

# A cornucopia for Sciomyzidae (Diptera)

[Ein Füllhorn für Sciomyzidae (Diptera)]

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<b>Abstract</b>	We here present a cornucopia, a proposed new and more useful format for checklists of extant and fossil species of organisms, with the extensively studied Sciomyzidae (Insecta: Diptera) used as an example. The cornucopia is annotated with compressed information on taxonomy, nomenclature, location of primary type specimens, zoogeographic distribution, references to distribution maps, behavioural and phenological groups (the latter groups characterized in the text), DNA sequences, and references to publications on biology and morphology of immature stages, with tabulation of immature stages described and DNA sequences published. Tables list the valid extant species of Sciomyzidae (545) by genus (63) in the major zoogeographic regions of the world, the fossil species, and the numbers of genera and species for which the life cycles are known and immatures described, by zoogeographic region.
<b>Key words</b>	Sciomyzidae, worldwide, taxonomy, checklist, type specimens, distribution, biology, immature stages, behavioural groups, phenological groups, DNA
<b>Zusammenfassung</b>	Vorgestellt wird eine Art „Füllhorn“: ein Vorschlag für ein neues, zweckdienlicheres Format für Checklisten rezenter und fossiler Organismenarten, dargestellt am Beispiel der gut untersuchten Sciomyzidae (Insecta: Diptera). Das „Füllhorn“ enthält zusammenfassende Informationen zur Taxonomie und Nomenklatur, zum Verbleib primären Typenmaterials, zur geografischen Verbreitung, zu Verweisen auf Verbreitungskarten, zu definierten Gruppen aufgrund des Verhaltens und der Phänologie (letztere im Text charakterisiert), DNS-Sequenzen, sowie Literaturverweise zur Biologie und Morphologie der Jugendstadien, einschließlich einer Auflistung der beschriebenen Jugendstadien. Tabellarische Übersichten informieren über das Vorkommen der 545 validen rezenten Arten und 63 Gattungen der Sciomyzidae in den einzelnen zoogeografischen Regionen, über fossile Arten und – gleichfalls spezifiziert für die zoogeografischen Regionen – über die Anzahl der Gattungen und Arten, für die der Lebenszyklus und Jugendstadien beschrieben sind.
<b>Stichwörter</b>	Sciomyzidae, weltweit, Taxonomie, Checkliste, Typusexemplare, Verbreitung, Biologie, Jugendstadien, Verhaltensgruppen, phänologische Gruppen, DNS

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## Introduction

Checklists are indispensable working tools for systematic entomologists and other biologists. We present here a new type of tabular checklist, which we call a cornucopia. This system, in addition to providing traditional taxonomic and nomenclatorial information, compresses other critically important data into a maximally informative and efficient format. It serves as a key to the storehouse of technical literature and expedites the work of researchers and users of biodiversity data. Most importantly, it provides easy access to data and references, knowledge otherwise acquired only by nearly complete command of the literature and extensive visits to museums.

The cornucopia format is neither that of a traditional catalog nor a checklist. With modern scanning equipment, the power of personal digital devices, and the ability to tap into and incorporate resources from the Internet, our basic cornucopia can easily be extended and modified to become

the core of a relational database designed to meet the needs of researchers on other aspects of Sciomyzidae. It also can be used for compiling regional lists, in faunistic studies, etc.; the pertinent species, with associated tabular data, can easily be extracted. The general format will be of value to researchers on any group of organisms.

Our cornucopia concerns the snail-killing fly family Sciomyzidae. It is expanded, with updated taxonomy and nomenclature, from the basic world checklist presented by ROZKOŠNÝ (1995) [SB1208]. Numbered literature references (indicated by “SBxxx”) in the text, in Table 3, and in footnotes to Tables 3 and 4, refer to citations in the “Bibliography of Sciomyzidae” (ScioBiblio) by W. L. MURPHY, L. KNUTSON, J.-C. VALA, and M. FARGIER, available on the Sciomyzidae web site <http://www.sciomyzidae.info>.



**Fig. 1:** Habitus of *Colobaea bifsciella* (FALLÉN), male from Russia: Moscow Region, Naro Fominsk, 4 August 2007. Photo: D. GAVRYUSHIN.

The Sciomyzidae is a moderately sized family of Acalyptratae (545 extant species in 63 genera, 13 fossil species in five genera) of worldwide distribution. According to the latest information derived from DNA analysis (TÓTHOVÁ et al. 2012 [SB1425.2]), the Sciomyzidae includes three subfamilies: Phaeomyiinae [resurrected], Salticellinae, and Sciomyzinae (Huttonininae is excluded), with 536 described species in 61 genera. It is one of the best known families of Diptera, with biological information available on 239 species in 41 genera and with descriptions and/or figures available for some or all immature stages of 176 species in 39 genera (Tab. 1). Note that the columns in Table 1 pertain to all of the genera and species occurring in the designated regions, i. e. also including the genera/species shared with, or adventive from, an adjoining region.

An extensive background of behavioural, ecological, morphological, taxonomic, and other literature is available (more than 2,000 publications in the ScioBiblio), and much of the type material has

Tab. 1: Total numbers of genera, species, life cycles known, and immature stages of Sciomyzidae described within each major zoogeographic region.

Zoogeographic region	Total number of genera	Total number of species	Life cycles known, by number of genera	Life cycles known, by number of species	Immature stages described, by number of genera	Immature stages described, by number of species
Palearctic	29	157	23	79	22	68
Nearctic	23	172	17	107	20	93
Neotropical	23	91	13	36	15	39
Oriental	13	30	6	17	14	7
Afrotropical	12	65	2	9	3	7
Subantarctic	4	25	2	9	1	1
Australian	3	12	4	2	0	0
Oceanic	2	4	1	1	0	0

Tab. 2: Headings and example entry for Sciomyzidae web site list of undescribed species.

Species (near)	Locality	Collector	Date collected	Number of ♂♂ ♀♀	Collection (permanent)	Current location (drawer no.)	Specialists (note file no.)
<i>Aniicheta</i> spec. nov. 1 ( <i>testacea</i> )	Michoacán, Mexico	K. R. VALLEY	15.viii.1969	5♂♂ 1♀	Cornell University	KNUTSON Collection (2)	VALLEY, KNUTSON (16)

been studied during recent years. Detailed synonymical treatments of the Sciomyzidae have been included in major regional checklists and catalogs of Diptera as follows: North America north of Mexico (STEYSKAL 1965b [SB1360], KNUTSON et al. 1986 [SB716]), the Americas south of the United States (KNUTSON et al. 1976 [SB724]), Oriental (KNUTSON 1977c [SB687]), Afrotropical (KNUTSON 1980 [SB688]), Palaearctic (ROZKOŠNÝ & ELBERG 1984 [SB1216]), and Australasian and Oceanian (BARNES & KNUTSON 1989 [SB60]).

Further research on the Sciomyzidae is needed for many reasons, including (1) their potential value as biological control agents of disease-carrying and agriculturally important pestiferous gastropods (BARKER et al. 2004 [SB45.2]), (2) their emerging importance as bioindicators, and (3) the potential use of the family as a paradigm of the evolution of feeding behaviour among Diptera (KNUTSON & VALA 2011 [SB727.3], MURPHY et al. 2012 [SB992.1]).

Our cornucopia lists valid species, i. e. those recognized by most of the recent and current taxonomic specialists on Sciomyzidae. Synonyms and doubtful species (species inquirendae, species incertae sedis) are not included. Some “valid” species are poorly known; further taxonomic revisions and study of type material will show some to be synonyms or species complexes, and new species and genera will be described.

In addition to the described species in the cornucopia, the Sciomyzidae web site includes a list, by genus, of undescribed species known (individually) to many sciomyzid workers. We know of at least 100 undescribed species and four undescribed genera. The list includes key data as in Table 2.

This list is intended to elicit additional specimens of these and other undescribed species and to provide a record of the existence of such material (usually known only to the holder of the material). It also serves as a source of information about collectors and collections that might have additional material of interest, for collection sites of interest, and for genera or species groups in need of revision. Contact information for specialists named in the list is in the “Directory of Sciomyzid Workers,” also available on the Sciomyzidae web site.

## Results and comments

**Subgenera.** For each species formally placed in a subgenus, the abbreviation of the subgenus (given in parentheses following the subgenus entry) appears before the species name. When a generic name in synonymy is used as a subgeneric name, reference to the proposal for the subgenus status follows in parentheses.

**Type species.** The type species of a genus is indicated by an asterisk (\*) following the species entry and that of a subgenus by two asterisks (\*\*) following the species entry.

**Collections holding primary type specimens.** The first column displays the initials of collections (other than the USNM) in which the primary type specimens (holotypes, paratypes, syntypes, lectotypes, and neotypes) are held. Table 6 lists all initials used. The initials are primarily those used in the “Data dictionary and standards” section (THOMPSON 1999) of the Biosystematic Database of World Diptera ([www.diptera.org](http://www.diptera.org)). Type material currently is held in 62 collections in 28 countries, on all continents except Antarctica. Much of the primary type material in the AMNH, ANSP, BM(NH), MNHN, USNM, and other museums were examined by G. C. STEYSKAL and L. KNUTSON between 1963 and 2012, and the information has been published in various papers. W. L. MURPHY reviewed the status of type specimens in the CNC in 2012. ROZKOŠNÝ (1984b, 1987b) [SB1194, SB1201] presented extensive information on type material of Palaearctic and Holarctic species. We have recently communicated with the curators of many European

museums, especially with regard to supposedly lost or destroyed type specimens. We confirmed the status of “lost” or “destroyed” for many species, but the existence of some type material remains questionable, particularly specimens apparently loaned many years ago and for which the transaction records cannot be found. The authors of the present paper would greatly appreciate it if museum curators would review their collections to determine whether the type material noted herein as being in their collections is indeed present, especially for species entered as “lost?” or “destroyed?”. Also, for a synonymical catalog of Sciomyzidae of the world that we are preparing, we would appreciate information on the type material of species names now held in synonymy and species that have been transferred to other families.

**United States National Museum of Natural History (USNM) holdings.** It is critical that information regarding availability of study material be available. The second column shows the holdings of the USNM, the largest (by far) and most representative collection of Sciomyzidae. The presence of non-type specimens of species in the USNM collection is indicated by a dot (•, 303 species) and the presence of primary type specimens by an encircled dot (⊙, 117 species); thus specimens of 420 of the 545 valid extant species of Sciomyzidae (77 %) are in the USNM. To expedite further studies, locations of paratypical specimens and non-type specimens of rare species in other collections will be included in the world catalog that we are preparing.

**Geographic distribution.** Used here is the scheme of ROZKOŠNÝ (1995) [SB1208] in characterizing a species as a member of the major zoogeographic region in which it is primarily distributed and characterizing it as adventive into an adjacent region where it has been found only a few times in the adjacent region. In Table 3, all species occurring in both the Nearctic (N) and Palearctic (P) regions, even species found only marginally in one of these regions, are listed as Holarctic (H) and are not further characterized as N and P. For other species, the adventive region is shown in parentheses after the primary region. In the few cases indicated by hyphens between regions, a species is considered to be a member of two or three regions. The other regions are Neotropical (NT), Afrotropical (AF), Oriental (O), Australian (A), Oceanic (OC), and Subantarctic [= New Zealand] (SA). Although the Oceanic and Subantarctic regions are combined with the Australian region by some workers, we prefer to recognize the three divisions because their sciomyzid faunas are distinctive, although small. Detailed definitions and maps of regions as delineated herein appear in KNUTSON & VALA (2011) [SB727.3].

**Reference to distribution maps.** Cited herein (by SB number) is the most recently published, complete distribution map, along with other maps showing special features. For Holarctic species, distribution maps of ranges in the Palearctic are shown by (P) and in the Nearctic by (N) when these maps appear in different publications. Not cited are maps of species known only from one or a few localities and maps of states/provinces.

**Behavioural group.** Placement of species in the behavioural groups as proposed by KNUTSON & VALA (2002a, 2011) [SB727, SB727.3] is based on information ranging from knowledge of only the host/prey to, in most cases, the complete life cycle. For species with strongly mixed behaviours, the predominant behaviour is shown first, followed by the less predominant behaviour in parentheses.

**Phenological group.** Followed herein are the Groups (1–5) as proposed by BERG et al. (1982) [SB116], as modified by VALA (1984c, 1989) [SB1444, SB1447.1] (Group 5b), and as presented in KNUTSON & VALA (2002a, 2011) [SB727, SB727.3] and MURPHY et al. (2012) [SB992.1]. For species that could be considered a member of two Groups or for which the phenology is variable, the less dominant Group is indicated in parentheses. A question mark following the number indicates that the information is incomplete.

**References to biology.** References (by SB number) provided are to the most recent major publications or to papers in press (as of May 2013) in which most or all earlier literature is reviewed. Also included are publications providing brief but significant data on species that are poorly known biologically. The biological information in most cases covers the complete life cycle based on laboratory rearings and, for many species, also on field collections/observations.

**Immatures described.** Immature stages described are indicated by E (egg), L1, L2, L3 (first-, second-, and third-instar larva), Pu (puparium), and All (all stages described). These abbreviations are listed across from (parallel to) the associated SB-numbered reference(s) in the column “Reference biology”. Where Pu but not L3 appears, often what is described is the general appearance of the puparium but also usually vestiges of the third-instar larva. These include integumentary features of the larva, nature of interspiracular processes on the posterior spiracular disk, and spiracular disk lobes, which are useful indicators of the microhabitat of the larva. Also, features of the L3 cephalopharyngeal skeleton, which remains on the inner surface of the ventral “cephalic cap” of the puparium, especially the mouthhooks, presence/absence of accessory teeth, and the indentation index of the pharyngeal sclerite, indicate the predatory/parasitoid feeding behaviour of the larva. References provided generally are the most recent major publications in which most or all earlier literature is reviewed. Other major publications that focus solely on the morphology of immature stages appear in boldface below the references to biology. Many illustrations from such publications have been reproduced in regional compilations for Europe and North America.

**Molecular analyses of chromosomes.** Data for 105 species in 34 genera, mainly Palaearctic, Nearctic, and Holarctic species and genera, are included. We list the information according to the following codes: Mp = mitochondrial protein-coding; Mr = mitochondrial ribosomal; Np = nuclear protein-coding; Nr = nuclear ribosomal. Most of the molecular data are in three important publications on cladistic analyses of Sciomyzidae with, variously, taxonomic and evolutionary considerations. These are (1) CHAPMAN et al. (2006) [SB208.2] on 17 species of Nearctic and Palaearctic *Tetanocera* and 14 species in eight other Nearctic and Palaearctic genera; (2) CHAPMAN et al. (2012) [SB208.3] on 28 species of *Tetanocera* and 33 species in 19 other genera of Tetanocerini, one species each of *Sciomyza* and *Atrichomelina* (Sciomyzini) (mostly Nearctic species), and one species of Phaeomyiinae; and (3) TÓTHOVÁ et al. (2012) [SB1925.2] on 32 species of Tetanocerini in 15 genera, 18 species of Sciomyzini in five genera, two species of Phaeomyiinae (these include 14 Palaearctic or Holarctic genera and eight wholly Palaearctic genera), and one Palaearctic species of the Palaearctic/Afrotropical Salticellinae. These sequences and sequences for some other species from other sources can be found in GenBank.

**Photographs of adult Sciomyzidae.** Photographs of adult Sciomyzidae (176 photographs of 61 species in 24 genera as of May 2013), most of excellent quality and some with a few notes) can be found on the Internet at [http://www.diptera.info/photogallery.php?album\\_id=45](http://www.diptera.info/photogallery.php?album_id=45). Another source of high quality images of Sciomyzidae is S. A. MARSHALL'S Flies: The Natural History and Diversity of Diptera (<http://www.amazon.com/Flies-Natural-History-Diversity-Diptera/dp/1770851003>).

### Classification of behavioural groups

KNUTSON & VALA (2002a, 2011) [SB727, SB727.3] proposed a more finely dissected classification of behavioural groups – 17 rather than the eight or nine previously recognized (BERG & KNUTSON 1978 [SB119], FERRAR 1987 [SB383], GREATHEAD 1981 [SB501]) – to accommodate newly discovered behaviours and because they believed it important to deal with more-or-less discrete groups of species with very similar life styles when discussing behaviour and espe-

cially in developing an evolutionary scenario. BARKER et al. (2004) [SB45.2] proposed nine eco-morphological groups based on egg and larval morphology and microhabitat and on larval feeding behaviour (but not on hosts/prey).

The behavioural groups of KNUTSON & VALA (2002a, 2011) [SB727, SB727.3] comprise an *a posteriori* classification of all biologically known Sciomyzidae of the world, each group or subgroup based on knowledge of the actual attributes of one to many species. The attributes used in the classification are the kind of food eaten, the manner of killing and feeding, and the microhabitat of the larvae. These behavioural groups are more similar to the “functional groups” rather than to the “guilds” of the ecological literature and are not limited to sympatric species or restricted to members of a community.

In the classification below, in instances in which the feeding behaviour is not entirely predaceous, parasitoid, or saprophagous but changes during the course of development – or where it varies depending upon the presence of intraspecific competition, relative sizes of larva and host/prey, and/or microhabitat conditions – all feeding behaviours are given, the predominant first. In most such cases, young larvae are more parasitoid and older larvae are more predatory and/or saprophagous. In fact, a species might be appropriately assigned to more than one group. Example species and/or genera, from all zoogeographic regions, are given for each Group. Tetanocerini genera and species are given in italics, Sciomyzini in italic bold face, Phaeomyiinae in italics in parenthesis, and Salticellinae in italics underlined. Where only one or a few species in a genus are known to exhibit the behaviour, species names are given. See KNUTSON & VALA (2011) [SB727.3] for detailed definitions of our use of the terms “predator”, “parasitoid”, “ectoparasitoid”, “mesoparasitoid”, and “saprophage”, and for a discussion of Behavioural Groups.

GROUP 1. Facultative, opportunistic predators/parasitoids/saprophages that feed on dead, moribund, or living snails: *Salticella fasciata* (various strictly terrestrial situations), *Atrichomelina pubera*, (moist, “shoreline” surfaces). Note: *A. pubera* puparia also have been found on a valve of a *Lampsilis* species (Bivalvia) in a freshwater shoreline situation (KEIPER 2006 [SB658.1] and personal communication).

GROUP 2. Predators/saprophages of non-operculate (pulmonate), primarily freshwater snails exposed on moist surfaces by receding or fluctuating water levels or while they are foraging or migrating, i. e. most of the “stranded snail” situations and the “shoreline” situations mentioned in the literature. *Colobaea americana*, *C. pectoralis*, *C. punctata*; *Ditaeniella grisea*, *D. parallela*; at least 19 *Pherbellia* species; 4? *Pteromicra* species; *Sciomyza simplex*; *Hydromya dorsalis*; *Perilimnia albifacies*; *Pherbina coryleti*, *P. intermedia*, *P. mediterranea*; *Protodictya apicalis*, *P. nubilipennis*; *Pscadina disjecta*, *P. verbekei*, *P. zernyi*; *Shannonia meridionalis*; *Tetanocera fuscineris*, *T. silvatica*.

GROUP 3. Parasitoids or parasitoids/predators more-or-less intimately associated with non-operculate freshwater snails aestivating or otherwise exposed for weeks or months around various freshwater habitats. *Colobaea bifasciella*; some *Pherbellia* species; *Sciomyza varia*.

GROUP 4. Parasitoids or parasitoids/predators more-or-less intimately associated with hygrophilous, semi-terrestrial Succineidae snails. *Pherbellia schoenherri schoenherri*, *P. schoenherri maculata*; *Pteromicra anopla* ?; *Sciomyza aristalis*, *S. dryomyzina*, *S. testacea*; *Hoplodictya spinicornis*; *Sepedon hispanica*, *S. trichrooscelis*; 5 *Tetanocera* species. *Pherbellia schoenherri schoenherri* was also found feeding on the freshwater snail *Galba truncatula* (O. F. MÜLLER) in nature (Mc DONNELL et al. 2004 [SB913.1]).

GROUP 5. Obligate parasitoids/predators of exposed egg masses of freshwater Lymnaeidae or *Aplexa hypnorum* (L.) or Succineidae snails during early larval life, followed by predation on

juvenile to mature snails in damp situations, especially during springtime. *Anticheta* species. Note that although *Anticheta* dominates this niche, *Hydromya dorsalis* (Group 2) and *Tetanocera ferruginea* (Group 11) have been found on a few occasions in egg masses in nature (Mc DONNELL et al. 2005 [SB913.17]). During laboratory studies, larvae of 12 species in Groups 2 and 11 fed on eggs of freshwater snails as well as on mature snails (KNUTSON & VALA 2011 [SB727.3], DURGA PRASAD et al. (2012) [SB328.2]).

GROUP 6. Parasitoids intimately associated with non-operculate terrestrial snails. *Oidematops ferrugineus*; at least 6 *Pherbellia* species; *Pteromicra steyskali*; *Tetanura pallidiventris*.

GROUP 7. Predators/saprophages of non-operculate terrestrial snails. *Pherbellia cinerella*; *Coremacera marginata*; *Dichetophora obliterated*; *Euthycera arcuata*, some *Neolimnia* species; *Sepedon umbrosa*; some *Tetanocera* species; *Trypetoptera canadensis*, *T. punctulata*. Some species, e. g. *S. umbrosa*, have some parasitoid aspects of behaviour during early larval life.

GROUP 8. Predators/saprophages opportunistic on terrestrial snails and slugs. *Euthycera cribrata*, *E. stichospila*; *Limnia unguicornis*, *L. paludicola* ?; some *Tetanocera* species.

GROUP 9. Obligate ectoparasitoids/predators of slugs. *Tetanocera clara*, *T. elata*, *T. plebeja*, (third-instar *T. plebeja* also have been found in nature in semi-terrestrial *Oxyloma* snails and fed on terrestrial snails during laboratory rearings), *T. valida*. Ectoparasitoid slug feeders keep at least their posterior spiracles exposed to ambient air; mesoparasitoids (below) live completely within the slugs.

GROUP 10. Obligate mesoparasitoids of slugs. *Euthycera chaerophylli* (not reared beyond second stadium; up to about 30 days spent entirely within a single living *Deroceras* species slug without the posterior spiracles exposed, KNUTSON & VALA (2011) [SB727.3], and perhaps also *E. arcuata*).

GROUP 11. Predators of non-operculate snails at or just below the water surface, just above the surface on emergent vegetation, and occasionally on snails exposed on moist, “shoreline” surfaces. Most *Dictya* species; *Dichetophora biroi*, *D. hendeli*; *Dictyodes dictyodes*; 4 *Elgiva* species; *Guatemala nigritarsus*; 5 *Ilione* species; *Neolimnia repo*, *N. sigma*, *N. ura*; *Protodictya chilensis*, *P. guttularis*, *P. lilloana*; *Renocera johnsoni* ?; *Sepedomerus caeruleus*, *S. macropus*; most *Sepedon* species; 10 *Sepedonea* species; many *Tetanocera* species; *Thecomyia limbata*; 4 *Tetanoceroides* species. Most larvae live at the water surface with their posterior spiracles exposed most of the time. Several aquatic predators habitually leave the water for moist surfaces when mature. Larvae of some species in this group often have labile feeding behaviour and might be placed as well in Group 2. Note: Two species of Sciomyzidae have been reared (in the laboratory) on limpets: *Sepedon fuscipennis* on an unknown species (NELSON & KEIPER 2009 [SB1009.2]) and *Tetanocera ferruginea* on *Ancylus fluviatilis* (MANGUIN et al. 1986 [SB871]).

GROUP 12. Predators and predators/parasitoids of exposed and neustonic operculate (prosobranch) aquatic snails. (a) *Littorina littorea* (L.) in strandline debris on Atlantic Ocean beaches. *Hoplo-dictya setosa*. (b) Salt marsh operculate (prosobranch) snails. *Dictya lobifera*, *D. oxybeles*, *D. pechumani*. (c) *Valvata* species exposed in freshwater marshes. *Pherbellia prefixa*. (d) Neustonic freshwater operculate snails. *Dictya fontinalis*; probably some *Ilione* species; *Neolimnia tranquilla*. Note: The four species of Sciomyzidae in 12a and 12b, along with two species of Sarcophagidae (McKILLUP & McKILLUP 2000), are the only Insecta known or very likely restricted to littoral marine Gastropoda.

GROUP 13. Predators of non-operculate snails under the water surface, at least during the first part of larval life. *Hedria mixta*; *Ilione albisetia*, *I. trifaria*, and probably a few *Dictya* species.



GROUP 14. Predators/parasitoids of fingernail clams (Sphaeriidae). *Eulimnia philpotti*, *Ilione lineata*; 4 *Renocera* species. All except *R. pallida* feed beneath the water surface, at least during the first part of larval life; *R. pallida* larvae live on moist surfaces. Note: these species are the only Insecta known to be obligate natural enemies of Bivalvia.

GROUP 15. Predators of freshwater oligochaete worms. *Dictya disjuncta*, *Sepedonella nana*, *Sepedon knutsoni*, and *S. ruficeps* (the latter is opportunistic on oligochaetes and is primarily a predator of freshwater non-operculate snails). NOTE: these are among the few Insecta that are known to be obligate or opportunistic natural enemies of freshwater Oligochaeta.

GROUP 16. Internal parasitoids of millipedes (*Pelidnoptera nigripennis*).

### Classification of phenological groups

The five groups proposed by BERG et al. (1982) [SB116] with two modifications – subdivision of Group 5 (VALA 1984, 1989c [SB1444, SB1447.1]), and addition of Group 6 (KNUTSON & VALA 2011 [SB727.3]) – are summarized below. Representative species are included. Tetanocerini are in italics, Sciomyzini are in italic bold face.

GROUP 1: Multivoltine species overwintering in the puparium as diapausing or quiescent prepupae, pupae, or pharate adults. The puparial stage is found throughout the year. The overwintering stage ranges from very young, unpigmented prepupae to pupae to pharate adults in the puparium. Prepupae, pupae, or pharate adults of some species are in diapause; those of other species are simply quiescent. In temperate areas, adults emerge during early spring and produce 3–5 successive generations until the onset of cold temperatures. Larval stages are present from about spring to about fall. The first generation often is concomitant with reproduction of gastropods in the habitat. Included are many freshwater and terrestrial species of both tribes of Sciomyzinae.

GROUP 2: Multivoltine species overwintering as diapausing or quiescent adults. Adults overwinter. Reproductive diapause, at least in some species, is associated in the female with reduced ovaries and accessory glands and hypertrophied fat bodies, and in the male with slightly developed testes. Generations succeed one another during spring and summer as in Group 1. Included are many freshwater predators in the genera *Sepedon* and *Elgiva*, the terrestrial parasitoid *Pherbellia schoenherri*, the terrestrial predator *P. cinerella* in southern parts of its range, and possibly *Psacadina* species. Three sciomyzids have been collected on snow: *Pherbellia schoenherri maculata*, *P. schoenherri schoenherri*, and *P. cinerella* (KNUTSON & VALA 2011 [SB727.3]).

GROUP 3: Univoltine species overwintering within egg membranes. The first larval stadium, within the egg membrane, undergoes diapause, extending this stage to several months, from late fall to early spring. There is also a reproductive diapause of emergent adults during late spring to early summer. Included are *Tetanocera latifibula*, *T. loewi*, *T. montana*, *T. soror*, and *Hedria mixta*, except the latter lacks aestival diapause of adults.

GROUP 4: Univoltine species overwintering primarily in the larval stage. Adults have an aestival diapause, then eggs are laid and usually hatch promptly, and larvae begin to develop before winter. Based primarily on *Ilione albiseta*, *Tetanocera vicina*, *T. plumosa*, and *T. obtusifibula*. Some other species in this Group show minor variations or have Group 3 or 4 features depending upon local conditions. *Pherbina coryleti* adults mate during spring and early summer, but oviposition is delayed for several months. *Eulimnia philpotti* mate and oviposit during spring and early summer, and the incubation period is short. *Ilione lineata* follows pattern 3 or 4, depending upon the availability of food and water and follows pattern 4 in warmer latitudes.

GROUP 5a: Univoltine species overwintering as pupae. Puparia are formed from early summer until fall depending upon the species; most have a pupal diapause lasting until the following spring. Adults are active and oviposit from early spring through late summer. Included are many species of *Anticheta*, *Renocera*, and *Pherbellia* living in seasonally freshwater sites and feeding on snail eggs, fingernail clams, or freshwater snails, respectively, and *Pherbellia* (6 species), *Oidematops*, and *Tetanura* attacking terrestrial snails. BERG et al. (1982) [SB116] referred to this group as "... a heterogeneous assemblage of species that apparently have become univoltine in response to quite different evolutionary pressures". The terrestrial species of Group 5 of BERG et al. (1982) [SB116] are better placed in Group 5b.

GROUP 5b: Univoltine species overwintering as larvae, then pupae. Several univoltine parasitoids/predators/saprophages of terrestrial snails studied in southern France do not fit well into Group 5 of BERG et al. (1982) [SB116]. These are *Coremacera marginata*, *Dichetophora obliterata*, *Euthycera cribrata*, *E. stichospila*, and *Trypetoptera punctulata*. They are univoltine with exceptionally long pre-oviposition periods, larval life from late summer or early fall to mid winter, and they overwinter as diapausing pupae. VALA (1984c, 1989) [SB1444, SB1447.1] proposed Group 5a for Nearctic and northern Palaearctic species originally included by BERG et al. (1982) [SB116] in Group 5, and Group 5b for southern Palaearctic species having phenologies like the five species noted above. Also included in Group 5b are the six terrestrial Nearctic and Palaearctic species in Group 5 of BERG et al. (1982) [SB116], and possibly *Salticella fasciata*, placed in Group 1 by BERG et al. (1982) [SB116].

GROUP 6: Tropical species breeding continuously. Stereotyped phenology appears to characterize many freshwater and semi-terrestrial predators, both Sciomyzini and Tetanocerini, in tropical zones. They appear to be multivoltine, breeding more-or-less continuously, with a variable number of generations per year (perhaps 4–12) that are not discrete but are successive, spread temporally, and overlap. During laboratory rearings, these species have shown no indication of diapause, develop promptly, have a short pre-oviposition period, long oviposition period, and short egg, larval, and pupal periods. We place similarly behaving species from warm areas of the Nearctic, Neotropical, Afrotropical, and Oriental regions in Group 6.

Some Nearctic, Neotropical, and Oriental species that are primarily distributed in temperate areas, there belonging to Group 1, have broad north-south ranges. Populations in warmer areas and at lower elevations probably have the characteristics of Group 6, with those of the same species in cooler areas and at higher elevations having the characteristics of Group 1. Examples are *Dictya montana* in the Nearctic, extending from Saskatchewan, Canada to Baja California, Mexico (MC DONNELL et al. 2007 [SB913.23]); the Neotropical *Perilimnia albifacies*, extending from southernmost Argentina to central Colombia (KACZYNSKI et al. 1969 [SB645]); and the Oriental-Palaearctic *Sepedon aenescens*, extending from 10° to 50° North Latitude. Also, the four species of *Neolimnia*, subgenus *Pseudolimnia*, ranging across New Zealand, in the South Temperate Zone, breed continuously (BARNES 1979b [SB49]).

**Tab. 3** (pp. 78–130): World checklist of Sciomyzidae. Abbreviations: ☉ = primary type specimen present in the USNM; \* = type species of a genus; \\* = type species of a subgenus; ● = non-type specimens present in the USNM; A = Australian; AF = Afrotropical; All = all stages described; E = egg; H = Holarctic; L1, L2, L3 = first-, second-, and third-instar larva; Mp = mitochondrial protein; Mr = mitochondrial ribosomal; N = Nearctic; Np = nuclear protein; Nr = nuclear ribosomal; NT = Neotropical; O = Oriental; OC = Oceanic; P = Palaearctic; Pu = puparium; SA = Subantarctic (New Zealand); SG = subgenus.

## Remarks to Tab. 3:

- <sup>1</sup> *Eutrichomelina* was transferred from Sciomyzini to Tetanocerini by MARINONI & MATHIS (2000) [SB880].
- <sup>2</sup> *Pherbellia stylifera* ROZKOŠNÝ, 1982 = *P. goberti* PANDELLÉ, 1902 (STUKE 2005) [SB1398.2]; *Pherbellia trivittata* (CRESSON, 1920) = *Ditaeniella trivittata* (KNUTSON, ORTH et ROZKOŠNÝ, 1990) (KNUTSON et al. 1990 [SB717]).
- <sup>3</sup> The biology and immature stages presented in BRATT et al. (1969) [SB166] for *Pherbellia obscura* (RINGDAHL, 1948) pertain to *P. subtilis* ORTH et STEYSKAL, 1980, and the map for “*P. obscura*” in BRATT et al. (1969) [SB166] includes both species, which overlap in southwest Canada (ORTH et al. 1980 [SB1039]).
- <sup>4</sup> The biological information on *Pherbellia propages* STEYSKAL, 1967 in BRATT et al. (1969) [SB166] was based on rearings initiated with adults collected in Alberta, Canada and Idaho, U.S.A. and the descriptions of the immature stages were based on material from Alberta. According to the revision by ORTH (1982) [SB1028], *P. propages* has not been recorded from Alberta and Idaho, although four closely related species of the *P. propages* group (subgenus *Oxytaenia*) occur there.
- <sup>5</sup> *Sciomyza sebezica* PRZHIBORO, 2001 = *S. testacea* MACQUART, 1835 (VIKHEV 2011 [SB1504.2]).
- <sup>6</sup> *Tetanura falleni* HENDEL, 1923 = *T. pallidiventris* FALLÉN, 1820 (VIKHEV 2011 [SB1504.2]).
- <sup>7</sup> *Ethiolimnia capensis* SCHINER, 1868 = *E. geniculata* (LOEW, 1862) (MILLER 1995 [SB966]).
- <sup>8</sup> *Euthycera nigrescens* BECKER, 1907 = *E. cribrata* (RONDANI, 1868) (VALA 1989a [SB1447.1]).
- <sup>9</sup> as *Limnia unguicornis* (SCOPOLI, 1763).
- <sup>10</sup> *Renocera brevis* (CRESSON, 1920) = *R. striata* (MEIGEN, 1830) (KNUTSON et al., in prep. [SB729]).
- <sup>11</sup> *Sepedon spinipes americana* STEYSKAL, 1959 = *S. americana* STEYSKAL, 1959 (ELBERG et al. 2009 [SB353.1]); *S. oriens* STEYSKAL, 1980 = *S. notioi* STEYSKAL, 1980 (ROZKOŠNÝ et al. 2010 [SB1223.6]).
- <sup>12</sup> NEFF & BERG (1966) [SB1009] reviewed the literature on biology and morphology of the immature stages of *Sepedon* and related genera and KNUTSON & ORTH (2001) [SB715] tabulated the literature, by species, since 1966.
- <sup>13</sup> NEFF & BERG (1966) [SB1009] described the biology of “*Sepedon praemiosa* GIGLIO-TOS, 1893” from laboratory rearings initiated with individuals from Oaxaca, Mexico; Cypress Lake, Saskatchewan, Canada; and Riverside, California. FISHER & ORTH (1972a) [SB393], in their resurrection of *Sepedon pacifica* CRESSON, 1914 from synonymy, redescription of *S. praemiosa*, and analysis of distribution records and specimens, considered that the rearings initiated with individuals from Mexico were *S. praemiosa* whereas those from Cypress Lake and Riverside were *S. pacifica*. They noted that NEFF & BERG (1966) [SB1009] did not indicate any “biological or morphological differences between immatures from the three localities.”
- <sup>14</sup> NEFF & BERG (1966) [SB1009] described all immature stages of “*Sepedon praemiosa*” from specimens from laboratory rearings initiated with individuals from Oaxaca, Mexico and Cypress Lake, Saskatchewan, Canada. As noted above, FISHER & ORTH (1972a) [SB393] considered the Mexican material to be *S. praemiosa* and the Canadian material to be *S. pacifica*.
- <sup>15</sup> Not in MNHN as stated by VERBEKE (1961) [SB1488].
- <sup>16</sup> *Sepedonea isthmi* (STEYSKAL, 1951) = *S. annulata* MACQUART, 1844 (MURPHY et al., in prep. [SB992.1]).
- <sup>17</sup> MARINONI & MATHIS (2006) [SB880.1] in describing *Sepedonea giovana* from Argentina and Brazil noted, “...the descriptions of immatures that were published by FREIDBERG et al. (1991) for *S. guianica* are actually of the new species described below [*S. giovana*]”. Also, the data in MELLO & BREDT (1978b) [SB941] under *Sepedonea vau* (nomen nudum) pertain to *S. giovana*. Furthermore, the data in ABERCROMBIE (1970) [SB1; thesis] need to be compared with publications on biology and immature stages of *Sepedonea* species.
- <sup>18</sup> *Tetanocera gracilior* STACKELBERG, 1963 = *T. spirifera* MELANDER, 1920 (KNUTSON et al., in prep. [SB707.2]).
- <sup>19</sup> *Thecomyia trilineata* HENDEL, 1932 = *T. lateralis* (WALKER, 1858) (MARINONI et al. 2003 [SB880.2]).

Taxa	Type collections	USNM	Geographic distribution	Reference distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<b>HUTTONININAE</b>									
<b>Huttoninini</b>									
<i>Huttonina</i> TONNOIR et MALLOCH, 1928									
SG <i>Huttonina</i> TONNOIR et MALLOCH, 1928 (BARNES & KNUTSON 1989)									
SG <i>Huttoninella</i> BARNES et KNUTSON, 1989									
<i>abrupta</i> [SG <i>Huttonina</i> ] TONNOIR et MALLOCH, 1928 *	CIN	●	SA						
<i>angustipennis</i> [SG <i>Huttoninella</i> ] TONNOIR et MALLOCH, 1928 **	CIN	●	SA						
<i>brevis</i> [SG <i>Huttonina</i> ] MALLOCH, 1930		⊙	SA						
<i>claripennis</i> [SG <i>Huttoninella</i> ] HARRISON, 1959	CIN		SA						
<i>elegans</i> [SG <i>Huttonina</i> ] TONNOIR et MALLOCH, 1928	CIN	●	SA						
<i>furcata</i> [SG <i>Huttonina</i> ] TONNOIR et MALLOCH, 1928	CIN		SA						
<i>glabra</i> [SG <i>Huttonina</i> ] TONNOIR et MALLOCH, 1928	CIN	●	SA						Mp/Mtr/Np/Nr
<i>scutellaris</i> [SG <i>Huttonina</i> ] TONNOIR et MALLOCH, 1928	CIN		SA						Mp/Mr/Np/Nr

<b>Prosochaetini</b>							
<i>Prosochaeta</i> MALLOCH, 1935							
<i>prima</i> MALLOCH, 1935 *	SDEI	SA					
<b>PHAEOMYIINAE</b>							
<i>Akebono</i> SUEYOSHI, 2009 in SUEYOSHI et al. (2009)							
<i>vernalis</i> SUEYOSHI, 2009 in SUEYOSHI et al. (2009)	NIAS	P					
<b>Pelidnoptera</b> RONDANI, 1856							
<i>fuscipennis</i> (MEIGEN, 1830)	NHMW	P					Mr/Nr
<i>leptiformis</i> (SCHINER, 1864)	NHMH	P					
<i>nigripennis</i> (FABRICIUS, 1794) *	ZMUC?	P	41	6	5a	41 43 <b>1451</b>	Mp/Mr/Np/Nr
<i>triangularis</i> KNUTSON et GHORPADÉ, 2009 in SUEYOSHI et al. (2009)	☉	P (O)					All
<b>SALTICELLINAE</b>							
<i>Salticella</i> ROBINEAU-DESVOIDY, 1830							
<i>fuscata</i> MEIGEN, 1830 *	MNHN	P	723	1	5b?	248 723 1071 1457 1467	Mp/Mr/Np/Nr All L3 L1 E/ L1-3
<i>stuckenbergi</i> VERBEKE, 1962	NMP	AF			1?		

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<b>SCIOMYZINAE</b>									
<b>Sciomyzini</b> <sup>1</sup>									
<i>Apteromicra</i> PAPP, 2004									
<i>parva</i> PAPP, 2004	MHNG		O						
<i>Atrichomelina</i> CRESSON, 1920									
<i>pubera</i> (LOEW, 1862) in LOEW (1862e) *	MCZ	•	N (NT)	426	1	1	426	All	Mp/Mtr/Nr
<i>Calliscia</i> STEYSKAL, 1975 in STEYSKAL & KNUTSON (1975)									
<i>callisceles</i> (STEYSKAL, 1963) in STEYSKAL (1963a) *		☉	NT						
<i>Colobaea</i> ZETTERSTEDT, 1837									
<i>acuticera</i> CARLES-TOLRÁ, 2008	MC-T		P						
<i>americana</i> STEYSKAL, 1954 in STEYSKAL (1954a)	CNC	•	N	705 717	2	1	705	All	
<i>beckeri</i> (HENDEL, 1902)	NHMW		P	705					
<i>bifasciella</i> (FALLÉN, 1820) in FALLÉN (1820a) *	NRS	•	P	705	3	1	705	E/L1/L3/Pu L3/ Pu	Mp/Mtr/Np/Nr
<i>canadensis</i> KNUTSON et ORTH, 1990 in KNUTSON et al. (1990)	CNC	•	N	717					

<i>distincta</i> (MEIGEN, 1830)	MNHN •	P	705		1173	Pu	
<i>eos</i> ROZKOŠNÝ et ELBERG, 1991	ZMMSU	P	1403				
<i>flavipleura</i> ROZKOŠNÝ et ELBERG, 1991	ZMMSU	P					
<i>limbata</i> (HENDEL, 1933)	ZISP	P	705				
<i>montana</i> KNUTSON et ORTH, 1990 in KNUTSON et al. (1990)	☉	N	717				
<i>nigroaristata</i> ROZKOŠNÝ, 1984	UZIL	P					
<i>pectoralis</i> (ZETTERSTEDT, 1847)	UZIL •	P	705	2	1	All	Mp/Mr/Nr
<i>punctata</i> (LUNDBECK, 1923)	ZMUC •	P (O)	705	2	1	All	
<i>spec. nov.</i> [undescribed new species]	☉	AF					
<b><i>Ditaniella</i> SACK, 1939</b>							
<i>grisescens</i> (MEIGEN, 1830) *	MNHN? •	P-O	166	2	1	L1-3/Pu	
<i>parallela</i> (WALKER, 1853)	NHMW? •		1403			E/Pu	
<i>patagonensis</i> (MACQUART, 1851)	BM(NH) •	N (NT)	166	2	1	All	
<i>trivittata</i> (CRESSON, 1920)	MNHN •	NT					
<i>spec. nov.</i> [undescribed new species]	CU •	N	166	2?	1?	E/L3/Pu	
<i>spec. nov.</i> [undescribed new species]	NMNW •	AF					Pu

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>Neuzina</i> MARINONI et KNUTSON, 2004 in MARINONI et al. (2004)									
<i>diminuta</i> MARINONI et ZUMBADO, 2004 in MARINONI et al. (2004) *	INBIO	•	NT						
<i>Oidematops</i> CRESSON, 1920									
<i>ferrugineus</i> CRESSON, 1920 *	MCZ	•	N	418	6	5a	418 166 705	L3 L3	
<i>Parectinocera</i> BECKER, 1919									
<i>dissimilis</i> (MALLOCH, 1933)	BM(NH)		NT						
<i>inaequalis</i> (MALLOCH, 1933)	BM(NH)	•	NT						
<i>neotropica</i> BECKER, 1919 *	MNHN		NT						
<i>Pherbellia</i> ROBINEAU-DESVOIDY, 1830 <sup>2</sup>									
<i>Chetocera</i> ROBINEAU-DESVOIDY, 1830 (ROZKOŠNÝ 1964)									
<i>Dichomyza</i> ENDERLEIN, 1939 (ROZKOŠNÝ 1964)									
<i>Ditaenia</i> HENDEL, 1902 (HENDEL 1910b)									
<i>Graphomyzina</i> MACQUART, 1835 (CRESSON 1920)									
<i>Oxytaenia</i> SACK, 1939 (STEYSKAL 1949)									
<i>Pherbellia</i> ROBINEAU-DESVOIDY, 1830									
<i>albicarpa</i> [SG <i>Chetocera</i> ] (RONDANI, 1868)	MLSF	•	P						



<i>albocostata</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b) **	NRS	•	H	166	6	5a	166	All	Mp/Mr/Nr
<i>albovaria</i> [SG <i>Chetocera</i> ] (COQUILLET, 1901)		⊙	N	166	6	5a	166	All	
<i>aloea</i> ORTH, 1983		⊙	N	1028					
<i>alpina</i> [SG <i>Chetocera</i> ] (FREY, 1930)	ZMH		P						
<i>annulipes</i> [SG <i>Chetocera</i> ] (ZETTERSTEDT, 1846)	UZIL	•	P	166 1447	6	5a	166	All	Mp/Mtr/Np/Nr
<i>anubis</i> [SG <i>Chetocera</i> ] KNUTSON, 1969 in BRATT et al. (1969)	CU	•	N	166	2	1	166	All	
<i>argyra</i> VERBEKE, 1967 in VERBEKE (1967a)	IRSNB	•	H	166 1447 1495	2	1	166	All	Mp/Mtr/Np/Nr
<i>argyrotarsis</i> [SG <i>Chetocera</i> ] (BECKER, 1908)	SDEI	•	P						
<i>austera</i> [SG <i>Chetocera</i> ] (MEIGEN, 1830)	MNHN		P						
<i>beatricis</i> [SG <i>Oxytaenia</i> ] STEYSKAL, 1949		⊙	N	166	2	11	166	L1/L2	
<i>borea</i> [SG <i>Oxytaenia</i> ] ORTH, 1982		⊙	N	1028					
<i>brevistriata</i> LI, YANG et GU, 2001	CAUB	•	P						
<i>brunnipes</i> [SG <i>Oxytaenia</i> ] (MEIGEN, 1838) **	MNHN	•	P		2?		166	L3/Pu	Mp/Mtr/Np/Nr
<i>bryanti</i> [SG <i>Oxytaenia</i> ] STEYSKAL, 1967		⊙	N	1028					
<i>californica</i> [SG <i>Oxytaenia</i> ] ORTH, 1982		⊙	N	1028					

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>causta</i> (HENDEL, 1913)	SDEI		O						
<i>chiloensis</i> (MALLOCH, 1933)	BM(NH)	•	NT						
<i>cinerella</i> [SG <i>Ditaenia</i> ] (FALLÉN, 1820) in FALLÉN (1820b) **	lost? NRS	•	P (O)	166 1447	7	5a, b	73 166 246 247 462 1173	All    E E/L1-3	Mp/Mr/Np/Nr
<i>cingulata</i> [SG <i>Graphomyzina</i> ] (VERBEKE, 1950)	IRSNB		AF						
<i>clathrata</i> [SG <i>Dictyomyza</i> ] (LOEW, 1874) **	SDEI	•	P	353					
<i>costata</i> [SG <i>Graphomyzina</i> ] (VERBEKE, 1950)	IRSNB	•	AF						
<i>czernyi</i> [SG <i>Chetocera</i> ] (HENDEL, 1902)	NHMW		P						
<i>dentata</i> MERZ et ROZKOŠNÝ, 1995	NML		P						
<i>ditoma</i> STEYSKAL, 1956	UCLA		P	1403					
<i>dives</i> [SG <i>Graphomyzina</i> ] (BEZZI, 1928)	BM(NH)	•	OC						

<i>dorsata</i> [SG <i>Chetocera</i> ] (ZETTERSTEDT, 1846)	●	UZIL	P	166	2	1	166	All	Mp/Mr/Np/Nr
<i>dubia</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b)	●	NRS	P	166	6	5a	166	All	
<i>evittata</i> (MALLOCH, 1933)	●	BM(NH)	NT						
<i>fisheri</i> [SG <i>Chetocera</i> ] ORTH, 1987	⊙		N	1033					
<i>footei</i> [SG <i>Chetocera</i> ] STEYSKAL, 1961	⊙		N						
<i>frohnei</i> STEYSKAL, 1963 in STEYSKAL (1963a)	⊙		N						
<i>garganica</i> RIVOSECCHI, 1989		MZUR	P						
<i>goberti</i> PANDELLÉ, 1902 <sup>1</sup>		MNHN	P	1447					
<i>griseicollis</i> [SG <i>Chetocera</i> ] (BECKER, 1900)		ZMH & ZMB	H	695 1033	2	2 (5a?)	695		
<i>griseola</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b)	●	NRS	H	166 341 1403	2	1	166 1173 1403.2	All E/L1-L3/Pu L3/Pu	Mp/Mr/Np/Nr
<i>guttata</i> [SG <i>Graphomyzina</i> ] (COQUILLET, 1901)	⊙		NT-N						
<i>guttipennis</i> (HENDEL, 1932)		SMNS	NT						
<i>huckmani</i> [SG <i>Chetocera</i> ] ROZKOŠNÝ, 1982	●	ZMH	H	1033					
<i>hermonensis</i> [SG <i>Chetocera</i> ] KNUTSON et FREIDBERG, 1983	●	TAU	P						

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>idahoensis</i> [SG <i>Chetocera</i> ] STEYSKAL, 1961		☉	N	166	2	1	166	All	
<i>inclusa</i> [SG <i>Chetocera</i> ] (WOLLASTON, 1858)	BM(NH)	•	P						
<i>inflexa</i> ORTH, 1983		☉	N	1029	6	5a?	422.3		
<i>javana</i> [SG <i>Graphomyzina</i> ] (DE MEIERE, 1919)	ZMA	•	A-O	712					
<i>juxtajavana</i> [SG <i>Graphomyzina</i> ] KNUTSON, MANGUIN et ORTH, 1990	ANIC	•	A	712					
<i>kivuana</i> [SG <i>Graphomyzina</i> ] (VERBEKE, 1950)	IRSNB	•	AF						
<i>knutsoni</i> [SG <i>Oxytaenia</i> ] VERBEKE, 1967 in VERBEKE (1967b)	IRSNB	•	P	166 1447	6	5a?	166	All	
<i>koreana</i> ROZKOŠNÝ et KOZÁNEK, 1989	SNMB		P						
<i>krivosheinae</i> ROZKOŠNÝ, 1991	ZMMSU	•	P						
<i>kugleri</i> KNUTSON, 1985	TAU	•	P						
<i>limbata</i> [SG <i>Graphomyzina</i> ] (MEIGEN, 1830)**	MNHN	•	P		6	5a?	1009.3	All	

<i>lucifera</i> (LOEW, 1861)	MCZ •	N				
<i>lutheri</i> ROZKOŠNÝ, 1982	ZMH	P				
<i>majuscula</i> (RONDANI, 1868)	MLSF	P				
<i>marthae</i> [SG <i>Oxytaenia</i> ] ORTH, 1982	☉	N	1028			
<i>melanderi</i> [SG <i>Chetocera</i> ] STEYSKAL, 1963 in STEYSKAL (1963a)	☉	N				
<i>mikiana</i> [SG <i>Oxytaenia</i> ] (HENDEL, 1900)	NHMW •	P				
<i>nana</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b)		H (O)				
<i>nana nana</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820)	NRS •	H	166	2	1	166
<i>nana reticulata</i> [SG <i>Chetocera</i> ] (THOMSON, 1869)	NRS	P (O)	1403			All
<i>obscura</i> [SG <i>Chetocera</i> ] (RINGDAHL, 1948) <sup>3</sup>	ZISP •	H	1038			
<i>obtusata</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b)	NRS •	P	166 341 1495	2	1	166
<i>oregona</i> [SG <i>Chetocera</i> ] STEYSKAL, 1961	UI •	N				
<i>orientalis</i> ROZKOŠNÝ et KNUTSON, 1991	ZFMK	P				
<i>ozeroi</i> ROZKOŠNÝ, 1991	ZMMSU	P				

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular Analyses
<i>pallidicarpa</i> [SG <i>Oxytaenia</i> ] (RONDANI, 1868)	MLSF		P	1447					
<i>pallidiventris</i> [SG <i>Chetocera</i> ] (FALLÉN, 1820) in FALLÉN (1820b)	NRS	•	P						
<i>paludum</i> [SG <i>Oxytaenia</i> ] ORTH, 1982		⊙	N	1028					
<i>phela</i> STEYSKAL, 1963 in STEYSKAL (1963a)		⊙	N						
<i>phillippii</i> (MALLOCH, 1933)		⊙	NT						
<i>pitosa</i> [SG <i>Chetocera</i> ] (HENDEL, 1902)	NHMF		P						
<i>prefixa</i> [SG <i>Oxytaenia</i> ] STEYSKAL, 1967		⊙	N		12b	1	416		
<i>priscillae</i> [SG <i>Chetocera</i> ] KNUTSON et FREIDBERG, 1983	TAU		P						
<i>propages</i> [SG <i>Oxytaenia</i> ] STEYSKAL, 1967 in STEYSKAL (1967a) <sup>4</sup>		⊙	N	1028					
<i>quadrata</i> [SG <i>Chetocera</i> ] STEYSKAL, 1961		⊙	N	166	2	1?	166	All	
<i>rozkosnyi</i> [SG <i>Chetocera</i> ] VERBEKE, 1967 in VERBEKE (1967b)	IRSNB	•	P						
<i>schoenherrii</i> [SG <i>Pherbellia</i> ] (FALLÉN, 1826) *			H						

<i>schoenherri schoenherri</i> [SG <i>Pherbellia</i> ] (FALLÉN, 1826)	lost? NRS	P 1403 1447	4 2	913.15 971 1173 1457 1463	E/L3/Pu L1	Mp/Mr/Np/Nr
<i>schoenherri maculata</i> [SG <i>Pherbellia</i> ] (CRESSON, 1920)	●	N 166	4 2	166	All	Mp/Mr
<i>scutellaris</i> [SG <i>Chetocera</i> ] (VON ROSER, 1840)	●	P 166	6 5a?	166	All	Mp/Mr
<i>seticoxa</i> [SG <i>Chetocera</i> ] STEYSKAL, 1961	⊙	N 166	2 1	166	All	
<i>shatalkini</i> ROZKOŠNÝ, 1991	ZMMSU	P				
<i>silana</i> RIVOSECCHI, 1989	MZUR	P				Mp/Mr/Nr
<i>similis</i> [SG <i>Chetocera</i> ] (CRESSON, 1920)	⊙	N 166	2 5a	166	All	
<i>sordida</i> [SG <i>Chetocera</i> ] (HENDEL, 1902)	NHMW	P				
<i>spectabilis</i> ORTH, 1984	⊙	N				
<i>stackelbergi</i> [SG <i>Oxytaenia</i> ] ELBERG, 1965	ZISP	P				
<i>steyskali</i> [SG <i>Chetocera</i> ] ROZKOŠNÝ et ZUŠKA, 1965	JZP	P				
<i>subtilis</i> [SG <i>Chetocera</i> ] ORTH et STEYSKAL, 1980 in ORTH et al. (1980) <sup>1</sup>	⊙	N 1038	2 1	166	L3/Pu	
<i>suspecta</i> [SG <i>Chetocera</i> ] ORTH et STEYSKAL, 1981	CNC	N 1038				

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>tenuipes</i> (LOEW, 1872)	MCZ	•	N	1038					
<i>terminalis</i> (WALKER, 1858)	BM(NH)	•	O (P)	1222					
<i>trabeculata</i> [SG <i>Graphomyzina</i> ] (LOEW, 1872)	MCZ	•	N (NT)	166	2	1	166	All	
<i>tricolor</i> SUEYOSHI, 2001	BLKUF		P	1403					
<i>ursilacus</i> [SG <i>Oxytaenia</i> ] ORTH, 1982		☉	N	1028					
<i>ventralis</i> [SG <i>Chetocera</i> ] (FALLEN, 1820) in FALLEN (1820b)	NRS	•	P	166	2	1	166	E/L1/L2/Pu	Mp/Mr/Np/Nr
<i>vitalis</i> [SG <i>Chetocera</i> ] (CRESSON, 1920)	ANSP	•	N	166	2	1	73 166	All	
<i>vittigera</i> (MALLOCH, 1933)	BM(NH)	•	NT						
<i>Pseudomelina</i> MALLOCH, 1933									
<i>apicalis</i> MALLOCH, 1933 *	lost? BM(NH)		NT						
<i>Pteromicra</i> LIQV, 1864									
<i>albicalceata</i> (CRESSON, 1920)	MCZ		N						



<i>angustipennis</i> (STAEGER, 1845)	NHMW	•	H	1221	2	1	1221	All	
<i>anitae</i> FOOTE <b>spec. nov.</b> [new species in FOOTE (2013), in press]		☉	N						
<i>anopla</i> STEYSKAL, 1954 in STEYSKAL (1954c)		☉	N		4?		1346	Pu	
<i>apicata</i> (LOEW, 1876)	MCZ		N						
<i>glabricula</i> (FALLÉN, 1820) in FALLÉN (1820b) *	NRS	•	P	1221	2	1	1221	All	
<i>leucodactyla</i> (HENDEL, 1913)	SDEI	•	O						
<i>leucopeza</i> (MEIGEN, 1838)	MNHN	•	H	1221	2	1	1221	Pu	Mp/Mr/Nr
<i>leucothrix</i> MELANDER, 1920		☉	N						
<i>nigripalpis</i> ROZKOŠNÝ, 1979	MNHB		P						
<i>oldenbergi</i> (HENDEL, 1902)	NHMW		P	1221		1			
<i>pectorosa</i> (HENDEL, 1902)	NHMW	•	H	1221	2	1	1221	All	Mp/Mr
<i>perissa</i> STEYSKAL, 1958	UCB		N						
<i>pleuralis</i> (CRESSON, 1920)	ANSP	•	N		2	1	422.8		
<i>rudis</i> KNUTSON et ZUSKA, 1968	CU		N						

Taxa	Type collections	USNM	Geographic distribution	Reference distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>similis</i> STEYSKAL, 1954 in STEYSKAL (1954c)	☉		N	N	2	1	166 422.8 497.1		
<i>siskiyounensis</i> FISHER et ORTH, 1966	•	CAS	N	425	2?		425		
<i>sphenura</i> STEYSKAL, 1954 in STEYSKAL (1954c)	☉		N		2	1	422.8		
<i>steyskali</i> FOOTE, 1959	•	CU	N		6?		406 422.7		
<i>spec. nov.</i> [undescribed new species]	☉		AF						
<i>Sciomyza</i> FALLEN, 1820 in FALLEN (1820b) <sup>5</sup>									
<i>aristalis</i> (COQUILLET, 1901)	☉		N		4	1	405	E/L3/Pu	
<i>dryomyzina</i> ZETTERSTEDT, 1846	•	UZIL	H	695	4	1?	102 405 695	Pu	Mp/Mr/Np/Nr
<i>pulchra</i> ROLLER, 1996		SNMB	P						
<i>simplex</i> FALLEN, 1820 in FALLEN (1820b) *	•	NRS	H	695	2	1	405 695 1013	E/L3/Pu	Mp/Mr/Np/Nr
<i>testacea</i> MACQUART, 1835	•	MNHN	P	695	4	?	695		

<i>varia</i> (COQUILLET, 1904)	MCZ •	N	59	3	5a?	59 107 497.1	All	
<i>Tetanura</i> FALLÉN, 1820 in FALLÉN (1820a) *								
<i>pallidiventris</i> FALLÉN, 1820 in FALLÉN (1820a) *	NRS •	P	677 1403	6	5a	677	E/L3/Pu	Mp/Mr/Nr
<b>Tetanocerini</b>								
<i>Anticheta</i> HALIDAY, 1838								
SG <i>Anticheta</i> HALIDAY, 1838 (STEYSKAL 1960b)								
SG <i>Paranticheta</i> ENDERLEIN, 1936 (STEYSKAL 1960b)								
<i>analis</i> [SG <i>Anticheta</i> ] (MEIGEN, 1830) *	MNHN •	P		5	5a?	674 1173	All Pu	Mp/Mr/Np/Nr
<i>atriseta</i> [SG <i>Anticheta</i> ] (LOEW, 1849)	ZMB •	P		5	5a?	674		
<i>bisetosa</i> [SG <i>Paranticheta</i> ] HENDEL, 1902 **	NHMW	P						
<i>borealis</i> [SG <i>Anticheta</i> ] FOOTE, 1961	CU •	N		5	1	1137	All	
<i>brevipennis</i> [SG <i>Anticheta</i> ] (ZETTERSTEDT, 1846)	UZIL •	P		5	5a?	674 1173	All Pu	Mp/Mr/Np/Nr
<i>canadensis</i> [SG <i>Anticheta</i> ] (CURRAN, 1923)	CNC	N		5		697		
<i>fulva</i> [SG <i>Anticheta</i> ] STEYSKAL, 1960	⊙	N		5	5a	422.8 697		
<i>johnsoni</i> [SG <i>Anticheta</i> ] (CRESSON, 1920)	⊙	N						
<i>melanosoma</i> [SG <i>Anticheta</i> ] MELANDER, 1920	⊙	N	697	5	5a	697	L3	Mp/Mr/Np/Nr
<i>nigra</i> [SG <i>Anticheta</i> ] KARL, 1921	ZMH	P						

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>obliviosa</i> [SG <i>Anticheta</i> ] ENDERLEIN, 1939	ZMB	●	P	P	5	5a?	674	Pu	
<i>robiginosa</i> [SG <i>Anticheta</i> ] MELANDER, 1920		⊙	N	N					
<i>shatalkini</i> [SG <i>Anticheta</i> ] VIKHEV, 2008	ZMMSU		P	P					
<i>testacea</i> [SG <i>Anticheta</i> ] MELANDER, 1920		⊙	N	N	5	1?	386	All	
<i>vernalis</i> [SG <i>Anticheta</i> ] FISHER et ORTH, 1971	CAS	●	N	N					
<i>Chasmacryptum</i> BECKER, 1907									
<i>seriatimpunctatum</i> BECKER, 1907 *	ZISP	●	P	P					
<i>Coremacera</i> RONDANI, 1856									
<i>amoena</i> (LOEW, 1853)	lost? ZMB	●	P	P					
<i>catenata</i> (LOEW, 1847)	ZMB	●	P	P			1447.1 1447.2	E/L1 E/L1	
<i>confluens</i> RONDANI, 1877	MLSF		P	P					
<i>fabricii</i> ROZKOŠNÝ, 1981	UZIL	●	P	P					Mp/Mr

<i>halensis</i> (LOEW, 1864) in LOEW (1864c)							
<i>marginata</i> (FABRICIUS, 1775)	ZMB		P				
<i>marginata marginata</i> * (FABRICIUS, 1775)	ZMUC	•	P	681 1447	7	5a/5b	247 681
<i>marginata pontica</i> ELBERG, 1968	ZISP		P				L1/L3/Pu
<i>obscuripennis</i> (LOEW, 1845)	ZMB	•	P				
<i>scutellata</i> (MATSUMURA, 1916)	HUS		P	1403			
<i>turkestanica</i> (ELBERG, 1968)	ZISP		P				
<i>ussuriensis</i> (ELBERG, 1968)	ZISP		P				
<b>Dichetophora Rondani, 1868</b>							
SG <i>Dichetophora</i> Rondani, 1868 (MALLOCH 1928a)							
SG <i>Neosepedon</i> Malloch, 1928							
<i>australis</i> [SG <i>Dichetophora</i> ] (WALKER, 1853)	BM(NH)		A				
<i>biroi</i> [SG <i>Neosepedon</i> ] (KERTÉSZ, 1901)	MNHB	•	A		11	1?	160 403 837
<i>boyesi</i> [SG <i>Neosepedon</i> ] STEYSKAL, 1972 in Boyes et al. (1972)	CNC		A				
<i>conjuncta</i> [SG <i>Neosepedon</i> ] MALLOCH, 1928 in MALLOCH (1928a)	AMS	•	A				

Taxa	Type collections	USNM	Geographic distribution	Reference distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>finlandica</i> VERBEKE, 1964	IRSNB	●	P	1227 1447					Mp/Mr/Np/Nr
<i>hendeli</i> [SG <i>Neosepedon</i> ] (KERTÉSZ, 1901)	MNHB		A		11	1?	160		
<i>intermedia</i> HENDEL, 1912	SDEI		O						
<i>japonica</i> SUEYOSHI, 2001	BLKUF	●	P	1403					
<i>kumadori</i> SUEYOSHI, 2001	BLKUF	●	P	1403					
<i>meleagris</i> (HENDEL, 1933)	NRS		P						
<i>obliterata</i> [SG <i>Dichetophora</i> ] (FABRICIUS, 1805) *	MNHN	●	P	1227 1447	7	5b	247 1447.2 1457 1455	L1 L1 All	Mp/Mr/Np/Nr
<i>punctipennis</i> [SG <i>Neosepedon</i> ] MALLOCH, 1928 in MALLOCH (1928a) **	AMS	●	A						
<i>Dicyna</i> MEIGEN, 1803									
<i>abnormis</i> STEYSKAL, 1954 in STEYSKAL (1954b)		⊙	N						
<i>adjuncta</i> VALLEY, 1977 in VALLEY & BERG (1977)	CU	●	N	1478	11	1	1478	All	

<i>atlantica</i> STEYSKAL, 1954 in STEYSKAL (1954b)	☉	N	1478	11	1	116 1478	All	
<i>behrmani</i> MURPHY <b>spec. nov.</b> [new species in MURPHY (2013), in press]	☉	N						
<i>bergi</i> VALLEY, 1977 in VALLEY & BERG (1977)	●	NT	1478	11	6?	1478	All	Mp/Mr/Np/Nr
<i>borealis</i> CURRAN, 1932	AMNH	N	1478					
<i>brimleyi</i> STEYSKAL, 1954 in STEYSKAL (1954b)	☉	N	1478	11	1(6)	1478	All	
<i>caliente</i> ORTH, 1991	☉	N						
<i>chihuahuahua</i> ORTH, 1991	☉	N						
<i>disjuncta</i> ORTH, 1991	☉	N	992.2	11	1	992.2	All	
<i>expansa</i> STEYSKAL, 1938	●	N	1478	11	1	116 1478	All	Mp/Mr/Nr
<i>fisheri</i> ORTH, 1991	☉	N						
<i>floridensis</i> STEYSKAL, 1954 in STEYSKAL (1954b)	☉	N	1478	11	1	918 1478 389	All	Mp/Mr/Nr
<i>fontinalis</i> FISHER et ORTH, 1969	●	N		12c?				
<i>gaigei</i> STEYSKAL, 1938	●	N	1478	11	1	1478	All	Mp/Mr/Nr
<i>guatemalana</i> STEYSKAL, 1954 in STEYSKAL (1954b)	☉	NT						

Taxa	Type collections	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>hudsonica</i> STEYSKAL, 1954 in STEYSKAL (1954b)	CNC •	N	1478	11	1	1478	All	
<i>incisa</i> CURRAN, 1932	AMNH •	N (NT)	1478	11	1	1478	All	
<i>insularis</i> STEYSKAL, 1954 in STEYSKAL (1954b)	☉	NT						
<i>jamaica</i> ORTH, 1991	☉	NT						
<i>knutsoni</i> ORTH, 1991	lost? USNM ☉	N						
<i>laurentiana</i> STEYSKAL, 1954 in STEYSKAL (1954b)	CNC •	N	1478	11	1	1478	All	
<i>lobifera</i> CURRAN, 1932	AMNH •	N	1478	12c?	1	1478	All	
<i>matthewsi</i> STEYSKAL, 1960	CU •	NT (N)	1478	11	6?	1478	All	
<i>mexicana</i> STEYSKAL, 1954 in STEYSKAL (1954b)	CAS •	NT (N)						
<i>montana</i> STEYSKAL, 1954 in STEYSKAL (1954b)	CAS •	N	1478	11	6?	913.23		
<i>neffi</i> STEYSKAL, 1960	CU •	NT						



<i>orion</i> ORTH, 1991									
<i>orthi</i> MATHIS, KNUTSON et MURPHY, 2009	⊙	N							
<i>oxybeles</i> STEYSKAL, 1960	⊙	N	1478	12c?	1	1478	All		
<i>pechumani</i> VALLEY, 1977 in VALLEY & BERG (1977)	•	N(NT)	1478	12c?	?	1478	All		
<i>pictipes</i> (LOEW, 1859)	•	N	1478	11	1	116 1478	All		Mp Mr/Np/Nr
<i>praecipua</i> ORTH, 1991	⊙	N							
<i>pyvarion</i> STEYSKAL, 1954 in STEYSKAL (1954b)	⊙	N	1478	11?		1478	All		
<i>sabroskyi</i> STEYSKAL, 1938	⊙	N(NT)	1478	11	1	1478	L1-L3/Pu		
<i>sinaloae</i> ORTH, 1984	⊙	NT							
<i>steyskali</i> VALLEY, 1977 in VALLEY & BERG (1977)	•	N	1478	11	1	1478	All		Mp/Mr/Np/Nr
<i>stricta</i> STEYSKAL, 1938	•	N	1478	11	1?	1478	All		Mp/Nr
<i>texensis</i> CURRAN, 1932	•	N(NT)	1478	11	1	116 1138 1478			Mp/Mr/Nr
<i>umbrarum</i> (LINNAEUS, 1758) *	•	P		11	2?	1558 1559 1214.2	All		
									L3/Pu

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>umbroides</i> CURRAN, 1932	CNC	●	N	1478	11	1?	1478	All	
<i>valleyi</i> ORTH, 1991		⊙	N						
<i>veracruz</i> ORTH, 1991		⊙	NT						
<i>zacki</i> ORTH et FISHER, 1983		⊙	N						
<i>Dictyacium</i> STEYSKAL, 1956									
<i>ambiguum</i> (LOEW, 1864) in LOEW (1864b) *	MCZ	●	N						
<i>firmum</i> STEYSKAL, 1956	CNC	●	N						Mp/Mr/Nr
<i>Dictyodes</i> MALLOCH, 1933									
<i>dicyodes</i> (WIEDEMANN, 1830) *	ZMB?	●	NT	4	11	6?	4	All	
<i>platensis</i> STEYSKAL, 1974		⊙	NT						
<i>Ectinocera</i> ZETTERSTEDT, 1838									
<i>borealis</i> ZETTERSTEDT, 1838 *	UZIL	●	P						Mp/Mr

<b>Elgiva Meigen, 1838</b>								
<i>connexa</i> (STEYSKAL, 1954) in STEYSKAL (1954d)	☉	N	1037	11	2	701	All	Mp/Mtr/Np/Nr
<i>culcularia</i> (LINNAEUS, 1767) *	● BM(NH)	P	701	11	2	701	All	Mp/Mtr/Np/Nr
<i>divisa</i> (LOEW, 1845)	● ZMB	H	701 1037	11	2	1173 1037	Pu	
<i>elegans</i> ORTH et KNUTSON, 1987	☉	N	1037					
<i>manchurica</i> ROZKOŠNÝ et KNUTSON, 1991	ZFMK	P						
<i>pacnowesa</i> ORTH et KNUTSON, 1987	☉	N	1037					
<i>solicita</i> (HARRIS, 1780)	● lost	H	701 1037	11	2	701 1173	All	Mp/Mtr/Nr
<b>Ethiolimnia VERBEKE, 1950 <sup>7</sup></b>								
<i>brincki</i> VERBEKE, 1961	● UZIL	AF						
<i>geniculata</i> (LOEW, 1862)	NHMW	AF						Mp/Mtr/Np/Nr
<i>lindneri</i> VERBEKE, 1962	SMNS	AF						
<i>platalea</i> VERBEKE, 1950 *	● IRSNB	AF						
<i>vanrosi</i> VERBEKE, 1962	NRS	AF						
<i>vittipennis</i> (THOMSON, 1869)	NRS	AF						

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>zumpfi</i> VERBEKE, 1956	SAIMR	•	AF						
<b><i>Eutimnia</i> TONNOIR et MALLOCH, 1928</b>									
<i>milleri</i> TONNOIR et MALLOCH, 1928 *	NZACA	•	SA	54					
<i>philpotti</i> TONNOIR et MALLOCH, 1928	NZACA		SA	54	14	4 (3)	52	All	
<b><i>Euthycera</i> LATREILLE, 1829 *</b>									
<i>alaris</i> VALA, 1983			P						
<i>alaris alaris</i> VALA, 1983	MNHN	•	P						
<i>alaris sardoa</i> CONTINI et RIVOSECCHI, 1984	MZUR		P						
<i>algira</i> (MACQUART, 1849)	MNHN		P						
<i>alpina</i> (MAYER, 1953)	NHFW		P						
<i>arcuata</i> (LOEW, 1859)	MCZ	•	N		10?	5b	422.8 1430		Mp/Mtr/Np/Nr
<i>chaerophylli</i> (FABRICIUS, 1798) *	destroyed ZMUC	•	P		10	5a	727.3 1173 1457	Pu L1	Mr

<i>cribrata</i> (RONDANI, 1868)	MLSF? •	P	8	5b	247 462 1081 1447.1 1447.2 1457 1475	E  E/L1/L3 E/L1/L3 L1/L3 All
<i>flavostriata</i> (VILLENEUVE, 1911)	MNHN •	P				
<i>formosa</i> (LOEW, 1862)	lost? • ZMB	P				
<i>fumigata</i> (SCOPOLI, 1763)	destroyed •	P				
<i>guanchica</i> FREY, 1936	ZMH •	P				
<i>hrabei</i> ROZKOŠNÝ, 1969	ZSBSM	P				
<i>korneyevi</i> ROZKOŠNÝ et KNUTSON, 2006	MUB	P				
<i>merzi</i> ROZKOŠNÝ et KNUTSON, 2006	MHNG	P				
<i>mira</i> KNUTSON et ZUSKA, 1968	CNC	N				
<i>seguyi</i> VALA, 1990	MNHN	P				
<i>stichospila</i> (CZERNY, 1909)	NHMW •	P	8	5b	1447.2 1454	E All
<i>stictica</i> (FABRICIUS, 1805)	ZMUC •	P				

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>sticticaria</i> (MAYER, 1953)	NHMW		P						
<i>vockerothi</i> ROZKOŠNÝ, 1988	CNC		P						
<i>zelleri</i> (LOEW, 1847)	ZMB	•	P						
<i>Euthycerina</i> MALLOCH, 1933									
<i>pilosa</i> MALLOCH, 1933	BM(NH)		NT						
<i>vittithorax</i> MALLOCH, 1933 *	BM(NH)		NT						
<i>Eutrichomelina</i> STEYSKAL, 1975 in STEYSKAL & KNUTSON (1975)									
<i>albibasis</i> (MALLOCH, 1933)	BM(NH)	•	NT						
<i>fulvipennis</i> (WALKER, 1837) *	BM(NH)	•	NT						
<i>Guatemala</i> STEYSKAL, 1960									
<i>nigritarsis</i> MARINONI, 1992		⊙	NT	1480	11	?	1480	All	
<i>straminata</i> (VAN DER WULP, 1897) *	BM(NH)	•	NT						

<b>Hedria</b> STEYSKAL, 1954 in STEYSKAL (1954a) <i>mixta</i> STEYSKAL, 1954 in STEYSKAL (1954a) *	☉	N	415	13	3	415	All	Mp/Mr/Nr
<b>Hoplodictya</b> CRESSON, 1920								
<b>acuticornis</b> (VAN DER WULP, 1897)	● BM(NH)	N	394	4?		394		Mp/Mr/Np/Nr
<b>australis</b> FISHER et ORTH, 1972	☉	N (NT)	394					
<b>kincaidi</b> (JOHNSON, 1913)	●	N	394					
<b>setosa</b> (COQUILLET, 1901) *	☉	N	394	12a	1?	1008	All	
<b>spincornis</b> (LOEW, 1866)	● MCZ	N (NT)	394	4	1/2?	1008	All	
<b>Hydromya</b> ROBINEAU-DESVOIDY, 1830								
<b>dorsalis</b> (FABRICIUS, 1775) *	● destroyed ZMUC	P (O, AF)	1403 1447	2	1?	74 77 78 609 699 1457	All L1	Mp/Mr/Np/Nr

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>Ilione</i> HALIDAY, 1837 in CURTIS (1837)									
<i>SG Ilione</i> HALIDAY, 1837									
<i>SG Knutsonia</i> VERBEKE, 1964									
<i>albiseta</i> [SG <i>Ilione</i> ] (SCOPOLI, 1763) *	destroyed	●	P	703 1447	11	4	74 77 78 703 795 795.1		Mp/Mr/Nr
<i>corcyrensis</i> [SG <i>Ilione</i> ] (VERBEKE, 1964)	IRSNB	●	P	703		4?	1173 1457 703	E/L1/L2/Pu L1 L3/Pu	
<i>lineata</i> [SG <i>Knutsonia</i> ] (FALLEN, 1820) in FALLEN (1820b) **	NRS	●	P	703 1447	14	4 (3?)	703 712.1 696.1	E/L1/Pu E/L1/L2	Mr/Nr
<i>rossica</i> [SG <i>Knutsonia</i> ] (MAYER, 1953)	NHMW	●	P	703					
<i>trifaria</i> [SG <i>Ilione</i> ] (LOEW, 1847)	ZMB	●	P	703 1447	11	1?	462 703 1457	E All L1	Mp/Mtr/Np/Nr
<i>truquii</i> [SG <i>Ilione</i> ] (RONDANI, 1863)	MLSF		P	703					



<i>turcestanica</i> [SG <i>Ilione</i> ] (HENDEL, 1903)	MNHB	•	P (O)	703 1447	11	1?	703	All	
<i>unipunctata</i> [SG <i>Ilione</i> ] (MACQUART, 1849)	MNHN	•	P	703	11	1?	703	All	
<b><i>Linnia</i> ROBINEAU-DESVOIDY, 1830</b>									
<i>boscii</i> (ROBINEAU-DESVOIDY, 1830)	lost? MNHN	•	N	1375	4?	4?	1375 1403.2	L3/Pu	Mp/Mr/Np/Nr
<i>conica</i> STEYSKAL, 1978 in STEYSKAL et al. (1978)	☉	☉	N	1375					
<i>fitchi</i> STEYSKAL, 1978 in STEYSKAL et al. (1978)	☉	☉	N	1375					
<i>georgiae</i> MELANDER, 1920	☉	☉	N	1375					
<i>inopa</i> (ADAMS, 1904)	UK	•	N	1375					
<i>japonica</i> YANO, 1978	KUJ	•	P	1403					
<i>lemmoni</i> FISHER et ORTH, 1971	CAS	•	N	1375					
<i>lindbergi</i> STEYSKAL, 1978 in STEYSKAL et al. (1978)	☉	☉	N	1375					
<i>loewi</i> STEYSKAL, 1965	MCZ	•	N	1375					
<i>lousstanae</i> MELANDER, 1920	☉	☉	N	1375					
<i>nambai</i> STEYSKAL, 1978 in STEYSKAL et al. (1978)	☉	☉	N	1375					

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular Analyses
<i>ottawensis</i> MELANDER, 1920	☉		N	1375					Mp/Mr/Np/Nr
<i>pacifica</i> ELBERG, 1965	●	ZISP	P	341					
<i>paludicola</i> ELBERG, 1965	●	ZISP	P	341 1466	2/8?	5b?	74 75 <sup>9</sup> 1558		Mp/Mr/Np/Nr
<i>pubescens</i> (DAY, 1881)	●	lost? USNM	N	1375					
<i>sandovalensis</i> FISHER et ORTH, 1978 in STEYSKAL et al. (1978)	☉		N	1375					Mp/Mr/Nr
<i>septentrionalis</i> MELANDER, 1920	☉		N	1375					
<i>setosa</i> YANO, 1978		KUJ	P	1403					
<i>severa</i> CRESSON, 1920	●	CAS	N	1375					
<i>shannoni</i> CRESSON, 1920	☉		N	1375					
<i>sparsa</i> (LOEW, 1862) in LOEW (1862e)	●	MCZ	N	1375					
<i>unguicornis</i> (SCOPOLI, 1763) *	●	destroyed	P	341 1466	2/8?	5b	74 1466		Mp/Mr

	ZISP	P		
<i>Neotictya</i> ELBERG, 1965				
<i>jakovlevi</i> ELBERG, 1965 *				
<i>Neolimnia</i> TONNOIR et MALLOCH, 1928				
SG <i>Neolimnia</i> TONNOIR et MALLOCH, 1928				
SG <i>Pseudolimnia</i> TONNOIR et MALLOCH, 1928				
SG <i>Sublimnia</i> HARRISON, 1959				
<i>castanea</i> [SG <i>Neolimnia</i> ] (HUTTON, 1904)	CMC	SA 48	7 ?	49
<i>diversa</i> [SG <i>Neolimnia</i> ] TONNOIR et MALLOCH, 1928	NZACA	SA 48		
<i>irrorata</i> [SG <i>Neolimnia</i> ] TONNOIR et MALLOCH, 1928	NZACA •	SA 48	7 ?	49
<i>minuta</i> [SG <i>Neolimnia</i> ] TONNOIR et MALLOCH, 1928	NZACA •	SA 48		
<i>nitidiventris</i> [SG <i>Sublimnia</i> ] TONNOIR et MALLOCH, 1928 **	NZACA	SA 48		
<i>obscura</i> [SG <i>Neolimnia</i> ] (HUTTON, 1901) *	CMC •	SA 48	7 ?	49
<i>pepekeiti</i> [SG <i>Neolimnia</i> ] BARNES, 1979	NZACA	SA 48		
<i>raiti</i> [SG <i>Neolimnia</i> ] BARNES, 1979	NZACA	SA 48		
<i>repo</i> [SG <i>Pseudolimnia</i> ] BARNES, 1979	NZACA •	SA 48	11 6	49
<i>sigma</i> [SG <i>Pseudolimnia</i> ] (WALKER, 1849) **	BM(NH) •	SA 48	11 6	49
<i>striata</i> [SG <i>Neolimnia</i> ] (HUTTON, 1904)		SA		

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>striata striata</i> [SG <i>Neolimnia</i> ] (HUTTON, 1904)	CMC		SA	48	7	?	49		
<i>striata brunneifrons</i> [SG <i>Neolimnia</i> ] TONNOIR et MALLOCH, 1928	NZACA		SA						
<i>tranquilla</i> [SG <i>Pseudolimnia</i> ] (HUTTON, 1901)	CMC	•	SA	48	12c	6	49		
<i>ura</i> [SG <i>Pseudolimnia</i> ] BARNES, 1979	NZACA	•	SA	48	11	6	49		
<i>vittata</i> [SG <i>Sublimnia</i> ] HARRISON, 1959	NZACA		SA	48					
<b><i>Oligolimnia</i> MAYER, 1953</b>									
<i>zernyi</i> MAYER, 1953 *	NHMW		P						
<b><i>Perilimnia</i> BECKER, 1919</b>									
<i>albifacies</i> BECKER, 1919 *	MNHN	•	NT	645	2	6	645	All	
<i>cineritia</i> ZUSKA, 1969 in KACZYNSKI et al. (1969)	CNC		NT	645		(1?)			
<b><i>Pherbecta</i> STEYSKAL, 1956</b>									
<i>limenitis</i> STEYSKAL, 1956 *	CU	•	N			5a?	680	Pu	Mp/Mtr/Np/Nr

<b><i>Pherbina</i> ROBINEAU-DESVOIDY, 1830</b>									
<i>coryleti</i> (SCOPOLI, 1763) *	destroyed	•	P	1447	2	4	74 77 78 718 1173	All E/L3/Pu L1-L3	Mp/Mtr/Np/Nr
<i>intermedia</i> VERBEKE, 1948	IRSNB	•	P	1403 1447	2?		718	L1-L3	Mp/Mr
<i>mediterranea</i> MAYER, 1953	NHMW	•	P	1456	2	4	1447.2 1456	E/L1 All	
<i>testacea</i> (SACK, 1939)	SDEI		P						
<b><i>Poecilographa</i> MELANDER, 1913</b>									
<i>decora</i> (LOEW, 1864) in LOEW (1864b) *	MCZ	•	N	57	5a?		57	Pu	Mp/Mtr/Np/Nr
<b><i>Protodictya</i> MALLOCH, 1933</b>									
<i>apicalis</i> STEYSKAL, 1950	IOC	•	NT	879	2		1	All	
<i>bidentata</i> MARINONI et KNUTSON, 1992	lost? IOC	⊙	NT	879					
<i>brasiliensis</i> (SCHINER, 1868)	lost? NHMW	•	NT	879					
<i>chilensis</i> MALLOCH, 1933 *	BM(NH)	•	NT	879	11	6	1	All	
<i>gutularis</i> (WIEDEMANN, 1830)	ZMB	•	NT	879	11	6	1	All	
<i>iguassu</i> STEYSKAL, 1950	IOC	•	NT	879					

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>lilloana</i> STEYSKAL, 1953	IMLT	●	NT	879	11	6	1	All	
<i>nubilipennis</i> (VAN DER WULF, 1897)	BM(NH)	●	NT	879	2	6	1007	All	
<i>Psacadina</i> ENDERLEIN, 1939									
<i>disjecta</i> ENDERLEIN, 1939 *	ZMB		P	1447	2		718	All	
<i>kaszabi</i> ELBERG, 1978	MNHB		P						
<i>verbekei</i> ROZKOŠNÝ, 1975 in KNUTSON et al. (1975)	MUB	●	P	1447	2	2?	718 1457	All L1	Mp/Mr/Np/Nr
<i>vittigera</i> (SCHINER, 1862)	NHMW	●	P	1447			1172	E	Mp/Mr/Np/Nr
<i>zernyi</i> (MAYER, 1953)	NHMW	●	P	1447	2	2?	718	All	Mp/Mr/Np/Nr
<i>Renocera</i> HENDEL, 1900 <sup>10</sup>									
<i>amanda</i> CRESSON, 1920	MCZ	●	N	417	14	5a	417 671 712.1	Pu L3/Pu	Mp/Mr/Nr
<i>bergi</i> STEYSKAL, 1954 in STEYSKAL (1954d)	☉	☉	N						

<i>johnsoni</i> CRESSON, 1920	MCZ •	N	417	11?	1467.1		Mp/Mr/Nr
<i>longipes</i> (LOEW, 1876)	MCZ •	N	417	14	417	5a	
<i>pallida</i> (FALLÉN, 1820) in FALLÉN (1820b)	NRS •	P		14	610 696.1	1?	Mp/Mr/Np/Nr
<i>striata</i> (MEIGEN, 1830)	NHMW •	H	417	14	712.1	1	Mr/Np/Nr
<i>strobilii</i> HENDEL, 1900 *	NHMW •	P			417 696.1 712.1		
<b>Sepedomerus STEYSKAL, 1973</b>							
<i>bipuncticeps</i> (MALLOCH, 1933)		NT					
<i>bipuncticeps bipuncticeps</i> (MALLOCH, 1933)	BM(NH) •	NT			941		
<i>bipuncticeps trinidadensi</i> (STEYSKAL, 1951)	☉	NT					
<i>caeruleus</i> (MELANDER, 1920)	☉	NT	1009	11	1009	6	All
<i>macropus</i> (WALKER, 1849) *	BM(NH) •	NT (N)	1009	11	1009	6	All

Taxa	Type collections	Geographic distribution	Reference distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>Sepedon</i> LATREILLE, 1804 <sup>11, 12</sup> SG <i>Mesosepedon</i> VERBEKE, 1950 SG <i>Parasepedon</i> VERBEKE, 1950 SG <i>Sepedomyia</i> VERBEKE, 1950 (STEYSKAL 1973) SG <i>Sepedon</i> LATREILLE, 1804 (VERBEKE 1950)	IRSNB	AF						
<i>acrosificta</i> [SG <i>Parasepedon</i> ] VERBEKE, 1956 in STEYSKAL & VERBEKE (1956)								
<i>aenescens</i> [SG <i>Sepedon</i> ] WIEDEMANN, 1830	ZMUC	O (P)	714 1403	11	6 (2)	81 207.1 208 996 997 1403.2	E/L3/Pu E L3/Pu	
<i>alaotra</i> [SG <i>Sepedomyia</i> ] VERBEKE, 1962	MNHN	AF						
<i>albocostata</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	IRSNB	AF						
<i>americana</i> STEYSKAL, 1951	☉	N	1009	11	2	1009	All	
<i>anchista</i> STEYSKAL, 1956	• CU	N	1009	11	2	1009	All	



	MCZ	•	N (NT)	388	11	2	1009	All	Mp/Mr/Nr
<i>armipes</i> LOEW, 1859									
<i>batjanensis</i> KERTÉSZ, 1899	MNHIB		O-OC						
<i>bifida</i> STEYSKAL, 1951	CAS	•	N	1009	11	2	1009	All	
<i>borealis</i> STEYSKAL, 1951		⊙	N	1009	11	2	1009	All	
<i>capellei</i> FISHER et ORTH, 1969	CAS	•	N	388					
<i>cascadensis</i> FISHER et ORTH, 1974	CAS		N						
<i>chalybeifrons</i> DE MEIJERE, 1908	ZMA		O						
<i>convergans</i> [SG <i>Mesosepedon</i> ] LOEW, 1862 in LOEW (1862c)	?		AF						
<i>costalis</i> WALKER, 1858	BM(NH)	•	A						
<i>crishna</i> WALKER, 1859	BM(NH)	•	O (A)						
<i>dispersa</i> [SG <i>Mesosepedon</i> ] VERBEKE, 1950	IRSNB	•	AF						
<i>edwardsi</i> [SG <i>Parasepedon</i> ] STEYSKAL, 1956 in STEYSKAL & VERBEKE (1956)	BM(NH)		AF						
<i>ethiopica</i> [SG <i>Mesosepedon</i> ] STEYSKAL, 1956 in STEYSKAL & VERBEKE (1956)	BM(NH)		AF						
<i>femorata</i> KNUTSON et ORTH, 1984	⊙		P	714					

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular Analyses
<i>ferruginosa</i> WIEDEMANN, 1824	ZMUC	●	O	81	11	6	81 207.1		
<i>floridensis</i> STEYSKAL, 1951		⊙	N	1032					
<i>fuscipennis</i> LOEW, 1859	MCZ	●	N	1032	11	2	1009 1009.2	All	Mp/Mr/Nr
<i>gracilicornis</i> ORTH, 1986		⊙	N	1032					
<i>hecate</i> ELBERG, ROZKOŠNÝ et KNUTSON, 2009		⊙	P						
<i>hispanica</i> LOEW, 1862 in LOEW (1862d)			AF (P)						
<i>hispanica hispanica</i> LOEW, 1862	ZMB	●	P	708	4	6	713	All	
<i>hispanica ruhengeriensis</i> VERBEKE, 1950	IRSNB	●	AF	708	4	6	696		
<i>iris</i> [SG <i>Parasepedon</i> ] VERBEKE, 1961	IRSNB	●	AF						
<i>iurienis</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	MRACT		AF						
<i>katangensis</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	MRACT		AF						

<i>knutsoni</i> [SG Mesosepedon] VALA, GBEDISSI et DOSSOU, 1994	MNHN	•	AF	15	1461.1	
<i>lata</i> BEZZI, 1928	BM(NH)	•	A-OC			
<i>lignator</i> STEYSKAL, 1951	UM	•	N			
<i>lippensi</i> [SG Parasepedon] VERBEKE, 1950	IRSNB	•	AF			
<i>lobifera</i> HENDEL, 1911	MNHB	•	O			
<i>maculifemur</i> [SG Parasepedon] VERBEKE, 1950	IRSNB		AF			
<i>madecassa</i> [SG Parasepedon] VERBEKE, 1961	MNHN		AF			
<i>magerae</i> [SG Parasepedon] VERBEKE, 1959	IRSNB		AF			
<i>mcpersoni</i> KNUTSON et ORTH, 2001	INHNS		N			
<i>melanderi</i> STEYSKAL, 1951		⊙	N			
<i>monacha</i> [SG Parasepedon] VERBEKE, 1961	IRSNB	•	AF			
<i>nanoides</i> [SG Parasepedon] VERBEKE, 1950	MRACT		AF			
<i>nasuta</i> [SG Sepedomyia] VERBEKE, 1950 **	IRSNB	•	AF	708		
<i>neantias</i> HENDEL, 1913	SDEI	•	O (P)			

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>nevei</i> [SG <i>Parasepedon</i> ] STEYSKAL, 1956 in STEYSKAL & VERBEKE (1956)	BM(NH)	•	AF		11	6	23		
<i>netli</i> STEYSKAL, 1951	UM	•	N	1009	(2, 13)		62	All	
<i>notambe</i> [SG <i>Parasepedon</i> ] SPEISER, 1910 **	UZIL	•	AF				847.2		
<i>noteoi</i> STEYSKAL, 1980		☉	O-P		11	2	1009	All	
<i>ochripes</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	IRSNB		AF						
<i>ophiolimnes</i> [SG <i>Parasepedon</i> ] STEYSKAL, 1956 in STEYSKAL & VERBEKE (1956)	BM(NH)	•	AF						
<i>ornatifrons</i> [SG <i>Parasepedon</i> ] ADAMS, 1905	UK	•	AF	708					
<i>pacifica</i> CRESSON, 1914 <sup>5,6</sup>	ANSP	•	N	393	11	27, 6	393		
<i>paranana</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	MRACT		AF				398		
<i>petex</i> [SG <i>Parasepedon</i> ] STEYSKAL, 1956 in STEYSKAL & VERBEKE (1956)	BM(NH)		AF						
<i>pleuritica</i> [SG <i>Mesosopedon</i> ] LOEW, 1862 in LOEW (1862c)	UZIL	•	AF						

<i>plumbella</i> WIEDEMANN, 1830	ZMUC	•	O-OC- A	81	11	6	81 141 207.1		Mp/Mr/Np/Nr
<i>praemiosa</i> GIGLIO-TOS, 1893 13, 14	UT	•	N (NT)	393 1009	11	2	393 1009	All	
<i>pseudarmipes</i> FISHER et ORTH, 1969	CAS	•	N	388					
<i>pusilla</i> LOEW, 1859	MCZ	•	N	1009	11	2	1009	All	
<i>relicta</i> VAN DER WULP, 1897	BM(NH)	•	N	1009	11	2	1009	All	
<i>ruficeps</i> [SG <i>Parasepedon</i> ] BECKER, 1923	NHMW	•	AF (P)	709 463b	11	6	463.2 464.1 713	All L3/Pu	
<i>saegeri</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	IRSNB	•	AF						
<i>scapularis</i> [SG <i>Parasepedon</i> ] ADAMS, 1903	UK	•	AF	713	11	6	23 713 847.2 850	L3/Pu All	
<i>schoutedeni</i> [SG <i>Mesosapedon</i> ] VERBEKE, 1950 **	MRACT	•	AF						
<i>setenopa</i> [SG <i>Parasepedon</i> ] VERBEKE, 1961	MRACT		AF						
<i>senegalensis</i> [SG <i>Parasepedon</i> ] MACQUART, 1843	MNHN		AF						
<i>senex</i> WIEDEMANN, 1830	NHMW	•	O	81	11	6	80 81		

Taxa	Type collections	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>simulans</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	MRAC	AF	81	11	6	81 204	E, L3, Pu	
<i>spangleri</i> BEAVER, 1974	☉	O	81	11	6	81 204	E, L3, Pu	
<i>sphegea</i> [SG <i>Sepedon</i> ] (FABRICIUS, 1775) *	●	P (O)	714	11	2	1401 461 462 1009 1457	L1 E All L1	Mp/Mr/Np/Nr
<i>spinipes</i> [SG <i>Sepedon</i> ] (SCOPOLI, 1763)	●	P	1009	11	1?, 2	74 77 78 913.2 913.21 1009	L1	Mp/Mr/Np/Nr
<i>straeleni</i> [SG <i>Parasepedon</i> ] VERBEKE, 1963	●	AF	708					
<i>stuckenbergi</i> [SG <i>Parasepedon</i> ] VERBEKE, 1961	MNHN <sup>15</sup>	AF						
<i>tenuicornis</i> CRESSION, 1920	lost? ☉	N	1032	11?	6?	466 1009	All	

<i>testacea</i> [SG <i>Parasepedon</i> ] LOEW, 1862 in LOEW (1862c)	lost? NRS	AF	11	2	62	All
<i>trichroscelis</i> [SG <i>Parasepedon</i> ] SPEISER, 1910	• NRS	AF	4	6	696 1458	All
<i>trochanterina</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	IRSNB	AF				
<i>tuckeri</i> [SG <i>Mesosepedon</i> ] BARRACLOUGH, 1985	NMP	AF				
<i>uelensis</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	• IRSNB	AF				
<i>umbrosa</i> [SG <i>Parasepedon</i> ] VERBEKE, 1950	• MRACT	AF	7	?	464	
<b><i>Sepedonea</i> STEYSKAL, 1973<sup>8</sup></b>						
<i>annulata</i> MACQUART, 1844 <sup>16</sup>	⊙	NT	11	6	730 1062.1	All
<i>barbosai</i> KNUTSON et BREDT, 1976	• MZUSP	NT	11	6	434 1062.1	169 941
<i>canabravana</i> KNUTSON et BREDT, 1976	MZUSP	NT	11	6	434 1062.1	169 941
<i>giovana</i> MARINONI et MATHIS, 2006 <sup>17</sup>	⊙	NT			880.4 1062.1	All
<i>guatemalana</i> (STEYSKAL, 1951)	• OSU	NT	11	6	434 1062.1	1009
<i>gutantica</i> (STEYSKAL, 1951) <sup>8</sup>	• BM(NH)	NT	11	6	434 1062.1	2
<i>incipiens</i> FREIDBERG, KNUTSON et ABERCROMBIE, 1991	⊙	NT	11	6	434 1062.1	2 434
<i>lagoa</i> (STEYSKAL, 1951)	• IOC	NT	11	6	434 1062.1	2 434

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>lindneri</i> (HENDEL, 1932) *	SMNS	●	NT	434 1062.1	11	6	2 434	All	
<i>neffi</i> FREIDBERG, KNUTSON et ABERCROMBIE, 1991		⊙	NT	434 1062.1					
<i>telson</i> (STEYSKAL, 1951)	IOC	●	NT	434 1062.1	11	6	2 434 941	All	
<i>trichotypa</i> FREIDBERG, KNUTSON et ABERCROMBIE, 1991		⊙	NT	434 1062.1	11	6	2 434	All	
<i>veredae</i> FREIDBERG, KNUTSON et ABERCROMBIE, 1991	MZUSP	●	NT	434 1062.1					
<b><i>Sepedonella</i> VERBEKE, 1950</b>									
<i>bredoi</i> VERBEKE, 1950	IRSNB		AF						
<i>nana</i> VERBEKE, 1950 *	IRSNB	●	AF	708? 713 1458.2	15	6?	1458.2? 1460 1458.2 1461	All	
<i>straeleni</i> VERBEKE, 1956 in STEYSKAL & VERBEKE (1956)	IRSNB		AF						
<i>wittei</i> VERBEKE, 1950	IRSNB		AF						



<b><i>Sepedoninus</i> VERBEKE, 1950</b>							
<i>curvisetis</i> VERBEKE, 1950	IRSNB •	AF	708				
<i>planifrons</i> VERBEKE, 1950 *	IRSNB	AF					
<b>spec. nov.</b> (KNUTSON et GHORPADÉ, in prep.) [undescribed new species]	BM(NH)	O					
<b><i>Shannonia</i> MALLOCH, 1933</b>							
<i>costalis</i> (WALKER, 1837) *	BM(NH)	NT	645				
<i>meridionalis</i> ZUSKA, 1969 in KACZYNSKI et al. (1969)	CU •	NT	645	2	6	645	All
<i>Steyskatalina</i> KNUTSON, 1999 in GHORPADÉ et al. (1999)					(1?)		
<i>picta</i> GHORPADÉ et MARINONI, 1999 in GHORPADÉ et al. (1999)	NRS? •	O					
<b><i>Tetanocera</i> DUMÉRIL, 1800<sup>18</sup></b>							
SG <i>Chaetotelanocera</i> MAYER, 1953							
SG <i>Tetanocera</i> DUMÉRIL, 1800 (MAYER 1953)							
<i>amurensis</i> HENDEL, 1909	NHIMW •	P	350				Mp/Mr/Nr
<i>andromastos</i> STEYSKAL, 1963 in STEYSKAL (1963a)	CNC •	N					
<i>annae</i> STEYSKAL, 1938	UM •	N	422	11	5a	407 422	All Mp/Mr/Np/Nr
<i>arnaudi</i> ORTH et FISHER, 1982	CAS •	N					Mp/Mr/Nr

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular Analyses
<i>arrogans</i> [SG <i>Tetanocera</i> ] MEIGEN, 1830	MNHN	●	P	1403 1447	4	1	77 1169 <b>1173</b> 1447.1 1466.1	Pu E/Pu Pu	Mp/Mr/Np
<i>bergi</i> STEYSKAL, 1954 in STEYSKAL (1954d)		⊙	N	422.5	11	1	422.5		Mp/Mr/Np/Nr
<i>brevisetosa</i> [SG <i>Tetanocera</i> ] FREY, 1924	ZMH		H						
<i>chosenica</i> STEYSKAL, 1951	CAS	●	P-O	1403					
<i>clara</i> LOEW, 1862 in LOEW (1862e)	MCZ	●	N	1430	9	1	1430	All	Mp/Mr/Np/Nr
<i>elata</i> [SG <i>Tetanocera</i> ] (FABRICIUS, 1781) *	MNHN	●	P	1403	9	1	74 721 <b>1169</b> 1429 1466.1	Pu	Mp/Mr/Nr

<i>ferruginea</i> [SG <i>Tetanocera</i> ] FALLÉN, 1820 in FALLÉN (1820b)	lost?	H	422 1403 1466.1	11	1	74 77 78 407 422 462 <b>1169</b> 1447.1 1457 1466.1		Mp/Mr/Np/Nr
	NRS					All E L3/Pu All L1		
<i>freyi</i> [SG <i>Tetanocera</i> ] STACKELBERG, 1963	ZISP	H	1227 1427					Mp/Mr/Np/Nr
	UZIL	H	420 1466.1	2	1	74 77 78 407 420 1173 1466.1		Mp/Mr/Np/Nr
<i>hyalipennis</i> [SG <i>Tetanocera</i> ] VON ROSER, 1840	SMNS	P	1466.1 1447	2	1	1466.1		Mp/Mr/Nr
	ZISP	P						
<i>ignota</i> BECKER, 1907		N						
<i>iowensis</i> STEYSKAL, 1938								
<i>kerteszi</i> [SG <i>Tetanocera</i> ] HENDEL, 1901	MNHN	H	1466.1	7?	5a?	1466.1		Mp/Mr/Nr
	ZMH	P						
<i>laponica</i> [SG <i>Tetanocera</i> ] FREY, 1924								

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>latifibula</i> [SG <i>Tetanocera</i> ] FREY, 1924	ZMH	●	H	422 1466.1	11	3	407 422 1466.1	All	Mp/Mr/Nr
<i>loewi</i> STEYSKAL, 1959	☉	☉	N	422	11	3	407 422	All	Mp/Mr/Nr
<i>melanostigma</i> STEYSKAL, 1959	☉	☉	N	421	4	1	407 421	All	Mp/Mr/Nr
<i>mesopora</i> STEYSKAL, 1959	☉	☉	N	422	11	3	422		Mp/Mr/Nr
<i>montana</i> [SG <i>Tetanocera</i> ] DAY, 1881	UCS?	●	H	422 1227 1466.1	11	3	74 78 407 422 1466.1		Mp/Mr/Nr
<i>nigrostriata</i> [SG <i>Tetanocera</i> ] LI, YANG et GU, 2001	CAUB	●	O						
<i>obtusifibula</i> MELANDER, 1920	☉	☉	N	422	11	4	407 422	Pu	Mp/Mr/Nr
<i>oxia</i> STEYSKAL, 1959	☉	☉	N	421	4	1	407 421	Pu	Mp/Mr
<i>phyllophora</i> [SG <i>Tetanocera</i> ] MELANDER, 1920	☉	☉	H	1227 1403	7	5a	1466.1		Mp/Mr

<i>plebeja</i> LOEW, 1862 in LOEW (1862e)		H	1403 1430	9 (8)	1	1429 1430	All	Mp/Mr/Nr
<i>plumosa</i> LOEW, 1847		N (NT)	422.5	2/11	4	407 422.5	L3/Pu	Mp/Mr/Nr
<i>punctifrons</i> [SG <i>Tetanocera</i> ] RONDANI, 1868		P						
<i>robusta</i> [SG <i>Chaetotetanocera</i> ] LOEW, 1847 **		H	422 1466.1	11	5a	74 407 422 1466.1	All	Mp/Mr/Np/Nr
<i>rotundicornis</i> LOEW, 1861		N	421	4	1	407 421	All	Mp/Mr/Nr
<i>silvatica</i> MEIGEN, 1830		H	420 1466.1	2	1?	74 77 78 420 1173 1466.1		Mp/Mr/Np/Nr
<i>soror</i> MELANDER, 1920		N		11?	3? 4?	407	E/L1	Mp/Mr
<i>spirifera</i> MELANDER, 1920		H	421	4		421		
<i>spreta</i> VAN DER WULP, 1897		N	422	11	6?	407	L1-L3/Pu	
<i>sricklandi</i> STEYSKAL, 1959		N	422.5	11	1	422 422.5		
<i>valida</i> LOEW, 1862 in LOEW (1862e)		N	1430	9	1	1430	All	Mp/Mr/Nr

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>vicina</i> MACQUART, 1843	MNHN	•	N	422	11	4	407 422	All	Mp/Mr/Nr
<b><i>Tetanocerooides</i> MALLOCH, 1933</b>									
<i>bisetosus</i> (THOMSON, 1869)	NRS	•	NT	1604	11	6	1	All	
<i>dentifer</i> ZUSKA, 1974 in ZUSKA & BERG (1974)	CU	•	NT	1604	11	6	1	All	
<i>fulvithorax</i> MALLOCH, 1933	BM(NH)	•	NT	1604			1	E/L1	
<i>mendicus</i> ZUSKA, 1974 in ZUSKA & BERG (1974)	CU	•	NT	1604	11	6	1	All	
<i>mesopleuralis</i> MALLOCH, 1933 *	BM(NH)	•	NT	1604					
<i>patagonicus</i> (THOMSON, 1869)	NRS	•	NT	1604	11		1	L3/Pu	
<i>simplex</i> ZUSKA, 1974 in ZUSKA & BERG (1974)	CU	•	NT	1604			1	E/L1	
<b><i>Tetanoptera</i> VERBEKE, 1950</b>									
<i>leucodactyla</i> VERBEKE, 1950 *	IRSNB	•	AF						

<i>Teutonimyia</i> HENNIG, 1952					
<i>costaricensis</i> STEYSKAL, 1960	☉	NT (N)			
<i>plaumanni</i> HENNIG, 1952 *	● SDEI	NT			
<i>Thecomyia</i> PERTY, 1833 <sup>19</sup>					
<i>abercrombiei</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	● BM(NH)	NT 880.1			
<i>atazensis</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	☉	NT 880.1			
<i>bonattoi</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	AMNH	NT 880.1			
<i>chrysacra</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	☉	NT 880.1			
<i>lateralis</i> (WALKER, 1858)	● BM(NH)	NT 880.1			
<i>limbata</i> (WIEDEMANN, 1819)	● ZMB	NT 880.1	11	6	3
<i>longicornis</i> PERTY, 1833 *	● ZSBSM	NT 880.1			All
<i>mathisi</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	☉	NT 880.1			
<i>naponica</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	● CNC	NT 880.1			
<i>papaveroi</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	☉	NT 880.1			
<i>signorelli</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	● MZUSP	NT 880.1			

Taxa	Type collections	USNM	Geographic distribution	Reference Distribution map	Behavioural group	Phenological group	Reference Biology	Immatures described	Molecular analyses
<i>tricuneata</i> MARINONI et STEYSKAL, 2003 in MARINONI et al. (2003)	CNC	•	NT	880.1					
<i>Trypetolimnia</i> MAYER, 1953									
<i>rossica</i> MAYER, 1953 *	NHMW	•	P						Mp/Mr/Np/Nr
<i>Trypetoptera</i> HENDEL, 1900									
<i>canadensis</i> (MACQUART, 1843)	MNHN	•	N		7	?	422.8		Mp/Mr/Np/Nr
<i>punctulata</i> (SCOPOLI, 1763) *	destroyed	•	P		7	5b	140 1446 1457	L2 All L1/L3	Mp/Mr/Np/Nr
<i>Verbekaria</i> KNUTSON, 1968									
<i>punctipennis</i> KNUTSON, 1968 *	CNC		AF						



**Tab. 4:** Fossil species of Sciomyzidae. Abbreviations: <sup>1</sup> = Questionably referred to Phaeomyiidae by HENNIG (1969) [SB599]; <sup>2</sup> = Not recognizable as Sciomyzidae by HENNIG (1965) [SB597]; ? = Collection unknown.

Taxa	Collection	Geographic distribution (age)
PHAEOMYIINAE		
<i>Prophaemyia</i> HENNIG, 1965		
<i>loewi</i> HENNIG, 1965 *	BM(NH)	Baltic Region (Eocene/Oligocene)
SALTICELLINAE		
<i>Prosalticella</i> HENNIG, 1965		
<i>succini</i> HENNIG, 1965 *	UG	Baltic Region (Eocene/Oligocene)
SCIOMYZINAE		
<b>Sciomyzini</b>		
<i>Palaeoheteromyza</i> MEUNIER, 1904		
<i>crassicornis</i> MEUNIER, 1904 *	UG	Baltic Region (Eocene/Oligocene)
<i>curticornis</i> HENNIG, 1965 <sup>1</sup>	UG	Baltic Region (Eocene/Oligocene)
<i>investiganda</i> HENNIG, 1969	MNHN	Baltic Region (Eocene/Oligocene)
<i>Sciomyza</i> FALLÉN, 1820		
<i>dissecta</i> SCUDDER, 1878 <sup>2</sup>	MCZ	Wyoming, U.S.A. (Eocene)
<i>florissantensis</i> COCKERELL, 1909	AMNH	Colorado, U.S.A. (Miocene) [? Ortalidae]
<i>manca</i> SCUDDER, 1878 <sup>2</sup>	MCZ	Wyoming, U.S.A. (Eocene)
<i>revelata</i> SCUDDER, 1877 <sup>2</sup>	MCZ	British Columbia, Canada (Oligocene)
<b>Tetanocerini</b>		
<i>Sepedonites</i> HENNIG, 1965		
<i>baltica</i> HENNIG, 1965 *	UG	Baltic Region (Eocene/Oligocene)
<i>Tetanocera</i> DUMÉNIL, 1800		
<i>alireticulata</i> THEOBALD, 1937 <sup>1</sup>	UNNF	France (Oligocene)
<i>contenta</i> FÖRSTER, 1891 <sup>1</sup>	?	Germany (Miocene)
<i>preciosa</i> FÖRSTER, 1891 <sup>1</sup>	?	Germany (Miocene)
<i>variciliata</i> THEOBALD, 1937 <sup>1</sup>	UNNF	France (Oligocene)

**Tab. 5:** Numbers of extant species by genera of Sciomyzidae in zoogeographic regions. Abbreviations: H = Holarctic; N = Nearctic; P = Palearctic; NT = Neotropical; AF = Afrotropical; O = Oriental; A = Australian; OC = Oceanic; SA = Subantarctic (New Zealand). Remarks: Number of species marginally adventive from or broadly shared with an adjacent region is shown by parentheses. Species are counted for each region where they occur, but only once for total known species in a genus. Holarctic genera and species are also included in Nearctic and Palearctic totals.

Genus	Region										Described species
	H	N	P	NT	AF	O	A	OC	SA		
1. <i>Akebono</i>			1								1
2. <i>Anticheta</i>		8	7								15
3. <i>Apteromicra</i>						1					1
4. <i>Atrichomelina</i>		1		(1)							1
5. <i>Calliscia</i>				1							1
6. <i>Chasmacryptum</i>			1								1
7. <i>Colobaea</i>		3	10		1	(1)					14
8. <i>Coremacera</i>			10								10
9. <i>Dichetophora</i>			5			1	6				12
10. <i>Dictya</i>		34(2)	1	9(4)							44
11. <i>Dictyacium</i>		2									2
12. <i>Dictyodes</i>				2							2
13. <i>Ditaeniella</i>		2	1	1(1)	1	(1)					5
14. <i>Ectinocera</i>			1								1
15. <i>Elgiva</i>	2	3	2								7
16. <i>Ethiolimnia</i>					7						7
17. <i>Eulimnia</i>									2		2
18. <i>Euthycera</i>		2	18								20
19. <i>Euthycerina</i>				2							2
20. <i>Eutrichomelina</i>				2							2
21. <i>Guatemalaia</i>				2							2
22. <i>Hedria</i>		1									1
23. <i>Hoplodictya</i>		5		(2)							5
24. <i>Huttonina</i>									8		8
25. <i>Hydromya</i>			1		(1)	(1)					1
26. <i>Ilione</i>			8			(1)					8
27. <i>Limnia</i>		17	5								22
28. <i>Neodictya</i>			1								1
29. <i>Neolimnia</i>									14		14
30. <i>Neuzina</i>				1							1
31. <i>Oidematops</i>		1									1
32. <i>Oligolimnia</i>			1								1
33. <i>Parectinocera</i>				3							3

Continuation of table 5

Genus	Region									Described species
	H	N	P	NT	AF	O	A	OC	SA	
34. <i>Pelidnoptera</i>			4			(1)				4
35. <i>Perilimnia</i>				2						2
36. <i>Pherbecta</i>		1								1
37. <i>Pherbellia</i>	8	31	42(1)	6(1)	3	3(3)	2	1		94
38. <i>Pherbina</i>			4							4
39. <i>Poecilographa</i>		1								1
40. <i>Prosochaeta</i>									1	1
41. <i>Protodictya</i>				8						8
42. <i>Psacadina</i>			5							5
43. <i>Pseudomelina</i>				1						1
44. <i>Pteromicra</i>	3	11	3		1	1				20
45. <i>Renocera</i>	1	4	2							7
46. <i>Salticella</i>			1		1					2
47. <i>Sciomyza</i>	2	2	2							6
48. <i>Sepedomerus</i>		(1)		3						3
49. <i>Sepedon</i>		20	5(4)	(2)	42	11(1)	3(1)	3		79
50. <i>Sepedonea</i>				13						13
51. <i>Sepedonella</i>					4					4
52. <i>Sepedoninus</i>					2	1				3
53. <i>Shannonia</i>				2						2
54. <i>Steyskalina</i>						1				1
55. <i>Tetanocera</i>	12	18	8	(1)		2				39
56. <i>Tetanoceroides</i>				7						7
57. <i>Tetanoptera</i>					1					1
58. <i>Tetanura</i>			1							1
59. <i>Teutoniomyia</i>		(1)		2						2
60. <i>Thecomyia</i>				12						12
61. <i>Trypetolimnia</i>			1							1
62. <i>Trypetoptera</i>		1	1							2
63. <i>Verbekaria</i>					1					1
<b>Total species/region</b>	<b>28</b>	<b>172</b>	<b>157</b>	<b>91</b>	<b>65</b>	<b>30</b>	<b>12</b>	<b>4</b>	<b>25</b>	<b>545</b>
<b>Total genera/region</b>	<b>6</b>	<b>23</b>	<b>29</b>	<b>23</b>	<b>12</b>	<b>13</b>	<b>3</b>	<b>2</b>	<b>4</b>	–
<b>Endemic genera/region</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>14</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>4</b>	–

**Tab. 6:** Abbreviations of collections in which type specimens of valid species are held.

<b>AMNH</b>	American Museum of Natural History, New York, New York, U.S.A.
<b>AMS</b>	Australian Museum, Sydney
<b>ANIC</b>	Australian National Insect Collection, Canberra, Australia
<b>ANSP</b>	Academy of Natural Sciences, Philadelphia, Pennsylvania, U.S.A.
<b>BLKUF</b>	Biosystematics Laboratory, Kyushu University, Fukuoka, Japan
<b>BM(NH)</b>	British Museum (Natural History), London, England
<b>CAS</b>	California Academy of Sciences, San Francisco, California, U.S.A.
<b>CAUB</b>	China Agricultural University, Beijing, China
<b>CIN</b>	Cawthron Institute, Nelson, New Zealand
<b>CMC</b>	Canterbury Museum, Christchurch, New Zealand
<b>CNC</b>	Canadian National Collection, Ottawa, Ontario, Canada
<b>CU</b>	Cornell University, Ithaca, New York, U.S.A.
<b>HUS</b>	Hokkaido University, Sapporo, Japan
<b>IMLT</b>	Instituto Miguel Lillo, Tucumán, Argentina
<b>INBio</b>	Instituto Nacional de Biodiversidad de Costa Rica, Santo Domingo, Heredia, Costa Rica
<b>INHS</b>	Illinois Natural History Survey, Champaign-Urbana, Illinois, U.S.A.
<b>IOC</b>	Instituto Oswaldo Cruz, Rio de Janeiro, Brazil
<b>IRSNB</b>	Institut royal des Sciences naturelles de Belgique, Brussels, Belgium
<b>JZP</b>	Jan Zuska, private collection, Prague, Czech Republic
<b>KUJ</b>	Kyushu University, Kyushu, Japan
<b>MC-T</b>	Miguel Carles-Tolrà, private collection, Barcelona, Spain
<b>MCZ</b>	Museum of Comparative Zoology, Harvard College, Cambridge, Massachusetts, U.S.A.
<b>MHNG</b>	Museum d'Histoire naturelle, Geneva, Switzerland
<b>MLSF</b>	Museo Zoologica "La Specola", Florence, Italy
<b>MNHB</b>	Museum of Natural History, Budapest, Hungary
<b>MNHN</b>	Museum national d'Histoire naturelle, Paris, France
<b>MRACT</b>	Musée royal de l'Afrique centrale, Tervuren, Belgium
<b>MUB</b>	Masaryk University, Brno, Czech Republic
<b>MZUR</b>	Museo di Zoologia, Università degli Studi di Roma "La Sapienza," Rome, Italy
<b>MZUSP</b>	Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil
<b>NHMW</b>	Naturhistorisches Museum, Vienna, Austria
<b>NIAS</b>	National Institute of Agro-environmental Science, Tsukuba, Japan

Continuation of table 6

<b>NML</b>	Natur-Museum, Luzern, Switzerland
<b>NMNW</b>	National Museum of Namibia, Windhoek, Namibia
<b>NMP</b>	Natal Museum, Pietermaritzburg, South Africa
<b>NRS</b>	Naturhistoriska Riksmuseet, Stockholm, Sweden
<b>NZACA</b>	New Zealand Arthropod Collection, Auckland, New Zealand
<b>OSU</b>	Ohio State University, Columbus, Ohio, U.S.A.
<b>SAIMR</b>	South African Institute for Medical Research, Johannesburg, South Africa
<b>SDEI</b>	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany
<b>SIUC</b>	Southern Illinois University, Carbondale, Illinois, U.S.A.
<b>SMNS</b>	Staatliches Museum für Naturkunde, Stuttgart, Germany
<b>SNMB</b>	Slovak National Museum, Bratislava, Slovakia
<b>TAU</b>	Tel Aviv University, Tel Aviv, Israel
<b>UCB</b>	University of Colorado, Boulder, Colorado, U.S.A.
<b>UCLA</b>	University of California, Los Angeles, California, U.S.A.
<b>UCS</b>	University of Connecticut, Storrs, Connecticut, U.S.A.
<b>UI</b>	University of Idaho, Moscow, Idaho, U.S.A.
<b>UK</b>	University of Kansas, Lawrence, Kansas, U.S.A.
<b>UM</b>	University of Michigan, Ann Arbor, Michigan, U.S.A.
<b>UNNF</b>	Université de Nancy, Nancy, France
<b>USNM</b>	U.S. National Museum of Natural History, Washington, DC, U.S.A.
<b>UT</b>	University of Turin, Turin, Italy
<b>UZIL</b>	Universitetets Zoologiske Institution, Lund, Sweden
<b>ZFMK</b>	Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany
<b>ZISP</b>	Zoological Institute, St. Petersburg, Russia
<b>ZMA</b>	Zoölogisch Museum, Amsterdam, The Netherlands
<b>ZMB</b>	Zoological Museum, Humboldt University, Berlin, Germany
<b>ZMH</b>	Zoological Museum, Helsinki, Finland
<b>ZMMSU</b>	Zoological Museum, Moscow State University, Moscow, Russia
<b>ZMUC</b>	Zoological Museum, University of Copenhagen, Denmark
<b>ZSBSM</b>	Zoologische Sammlung des Bayerischen Staates, Munich, Germany

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## Literature

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Short note – Kurzmitteilung

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**Faunistics – Faunistik**

Palearctic Region – Paläarktische Region

## **The first record of *Sicus alpinus* STUKE from the Pyrenees (Diptera: Conopidae)**

[Erster Nachweis von *Sicus alpinus* STUKE aus den Pyrenäen (Diptera: Conopidae)]

by

Jens-Hermann STUKE and Gerard PENNARDS

Leer (Germany)

Amersfoort (The Netherlands)

After the preparation and identification of Conopidae in the collection of the second author, the following remarkable record of *Sicus alpinus* STUKE, 2002 has been found:

FRANCE: 1 ♀, 27.vi.1998, Forêt de Boucheville, Pyrénées-Orientales, leg. 'DIERTAXONOMIE' (University of Wageningen), coll. G. PENNARDS. The material was collected in the neighbourhood of Fenouillet at an average elevation of 1042 m a. s. l. (42°45'N 02°22'E).