



<http://dx.doi.org/10.11646/zootaxa.3873.1.6>

<http://zoobank.org/urn:lsid:zoobank.org:pub:66DDFEA9-E1CE-43C1-B09F-FE8504898312>

## A review of genus-group names in Diptera (Insecta) that J.C. Fabricius “borrowed” from other dipterists and proposed as new in his systematic works from 1775 to 1805

VERNER MICHELSEN<sup>1</sup> & JAMES E. O’HARA<sup>2</sup>

<sup>1</sup>Zoological Museum, Natural History Museum of Denmark, University of Copenhagen, Denmark. E-mail: vmichelsen@snm.ku.dk

<sup>2</sup>Canadian National Collection of Insects, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, Ontario, Canada, K1A 0C6. E-mail: james.ohara@agr.gc.ca

### Abstract

It is shown that a total of eight pre-existing genus-group names in Diptera were “borrowed” and deliberately given new identities in the systematic works of J.C. Fabricius: *Bibio* Fabricius, 1775, *Ceria* Fabricius, 1794, *Hirtea* Fabricius, 1798, *Mulio* Fabricius, 1798, *Scatophaga* Fabricius, 1805, *Sicus* Fabricius, 1798, *Thereva* Fabricius, 1798 and *Voluccella* Fabricius, 1794. These names are reviewed from the standpoint that they are nomenclaturally available as *intentional* homonymous proposals of names for new genus-group taxa. New type-species designations are made for *Bibio* Fabricius, *Mulio* Fabricius, and *Scatophaga* Fabricius. *Bibio* Fabricius, 1775 is recognized as a senior synonym of *Thereva* Latreille, 1797, **syn. n.**, but is invalid as it is a junior homonym of *Bibio* Geoffroy, 1762. *Scatophaga* Fabricius, 1805 is recognized as a junior synonym of *Psila* Meigen, 1803, **syn. n.** The nominal species *Musca suilla* Fabricius, 1794 has been misinterpreted as a species of *Scathophaga* Meigen, 1803 by subsequent authors. *Scathophaga spurca* Meigen, 1826 is revived as the valid name for *Scathophaga suilla* auct. nec (Fabricius, 1794), **stat. rev.** A lectotype is designated for *Musca suilla* Fabricius and it is shown to belong to the scathophagid *Norellisoma spinimanum* (Fallén, 1819), **syn. n.** In order to maintain stability of nomenclature and prevailing usage, reversal of precedence is invoked to declare *Cordylura spinimana* Fallén, 1819 as a **nomen protectum** and *Musca suilla* Fabricius, 1794 as a **nomen oblitum**.

**Key words:** Nomenclature, taxonomy, Bibionidae, Bombyliidae, Psilidae, Scathophagidae, Syrphidae, Tachinidae, Ther-evidae, Xylophagidae

### Introduction

Johann Christian Fabricius (1745–1808), acknowledged for his pioneering early post-Linnaean classification of insects, had the strange habit of occasionally proposing new genera in Diptera (and probably other insects) with names already published by other authors for entirely different groups of Diptera. He did so openly and intentionally, as he often cited the earlier usage of such names under the appropriate genus in his own classification. Even if this habit appears strange and confusing today, we should keep in mind that Fabricius worked at a time without any constraints, in terms of Code regulations, such as the Principles of Priority and Homonymy. Opinions have been and still are dividing dipterists, whether these names should be formally dismissed as misidentifications (e.g., Holston *et al.* 2003) or treated as separate proposals as was clearly intended by Fabricius himself (e.g., Michelsen 2004). As these names satisfy the criteria of availability, i.e., the provisions of Articles 10 to 20 in the *International Code of Zoological Nomenclature* (International Commission on Zoological Nomenclature 1999), hereafter simply the *Code*, there is no formal hindrance to treating them as proper genus-group names with their own authorship and date.

It is widely accepted that *unintentional* homonymous proposals of names for new taxa make such names nomenclaturally available with their own authorship and date. Fabricius’s generic names dealt with in the present paper may be categorized as *intentional* homonymous proposals of names for new genus-group taxa. Michelsen (2004) gave several reasons for preferably treating these names as nomenclaturally available with their own

authorship and date. Firstly, in the spirit of the *Code* (p. xix), one should refrain from ‘infringing upon taxonomic judgment, which must not be made subject to regulation or restraint.’ In other words, one should preferably not set aside Fabricius’s clear intentions by dismissal of his alternative usages of certain genus-group names. Secondly, because of the Principle of Homonymy, this is the safest and simplest way to promote nomenclatural stability. Finally, in treating Fabricius’s usage of these names as nominal taxa in their own right rather than misidentifications we do not obscure the intentions and results of the first major post-Linnaean proposal of a generic classification of Diptera.

The idea that Fabricius’s altered usages of generic names in Diptera are preferably to be treated as separate proposals rather than misidentifications is implicit in several decisions of the International Commission on Zoological Nomenclature (1957: 88; 1997: 133; 2006: 72), where some of these names are categorized as homonymous proposals. Commission member Dr M. Alonzo-Zarazaga stated (2006: 73) that ‘... the problem of Fabrician altered usages of generic names proposed by other authors under the principle of his authority (the ‘Prince of Entomology’) should be addressed by the Commission once and for all. Considering them available junior homonyms could be the best procedure, in my opinion’.

The alternative proposals of genus-group names in Diptera found in the systematic works of Fabricius are treated alphabetically in the following catalogue. It is further documented that the species-group name *Musca suilla* Fabricius, 1794 (Scathophagidae) has been misinterpreted by all subsequent authors. The nomenclatural implications are settled by invoking reversal of precedence for the names *Musca suilla* Fabricius, 1794 and *Cordylura spinimana* Fallén, 1819.

## Catalogue

### ***Bibio* Fabricius, 1775: [31], 756.**

**Type species:** *Musca plebeja* Linnaeus, 1758 (the 4th of 14 originally included species), by **present designation**. Junior homonym of *Bibio* Geoffroy, 1762. Objective synonym of *Thereva* Latreille, 1797 (see below), **syn. n.** (Therevidae).

**Remarks.** The name *Bibio* Geoffroy, 1762, originally proposed mainly for species of Bibionidae, was cited under *Tipula hortulana* Linnaeus by Fabricius (1775: 754, 1794: 248). In the same work Fabricius (1775) made his own proposal of the name *Bibio* for 14 species belonging to the families Bombyliidae (8), Therevidae (4), Mydidae (1) and Stratiomyidae (1). Fabricius (1805) later refined his concept of *Bibio* to consist of 10 Therevidae and 1 species each of the families Athericidae, Phoridae and Syrphidae. Fabricius’s usage of *Bibio* for therevid flies became widely accepted in the pre-1815 literature (J.W. Meigen, C.F. Fallén, etc.), but was later replaced by the name *Thereva* Latreille, 1797. The type species of *Thereva* Latreille, 1797 was designated by the International Commission on Zoological Nomenclature (2006: 72) as *Musca plebeja* Linnaeus, 1758 under their Plenary Powers. The present fixation of a type species for *Bibio* Fabricius, 1775 places at long last this name into formal (and objective) synonymy with *Thereva* Latreille. Incidentally, the International Commission on Zoological Nomenclature (1957: 88) placed *Bibio* Fabricius, 1775 on the *Official Index of Rejected and Invalid Generic Names in Zoology* (Name No. 841).

### ***Ceria* Fabricius, 1794: 277.**

**Type species:** *Ceria clavicornis* Weber, 1795 [= *Musca conopsoides* Linnaeus, 1758], by subsequent monotypy (Weber 1795). Junior homonym of *Ceria* Scopoli, 1763. Replaced by *Ceriana* Rafinesque, 1815, *nomen novum* for *Ceria* Fabricius, 1794 (Syrphidae).

**Remarks.** The name *Ceria* Scopoli, 1763 was originally proposed for two species of Scatopsidae. Fabricius (1794) proposed the name *Ceria* for a species of Syrphidae and his usage of the name became widely accepted in pre-1902 literature (P.A. Latreille, J.W. Meigen, J.W. Zetterstedt, G.H. Verrall, etc.).

A description of the only included species was given by Fabricius (1794), but inadvertently the specific name

[*clavicornis*] was omitted. It first appeared in an index to the four volumes (1792–1794) of Fabricius's *Entomologia systematica emendata et aucta* prepared by Weber (1795). Accordingly, the authorship of *Ceria clavicornis* is correctly attributed to Weber (1795) rather than Fabricius (1794). This interpretation of type fixation of *Ceria* Fabricius, 1794 is the same as that of Sabrosky (1999: 79) except that authorship of *Ceria clavicornis* was attributed in that work to Fabricius, 1795 not Weber, 1795.

### ***Hirtea* Fabricius, 1798: 547, 551.**

**Type species:** *Tipula marci* Linnaeus, 1758 (cited by Fabricius in synonymy with *Tipula hortulana* Linnaeus, 1758, the 2nd of 13 originally included species), by subsequent designation of Zetterstedt (1850: 3368). Junior homonym of *Hirtea* Scopoli, 1763. Junior subjective synonym of *Bibio* Geoffroy, 1762 (type species: *Tipula hortulana* Linnaeus, 1758) (Bibionidae).

**Remarks.** *Hirtea* Scopoli, 1763 was originally proposed for a species of the family Stratiomyidae. Fabricius (1798) made his own proposal of the name *Hirtea* for 13 species belonging to the families Bibionidae (8), Sciaridae (2), Cecidomyiidae (1), Scatopsidae (1) and Therevidae (1). In his final classification, Fabricius (1805) included in *Hirtea* 14 Bibionidae, 1 Sciaridae and 1 Therevidae. Fabricius's usage of the name *Hirtea* for bibionid flies became widely accepted in the pre-1850 literature (J.W. Meigen, G.W.F. Panzer, J.W. Zetterstedt, etc.), but was gradually replaced by the older name *Bibio* Geoffroy, 1762. Incidentally, the International Commission on Zoological Nomenclature (1957: 88) placed *Hirtea* Fabricius, 1798 on the *Official Index of Rejected and Invalid Generic Names in Zoology* (Name No. 840).

### ***Mulio* Fabricius, 1798: 548, 557.**

**Type species:** *Musca bicincta* Linnaeus, 1758 (the 1st of nine originally included species), by **present designation**. Junior homonym of *Mulio* Latreille, 1797. Senior but invalid objective synonym of *Chrysotoxum* Meigen, 1803 (type species: *Musca bicincta* Linnaeus, 1758) (Syrphidae).

**Remarks.** The first usage of the name *Mulio* by Latreille (1797) was for species of the family Bombyliidae. Fabricius (1798) proposed *Mulio* for nine species belonging to the families Syrphidae (7), Psilidae (1) and Sciomyzidae (1), but subsequently (1805) exclusively for 12 species of Syrphidae. Fabricius's usage of *Mulio* received limited acceptance in the early literature (e.g., by C.F. Fallén), probably because Meigen (1803) transferred species recognized in *Mulio* by Fabricius (1798) to two new genera of Syrphidae (*Microdon* Meigen, *Chrysotoxum*) and one new genus of Psilidae (*Loxocera* Meigen).

### ***Scatophaga* Fabricius, 1805: x, 203.**

**Type species:** *Musca fimetaria* Linnaeus, 1761 (the 5th of 31 originally included species), by **present designation**. Junior objective synonym of *Psila* Meigen, 1803 (type species: *Musca fimetaria* Linnaeus, 1761), **syn. n.** (Psilidae).

**Remarks.** *Scathophaga* Meigen, 1803, originally proposed for dung flies (“*Musca merdaria* etc. Fabricius”) of the family Scathophagidae, was cited by Fabricius (1805: 306, misspelled as *Scatophaga*) under *Musca merdaria* Fabricius, 1794 (= *Musca stercoraria* Linnaeus, 1758). Other species of the current genus *Scathophaga* Meigen (e.g., *scybalaria* Linnaeus, 1758 and *lutaria* Fabricius, 1794) were also consistently classified in *Musca* Linnaeus, 1758 by Fabricius (1805). However, Fabricius (1805: 203–210) proposed a different usage of the name *Scatophaga* for 31 species of mostly testaceous acalyptrate flies with a short, porrect antennal postpedicel. Most of the included species belong to the families Sciomyzidae, Lauxaniidae and Ulidiidae. Species of *Scathophaga* Meigen are different in having antennae with a longer, deflexed postpedicel. Only a single species (*Musca suilla* Fabricius, 1794) among the 31 species originally included in *Scatophaga* Fabricius belongs to the Scathophagidae. The identity of that nominal species is treated below.

The different usage of the name *Scatophaga* introduced by Fabricius (1805), which embraces a poorly defined

assemblage of mostly acalyptrate flies, has consistently been overlooked (or ignored?) by dipterists up to the present. Adding to the confusion, Meigen (1826) adopted Fabricius's spelling "*Scatophaga*" for his own genus of dung flies without, of course, adopting Fabricius's usage of the name. This should be categorized as an "incorrect subsequent spelling" of *Scathophaga* Meigen, even though it may well have been done deliberately.

The present fixation of a type species refers *Scatophaga* Fabricius to the Psilidae. Note that *Scatophaga* Fabricius, 1805 and *Scathophaga* Meigen, 1803 are not homonyms according to the *Code* Article 56.2 (one letter difference).

### ***Sicus* Fabricius, 1798: 547, 554.**

**Type species:** *Musca ferruginea* Scopoli, 1763, as a consequence of a ruling by the International Commission on Zoological Nomenclature (1997: 133). By the same ruling, *Sicus* Fabricius, 1798 was placed on the *Official Index of Rejected and Invalid Generic Names in Zoology* and declared a junior objective synonym of *Coenomyia* Latreille, 1797 (Xylophagidae). Junior homonym of *Sicus* Scopoli, 1763 and *Sicus* Latreille, 1797.

**Remarks.** The first usage of the name *Sicus* was by Scopoli (1763) for species of Conopidae, the second usage was by Latreille (1797) for a species of Hybotidae, and the third usage was by Fabricius (1798) for five nominal species of Xylophagidae. These five nominal species of *Sicus* Fabricius are all, with varying confidence, regarded as junior synonyms of one variable species, *Coenomyia ferruginea* (Scopoli, 1763). Although one of Fabricius's species was named *Sicus ferruginea* and has subsequently been established as a synonym of *Musca ferruginea* Scopoli, 1763, there was no indication by Fabricius that his *ferruginea* was used in the sense of *ferruginea* Scopoli. We contend that the Fabricius name was a separate proposal and should have been interpreted by subsequent authors as *ferruginea* Fabricius, 1798, not as *ferruginea* Scopoli, 1763. Under such an interpretation, Sabrosky (1961: 228) could not have designated *Musca ferruginea* Scopoli as the type species of *Sicus* Fabricius. We will not elaborate on the nomenclatural ramifications this would have had on the type species of *Coenomyia* Latreille, 1797 and *Sicus* Fabricius, 1798 because the International Commission on Zoological Nomenclature (1997: 133) ruled that *Sicus* Fabricius, 1798 is a junior objective synonym of *Coenomyia* Latreille, 1797, thereby effectively upholding the type species of *Sicus* Fabricius as *Musca ferruginea* Scopoli, 1763. The name *Sicus* Fabricius, 1798 was placed on the *Official Index of Rejected and Invalid Generic Names in Zoology* by the same ruling and according to *Code* Article 80.7.1: "A work, name or nomenclatural act entered in an *Official Index* has the status attributed to it in the relevant ruling(s)."

### ***Thereva* Fabricius, 1798: 548, 560.**

**Type species:** *Conops subcoleopratus* Linnaeus, 1767 (the 1st of six included species), by designation of Herting (1984: 168). Junior homonym of *Thereva* Latreille, 1797. Senior but invalid objective synonym of *Phasia* Latreille, 1804 (type species: *Conops subcoleopratus* Linnaeus, 1767) (Tachinidae). The International Commission on Zoological Nomenclature (2006) placed the name *Thereva* Fabricius, 1798 on the *Official Index of Rejected and Invalid Generic Names in Zoology* following an application by Holston *et al.* (2003).

**Remarks.** The first usage of the name *Thereva* by Latreille (1797) was for species of Therevidae and thus equals the earlier usage of *Bibio* by Fabricius (1775). Fabricius (1798) first proposed the name *Thereva* for six species of Tachinidae, and subsequently (Fabricius, 1805) for 13 Tachinidae and one Syrphidae. Fabricius's usage of *Thereva* for species of phasiine Tachinidae became widely accepted in the pre-1820 literature (J.W. Meigen, G.W.F. Panzer, C.F. Fallén, etc.), but his name was replaced later by *Phasia* Latreille, 1804.

### ***Voluccella* Fabricius, 1794: 412.**

**Type species:** *Voluccella florea* Fabricius, 1794 (the 1st of three originally included species), automatic as the result of Latreille's (1810) designation of *Voluccella florea* Fabricius as type species for *Usia* Latreille, 1802, an unnecessary new replacement name for *Voluccella* Fabricius, 1794. *Voluccella* Fabricius, 1794 was placed on the

*Official Index of Rejected and Invalid Generic Names in Zoology* (Name No. 844) by the International Commission on Zoological Nomenclature (1957: 88) and is therefore a senior but invalid synonym of *Usia* Latreille (Bombyliidae).

**Remarks.** The name *Volucella* Geoffroy, 1762, as originally proposed for species of Syrphidae, was cited under *Musca pellucens* Linnaeus, 1758 by Fabricius (1775: 773, misspelled as *Voluccella*; 1781: 435, as *Voluccella*), and under *Syrphus pellucens* (Linnaeus, 1758) by Fabricius (1794: 279, as *Volucella*; 1805: 224, as *Voluccella*).

Fabricius (1794: 412) deliberately proposed a different usage of the name *Voluccella* for three species of the family Bombyliidae, and this usage qualifies as a new available name. Two original spellings of the name were given in Fabricius (1794): *Voluccella* (p. 412) and *Volvicella* (p. [5] of the unnumbered index). Acting as First Reviser, Fabricius (1805) selected *Voluccella* as the correct original spelling (*Code Article 24.2.4*). Fabricius (1805: 114–116) included six species of the Bombyliidae in his *Voluccella*. Meigen (1804) initially adopted the usage of *Voluccella* proposed by Fabricius, but the name was subsequently replaced by *Usia* Latreille.

*Volucella* Geoffroy and *Voluccella* Fabricius are not homonyms because the names differ by one letter (*Code Article 56.2*). Evenhuis & Greathead (2003: 10–11) understood this and believed therefore that the widely used generic name *Usia* Latreille, 1802 in Bombyliidae, originally proposed as a replacement name for *Voluccella* Fabricius, 1794, was threatened as a junior synonym. These authors were aware that *Voluccella* Fabricius was invalid as the result of a ruling by the International Commission on Zoological Nomenclature (1957: 88) (see Evenhuis 1991: 77) but were concerned that this ruling could be challenged and potentially overturned (as allowed under *Code Article 80.4*) because it was based on the misinterpretation of *Voluccella* as a misspelling of *Volucella* Geoffroy (N. Evenhuis, pers. comm.). To permanently fix the priority of *Usia* Latreille, 1802 over *Voluccella* Fabricius, 1794, Evenhuis & Greathead (2003) declared the former as a *nomen protectum* and the latter as a *nomen oblitum*.

## The identity of *Musca suilla* Fabricius, 1794

### *Musca suilla* Fabricius, 1794: 343.

**Type material** (Figs. 1–3). Fabricius (1794) stated only the origin ‘in Germaniae’ [= in Germany], and collector ‘Smidt’ [= A. L. Smidt?] of the type material of *Musca suilla*. Accordingly, the only specimen (1♀) found in Coll. Fabricius [= ‘Kiel’ of Zimsen 1964: 475] of the Natural History Museum of Denmark, Copenhagen, may be regarded as a syntype. It is here designated as **lectotype** and labelled as such, in order to fix the identity of the name *suilla*. Only the wings, posterior part of the mesonotum and distal part of the coxa + trochanter + basal part of femur of the left hind leg remain of the lectotype, attached to a short pin with a Fabrician label reading ‘suilla’.

**Identity.** *Musca suilla* Fabricius, 1794 is not a species of *Scathophaga* Meigen, 1803 as first surmised by Fallén’s (1819) placement of the species in his equivalent genus *Scatomyza* Fallén, 1810. Accordingly, *Musca suilla* is not a senior synonym of *Scathophaga spurca* Meigen, 1826 (published as “*Scatophaga*” *spurca*) as first proposed by Becker (1894: 167) and accepted by subsequent authors (e.g., Thompson & Pont 1994). The colour, the pale setae on the hind leg fragment, the scutellum with only one pair of strong setae (two pairs in relevant species of *Scathophaga*!), the wing venation including a costal vein with humeral and subcostal breaks and uniform, fine setulae leave no doubt that the remains of the lectotype (Figs. 1, 2) belong to a common European scathophagid originally described as *Cordylura spinimana* Fallén, 1819 and currently known as *Norellisoma spinimanum* (Fallén), **syn. n.** The presence of a black seta among the pale setae on the distal part of the hind coxa further indicates that the lectotype remains belong to a female.

The nominal species *Musca suilla* Fabricius, 1794 has not previously been synonymized with *Norellisoma spinimanum* (Fallén, 1819), but has since 1894 consistently been misinterpreted as a species of *Scathophaga* Meigen. The junior synonym *Cordylura spinimana* Fallén, 1819 has been used as valid as either *Norellia* (*Norellisoma*) *spinimana* (Fallén) or *Norellisoma spinimanum* (Fallén) in more than 25 works by at least 10 authors in the last 50 years and encompassing a span of not less than 10 years as documented in Appendix 1. We hereby invoke, in the interests of nomenclatural stability, reversal of precedence (*Code Article 23.9*), and declare *Musca suilla* Fabricius, 1794 as a **nomen oblitum** and *Cordylura spinimana* Fallén, 1819 as a **nomen protectum**.

As discussed in the above catalogue, Fabricius (1805) proposed the name *Scatophaga* for species of Sciomyzidae and similar flies with a short and porrect antennal postpedicel. Meigen (1803) proposed the name *Scathophaga* [misspelled later by Meigen (1826) as *Scatophaga*], for scathophagid dung flies: i.e., hairy species with a longer and deflexed postpedicel. Fabricius consistently classified species of scathophagid dung flies in the genus *Musca* Linnaeus.



**FIGURES 1–3.** *Musca suilla* Fabricius, 1794: lectotype ♀. **1.** Remains of mesonotum, left distal part of coxa + trochanter + basal part of femur and basal half of wings in lateral view. **2.** Remains of mesonotum and wings in dorsal view. **3.** Original label in Fabricius's hand reading "suilla". Scale bars (1, 2) = 1 mm.

**The nomenclatural summary of this situation is as follows:**

Family SCATHOPHAGIDAE

Genus *Norellisoma* Wahlgren, 1917

*Norellisoma spinimanum* (Fallén, 1819)

*Musca suilla* Fabricius, 1794: 343, **nomen oblitum, syn. n.**

*Scathophaga suilla* (Fabricius); Fabricius (1805: 206).

*Cordylura spinimana* Fallén, 1819: 7, **nomen protectum.**

Genus *Scathophaga* Meigen, 1803

*Scathophaga spurca* Meigen, 1826 (*Scatophaga*), **stat. rev.**

*Scatomyza suilla* (Fabricius); Fallén (1819: 5). Misidentification.

*Scatophaga spurca* Meigen, 1826: 250.  
*Scatophaga suilla* (Fabricius); Becker (1894: 167). Misidentification.

## Acknowledgements

It is a pleasure to thank Neal Evenhuis (J. Linsley Gressitt Center for Entomological Research, Bishop Museum, Honolulu) for his encouragement and helpful advice on various aspects of this paper. We also thank Thomas Pape (Natural History Museum of Denmark, Copenhagen) and Chris Thompson (formerly Systematic Entomology Laboratory, USDA, Washington, DC) for sharing their views on intricate nomenclatural issues and for valuable information. Finally our thanks go to the reviewers Knut Rognes (Oslo) and an anonymous reviewer for their constructive criticism and suggestions.

## References

- Becker, T. (1894) Dipterologische Studien. I. Scatomyzidae. *Berliner Entomologische Zeitschrift*, 39, 77–196, pls. 4–9.
- Evenhuis, N.L. (1991) World catalog of genus-group names of bee flies (Diptera: Bombyliidae). *Bishop Museum Bulletins in Entomology*, 5, vii + 105 pp.
- Evenhuis, N.L. & Greathead, D.J. (2003) World catalog of bee flies (Diptera: Bombyliidae): Corrigenda and addenda. *Zootaxa*, 300, 1–64.
- Fabricius, J.C. (1775) *Systema entomologiae, sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. Kortii, Flensbvirgi et Lipsiae [= Flensburg and Leipzig], [30] + 832 pp.  
<http://dx.doi.org/10.5962/bhl.title.36510>
- Fabricius, J.C. (1781) *Species insectorum exhibentes eorum differentias specificas, synonyma auctorum, loca natalia, metamorphosin adiectis observationibus, descriptionibus*. Tom. II. C.E. Bohnii, Hamburgi et Kilonii [= Hamburg and Kiel], 517 pp.
- Fabricius, J.C. (1794) *Entomologia systematica emendata et aucta. Secundum classes, ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus*. Tom. IV. C.G. Proft, Fil. et Soc., Hafniae [= Copenhagen], [6] + 472 + [5] pp.
- Fabricius, J.C. (1798) *Supplementum entomologiae systematicae*. Proft et Storch, Hafniae [= Copenhagen], [2] + 572 pp.
- Fabricius, J.C. (1805) *Systema antliatorum secundum ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus*. C. Reichard, Brunsvigae [= Brunswick], xiv + 15–372 + [1 (errata)] + 30 pp.
- Fallén, C.F. (1819) *Scatomyzides sveciae*. Berlingianis, Lundae [= Lund], 10 pp.
- Herting, B. (1984) Catalogue of Palearctic Tachinidae (Diptera). *Stuttgarter Beiträge zur Naturkunde*. Serie A (Biologie), 369, 1–228.
- Holston, K.C., Irwin, M.E. & Thompson, F.C. (2003) *Thereva* Latreille, 1797 and *Phasia* Latreille, 1804 (Insecta, Diptera): proposed conservation of usage by designation of *Musca plebeja* Linnaeus, 1758 as the type species of *Thereva*. *Bulletin of Zoological Nomenclature*, 60, 198–202.
- International Commission on Zoological Nomenclature (1957) Opinion 441. Validation under the Plenary Powers of the names for five genera in the Order Diptera (Class Insecta) published in 1762 by Geoffroy (E.L.) in the work entitled “Histoire abrégée des insectes qui se trouvent aux environs de Paris.” (Opinion supplementary to Opinion 228.) *Opinions and Declarations Rendered by the International Commission of Zoological Nomenclature*, 15, 83–120.
- International Commission on Zoological Nomenclature (1997) Opinion 1870. *Sicus* Scopoli, 1763 and *Myopa* Fabricius, 1775 (Insecta, Diptera): conserved by the designation of *Conops ferrugineus* Linnaeus, 1761 and *C. buccatus* Linnaeus, 1758 as the respective type species; and *Coenomyia* Latreille, 1796 placed on the Official List. *Bulletin of Zoological Nomenclature*, 54, 133–135.
- International Commission on Zoological Nomenclature (1999) *International Code of Zoological Nomenclature*. Fourth Edition. International Trust for Zoological Nomenclature, London. xxix + 306 pp.
- International Commission on Zoological Nomenclature (2006) Opinion 2142 (Case 3251). *Thereva* Latreille, 1797 and *Phasia* Latreille, 1804 (Insecta, Diptera): usage conserved by the designation of *Musca plebeja* Linnaeus, 1758 as the type species of *Thereva*. *Bulletin of Zoological Nomenclature*, 63, 72–73.
- Latreille, P.A. (1797) *Précis des caractères génériques des insectes, disposés dans un ordre naturel*. Prévôt, Paris & F. Bourdeaux, Brive, xiv + 201 + [7] pp., 1 map.
- Latreille, P.A. (1810) *Considérations générales sur l'ordre naturel des animaux composant les classes des crustacés, des arachnides, et des insectes; avec un tableau méthodique de leurs genres, disposés en familles*. F. Schoell, Paris, 444 pp.
- Meigen, J.W. (1803) Versuch einer neuen Gattungs-Eintheilung der europäischen zweiflügeligen Insekten. *Magazin für Insektenkunde*, 2, 259–281.
- Meigen, J.W. (1804) *Klassifikation und Beschreibung der europäischen zweiflügeligen Insekten*. (Diptera Linn.). Erster Band.

- K. Reichard, Braunschweig [= Brunswick]. Abt. 1, xxviii + 1–152, pls. 1–8; Abt. 2, vi + 153–314, pls. 9–15.
- Meigen, J.W. (1826) *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. Fünfter Theil. Schulz, Hamm, xii + 412 pp, pls. 42–54.
- Michelsen, V. (2004) Comments on the proposed conservation of usage of *Thereva* Latreille, 1797 (Insecta, Diptera) by designation of *Musca plebeja* Linnaeus, 1758 as the type species of *Thereva*. *Bulletin of Zoological Nomenclature*, 61, 254–255.
- Sabrosky, C.W. (1961) Comments on the report on the names published by Meigen, 1800. *Bulletin of Zoological Nomenclature*, 19, 227–229.
- Sabrosky, C.W. (1999) Family-group names in Diptera. An annotated catalog. *Myia*, 10, 1–360.
- Scopoli, J.A. (1763) *Entomologia Carniolica exhibens insecta Carnioliae indigena et distributa in ordines, genera, species, varietates. Methodo Linnaeana*. I.T. Trattner, Vindobonae [= Vienna], [30] + 420 + [1] pp.
- Thompson, F.C. & Pont, A.C. (1994) Systematic database of *Musca* names (Diptera). A catalog of the names associated with the genus-group name *Musca* Linnaeus, with information on their classification, distribution, and documentation. *Theses zoologicae*, 20 (1993), pp. 1–219 [+ 1–2].
- Weber, F. (1795) *Nomenclator entomologicus*. C. E. Bohn, Chilonii et Hamburgii [= Kiel & Hamburg], 171 pp.
- Zetterstedt, J.W. (1850) *Diptera scandinaviae. Disposita et descripta*. Tom. 9. Officina Lundbergiana, Lundae [= Lund], pp. 3367–3710.
- Zimsen, E. (1964) *The type material of I.C. Fabricius*. Munksgaard, Copenhagen, 656 pp.

## APPENDIX I

List of publications treating *Cordylura spinimana* Fallén, 1819 as a valid species-group name

- Barták, M. & Kubík, Š. (2006) Scathophagidae, pp. 362–365. In: Barták, M. & Kubík, Š. (eds.), *Diptera of the Podyjí National Park and its environs*. Česká zemědělská univerzita v Praze: PowerPrint, Praha 6 – Suchbátolice, 1–100 pp.
- Barták, M. & Roháček, J. (2009) Scathophagidae, pp. 285–288. In: Roháček, J. & Ševčík, J. (eds.), *Diptera of the Pol'ana Protected Landscape Area – Biosphere Reserve (Central Slovakia)*. SNC SR, Administration of the PLA - BR Polana, Zvolen.
- Chandler, P. (1998) Checklists of insects of the British Isles (New series) Part 1: Diptera. *Handbooks for the Identification of British Insects*, 12, xx + 234 pp.
- Delyné Draskovits, Á. (1981) 76. család: Scathophagidae – Töviseslegyek. *Fauna hungarica*, 145 (XV. kötet, Diptera II, 10. füzet), 1–52. Akadémia Nyomda, Budapest. [In Hungarian.]
- Disney, R.H.L. (1976) The pre-adult stages of *Norellisoma spinimanum* (Fallén) (Dipt., Cordyluridae) and a parasitoid (Hym., Pteromalidae) of the same. *Entomologist's Gazette*, 27, 263–267.
- Draber-Moňko, A. (1991) Scathophagidae. In: Razowski, J. (ed.), *Checklist of animals of Poland*, 2, 231–233. Ossolineum Press, Wrocław.
- Gorodkov, K.B. (1970) [Family Scatophagidae (Cordyluridae, Scatomyzidae, Scopeumatidae)]. In: Bei-Bienko, G.Y. (ed.), *Opredelitel' nasekomykh Evropejskoi chasti SSSR*, 5, Diptera, Siphonaptera 2, 440–458. [In Russian.]
- Gorodkov, K.B. (1986) Family Scathophagidae. In: Soós, Á. & Papp, L. (eds.), *Catalogue of Palaearctic Diptera*, 11, 11–41. Hungarian Natural History Museum, Budapest.
- Hackman, W. (1980) A check list of the Finnish Diptera II. Cyclorrhapha. *Notulae entomologicae*, 60, 117–162.
- Hironaga, T. & Suwa, M. (2005) Notes on the genus *Norellisoma* in Japan, with description of a new species (Diptera, Scathophagidae). *Studia dipterologica*, 12, 199–208.
- Jong, H. de (2002) Family Scathophagidae, pp. 334–337. In: Beuk, P.L.T. (ed.), *Checklist of the Diptera of the Netherlands*. KNNV Uitgeverij, Utrecht.
- Jong, H. de (2004) Scathophagidae. In: Pape, T. (ed.), *Diptera Brachycera. Fauna Europaea version 1.1*, <http://www.faunaeur.org>.
- Karpa, A. (2008) Catalogue of Latvian flies (Diptera: Brachycera). *Latvijas Entomologs*, 46, 4–43.
- Merz, B. & Bächli, G. (1998) Scathophagidae. In: Merz, B., Bächli, G., Haenni, J.-P. & Gonseth, Y. (eds.), *Diptera – Checklist. Fauna helvetica*, 1, 311–312.
- Michelsen, V. & Báez, M. (2002) Scathophagidae. In: Carles-Tolrá Hjorth-Andersen, M. (ed.), *Catálogo de los Diptera de España, Portugal y Andorra (Insecta)*. Monografías S.E.A., 8, 222–223.
- Nelson, J.M. & Greve, L. (2002) New species of dung flies (Diptera, Scathophagidae) from Norway with a checklist of the Norwegian Scathophagidae. *Norwegian Journal of Entomology*, 49, 41–47.
- Nelson, J.M. & Šifner, F. (2000) A redescription of *Norellisoma flavicorne* (Meigen, 1826) (Dipt., Scathophagidae), with an account of its biology and notes on other members of the genus. *Entomologist's Monthly Magazine*, 136, 31–35.
- Ozerov, A.L. (2007) On Scathophagidae species (Insecta: Diptera), described by F. Hendel from materials of the Swedish Kamchatka Expedition 1920–1922. *Far Eastern Entomologist*, 174, 5–8.
- Ozerov, A.L. (2009) On the Palaearctic fauna of *Norellisoma* Wahlgrén, 1917 (Diptera: Scathophagidae). *Russian*



*Entomological Journal*, 18, 229–234.

- Papp, L. (2001) Scathophagidae, pp. 381–385. *In*: Papp, L. (ed.), *Checklist of the Diptera of Hungary*. Hungarian Natural History Museum, Budapest.
- Petersen, F.T. (2001) Scathophagidae. *In*: Petersen, F.T. & Meier, R. (eds.), A preliminary list of the Diptera of Denmark. *Steenstrupia*, 26, 216–217.
- Püchel, F. (1999): Scathophagidae. *In*: Schumann, H., Bährmann, R. & Stark, A. (eds.), Checkliste der Dipteren Deutschlands. *Studia dipterologica, Supplement*, 2, 186–187.
- Šifner, F. (2003) The family Scathophagidae (Diptera) of the Czech and Slovak Republics (with notes on selected Palaearctic taxa). *Acta musei nationalis pragrae*, (B) 59, 1–90.
- Šifner, F. (2008) A catalogue of the Scathophagidae (Diptera) of the Palaearctic Region, with notes on their taxonomy and faunistics. *Acta entomologica musei nationalis pragrae*, 48, 111–196.
- Vockeroth, J.R. (1965) Subfamily Scatophaginae, pp. 826–842. *In*: Stone, A., Sabrosky, C.W., Wirth, W.W., Foote, R.H. & Coulson, J.R. (eds.), *A catalog of the Diptera of America north of Mexico*. United States Department of Agriculture. Agriculture Handbook 276. Washington, D.C.