1219. [In Chinese with English Summary.]

Coquillett DW (1910) The type-species of the North American genera of Diptera. Proceedings of the United States National Museum 37: 499–647. https://doi.org/10.5479/si.00963801.37-1719.499

Crosskey RW (1977) A review of the Rhinophoridae (Diptera) and a revision of the Afrotropical species. Bulletin of the British Museum (Natural History), Entomology series 36: 1–66.

Curran CH (1927) Some new Australasian and African Diptera of the families Muscidae and Tachinidae (Dipt.). Entomologische Mitteilungen 16: 345–357.

Dear JP (1986) Calliphoridae (Insecta: Diptera). Fauna of New Zealand 8: 1–86.

El Husseini MMM (2019) Endo- or ecto-parasitism with the cluster fly, *Pollenia dasypoda* Portochisky [sic] (Diptera: Calliphoridae), based on the diameter of its host body, the earthworm *Allolobophora caliginosa* [sic] (Sav.). Egyptian Journal of Biological Pest Control 29: 1–49. https://doi.org/10.1186/s41938-019-0150-8

Elliot M (2007) Oestroidea. Australian Faunal Directory. Australian Museum, Sidney, New South Wales. https://biodiversity.org.au/afd/taxa/Anthracomyia_atratula [accessed 06 February 2020]

Enderlein G (1934) Dipterologica. II. Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin [1934]: 133–134, 181–190.

Enderlein G (1936) 22. Ordnung: Zweiflügler, Diptera. In: Brohmer P, Ehrmann P, Ulmer G (Eds) Die Tierwelt Mitteleuropas. 6, Insekten, Teil II, 1–259.

Evenhuis NL, Pont AC (2004) The Diptera Genera of Jacques-Marie-Frangile Bigot. Zootaxa 751: 1–94. https://doi.org/10.11646/zootaxa.751.1.1

Evenhuis NL, Pont AC, Whitmore D (2015) Nomenclatural studies toward a world list of Diptera genus-group names. Part IV: Charles Henry Tyler Townsend. Zootaxa 3978(1): 1–362. https://doi.org/10.11646/zootaxa.3978.1.1

Evenhuis NL, Pape T, Pont AC (2016) Nomenclatural studies toward a world list of Diptera genus-group names. Part V: Pierre-Justin-Marie Macquart. Zootaxa 4172(1): 1–211. https://doi.org/10.11646/zootaxa.4172.1.1

Evenhuis NL, O'Hara JE, Pape T, Pont AC (2010) Nomenclatural studies toward a world list of Diptera genus-group names. Part I: André-Jean-Baptiste Robineau-Desvoidy. Zootaxa 2373: 1–265. https://doi.org/10.11646/zootaxa.2373.1.1

Fabricius JC (1794) Entomologia systematica emendata et aucta. Secundum classes, ordines, genera, species adiectis synonymis, observationibus, descriptionibus (Vol. 4) Proft CH, Hafniae [= Copenhagen], [6] + 472 +[5] pp.

Fallén CF (1817) Beskrifning öfver de i Sverige funna fluge arter, som kunna föres till slägtet *Musca*. Första afdelningen. Kungliga svenska Vetenskapsakademiens Handlingar 4 ["1816"]: 226–254.

Fan Z-D (1965) Key to species of the common synanthropic flies of China. Academia Sinica, Science Press, Beijing, 330 pp. [+ 40 plates]. [In Chinese.]

Fan Z-D (1992) Key to common flies of China. Second edition. Academia Sinica, Science Press, Shanghai, 992 pp. [+ 40 pls.] [In Chinese with English descriptions of new taxa.]

Fan Z-D (1997) Diptera: Calliphoridae. Fauna Sinica, Insecta, 6, 707 pp. [In Chinese with English summary, key to subfamilies, tribes, genera and species, and summary of new taxa.]

Fan Z-D, Feng Y, Deng A-X (1993) Three new species of Calliphoridae from West Sichuan, China (Diptera). Zoological Research 14: 199–202. [In Chinese with English summary.]

Feng Y (2004) Five new species of the tribe Polleniini from Sichuan, China (Diptera, Calliphoridae, Calliphorinae). Acta Zootaxonomica Sinica 29: 803–808.

Gmelin JF (1790) Caroli a Linné, Systema naturae per regna tria naturæ, secundum classes, ordines, genera, species; cum caracteribus, differentiis, synonymis, locis. Editio decima

tertia, aucta, reformata. [= Ed. 13] Vol. 1: Regnum Animale Pt. 5, Beer GE, Lipsiae [= Leipzig], 2225–3020.

Grunin KYa (1966) [New and little known Calliphoridae (Diptera) mainly bloodsucking or subcutaneous parasites of birds]. Entomologicheskoe Obozrenie 45: 897–903. [In Russian; English translation in Entomological Review 45: 503–506.]

Grunin KYa (1970) [New species of Calliphoridae (Diptera) for the fauna of the USSR]. Entomologicheskoe Obozrenie 59: 471–483. [In Russian; English translation in Entomological Review 49: 282–289.]

Grzywacz A, Szpila K, Pape T (2012) Egg morphology of nine species of *Pollenia* Robineau-Desvoidy, 1830 (Diptera: Calliphoridae). Microscopy Research and Technique 75: 955–967. https://doi.org/10.1002/jemt.22020

Hall DG (1948) The blowflies of North America. The Thomas Say Foundation, Baltimore, 477 pp.

Hall DG (1965) Family Calliphoridae. In: Stone et al. (Eds) A catalog of the Diptera of America north of Mexico. Agricultural Research Service, United Stated Department of Agriculture, Washington D.C., Agriculture Handbook No. 276, 922–932.

Hardy GH (1932) Two new Australian species of *Pollenia*. Proceedings of the Linnean Society of New South Wales 57: 338–340.

Herting B (1961) 64e. Rhinophoridae. In: Lindner E (Ed.) Die Fliegen der palaearktischen Region 9 [Lieferung 216]. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart 36 pp.

Hutton FW (1901) Synopsis of the Diptera Brachycera of New Zealand. Transactions of the New Zealand Institute 33: 1–95. https://doi.org/10.1071/MU901139

ICZN [International Commission on Zoological Nomenclature] (1999) International code of zoological nomenclature. Fourth Edition. London: The International Trust for Zoological Nomenclature.

Jacentkovský D (1936) Beitrag zur Kenntnis der Raupenfliegen (Tachinariae, Diptera) Bulgariens. Izvestiia na Tsarskitia prirodonauchni instituti v Sofiia 9: 109–134. [Journal also known as: Mitteilungen aus den Königlichen naturwissenschaftlichen Instituten in Sofia, Bulgarien, and as: Bulletin des Institutions royales d'histoire naturelle à Sofia, Bulgarie.]

Jacentkovský D (1939) Über einige interessante Sarcophagiden (Tachinariae, Diptera) aus Bulgarien. Izvestiia na Tsarskitia prirodonauchni instituti v Sofiia 12: 188–192. [Journal also known as: Mitteilungen aus den Königlichen naturwissenschaftlichen Instituten in Sofia, Bulgarien, and as: Bulletin des Institutions royales d'histoire naturelle à Sofia, Bulgarie.]

Jacentkovský D (1941a) *Pollenia mayeri* n. sp. Calliphoridae, Tachinoidea) nová kuklice z Moravy [*Pollenia mayeri* n. sp. (Calliphoridae, Tachinoidea) eine neue Raupenflige aus Mähren]. Entomologické listy 4: 14–16. [In Czech with German summary.] [Journal also known as: Folia entomologica.]

Jacentkovský D (1941b) Kuklice (Tachinoidea, Diptera) Moravy a Slezska [Die Raupenfliegen (Tachinoidea) Mährens und Schlesiens]. Práce moravské přírodovědecké společnosti 13: 1–64. [In Czech with German summary.] [Journal also known as: Acta Societatis Scientiarium Naturalium Moravicae.]

Jacentkovský D (1941c) Moravské kuklice z rodu Pollenie [sic] R.D. (Calliphoridae, Diptera). [Mährische Arten aus der Raupenfliegen Gattung *Pollenia* R.D.]. (Calliphoridae, Diptera). Sborník klubu přírodovědeckého v Brne 23(1940): 28–32.

Jacentkovský D (1942) Beitrag zur Kenntnis der gattung *Pollenia* R.D. (Calliphoridae, Tachinoidae, Diptera). Rozpravy Vedecké Spolecnosti Badatelské pri Ruské Svobodné Universite v Praze 11 (16) no. 84: 193–225. [1–33] [Journal also known as: Abhandlungen der russischen Forschungsgesellschaft in Prag.]

Jacentkovský D (1944a) Další příspěvek k zvířeně kuklkic (Tachinoidea, Dipt.) Moravy [Weiterer Beitrag zur Fauna der Raupenfliegen (Tachinoidea, Dipt.) Mährens]. Entomologické listy 7: 45–49. [In Czech with German summary.] [Journal also known as: Folia entomologica.]

Jacentkovský D (1944b) Beitrag zur Fauna der Raupenfliegen der Mark Brandenburg. Arbeiten über morphologische und taxonomische Entomologie aus Berlin-Dahlem 11: 116–122.

James MT (1955) The blowflies of California (Diptera: Calliphoridae). Bulletin of the California insect survey 4: 1–34.

James MT (1970) 102 Family Calliphoridae. In: Vanzolini EP, Papavero N (Eds) A Catalog of the Diptera of the Americas South of the United States, Museu de Zoologia, Universidade São Paulo, 28 pp.

James MT (1977) Family Calliphoridae. In: Delfinado MD, Hardy DE (Eds) A Catalog of the Diptera of the Oriental Region. Volume III Suborder Cyclorrapha (excluding Division Aschiza), The University Press of Hawaii, Honolulu, 526–556.

Jewiss-Gaines A, Marshall SA, Whitworth TL (2012) Cluster flies (Calliphoridae: Polleniinae: *Pollenia*) of North America. Canadian Journal of Arthropod Identification 19.

Kano R, Shinonaga S (1966) Notes on flies of medical importance in Japan. 26. Description of a new species belonging to the genus *Pollenia* in Japan. (Diptera, Calliphoridae). Japanese Journal of Sanitary Zoology 17: 223–225. https://doi.org/10.7601/mez.17.223

Keilin D (1915) Recherches sur les larves de Diptères cyclorhapes. Cycle evolutive de *Pollenia rudis* Fabr., parasite d'*Allolobophora chlorotica* Sav – Biologie comparée des larves de diptères. Bulletin biologique de la France et de la Belgique 49: 15–198.

Khitsova LN (1983) A new species of the genus *Morinia* (Diptera, Rhinophoridae) from Caucasus. Zoologicheskii Zhurnal 62: 1588–1590. [In Russian with English summary.]

Kurahashi H (1987) The blow flies of New Guinea, Bismarck Archipelago and Bougainville Island. Occasional Publication by the Entomological Society of Japan 1: 3 unnumbered pp. + 1–99.

Kurahashi H (1989) Family Calliphoridae. In: Evenhuis NL (Ed.) Catalog of the Diptera of the Australasian and Oceanian Regions, Vol. 86, Bishop Museum Serial Publication, Honolulu, Hawaii, 702–718. [Including updated online version available at http://hbs.bishopmuseum.org/aocat/calliphoridae.html]

Kurahashi H (1992) A new species of *Dexopollenia* from Sabah, Malaysia, with a key to the Oriental species (Diptera: Calliphoridae). Japanese Journal of Sanitary Zoology 43: 23–27. https://doi.org/10.7601/mez.43.23

Kurahashi H (1995) Two new species of *Dexopollenia* from Thailand, with a key to the Oriental species (Diptera: Calliphoridae). Japanese Journal of Sanitary Zoology 46: 139–144. https://doi.org/10.7601/mez.46.139

Kurahashi H, Beaver RA (1979) *Nepenthomyia malayana* gen. n., sp. n. A new calliphorid fly bred from pitchers of *Nepenthes ampullaria* in West Malaysia (Diptera, Calliphoridae). Annales de la Société Entomologique de France (N.S.) 15: 25–30.

Kurahashi H, Tumrasvin W (1979) Six new species of calliphorid flies from Thailand (Diptera: Calliphoridae). Japanese Journal of Sanitary Zoology 30: 297–304. https://doi.org/10.7601/mez.30.297

Kutty SN, Meusemann K, Bayless KM, Marinho MAT, Pont AC, Zhoyu X, Misof B, Wiegmann BM, Yeates D, Cerretti P, Meier R, Pape T (2019) Phylogenomic analysis of Calyptratae: resolving the phylogenetic relationships within a major radiation of Diptera. Cladistics 35: 605–622. https://doi.org/10.1111/cla.12375

Lehrer AZ (1963) Études sur les Diptères Calliphorides. I. – La classification des Polleniinae palearctiques et leur dispersion en Roumanie. Bulletin et Annales de la Société Royale d'Entomologie de Belgique 99: 285–310.

Lehrer AZ (1967) Études sur les Diptères Calliphorides. II. – Revision de la nomenclature de la tribu Polleniini. Bulletin et Annales de la Société Royale d'Entomologie de Belgique 103: 255–259.

Lehrer AZ (1972) Diptera Familia Calliphoridae. Fauna Republicii Socialiste Romania 11: 1–245.

Lehrer AZ (1978) Calliphorides et Sarcophagides nouveaux de la faune de l'Espagne (Diptera). Eos, Revista Española de Entomología 52: 141–148.

Lehrer AZ (2007a) Nouvelles espèces et nouvaux synonymes du genre *Nitellia* Robineau-Desvoidy (Diptera, Calliphoridae). Fragmenta Dipterologica 7: 19–27.

Lehrer AZ (2007b) Analyse critique du «*Pollenia vagabunda* species-group» sensu Rognes (Diptera, Calliphoridae). Fragmenta Dipterologica 9: 1–6.

Lehrer AZ (2007c) Analyse de *Pollenia semicinerea* sensu Rognes et description d'une espèce nouvelle du genre *Pollenia* R.D. Fragmenta Dipterologica 9: 20–27.

Lioy A (1864) I ditteri distribuiti secondo un nuovo metodo di classificazione naturale [part]. Atti dell'Imperiale Regio Istituto Veneto di Scienze, Lettere ed Arti 9: 879–910.

Macquart J (1834) Insectes Diptères du Nord de la France. Tome V. Athericères: Créophiles, Œstrides, Myopaires, Conopsaires, Scénopiniens, Céphalopsides. Daniel L, Lille, 232 pp. [Also published in: Mémoires de la Société Royale des Sciences, de l'Agriculture et des Arts, de Lille ("1833"): 137–368 (1 October 1834).]

Macquart J (1835) Histoire naturelles des insectes. Diptères. Paris, 2, 703 pp. https://doi.org/10.5962/bhl.title.14274

Macquart J (1847) Diptères exotique ou peu connus; 2.^{e} Supplément, Paris, 21–120.

Macquart J (1855a) Diptères exotique ou peu connus; 5.^{e} Supplément, Paris, 25–156.

Macquart J (1855b) Nouvelles observations sur les Diptères d'Europe de la tribu des Tachinaires. Annales de la Société Entomologique de France, Série (3)3: 21–47.

Malloch JR (1927) Notes on Australian Diptera, No. xi. Proceedings of the Linnean Society of New South Wales 52: 299–335.

Malloch JR (1928) Notes on Australian Diptera, No. xvi. Proceedings of the Linnean Society of New South Wales 53: 343–66.

Malloch JR (1930) The calyptrate Diptera of New Zealand. Part III. Family Calliphoridae. Records of the Canterbury Museum 3: 313–324.

Malloch JR (1931) Exotic Muscaridae (Diptera)–XXXI. Annals and Magazine of Natural History 7: 185–200. https://doi.org/10.1080/00222933108673295

Malloch JR (1935) Diptera Calyptratae chiefly from Malaya and North Borneo. Journal of the federated Malay States Museums 17: 646–685.

Malloch JR (1936) Notes on Australian Diptera – XXXV. Proceedings of the Linnean Society New South Wales 61: 10–26.

Marshall SA (2020) Oviposition behaviour of a native New Zealand *Pollenia* (Polleniidae). Fly Times 64: 42–43.

Mawlood NA, Abdul-Rassoul MS (2009) A new species in the genus *Pollenia* Rob. -Desvoidy, 1830 (Diptera Calliphoridae). Bulletin of the Iraq Natural History Museum 10: 59–65.

Meigen JW (1826) Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten 4: xii + 1–412. Hamm.

Meigen JW (1838) Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten 7: xii + 1–434. Hamm.

Mercier L (1930) Variations de certaine pièces de l'armature génitale mâle de *Pollenia rudis* F. (Diptères Calliphorinae); importance de cette variation pour la notion d'espèce chez les Myodairs supérieurs. Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences, Paris 190: 320–322.

O'Hara JE, Cerretti P, Pape T, Evenhuis NL (2011) Nomenclatural studies toward a world list of Diptera genus-group names. Part II: Camillo Rondani. Zootaxa 3141: 1–268. https://doi.org/10.11646/zootaxa.3141.1.1

Pandellé L (1896) Études sur les Muscides de France. II^{e} partie. Revue d'Entomologie, Caen 15: 109–156.

Pape T (1987) A new Afrotropical species of *Phyto* Robineau-Desvoidy (Diptera: Rhinophoridae). Journal of the Entomological Society of southern Africa 50: 375–381.

Pape T (1997) Two new species of the *Phyto carinata* species-group (Diptera: Rhinophoridae). Annals of the Natal Museum 38: 159–168.

Pape T, Beuk P, Pont AC, Shatalkin AI, Ozerov AL, Woźnica AJ, Merz B, Bystrowski C, Raper C, Bergström C, Kehlmaier C, Clements DK, Greathead D, Kameneva EP, Nartshuk E, Petersen FT, Weber G, Bächli G, Geller-Grimm F, Van de Weyer G, Tschorsnig H-P, de Jong H, van Zuijlen J-W, Vaňhara J, Roháček J, Ziegler J, Majer J, Hůrka K, Holston K, Rognes K, Greve-Jensen L, Munari L, de Meyer M, Pollet M, Speight MCD, Ebejer MJ, Martinez M, Carles-Tolrá M, Földvári M, Chvála M, Barták M, Evenhuis NL, Chandler PJ, Cerretti P, Meier R, Rozkosny R, Prescher S, Gaimari SD, Zatwarnicki T, Zeegers T, Dikow T, Korneyev VA, Richter VA, Michelsen V, Tanasijtshuk VN, Mathis WN, Hubenov Z, de Jong Y (2015) Fauna Europaea: Diptera – Brachycera. Biodiversity Data Journal 3: e4187. https://doi.org/10.3897/BDJ.3.e4187

Peris SV, González-Mora D (2004) Clave de identificación para los géneros de Calliphoridae del Mundo. Subfamilias con vena remigium desnuda y creación de una nueva subfamilia. Boletín de la Real Sociedad Española de Historia Natural, Sección Biológica 99: 1–4.

Pont AC (1980) 90. Calliphoridae. In: Crosskey RW (Ed.) Catalogue of the Diptera of the Afrotropical Region. British Museum (Natural History), London, 779–800.

Portschinsky JA (1881) Diptera europaea et asiatica nova aut minus cognita. Pars I^{ma}. Horae Societas entomologica Rossica 16: 136–145.

Robineau-Desvoidy J-B (1830) Essai sur les Myodaires. Mémoires présentés par divers savants à l'Académie Royale des Sciences de l'Institut de France, Sciences Mathémathiques et Physiques 2: 1–813.

Robineau-Desvoidy J-B (1863) Histoire naturelle des diptères des environs de Paris. Tome second. Masson et Fils, Paris, 920 pp.

Rognes K (1985) A check-list of Norwegian blow-flies (Dipt., Calliphoridae). Fauna norvegica, Serie B 32: 89–93.

Rognes K (1987a) A new species in the *intermedia* group and a new synonymy in the genus *Pollenia* Robineau-Desvoidy, 1830 (Diptera, Calliphoridae). Systematic Entomology 12: 381–388. https://doi.org/10.1111/j.1365-3113.1987.tb00208.x

Rognes K (1987b) The taxonomy of the *Pollenia rudis* species group in the Holarctic Region. Systematic Entomology 12: 475–502. https://doi.org/10.1111/j.1365-3113.1987.tb00219.x

Rognes K (1988) The taxonomy and phylogenetic relationships of the *Pollenia semicinerea* species-group (Diptera: Calliphoridae). Systematic Entomology 13: 315–345. https://doi.org/10.1111/j.1365-3113.1988.tb00245.x

Rognes K (1991a) Blowflies (Diptera, Calliphoridae) of Fennoscandia and Denmark. Fauna Entomologica Scandinavica, Vol. 24. Brill, Leiden, 272 pp.

Rognes K (1991b) Revision of the cluster-flies of the *Pollenia viatica* species-group (Diptera: Calliphoridae). Systematic Entomology 16: 439–498. https://doi.org/10.1111/j.1365-3113.1991.tb00678.x

Rognes K (1991c) Revision of the species of *Pollenia* Robineau-Desvoidy described by Camillo Rondani. Entomologica scandinavica 22: 365–367. https://doi.org/10.1163/187631291X00174

Rognes K (1992) Revision of the cluster-flies of the *Pollenia vagabunda* species-group (Diptera, Calliphoridae). Entomologica scandinavica 23: 95–114. https://doi.org/10.1163/187631292X00056

Rognes K (1998) Calliphoridae. In: Papp L, Darvas B (Eds) Manual of Palaearctic Diptera. Vol. 3. Science Herald, Budapest 28, 617–648.

Rognes K (2010) *Alvamaja chlorometallica* gen. nov., sp. nov. from Europe – the first metallic Rhinophoridae (Diptera). Tijdschrift voor Entomologie 153: 3–13. https://doi.org/10.1163/22119434-900000284

Rognes K (2011) A review of the monophyly and composition of the Bengaliinae with the description of a new genus and species, and new evidence for the presence of Melanomyinae in the Afrotropical Region (Diptera, Calliphoridae). Zootaxa 2964: 1–60. https://doi.org/10.11646/zootaxa.2964.1.1

Rognes K (2016) A new species of *Pollenia* Robineau-Desvoidy, 1830 from Jordan (Diptera, Calliphoridae, Polleniinae). Zootaxa 4067: 569–576. https://doi.org/10.11646/zootaxa.4067.5.3

Rognes K (2019) The Calliphoridae (Diptera) of Armenia. Zootaxa 4576: 375–391. https://doi.org/10.11646/zootaxa.4576.2.11

Rognes K, Baz A (2008) A new species in the *Pollenia viatica* species-group from Sierra de Guadarrama, Spain (Diptera: Calliphoridae). Studia dipterologica 14: 389–395.

Rohdendorf BB (1926) Morphologisches Studium an äusseren Genitalorganen der Calliphorinen (Diptera). Russkii zoologicheskii zhurnal 6: 83–128. [In Russian with German summary.]

Rohdendorf BB (1928) Calliphorinen-Studien II (Dipt.). Entomologischen Mitteilungen 17: 336–338.

Rondani C (1856) Dipterologiae italicae prodromus (Vol. I). Genera italica ordinis dipterorum ordinatim disposita et distincta et in familias et stirpes aggregata. Stocchi A, Parmae [= Parma], 226 + [2] pp. https://doi.org/10.5962/bhl.title.8160

Rondani C (1862) Dipterologiae italicae prodromus (Vol. V). Species italicae ordinis dipterorum in genera characteribus definita, ordinatim collectae, methodo analitica distinctae, et novis vel minus cognitis descriptis. Pars quarta. Muscidae, Phasiinae–Dexinae–Muscinae–Stomoxidinae. Grazioli P, Parmae [= Parma], 239 pp.

Rondani C (1868) Diptera italica non vel minus cognita descripta vel annotata observationibus nonnullis additis. Fasc. III. Atti della Società Italiana di Scienze Naturali 11: 21–54.

Roskov Y, Ower G, Orrell T, Nicolson D, Bailly N, Kirk PM, Bourgoin T, DeWalt RE, Decock W, Nieukerken E van, Penev L (2019) Species 2000 & ITIS Catalogue of Life, [2020-01-10] Beta. Species 2000: Naturalis, Leiden, the Netherlands. ISSN 2405-8858. [Digital resource at www.catalogueoflife.org/col]

Schmitz PH, Villeneuve J (1932) Contribution à l'étude de le faune népenthicole. Naturhistorisch Maandblad 2: 116–117.

Schrank F von P (1803) Favna Boica. Durchgedachte Geschichte der in Baiern einheimischen und zahmen Thiere (Vol. 3), Pt. 1. Krull, Landshut, 372 pp.

Schumann H (1986) Family Calliphoridae. In: Soós Á, Papp L (Eds) Catalogue of the Palaearctic Diptera Calliphoridae-Sarcophagidae, 12, 11–58.

Scopoli IA (1763) Entomologia carniolica exhibens insecta carnioliae indigena et distributa in ordines, genera, species, varietates. Methodo Linnæana. Vindobonae [= Vienna], Trattner, [30] + 420 pp. https://doi.org/10.5962/bhl.title.119976

Séguy E (1928) Étude sur le *Pollenia Hasei*. Zeitschrift für Angewandte Entomologie 14: 369–375. https://doi.org/10.1111/j.1439-0418.1929.tb00082.x

Séguy E (1930) Contribution à l'étude des Diptères du Maroc. Mémoires de la Société des Sciences Naturelles du Maroc 24: 1–207.

Séguy E (1934) Diptères de Chine de la collection de M. J. Hervé-Bazin. Encyclopédie entomologique, Série B, II, Diptères 7: 1–28.

Séguy E (1953) Diptères du Maroc. Encyclopédie entomologique, Série B, II, Diptères 11: 77–92.

Senior-White RA (1923) Notes on Indian Muscidæ. Memoirs of the Department of Agriculture in India 8: 35–52.

Senior-White RA, Aubertin D, Smart J (1940) The fauna of British India, including the remainder of the Oriental Region. Diptera (Vol. VI). Calliphoridæ. Taylor and Francis, London, 288 pp.

Shannon RC (1926) Synopsis of the American Calliphoridae (Diptera). Proceedings of the Entomological Society of Washington 28: 115–139.

Shewell G (1987) 106 Calliphoridae. In: McAlpine JF (Ed.) Manual of Nearctic Diptera (Vol. 2). Research Branch, Agriculture Canada, Monograph 28, 1133–1145.

Sidhu IS, Gupta R, Singh D (2018) *Morinia argenticincta*, An only fly species of *Morinia* known from the Oriental region (Diptera: Calliphoridae). Bionotes 20: 22–23.

Singh B, Wells JD (2013) Molecular systematics of the Calliphoridae (Diptera: Oestroidea): evidence from one mitochondrial and three nuclear genes. Journal of Medical Entomology 50: 15–23. https://doi.org/10.1603/ME11288

Stireman JO III, Cerretti P, O'Hara JE, Blaschke JD, Moulton JK (2019) Molecular phylogeny and evolution of world Tachinidae (Diptera). Molecular Phylogenetics and Evolution 139: 106358. https://doi.org/10.1016/j.ympev.2018.12.002

Szpila K (2003) First instar larvae of nine West-Palaearctic species of *Pollenia* Robineau-Desvoidy, 1830 (Diptera: Calliphoridae). Entomologica fennica 14: 193–210. https://doi.org/10.33338/ef.84188

Tawfik MFS, El-Husseini MM (1971) Life-history of *Pollenia dasypoda* Portochisky [sic], a parasite of the earth worm *Allolobophora caliginosa* (Sav). Bulletin de la Société entomologique d'Égypte 55: 275–287.

Townsend CHT (1916) Designations of muscoid genotypes, with new genera and species. Insecutor Inscitiae Menstruus 4: 4–12.

Townsend CHT (1917) Indian flies of the subfamily Rhiniinae. Records of the Indian Museum 13: 185–202. https://doi.org/10.5962/bhl.part.5859

Townsend CHT (1919) New genera and species of muscoid flies. Proceedings of the United States National Museum 56: 541–592. https://doi.org/10.5479/si.00963801.2301.541

Villeneuve J (1911a) Dipterologische Sammelreise nach Korsika (Dipt.) ausgeführt im Mai und Juni 1907 von Th. Becker, A. Kuntze, J. Schnabl und J. Villeneuve (Schluss). Tachinidae. Deutsche Entomologische Zeitschrift 911: 117–130. https://doi.org/10.1002/mmnd.48019110203

Villeneuve J (1911b) Diptères nouveaux recueillis en Syrie par M. Henri Gadeau de Kerville et décrits par le Dr. Joseph Villeneuve. Bulletin des Amis des Sciences Naturelles de Rouen 1911: 40–54.

Villeneuve J (1927) Myodaires supérieurs nouvaux de l'île de Formose. Revue zoologique africaine 15: 387–397.

Villeneuve J (1933a) Descriptions de Myodaires superieurs du Nord Africain. Bulletin de la Société entomologique de France 37 (1932): 284–286.

Villeneuve J (1933b) Myodaires supérieurs asiatiques nouvaux. Bulletins et Annales de la Société Royale d' Entomologie de Belgique 73: 195–199.

Villeneuve J (1936) Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas, unter Leitung von Dr. Sven Hedin und Prof. Sü Ping-chang. Insekten gesammelt vom schwedischen Arzt der Expedition Dr. David Hummel 1927–1930. 52. Diptera 16. Muscidae. Arkiv för Zoologi 27 A: 1–13.

Villers C de (1789) Caroli Linnaei entomologia, faunae suecicae descriptionibus aucta 4. Lugduni [= Lyon], 556 pp.

Wainwright CJ (1940) The British Tachinidae (Diptera): Second Supplement. Transactions of the Royal Entomological Society, London 90: 411–448. https://doi.org/10.1111/j.1365-2311.1940.tb01028.x

Walker F (1861) Catalogue of the dipterous insects collected at Dorey New Guinea, by Mr. A.R. Wallace with descriptions of new species. Journal of the Proceedings of the Linnean Society of London, Zoology 5: 229–254. https://doi.org/10.1111/j.1096-3642.1861.tb02102.x

Whitworth T (2006) Keys to the genera and species of blow flies (Diptera: Calliphoridae) of America north of Mexico. Proceedings of the Entomological Society of Washington 108(3): 689–725.

Williston SW (1893) List of Diptera of the Death Valley Expedition. In: Riley CV (Ed.) The Death Valley Expedition. A biological survey of parts of California, Nevada, Arizona, and Utah. Part II. 4. Report on a small collection of insects made during the Death Valley Expedition. North American Fauna 7: 235–268. https://doi.org/10.3996/nafa.7.0005

Winkler IS, Blaschke JD, Davis D, Stireman JO III, O'Hara JE, Cerretti P, Moulton JK (2015) Explosive radiation or uninformative genes? Origin and early diversification of tachinid flies (Diptera: Tachinidae). Molecular Phylogenetics and Evolution 88: 38–54. https://doi.org/10.1016/j.ympev.2015.03.021

Yahnke W, George JA (1972) Rearing and immature stages of the cluster fly (*Pollenia rudis*) (Diptera: Calliphoridae) in Ontario. The Canadian entomologist 104: 567–576. https://doi.org/10.4039/Ent104567-4

Zetterstedt JW (1845) Diptera scandinaviae disposita et descripta. Ex officina lundbergiana, Lundae [= Lund], 4, 1281–1738.

Zumpt F (1956) 64i. Calliphorinae. In: Lindner E (Ed.) Die Fliegen der Palaearktischen Region 11 [Lieferungen 190, 191, 193]. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart, 140 pp.