Revision of the Black Fungus Gnats (Diptera: Sciaridae) of North America

[Revision der Trauermücken (Diptera: Sciaridae) Nordamerikas]

by
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Abstract The North American fauna of Black Fungus Gnats (Diptera: Sciaroidea: Sciaridae) currently comprises 25 genera and 166 species (including 8 species incertae sedis). 82 species are distributed only in the Nearctic and 67 species in the Holarctic, 1 species in the Holarctic/Neotropical Regions and 8 species in North and Central America including the Caribbean islands. 223 species-group names have been applied to taxa occurring in North America (north of Mexico). These were described or have been reported from North America (USA and Canada) since 1827. For these names, 42 new species-group combinations, 60 new species-group synonyms, and one new genus-group synonym are here proposed. Two species remain unplaced but have been redescribed and figured, whereas six species-group names cannot be interpreted (one described by CURRAN, three by FITCH, one by KIEFFER, one by WALKER). Seven species-group names from SAY are considered to be nomina dubia. Twelve species-group names described or reported from Greenland have been excluded from this revision (section 10).

Key words Sciaridae, Nearctic Region, Greenland, Canada, USA, systematics, taxonomy, revision, new combinations, new synonyms, type designations, new records

Zusammenfassung Die nordamerikanische Fauna der Trauermücken (Diptera: Sciaroidea: Sciaridae) umfasst gegenwärtig 166 Arten in 25 Gattungen (einschließlich 8 species incertae sedis). Davon sind 82 Arten nur in der Nearktis und 67 Spezies in der Holarktis verbreitet, darunter 1 Art in der Holarktis/Neotropis und 8 Arten in Nord- und Mittelamerika einschließlich der karibischen Inseln. 223 Artnamen sind aus Nordamerika (nördlich von Mexiko) dokumentiert. Diese wurden seit 1827 entweder aus Nordamerika (USA und Kanada) beschrieben oder von dort gemeldet. Die Revision erbrachte 42 Neukombinationen, 60 neue Synonyma der Artengruppe und ein neues Synonym der Gattungsgruppe. Zwei Arten blieben unplatziert, wurden aber redeskribiert und abgebildet. Dagegen konnten sechs Artnamen nicht aufgeklärt werden (einer beschrieben von CURRAN, drei von FITCH, einer von KIEFFER und einer von WALKER). Sieben weitere Namen von SAY wurden als nomina dubia eingeordnet. Zwölf aus Grönland beschriebene oder gemeldete Namen der Artengruppe wurden in dieser Revision nicht berücksichtigt (Kapitel 10).

Stichwörter Sciaridae, nearktische Region, Grönland, Kanada, USA, Systematik, Taxonomie, Revision, Neukombinationen, neue Synonyme, Typendesignationen, neue Nachweise

1 Introduction

100 years after the publication of the ground-breaking paper "The Fungus Gnats of North America" by Oskar Augustus JOHANNSEN (1870–1961), we present here in his honour a revision of the North American Sciaridae.

The family name Sciaridae was introduced by BILLBERG in 1820. Black Fungus Gnats are inconspicuous nematoceran flies of dark colour, mostly only 2–3 mm long. Nevertheless, everyone

who has flower pots on his window-sill, or a winter garden knows them. They are tiny dark flies usually found running around near a window, and are often thought to be fruit flies, to which they are not related. Yellow sticky traps made of cardboard or plastic are often placed in winter gardens, greenhouses and cultures of fungi, to attract the flies and reduce their quantity in order to protect the plants from damage by the larvae. Such occurrences explain why Sciaridae are not very popular, although no more than about 10 species have larvae that are known to be specialized feeders in living tissues of commercially grown plants (in roots, or mining in leaves or stems). It is therefore not astonishing, that these species have been described several times by dipterists, involved in applied research during the 19th century and the beginning of the 20th. Most of the more than 5,000 Black Fungus Gnats are however harmless, or even beneficial, because sciarid larvae are major primary decomposers of plant debris. They therefore play a significant role in nature through mineralization of organic matter. Many species serve as bio-indicators for different soil attributes (humidity, pH, and salinity). When monitored using photoeclectors they are suitable for the detection of changes in environmental parameters.

Despite their inconspicuous appearance, sciarids are easily recognized in samples under a stereo microscope, even at low magnification, because of their simple but characteristic wing venation. The wing does not have any cross vein except for the short rs at its base. Quite characteristic are a short R_1 and a long R_5 as anterior veins, while a simple M-fork with a long M-stem, and a CuA_1 fork with a short stem are typical for the posterior wing veins.

Fig. A: *Odontosciara nigra* (Wiedemann) from South Carolina, Georgetown Co., Hobcaw Barony, Belle Baruch Marine Field Laboratory (USA). Photo: S. A. Marshall.

2 History

The first species to be described from North America were *Sciara nigra* and *Sciara fulviventris* (both now *Odontosciara nigra*) by WIEDEMANN (1821) (Fig. A). In the following years of the 19th century a few further species were described, often in connection with applied entomology, as pests of plants, by SAY (1823 [1 species], 1824 [4], 1829 [1], 1832 [1]), WALKER (1848) [5], FITCH (1856) [4], OSTEN SACKEN (1862) [1], LOEW (1869) [2], RÜBSAAMEN (1894) [2], COMSTOCK (1882) [1], LINTNER (1895) [2], HOPKINS (1895) [1], COQUILLETT (1995 [1], 1896 [1, and the genus *Eugnoriste* (Fig. 1)], 1900 [1], 1904 [1]), and FELT (1898) [5]. The species described by SAY were studied by WIEDEMANN (1828) and perhaps by WALKER (1848). Since that time this material has neither been found in American collections, nor in the British Museum (Natural History). The descriptions are very short, inexact and without figures, so that identification is impossible. None of the later specialists has seen the material of SAY and FITCH and the place of deposition of the type specimens is unknown (with the exception of *Sciara mali* FITCH). An equally unsatisfactory uncertainty applies to the current identification of the five species described by WALKER from Canada. The types are deposited in the BMNH in London. All specimens are females and pinned. We have seen these, and assigned three species to genera, but we decided not all to transfer them to slides, because if this were done, a possible future study based on sequencing of DNA would not be possible. The probability of successful identification of the species through morphological examination of dried material of females is not high.

In the 20th century one species was described by KIEFFER (1910) [*Sciara silvestrii*] in the female sex, from New York. The species is unrevised and type material may perhaps be deposited in Paris, but was not available to us during preparation of this revision. The first extensive and sophisticated study of black fungus gnats was made by JOHANNSEN (1912) with the description of 30 new species, one genus (*Pnyxia*) and a key to all species then known, with the exception of those described by SAY, WALKER and FITCH. This work is important, in that it was the first comprehensive study to make systematic use of the fine structures of the male hypopygia instead of the hitherto employed classification based on wing characters and colouration of the body. JOHANNSEN's drawings of gonostyli so exactly depict the major characters for the differentiation of species, that most of his species are still clearly recognizable today. In Europe the hypopygia were first used in 1930 by LENGERSDORF for species diagnosis. Later FREY (1942, 1948), and particularly TUOMIKOSKI (1960), realized the paramount importance of male genitalia for the identification of species of Sciaridae and based their species concepts upon these.

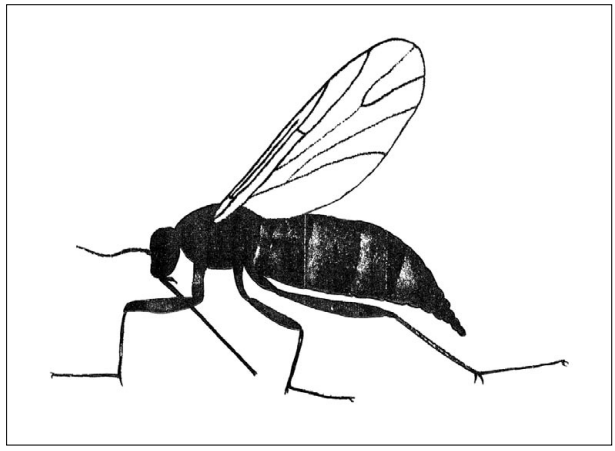


Fig. 1: *Eugnoriste occidentalis* COQUILLETT ♀, original drawing.

After his main work, JOHANNSEN described 4 further species in 1914, 1925, 1929a and 1929b. The next important publications were by PETTEY (1918a, 1918b), a co-worker of JOHANNSEN at the University of Ithaca. He described 30 new species and one genus (*Neosciara*), with descriptions

and figures of a quality comparable to those by Johannsen, and also provided a key to all North American Sciaridae. The type specimens of Johannsen and Pettey are deposited and well conserved in the Cornell Collection of the University of Ithaca.

In following years a few species were described by Jones (1920) [1], Malloch (1923) [1], Garrett (1925) [5], Curran (1925) [1], Lengersdorf (1931) [1], Fisher (1938) [1], Metz (1938a) [1], and Rapp (1946) [1, and the genus *Niadina*]. The next noteworthy works on Black Fungus Gnats were presented by Shaw (1934 [1], 1935a [2], 1935c [1], 1941a [2], 1941b [7], 1952 [5], 1953a [3]) in connection with phylogenetic aspects of the complex of Mycetophilidae. Shaw described a total of 21 new species (16 from the territory of North America, 5 from Hawaii) and in cooperation with Fisher presented a key to the sciarids of Connecticut (Shaw & Fisher 1952). The illustrations of new species are in some cases stylized and not easy to interpret, and his collection in Amherst is fragmentary. After Shaw, in the second half of the 20th century only a few new species were described by the American dipterists Pritchard (1960) [1, and the genus *Moehnia*] and Steffan (1968 [1], 1971 [1], 1984 [1]).

A new quality in the understanding of the American sciarid fauna and the zoogeographic connections between the Palaearctic and Nearctic regions was reached in the taxonomic studies of Hippa & Vilkamaa (1991) [1], Hippa & Vilkamaa (1994) and Vilkamaa et al. (2011, 2013) on the genus *Camptochaeta* (25 new species, 13 species distributed in North America as well as in the Palaearctic region), Hippa et al. (2003) on the genus *Claustropyga* (5 species from Canada and the USA, 2 species distributed in North America as well as in the Palaearctic region), Mohrig (2003) [1], Vilkamaa (2003) on the genus *Baeosciara* [2 species, 1 distributed in North America as well as in the Palaearctic region], Vilkamaa et al. (2004) on the genus *Dichopygina* [4 species], Hippa & Vilkamaa (2004) on the genus *Xylosciara* [6 species, 1 distributed in North America and the Palaearctic region], Vilkamaa & Hippa (2006) on the *Corynoptera vagula* group [4 species, 1 distributed in North America and the Palaearctic region], Vilkamaa & Hippa (2007) on the genus *Claustropyga* [6 species, 2 distributed in North America and the Palaearctic region], Hippa et al. (2010) on the subgenus *Corynoptera* [12 species, 7 distributed in North America as well as in the Palaearctic region], Vilkamaa et al. (2013) [3 species]. The results of these studies document that not only species adapted to human environments such as gardens, greenhouses, fungi cultures or houseplants and therefore transported by man are distributed in the two zoogeographic zones, but also species of natural habitats, not connected with human activities. Especially species of northern and mountainous regions in Europe are distributed also in Canada and the northern states of the USA.

The first "Catalog of Sciaridae of America North of Mexico" was published by Stone & Laffoon (1965) [unchanged Stone & Laffoon (1983)]. This contains 124 species in 16 genera (13 species from Greenland, 31 unplaced species and 2 erroneously included South American species). Steffan (1966), working on Hawaii mainly on Pacific and Oriental Sciaridae, registered in "A generic revision of the family Sciaridae (Diptera) of America North of Mexico" 101 species in 12 genera and 27 species of uncertain position. In his revision he gave a very good overview of morphology, biology, ecology, economic impact and systematic relationships of Sciaridae. It is astonishing that in the fifty years since this work was published, no dipterist in the USA or Canada has been engaged in the scientific study of this family, despite its importance to the understanding of the phylogeny and zoogeography of Diptera and in the monitoring of environmental conditions. Steffan accepted the generic concept of Tuomikoski (1960), but the poor knowledge of Palaearctic species and a partial study of the types of North American species only led to a formal transfer of *Sciara* and *Neosciara* species described by Johannsen,

Pettey and other authors to *Bradysia*, *Scatopsciara* or *Lycoriella*, not reflecting the generic richness of the described species. The weak knowledge of Palaearctic genera and species also works to the disadvantage of the Sciaridae chapter in the Manual of Nearctic Diptera (Steffan 1981), where some wrongly interpreted species are presented as typical of certain genera [fig. 20, "*Sciara* sp." is *Trichosia* spec. and fig. 22, "*Corynoptera* sp." is in fact *Bradysia giraudii* (Egger, 1862), not known in North America up to now].

The last catalogue of Sciaridae is in "Nomina Insecta Nearctica. A Check List of the Insects of North America" (Poole 1996) mentioned 170 species, including 14 registered for Greenland only, 4 unplaced and questionable as species of North America [*Bradysia nemoralis* (Meigen, 1818); *Bradysia nigripes* (Meigen, 1830); *Sciara pulicaria* Meigen, 1818; *Sciara septemtrionalis* Rübsaamen, 1898], one literature record of *Sciara rotundipennis* Macquart, 1838 (Johannsen 1912) mentioned as detected in "America", but in fact belonging to the South American sciarid fauna, and two mentioned as possibly distributed in North America, but without proof [*Bradysia nervosa* (Meigen, 1818) and *Phytosciara flavipes* (Meigen, 1804)]. All together 223 sciarid species and 5 genera are described or mentioned in literature for the Nearctic Region. If we exclude the 12 species from Greenland (see section 10), which have not all been revised, and the other 7 species that are not convincingly documented, we have 204 valid names for species detected on the territory of North America (United States and Canada), which form the basis of the current revision.

3 Material, methods and determination

3.1 Material and methods

Types and paratypes were studied during visits to the Cornell Collection in Ithaca (collection of Johannsen and Pettey), the Shaw collection in Amherst and the collection of Diptera in San Francisco. We also loaned types for study from the following collections: New York State Museum, Albany; Museum of Comparative Zoology, Cambridge; K. C. Emerson Entomology Museum of Oklahoma State University, Stillwater; Department of Entomology of Academy of Natural Sciences of Philadelphia; Department of Entomology of Smithsonian Institution of National Museum of Natural History, Washington D. C.; Department of Entomology, Washington State University Pullman, Washington; Division of Entomology, Peabody Museum, Yale University, and Biosystematics Research Institute, Ottawa.

From types or paratypes, drawings were made using a drawing mirror after Abbe at magnifications between 30 × and 400 ×. Drawings are provided for all species of North American authors, if possible from the type or a paratype specimen, and for species badly illustrated in the past. For well illustrated species recommended figures for identification are indicated in the cited literature. The state of preservation of type specimens is mentioned for every species. In some cases we also studied old alcohol material of Johannsen, Pettey (Ithaca) and Steffan, or dry material sampled by Alexander and Fisher (Amherst) and Arnaud (San Francisco) from different States of the USA and Canada. The dry specimens were kept for some hours in warm water with a few drops of a detergent as used for cleaning glasses and after that transferred via alcohol and creosote to Canada balsam. Our own material was collected with yellow traps, caught by net or using Malaise traps, in California (Los Angeles, Santa Cruz, Napa Valley), Texas (surroundings of Houston) and Virginia (surroundings of Williamsburg). Further alcohol material for comparison was made available by Brian V. Brown (Entomology Section, Natural History Museum of Los Angeles County) from Malaise traps operated by McFarland and Prchal between 1993 and 1996 in Arizona (Cochise Co., Pima Co.), Fuller, 1993–1994 in Canada

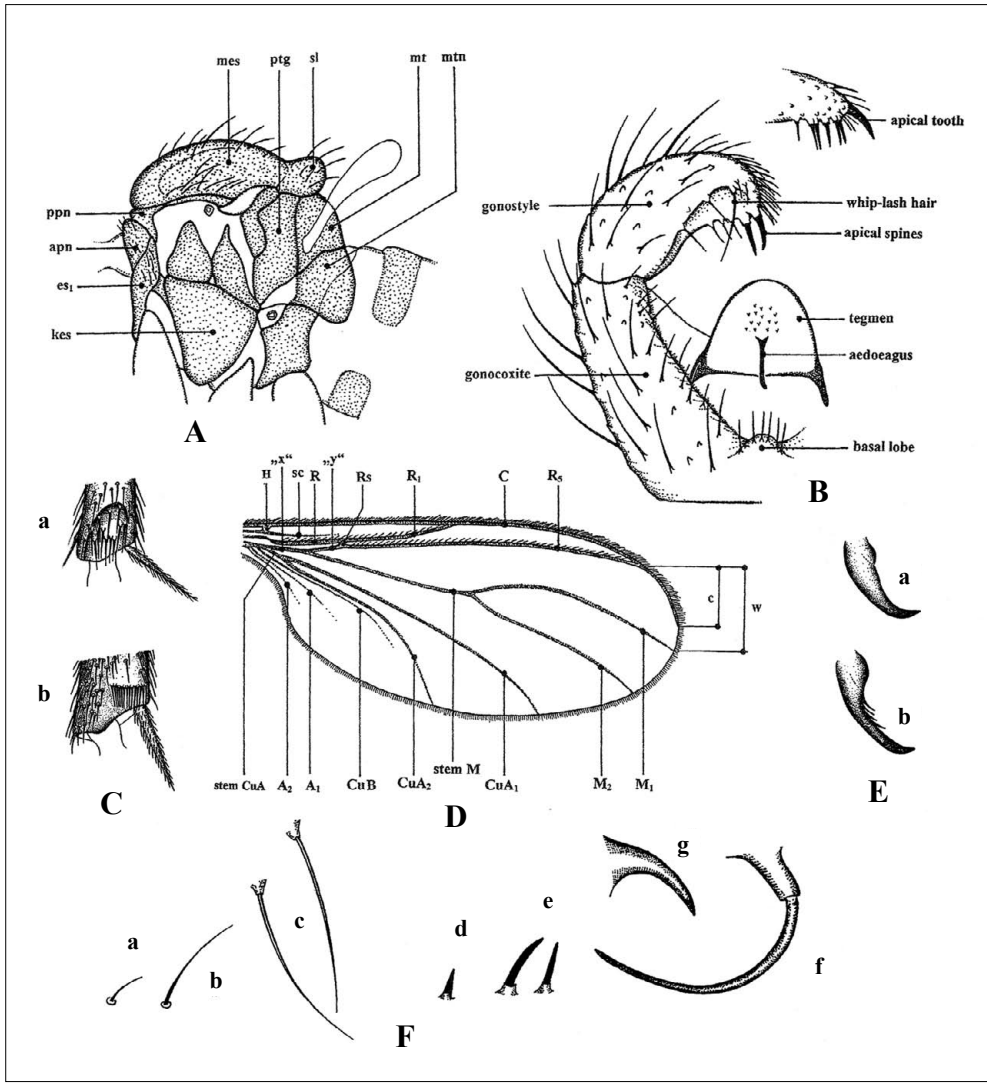


Fig. 2: Basic structures of a generalized sciarid. – **A**: Thorax, lateral view; – **B**: Male genitalia (hypopygium), ventral view; – **C**: Tibial organ of fore legs, lateral view; – **D**: Wing; – **E**: Claws; – **F**: Setae, spines and tooth. Abbreviations: THORAX: apn = Antepronotum; prepm = proepisternum; kes = katepisternum; mes = mesonotum (scutum); mt = mediotergite; mtn = Metanotum; ppn = postpronotum; ptg = laterotergite; sl = scutellum. TIBIAL ORGAN: a = horseshoe-shaped bordered; b = comb like. WING: A_1/A_2 = first and second branches of anal vein; bM = base of vein M ("x"); C = costal vein; c = distance between apex of vein R_{4+5} and the end of vein C; CuA_1/CuA_2 = first and second branches of anterior branch of cubital vein; CuB = posterior branch of cubital vein; H = humeral crossvein; M_1/M_2 = branches of medial vein (M-fork); R = radial vein (radius); R_1 = anterior branch of radius; R_5 = radial vein R_{4+5}; r-m = crossvein r-m ("y"); Rs = radial sector (branching agein into R_5); Sc = subcosta; w = distance between apex of vein R_5 to apex of vein M_1. CLAWS: a = untoothed; b = toothed. SETAE – SPINES – TOOTH: a = seta or hair; b = bristle; c = whiplash hair; d = awl-like spine; e = spines (dark or hyaline); f = large curved spine (spines always inserting on basal protuberance); g = tooth (without basal protuberance).

(Alberta) and LA MASINER 1996 in Montana (Gallatin Co.). Collectors of single samples are mentioned under individual species. The specimens were stored in 70 % alcohol and embedded

in Canada balsam via 96 % alcohol (30 min.), creosote (minimum 10 min.), then transferred to Canada balsam on slides (the body under cover slips of 10 × 10 mm, the dissected hypopygium with the ventral side upwards under cover slips of 5 × 5 mm). Another successful method is to embed specimens in Euparal after a short treatment in pure ethanol.

For comparison with Palaearctic species the collections in Stockholm (SMNH), Helsinki (MZH), Müncheberg (SDEI) and the private collections of Kai Heller (PKHE) and Werner Mohrig (PWMP) were used. The revised species are arranged alphabetically within the genera, independent of their systematic position.

3.2 Determination

Morphological terminology mainly follows Mohrig & Menzel (2009: 281), with the following differences: wing vein x = bM, y = r-m, whiplash hair = whiplash seta. Contrary to other authors we use the terms *spine* instead of *megaseta* and *bristle* instead of *strong seta* (Fig. 2).

The determination of North American sciarids is made difficult by the lack of an up to date key to species. Keys exist only for some genera or subgenera such as *Camptochaeta* (Hippa & Vilkamaa 1994), *Claustropyga* (Hippa et al. 2003, Vilkamaa & Hippa 2007), *Dichopygina* (Vilkamaa et al. 2004) and *Corynoptera* s. str. (Hippa et al. 2010). The use of the key by Steffan (1981) in the "Manual of Nearctic Diptera" is helpful for a first indication of the generic position of a species. It is important to keep in mind that in this work the Palaearctic genera and subgenera are not as adequately considered as is made necessary by the high degree of congruence between Palaearctic species and Nearctic species from Canada and the northern states of the USA. In the meantime a combined use of the keys given by Menzel & Mohrig (1997b: 62–67; 2000: 84–93) for Palaearctic genera and Mohrig & Menzel (2009: 281–291) for Central American genera may be helpful. The latter is important for the determination of species from southern states of the USA because there are some species distributed mainly in Central America and the Antillean islands.

3.3 Type designation

The statuses of the types of many species described by Johannsen, Pettey, Shaw and Garrett were not clear. In the original publications holotypes were not designated unambiguously according to the rules of zoological nomenclature (ICZN). In many cases the type localities were only indicated. Nevertheless most type specimens of the mentioned authors were labelled as "holotype", "paratype" or "allotype". It is not clear, whether these labels were attached to the specimens by the describing authors or by subsequent revisors. Apparently no lectotypes had been designated by previous revisors. In order to promote taxonomic stability we now designate lectotypes, whenever no unambiguous holotype was present. In these cases we selected as lectotype the specimen, which was already labelled as "holotype", with the exception of "*Sciara diota* Garrett" (see details in the species chapter).

4 Abbreviations

4.1 Genus-group names

B. = *Bradysia*; *C.* = *Corynoptera*; *Cam.* = *Camptochaeta*; *Cl.* = *Claustropyga*; *Cr.* = *Cratyna*; *Di.* = *Dichopygina*; *L.* = *Lycoriella*; *Le.* = *Leptosciarella*; *N.* = *Neosciara*; *P.* = *Pnyxia*; *Ph.* = *Phytosciara*; *Pl.* = *Plastosciara*; *Psl.* = *Pseudolycoriella*; *S.* = *Sciara*; *Sc.* = *Scatopsciara*; *Schw.* = *Schwenckfeldina*; *T.* = *Trichosia*; *X.* = *Xylosciara*.

4.2 Museums and private collections

AMNH – American Museum of Natural History, New York, New York, USA
ANSP – Academy of Natural Sciences, Philadelphia, Pennsylvania, USA
BLCU – Utah State University, Bee Biology and Systematics Laboratory, Logan, Utah, USA
BMNH – The Natural History Museum, London, United Kingdom (formely British Museum of Natural History, London, United Kingdom)
BPBM – Bernice P. Bishop Museum, Honolulu, Hawaii, USA
CAS – California Academy of Sciences, San Francisco, California, USA
CNC – Canadian National Collection of Insects, Ottawa, Ontario, Canada
CUIC – Cornell University Insect Collection, Ithaca, New York, USA
INHS – Illinois Natural History Survey Insect Collection, Champaign, Illinois, USA
MCZC – Harvard University, Museum of Comparative Zoology, Cambridge, Massachusetts, USA
MLUH – Martin-Luther-Universität Halle/Wittenberg, Zoological Institute, Halle (Saale), Germany
MNHN – Museum National d'Histoire Naturelle, Paris, France
MZH – Finnish Museum of Natural History, University of Helsinki, Helsinki, Finland
MZLU – Lund University, Zoological Institute, Lund, Sweden
NHMW – Naturhistorisches Museum Wien, Vienna, Austria
NMPC – National Museum in Prague, Museum of Natural History, Prague, Czech Republic
NMS – National Museums of Scotland, Edinburgh, Scotland, United Kingdom (formerly as PBLN = Private collection of Brian R. Laurence, Norwich, England, United Kingdom)
NYSM – New York State Museum, Albany, New York, USA
PASS – Private Collection of Aliya R. Satayeva, Semey, Kazakhstan
RBCM – Royal British Columbia Museum, Victoria, British Columbia, Canada
PDGB – Private Collection of David J. Gibbs, Bristol, England, United Kingdom
PBRA – Private Collection of Björn Rulik, Altwindeck, Germany (formerly as PBRD = Private collection of Björn Rulik, Dresden, Germany)
PKHE – Private Collection of Kai Heller, Ellerau, Germany (formerly as PKHH = Private Collection of Kai Heller, Heikendorf, Germany)
PLKB – Private Collection of Lyudmila A. Komarova, Biysk, Russia
PPCM – Private Collection of Peter J. Chandler, Melksham, England, United Kingdom
PPWM – Private Collection of Phil Withers, Montée du Cimetière, France (formerly as PPWC = Private Collection of Phil Withers, Charnay, France)
PRSM – Private Collection of Hans-Georg Rudzinski, Schwanewede-Meyenburg, Germany
PWMP – Private Collection of Werner Mohrig, Poseritz, Germany
SDEI – Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (formerly as DEI = Deutsches Entomologisches Institut, Eberswalde, Germany) [incl. Private Collection of Frank Menzel, Eberswalde, Germany]
SFNF – Senckenberg Forschungsinstitut und Naturmuseum Frankfurt, Frankfurt am Main, Germany (formerly as SMFD = Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main)
SMNH – Swedish Museum of Natural History, Stockholm, Sweden
TTU – Texas Tech University, Lubbock, Texas, USA
UAAM – University of Arkansas, The Arthropod Museum, Fayetteville, Arkansas, USA
UMEC – University of Massachusetts, Amherst, Massachusetts, USA

UMO – Oxford University Museum of Natural History, Oxford, England, United Kingdom
USNM – U. S. National Museum of Natural History, Washington D. C., USA
WSU – Washington State University, Maurice T. James Entomological Collection, Pullman, Washington, USA
ZFMK – Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany
ZMAS – Russian Academy of Sciences, Zoological Institute, St. Petersburg, Russia
ZMHB – Museum für Naturkunde an der Humboldt-Universität zu Berlin, Berlin, Germany
ZMJU – Jagiellonian University, Zoological Museum, Kraków, Poland
ZMUC – University of Copenhagen, Zoological Museum, Copenhagen, Denmark
ZSMC – Zoologische Staatssammlung München, Munich, Germany

5 Morphology and phylogenetic relationships

In morphology we follow Menzel & Mohrig (2000: 49–72), and Mohrig & Menzel (2009). Detailed and helpful information is given also by Steffan (1966). The more important characters necessary for understanding of the redescriptions, discussion and comments are demonstrated in Fig. 2.

The Sciaridae are a distinct family within the superfamily Sciaroidea in the sense of Wood & Borkent (1989) and Chandler (2002), which belongs to the infraorder Bibionomorpha. Based on the construction of the head capsule and mouthparts, the existence of tibial spurs and the loss of the abdominal spiracle 8 in larvae, inside the Sciaroidea they have a closer relationship to Mycetophilidae sensu lato than to Cecidomyiidae or to other families. For a current phylogenetic discussion we recommend Hippa & Vilkamaa (2005, 2006), Amorim & Rindal (2007) and the critical comments of Jaschhof (2011). In the future, barcode analysis of DNA and clustering with maximum likelihood algorithms will contribute important additional information about the internal and external phylogenetic relationships of Sciaridae (Shin et al. 2013). Meanwhile we mainly follow the generic classification of Menzel & Mohrig (2000).

6 Checklist of genera and species of North America
(excluding questionable records and species from Greenland)

***Acuatella* Mohrig, 2003**
toxoneura (Osten Sacken, 1862)
***Bradysia* Winnertz, 1867**
arcula Vilkamaa, Salmela & Hippa, 2007
bellingeri Shaw, 1953
browni (Shaw, 1935)
dichaeta (Shaw, 1941)
diluta (Johannsen, 1912)
falcata (Pettey, 1918)
forficulata (Bezzi, 1914)
grandis (Pettey, 1918)
hilaris (Winnertz, 1867)
impatiens (Johannsen, 1912)
iridipennis (Zetterstedt, 1838)
lurida (Walker, 1848)
macfarlanei (Jones, 1920)
macroptera (Pettey, 1918)
ocellaris (Comstock, 1882)
pallipes (Fabricius, 1787)
paradichaeta (Shaw, 1941)
petaini (Pettey, 1918)
tilicola (Loew, 1850)
varians (Johannsen, 1912)
***Camptochaeta* Hippa & Vilkamaa, 1994**
aequidens Hippa & Vilkamaa, 1994
bournei (Shaw, 1941)
cladiator Hippa & Vilkamaa, 1994
consimilis (Holmgren, 1869)
delicata (Lengersdorf, 1935)
falcator Hippa & Vilkamaa, 1994
falcidens Hippa & Vilkamaa, 1994
filifera Vilkamaa, Hippa & Heller, 2013
flagellifera Hippa & Vilkamaa, 1994
formosa Vilkamaa, Hippa & Heller, 2013
inflata Hippa & Vilkamaa, 1994
longicosta Hippa & Vilkamaa, 1994
mimica Hippa & Vilkamaa, 1994
mutua (Johannsen, 1912)

pellax Hippa & Vilkamaa, 1994
prolixa Vilkamaa, Hippa & Tailor, 2011
quadriceps Hippa & Vilkamaa, 1994
simulator Hippa & Vilkamaa, 1994
spicigera Hippa & Vilkamaa, 1994
winchesteri Vilkamaa, Hippa & Heller, 2013
xysticoides Hippa & Vilkamaa, 1994

***Claustropyga* Hippa, Vilkamaa & Mohrig, 2003**
acanthostyla (Tuomikoski, 1960)
aperta Hippa, Vilkamaa & Mohrig, 2003
auriculata Hippa, Vilkamaa & Mohrig, 2003
mirifica Vilkamaa & Hippa, 2007
obtusidens Hippa, Vilkamaa & Mohrig, 2003
simplicis Hippa, Vilkamaa & Mohrig, 2003
spicea Vilkamaa & Hippa, 2007
subcorticis (Mohrig & Krivosheina, 1985)
triloba Vilkamaa & Hippa, 2007

***Corynoptera* Winnertz, 1867**
aequispina Hippa, Vilkamaa & Heller, 2010
alpina Mohrig, 1978
armigera Vilkamaa & Hippa, 2006
cursor (Hippa & Vilkamaa, 1994)
exilis (Hippa & Vilkamaa, 1994)
fatigans (Johannsen, 1912)
fratercula Vilkamaa & Hippa, 2006
furcata (Hippa & Vilkamaa, 1994)
luteofusca (Bukowski & Lengersdorf, 1936)
luteola (Pettey, 1918)
melanochaeta Mohrig & Menzel, 1992
mellea (Johannsen, 1912)
ovata (Pettey, 1918)
pacifica Hippa, Vilkamaa & Heller, 2010
parvula (Winnertz, 1867)
perpusilla (Walker, 1848)
penna (Pettey, 1918)
phili Hippa, Vilkamaa & Heller, 2010
pilata (Pettey, 1918)
plusiochaeta Hippa, Vilkamaa & Heller, 2010
redunca Hippa, Vilkamaa & Heller, 2010
robustior Vilkamaa & Hippa, 2006
saccata Tuomikoski, 1960
saetistyla Mohrig & Krivosheina, 1985
sphenoptera Tuomikoski, 1960
subparvula Tuomikoski, 1960
subsedula Mohrig & Mamaev, 1987
subtrivialis (Pettey, 1918)
trepida (Winnertz, 1867)
trichistylis Hippa, Vilkamaa & Heller, 2010
uniceps (Hippa & Vilkamaa, 1994)
vagula Tuomikoski, 1960

***Cratyna* Winnertz, 1867**
atra Winnertz, 1867
fulvicauda (Felt, 1898)
longispina (Pettey, 1918)

***Dichopygina* Vilkamaa, Hippa & Komarova, 2004**
duplicis Vilkamaa, Hippa & Komarova, 2004
nigrohalteralis (Frey, 1948)
perfecta (Pettey, 1918)
stricta Vilkamaa, Hippa & Komarova, 2004

***Epidapus* Haliday, 1851**
atomarius (De Geer, 1778)
johnstoni (Shaw, 1935)

***Eugnoriste* Coquillett, 1896**
brevirostris Coquillett, 1904
occidentalis Coquillett, 1896

***Keilbachia* Mohrig, 1987**
neglecta (Johannsen, 1912)

***Leptosciarella* Tuomikoski, 1960**
dives (Johannsen, 1912)
unicorn (Garrett, 1925)

***Lycoriella* Frey, 1942**
abbreviata (Walker, 1848)
agraria (Felt, 1898)
conspicua (Winnertz, 1867)
ingenua (Dufour, 1839)
johannseni (Enderlein, 1912)
modesta (Staeger, 1840)
riparia (Holmgren, 1883)
sativae (Johannsen, 1912)

***Mapiria* Edwards, 1934**
modica (Mohrig, 2003)

***Moehnia* Pritchard, 1960**
erema Pritchard, 1960

***Odontosciara* Rübsaamen, 1908**
munda (Johannsen, 1912)
nigra (Wiedemann, 1821)

***Phytosciara* Frey, 1942**
multisetifera (Pettey, 1918)
ornata (Winnertz, 1867)
prosciaroides (Tuomikoski, 1960)

***Pnyxia* Johannsen, 1912**
hartii (Johannsen, 1912)
scabiei (Hopkins, 1895)

***Pseudolycoriella* Menzel & Mohrig, 1998**
jucunda (Johannsen, 1912)
lobosa (Pettey, 1918)
parilis (Johannsen, 1912)
planiforceps (Steffan, 1971)
pollicis (Pettey, 1918)
trivialis (Johannsen, 1912)

***Pseudosciara* Schiner, 1868**
forceps (Pettey, 1918)

***Scatopsciara* Edwards, 1927**
acuta (Johannsen, 1912)
arenicola (Steffan, 1984)
atomaria (Zetterstedt, 1851)
cucumeris (Johannsen, 1912)
dendrotica Steffan, 1968

hastata (Johannsen, 1912)
nana (Winnertz, 1871)
paradoxa (Frey, 1948)
vitripennis (Meigen, 1818)
***Schwenckfeldina* Frey, 1942**
dux (Johannsen, 1912)
imitans (Johannsen, 1912)
joffrei (Pettey,1918)
quadrispinosa (Pettey, 1918)
scita (Johannsen, 1912)
tridentata (Rübsaamen, 1898)
***Sciara* Meigen, 1803**
cingulata Rübsaamen, 1894
futilis Johannsen, 1912
hebes (Loew, 1869)
ochrolabis Loew, 1869
robusta Walker, 1848
sciophila Loew, 1869
***Trichosia* Winnertz, 1867**
cylindrica (Pettey, 1918)
diota (Garrett, 1925)
expolita (Coquillett, 1900)
habilis (Johannsen, 1912)
pectinata (Vilkamaa, 2003)
scotica (Edwards, 1925)
townesi (Shaw, 1935)
vicina (Johannsen, 1912)
***Xylosciara* Tuomikoski, 1957**
horrida Hippa & Vilkamaa, 2004
merodon Hippa & Vilkamaa, 2004
mohrigi Hippa & Vilkamaa, 2004
ontario Hippa & Vilkamaa, 2004
spinata (Pettey, 1918)
trigemina Hippa & Vilkamaa, 2004
validinervis Tuomikoski, 1960
***Zygoneura* Meigen, 1830**
flavicoxa Johannsen, 1912
Species incertae sedis
bispina Fisher, 1938 [*Sciara*]
congregata Johannsen, 1912 [*Sciara*]
fuliginosa (Fitch, 1856) [*Sciara*; preocc.]
inconstans (Fitch, 1856) [*Sciara*]
punctata Walker, 1848 [*Sciara*]
silvestrii Kieffer, 1910 [*Sciara*]
transpacifica Curran, 1925 [*Sciara*]
vulgaris (Fitch, 1856) [*Sciara*]

7 Review of genera and species

Genus *Acuatella* Mohrig, 2003

Type species: *Acuatella vestituda* Mohrig, 2003 – Beitr. Ent. **53**(1): 44–45; fig. 31 a–f; by original designation, monotypy.

Literature: *Metangela* Rübsaamen sensu Johannsen – Johannsen (1912): 113, 116; – Curran (1930): 35; – Rapp (1946): 125; – Shaw (1953b): 28; – Curran (1965): 119; – Stone & Laffoon (1965): 229; – Steffan (1966): 32, 38; – Steffan (1981): 250; – Poole (1996): 239 [in part]; – Arnett (2000): 856. *Acuatella* Mohrig – Mohrig (2003): 44; – Mohrig & Menzel (2009): 287.

Acuatella toxoneura (Osten Sacken, 1862) comb. nov.

(Fig. 3 a–f)

Type locality: USA: near Washington D. C.
Lectotype: ♂, type no. 14544, dry cow-dung, April 1861, leg. C. R. Osten Sacken (MCZC) [pinned; transferred to slide]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 2 ♀♀ [not studied].

= *Zygoneura johannseni* Shaw, 1941 syn. nov.
Type locality: USA: Oklahoma, at Sherwood.
Holotype: ♂, 27.6.1937, leg. Standish & R. W. Kaiser (UMEC) [1 slide with wing; body pinned, without antennae and fore legs; hypopygium missing].

Further material: USA: Arizona, Patagonia, Malaise trap, 1 ♂, no. 1720, 13.–20.7.1995 (PWMP); 2 ♂♂, no. 1711 and 1712, 22.2.–1.3.1995 (PKHE), all leg. B. V. Brown.

Literature: *Zygoneura johannseni* Shaw – Shaw (1941b): 324, fig. 6; – Stone & Laffoon (1965): 231; – Steffan (1966): 40, 53. *Sciara toxoneura* Osten Sacken – Osten Sacken (1862): 165. *Zygoneura toxoneura* (Osten Sacken) – Skuse (1890): 410. *Metangela toxoneura* (Osten Sacken) – Johannsen (1912): 116; – Frey (1942): 26; – Stone & Laffoon (1965): 229; – Steffan (1966): 39, 54; – Steffan (1981): 250, fig. 24.

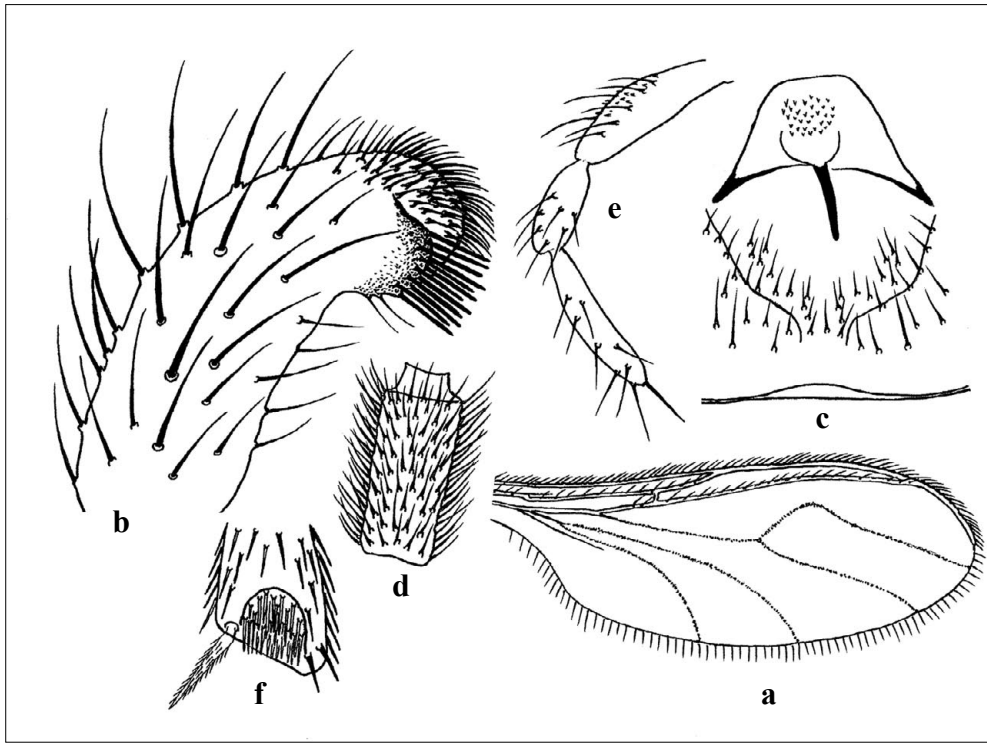


Fig. 3: *Acuatella toxoneura* (Osten Sacken) ♂. – **a**: Wing of *Zygoneura johannseni* Shaw, holotype; – **b**: Gonostylus, dorsal view; – **c**: Base of hypopygium with tegmen, ventral view; – **d**: 4th flagellomere; – **e**: Palpus; – **f**: Apex of fore tibia, specimen from USA, Arizona.

Redescription. **Male**. Eye bridge 3 facets wide; antenna brown; 4th flagellomere 2.2 × as long as wide, setae shorter than the diameter of flagellomere, neck short. Palpus 3-segmented, basal segment with 6–8 setae, without sensory pit. Thorax dark, coxae and femora paler; mesonotum and scutellum with short setae; postpronotum non-setose. Wing pale; R_1 = 2/3 R; c = 2/3 w; r-m shorter than bM, r-m with 2–3 macrotrichia; M_1 strongly arcuate (M-fork vase-like); CuA-stem short; posterior wing veins weak, without macrotrichia. Halter short, knob dark. Legs paler than thorax; front tibial organ with bordered patch of setae; spurs of mid and hind tibiae as long as width of tibial apex; claws untoothed. Hypopygium without intercoxal lobe or patch of setae, more or less v-shaped; ventromesial margin of gonocoxite with sparse and short setosity; gonostylus longer than wide, slightly curved, apex bilobate, dorsal lobe with 12–14 hyaline spines, ventral lobe roundish and densely setose; tegmen simple, trapezoid, with fine teeth and rather long aedeagus.

Comments. The conspecificity of *Sciara toxoneura* Osten Sacken and *Zygoneura johannseni* Shaw was confirmed by finding that specimens shared the typical vase-like M-fork in the wing venation and the bilobate apex of the gonostylus as illustrated by Shaw (1941b) in figure 6. Shaw (1941b) overlooked the presence of hyaline spines on the dorsal lobe, but figured the typical shape of the gonostylus.

Distribution. USA (Arizona, Oklahoma, Washington D. C.).

Genus *Bradysia* Winnertz, 1867

Type species: *Bradysia angustipennis* Winnertz, 1867 – Monogr. Sciarinen: 180–181, plate, fig. 6 a; designated by Enderlein (1911).

Synonyms: = *Dasysciara* Kieffer, 1903; = *Ruebsaameniella* Meunier, 1903; = *Neosciara* Pettey, 1918; = *Fungivorides* Lengersdorf, 1926; = *Lamprosciara* Frey, 1948; = *Paractenosciara* Sasakawa, 1994.

Literature: *Neosciara* Pettey [in part] – Pettey (1918b): 321, 331; – Shaw (1953b): 29; – Lane (1959b): 70. *Bradysia* (*Neosciara*) [in part] – Frey (1942): 22, 31; – Frey (1948): 51, 52. *Bradysia* Winnertz [often in part] – Winnertz (1867): 180; – Frey (1942): 14, 38; – Frey (1948): 45, 49; – Shaw (1953b): 29; – Tuomikoski (1960): 7, 110; – Stone & Laffoon (1965): 232; – Steffan (1966): 32, 34; – Steffan (1981): 254; – Freeman (1983): 17, 32; – Poole (1996): 238; – Mohrig & Jaschhof (1999): 13; – Arnett (2000): 856; – Menzel & Mohrig (2000): 86, 98, 602; – Mohrig (2003): 46; – Mohrig et al. (2004): 287; – Mohrig & Menzel (2009): 285, 287; – Shin et al. (2013): 833.

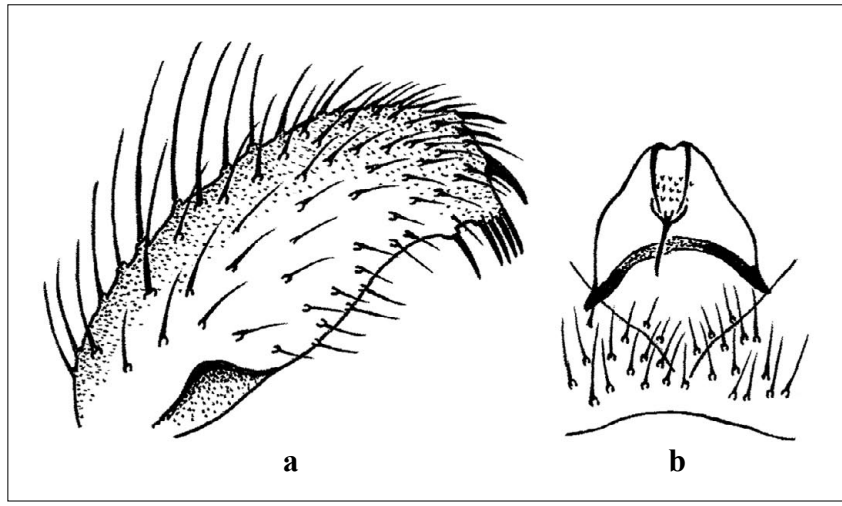


Fig. 4: *Bradysia arcula* Vilkamaa, Salmela & Hippa ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view.

Bradysia arcula Vilkamaa, Salmela & Hippa, 2007

(Fig. 4 a, b)

Type locality: FINLAND: Tavastia australis, Urjala, Kivijärvi Nature Reserve, Kalkkimäki, 60°59'N 23°26'E.

Holotype: ♂, grove, Malaise trap, 3.6.–6.7.2003, leg. J. Salmela & O. Härmä (MZH).

Paratypes: CANADA: Nova Scotia, CBHNt. Pk. Beulach Ban Fls., 1 ♂, 1.7.1984, leg. H. J. Teskey (CNC). FINLAND: same data as holotype, 1 ♂ (MZH). Ostrobothnia borealis, Rovaniemi, Kivalo, 1 ♂, 3.8.2004, leg. J. Salmela (MZH). Ostrobothnia borealis, Tervola, Pihlajakuru W, 1 ♂, 3.7.–2.8.2004, leg. J. Salmela (SDEI). Tavastia australis, Lahti, Mukkula, 1 ♂, 19.–25.6.2002, leg. O. Blomster (MZH). Tavastia borealis, Konnevesi, Teerimäki, 1 ♂, 21.6.2003, leg. J. Salmela (MZH). Tavastia borealis, Saarijärvi, Pyhä-Häkki National Park, 1 ♂, Malaise trap, 7.6.–4.7.2004, leg. M. Jaschhof & C. Jaschhof (MZH).

Further material: CANADA: Quebec, Bristol, 1 ♂, no. 1673, 26.6.1996, no collector detail (PKHE). Ontario, Silver Creek, 2 ♂♂, no. 1714 and 1715, 20.6.1996, leg. Dumouchel (1714 in PKHE; 1715 in PWMP).

Literature: *Bradysia arcula* Vilkamaa, Salmela & Hippa – Vilkamaa et al. (2007): 229, fig. 1 a–e.

Comments. The species belongs to the *Bradysia praecox* group sensu Menzel & Mohrig (2000): 117. It is very similar to *B. iridipennis* (Zetterstedt, 1838).

Distribution. Holarctic: Europe (Finland, Sweden); Canada (Nova Scotia, Ontario, Quebec).

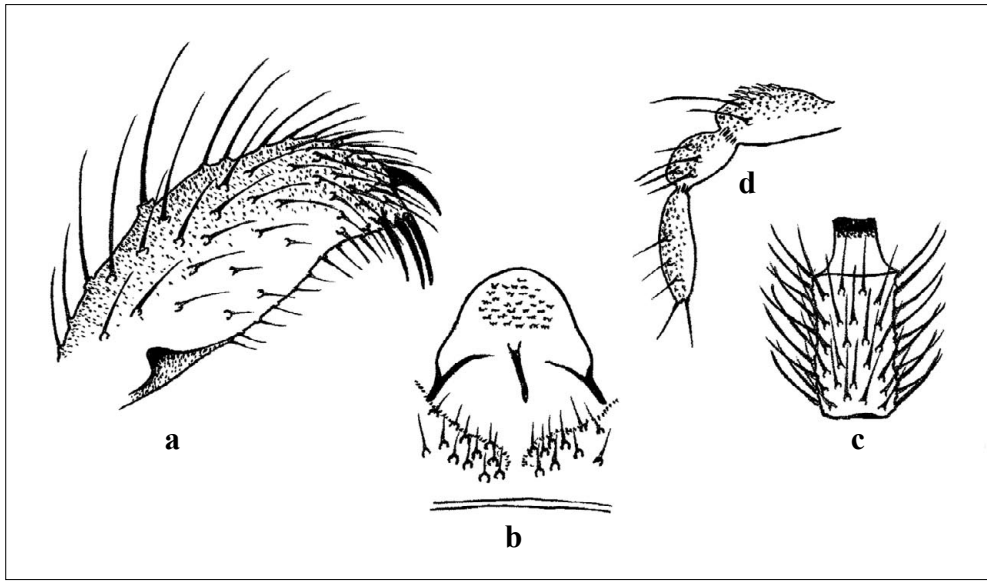


Fig. 5: *Bradysia bellingeri* Shaw ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view; – **c**: 4th flagellomere; – **d**: Palpus.

Bradysia bellingeri Shaw, 1953

(Fig. 5 a–d)

Type locality: USA: Connecticut, Hartford Co., Mt. Higby Reservoir.
Holotype: ♂, 27.3.1951, leg. P. Bellinger (UMEC) [slide; hypopygium in good condition].

= *Bradysia trispinifera* Mohrig & Krivosheina, 1979 syn. nov.
Type locality: RUSSIA: Khabarovsk, Kundur.
Holotype: ♂, no. 182, 4.6.1975, leg. E. B. Antonova (PWMP).

Further synonyms: = *Bradysia furcata* Yang, Zhang & Yang, 1993; = *Bradysia furcatina* Yang, Zhang & Yang, 1995 [both as synonyms of *B. trispinifera* in Menzel & Heller (2007)].

Further material: USA: New York, New York City, Bronx, Pelham Bay Park, Forest I and II, dead wood, 2♂♂, 27.6.2000; 5♂♂, 27.6.–1.7.2000, leg. B. Rulik (PBRA). New York, New York City, Brooklyn, Prospect Park, 21♂♂, 20.6.2000, leg. B. Rulik (PBRA). New York, New York City, Manhattan, Central Park, The Ramble, 8♂♂, 21.–25.6.2000, leg. B. Rulik (PBRA). New York, New York City, Staten Island, Rock Island Park, 40♂♂, 24.4.2000, leg. B. Rulik (PBRA).

Literature: *Bradysia trispinifera* Mohrig & Krivosheina – Mohrig et al. (1979): 586, fig. 15 a–e; – Menzel & Heller (2007): 214. *Bradysia bellingeri* Shaw – Shaw (1953a): 67, fig. 4. *Bradysia* (*Bradysia*) *bellingeri* (Shaw) – Stone & Laffoon (1965): 232; – Steffan (1966): 35, 52.

Comments. The arrangement of subapical spines of the gonostylus is identical in all specimens. In the American specimens the subapical spines may be somewhat shorter than those in the Palaearctic specimens and the flagellomeres somewhat shorter and stronger. All other characters are identical. The species belongs to the *Bradysia fungicola* group sensu Menzel & Mohrig (2000): 116.

Distribution. Holarctic: Europe, China, Korea, Russia; USA (Connecticut, New York).

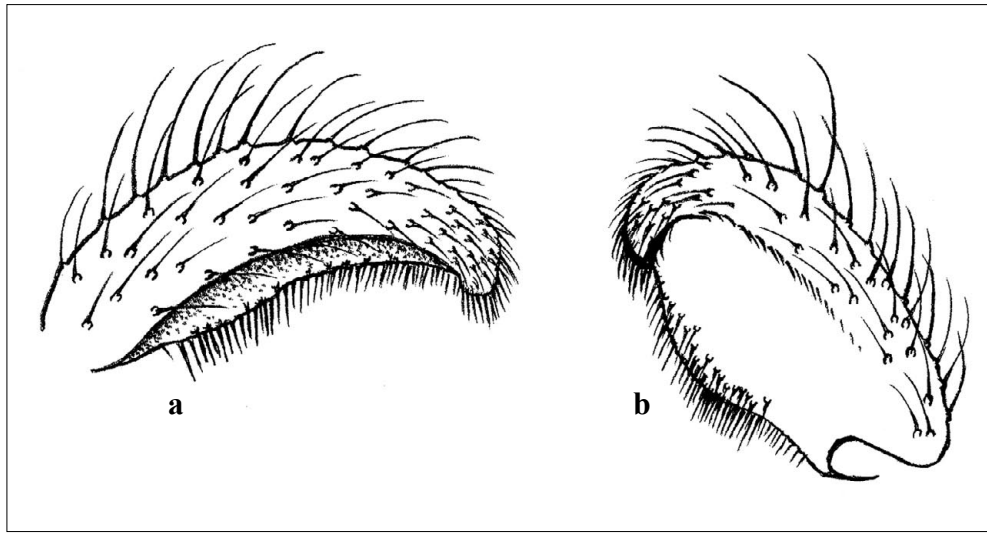


Fig. 6: *Bradysia browni* (Shaw) ♂, specimen from Costa Rica. – **a**: Gonostylus, lateral view; – **b**: Gonostylus, ventral view.

Bradysia browni (Shaw, 1935)

(Fig. 6 a, b)

Type locality: CANADA: Ontario, Timagami.
Lectotype: ♂, 6.9.1934, leg. B. V. Brown (UMEC) [body pinned; slide with hypopygium in good condition]; hereby designated in order to fix the name.
Paralectotypes: CANADA: same locality, 1 ♂, no. 4048, 6.9.1934, leg. B. V. Brown (CNC) [pinned, transferred to slide]; 1 ♂, no. 4048.1, 9.9.1934, leg. B. V. Brown (UMEC) [slide with artificial resin, partly destroyed].

= *Neosciara diversiabdominalis* Lengersdorf, 1941 syn. nov.
Type locality: AUSTRIA: Großglockner, Haldenhöcker, Mittlerer Burgstall.
Lectotype: ♂, no. G 296, 2,650 m, 17.7.1940, leg. H. Franz (SDEI); designated by Menzel in Menzel & Mohrig (2000).
Paralectotypes: AUSTRIA: same locality as lectotype, 22 ♂♂ 15 ♀♀, 16.7.1940 and 17.7.1940, all leg. H. Franz (19 ♂♂ 8 ♀♀ in SDEI; 7 ♂♂ 6 ♀♀ in ZFMK; 2 ♂♂ 1 ♀ in ZMJU).

= *Bradysia laurencei* Menzel & Mohrig, 2000 syn. nov.
Type locality: AUSTRIA: Großglockner.
Holotype: ♂, no. III(29), 1.11.–5.6.1979, leg. K. Thaler (PWMP).
Paratypes: 1 ♀, same data as holotype (PWMP). Remarks: All the other paratypes of *B. laurencei* (3 ♂♂ in PKHE; 2 ♂♂ in SDEI) mentioned by Menzel & Mohrig (2000) do not belong to this species, but to *Bradysia regularis* (Lengersdorf, 1934) [misidentification]. The non-type specimen (♂ in PWMP) from Krasnodar Kray in Russia belongs to *Bradysia siberica* Komarova, 2001.

Further synonym: = *Bradysia latistylia* Mohrig & Mamaev, 1983 [as synonym to *B. diversiabdominalis* in Menzel & Mohrig (2000)].

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 7 ♂♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP). British Columbia, Vancouver Island, Upper Carmanah Valley, 1 ♂, no. 7994, 27.8.1991, leg. N. Winchester (PKHE). Quebec, Gatineau Park, 2 ♂♂, no. 1660 and 1661, 28.8.1995, no collector details (2 ♂♂ in PKHE; 1 ♂ in PWMP). Nova Scotia, Cape Breton Island, 3 ♂♂ 2 ♀♀, 30.8.1936, leg. E. G. Fisher (1 ♂ 1 ♀ in ANSP; 2 ♂♂ 1 ♀ in PWMP). USA: Washington, Clallam Co., Bogachiel, Bogachiel River, 1 ♂, 29.6.1974, leg. P. H. Arnaud (CAS).

Literature: *Neosciara diversiabdominalis* Lengersdorf – Lengersdorf (1941a): 65, figs 1–3. *Bradysia diversiabdominalis* (Lengersdorf) – Menzel & Mohrig (2000): 159; – Mohrig (2003): 46. *Bradysia betuleti* (Lengersdorf) – Tuomikoski (1960): 129, figs 29 e, 30 d [misidentification]. *Bradysia laurencei* Menzel & Mohrig – Menzel & Mohrig (2000): 159, figs 134–136. *Sciara* (*Neosciara*) *browni* Shaw – Shaw (1935a): 229, fig. 4. *Bradysia* (*Bradysia*) *browni* (Shaw) – Stone & Laffoon (1965): 232. *Bradysia browni* (Shaw) – Steffan (1966): 35, 52.

Comments. The paratype of *S. browni* Shaw (no. 4048.1) is an intersex with different antennae – one with male-typical long flagellomeres, the other with short ones; genitalia with 2-segmented cerci instead of 1-segmented and shortened gonostylus. The species belongs to the *Bradysia nervosa* group sensu Menzel & Mohrig (2000): 114. It is characterized by a wide spoon-shaped gonostylus, appearing tapered in ventral view, which may lead to misidentifications.

Distribution. Holarctic, Neotropical. The species is mostly distributed in subarctic and alpine regions within the Holarctic region and in Central America.

Bradysia dichaeta (Shaw, 1941)

(Fig. 7 a, b)

Type locality: USA: Oklahoma, Le Flore Co., at Page.
Holotype: ♂, 23.6.1937, leg. Standish & R. W. Kaiser (UMEC) [body pinned; slide with hypopygium and wing].

Literature: *Sciara* (*Neosciara*) *dichaeta* Shaw – Shaw (1941b): 321, fig. 3. *Bradysia* (*Bradysia*) *dichaeta* (Pettey) – Stone & Laffoon (1965): 232. *Bradysia dichaeta* (Shaw) – Steffan (1966): 35, 52.

Redescription. **Male**. Wing pale; R_1 long, somewhat shorter R; c somewhat longer 1/2 w; r-m = 2 bM, r-m with 3–4 macrotrichia; gonostylus with strong apical tooth and about 20 fine bristle-like spines; intercoxal lobe of hypopygium with rather strong bristles; ventromesial margin of gonocoxite with short setosity; tegmen with simple teeth.

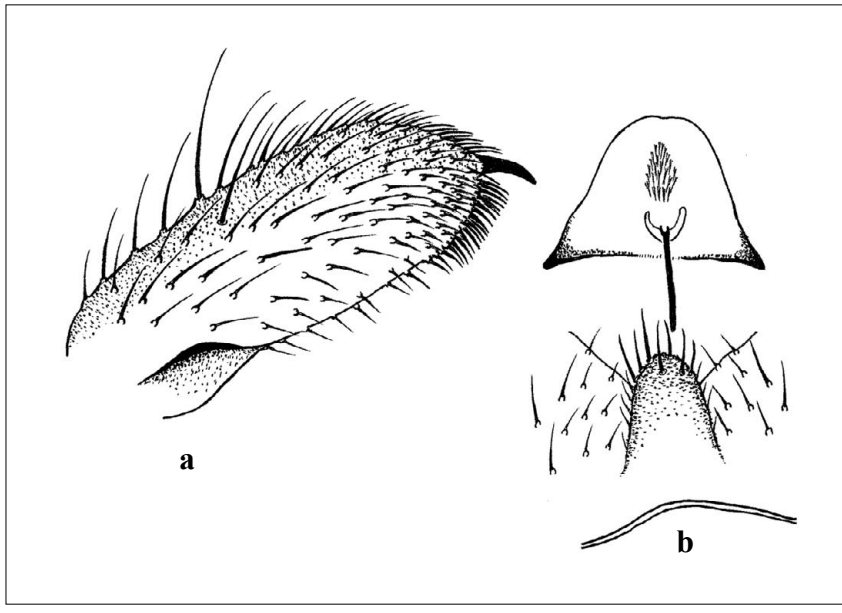


Fig. 7: *Bradysia dichaeta* (Shaw) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view.

Comment. The species belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (Oklahoma).

Bradysia diluta (Johannsen, 1912)

(Fig. 8 a, b)

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, type no. 2100 (CUIC) [2 slides; hypopygium and wings in good condition, body damaged, head without antennae]; hereby designated in order to fix the name.
Paralectotype: USA: same data and no. as holotype, 1 ♀ (CUIC) [slide].

Literature: *Sciara diluta* Johannsen – Johannsen (1912): 122, 135, figs 132, 251. *Lycoria diluta* (Johannsen) – Shaw & Fisher (1952): 212. *Neosciara diluta* (Johannsen) – Pettey (1918b): 326. *Bradysia* (*Bradysia*) *diluta* (Johannsen) – Stone & Laffoon (1965): 232. *Bradysia diluta* (Johannsen) – Steffan (1966): 35, 52.

Comments. The species is characterized by a dense and short setosity on the basal half of the ventromesial margin of the gonocoxite, short c (= 1/2 w), r-m = bM, both without macrotrichia, a small gonostylus in comparison with gonocoxite; the gonostylus with an apical tooth and 4–5 short bristle-like subapical spines. *B. diluta* belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (New York).

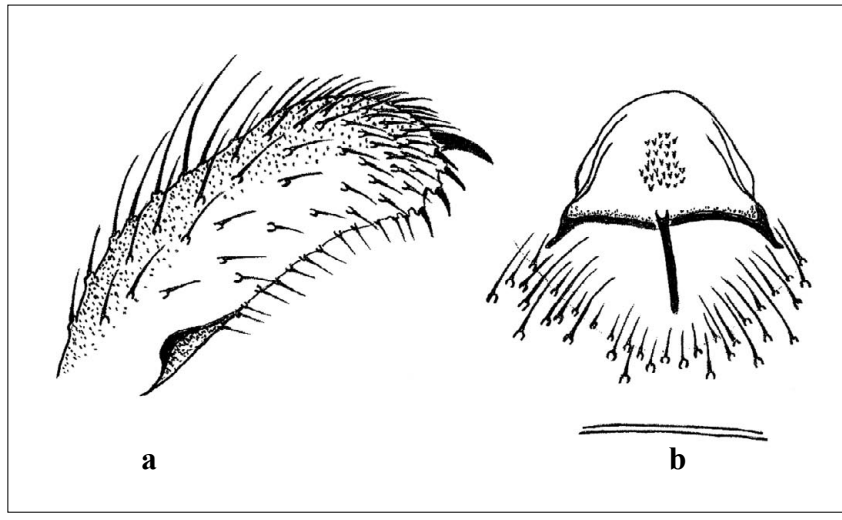


Fig. 8: *Bradysia diluta* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view.

Bradysia falcata (Pettey, 1918)

(Fig. 9 a–c)

Type locality: USA: Massachusetts, Middlesex Co., Newton, Auburndale.
Holotype: ♂, type no. 213, April 1916, leg. F. W. Pettey (CUIC) [3 slides; body, wings, hypopygium strongly crushed].

Further material: CANADA: Quebec, Gatineau Park, 4♂♂ 5♀♀, no. 1655–1659, 28.8.1995, no collector details (2♂♂ 2♀♀, no. 1657, 1658 in PWMP; 2♂♂ 3♀♀, no. 1655, 1656, 1659 in PKHE).

Literature: *Neosciara falcata* Pettey – Pettey (1918b): 331, figs 8 a, 8 b, 39. *Lycoria falcata* (Pettey) – Shaw & Fisher (1952): 211, 212. *Bradysia* (*Bradysia*) *falcata* (Pettey) – Stone & Laffoon (1965): 232. *Bradysia falcata* (Pettey) – Steffan (1966): 36, 52.

Redescription. **Male**. Eye bridge with 4 rows of facets. Antenna somewhat bicolourous; scape, pedicel and basal part of 1. flagellomere ochreous; 4th flagellomere with l/w index 2.2, with dense and somewhat shorter setosity than diameter of flagellomere. Palpus 3-segmented, 1. segment with low sensory pit and a few bristles, third segment long and narrow. Thorax yellow-ochreous, with some dark spots on pleura. Mesonotum with short setosity, some lateral bristles stronger. Postpronotum non-setose. Wings pale, R_1 long, = R; c = 2/3 w; r-m longer bM, r-m with 1–2 macrotrichia: Halter short and yellowish. Hypopygium yellow, apex of gonostylus darkened; gonocoxite long, ventromesial margin with dense setosity; intercoxal lobe elongated, with marginal row of strong bristles; tegmen apically roundish, with small area of single teeth; aedeagus long. Body length: 4.0 mm.

Comments. The species belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111]. It is well characterized by the yellow body colour, the shape of the gonostylus and the intercoxal area of the hypopygium.

Distribution. Canada (Quebec), USA (Massachusetts).

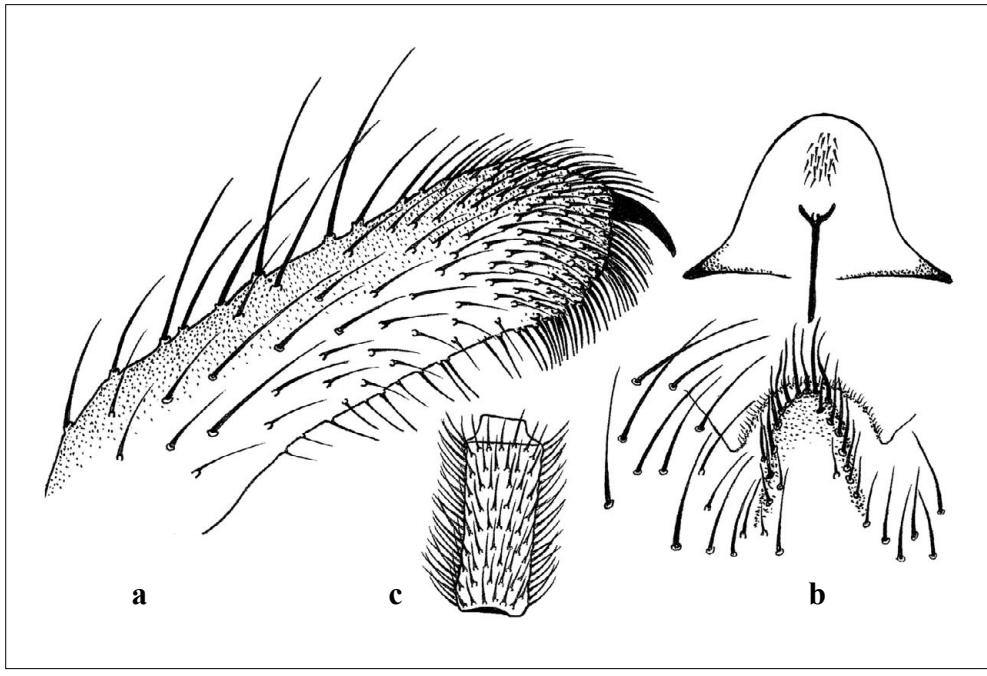


Fig. 9: *Bradysia falcata* (Pettey) ♂, specimen from Canada, Quebec. – **a**: Gonostylus, ventral view; – **b**: Basal lobe of hypopygium with tegmen, ventral view; – **c**: 4th flagellomere.

Bradysia forficulata (Bezzi, 1914)

(Fig. 10 a, b)

Type locality: BOSNIA AND HERZEGOVINA: Bosnia, Prača, cave "Golubina pécina".
Syntypes: 4 ♂♂ 6 ♀♀, 3.7.1912, leg. K. Absolon [missing].

= *Sciara luravi* Johannsen, 1929 syn. nov.
Type locality: USA: Virginia, Page Co., Luray Cavern.
Holotype: ♂, type no. 51925, October 1928 – April 1929, leg. H. S. Barber (USNM) [slide; in good condition, antennae lost].
Paratypes: USA: same data as holotype, 2 ♀♀, no. 2107.3–4 (CUIC) [slides]; few females in alcohol, no. 2040, 2040a and 2107, same data (CUIC) [not studied].

= *Bradysia nocturna* Tuomikoski, 1960 [synonymy in Heller & Weber (2013)].
Type locality: FINLAND: Regio aboensis, Vihti, Vihtijärvi.
Lectotype: ♂, 19.8.1959, leg. R. Tuomikoski (MZH); designated by Menzel in Menzel & Mohrig (2000).
Paralectotype: FINLAND: same locality, 1 ♂, 3.5.1959, leg. R. Tuomikoski (MZH).

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 1 ♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP). British Columbia, Glacier National Park, ca. 1.6 km N. Glacier, 1 ♂ 1 ♀, 14.7.1974, P. H. Arnaud (PWMP). USA: Arizona, Santa Cruz, Butano State Park, 8 ♂♂, 30.12.1994, leg. W. Mohrig (PWMP). Arizona, Santa Cruz, Big Basin, Redwood State Park, 2 ♂♂, 29.12.1994, leg. W. Mohrig (PWMP). Arizona, Cochise Co., Huachuca Mountains, Ash Canyon Road, 31.39°N 111.24°W, oak pine woodland, 8 ♂♂, 1.–11.11.1993; 2 ♂♂, 15.2.–14.3.1994, all leg. McFarland (1 ♂ in PKHE; 8 ♂♂ in PWMP; 1 ♂ in SDEI). Arizona, Pima Co., Tucson Mountains, 16 km W Tucson, 32.24°N 111.13°W, 2 ♂♂ 1 ♀, 5.–26.2.1996; 2 ♂♂, 2.3.–7.4.1996; 4 ♂♂ 1 ♀, 30.4.–16.5.1996, all leg. S. Prchal (PWMP). California, Big Sur, Redwood National Park, 5 ♂♂, 25.–26.12.1994, leg. W. Mohrig (PWMP). California, Napa Co., Lake Berryessa, 1 ♂, 4.1.2001, leg. W. Mohrig (PWMP). California, Yolo Co., Davis, 1 ♂ 1 ♀, 23.12.2000, leg. W. Mohrig (PWMP). Texas, Potter Co., Amarillo KOA, 2 ♂♂, 7.9.1970, leg. P. H. Arnaud (PWMP).

Literature: *Sciara luravi* Johannsen – Johannsen (1929b): 88. *Bradysia* (*Bradysia*) *luravi* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia luravi* (Johannsen) – Steffan (1966): 36, 53. *Bradysia nocturna* Tuomikoski – Tuomikoski (1960): 139, 141, fig. 32 f; – Mohrig & Menzel (1993): 270, 283, fig. 15 d; – Menzel & Mohrig (2000): 141. *Lycoria forficulata* Bezzi – Bezzi (1914): 210, figs 1, 2. *Bradysia forficulata* (Bezzi) – Mohrig & Menzel (1993): 281, fig. 15 a–d; – Reeves (2000): 341; – Reeves et al. (2000): 176; – Heller & Weber (2013): 321.

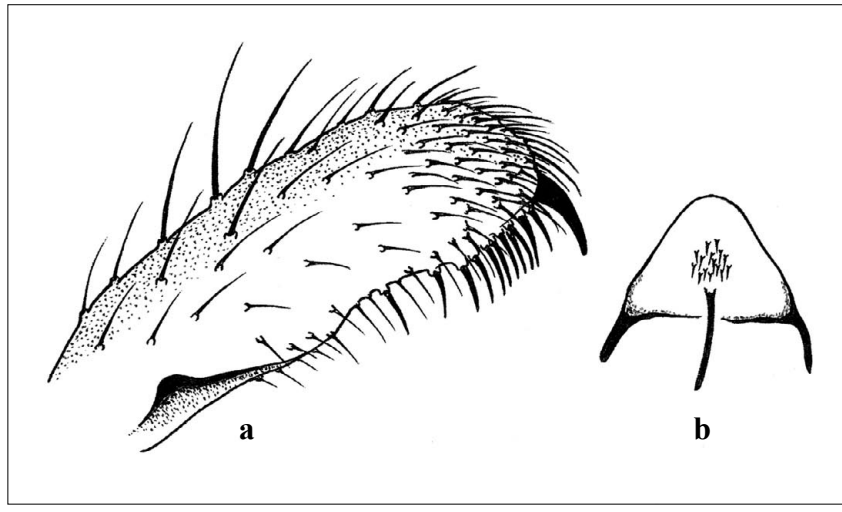


Fig. 10: *Bradysia forficulata* (Bezzi) ♂, holotype of *Sciara luravi* Johannsen. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view.

Comments. The species is common in larger caves in Central Europe. The cave form is characterized by unusually long flagellomeres in both sexes, and by the typical shape of the gonostylus in males. The hypopygium of *Sciara luravi* Johannsen is identical in all details with *B. forficulata* (Bezzi). The antennae of the type specimen are lost, but the unusually long flagellomeres of the females (l/w index = 3.5) indicate the typical long antennae also for males. The type specimen of *Sciara luravi* Johannsen as well as the material in CUIC are originally labelled as "*lurayi*", but described as "*luravi*", so the latter name is correct.

Bradysia nocturna Tuomikoski is in all details identical with *B. forficulata* (Bezzi), only the flagellomeres are distinctly shorter in both sexes. We have material from small caves in Germany, where the specimens living in the transition area show all variations in length of antennal flagellomeres. Also in other insects living in caves it is seen that in the darkness there is a tendency to elongated extremities. *Bradysia nocturna* is thus the above ground variant of *B. forficulata* (Bezzi), which was also found in such micro-caverns as mouse holes. It belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111]. The species is distributed in caves, woodland, and agricultural habitats.

Distribution. Holarctic: Europe; Canada (Alberta, British Columbia), USA (Arizona, California, Georgia, Tennessee, Texas, Virginia).

Bradysia grandis (Pettey, 1918)

(Fig. 11 a–d)

Type locality: USA: Georgia, Cobb Co., Lost Mountain NE of Atlanta.
Holotype: ♂, 13.7.1913, no. 220 (CUIC) [3 slides; hypopygium in good condition; wings; body very damaged].

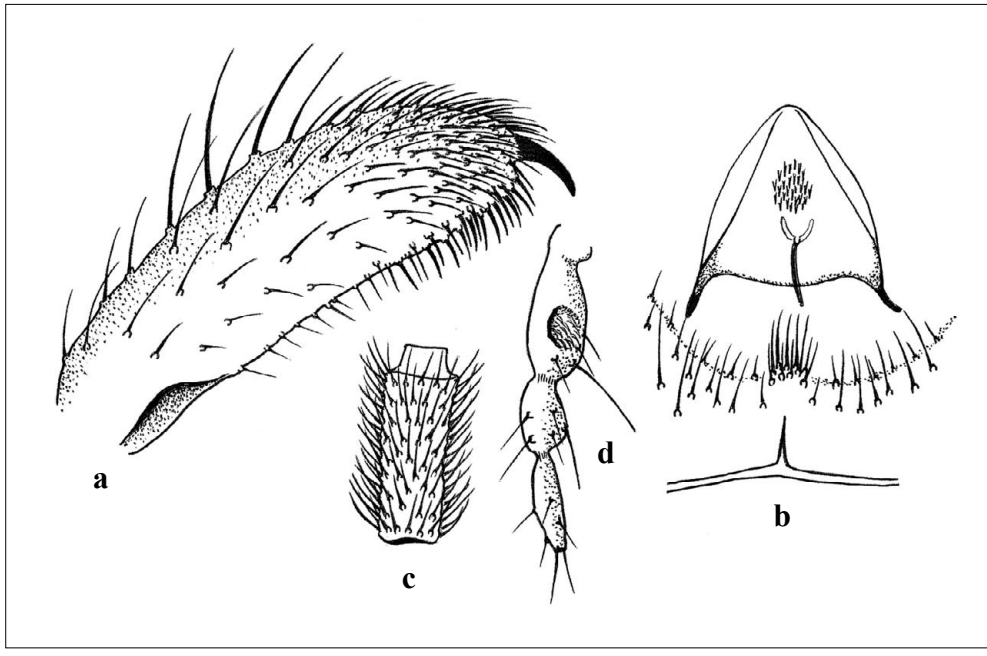


Fig. 11: *Bradysia grandis* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view; – **c**: 4th flagellomere; – **d**: Palpus.

Literature: *Neosciara grandis* Pettey – Pettey (1918b): 334, figs 15 a, 15 b, 46. *Bradysia* (*Bradysia*) *grandis* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia grandis* (Pettey) – Steffan (1966): 36, 53.

Redescription. **Male**. Eye bridge with 3 rows of facets. 4th flagellomere with l/w index of 3.0, densely setose, setae somewhat shorter than diameter of flagellomere. Palpi 3-segmented, basal segment with low sensory pit, third segment slightly longer than the second. Wings hyalinous; R_1 long, = R; c = 2/3 w; r-m = bM, both non-setose; CuA-stem shorter than bM. Gonostylus with strong apical tooth and 18–22 fine bristle-like spines. Intercoxal area of hypopygium with small lobe; tegmen with small area of fine teeth.

Comments. *Bradysia grandis* belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (Georgia).

Bradysia hilaris (Winnertz, 1867)

(Fig. 12 a–c)

Type locality: GERMANY: ? "Crefeld" [= Krefeld].
Syntypes: several ♂♂ and ♀♀, April, leg. J. Winnertz (ZFMK) [destroyed].

= *Sciara dolens* Johannsen, 1912 syn. nov.
Type locality: USA: New York, Tompkins Co.
Holotype: ♂, no. 2099 (CUIC) [2 slides; hypopygium not in good position, wing; body damaged, head without antennae].

= *Sciara fumida* Johannsen, 1912 syn. nov.
Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2103, August, leg. O. A. Johannsen (CUIC) [2 slides, hypopygium and wing; body with head and antennae]; hereby designated in order to fix the name.
Paralectotype: USA: same no. and data as lectotype, 1 ♀, but not identical with the lectotype [not identified].

Further synonym: = *Neosciara betuleti* Lengersdorf, 1940 [in Menzel & Mohrig (2000)].

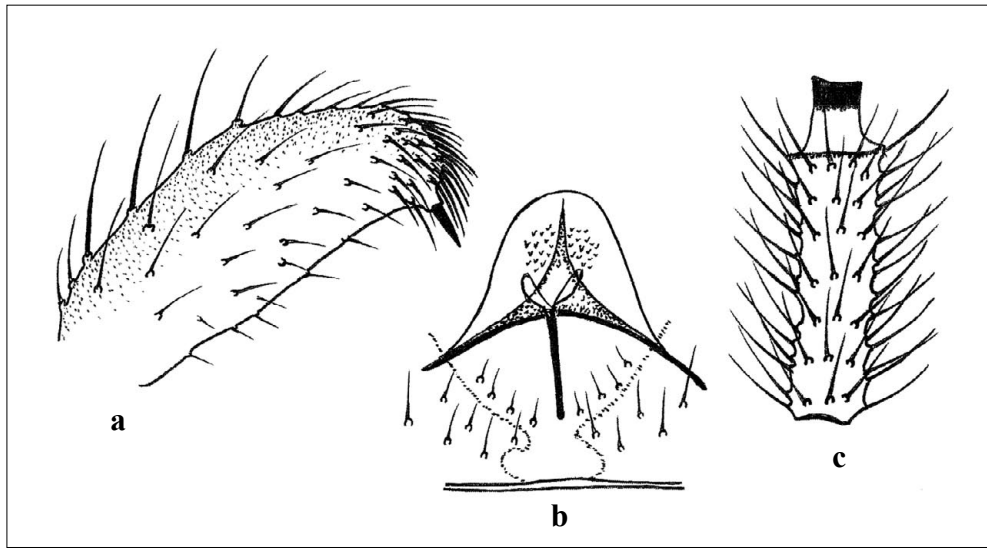


Fig. 12: *Bradysia hilaris* (Winnertz) ♂, specimen from Canada, Alberta. – **a**: Gonostylus, dorsal view; – **b**: Base of hypopygium with tegmen, ventral view; – **c**: 4th flagellomere.

Further material: CANADA: Alberta, Munn Creek, spruce forest, 53.30°N 118.10°W, 12♂♂, 23.7.–15.9.1994, leg. E. Fuller (2♂♂ in PKHE; 10♂♂ in PWMP). Quebec, Gatineau Park, 1♂, no. 1663, 28.8.1995, no collector detail (PWMP). USA: Alaska, Valdez, 1♂, 9.8.1954, leg. C. P. Alexander (PWMP). New York, Mt. Joy, 1♂, 1.7.1958, leg. W. Harrison (PWMP).

Literature: *Sciara dolens* Johannsen – Johannsen (1912): 134, figs 127, 245. *Lycoria dolens* (Johannsen) – Shaw & Fisher (1952): 212. *Neosciara dolens* (Johannsen) – Pettey (1918b): 326. *Bradysia* (*Bradysia*) *dolens* (Johannsen) – Stone & Laffoon (1965): 232. *Bradysia dolens* (Johannsen) – Steffan (1966): 35, 52. *Sciara fumida* Johannsen – Johannsen (1912): 135, fig. 129, 248. *Lycoria fumida* (Johannsen) [in part] – Shaw & Fisher (1952): 212, fig. 49. *Neosciara fumida* (Johannsen) – Pettey (1918b): 327. *Bradysia* (*Bradysia*) *fumida* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia fumida* (Johannsen) – Steffan (1966): 36, 53. *Sciara hilaris* Winnertz – Winnertz (1867): 106. *Lycoria* (*Neosciara*) *hilaris* (Winnertz) – Lengersdorf (1928–30): 50, fig. 65. *Bradysia hilaris* (Winnertz) – Tuomikoski (1960): 125, figs 28 a, 29 a, 31 b; – Menzel & Mohrig (2000): 167, figs 140, 141.

Comments. In the shape of the gonostylus, the internal structure of the tegmen, and the long and rough flagellomeres with bicoloured necks, the American specimens are identical with the Palaearctic ones. *Bradysia hilaris* is variable in size and in the number of apical spines on the gonostylus. The Central European specimens consistently have two apical spines on the gonostylus. In eastern parts of the Palaearctic region we have often found specimens with three spines, but the specimens from Korea have often only one. From North America we have seen specimens with one spine (Johannsen 1912: fig. 127) on one gonostylus and two spines on the other, but also with two spines on both gonostyli (Johannsen 1912: fig. 129). Sometimes the spines are thin and bristle-like. *Bradysia hilaris* is widely distributed within the Palaearctic region from Western Europe to the Far East of Russia and Korea. It is also found in Canada and northern parts of the USA. The species belongs to the *Bradysia hilaris* group sensu Menzel & Mohrig (2000): 115.

Distribution. Holarctic: Europe, Russia; Canada (Alberta, Quebec), USA (Alaska, New York).

Bradysia impatiens (Johannsen, 1912)

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2106, bred from larvae found in soil adhering to roots of *Impatiens*, no date, leg. O. A. Johannsen (CUIC) [2 slides; hypopygium not in good position, wing; body, antennae missing]; hereby designated in order to fix the name.

= *Bradysia* (*Chaetosciara*) *tristicula* var. *difformis* Frey, 1948 [synonymy in Jagdale et al. (2007)].
Type locality: FINLAND: Uusimaa, Helsinki, University of Helsinki, Botanical garden.
Holotype: ♂, 30.9.1941, leg. R. Frey (MZH).

Further synonyms: = *Sciara* (*Lycoriella*) *hardyi* Shaw, 1952 [as synonym to *B. impatiens* in Steffan (1973)]; = *Bradysia paupera* Tuomikoski, 1960 [as synonym to *B. difformis* in Menzel & Mohrig (2000)]; = *Bradysia agrestis* Sasakawa, 1978 [as synonym to *B. difformis* in Menzel et al. (2003)].

Further material: CANADA: Prince Edwards Island, Charlottetown, bred in greenhouse, 8♂♂ 2♀♀, no. 3718–3722, 9.3.2000, leg. M. M. Smith (PKHE). USA: California, Los Angeles Co., Topanga National Forest, 1♂, 12.–17.12.1996, leg. W. Mohrig (PWMP). Illinois, Urbana, from mouse hole, 4♂♂, 16.4.1939, leg. P. C. Stone (PWMP). New York, Tompkins Co., Ithaca, 1♂, lot no. 2712, leg. O. A. Johannsen (CUIC). Washington D. C., 2♂♂, 9.6.1991; 2♂♂, 16.6.1991, all leg. M. Barták (PWMP).

Literature: *Sciara* (*Lycoriella*) *hardyi* Shaw – Hardy (1960): 221, 223, fig. 71 a–e. *Bradysia paupera* Tuomikoski – Tuomikoski (1960): 130, 134, figs 28 c, 31 l, 32 b; – Freeman (1983): 36. *Bradysia agrestis* Sasakawa – Menzel & Mohrig (2000): 146, figs 129–131. *Bradysia* (*Chaetosciara*) *tristicula* var. *difformis* Frey – Frey (1948): 61, 83, fig. 98. *Bradysia difformis* Frey – Menzel & Mohrig (2000): 152, figs 95, 100 c; – Menzel et al. (2003): 449, figs 1–10. *Sciara impatiens* Johannsen – Johannsen (1912): 136, figs 137, 252. *Neosciara impatiens* (Johannsen) – Pettey (1918b): 327. *Bradysia* (*Bradysia*) *impatiens* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia impatiens* (Johannsen) – Roberts & Lavigne (1959): 25; – Steffan (1966): 36, 53; – Wilkinson & Daugherty (1970): 656, figs 1, 2; – Steffan (1973): 355; – Steffan (1974c): 43; – Jagdale et al. (2007): 23.

Comments. The comparison of the type of *Sciara impatiens* and the other specimens from the USA with the European specimens of *Bradysia difformis* Frey confirmed their conspecificity. Fig. 137 by Johannsen (1912) and fig. 95 by Menzel & Mohrig (2000) show the typical apical tooth and the isolated patch of subapical spines in identical arrangement. *B. impatiens* has been distributed by man with vegetables, and is common in flowerpots and in greenhouses. The species belongs to the *Bradysia tilicola* group [as *B. amoena* group in Menzel & Mohrig (2000): 113].

Distribution. Widely distributed (e. g. South Africa, Brazil, Hawaiian Isands). Holarctic: Europe, Azerbaijan, Japan, Korea; Canada (Prince Edwards Island), USA (California, Illinois, Massachusetts, Missouri, New York, Washington D. C.).

Bradysia iridipennis (Zetterstedt, 1838)

(Fig. 13 a–c)

Type locality: SWEDEN: Lapponia Umensi, Lycksele.
Lectotype: ♂, no. 575, no details (MZLU); designated by Menzel in Menzel & Mohrig (2000).

Synonyms: = *Sciara hirundina* Winnertz, 1867; = *Sciara latiuscula* Winnertz, 1867; = *Sciara merula* Winnertz, 1867; = *Sciara tremulae* Beling, 1873 [all in Lengersdorf (1928–30) and Menzel & Mohrig (2000)].

Further material: CANADA: Ontario, Silver Creek, Malaise trap, 1 ♂, no. 1710, 6.–13.6.1996, leg. Dumouchel (PKHE). USA: Colorado, Teller Co., Florissant, Petrified Forest Area, 2,530 m, 1 ♂, 11.8.1973, leg. P. H. Arnaud (PWMP).

Literature: *Sciara iridipennis* Zetterstedt – Zetterstedt (1838): 827; – Coquillett (1900): 392. *Neosciara iridipennis* (Zetterstedt) – Lengersdorf (1941a): 71. *Bradysia* (*Neosciara*) *iridipennis* (Zetterstedt) – Frey (1948): 53, 78, figs 38, 39. *Bradysia* (*Bradysia*) *iridipennis* (Zetterstedt) – Stone & Laffoon (1965): 233. *Bradysia iridipennis* (Zetterstedt) – Tuomikoski (1960): 122, 124; – Steffan (1966): 36, 53; – Menzel & Mohrig (2000): 178.

Comments. The species is cited in Coquillett (1900) as reported from Alaska (Popof Island, Muir Inlet), but this has not previously been verified. Its occurrence in North America is now documented by our new material. The species is similar to *B. arcula*. The species belongs to the *Bradysia praecox* group sensu Menzel & Mohrig (2000): 117.

Distribution. Holarctic: Europe; Canada (Ontario), USA (Alaska, Colorado).

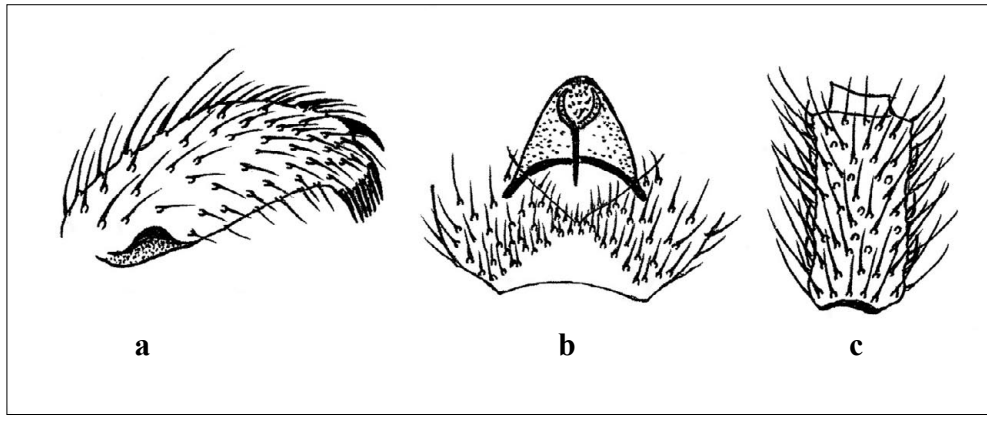


Fig. 13: *Bradysia iridipennis* (Zetterstedt) ♂. – **a**: Gonostylus, dorsal view; – **b**: Base of hypopygium, ventral view; – **c**: 4th flagellomere.

Bradysia lurida (Walker, 1848) comb. nov.

Type locality: USA: New York, Oneida Co., Trenton Falls near Trenton.
Holotype: ♀, no. 44/90 and BMNH(E)#250073, leg. E. Doubleday (BMNH) [pinned specimen, in good condition, transferred to slide].

Literature: *Sciara lurida* Walker – Walker (1848): 106; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 53.

Redescription. **Female**. Head dark brown. Eye bridge 4 facets wide. Antennae unicolorous brown, flagellomere 4 with l/w-index 2.2, fine, densely and shorter than wide setose; necks short. Palpi long, 3-segmented; basal segment with flat sensory area and 2–3 bristles. Scutum brown, with three darker strips, setae blackish. Pleural sclerites brown with yellowish spots; metanotum with short and fine setae; posterior pronotum bare. Wings brownish; R_1 longer than R, joining C opposite the M-fork; c = 2/3 w; r-m longer than bM, with macrotrichia; posterior veins distinct, CuA_2 strong; M-fork with few macrotrichia. Halter short, yellowish-brown. Coxae and femora yellowish-brown; front tibial organ large, with a straight comb of pale bristles; spurs of middle and hind tibiae long, equal and of honey color; claws untoothed. Abdomen reddish-brown, densely setose. Body size: 5.0 mm.

Comments. The species is well characterized by three black stripes on scutum, short setae on metanotum, long R_1, with few isolated macrotrichia on posterior wing veins, and a reddish-brown abdomen, contrasting with the darker thorax. It belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111] near the Palaearctic *B. bicolor* (Meigen, 1818) and *B. pallipes* (Fabricius, 1787). It differs from these in a smaller body size, paler wings, setae on metanotum and only few macrotrichia on posterior wing veins.

Distribution. USA (New York).

Bradysia macfarlanei (Jones, 1920)

(Fig. 14 a, b)

Type locality: USA: Alabama, Mobile Co., Theodore.
Lectotype: ♂, no. 2114 (CUIC) [slide; in toto, hypopygium damaged]; hereby designated in order to fix the name.
Paralectotypes: USA: Alabama, same data and no. as holotype, 1 ♀ (CUIC). North Carolina, Southern Pines, 2 ♂♂, no date, leg. F. M. Jones (CUIC) [no. 1949 in coll. Johannsen, only hypopygium].

Literature: *Neosciara macfarlanei* Jones – Jones (1920): 92, 5 figs. *Bradysia* (*Bradysia*) *macfarlanei* (Jones) – Stone & Laffoon (1965): 233. *Bradysia macfarlanei* (Jones) – Steffan (1966): 36, 53; – Kitching (2000): 394.

Redescription. **Male**. Eye bridge with 3 rows of facets; anterior vertex setose. 4th flagellomere with l/w index of 2.0, densely setose, setae somewhat shorter than diameter of flagellomere; Palpi 3-segmented; basal segment with deep sensory pit and some bristles. Thorax dark brown. Abdomen brown. Mesonotum laterally reddish-brown, medially with black stripe, with brownish, short and fine setosity; postpronotum non-setose. Wings darkened; R_1 long, little shorter than R; c = 2/3 w; r-m = bM, with macrotrichia; posterior veins sturdy, without macrotrichia. Coxae and legs ochreous; front tibial organ with strong comb of bristles. Hypopygium without intercoxal lobe; ventromesial margin of gonocoxite short and finely setose; gonostylus elongate, apically round and densely setose, tooth or spines not detectable. Large species.

Comments. *Bradysia macfarlanei* has not been reported again after the original description. Jones (1920) recorded it in southern Mississippi, southern Alabama, North and South Carolina in pitchers of different species of *Sarracenia*. The larvae feed upon the captured insects. Accordingly widely distributed and associated with every species of *Sarracenia* whose structure is favorable to its presence, this species is probably exclusively a

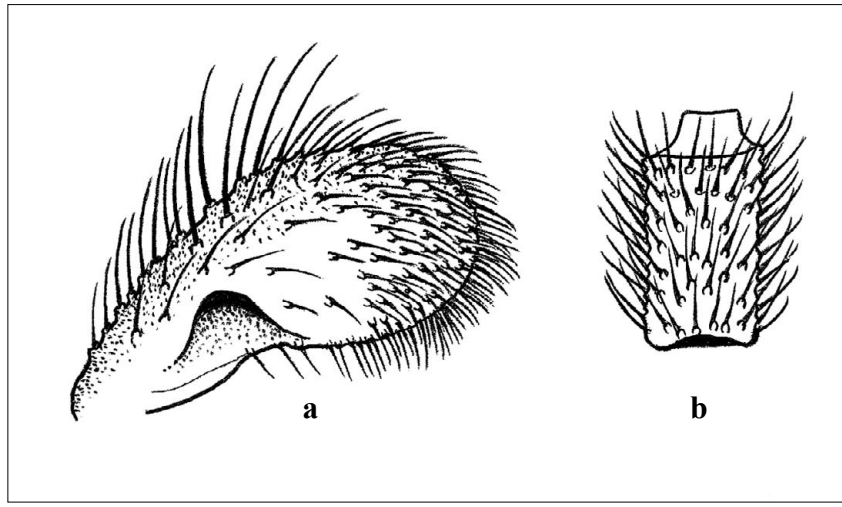


Fig. 14: *Bradysia macfarlanei* (Jones) ♂, holotype. – **a**: Gonostylus, ventral view (phantom picture); – **b**: 4th flagellomere.

pitcher-plant insect. *Bradysia macfarlanei* belongs to the *B. nervosa* group sensu Menzel & Mohrig (2000): 114.

Distribution. USA (Alabama, Mississippi, North Carolina, South Carolina). Also known from Pennsylvania and Philadelphia (Jones 1920).

***Bradysia macroptera* (Pettey, 1918)**

(Fig. 15 a, b)

Type locality: USA: California, Santa Cruz Co., Santa Cruz Mountains, at Felton.
Holotype: ♂, no. 232, 19.5.1911, leg. J. C. Bradley (CUIC) [3 slides; hypopygium; wings and legs; body without head, badly damaged].

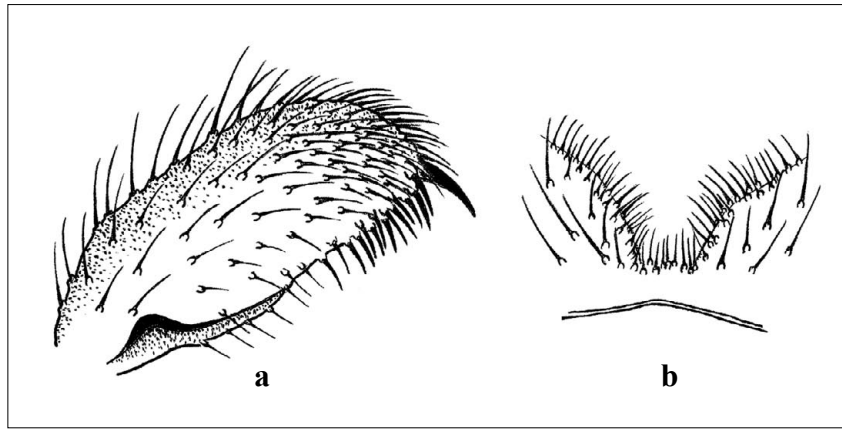


Fig. 15: *Bradysia macroptera* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view.

= *Neosciara hamata* Pettey, 1918 syn. nov.
Type locality: USA: Georgia, Rabun Co., Black Rock Mountain.
Holotype: ♂, no. 230, 1,100 m, 20.–25.5.1911, leg. J. C. Bradley (CUIC) [3 slides; hypopygium crushed; wings; body without legs and antennae].

Literature: *Neosciara hamata* Pettey – Pettey (1918b): 338, figs 25, 56. *Bradysia* (*Bradysia*) *hamata* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia hamata* (Pettey) – Steffan (1966): 36, 53. *Neosciara macroptera* Pettey – Pettey (1918b): 339, figs 27, 58. *Bradysia* (*Bradysia*) *macroptera* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia macroptera* (Pettey) – Steffan (1966): 36, 53.

Redescription. **Male**. Wings hyaline, R_1 = 2/3 R; c somewhat longer 1/2 w; r-m = bM, r-m with some macrotrichia, posterior veins sturdy, CuA-stem shorter bM. Gonostylus with strong apical tooth and 12–16 bristle-like short spines. Intercoxal area and basal third of ventromesial margin of gonocoxite with dense and short setosity.

Comments. Both species are identical, although the serious damage to the body of the type specimens makes identification difficult. The determination is based mainly on the shape of the gonostylus and the characteristic setosity on the intercoxal area of the hypopygium, well visible in both types. The species belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (California, Georgia).

Bradysia ocellaris (Comstock, 1882)

(Fig. 16 a–c)

Type locality: USA: New York, Tompkins Co., at Ithaca.
Lectotype: ♂, no. 2115, 14.6.1881, leg. J. H. Comstock (CUIC) [slide; labelled as male and female, in fact two males]; hereby designated in order to fix the name. The specimen with the hypopygium in horizontal position is regarded as lectotype.
Paralectotypes: USA: same data as lectotype, 2 ♂♂, no. 2115.1 [only hypopygium] and no. 2115.5 (CUIC) [no. 2115.2–4 missing].

= *Sciara reynoldsi* Metz, 1938 syn. nov.
Type locality: USA: Alabama, Jefferson Co. Birmingham.
Holotype: ♂, no. 2119, leg. Reynolds (CUIC) [slide].
Paratypes: USA: same data as holotype, 8 ♂♂, no. 2119.1–8 (CUIC) [1, 3, 5 and 6 pinned; 2119.8 on slide; 2119.2, 4 and 7 missing].

= *Sciara* (*Lycoriella*) *garretti* Shaw, 1952 [as synonym to *B. tritici* in Steffan (1965)].

Material: USA: Hawaiian Islands, Oahu, 1 ♂ 2 ♀♀, labelled as "Syntypes" [♂ may be holotype], 10.12.1913 (USNM) [pinned; male without hypopygium, transferred to slides].

Further synonyms: = *Sciara tritici* Coquillett, 1895 [as synonym to *B. ocellaris* in Tuomikoski (1960); holotype in USNM (Steffan 1965), not investigated]; = *Lycoria prothalliorum* de Meijere, 1946 [as synonym to *B. ocellaris* in Menzel & Mohrig (2000)]; = *Sciara* (*Lycoriella*) *johannseni* Shaw, 1952; = *Sciara* (*Lycoriella*) *laffooni* Shaw, 1952 [all as synonyms to *S. garretti* in Hardy (1960); holotypes missing in the Shaw collection of UMEC]; = *Bradysia* (*Chaetosciara*) *rubicundula* Frey, 1948 [as synonym to *B. ocellaris* in Tuomikoski (1960)]; = *Bradysia picticornis* Yang & Zhang, 1987; = *Bradysia robusticalar* Alam, 1988; = *Bradysia disjuncta* Yang, Zhang & Yang, 1993 [all as synonyms to *B. ocellaris* in Menzel & Heller (2007)].

Further material: USA: Hawaii, Honolulu, on pineapple, 1 ♂, lot no. 849; 1 ♂, lot no. 2024, det. O. A. Johannsen as *Sciara molokaiensis* Grim. (CUIC). Texas, Houston City, 2 ♂♂, 15.2.1996, leg. I. Eue (PWMP). Texas, Houston, City Park, yellow trap, 4 ♂♂ 4 ♀♀, 3.– 6.11.1996, leg. W. Mohrig (PWMP). Florida, Alachua Co., Gainesville, American Entomological Institute, Malaise trap, 1 ♂, 22.–29.7.1998, leg. Gonsalves (PWMP).

Literature: *Sciara reynoldsi* Metz – Metz (1938a): 177, fig. 7 A; – Metz (1938b): 495. *Bradysia* (*Bradysia*) *reynoldsi* (Metz) – Stone & Laffoon (1965): 234. *Bradysia reynoldsi* (Metz) – Steffan (1966): 36, 54; – Steffan

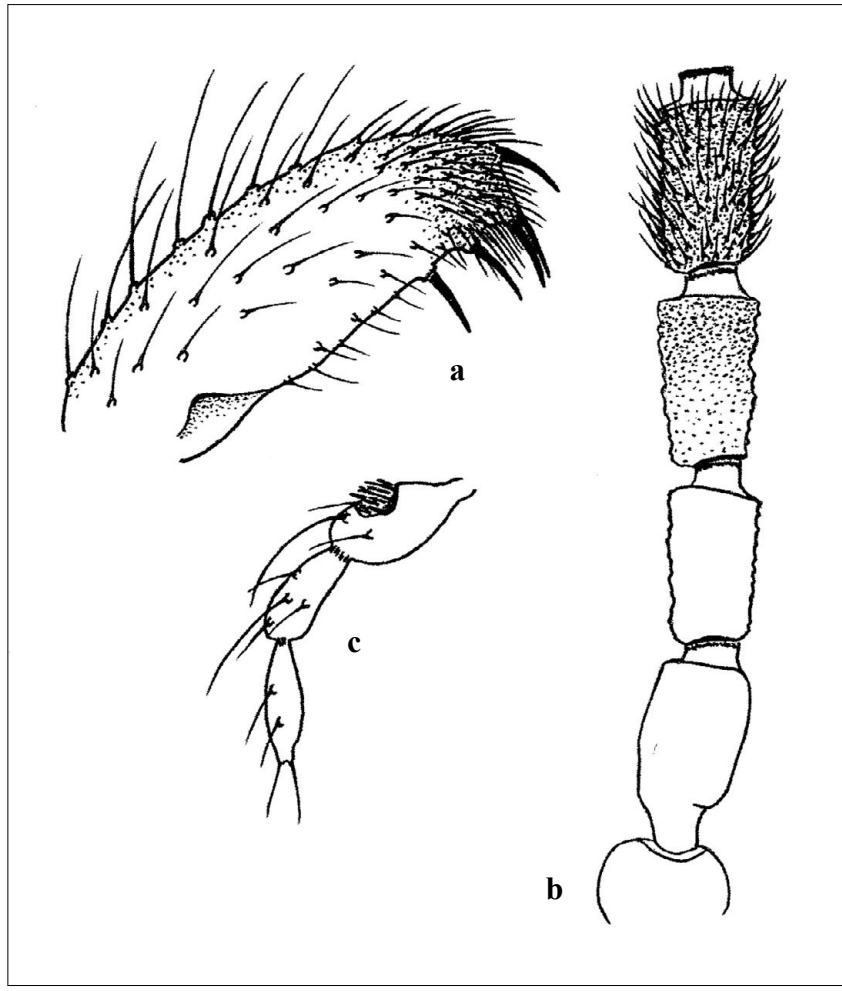


Fig. 16: *Bradysia ocellaris* (Comstock) ♂, specimen from USA, Texas. – **a**: Gonostylus, ventral view; – **b**: Pedicel and flagellomeres 1–4; – **c**: Palpus.

(1974a): 472, fig. 2 a–h. *Sciara* (*Lycoriella*) *garretti* Shaw – Hardy (1960): 220, 221, fig. 70 a–g. *Sciara tritici* Coquillett – Coquillett (1895): 408, fig. 48 a–f; – ? Johannsen (1912): 119, 129. *Neosciara tritici* (Coquillett) – Pettey (1918b): 322. *Bradysia* (*Bradysia*) *tritici* (Coquillett) – Stone & Laffoon (1965): 234. *Bradysia tritici* (Coquillett) – Steffan (1965): 290; – Steffan (1966): 16, 37, 54; – Steffan (1973): 356; – Steffan (1974a): 468, fig. 1 a–h; – Steffan (1974c): 43, 45; – Freeman (1983): 36, fig. 133; – Gagné (1983): 705, figs 2, 2 a, 2 b. *Sciara ocellaris* Comstock – Comstock (1882): 202, figs 2–4 [nec *Cecidomyia ocellaris* Osten Sacken, 1862]; – Johannsen (1912): 119, 138, figs 263, 265; – Metz (1938a): 176, fig. 7 B, C; – Metz (1938b): 494, 505, 510. *Neosciara ocellaris* (Comstock) – Pettey (1918b): 323; – Ellisor (1934): 25. *Bradysia ocellaris* (Comstock) – Tuomikoski (1960): 130, 133; – Menzel & Mohrig (2000): 155; – Menzel et al. (2003): 448, 452, figs 11–22; – Menzel & Heller (2007): 212.

Comments. The holotype and paratype 2118.8 of *Sciara reynoldsi* Metz are identical in all details with *B. ocellaris* (Comstock). The differences in wing venation mentioned by Metz (1938a) are unimportant and on the level of normal intraspecific variation. We follow Steffan (1965) in the synonymy of the three species from Hawaii. Shaw (1952) mentioned for his new species the yellow-ochreous colour of the basal segments of the antennae, parts of body and the basal

part of the hypopygium, typical for *B. ocellaris* (Comstock). The figures 3 (*S. garretti*) and 4 (*S. laffooni*) show the typical arrangement of the spines, whereas fig. 1 seems to be different, but the quality of the drawings is quite poor. The figure is reminiscent of *Sciara bispina* Fisher, but we cannot imagine that Steffan, on studying the paratype in the collection of the University of Hawaii, could be wrong in identifying it as *B. ocellaris* (Comstock). Yellow-ochreous basal segments of the antennae and coloured parts of body are not often present in species of *Bradysia*, which underlined the correctness of synonymy in the sense of Steffan (1965). The species is highly variable in the arrangement of the spines of the gonostylus, as well as in the colour of the basal segments of the antennae, the basal part of hypopygium and the pleural sclerites. The flagellomeres have bicoloured necks and a rough surface, sometimes nearly as in *Bradysia scabricornis* Tuomikoski, 1960. The taxonomic position is not yet clear – the deep sensory pit on the basal segment of the palpus suggests the *B. tilicola* group, the bicoloured necks and rough flagellomeres suggest the *B. hilaris* group. In both species groups there are species with pale basal segments of flagellomeres.

The nomenclature of *Bradysia ocellaris* has been much disputed in the literature. Steffan (1965, 1966) and Stone & Laffoon (1965, 1983) rejected that name, because the description by Comstock was erroneously thought to apply to *Cecidomyia ocellaris* Osten Sacken and they used instead the next older name *Bradysia tritici* (Coquillett, 1895). We instead follow the argumentation of Menzel & Mohrig (2000), who consider it to be the description of a new species of Sciaridae. Both commonly used names (*ocellaris* and *tritici*) were sometimes cited in a misspelled form in the literature as "*Sciara oscellaris* Comstock" or "*Bradysia triciti* (Coquillett)" [nomina nuda]. *Bradysia ocellaris* belongs to the *B. tilicola* group [as *B. amoena* group in Menzel & Mohrig (2000): 113].

Distribution. Holarctic, probably cosmopolitan, spread by man. The species is common in greenhouses and rarely found in nature in temperate regions. It prefers warm habitats and may have been introduced from subtropical regions. Material examined: USA (Alabama, Florida, Iowa, Louisiana, Maryland, New Jersey, New York, Texas, Virginia, Washington D. C.).

Bradysia pallipes (Fabricius, 1787)

Type locality: GERMANY: "Kiliae" [= Kiel].
Holotype: ♀, no details (ZMUC).

= *Sciara prolifica* Felt, 1898 syn. nov.
Type locality: USA: Massachusetts, Worcester Co., Berlin.
Lectotype: ♂, slide no. 739, reared from soil of greenhouse, January 1897, leg. J. A. Otterson (USNM); hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 1 ♂ 2 ♀♀ (USNM) [2 slides]. 1 ♂ 10 ♀♀ and 2 specimens without abdomen (USNM) [pinned; not studied]. Also described from New Jersey, Middlesex Co., New Brunswick, New Jersey Agricultural Experiment Station [material not studied].

= *Sciara* (*Neosciara*) *subgrandis* Shaw, 1941 syn. nov.
Type locality: USA: Oklahoma, Alfalfa Co., Cherokee.
Holotype: ♂, 4.6.1937, leg. Standish & R. W. Kaiser (UMEC) [pinned; slide with hypopygium missing].

Further synonyms: = *Sciara brunnipes* Meigen, 1804 [as synonym to *B. pallipes* in Heller (2004)]; = *Sciara picipes* Zetterstedt, 1838; = *Sciara umbratica* Zetterstedt, 1851; = *Sciara agilis* Winnertz, 1867; = *Sciara engadinica* Winnertz, 1867; = *Sciara fallax* Winnertz, 1867; = *Sciara luctuosa* Winnertz, 1867; = *Sciara morbosa* Winnertz, 1867; = *Sciara spreta* Winnertz, 1867; = *Sciara tristis* Winnertz, 1867; = *Sciara dispar* Winnertz, 1868; = *Sciara conica* Grzegorzek, 1884; = *Sciara kowarzii* Grzegorzek,

1884; = *Sciara laeta* Grzegorzek, 1884; = *Neosciara rufipodex* Frey, 1945; = *Neosciara rufipodex* var. *elysiaca* Frey, 1945 [all as synonyms to *B. brunnipes* in Menzel & Mohrig (2000)].

Further material: USA: New York, 3 ♂♂, slides 764 and 768, no date, det. F. W. Pettey as *prolifica* Felt (USNM). New York, Tompkins Co., Ithaca, 2 ♂♂, no date, det. F. W. Pettey as *prolifica* Felt (PWMP).

Literature: *Sciara prolifica* Felt – Felt (1898): 226, figs 8, 9; – Johannsen (1912): 119, 128, figs 108, 227; – Metz (1938b): 494, 498. *Sciara prolifica* (Felt) var. a – ? Johannsen (1912): 119, 128, fig. 228. *Neosciara prolifica* (Felt) var. a – ? Pettey (1918b): 322. *Sciara prolifica* (Felt) var. b – ? Johannsen (1912): 119, 128; – ? McCarthy (1945a): 113, figs 8 a, 8 b, 17–20; – ? McCarthy (1945b): 244, figs 45, 51. *Neosciara prolifica* (Felt) var. b – ? Pettey (1918b): 322. *Neosciara prolifica* (Felt) – ? Pettey (1918b): 322. *Lycoria prolifica* (Felt) – Shaw & Fisher (1952): 211, 212, fig. 44. *Bradysia* (*Bradysia*) *prolifica* (Felt) – Stone & Laffoon (1965): 234. *Bradysia prolifica* (Felt) – Steffan (1966): 36, 54. *Sciara* (*Neosciara*) *subgrandis* Shaw – Shaw (1941b): 321, fig. 2. *Bradysia* (*Bradysia*) *subgrandis* (Shaw) – Stone & Laffoon (1965): 234. *Bradysia subgrandis* (Shaw) – Steffan (1966): 36, 54. *Sciara brunnipes* Meigen – Meigen (1804): 99. *Neosciara* (*Neosciara*) *brunnipes* (Meigen) – Frey (1942): 33. *Bradysia* (*Neosciara*) *brunnipes* (Meigen) – Frey (1948): 52, 76, fig. 27. *Bradysia brunnipes* (Meigen) – Tuomikoski (1960): 139, 141; – Freeman (1983): 34, fig. 118; – Mohrig & Menzel (1993): 269, 271, fig. 3 a, b; – Menzel & Mohrig (2000): 134, fig. 127 a. *Tipula pallipes* Fabricius – Fabricius (1787): 326. *Sciara pallipes* (Fabricius) – Meigen (1818): 284; – Winnertz (1867): 156. *Bradysia pallipes* (Fabricius) – Menzel & Mohrig (2000): 183, figs 149–151; – Heller (2004): 248.

Comments. The comparison of *Sciara prolifica* Felt and the additional material determined by Pettey as conspecific with the European specimens of *Bradysia pallipes* shows beyond doubt the conspecifity of both species. They are also identical with *Sciara subgrandis* Shaw. According to Shaw (1941b) his species resembles in shape of hypopygium *Sciara grandis* Pettey. The difference to *S. grandis* is the absence of the intercoxal lobe. The figure 2 given by Shaw (1941b: 323) shows the typical gonostylus of *B. pallipes* (Fabricius), and there is no doubt about the identity of *B. subgrandis* Shaw with *B. pallipes* (Fabricius). *Bradysia brunnipes* (Meigen) is a junior synonym of *B. pallipes* (Fabricius) sensu Menzel & Heller (2005): 350. The former *Bradysia brunnipes* group sensu Menzel & Mohrig (2000: 111) was therefore named *B. pallipes* group [see Menzel & Heller (2005): 351].

Distribution. Holarctic, possibly cosmopolitan. Material examined: USA (Massachusetts, New Jersey, New York, Oklahoma, ? Pennsylvania).

***Bradysia paradichaeta* (Shaw, 1941)**

(Fig. 17 a, b)

Type locality: USA: Oklahoma, Le Flore Co., Page.
Lectotype: ♂, 23.6.1937, leg. Standish & R. W. Kaiser (UMEC) [body pinned; slide with hypopygium and wing]; hereby designated in order to fix the name.
Paralectotype: USA: Oklahoma, McCurtain Co., Eagletown, 1 ♂, 28.6.1937, leg. Standish & R. W. Kaiser (UMEC) [body pinned; slide with hypopygium].

Further material: USA: Florida, Highlands Co., Archbold Biological Station, 13 km SE Lake Placid, 2 ♂♂, 22.–29.7.1998, leg. Wahl & Gonsalves (PWMP).

Literature: *Sciara* (*Neosciara*) *paradichaeta* Shaw – Shaw (1941b): 322, fig. 4. *Bradysia* (*Bradysia*) *paradichaeta* (Shaw) – Stone & Laffoon (1965): 234. *Bradysia paradichaeta* (Shaw) – Steffan (1966): 36, 54.

Redescription. **Male**. Wings slightly darkened; R_1 long, = R; c longer than 1/2 w; r-m = bM, r-m with 2–3 macrotrichia; gonostylus similar to *Bradysia dichaeta*; intercoxal lobe of hypopygium wide, with short and dense setosity.

Comments. The species is very similar *Bradysia dichaeta* (Shaw). It differs in the shape of the gonostylus and the intercoxal lobe, which is much wider, shorter and more densely setose in *B. paradichaeta*. The species belongs to the *B. pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (Florida, Oklahoma).

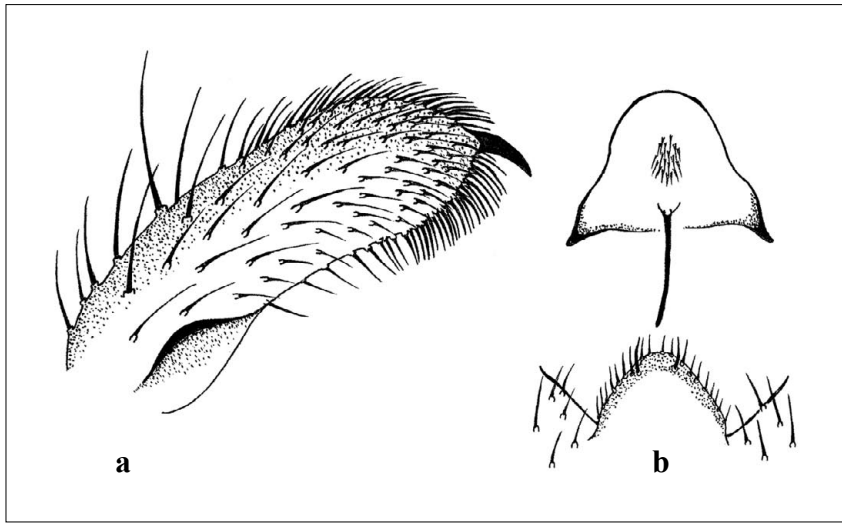


Fig. 17: *Bradysia paradichaeta* (Shaw) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Basal lobe of hypopygium with tegmen, ventral view.

Bradysia petaini (Pettey, 1918) comb. nov.

(Fig. 18 a–c)

Type locality: USA: Maryland, Montgomery Co., Plummers Island.
Holotype: ♂, no. 219, 14.5.1909 (CUIC) [slide, in good condition].

Further material: USA: same locality, 2♂♂, slides no. 1953 and 1957, 1.5.1914 (CUIC).

Literature: *Neosciara petaini* Pettey – Pettey (1918b): 334, figs 14 a, 14 b, 45. *Bradysia* (*Bradysia*) *petaini* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia petaini* (Pettey) – Steffan (1966): 36, 54.

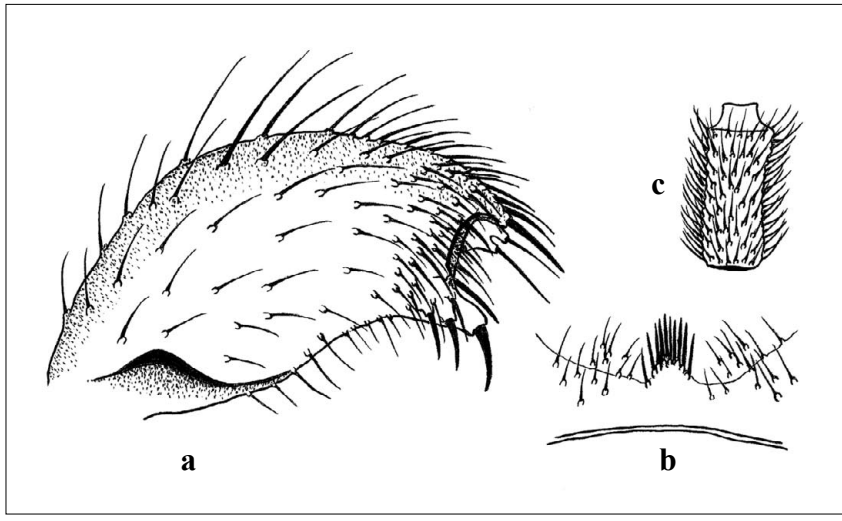


Fig. 18: *Bradysia petaini* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view; – **c**: 4th flagellomere.

Redescription. **Male**. Eye bridge with 4 rows of facets. 4th flagellomere with l/w index of 2.5, densely setose, setae shorter than diameter of flagellomere. Palpus 3-segmented; basal segment with low sensory pit. Mesonotum with short and pale setosity, some lateral bristles stronger. Scutellum with 4 stronger marginal bristles. Postpronotum non-setose. Front tibial organ with comb of bristles. Claws untoothed. Hypopygium with intercoxal lobe with spine-like bristles; ventromesial margin of gonocoxite with very short setosity; apex of gonostylus divided into a lateral and dorsal lobes, with characteristic arrangement of setae and spines. Tegmen apically roundish, somewhat wider than high; aedeagus rather long.

Comments. *Bradysia petaini* belongs to the *B. polonica* group sensu Menzel & Mohrig (2000): 109. It is similar to the Palaearctic *B. polonica* (Lengersdorf, 1929).

Distribution. USA (Maryland).

Bradysia tilicola (Loew, 1850)

Type locality: GERMANY: "Thüringen, Liebenstein" [= Thuringia, Bad Liebenstein].
Lectotype: ♂, no date, leg. H. Loew (ZMHB) [slide]; designated by Menzel in Menzel & Heller (2005).
Paralectotype: GERMANY: same locality, 1 ♂, no. 8518, 189 and 140, no date, leg. H. Loew (ZMHB) [slide].

= *Sciara caldaria* Lintner, 1895 syn. nov.
Type locality: USA: Idaho, Ada Co., Boise.
Lectotype: ♂, 20.4.1893, leg. Seaman (NYSM) [on slide]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 7 ♂♂ 2 ♀♀ (NYSM) [on slides or pinned; not studied].

= *Neosciara sexdentata* Pettey, 1918 syn. nov.
Type locality: USA: California, Ventura Co., Santa Paula.
Holotype: ♂, no. 234, no date, no collector detail (CUIC) [3 slides; hypopygium, wings, body and head in good condition].

Further synonyms: = *Sciara amoena* Winnertz, 1867 [as synonym to *B. tilicola* in Menzel & Heller (2005)]; = *Sciara vividula* Winnertz, 1867; = *Bradysia domestica* Frey, 1948; = *Neosciara wendalinae* van Bruggen, 1954 [all as synonyms to *B. amoena* in Tuomikoski (1960)]; = *Sciara incomta* Winnertz, 1867; = *Sciara setigera* Winnertz, 1867; = *Sciara triseriata* Winnertz, 1867; = *Sciara turbida* Winnertz, 1867; = *Sciara volucris* Winnertz, 1867; = *Sciara alma* Winnertz, 1871; = *Sciara selecta* Winnertz, 1871; = *Sciara vana* Winnertz, 1871; = *Sciara coprophila* Lintner, 1895; = *Sciara* (*Neosciara*) *nanella* Frey, 1936 [all as synonyms to *B. amoena* in Menzel & Mohrig (2000)]; = *Sciara marcilla* Hutton, 1902 [as synonym to *B. amoena* in Mohrig & Jaschhof (1999)]; = *Bradysia cellarum* Frey, 1948 [as synonym to *B. tilicola* in Menzel & Heller (2007)].

Further material: USA: 2 ♂♂, lot no. 1941 and 2709, no details (CUIC). California, San Mateo Co., Redwood City, 2 ♂♂, 7.12.1952, leg. P. H. Arnaud (PWMP). California, Los Angeles Co., Topanga National Forest, 1 ♂, 12.–17.12.1996, leg. W. Mohrig (PWMP).

Literature: *Lycoria ocellaris* (Comstock) – Shaw & Fisher (1952): 211, 212, fig. 48 [misidentification]. *Sciara amoena* Winnertz – Winnertz (1867): 114. *Bradysia amoena* (Winnertz) – Tuomikoski (1960): 130, 132; – Freeman (1983): 36, figs 130–132; – Mohrig & Jaschhof (1999): 96 [under *Sciara marcilla*]; – Menzel & Mohrig (2000): 147, figs 132, 133. *Sciara coprophila* Lintner – Lintner (1895b): 394, figs 4, 5 a–e; plate 1, figs 1–4, 6, 8, 9, 11, 11 a; – Johannsen (1912): 120, 123, 136, figs 133, 144, 236, 259; – Smith-Stocking (1936): 421, figs 2, 3 a–g; – Metz (1938b): 487, figs 1, 2, 4–7. *Lycoria coprophila* (Lintner) – Shaw & Fisher (1952): 212, fig. 53. *Neosciara coprophila* (Lintner) – Pettey (1918b): 324, 327. *Bradysia* (*Bradysia*) *coprophila* (Lintner) – Stone & Laffoon (1965): 232. *Bradysia coprophila* (Lintner) – Keen (1958): 76; – Steffan (1966): 35, 52, figs 1, 5. *Sciara caldaria* Lintner – Lintner (1895a): 397, figs 5, 7, 10–12; – Johannsen (1912): 123, 137, fig. 237. *Neosciara caldaria* (Lintner) var. – ? Pettey (1918b): 327, figs 31, 62. *Bradysia* (*Bradysia*) *caldaria* (Lintner) – Stone & Laffoon (1965): 232. *Bradysia caldaria* (Lintner) – Steffan (1966): 35, 52. *Neosciara sexdentata* Pettey – Pettey (1918b): 340, figs 29, 60. *Bradysia* (*Bradysia*) *sexdentata* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia sexdentata* (Pettey) – Steffan (1966): 36, 54. *Sciara tilicola* Loew

– Loew (1850): 18; – Winnertz (1867): 164; – Johannsen (1912): 140; – Menzel & Mohrig (2000): 600. *Bradysia tilicola* (Loew) – Menzel & Heller (2005): 351; – Menzel & Heller (2007): 213.

Comments. Johannsen (1912) studied the holotype of *Sciara caldaria* Lintner and identified it as *Sciara coprophila* Lintner. Some specimens in his collection, det. Johannsen as *S. coprophila* Lintner, are in fact *Bradysia tilicola* (Loew) [lot no. 742; lot no. 2709]; lot no. 1927 belongs to *B. nitidicollis* (Meigen). We also compared the types of *S. caldaria* and *S. coprophila* and agree that the species are the same. They are also identical with *N. sexdentata* Pettey, and all are conspecific with the European *Bradysia tilicola* (Loew). *Bradysia tilicola* is well characterized by macrotrichia on bM/r-m veins of the wing, the deep sensory pit on the basal segment of the palpi and the gonostylus with a short apical tooth and 7–8 subapical spines.

Bradysia tilicola is the nominate species of the former *Bradysia amoena* group sensu Tuomikoski (1960: 112) and Menzel & Mohrig (2000: 113) [= *B. tilicola* group]. *Bradysia tilicola* (Loew) is closely associated with man, because its larvae live in the soil of flowerpots in houses, in greenhouses, and in mushroom cultures. This explains the numerous descriptions of the species in the past. *B. tilicola* is usually a harmless cohabitant and only rarely damages the flowers.

Distribution. Cosmopolitan. North America: USA (California, Idaho, Kansas, Maine, North Carolina, New York).

Bradysia varians (Johannsen, 1912)

(Fig. 19 a, b)

Type locality: USA: Kansas, Douglas Co., Lawrence.
Lectotype: ♂, no. 2101, no date, leg. O. A. Johannsen (CUIC) [2 slides; hypopygium in good condition, together with legs and wings; body turbid and unrecognizable]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as holotype, 1 ♂, no. 2101.1 (CUIC) [2 slides; body strongly damaged, without hypopygium]; 1 ♂, no. 2101.3 (CUIC) [pinned; without hypopygium].

= *Bradysia farri* Shaw, 1953 syn. nov.
Type locality: USA, Connecticut, Hartford Co., Mt. Higby Reservoir.
Holotype: ♂, 7.3.1951, leg. P. Bellinger (UMEC).

Further material: USA: Idaho, Latah Co., Moscow, 1 ♂, no. 766 ("var. c"), no further data (CUIC). New York, Tompkins Co., Ithaca, 1 ♂, no. 753 ("var. b"), no further data (CUIC).

Literature: *Bradysia farri* Shaw – Shaw (1953a): 67, fig. 5; – Steffan (1966): 36, 52. *Bradysia* (*Bradysia*) *farri* Shaw – Stone & Laffoon (1965): 232. *Sciara varians* Johannsen – Johannsen (1912): 135, figs 115, 246; – Metz (1938b): 494. *Sciara varians* Johannsen var. c – Johannsen (1912): 119, 121, fig. 255. *Neosciara varians* (Johannsen) var. c – Pettey (1918b): 324. *Neosciara varians* (Johannsen) – Pettey (1918b): 322, 326. *Lycoria varians* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 39. *Bradysia* (*Bradysia*) *varians* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia varians* (Johannsen) – Steffan (1966): 37, 54.

Redescription. **Male**. 4th flagellomere with l/w index of 2.0, with very fine setosity, setae shorter than diameter of flagellomere, neck very short. R_1 = 3/4 R; c little longer than 1/2 w; r-m longer than bM, both bare; CuA-stem short. Hypopygium without intercoxal lobe, basal part of ventromesial margin of gonocoxite with dense setosity; gonostylus with strong apical tooth and many short bristle-like subapical spines.

Comments. The other specimens mentioned by Johannsen (1912: 135) [♂, slide no. 744 "var. a" / ♂, slide no. 759 "var. b", hypopygium and wings] are identical, but not identical with the lectotype of *varians* (Johannsen, 1912). The comparison of the types shows the identity between *Bradysia farri* Shaw and *Bradysia varians* (Johannsen). See also fig. 5 of *B. farri* in Shaw

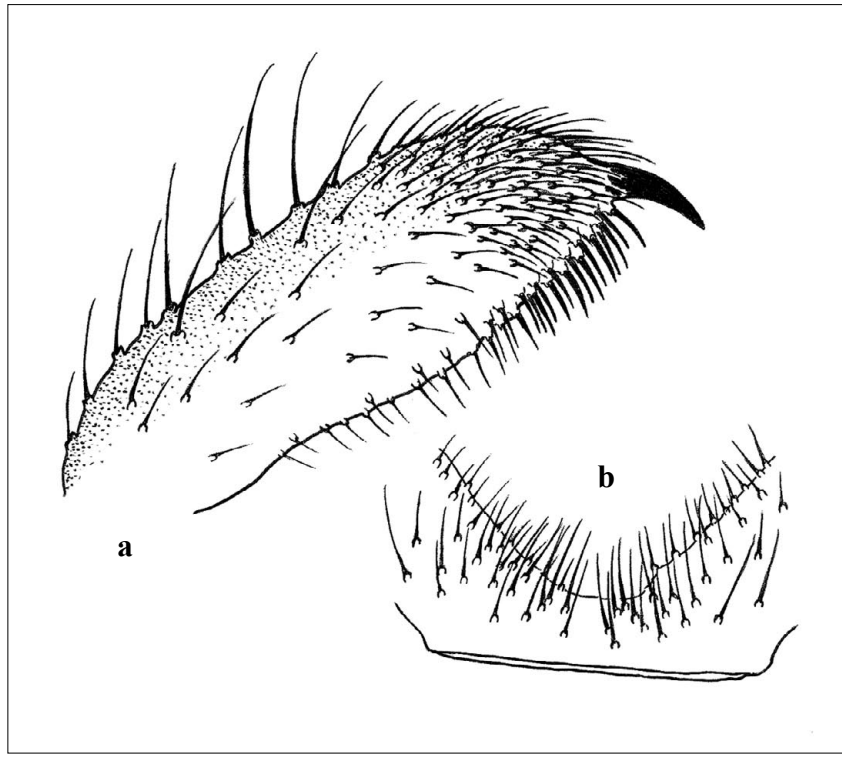


Fig. 19: *Bradysia varians* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view.

(1953a). The species belongs to the *Bradysia pallipes* group [as *B. brunnipes* group in Menzel & Mohrig (2000): 111].

Distribution. USA (Connecticut, Idaho, Kansas, New York).

Genus *Camptochaeta* Hippa & Vilkamaa, 1994

Type species: *Corynoptera camptochaeta* Tuomikoski, 1960 – Ann. Zool. Soc. "Vanamo" **21**(4): 69, figs 12 i, 13 i; by original designation.

Literature: *Camptochaeta* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 4 [in part]; – Poole (1996): 238; – Arnett (2000): 856; – Menzel & Mohrig (2000): 85, 192, 606; – Komarova et al. (2007): 2 [in part]; – Vilkamaa et al. (2011): 69; – Vilkamaa et al. (2013): 476; – Shin et al. (2013): 835.

Camptochaeta aequidens Hippa & Vilkamaa, 1994

Type locality: CANADA: Ontario, Lancaster.
Holotype: ♂, May 1990, leg. B. De Jonge (CNC).

Literature: *Camptochaeta aequidens* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 17, fig. 6 A, B.

Distribution. Canada (Ontario).

Camptochaeta bournei (Shaw, 1941)

Type locality: CANADA: Manitoba, Churchill.
Holotype: ♂, 7.6.1936, leg. H. E. McClure (UMEC) [slide; body and hypopygium in good position].

Synonym: = *Corynoptera subvivax* Mohrig, 1985 [in Hippa & Vilkamaa (1994)].

Literature: *Corynoptera subvivax* Mohrig – Mohrig (1985): 233, fig. 4 a–c. *Sciara* (*Neosciara*) *bournei* Shaw – Shaw (1941a): 175, fig. 2. *Bradysia* (*Bradysia*) *bournei* (Shaw) – Stone & Laffoon (1965): 232. *Corynoptera bournei* (Shaw) – Steffan (1966): 49, 52. *Camptochaeta bournei* (Shaw) – Hippa & Vilkamaa (1994): 8, 27, figs 7 F, 12 A–C.

Distribution. Holarctic: Europe (boreo-alpine); Canada (Manitoba, Quebec, Yukon).

Camptochaeta cladiator Hippa & Vilkamaa, 1994

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, alder-poplar-spruce, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).
Paratypes: USA: same data as holotype, 8 ♂♂ (MZH). CANADA: Northwest Territories, Ellesmere Island, Allert, 1 ♂, 17.6.–25.8.1987, leg. C. Willis (CNC). Northwest Territories, Ellesmere Island, Fosheim Pen., Hot Weather Cr., 79°58'N 84°28'W, 1 ♂, 2.7.1990; 1 ♂, 22.7.1991, all leg. F. Brodo (CNC); DENMARK: Greenland, Nedre Midsommer, Canadian Pearyland Expedition, 1 ♂, 14.6.1966, no collector detail (CNC). AUSTRIA: Stubain Alps, 1 ♂, 23.8.1976, leg. K. Thaler (PWMP).

Literature: *Camptochaeta cladiator* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 9, 41, figs 20 A–D, 21 A, 21 B.

Distribution. Holarctic: Europe (Austria); Greenland, Canada (Northwest Territories), USA (Alaska).

Camptochaeta consimilis (Holmgren, 1869)

Type locality: NORWAY: "Spetsbergia ad Advent Bay" [= Spitsbergen, near Advent Bay].
Lectotype: ♀, 1858, leg. A. E. Holmgren (SMNH); designated by Menzel in Menzel & Mohrig (2000).

Further material [not mentioned by Hippa & Vilkamaa (1994)]: NORWAY: NW Spitsbergen, South coast Königsfjord, W Ny Ålesund, yellow trap, 24 ♂♂, 2.6.–15.7.1974, leg. Stephan (PWMP).

Literature: *Sciara consimilis* Holmgren – Holmgren (1869): 54. *Lycoriella* (*Hemineurina*) *consimilis* (Holmgren) – Stone & Laffoon (1965): 232. *Corynoptera consimilis* (Holmgren) – Steffan (1966): 50, 52; – Tuomikoski (1967): 46, 50. *Camptochaeta consimilis* (Holmgren) – Hippa & Vilkamaa (1994): 8, 12, fig. 2 C, D; – Menzel & Mohrig (2000): 197; – Komarova et al. (2007): 3, 5.

Distribution. Holarctic: Europe (Finland, Great Britain, Norway: Spitsbergen), Russia (Altaysky Kray); Canada (Northwest Territories).

Camptochaeta delicata (Lengersdorf, 1935)

Type locality: NORWAY: Spitsbergen.
Lectotype: ♂, 17.7.1928, leg. S. Sømme (ZFMK); designated by Menzel in Menzel & Mohrig (2000).
Paralectoypes: NORWAY: same data as lectotype, 1 ♂ 3 ♀♀ (ZFMK).

Synonyms: = *Sciara pallidiventris* Holmgren, 1869 [preocc., nec *Sciara pallidiventris* Winnertz, 1867]; = *Bradysia* (*Diorychophthalma*) *macrodon* Frey, 1948 [replacement name for *Sciara pallidiventris* Holmgren, 1869] [synonymy in Hippa & Vilkamaa (1994) and Menzel & Mohrig (2000)].

Further material [not mentioned by Hippa & Vilkamaa (1994)]: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 3 ♂♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 23 ♂♂, 23.7.–15.9.1994, leg. E. Fuller (21 ♂♂ in PWMP; 2 ♂♂ in SDEI).

Literature: *Sciara pallidiventris* Holmgren – Holmgren (1869): 53. *Bradysia* (*Diorychophthalma*) *macrodon* Frey – Frey (1948): 68, 85, fig. 113. *Bradysia* (*Bradysia*) *macrodon* Frey – Stone & Laffoon (1965): 233. *Bradysia macrodon* Frey – Steffan (1966): 36, 53. *Corynoptera macrodon* (Frey) – Tuomikoski (1967): 47. *Neosciara delicata* Lengersdorf

– Lengersdorf (1935b): 75, fig.; – Tuomikoski (1967): 50. *Camptochaeta delicata* (Lengersdorf) – Hippa & Vilkamaa (1994): 9, 36, fig. 18 A, B; – Menzel & Mohrig (2000): 197; – Komarova et al. (2007): 4, 6.

Distribution. Holarctic: Europe (Austria, Finland, Germany, Norway, Spitsbergen, Sweden, Switzerland), Russia (Altaysky Kray, Chukchi Peninsula); Greenland, Canada (Alberta, Northwest Territories, Quebec), USA (Alaska).

Camptochaeta falcator Hippa & Vilkamaa, 1994

Type locality: CANADA: Yukon, km 155 Dempster Hwy.
Holotype: ♂, 28.6.–2.7.1988, leg. D. M. Wood (CNC).

Literature: *Camptochaeta falcator* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 44, fig. 22 D, E.

Distribution. Canada (Yukon).

Camptochaeta falcidens Hippa & Vilkamaa, 1994

Type locality: CANADA: British Columbia, Vancouver Island.
Holotype: ♂, 30.7.1991, leg. N. Winchester (CNC).
Paratypes: CANADA: same data as holotype, 2♂♂ (MZH).

Literature: *Camptochaeta falcidens* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 31, fig. 14 A, B.

Distribution. Canada (British Columbia).

Camptochaeta filifera Vilkamaa, Hippa & Heller, 2013

Type locality: USA: Washington, Clallam County, Bogachiel, Bogachiel River.
Holotype: ♂, 29.6.1974, leg. P. A. Arnaud (CAS).

Literature: *Camptochaeta filifera* Vilkamaa, Hippa & Heller – Vilkamaa et al. (2013): 478, fig. 2 A, B.

Distribution. USA (Washington).

Camptochaeta formosa Vilkamaa, Hippa & Heller, 2013

Type locality: CANADA: British Columbia, Lake Kinbasket, Canoe Reach near Valemount.
Holotype: ♂, Malaise trap, 12.6.2010, leg. Cooper, Beauchesne and Associates Ltd. (CNC).

Literature: *Camptochaeta formosa* Vilkamaa, Hippa & Heller – Vilkamaa et al. (2013): 479, fig. 3 A, B.

Distribution. Canada (British Columbia).

Camptochaeta flagellifera Hippa & Vilkamaa, 1994

Type locality: CANADA: Quebec, Kuujjuarapik, 55.17°N 77.48°W.
Holotype: ♂, 27.7.–17.8.1990, leg. S. Koponen (SMNH).
Paratypes: CANADA: same locality, 5♂♂, 14.7.–19.8.1990, leg. S. Koponen (3♂♂ in SMNH; 2♂♂ in MZH).

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 6♂♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP).

Literature: *Camptochaeta flagellifera* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 19, fig. 6 C, D.

Distribution. Canada (Quebec, Alberta).

Camptochaeta hirtula (Lengersdorf, 1934)

Type locality: CZECH REPUBLIC: Bohemia, house "Liechtenstein" below the mountain Králický Sněžnik.
Holotype: ♂, no. 20, 1,400 m, house cellar, 8.6.1933, leg. F. Pax & K. Maschke (ZFMK).

Synonym: = *Corynoptera fulvicollis* Tuomikoski, 1960 [in Menzel & Mohrig (2000)].

Further material [not mentioned in Hippa & Vilkamaa (1994)]: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 2 ♂♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP). Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, 1 ♂, 23.7.–15.9.1994 leg. E. Fuller (PWMP). USA: Washington, Clallam Co., Olympic National Park, Lake Crescent, 3 ♂♂, 30.6.1974, leg. P. H. Arnaud (PWMP). Washington, Fort Lewis, 1 ♂, March 1946, no collector detail (CAS).

Literature: *Bradysia* (*Chaetosciara*) *ofenkaulis* (Lengersdorf) sensu Frey – Frey (1948): 62, 81, figs 80, 81. *Corynoptera fulvicollis* Tuomikoski – Tuomikoski (1960): 67, figs 12 j, 13 j. *Camptochaeta fulvicollis* Tuomikoski – Hippa & Vilkamaa (1994): 7, 14, figs 1 B, 4 A, 4 B. *Neosciara hirtula* Lengersdorf – Lengersdorf (1934): 25. *Camptochaeta hirtula* (Lengersdorf) – Menzel & Mohrig (2000): 198.

Distribution. Holarctic: Europe, Russia (Karelia); Canada (Alberta, Quebec), USA (Washington).

Camptochaeta inflata Hippa & Vilkamaa, 1994

Type locality: USA: New York, Adirondacks [= Adirondack Mountains], Avalanche Trl.
Holotype: ♂, 30.7.1929, leg. A. L. Melander (USNM).
Paratypes: USA: New York, McLean Res., The Rock, 1 ♂, 15.8.1925, no collector detail (ANSP). New York, McLean Res., West Ridge, 1 ♂, 17.8.1925, no collector detail (ANSP).

Literature: *Camptochaeta inflata* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 32, fig. 16 A, B.

Distribution. USA (New York).

Camptochaeta longicosta Hippa & Vilkamaa, 1994

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).
Paratypes: USA: same data as holotype, 2 ♂♂ (MZH). CANADA: British Columbia, Golden, 100 km W Banff, 1,800 m, 6 ♂♂, 18.7.1994, leg. L. Kaila (MZH). Quebec, Kuujjuarapik, 55°17'N 77°48'W, 3 ♂♂, 14.7.–1.8.1990; 5 ♂♂, 14.7.–19.8.1990; 3 ♂♂, 27.7.–10.8.1990; 1 ♂, 27.7.–17.8.1990, all leg. S. Koponen (SMNH).

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 20 ♂♂, 11.6.–24.7.1994; 6 ♂♂, 23.7.–15.9.1994, all leg. E. Fuller (1 ♂ in PKHE; 25 ♂♂ in PWMP). Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, 1 ♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). Alberta, Banff National Park, Egypt Lake, Whistle Pass, 2,400 m, 9 ♂♂, August 1997, leg. F. Röschmann (PWMP).

Literature: *Camptochaeta longicosta* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 11, fig. 2 A, B.

Distribution. Canada (Alberta, British Columbia, Quebec), USA (Alaska).

Camptochaeta mimica Hippa & Vilkamaa, 1994

Type locality: CANADA: Yukon, km 155 Dempster Hwy.
Holotype: ♂, 28.6.–2.7.1988, leg. D. M. Wood (CNC).
Paratype: CANADA: same data as holotype, 1 ♂ (SMNH).

Further material: NORWAY: Spitsbergen, Ny Ålesund, yellow trap, 9 ♂♂, 2.–15.7.1974, leg. Stephan (8 ♂♂ in PWMP; 1 ♂ in MZH).

Literature: *Camptochaeta mimica* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 39, fig. 18 C, D.

Distribution. Holarctic: Europe (Spitsbergen); Canada (Yukon). New for the Palaearctic region.

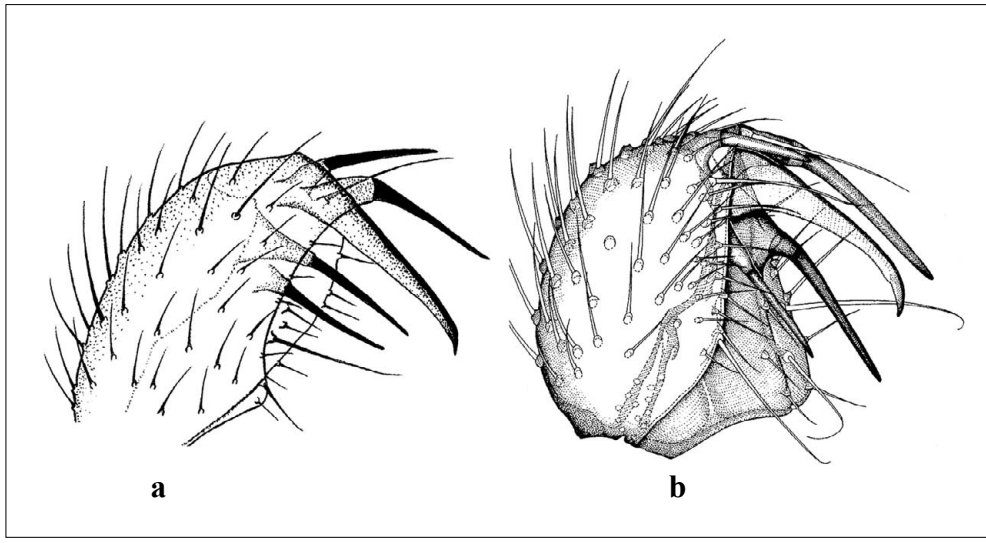


Fig. 20: *Camptochaeta mutua* (Johannsen) ♂. – **a**: Gonostylus of holotype, ventral view; – **b**: Gonostylus of specimen from Canada after Hippa & Vilkamaa (1994), ventral view.

Camptochaeta mutua (Johannsen, 1912)

(Fig. 20 a, b)

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2089, June, leg. O. A. Johannsen (CUIC) [slide; hypopygium and wing]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 2 ♂♂, no. 2089 (CUIC) [on slides; one specimen embedded in artificial resin, seriously damaged; second with hypopygium and wing in good position].

Further material [not mentioned by Hippa & Vilkamaa (1994)]: CANADA: Nova Scotia, Cape Breton Island, Frizzleton, 2 ♂♂, 30.8.1936, leg. E. G. Fisher (PWMP). USA: Maryland, Baltimore, Loch Raven, 4 ♂♂, 8.5.1938, leg. E. G. Fisher (ANSP). Maryland, Prince Georges Co., Beltsville, 1 ♂, 16.–30.9.1964, leg. P. H. Arnaud (PWMP). Tennessee, Smoky Mountains, 4,000 ft., 1 ♂, 5.4.1939, leg. C. P. Alexander (PWMP).

Literature: *Sciara mutua* Johannsen – Johannsen (1912): 131, figs 113, 233. *Lycoria mutua* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 41. *Neosciara mutua* (Johannsen) – Pettey (1918b): 324. *Bradysia* (*Bradysia*) *mutua* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia mutua* (Johannsen) – Steffan (1966): 36, 53. *Camptochaeta mutua* (Johannsen) – Hippa & Vilkamaa (1994): 9, 32, figs 14 C, 14 D, 15 A–D, 16 C, 16 D; – Vilkamaa et al. (2011): 73.

Distribution. Canada (Newfoundland, Nova Scotia, Ontario, Quebec, Yukon), USA (Arkansas, Connecticut, Maryland, New York, Tennessee, Virginia, West Virginia).

Camptochaeta pellax Hippa & Vilkamaa, 1994

Type locality: USA: Colorado, Gilpin Co., 4 km SW Central City.
Holotype: ♂, meadow, 13.7.1993, leg. K. Mikkola (MZH).
Paratypes: USA: same data as holotype, 11 ♂♂ (4 ♂♂ in MZH; 7 ♂♂ in SMNH). Utah, Cache Co., Mendon Cold Spg., Malaise trap, 1 ♂, 2.–11.8.1977, no collector detail (BLCU).

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 2 ♂♂, 11.6.–23.7.1994; 2 ♂♂, 23.7.–15.9.1994, all leg. E. Fuller (PWMP); Alberta, Banff National Park, Egypt Lake, Whistle Pass, 2,400 m, 4 ♂♂, August 1997, leg. F. Röschmann (1 ♂ in PKHE; 3 ♂♂ in PWMP). USA: Wyoming, Albany Co., Libby Flats, west of Centennial, 3,304 m, 2 ♂♂ 1 ♀, 1.8.1973, leg. P. H. Arnaud (1 ♂ 1 ♀ in CAS; 1 ♂ in PWMP).

Literature: *Camptochaeta pellax* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 36, fig. 17 A–E; – Vilkamaa et al. (2011): 73.

Distribution. Canada (Alberta), USA (Colorado, Nevada, Utah, Wyoming).

Camptochaeta prolixa Vilkamaa, Hippa & Taylor, 2011

Type locality: USA: Nevada, White Pine Co., Root Cave, 39°00'N 114°13'W.
Holotype: ♂, 25.5.2006, leg. S. J. Taylor, J. K. Krejca, M. E. Slay, G. M. Baker & B. Roberts (USNM).
Paratypes: USA: same locality, 1 ♂, 25.5.2006, leg. G. M. Baker, S. J. Taylor & J. K. Krejca (USNM). Nevada, White Pine Co., Lehman Cave, 1 ♂, 25.6.2006, leg. G. M. Baker, M. A. Horner & B. O'Doan (INHS); 1 ♂, 26.5.2006, leg. S. J. Taylor, J. K. Krejca, M. E. Slay & G. M. Baker (MZH). Nevada, White Pine Co., Lehman Cave Annex, 2 ♂♂, 25.5.2006, leg. S. J. Taylor, J. K. Krejca, M. E. Slay, B. Roberts & M. A. Horner (MZH). Nevada, White Pine Co., Cave 24, 1 ♂, 17.7.2007, leg. G. M. Baker & S. J. Taylor (MZH).

Further material: USA: Nevada, Cave Valley, 1 ♂, no. 2633, June, leg. O. A. Johannsen (CUIC). Colorado, Red Mountains, 10,000 ft., 1 ♂, 2.7.1934, leg. C. P. Alexander (PWMP).

Literature: *Camptochaeta prolixa* Vilkamaa, Hippa & Taylor – Vilkamaa et al. (2011): 70, fig. 1 A–D.

Comment. The Colorado specimen was not collected in caves and has shorter antennae than the cave form.

Distribution. USA (Colorado, Nevada)

Camptochaeta quadriceps Hippa & Vilkamaa, 1994

Type locality: CANADA: Northwest Territories, Ellesmere Island, Fosheim Peninsula, Hot Weather Creek, 79.58°N 84.28°W.
Holotype: ♂, 11.7.1990, leg. Brodo (CNC).

Literature: *Camptochaeta quadriceps* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 41, fig. 21 C, D.

Distribution. Canada (Northwest Territories).

Camptochaeta simulator Hippa & Vilkamaa, 1994

Type locality: FINLAND: Regio kuusamoensis, Kuusamo, Juuma.
Holotype: ♂, 1964, leg. R. Tuomikoski (MZH).
Paratypes: FINLAND: Salla, Värriö, 2 ♂♂, 21.8.1979, leg. Pulliainen (MZH). RUSSIA: Altaysky Kray, 15 km S Katanda, Kuragan Valley, 1,100 m, 2 ♂♂, 23.7.1983, leg. K. Mikkola, H. Hippa & Jalava (SMNH). USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270, 1 ♂, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).

Literature: *Camptochaeta simulator* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 41, fig. 19 A, B; – Komarova et al. (2007): 4, 5.

Distribution. Holarctic: Europe (Finland), Russia (Altaysky Kray); USA (Alaska).

Camptochaeta spicigera Hippa & Vilkamaa, 1994

Type locality: USA: Colorado, Gilpin Co., 4 km SW Central City.
Holotype: ♂, 2,685 m, meadow, 13.7.1993, leg. K. Mikkola (MZH).
Paratype: USA: same data as holotype, 1 ♂ (MZH).

Literature: *Camptochaeta spicigera* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 8, 9, 29, figs 1, 13 A–C; – Vilkamaa et al. (2011): 73; – Vilkamaa et al. (2013): 486, fig. 10 A, B.

Distribution. USA (Arizona, Colorado, Nevada).

Camptochaeta winchesteri Vilkamaa, Hippa & Heller, 2013

Type locality: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley.
Holotype: ♂, Malaise trap, 12.–27.8.1991, leg. N. Winchester (CNC).
Paratypes: CANADA: same data as holotype, 3♂♂ (MZH); same data, 10.–29.9.1991, 3♂♂ (2♂♂ in CNC; 1♂ in RBCM). Vancouver Island, Victoria, Rocky Point, Malaise trap, 29.9.1994, leg. N. Winchester (MZH). British Columbia, West Vancouver, Horseshoe Bay, 30.5.1961, leg. R. Vockeroth (CNC).

Literature: *Camptochaeta winchesteri* Vilkamaa, Hippa & Heller – Vilkamaa et al. (2013): 485, fig. 9 A, B.

Distribution. Canada (British Columbia).

Camptochaeta xysticoides Hippa & Vilkamaa, 1994

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).
Paratypes: USA: same data as holotype, 7♂♂ (MZH).

Literature: *Camptochaeta xysticoides* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 9, 46, fig. 23 A–C.

Distribution. USA (Alaska).

Genus *Claustropyga* Hippa, Vilkamaa & Mohrig, 2003

Type species: *Corynoptera clausa* Tuomikoski, 1960 – Ann. Zool. Soc. "Vanamo" **21**(4): 43 and 46, figs 9 g, 10 a, 14 c; by original designation.

Literature: *Corynoptera* Winnertz s. l. [in part; *C. clausa* group] – Menzel & Mohrig (2000): 213, 219; – Shin et al. (2013): 835. *Claustropyga* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 469, 483; – Vilkamaa & Hippa (2007): 53.

Claustropyga acanthostyla (Tuomikoski, 1960)

Type locality: FINLAND: Ostrobottnia kajanensis, Sotkamo, Korvanniemi.
Holotype: ♂, 3.8.1957, leg. R. Tuomikoski (MZH).

= *Claustropyga elizabethae* Hippa, Vilkamaa & Mohrig, 2003 syn. nov.
Type locality: USA: Alaska, Valdez.
Holotype: ♂, 30.6.1954, leg. Coleman (USNM).
Paratypes: USA: same data as holotype, 2♂♂ (USNM). CANADA: Ontario, Griffith, 1♂, 23.7.1989, leg. B. E. Cooper (CNC).

Further material [not mentioned by Hippa et al. (2003) and Vilkamaa & Hippa (2007)]: CANADA: Alberta, Munn Creek, spruce forest, 53.30°N 118.10°W, 22♂♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP).

Literature: *Claustropyga elizabethae* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 486, 496, fig. 12 a–d; – Vilkamaa & Hippa (2007): 56, 60, fig. 1 C, D. *Corynoptera acanthostyla* Tuomikoski – Tuomikoski (1960): 70, 73, figs 9 b, 12 f, 13 g, 14 d. *Claustropyga acanthostyla* (Tuomikoski) – Hippa et al. (2003): 486, 487, figs 2 b, 5 a–g; – Vilkamaa & Hippa (2007): 56, fig. 1 A, B.

Comments. The comparison of extensive material from Canada with the Palaearctic specimens of *Cl. acanthostyla* (Tuomikoski) shows only a slight difference to the type material of *Cl. elizabethae,* so that the synonymy is plausible and seems to be correct.

Distribution. Holarctic: Europe (boreo-montane); Canada (Alberta, British Columbia, Ontario), USA (Alaska).

Claustropyga aperta Hippa, Vilkamaa & Mohrig, 2003

Type locality: AUSTRIA: St. Orthu-Gruppe, Schöntaufspitze.
Holotype: ♂, 3,200–3,400 m, 14.8.1984, leg. K. Thaler (PWMP).
Paratypes: AUSTRIA: same data as holotype, 4♂♂ (PWMP).

Literature: *Claustropyga aperta* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 485, 487, figs 3 a, 6 a–d; – Vilkamaa & Hippa (2007): 55, 56, fig. 2 C–F.

Further material: The species is reported by Vilkamaa & Hippa (2007) from Canada. Details: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley, 1 ♂, 21.6.–3.7.1991 (RBCM); 1 ♂, 28.8.–9.9.1991 (CNC); 1 ♂, 17.–26.10.1991 (CNC), all leg. N. Winchester.

Distribution. Holarctic: Europe (Austria); Canada (British Columbia).

Claustropyga auriculata Hippa, Vilkamaa & Mohrig, 2003

Type locality: RUSSIA: South Yamal, river Khadyta.
Holotype: ♂, 19.7.1981, leg. Olschwang (PWMP).
Paratype: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270, 1 ♂, 23.6.–2.8.1984, leg. S. Peck & J. Peck (MZH).

Literature: *Claustropyga auriculata* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 486, 488, fig. 7 a–f; – Vilkamaa & Hippa (2007): 56, 57, fig. 3 A, B.

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest 1 ♂, 30.4.–11.6.1994, leg. E. Fuller (PWMP). The species is also reported by Vilkamaa & Hippa (2007) from Yukon, North Fork Pass, Ogilvie Mountains, 1 ♂, 21.6.1962, leg. P. J. Skitsko (CNC).

Distribution. Holarctic: Russia (Yamal); Canada (Alberta), USA (Alaska).

Claustropyga mirifica Vilkamaa & Hippa, 2007

Type locality: CANADA: Quebec, Laniel.
Holotype: ♂, 18.8.1933, leg. Ide (CNC).

Literature: *Claustropyga mirifica* Vilkamaa & Hippa – Vilkamaa & Hippa (2007): 54, 60, fig. 4 A–E.

Distribution. Canada (Quebec).

Claustropyga obtusidens Hippa, Vilkamaa & Mohrig, 2003

Type locality: AUSTRIA: Großglockner.
Holotype: ♂, 29.7.–15.10.1979, leg. K. Thaler (PWMP).
Paratypes: AUSTRIA: same locality, 2 ♂♂, 29.7.–15.10.1979; 1 ♂, 1.6.–28.7.1979, all leg. K. Thaler (PWMP). Nordtirol, Obergurgl, 1,960 m, meadow, 1 ♂, 24.7.1975; 1 ♂ 1 ♀ (not 2 ♂♂!), 1.8.1975; 3 ♂♂, 7.8.1975; 1 ♂, 16.8.1975, all leg. K. Thaler (PWMP).

Further material: The species is reported by Vilkamaa & Hippa (2007) from Canada. Details: CANADA: Yukon, North Fork Crossing, mi 43, Peel Plt. Rd., 1 ♂, 4.7.1962, leg. P. J. Skitsko (CNC).

Literature: *Claustropyga obtusidens* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 486, 501, fig. 15 a–h; – Vilkamaa & Hippa (2007): 56, 62, fig. 5 A–D.

Distribution. Holarctic: Europe (Austrian Alps); Canada (Yukon).

Claustropyga simplicis Hippa, Vilkamaa & Mohrig, 2003

Type locality: CANADA: Ontario, Griffith.
Holotype: ♂, 23.7.1989, leg. B. E. Cooper (CNC).
Paratypes: 2 ♂♂, same data as holotype (SMNH).

Further material: The species is also reported by Vilkamaa & Hippa (2007) from Canada. Details: British Columbia, Vancouver Island, Upper Carmanah Valley, 1 ♂, 30.9.–16.10.1991, leg. N. Winchester (CNC).

Literature: *Claustropyga simplicis* Hippa, Vilkamaa & Mohrig – Hippa et al. (2003): 485, 506, fig. 18 a–e; – Vilkamaa & Hippa (2007): 55, 62, fig. 2 A, B.

Distribution. Canada (British Columbia, Ontario).

Claustropyga spicea Hippa & Vilkamaa, 2007

Type locality: CANADA: Yukon, Ogilvie Mountains, North Fork Pass.
Holotype: ♂, 21.6.1962, leg. P. J. Skitsko (CNC).

Literature: *Claustropyga spicea* Vilkamaa & Hippa – Vilkamaa & Hippa (2007): 54, 63, fig. 6 A–F.

Distribution. Canada (Yukon).

Claustropyga subcorticis (Mohrig & Krivosheina, 1985)

Type locality: RUSSIA: South Yamal, Khadyta River.
Holotype: ♂, 27.7.1981, leg. Olschwang (PWMP).

Further material [not mentioned by Hippa et al. (2003) and Vilkamaa & Hippa (2007)]: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 1 ♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP).

Literature: *Corynoptera subcorticis* Mohrig & Krivosheina – Mohrig et al. (1985): 434, fig. 6 a–d. *Claustropyga subcorticis* (Mohrig & Krivosheina) – Hippa et al. (2003): 485, 507, fig. 19 a–f; – Vilkamaa & Hippa (2007): 55, 65, fig. 3 C, D.

Distribution. Holarctic: Northern Europe (Finland, Sweden), Russia (Far East); Canada (Alberta, Yukon), USA (Alaska).

Claustropyga triloba Hippa & Vilkamaa, 2007

Type locality: CANADA: Yukon, Ogilvie Mountains, North Fork Pass.
Holotype: ♂, 21.6.1962, leg. P. J. Skitsko (CNC).
Paratypes: CANADA: same data as holotype, 3 ♂♂ (CNC). Yukon, North Fork Crossing, mi 43, 2 ♂♂, 3.7.1962; 1 ♂, 4.7.1962; 1 ♂, 5.7.1962, all leg. P. J. Skitsko (CNC).

Literature: *Claustropyga triloba* Vilkamaa & Hippa – Vilkamaa & Hippa (2007): 55, 65, fig. 7 A–F.

Distribution. Canada (Yukon).

Genus *Corynoptera* Winnertz, 1867

Type species: *Corynoptera perpusilla* Winnertz, 1867 – Monogr. Sciarinen: 177; designated by Enderlein (1911) [preocc., nec *Corynoptera perpusilla* (Walker, 1848); = *Corynoptera fatigans* (Johannsen, 1912)].

Synonyms: = *Psilosciara* Kieffer, 1909; = *Geosciara* Kieffer, 1919; = *Orinosciara* Lengersdorf, 1941.

Literature: *Psilosciara* Kieffer – Frey (1942): 22, 39 [in part]; – Shaw (1953b): 29, 31. *Bradysia* (*Chaetosciara*) – Frey (1948): 57 [in part]. *Bradysia* (*Hemineurina*) – Frey (1948): 65 [in part]. *Corynoptera* Winnertz s. l. [often in part] – Winnertz (1867): 177; – Tuomikoski (1960): 5, 42; – Steffan (1966): 33, 48; – Steffan (1981): 255; – Freeman (1983): 17, 28; – Poole (1996): 239; – Mohrig & Jaschhof (1999): 13, 44; – Arnett (2000): 856 [in part]; – Menzel & Mohrig (2000): 84, 205, 606; – Mohrig (2003): 58; – Mohrig et al. (2004): 301; – Vilkamaa & Hippa (2006): 31; – Mohrig & Menzel (2009): 283, 292, 696; – Hippa et al. (2010): 6; – Shin et al. (2013): 833.

Comments. The type species of the genus *Corynoptera* Winnertz (*C. perpusilla* Winnertz, 1867) is a secondary homonym of *Corynoptera perpusilla* (Walker, 1848) **comb. nov.** (described as *Sciara*) [more information under *Corynoptera perpusilla* (Walker) and *Corynoptera fatigans* (Johannsen)]. The taxonomic placement of many species included in the genus has been unclear up to now. Some species groups sensu Tuomikoski (1960) and Menzel & Mohrig (2000) were excluded and combined in new genera: *Camptochaeta* Hippa & Vilkamaa, 1994 (*C. camptochaeta* group); *Claustropyga* Hippa, Vilkamaa & Mohrig, 2003 (*C. clausa* group); *Dichopygina* Vilkamaa, Hippa & Komarova, 2004 (*C. nigrohalteralis* group). A large number of species were included in the subgenus ***Corynoptera* s. str.** by Hippa et al. (2010) [most species of *C. subtilis* group, *C. membranigera* group, *C. tridentata* group, *C. boletiphaga* group, *C. flavicauda* group]. Never-

theless, a lot of species remain currently unplaced and will be united further as species groups or subgenera in *Corynoptera* s. l. on the base of distinct similarities. Further taxonomic studies are needed for a final decision on possibly new genera, or subgenera within *Corynoptera* s. l. in the current sense. In the following part the species are alphabeticaly arranged, independent of their exact taxonomic position.

Corynoptera (*Corynoptera*) *aequispina* Hippa, Vilkamaa & Heller, 2010

Type locality: CANADA: Quebec, Gatineau Park, 45.29°N 75.51°W.
Holotype: ♂, 16.–21.6.2005, leg. P. Vilkamaa (CNC).
Paratype: CANADA: same data as holotype, 1 ♂ (MZH).

Literature: *Corynoptera* (*Corynoptera*) *aequispina* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 15, 73, fig. 42 A, B.

Distribution. Canada (Quebec).

Corynoptera alpina Mohrig, 1978

Type locality: AUSTRIA: Nordtirol, Gleirschkar.
Holotype: ♀, 2,200 m, 17.7.–15.8.1976, leg. K. Thaler (PWMP).
Paratypes: AUSTRIA: same data as holotype, 5 ♂♂ 7 ♀♀ (PWMP).

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, 1 ♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). The species is also reported by Vilkamaa & Hippa (2005). Details: Quebec, Kuujjuarapik, 55°17'N 77°48'W, 1 ♂, 14.7.–1.8.1990 (MZH); 6 ♂♂, 14.7.–1.8.1990, leg. S. Koponen (SMNH).

Literature: *Corynoptera alpina* Mohrig – Mohrig (1978): 424, fig. 1 a–g; – Menzel & Mohrig (2000): 215, 221, fig. 63. *Peyerimhoffia alpina* (Mohrig) – Vilkamaa & Hippa (2005): 469, figs 4 C, 6 A–D.

Comments. The species is characterized by a long intercoxal area; a large, widely ovoid gonostylus with a strong apical tooth, and long spine-like bristles below. It belongs to the *Corynoptera crassistylata* group sensu Menzel & Mohrig (2000): 215. The species is montane within the Palaearctic region, from Central and South Europe to the Caucasus.

Distribution. Holarctic: Europe; Canada (Alberta, Quebec).

Corynoptera armigera Vilkamaa & Hippa, 2006

Type locality: CANADA: Yukon, Dempster Hwy.
Holotype: ♂, spruce-willow forest, 19.6.1984, leg. S. Peck & J. Peck (CNC).

Literature: *Corynoptera armigera* Vilkamaa & Hippa – Vilkamaa & Hippa (2006): 33, 38, figs 3 A, 3 B, 5 E, 6 A.

Comment. The species belongs to the *Corynoptera vagula* group sensu Vilkamaa & Hippa 2006 (see also *C. vagula* for taxonomic discussion).

Distribution. Canada (Yukon).

Corynoptera cursor (Hippa & Vilkamaa, 1994)

Type locality: CANADA: Ontario, Sargeen Bluffs, near Paisley.
Holotype: ♂, 19.5.–16.6.1988, leg. Dondale & Redner (CNC).
Paratypes: CANADA: same data as holotype, 14 ♂♂ (CNC). Ontario, Ottawa, near Uplands Airport, 2 ♂♂, 3.8.1987, leg. Cummings (SMNH). Ontario, Ottawa, 1 ♂, 27.8.1989, leg. J. R. Vockeroth (MZH). Ontario, Pinerey Prov. PK, 1 ♂, 17.5.–14.6.1988, leg. Dondale & Redner (SMNH).

Further material: The species is also reported by Heller (2004) from Germany (specimens in PKHE, PWMP and SDEI).

Literature: *Camptochaeta cursor* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 10, 65, fig. 35 D, E.

Comment. The species belongs to the *Corynoptera parvula* group sensu Menzel & Mohrig (2000): 217.

Distribution. Holarctic: Europe (Germany); Canada (Ontario).

Corynoptera exilis (Hippa & Vilkamaa, 1994) comb. nov.

Type locality: CANADA: Yukon, km 155 Dempster Hwy.
Holotype: ♂, 28.6.–2.7.1988, leg. D. M. Wood (CNC).

Literature: *Camptochaeta exilis* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 10, 69, fig. 38 C, D.

Comment. The species belongs to the *Corynoptera parvula* group sensu Menzel & Mohrig (2000): 217.

Distribution. Canada (Yukon).

Corynoptera (*Corynoptera*) *fatigans* (Johannsen, 1912) comb. nov.

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2093, no date, leg. O. A. Johannsen (CUIC) [2 slides, head missing]; hereby designated in order to fix the name.
Paralectotype: USA: same data as lectotype, 1 ♀, also labelled as no. 2093 (CUIC) [not identical with the lectotype; = *Scatopsciara* spec.].

= *Corynoptera perpusilla* Winnertz, 1867 syn. nov. [preocc., nec *Corynoptera perpusilla* (Walker, 1848)].
Type locality: GERMANY: as "Crefeld" [= Krefeld].
Lectotype: ♂, May, leg. J. Winnertz (ZFMK).

Further synonym: = *Neosciara bicornis* Lengersdorf, 1943 [in Menzel & Mohrig (2000)].

Further material: USA: California, Orange County, Santa Ana Mountains, Santiago Canyon, Irvine Lake, 1 ♂, 27.2.1996, leg. W. Mohrig (PWMP).

Literature: *Sciara fatigans* Johannsen – Johannsen (1912): 121, 132, figs 135, 241. *Lycoria fatigans* (Johannsen) – Shaw & Fisher (1952): 212, fig. 45. *Neosciara fatigans* (Johannsen) – Pettey (1918b): 324. *Bradysia* (*Bradysia*) *fatigans* (Johannsen) – Stone & Laffoon (1965): 233. *Lycoriella fatigans* (Johannsen) – Steffan (1966): 50, 52. *Neosciara bicornis* Lengersdorf – Lengersdorf (1943): 5, fig. 3. *Lycoria* (*Neosciara*) *perpusilla* (Winnertz) – Lengersdorf (1928–30): 62; fig. 92. *Corynoptera perpusilla* Winnertz – Winnertz (1867): 177; – Tuomikoski (1960): 59; – Freeman (1983): 29, fig. 84; – Menzel & Mohrig (2000): 223, figs 180–186. *Corynoptera* (*Corynoptera*) *perpusilla* Winnertz – Hippa et al. (2010): 17, 21, fig. 3 A–E.

Comments. The species is very similar to the following *C. penna* (Pettey). The paralectotype of *S. fatigans* Johannsen is not identical with the lectotype (belongs to *Scatopsciara*). Slide no. 2093.1 with an included wing, labelled also as "paratype", does not belong to the type series, because in the original description only one male and one female are mentioned. The hypopygium of the lectotype of *S. fatigans* Johannsen is badly damaged, but the apical tooth with the rather straight subapical spines are well visible and its identity with the lectotype of *Corynoptera perpusilla* Winnertz can be postulated.

Distribution. Holarctic: Common and widely distributed in Europe; USA (California, New York).

Corynoptera fratercula Vilkamaa & Hippa, 2006

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).

Paratypes: USA: same data as holotype, 1 ♂ (MZH); CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley, 2 ♂♂, 30.7.1991 (CNC); 2 ♂♂, 31.7.–11.8.1991 (MZH), all leg. N. Winchester.

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 2 ♂♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP). Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 1 ♂, 30.4.–11.6.1994, leg. E. Fuller (PWMP). USA: Oregon, Crook Co., Cougar Campground, Marks Creek 1 ♂, 27.7.1974, leg. P. H. Arnaud (PWMP).

Literature: *Corynoptera fratercula* Vilkamaa & Hippa – Vilkamaa & Hippa (2006): 33, 37, figs 3 C–E, 4 B, 4 D, 4 E, 5 C, 6 D.

Comment. The species belongs to the *Corynoptera vagula* group sensu Vilkamaa & Hippa (2006) (see also *C. vagula* for taxonomic discussion).

Distribution. Canada (Alberta, British Columbia), USA (Alaska, Oregon).

Corynoptera furcata (Hippa & Vilkamaa, 1994)

Type locality: ITALY: Rome.
Holotype: ♂, 29.3.1988, leg. H. Hippa (SMNH).
Paratypes: CANADA: Ontario, Ottawa, 1 ♂, 24.6.1988, leg. J. R. Vockeroth. (CNC). Ontario, Ottawa, Nepean, 1 ♂, 26.10.1986, leg. L. Magner (CNC). GREAT BRITAIN: England, Hertfordshire, Letchworth, 1 ♂, June 1917, leg. F. W. Edwards (BMNH). ITALY: from 3 different localities, 3 ♂♂ (1 ♂ in MZH; 2 ♂♂ in SMNH) [more details see Hippa & Vilkamaa (1994)]. RUSSIA: Krasnodarsky Kray, Sochi, 1 ♂, 12.5.1988, leg. P. Vilkamaa (MZH).

Literature: *Corynoptera parvula* (Winnertz) sensu Freeman – Freeman (1983): 29; figs 85, 90 [misidentification]. *Camptochaeta furcata* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 11, 72, fig. 41 C, D. *Corynoptera furcata* (Hippa & Vilkamaa) – Menzel & Mohrig (2000): 222; – Menzel et al. (2006): 74.

Comments. The species belongs to the *Corynoptera parvula* group sensu Menzel & Mohrig (2000): 217. It is widely distributed in the Palaearctic region from western and southern Europe to the Caucasus.

Distribution. Holarctic: Europe (e. g. Germany, Great Britain, Italy, Slowakia, Sweden, Switzerland; The Netherlands), Russia (Krasnodarsky Kray); Canada (Ontario).

Corynoptera (*Corynoptera*) *luteofusca* (Bukowski & Lengersdorf, 1936)

Type locality: UKRAINE: Crimea.
Lectotype: ♂, 30.5.1931, leg. W. Bukowski (ZMAS); designated by Menzel in Menzel & Mohrig (2000).
Paralectotypes: UKRAINE: same data as lectotype, 3 ♂♂ 1 ♀ (2 ♂♂ in ZMAS; 1 ♂ 1 ♀ in ZFMK).

Further material: The species is also reported by Hippa et al. (2010) from Canada. Details: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley, 3 ♂♂, 30.7.1991 (CNC, MZH, RBCM); 4 ♂♂, 2.6.–3.7.1991 (MZH); 1 ♂, 4.–15.7.1991 (MZH), all leg. N. Winchester.

Literature: *Neosciara luteofusca* Bukowski & Lengersdorf – Bukowski & Lengersdorf (1936): 106, fig. 10. *Corynoptera luteofusca* (Bukowski & Lengersdorf) – Tuomikoski (1960): 49, 57, figs 8 d, 11 b; – Menzel & Mohrig (2000): 225–226. *Corynoptera* (*Corynoptera*) *luteofusca* (Bukowski & Lengersdorf) – Hippa et al. (2010): 15, 60, fig. 32 A–D.

Distribution. Holarctic: Europe (Czech Republic, Finland, Germany, Great Britain, Greece, Slovakia, Slovenia, Sweden, Switzerland); Canada (British Columbia).

Corynoptera (*Corynoptera*) *luteola* (Pettey, 1918)
(Fig. 21 a, b)

Type locality: USA: Georgia, Rabun Co., Black Rock Mountain.
Holotype: ♂, type no. 217, 3,000 ft., 20.–23.5.1911, leg. F. W. Pettey (CUIC) [3 slides; hypopygium not in good position; body, head isolated; wing].

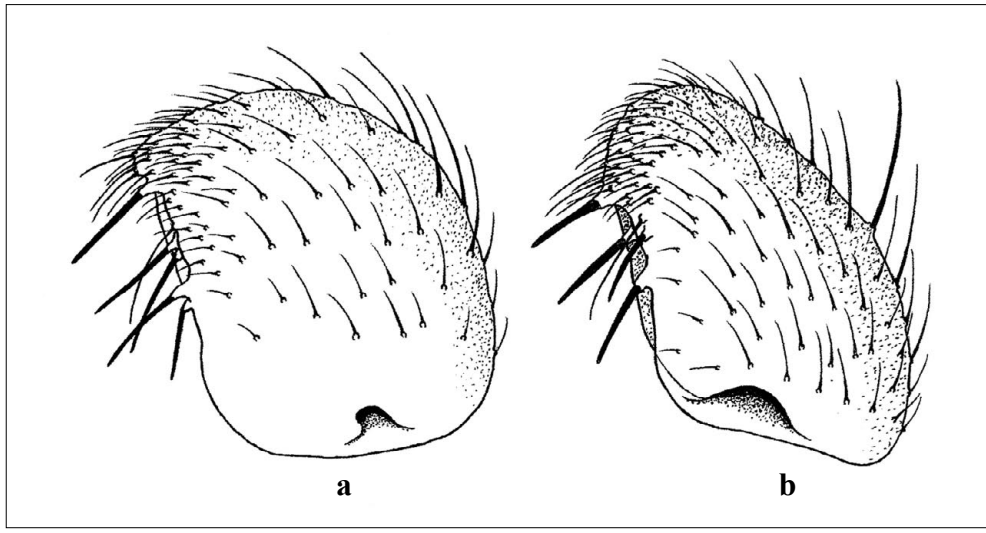


Fig. 21: *Corynoptera luteola* (Pettey) ♂. – **a**: Gonostylus of holotype, ventral view (phantom picture); – **b**: Gonostylus of specimen from USA, Plummers Island, ventral view.

Paratype: USA: same data as holotype, 1 ♂, no. 217.1 (CUIC) [2 slides; artificial resin, seriously damaged].

Further material: USA: Maryland, Montgomery Co., Plummers Island, 38°58'10"N 77°10'35"W, 1 ♂, 17.6.1913, leg. W. L. McAtee (PWMP).

Literature: *Neosciara luteola* Pettey – Pettey (1918b): 332, 333, figs 12, 43. *Bradysia* (*Bradysia*) *luteola* (Pettey) – Stone & Laffoon (1965): 233. *Corynoptera luteola* (Pettey) – Steffan (1966): 49, 53.

Redescription. **Male**. Eye bridge 3 facets wide. Flagellomeres brown, scape and pedicel yellowish; 4th flagellomere with l/w index of 3.0, setae slightly longer than the diameter. Palpus 3-segmented, basal segment with one bristle and a small patch of sensilla. Mesonotum, scutellum and metanotum brown, pleural sclerites yellow. Wings brownish; R_1 nearly = R; c = 2/3 w; r-m = bM, r-m with one seta, bM non-setose. Coxae and legs yellowish, tibial organ with a comb-like row of strong spine-like bristles. Gonocoxa slightly longer than gonostylus; the apical half of inner ventral margin with rather long setae. Gonostylus oval, the mesial side slightly impressed on apical third; apically with rather long setae; without an apical tooth, with 4–5 hyaline spines in apical half. Tegmen simple, without a dorsal finger-like process.

Comments. *Neosciara luteola* belongs without doubt to *Corynoptera* near the species around *C. tridentata* Hondru. It resembles the Nepalese *Corynoptera dioon* Hippa, Vilkamaa & Heller, 2010 by its hypopygium, but differs in yellow scape and pedicel and yellow pleural sclerites. The specimen from Plummers Island only has four spines instead of five as in the type specimen. These are also in a slightly different position (Fig. 21 b). Further material is necessary to decide if the two specimens are really conspecific.

Distribution. USA (Georgia, Maryland).

Corynoptera (*Corynoptera*) *melanochaeta* Mohrig & Menzel, 1992

Type locality: CZECH REPUBLIC: "Sturovi" [= Štúrovo].
Holotype: ♂, 27.4.1986, leg. M. Barták (PWMP).

Paratypes: BULGARIA: near Sofia, 1 ♂, 24.5.1987, leg. B. D. Dimitrova (PWMP). GERMANY: Thuringia, Luisenthal, 3 ♂♂, 27.5.1989, leg. F. Menzel (SDEI). LATVIA: no locality detail, 1 ♂, 30.5.1978, leg. V. Spungis (PWMP).

Further material: CANADA: Nova Scotia, Lackeport, 1 ♂, 26.7.1958, leg. J. R. Vockeroth (CNC). Also reported by Menzel et al. (2006) and Hippa et al. (2010) from other localities in Europe: FINLAND: from 15 different localities, 30 ♂♂ (27 ♂♂ in MZH; 3 ♂♂ in PKHE). GERMANY: from 13 different localities, 29 ♂♂ 3 ♀♀ (25 ♂♂ 3 ♀♀ in PKHE; 2 ♂♂ in SDEI; 2 ♂♂ in ZSMC). GREAT BRITAIN: from 4 different localities, 5 ♂♂ (2 ♂♂ in NMS; 2 ♂♂ in PPCM; 1 ♂ in SDEI) [more details see Menzel et al. (2006). GREECE: Kerkini mountains, 1 ♂, 14.–20.3.2007, leg. G. Ramel (PKHE). ITALY: from 3 different localities, 3 ♂♂ (MZH) [more details see Hippa et al. (2010)]. RUSSIA: Karelia, Kivach, 9 ♂♂, 18.6.–30.6.1986; 2 ♂♂, 9.–11.7.1987, all leg. Yakovlev (MZH). SWEDEN: from 6 different localities, 14 ♂♂ (1 ♂ in PKHE; 13 ♂♂ in SMNH) [more details see Hippa et al. (2010)].

Literature: *Corynoptera melanochaeta* Mohrig & Menzel – Mohrig & Menzel (1992): 3, fig. 4 a–c; – Menzel et al. (2006): 77. *Corynoptera* (*Corynoptera*) *melanochaeta* Mohrig & Menzel – Hippa et al. (2010): 18, 87, fig. 54 A–E.

Distribution. Holarctic: Europe, Russia (Karelia); Canada (Nova Scotia).

Corynoptera (*Corynoptera*) *mellea* (Johannsen, 1912) comb. nov.

(Fig. 22)

Type locality: USA: Ohio, Columbiana Co., Salineville.
Holotype: ♂, no. 2086, leg. O. A. Johannsen (CUIC) [slide with hypopygium in good position, wing; body glued, without fore legs].

Further material: USA: Massachusetts, Boston, 1 ♂, no date, no collector detail (CUIC). New York, New York City, Prospect Park, 1 ♂, 20.6.2000, leg. B. Rulik (PWMP). Virginia, Fairfax Co., Great Falls, 1 ♀, 10.5.1915, leg. W. L. McAtee (CUIC).

Literature: *Sciara mellea* Johannsen – Johannsen (1912): 119, 129, figs 110, 229. *Lycoria mellea* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 46. *Neosciara mellea* (Johannsen) – Pettey (1918b): 322; – Johnson (1930): 126. *Bradysia* (*Bradysia*) *mellea* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia mellea* (Johannsen) – Steffan (1966): 36, 53.

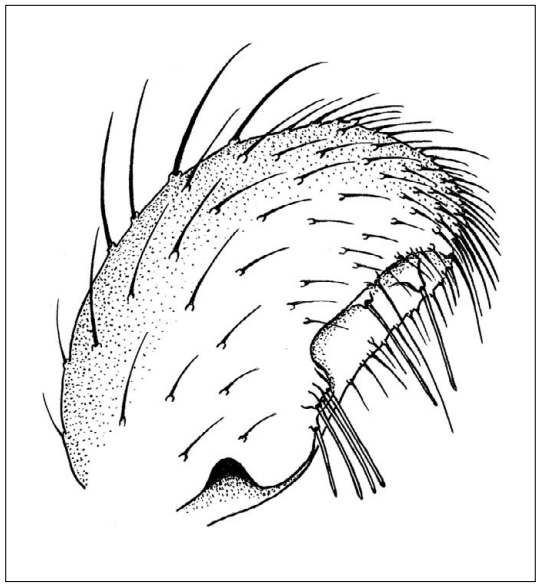


Fig. 22: *Corynoptera mellea* (Johannsen) ♂. Gonostylus of holotype, ventral view.

Redescription. **Male**. Flagellomeres brown, long, necks longer than broad; scape and pedicel yellowish. Front tibial organ consisting of an irregular comb-like row of dark setae, R_1 = 2/3 R; r-m = bM, both without macrotrichia; c somewhat longer 1/2 w, posterior veins weak. Hypopygium yellow. Mesial margin of gonocoxites with elongated setae. Gonostylus large, apically roundish, without apical tooth, but with longer setae; mesially slightly excavated, with two long hyaline spines and one or two long bristles on the apical half and a group of three longer and one shorter spine below. Tegmen narrowed to the tip, aedeagus rather long. Body length: 2.0 mm; wing length: 2.0 mm.

Female. Eye bridge 3 facets wide. Scape yellow, pedicel apically yellow. Palpi 3-segmented, basal segment with distinct

sensory pit and one dark seta. Thorax yellowish, mesonotum and katepisternum brown. Bristles on mesonotum black. Wing: c > 1/2 w, r-m > bM, CuA-stem < bM. R_1 = 2/3 R, nearly reaching base of M-fork. Legs yellow, setae dark. Abdomen dorsally brownish, laterally and ventrally yellow, setae dark and strong. Body length: 3.2 mm; wing length: 3.4 mm.

Comments. Johannsen (1912) described the species as honey yellow. It is characterised by gonostylus without apical tooth, mesially slightly excavated, with two long hyaline spines in apical half and a group of 3 or 4 hyaline spines below.

Distribution. USA (Massachusetts, New York, Ohio, Virginia).

Corynoptera (*Corynoptera*) *ovata* (Pettey, 1918) comb. nov.

(Fig. 23 a, b)

Type locality: CANADA: British Columbia, Selkirk Mountains, at Howser.
Holotype: ♂, no. 224, 22.6.1905, leg. J. C. Bradley (CUIC) [2 slides with hypopygium and wing; body pinned].

= *Neosciara trifurca* Pettey, 1918 syn. nov.
Type locality: USA: California: Santa Cruz Co., Santa Cruz Mountains, at Felton.
Holotype: ♂, type no. 225, 300–500 ft., 15.–19.5.1907, leg. J. C. Bradley (CUIC) [3 slides; hypopygium, wing, body seriously damaged].

= *Corynoptera uncinula* Hippa, Vilkamaa & Heller, 2010 syn. nov.
Type locality: CANADA: Quebec, Hudson Bay shore.
Holotype: ♂, pitfall trap, 27.7.–18.8.1990, leg. S. Koponen (MZH).
Paratypes: RUSSIA: Yamal Peninsula, Khadyta, 1 ♂, no. 1964, 21.7.1981, leg. Olschwang (PWMP). CANADA: from 7 different localities in Alberta, British Columbia, Quebec, and Yukon, 12 ♂♂ (1 ♂ in CNC; 10 ♂♂ in MZH; 1 ♂ in PWMP) [more details see Hippa et al. (2010)].

Further material [not mentioned by Hippa et al. (2010)]: CANADA: Alberta, Bernhard River at Hwy 40, 53.42°N 118.20°W, pine forest, 1 ♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP). USA: California, Big Sur, Redwood National

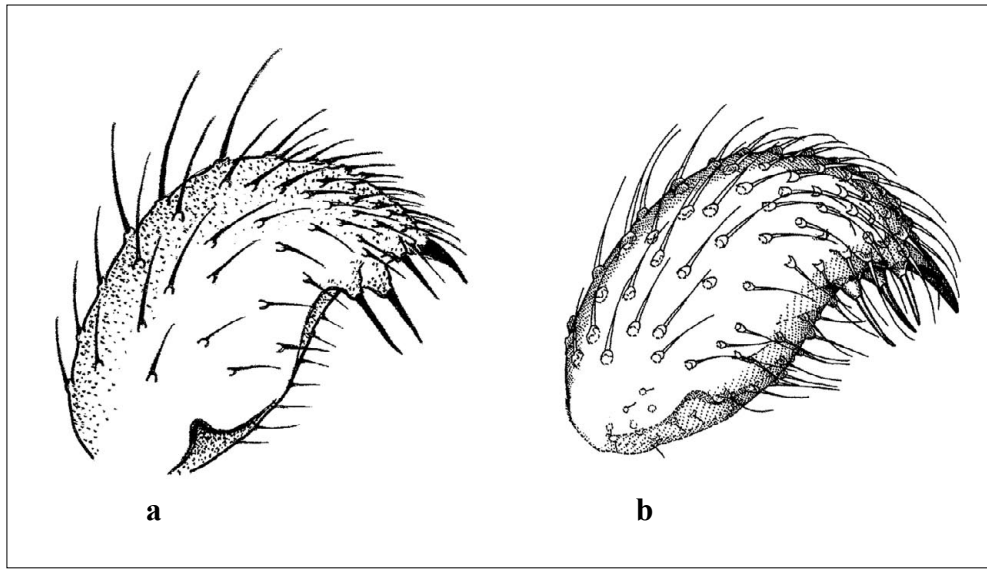


Fig. 23: *Corynoptera ovata* (Pettey) ♂. – **a**: Gonostylus of holotype of *Corynoptera ovata*, ventral view; – **b**: Gonostylus of paratype of *Corynoptera uncinula* from Canada, British Columbia (Hippa et al. 2010), ventral view.

Park, 14♂♂, 25.–26.12.1994, leg. W. Mohrig (PWMP). California, Muir National Park, Redwood old forest, 1♂, 18.12.1994, leg. W. Mohrig (PWMP). California, Santa Cruz Co., Santa Cruz, Butano State Park, 2♂♂, 30.12.1994, leg. W. Mohrig (PWMP). Montana, Glacier National Park, Jackson-Trial, 1♂, August 1997, leg. F. Röschmann (PWMP). Oregon, Whiskey Creek Campground on Highway 62, 15 km E Union Creek, 1,460 m 1♂, 27.8.1074, leg. P. H. Arnaud (PWMP).

Literature: *Neosciara trifurca* Pettey – Pettey (1918b): 324, 336, figs 20, 51. *Bradysia* (*Bradysia*) *trifurca* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia trifurca* (Pettey) – Steffan (1966): 37, 54. *Corynoptera* (*Corynoptera*) *uncinula* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 15, 47, fig. 12 A–D. *Neosciara ovata* Pettey – Pettey (1918b): 324, 336, figs 19, 50. *Bradysia* (*Bradysia*) *ovata* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia ovata* (Pettey) – Steffan (1966): 36, 54.

Comments. The hypopygium of the holotype of *Neosciara trifurca* Pettey is in poor condition but the species is obviously conspecific with *N. ovata* Pettey, which is in all details identical with *Corynoptera uncinula* Hippa, Vilkamaa & Heller.

Distribution. Holarctic: Russia (Yamal Peninsula); Canada (Alberta, British Columbia, Quebec, Yukon), USA (Alaska, California, Montana, Oregon).

Corynoptera (*Corynoptera*) *pacifica* Hippa, Vilkamaa & Heller, 2010

Type locality: USA: California, Marin Co., Lily Pond, Alpine Lake.
Holotype: ♂, 15.2.1969, leg. Munroe (MZH).
Paratype: USA: same data as holotype, 1♂ (MZH).

Further material: USA: Washington, Clallam Co., Olympic National Park, Lake Crescent, waterfalls west of Storm King Visitor Center, 1♂, 30.6.1974, leg. P. H. Arnaud (PWMP).

Literature: *Corynoptera* (*Corynoptera*) *pacifica* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 15, 62, fig. 33 A, B.

Distribution. USA (California, Washington).

Corynoptera parvula (Winnertz, 1867)

Type locality: GERMANY: as "Crefeld" [= Krefeld].
Lectotype: ♂, May, leg. J. Winnertz (ZFMK).

Synonym: = *Camptochaeta uncinata* Hippa & Vilkamaa, 1994 [in Menzel & Mohrig (2000)].

Further material [many reported as type specimens of *Cam. uncinata* in Hippa & Vilkamaa (1994)]: CANADA: Ontario, Ottawa, *Acer* wood, pan trap, 3♂♂ [paratypes], 1.10.1989, leg. J. R. Vockeroth (CNC). FINLAND: Regio aboensis, Turku, Härkälänlahti, 8♂♂ [holotype and parapypes of *Cam. uncinata* Hippa & Vilkamaa, 1994], 15.–28.6.1977, leg. R. Mannila (MZH; SMNH). GREAT BRITAIN: from 2 different localities, 2♂♂ [paratypes of *Cam. uncinata* Hippa & Vilkamaa, 1994] (BMNH) [details see Hippa & Vilkamaa (1994); from 9 different localities, 22♂♂ [incl. 2 paratypes of *Cam. uncinata* Hippa & Vilkamaa, 1994] (3♂♂ in BMNH; 2♂♂ in NMS; 1♂ in PDGB; 12♂♂ in PPCM; 2♂♂ in PPWM; 1♂ in SDEI; 1♂ in UMO) [details see Menzel et al. (2006)]. ITALY: from 2 different localities, 4♂♂ [paratypes of *Cam. uncinata* Hippa & Vilkamaa, 1994] (MZH; SMNH) [details see Hippa & Vilkamaa (1994)]. RUSSIA: Far East, Sakhalin, Pionery, 8♂♂, 22.–26.6.1993, leg. S. Kholin & A. Nilsson (SMNH).

Literature: *Sciara parvula* Winnertz – Winnertz (1867): 122; – Lengersdorf (1925): 213, fig. 37. *Lycoria* (*Neosciara*) *parvula* (Winnertz) – Lengersdorf (1928–30): 62 [in part], fig. 91. *Camptochaeta uncinata* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 10, 75, figs 1 D, 36 C, 41 A, 41 B, 42 A–D. *Corynoptera parvula* (Winnertz) – Menzel & Mohrig (2000): 242, fig. 195; – Menzel et al. (2006): 78. Not '*parvula* (Winnertz)' sensu Frey – Frey (1942): 37 [as *Lycoriella* (*Lycoriella*)]; – Frey (1948): 61, 81, fig. 79 [as *Bradysia* (*Chaetosciara*)]; – Tuomikoski 1960: 64, 65 [as *Corynoptera*]; all misidentification, = *Corynoptera deserta* Heller & Menzel, 2006.

Comments. The species belongs to the *Corynoptera parvula* group sensu Menzel & Mohrig (2000): 217. Hippa & Vilkamaa (1994) identified *C. praeparvula* Mohrig & Krivosheina, 1983 incorrectly as *C. parvula* (Winnertz) and described *C. uncinata* which proved to be a junior synonym of *C. parvula* (Winnertz) (Menzel & Mohrig 2000: 242).

Distribution. *C. parvula* (Winnertz) is common and widely distributed. Holarctic: Europe, Russia (Far East); Canada (Ontario).

Corynoptera (*Corynoptera*) *penna* (Pettey, 1918) comb. nov.

Type locality: USA: California, Humboldt Co., Blue Lake E of Arcata.
Holotype: ♂, type no. 228, leg. 20.–27. January, leg. J. C. Bradley (CUIC) [3 slides; hypopygium in good position; wing; body with detached head, damaged].

= *Corynoptera alneti* Hippa, Vilkamaa & Heller 2010 syn. nov.
Type locality: FINLAND: Regio aboensis, Parainen, Mustfinnö, Ippos.
Holotype: ♂, 26.8.–12.10.1969, leg. P. T. Lehtinen (MZH).
Paratypes: CANADA: British Columbia, Terrace, 1 ♂, 16.6.1960, leg. J. G. Chillcott (CNC). British Columbia, Vancouver Island, East Sooke Park, 2 ♂♂, 29.6.–18.7.1989, leg. R. A. Cannings (RBCM). British Columbia, Vancouver Island, Upper Carmanah Valley, 10 ♂♂, 26.6.–29.9.1991, leg. N. Winchester (MZH). British Columbia, Vancouver Island, Victoria, Rocky Point, 3 ♂♂, 11.7.1994; 1 ♂, 29.10.1994; 1 ♂, 19.3.1995, all leg. N. Winchester (MZH). USA: Alaska, Naknek, 1 ♂, 4.8.1952, leg. W. R. Mason (CNC). Montana, Gallatin Co., Cottonwood Canyon, 3 ♂♂, 16.–23.6.1996, La Masiner (PKHE). Oregon, Salem, Willamette R., 1 ♂, 22.5.1963, leg. K. Goeden (USNM). Also reported from Europe [more details on the paratypes in Hippa et al. (2010)]: CZECH REPUBLIC: Bohemia, Krušne hory, N of Nové Hamry, 1 ♂, 18.7.2002, leg. F. Menzel (SDEI). FINLAND: from 25 different localities, 53 ♂♂ (51 ♂♂ in MZH; 2 ♂♂ in PKHE). GERMANY: from 5 different localities, 8 ♂♂ 1 ♀ (1 ♂ 1 ♀ in PKHE; 6 ♂♂ in PWMP; 1 ♂ in SDEI). NORWAY: Finnmark, Kirkenes, 2.–13.7.1994, leg. M. Jaschhof (PKHE). RUSSIA: Karelia, Keret Islands, 21.7.1992, leg. S.-I. Erlacher (SDEI). SWEDEN: from 9 different localities, 16 ♂♂ (1 ♂ in MZH; 3 ♂♂ in PKHE; 1 ♂ in PASS; 1 ♂ in SDEI; 10 ♂♂ in SMNH).

Further material [not mentioned by Hippa et al. (2010)]: USA: California, Napa Co., Lake Berryessa, 6 ♂♂, 4.1.2001, leg. W. Mohrig (PWMP).

Literature: *Corynoptera* (*Corynoptera*) *alneti* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 16, 25, figs 5 A–E, 6 A–F. *Neosciara penna* Pettey – Pettey (1918b): 325, 338, figs 23, 54. *Bradysia* (*Bradysia*) *penna* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia penna* (Pettey) – Steffan (1966): 36, 54.

Comments. The holotype of *Neosciara penna* agrees with the specimens of *Corynoptera alneti* Hippa, Vilkamaa & Heller in all typical details, especially with the North American specimens from British Columbia (Hippa et al. 2010: fig. 5 A, B), which were considered to possibly belong to a different species. The European specimens differ slightly by having a more curved gonostylus with a more roundish apex, but we still retain the concept of a single species, because the paratypes from Montana and the new material from California are of the *alneti*-type. The species is very similar to *C. fatigans*. It is distinguished by a narrower and more perpendicular apical tooth of the gonostylus and subapical spines less apically curved and less inclined towards the apex of gonostylus.

Distribution. Holarctic: Europe (e. g. Czech Republic, Germany, Finland, Norway, Sweden), Russia (Karelia); Canada (British Columbia), USA (Alaska, California, Montana, Oregon).

Corynoptera perpusilla (Walker, 1848) comb. nov.

Type locality: CANADA: Ontario, Hudson's Bay, Albany River, St. Martin's Falls.
Holotype: ♀, no. BMNH(E)#250074 (BMNH), no date, leg. G. Barnston [glued; specimen in poor condition, antennae missing, transferred to slide].

Literature: *Sciara perpusilla* Walker – Walker (1848): 106–107; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 54.

Redescription. ♀. Head dark brown. Eye bridge 3 facets wide. Flagellomeres absent, scape and pedicel brown. Palpi long, 3-segmented; basal segment without sensory pit, with one bristle. Thorax brownish; scutum with long dorsocentral and lateral bristles; posterior pronotum bare. Wings pale; R_1= 2/3 R; c = 2/3 w; r-m longer than bM, without macrotrichia; posterior veins distinct. Halter rather long, yellowish-brown. Coxae and femora yellowish-brown; front tibial organ large, with a large patch of pale bristles, horseshow-like bordered; spurs of middle and hind tibiae long and equal; claws untoothed. Abdomen brownish, fine and sparsely setose. Body size: 2.2 mm.

Comments. The species belongs without doubt to the genus *Corynoptera* on the basis of the presence of only one bristle on the basal segment of the palpus, long bristles on scutum, two long marginal bristles on scutellum, untoothed claws and a large tibial organ with a large patch of bristles bordered by a distinct horseshoe-like structure. The related genus *Camptochaeta* can be excluded, because the basal segment of palpus lacks a sensory pit or at least a deepened sensory area. Following on the placement of the species into *Corynoptera* Winnertz, the name *Corynoptera perpusilla* Winnertz, 1867 becomes preoccupied and must be replaced [see *Corynoptera fatigans* (Johannsen, 1912)].

Distribution. Canada (Ontario).

Corynoptera (*Corynoptera*) *phili* Hippa, Vilkamaa & Heller, 2010

Type locality: CANADA: Quebec, Gatineau Park, King Mountain, 45°29'20"N 75°51'45"W.
Holotype: ♂, 345 m, 11.–16.6.2005, leg. P. Vilkamaa (CNC).
Paratypes: CANADA: same data as holotype, 2 ♂♂ (MZH); same locality, 3 ♂♂, 16.–21.6.2005, leg. P. Vilkamaa (MZH). Ontario, Algonquin, 2 ♂♂, 1.6.1991, leg. M. Barták (SDEI). Quebec, La Roddic, 16 km S Maniwaki, 2 ♂♂, 23.6.1991, leg. M. Barták (SDEI).

Literature: *Corynoptera* (*Corynoptera*) *phili* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 18, 90, fig. 55 A–E.

Distribution. Canada (Quebec, Ontario).

Corynoptera (*Corynoptera*) *pilata* (Pettey, 1918) comb. nov.

(Fig. 24 a, b)

Type locality: USA: California, Santa Cruz Co., Santa Cruz Mountains, at Felton.
Holotype: ♂, no. 226, 15.–19.5.1907, leg. J. C. Bradley (CUIC) [3 slides; hypopygium wedged, body without head and legs].

Further material: USA: California, Los Angeles Co., San Gabriel Mountains, San Gabriel Canyon, 1 ♂, 29.2.1996, leg. W. Mohrig (PWMP). California, San Francisco, Golden Gate Park 1 ♂, 5.5.1960, leg. P. H. Arnaud (PWMP). California, Shasta Co., McArthur Burney Falls Memorial State Park, 1 ♂, 1.8.1970, leg. P. H. Arnaud (CAS). California, no locality detail, in soil of *Quercus chrysolepis-Lithocarpus* forest, 1 ♂, no date, leg. P. H. Arnaud (CAS).

Literature: *Neosciara pilata* Pettey – Pettey (1918b): 324, 337, figs 21, 52. *Bradysia* (*Bradysia*) *pilata* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia pilata* (Pettey) – Steffan (1966): 36, 54.

Redescription. **Male**. Eye bridge 3 facets wide; 4th flagellomere with l/w index of 2.5. Palpus 3-segmented, third segment long, basal segment with one bristle and deep sensory pit. Thorax brown, coxae and legs somewhat paler; mesonotum with few longer lateral bristles. Wings pale, posterior wings without macrotrichia, weak; r-m longer bM, without macrotrichia; c = 2/3 w. Tibial organ with horseshoe like patch of bristles. Intercoxal area of hypopygium v-shaped; ventromesial margin of gonocoxite with short and sparse setosity; gonostylus elongated, with apical tooth subequal in length with the two subapical spines.

Comments. *Corynoptera pilata* (Pettey) is very similar to *C. subtrivialis* (Pettey), as shown by figures 21 and 28 of Pettey (1918b). The main difference is the different length of the apical tooth,

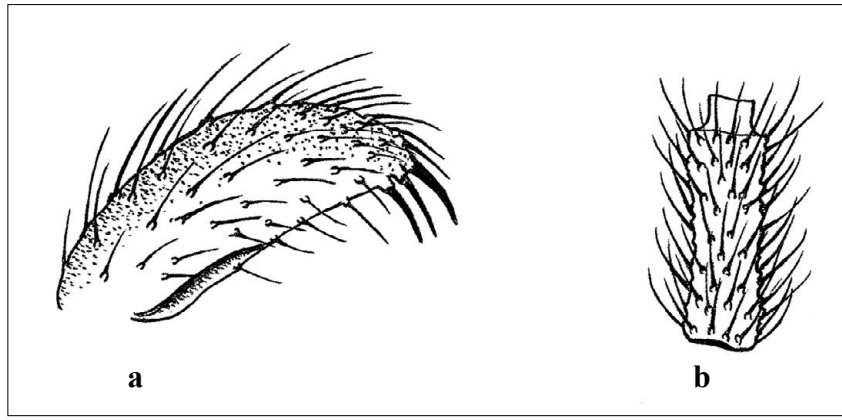


Fig. 24: *Corynoptera pilata* (Pettey) ♂, specimen from USA, California. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere.

which is as long as the subapical spines in *C. pilata*, but distinctly shorter and of about the half length of subapical spines in *C. subtrivialis*. New material collected in California confirms the difference in the length of the apical tooth is a constant character.

Distribution. USA (California).

Corynoptera (*Corynoptera*) *plusiochaeta* Hippa, Vilkamaa & Heller, 2010

Type locality: FINLAND: Lapponia kemensis, Kolari, Yllästunturi, Hormistonjänkkä.
Holotype: ♂, natural spruce-birch mixed forest, Malaise trap, 15.7.–10.8.2006, leg. J. Yakovlev & J. Penttinen (MZH).
Paratypes: USA: Alaska, Isabel Pass, mi 206, Richardson Highway, 2,900 ft., 1♂, 13.7.1962, leg. P. J. Skitsko (CNC). FINLAND: from 5 different localities, 5♂♂ (MZH). SWEDEN: from 4 different localities, 27♂♂ (6♂♂ in PKHE; 16♂♂ in PWMP; 3♂♂ in SMNH; 2♂♂ in ZSMC) [more details see Hippa et al. (2010)].

Literature: *Corynoptera* (*Corynoptera*) *plusiochaeta* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 14, 75, fig. 44 A–E.

Distribution. Holarctic: Europe (Finland, Sweden); USA (Alaska).

Corynoptera (*Corynoptera*) *redunca* Hippa, Vilkamaa & Heller, 2010

Type locality: CANADA: Quebec, Gatineau Park, King Mountain, 45°29'20"N 75°51'45"W.
Holotype: ♂, 345 m, Malaise trap, 16.–21.6.2005, leg. P. Vilkamaa (CNC).
Paratypes: CANADA: Quebec, same locality as holotype, Malaise trap, 2♂♂, 11.–16.6.2005 (MZH); 2♂♂, 16.–21.6.2005 (CNC), all leg. P. Vilkamaa. Quebec, same locality as holotype, sweep-netting, 1♂, 16.6.2005, leg. S. Brooks (CNC); 1♂, 16.6.2005, leg. P. Vilkamaa (MZH). Ontario, Mainfleet Bog, 8 km S Welland, 2♂♂, 10.–24.5.1988; 1♂ 25.–31.5.1988; 1♂, 1.6.1988; all leg. A. Stirling (SMNH).

Further material: USA: California, Big Sur Redwood National Park, 4♂♂, 25.–26.12.1994, leg. W. Mohrig (PWMP). San Francisco, Muir National Park, Redwoods, sweep-netting, 2♂♂, 28.12.1994, leg. W. Mohrig (1♂ in PKHE; 1♂ in PWMP).

Literature: *Corynoptera* (*Corynoptera*) *redunca* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 16, 40, fig. 16 A–D.

Distribution. Canada (Quebec, Ontario); USA (California, San Francisco).

Corynoptera robustior Vilkamaa & Hippa, 2006

Type locality: CANADA: Ontario, 7 mi E Griffiths.
Holotype: ♂, 16.7.1989, leg. B. E. Cooper (CNC).

Literature: *Corynoptera robustior* Vilkamaa & Hippa – Vilkamaa & Hippa (2006): 33, 39, figs 2 C, 2 D, 4 A, 5 D, 6 E.

Comment. The species belongs to the *Corynoptera vagula* group sensu Vilkamaa & Hippa (2006).

Distribution. Canada (Ontario).

Corynoptera (*Corynoptera*) *saccata* Tuomikoski, 1960

Type locality: FINLAND: Regio aboensis, Lohja, Paloniemi.
Holotype: ♂, 10.–12.6.1958, leg. R. Tuomikoski (MZH).

Further material: USA: California, Los Angeles Co., San Gabriel Mountains, San Gabriel Canyon, maple mixed wood, 800 m, yellow trap, 3♂♂, 13.–19.4.1996, leg. W. Mohrig (PWMP). Oregon, Marion Co., Silver Falls State Park, North Falls, Silver Creek, 1♂, 23.6.1974, leg. P. H. Arnaud (CAS). The species is also reported by Hippa et al. (2010) from Canada. Details: CANADA: Ontario, Guelph, Arbor, old field, pan trap, 1♂, 18.5.1987; 2♂♂, 21.5.1987, all leg. R. J. Gagné (SMNH).

Literature: *Corynoptera saccata* Tuomikoski – Tuomikoski (1960): 49, 63, figs 8 i, 11 h; – Menzel & Mohrig (2000): 232 [in part; not *C. arboris* Fritz, misidentification]. *Corynoptera* (*Corynoptera*) *saccata* Tuomikoski – Hippa et al. (2010): 20, 157, figs 102 A–D, 103 A–D.

Comments. The species is widely distributed in Europe and represented by many specimens, e. g. from Austria, Czech Republic, Denmark, Germany, Great Britain, Finland, Spain, Sweden, Switzerland and The Netherlands (BMNH, MZH, PKHE, PWMP, SDEI, SMNH) [more details see Menzel et al. (2006), and Hippa et al. (2010)].

Distribution. Holarctic: Europe, Morocco, Russia (Adygeya Republic); Canada (Ontario), USA (California).

Corynoptera (*Corynoptera*) *saetistyla* Mohrig & Krivosheina, 1985

Type locality: RUSSIA: Amur region, Seya Nature Reserve.
Holotype: ♂, 9.7.1982, leg. N. P. Krivosheina (PWMP).

Synonym: = *Corynoptera densiseta* Mohrig & Menzel, 1990 [in Menzel & Mohrig (2000)].

Further material: The species is also reported by Hippa et al. (2010) from Canada. Details: CANADA: Ontario, Crief Bog 3 km W Puslinch, 1♂, 5.–12.6.1987, leg D. Blades (SMNH). Quebec, Lac Ekonomiak, 53°23'N 77°36'W, 2♂♂, July 1990, leg. S. Koponen (MZH).

Literature: *Corynoptera densiseta* Mohrig & Menzel – Menzel et al. (1990): 380, fig. 23 a–e. *Corynoptera saetistyla* Mohrig & Krivosheina – Mohrig et al. (1985): 253, fig. 5 a–c; – Menzel & Mohrig (2000): 226; – Menzel et al. (2006): 81. *Corynoptera* (*Corynoptera*) *saetistyla* Mohrig & Krivosheina – Hippa et al. (2010): 17, 113, figs 2 B, 70 A–F, 71 A–F.

Comment. The species is widely distributed from western Europe to the Russian Far East.

Distribution. Holarctic: Europe, Russia (Amur region); Canada (Ontario, Quebec).

Corynoptera (*Corynoptera*) *sphenoptera* Tuomikoski, 1960

Type locality: FINLAND: Uusimaa, Helsinki.
Lectotype: ♂, July 1956, leg. R. Tuomikoski (MZH).
Paralectotype: FINLAND: same data as lectotype, 1♂ (MZH); designated by Hippa et al. (2010).

Further material:. The species is also reported by Hippa et al. (2010) from Canada. Details: CANADA: Ontario, Wylde Lake Bog, 6 km E Arthur, 2 ♂♂, 24.10.–14.11.1987, leg. D. Blades (CNC). British Columbia, Vancouver Island, Upper Carmanah Valley, 1 ♂, 16.6.–3.7.1991 (CNC); 3 ♂♂, 4.–15.7.1991 leg. N. Winchester (MZH).

Literature: *Corynoptera sphenoptera* Tuomikoski – Tuomikoski (1960): 49, 58, figs 10 d, 13 c, 14 b, 14 g; – Menzel & Mohrig (2000): 227. *Corynoptera* (*Corynoptera*) *sphenoptera* Tuomikoski – Hippa et al. (2010): 14, 34, figs 1 B, 11 A–D, 12 A–E.

Distribution. Common and widely distributed. Holarctic: Europe, Russia (Krasnodar region); Canada (British Columbia, Ontario).

Corynoptera subparvula Tuomikoski, 1960

Type locality: FINLAND: Regio aboensis, Vihti, Vihtijärvi.
Lectotype: ♂, 19.8.1959, leg. R. Tuomikoski (MZH); designated by Hippa & Vilkamaa (1994).
Paralectotypes: FINLAND: same locality, 3 ♂♂, 16.8.1959; 3 ♂♂, 19.8.1959, all leg. R. Tuomikoski (MZH). Nylandia, Helsinki, Vestersundom, 1 ♂, 25.9.1958, leg. R. Tuomikoski (MZH). Nylandia, Helsinki, Sillböle, 1 ♂, 27.6.1959, leg. R. Tuomikoski (MZH).

Further material: The species is also reported by Hippa & Vilkamaa (1994) with 13 ♂♂ from Ontario, Canada (CNC).

Literature: *Camptochaeta subparvula* Tuomikoski – Hippa & Vilkamaa (1994): 11, 77, fig. 43 A–C; – Komarova et al. (2007): 4, 5. *Corynoptera subparvula* Tuomikoski – Tuomikoski (1960): 64, 66, figs 9 c, 15 a, 15 b; – Freeman (1983): 29, figs 86, 91.

Comments. The species belongs to the *Corynoptera parvula* group sensu Menzel & Mohrig (2000): 217. It is widely distributed in the Palaearctic region.

Distribution. Holarctic: Europe, Russia (Karelia, Altaysky Kray); Canada (Ontario).

Corynoptera (*Corynoptera*) *subsedula* Mohrig & Mamaev, 1987

Type locality: RUSSIA: Ishtii-Khem, Tuva.
Holotype: ♂, 10.7.1974, leg. B. M. Mamaev (PWMP).
Paratype: RUSSIA: same locality, 1 ♂, 10.6.1974, leg. B. M. Mamaev (PWMP).

Further material: The species was reported by Hippa et al. (2010) from Canada. Details: CANADA: Ontario, Algonquin, 1 ♂, 1.6.1991, leg. M. Barták (SDEI).

Literature: *Corynoptera subsedula* Mohrig & Mamaev – Mohrig et al. (1987): 99, fig. 12 a–c. *Corynoptera* (*Corynoptera*) *subsedula* Mohrig & Mamaev – Hippa et al. (2010): 16, 42, fig. 17 A–D.

Distribution. Holarctic: Europe (Finland), Russia (Far East); Canada (Ontario).

Corynoptera (*Corynoptera*) *subtrivialis* (Pettey, 1918)

(Fig. 25 a–e)

Type locality: USA: California, Alameda Co., Berkeley.
Holotype: ♂, no. 233, 31.10.1906, leg. J. C. Bradley (CUIC) [3 slides; hypopygium crushed, body without p_1].

Further material: USA: California, Big Sur, Redwood National Park, 3 ♂♂, 25.–26.12.1994, leg. W. Mohrig (PWMP). California, Shasta Co., McArthur Burney Falls Memorial State Park, 1 ♂, 1.8.1970, leg. P. H. Arnaud (CAS).

Literature: *Neosciara subtrivialis* Pettey – Pettey (1918b): 327, 340, figs 28, 59. *Sciara subtrivialis* (Pettey) – Metz (1938b): 494. *Bradysia* (*Bradysia*) *subtrivialis* (Pettey) – Stone & Laffoon (1965): 234. *Corynoptera subtrivialis* (Pettey) – Steffan (1966): 49, 54.

Comments. *Corynoptera subtrivialis* (Pettey) is very similar to *C. pilata* (Pettey), as shown by figures 21 and 28 of Pettey (1918b). The main difference is the different length of the apical

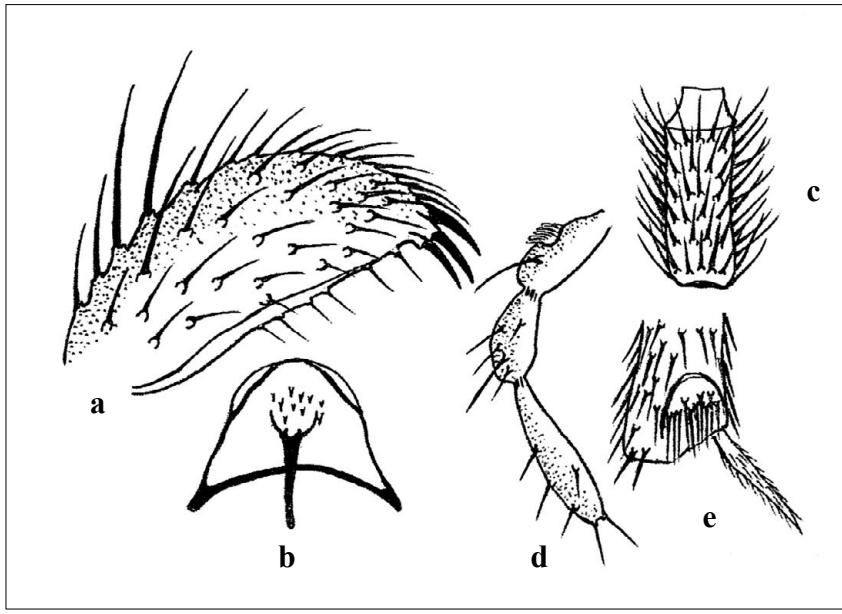


Fig. 25: *Corynoptera subtrivialis* (Petteey) ♂, specimen from USA, California. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view; – **c**: 4th flagellomere; – **d**: Palpus; – **e**: Apex of fore tibia.

tooth, which is as long as the subapical spines in *C. pilata*, but distinctly shorter and of about the half length of subapical spines in *C. subtrivialis*. New material collected in California confirms that the difference in the length of the apical tooth is a constant character.

Distribution. USA (California).

Corynoptera (*Corynoptera*) *trepida* (Winnertz, 1867)

Type locality: GERMANY: as "Germania" [no locality details].
Lectotype: ♂, no data, ex coll. Winthem (NHMW).

Synonyms: = *Neosciara subflava* Lengersdorf, 1941; = *Corynoptera clinochaeta* Tuomikoski, 1960 [all in Menzel & Mohrig (2000)].

Further material [not mentioned by Hippa & Vilkamaa (1994)]: CANADA: Alberta, Banff National Park, Egypt Lake, Whistle Pass, 2,400 m, 1 ♂, August 1997, leg. F. Röschmann (PWMP). Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 2 ♂♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 12 ♂♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). The species was also reported by Hippa et al. (2010) from Canada and USA. Details: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley, 12.–17.8.1991, 1 ♂, leg. N. Winchester (MZH). Ontario, Crieff Bog 3 km W Puslinch, 1 ♂, 2.4. –3.5.1988, leg. D. Blades (SMNH). Ontario, Wylde Lk. Bog, 6 km E Arthur, 1 ♂, 28.7.–5.9.1987, leg. D. Blades (SMNH). Quebec, Kuujjuarapik, 53°17'N 77°48'W, 1 ♂, 13.–27.7.1990 (MZH); 6 ♂♂, 14.7.–1.8.1990, leg. S. Koponen (MZH; SMNH). Quebec, Mont Jacques-Cartier, 48°59'N 65°57'W, 1,150 m, 1 ♂, 26.6.–12.9.1991, leg. S. Koponen (MZH). USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270, 1 ♂, 23.6.–2.8.1984, leg. S. Peck & J. Peck (MZH).

Literature: *Neosciara subflava* Lengersdorf – Lengersdorf (1941a): 70, fig. 6; – Tuomikoski (1960): 58. *Corynoptera clinochaeta* Tuomikoski – Tuomikoski (1960): 49, 52, figs 10 f, 13 b, 14 a. *Sciara trepida* Winnertz – Winnertz (1867): 127. *Corynoptera trepida* (Winnertz) – Menzel & Mohrig (2000): 230. *Corynoptera* (*Corynoptera*) *trepida* (Winnertz) – Hippa et al. (2010): 17, 95, fig. 58 A, B.

Comment. *Corynoptera trepida* is common and widely distributed in Europe and Russia (up to Altaysky Kray).

Distribution. Holarctic: Europe, Russia; Canada (Alberta, British Columbia, Ontario, Quebec), USA (Alaska).

Corynoptera (*Corynoptera*) *trichistylis* Hippa, Vilkamaa & Heller, 2010

Type locality: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley.
Holotype: ♂, forest floor, Malaise trap, 30.7.1991, leg. N. Winchester (CNC).
Paratypes: CANADA: same locality, 1 ♂, 21.6.–3.7.1991 (CNC); 3 ♂♂, 30.7.1991 (MZH); 1 ♂, 12.–27.8.1991 (MZH), all leg. N. Winchester.

Literature: *Corynoptera* (*Corynoptera*) *trichistylis* Hippa, Vilkamaa & Heller – Hippa et al. (2010): 17, 110, fig. 67 A, B.

Distribution. Canada (British Columbia).

Corynoptera uniceps (Hippa & Vilkamaa, 1994) comb. nov.

Type locality: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley.
Holotype: ♂, forest floor, 30.7.1991, leg. N. Winchester (CNC).
Paratypes: 5 ♂♂, same data as holotype (1 ♂ in RBCM; 2 ♂♂ in MZH; 2 ♂♂ in SMNH).

Literature: *Camptochaeta uniceps* Hippa & Vilkamaa – Hippa & Vilkamaa (1994): 10, 56, fig. 30 A, B.

Comment. The species belongs to the *Corynoptera spinifera* group sensu Menzel & Mohrig (2000): 216.

Distribution. Canada (British Columbia).

Corynoptera vagula Tuomikoski, 1960

Type locality: FINLAND: Lapponia kemensis, Rovaniemi, Pisavaara.
Holotype: ♂, 19.8.1957, leg. R. Tuomikoski (MZH).

Literature: *Plastosciara* (*Cosmosciara*) *perniciosa* Edwards – Frey (1948): 71, 88, fig. 130 [misidentification]. *Corynoptera vagula* Tuomikoski – Tuomikoski (1960): 43, 44, figs. 8 a, 10 b, 14 i, 15 h; – Menzel & Mohrig (2000): 219; – Vilkamaa & Hippa (2006): 33, figs 1 A–D, 4 C, 5 B, 6 C.

Further material: The species was also reported by Vilkamaa & Hippa (2006) from Canada. Details: CANADA: Quebec, Kuujjuarapik, 2 ♂♂, 1.–19.8.1990, leg. S. Koponen (SMNH).

Comments. *Corynoptera vagula* is the species that gave its name to the *C. vagula* group of Vilkamaa & Hippa (2006). The taxonomic position of *C. vagula* and related species such as *C. armigera* Vilkamaa & Hippa, 2006 and *C. fratercula* Vilkamaa & Hippa, 2006 is not certain, because the unequal spurs of hind tibiae in conjunction with the short R_1 also suggest a relationship with species of the subgenus *Xenopygina* Frey of the genus *Scatopsciara*. The DNA analysis also showed a proximity to *Scatopsciara* (Shin et al. 2013). A final conclusion requires more material for taxonomic comparison.

Distribution. Holarctic: Europe (N); Canada (Quebec).

Genus *Cratyna* Winnertz, 1867

Type species: *Cratyna atra* Winnertz, 1867 – Monogr. Sciarinen: 167, fig. 7.

Subgenera: *Cratyna* Winnertz, 1867 s. str.; *Diversicratyna* Menzel & Mohrig, 1998; *Peyerimhoffia* Kieffer, 1903; *Pictosciara* Mohrig, 2004; *Spathobdella* Frey, 1948; *Termitosciara* Schmitz, 1915.

Synonyms: = *Pseudosciara* Kieffer, 1898 [preocc.]; = *Plastosciara* Berg, 1899; = *Decembrina* Frey, 1942; = *Dendrosciara* Frey, 1942; = *Pseudozygoneura* Steffan, 1969.

Literature: *Pseudosciara* Kieffer – Kieffer (1898): 194. *Neosciara* (*Dendrosciara*) – Frey (1942): 33. *Bradysia* (*Dendrosciara*) – Frey (1948): 51, 55, 79. *Decembrina* Frey – Frey (1942): 21, 34; – ? Shaw (1953b): 29, 31. *Plastosciara* Berg – Berg (1899): 78; – Enderlein (1911): 127, 183; – Lengersdorf (1928–30): 13; – Frey (1948): 46, 70, 87; – Shaw (1953b): 29; – Tuomikoski (1960): 5, 31; – Stone & Laffoon (1965): 235; – Steffan (1966): 33, 47 [in part]; – Freeman (1983): 17, 23; – Arnett (2000): 856. *Pseudozygoneura* Steffan – Steffan (1969): 675, 676; – Hippa et al. (1998): 2, 5. *Cratyna* Winnertz – Winnertz (1867): 167; – Enderlein (1911): 124, 186; – Mohrig & Jaschhof (1999): 13, 26; – Menzel & Mohrig (2000): 89, 261; – Mohrig (2003): 22, 65; – Mohrig & Menzel (2009): 285, 291; – Shin et al. (2013): 834.

Cratyna (*Cratyna*) *atra* Winnertz, 1867

(Fig. 26 a–e)

Type locality: GERMANY: ? Frankfurt/Main.
Lectotype: ♀, no. 3558, no date, leg. C. von Heyden (SFNF); designated by Menzel in Menzel & Mohrig (2000).

= *Sciara lugens* Johannsen, 1912 syn. nov.
Type locality: USA: Maine, Penobscot Co., Orono.
Lectotype: ♂, no. 2091, reared from decaying wood (CUIC) [pinned, hypopygium in a glycerin vial, transferred to slide; one slide with wing]; hereby designated in order to fix the name.
Paralectotype: USA: same data as lectotype, 1 ♂ (CUIC) [destroyed].

= *Neosciara ericia* Pettey, 1918 syn. nov.
Type locality: USA: Massachusetts, Suffolk Co., Brookline.
Holotype: ♂, no. 227, no date, leg. C. W. Johnson (CUIC) [two slides; body with hypopygium, seriously damaged and swollen by long-term storage in glycerin; wing].

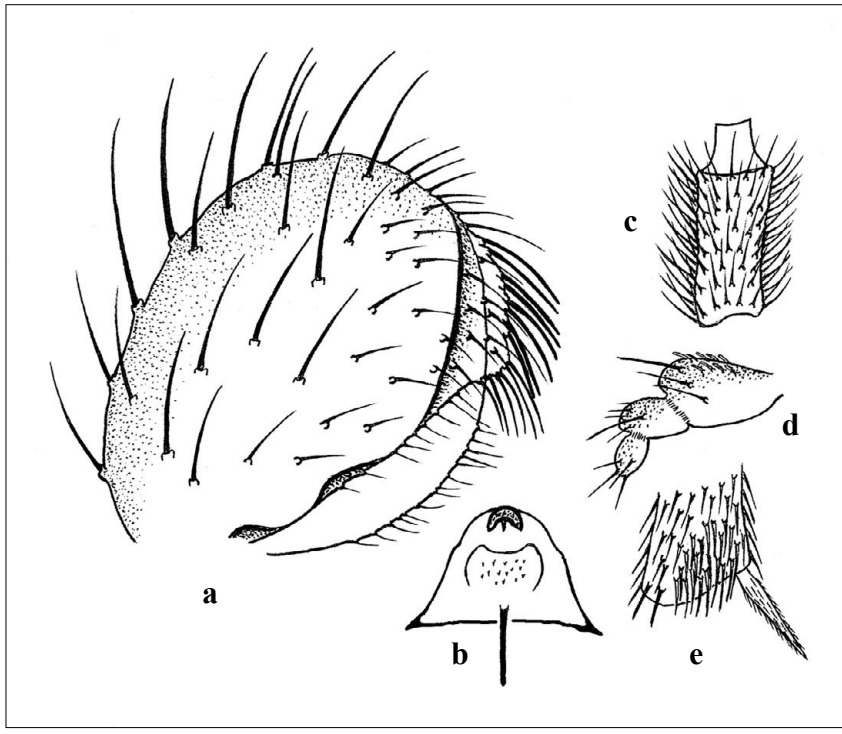


Fig. 26: *Cratyna atra* Winnertz ♂, specimen from USA, California. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view; – **c**: 4th flagellomere; – **d**: Palpus; – **e**: Apex of fore tibia.

= *Sciara* (*Neosciara*) *macclurei* Shaw, 1941 syn. nov.
Type locality: CANADA: Manitoba, Churchill.
Holotype: ♂, 10.7.1936, leg. H. E. McClure (UMEC) [slide; hypopygium in bad position].

Further synonyms: = *Pseudosciara pictiventris* Kieffer, 1898 [in Menzel & Mohrig (2000)]; = *Lycoria* (*Neosciara*) *corticalis* Lengersdorf, 1930 [as synonym to *Plastosciara pictiventris* in Tuomikoski (1960)].

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest; 8 ♂♂, 11.6.–23.7.1994; 1 ♂, 23.7.–15.9.1994, all leg. E. Fuller (PWMP). Ontario, Beaver Bay, mixed forest at river, 1 ♂, 31.5.1991, leg. M. Barták (SDEI). Quebec, Great Whale River, 1 ♂, 6.7.1949, leg. J. R. Vockeroth (MZH). Quebec, Lac Roddic, 16 km S of Maniwaki, 2 ♂♂, 22.6.1991, leg. M. Barták (SDEI). USA: California, Del Norte Co., Crescent City, 1 ♂, 19.4.1974, leg. P. H. Arnaud (PWMP). Maryland, Hagerstown, 1 ♂ 1 ♀, slides and lot no. 1928, det. O. A. Johannsen (CUIC). Montana, Gallatin Co., Cottonwood Canyon, Malaise trap, 1 ♂, no. 1694, 16.–23.6.1996, leg. La Masiner (PKHE). New York, Mt. Marcy, Heart Lake, 1 ♂, 29.6.1938, leg. C. P. Alexander (PWMP). Washington, Lewis Co., Big Creek Campground, 4.4 km SE Ashford, 1 ♂, 2.7.1974, leg. P. H. Arnaud (CAS).

Literature: *Sciara lugens* Johannsen – Johannsen (1912): 121, 132, fig. 257. *Lycoria lugens* (Johannsen) – Shaw & Fisher (1952): 212, fig. 55. *Neosciara lugens* (Johannsen) – Pettey (1918b): 325. *Bradysia* (*Bradysia*) *lugens* (Johannsen) – Stone & Laffoon (1965): 233. *Corynoptera lugens* (Johannsen) – Steffan (1966): 49, 53. *Neosciara ericia* Pettey – Pettey (1918b): 325, 337, figs 22, 53. *Lycoria ericia* (Pettey) – Shaw & Fisher (1952): 212. *Bradysia* (*Bradysia*) *ericia* (Pettey) – Stone & Laffoon (1965): 232. *Bradysia ericia* (Pettey) – Steffan (1966): 35, 52. *Neosciara* (*Dendrosciara*) *corticalis* (Lengersdorf) – Frey (1942): 33. *Bradysia* (*Dendrosciara*) *corticalis* (Lengersdorf) [in part] – Frey (1948): 56, 79, fig. 54. *Sciara* (*Neosciara*) *macclurei* Shaw – Shaw (1941a): 174, fig. 1. *Bradysia* (*Bradysia*) *macclurei* (Shaw) – Stone & Laffoon (1965): 233. *Corynoptera macclurei* (Shaw) – Steffan (1966): 49, 53. *Plastosciara* (*Plastosciara*) *pictiventris* (Kieffer) – Tuomikoski (1960): 33, 34, fig. 7 g. *Plastosciara pictiventris* (Kieffer) – Hippa et al. (1998): 3, 13; figs 11 B, 11 D, 11 E, 14 D. *Cratyna atra* Winnertz – Winnertz (1867): 167, fig. 7. *Cratyna* (*Cratyna*) *atra* Winnertz – Menzel & Mohrig (1998): 361, 363; – Menzel & Mohrig (2000): 271, figs 41 a, 41 b, 42 c, 204–207.

Comments. The large gonostylus with the typical hyaline spines within long setae prove that *Sciara lugens* Johannsen, *Neosciara ericia* Pettey and *Sciara macclurei* Shaw are conspecific. The comparison with European specimens of *Cratyna atra* Winnertz confirmed the conspecifity.

Distribution. Holarctic: Europe; Canada (Alberta, Manitoba, Ontario, Quebec), USA (California, Maine, Maryland, Massachusetts, Montana, New York, Washington).

Cratyna (*Cratyna*) *fulvicauda* (Felt, 1898) comb. nov.
(Fig. 27 a, b, c)

Type locality: USA: New Jersey, Atlantic coast, Middlesex Co., New Brunswick, New Jersey Agricultural Experiment Station.
Lectotype: ♂, from decaying blackberry roots, no date, leg. J. B. Smith (USNM) [1 slide with lectotype and paralectotype in toto, hypopygium in good position]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 4 ♂♂ (USNM) [2 slides; 2 ♂♂, pinned, transferred to slides]; 2 ♀♀, same data as lectotype (USNM) [pinned, partly destroyed; not studied].

= *Cratyna gilva* Rudzinski, 2000 syn. nov.
Type locality: CZECH REPUBLIC: Moravia, Lednice.
Holotype: ♂, no. CZ/539, 18.7.1995, leg. J. Vaňhara (NMPC).
Paratypes: CZECH REPUBLIC: Moravia, Šilheřovice, 2 ♂♂, 16.7.1997, 31.7.1997, leg. J. Ševčík (PRSM).

Further material: GERMANY: Baden-Württemberg, Stollhofen, airport, Malaise trap, 1 ♂, no. 4097, 16.6.–2.7.1997, leg. D. Doczkal (PKHE). North Rine-Westphalia [Nordrhein-Westfalen], Cologne, garden, Malaise trap, 1 ♂, no. 1305, 13.–20.6.1989; 2 ♂♂, no. 3001 and 3005, 21.–28.6.1994, all leg. J. Franzen (PKHE). Rineland-Palatinate [Rheinland-Pfalz], Mainz, Zitadelle, Malaise trap, 1 ♂, no. 7064, 31.6.–17.7.2006, leg. D. Doczkal (PKHE). Saxony-Anhalt [Sachsen-Anhalt], Magdeburg, park, 1 ♀, no. 7138, 24.6.2009, leg. K. Heller (PKHE). GREECE: Kerkini, Krousia Mountains, Malaise trap, 1 ♂, no. 6103, 30.5.–5.6.2007, leg. G. Ramel (PKHE).

Literature: *Cratyna gilva* Rudzinski – Rudzinski (2000): 170, figs 7–13. *Sciara fulvicauda* Felt – Felt (1898): 227, figs 7, 13; – Johannsen (1912): 118, 126, fig. 111. *Neosciara fulvicauda* (Felt) – Pettey (1918b): 321. *Bradysia* (*Bradysia*) *fulvicauda* (Felt) – Stone & Laffoon (1965): 233. *Bradysia fulvicauda* (Felt) – Steffan (1966): 36, 53.

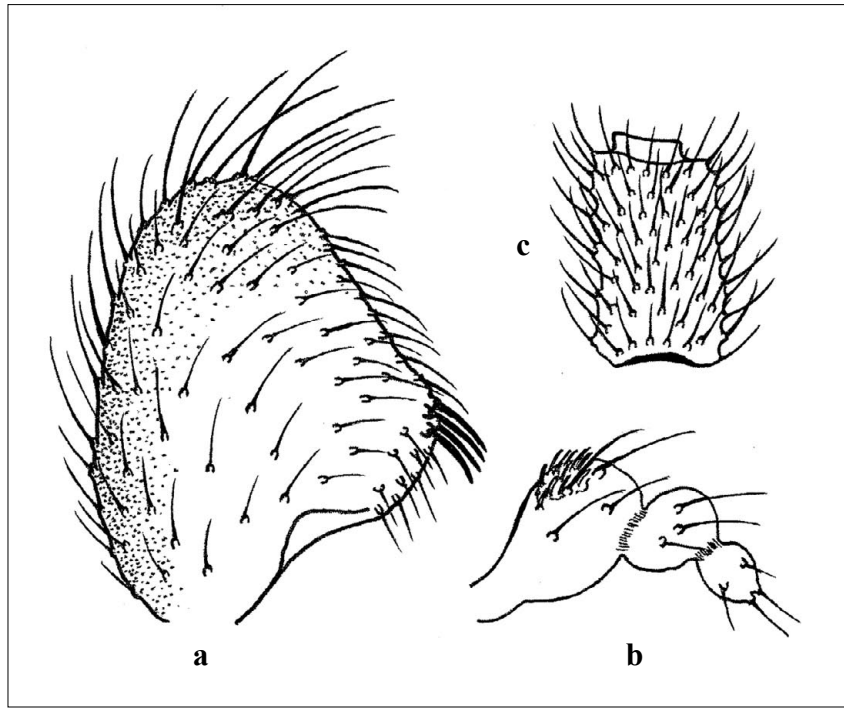


Fig. 27: *Cratyna fulvicauda* (Felt) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Palpus; – **c**: 4th flagellomere.

Redescription. **Male**. Eye bridge 3–4 facets wide. Antenna short, scape and pedicel yellowish brown; 4th flagellomere with l/w index of 1.8, with short neck. Palpus short, 3-segmented, basal segment thick, with 3–4 bristles. Thorax brown with ochreous parts; mesonotum with stronger lateral hairs. Postpronotum non-setose. Wing: R_1 somewhat longer R, joining C opposite the base of M-fork; c = 2/3 w; r-m = bM, r-m with macrotrichia; posterior wing veins without macrotrichia. Halter short. Apex of front tibia with irregular patch of bristles. Claws untoothed. Hypopygium without intercoxal lobe; gonocoxite short, with short setosity; gonostylus large, triangular, apex round; with 4 hyaline spines close to each other. Tegmen apically roundish, with short finger-like structure. Body length: 3.5 mm.

Comments. The species belongs to *Cratyna* s. str. according to the 4 hyaline apical spines mesially on the gonostylus, the shortened palpus, the finger-like protuberance on the tegmen and the long R_1. It is identical with *Cratyna gilva* Rudzinski in all details. This very conspicuously shining-red species was not found in Central Europe before 1989. So it is very probable, that it has either recently expanded its range or was introduced from North America, where it has been known as native for at least one century.

Distribution. Holarctic: Europe (Czech Republic, Germany, Greece); USA (New Jersey).

Cratyna (*Spathobdella*) *longispina* (Pettey, 1918) comb. nov.

Type locality: USA: Maine, Penobscot Co., Orono.
Holotype: ♂, no. 242, June, leg. O. A. Johannsen (CUIC) [in poor condition; 2 slides with wings, body with hypopygium was transferred to slide from a dry vial without alcohol].

= *Plastosciara* (*Spathobdella*) *tuberculata* Tuomikoski, 1960 syn. nov.
Type locality: FINLAND: Regio kuusamoensis, Kuusamo, river Oulankajoki, Kiutaköngas.
Lectotype: ♂, 1.–2.7.1958, leg. R. Tuomikoski (MZH); hereby designated in order to fix the name.
Paralectotypes: FINLAND: same data as lectotype, 2♂♂ (MZH) [1♂ missing]. NORWAY: Finnmark, river Langfjordelva between Porsangerfjord and Vestertana, 1♂, 2.8.1958, leg. R. Tuomikoski (MZH) [missing].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 1♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 2♂♂, 30.4.–11.6.1994; 7♂♂, 11.6.–23.7.1994; 5♂♂, 23.7.–15.9.1994 all leg. E. Fuller (PWMP). Nova Scotia, Cape Breton Island, Big Interv. Margaree; 2♂♂, 30.8.1936, leg. E. G. Fisher (PWMP). Ontario, Algonquin, primary forest, sweep-netting, 1♂, 1.6.1991, leg. M. Barták (SDEI). USA: Montana, Gallatin Co., Cottonwood Canyon, 2♂♂, no. 1692 and 1693, 23.6.1996, leg. La Masiner (PKHE).

Literature: *Plastosciara* (*Spathobdella*) *tuberculata* Tuomikoski – Tuomikoski (1960): 37, 39, fig. 7 d. *Cratyna* (*Spathobdella*) *tuberculata* (Tuomikoski) – Menzel & Mohrig (2000): 270. *Sciara* sp. 27 – Johannsen (1912): 121, 132, figs 116, 235. *Neosciara longispina* Pettey – Pettey (1918b): 325. *Bradysia* (*Bradysia*) *longispina* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia longispina* (Pettey) – Steffan (1966): 36, 53.

Comments. The type material consists of two slides, both with wing. The body with the detached hypopygium was deposited in a dried-out vial. The transfer to slides resulted in a very poor preparation with damage to the gonostylus. A second specimen in CUIC was determined by Johannsen 1929 as *N. longispina* Pettey. This specimen (1♂, 25.4.1914) is undoubtedly *Cr. falcifera* (Lengersdorf). The conspecificity of this specimen with the type of *Cr. longispina* can be excluded through the exact drawing of the gonostylus by Johannsen (fig. 116) and the remaining parts of the hypopygium of the type (spec. 23 by Johannsen), which do not show the very characteristic dorsal protuberance of the gonostylus of *Cr. falcifera*. The group of short spines in fig. 116 on a small dorsal lobe is typical however for *Pl. tuberculata* Tuomikoski. We have seen a lot of material of the latter from Nova Scotia, collected by Fisher in 1936, and there is no doubt that *N. longispina* Pettey is identical to *Pl. tuberculata* Tuomikoski. Curiously, *Neosciara longispina* Pettey was only named by Pettey in his key. Johannsen had mentioned it as spec. 27 and gave a good drawing.

Distribution. Holarctic: Europe; Canada (Alberta, Nova Scotia, Ontario), USA (Maine, Montana).

Genus *Dichopygina* Vilkamaa, Hippa & Komarova, 2004

Type species: *Bradysia* (*Chaetosciara*) *triseriata* var. *nigrohalteralis* Frey, 1948 – Notul. Ent. **27**(2–4): 61, 81; by original designation.

Literature: *Corynoptera* Winnertz s. l. [in part; *C. nigrohalteralis* group] – Menzel & Mohrig (2000): 213, 220. *Dichopygina* Vilkamaa, Hippa & Komarova – Vilkamaa et al. (2004): 108; – Shin et al. (2013): 835.

Dichopygina duplicis Vilkamaa, Hippa & Komarova, 2004

Type locality: CANADA: Ontario, 7 mi E Griffith.
Holotype: ♂, 16.7.1998, leg. B. E. Cooper (CNC).
Paratypes: CANADA: same data as holotype, 8♂♂ (2♂♂ in CNC; 6♂♂ in SMNH).

Literature: *Dichopygina duplicis* Vilkamaa, Hippa & Komarova – Vilkamaa et al. (2004): 110, 115, fig. 6 A–G.

Distribution. Canada (Ontario).

Dichopygina nigrohalteralis (Frey, 1948)

Type locality: FINLAND: Ostrobottnia borealis, Nykarleby.
Lectotype: ♂, no. 2428, leg. R. Frey (MZH); designated by Menzel in Menzel & Mohrig (2000).
Paralectotypes: FINLAND: same data as lectotype, 1♂, no. 2439 and 122, type no. 8370 (ZMH); 1♂,

no. 2429 (ZMH). One other ♂ from the type series (no. 2389 in MZH) belongs to *Corynoptera blanda* (Winnertz, 1867).

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, 2 ♂♂, 30.4.–11.6.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 4 ♂♂, 11.6.–24.7.1994; 3 ♂♂, 23.7.–15.9.1994, all leg. E. Fuller (PWMP). USA: Alaska, Alaska Highway, Wolf Creek, 1 ♂, 21.8.1954, leg. C. P. Alexander (PWMP).

Literature: *Bradysia* (*Chaetosciara*) *triseriata* (Winnertz) sensu Frey – Frey (1948): 62, 81, fig. 82 [misidentification]. *Bradysia* (*Chaetosciara*) *triseriata* var. *nigrohalteralis* Frey – Frey (1948): 61, 81. *Corynoptera nigrohalteralis* (Frey) – Tuomikoski (1960): 70, 72, figs 12 e, 13 f, 14 m; – Menzel & Mohrig (2000): 259, figs 202, 203. *Dichopygina nigrohalteralis* (Frey) – Vilkamaa et al. (2004): 110, 116, fig. 8 A–G.

Comment. The species is reported by Vilkamaa et al. (2004) from Canada. Details: Quebec, 55.17°N 77.48°W, 2 ♂♂, 1.–19.8.1990, leg. S. Koponen (MZH). Newfoundland, Labrador, Smoky Mountains, 1 ♂, 25.7.1994, leg. Kaila (MZH).

Distribution. Holarctic: Europe; Canada (Alberta, Newfoundland, Quebec), USA (Alaska).

Dichopygina perfecta (Pettey, 1918) comb. nov.

(Fig. 28 a, b)

Type locality: USA: Maryland, Montgomery Co., Plummers Island.
Holotype: ♂, no. 235, 12.4.1914, leg. F. W. Pettey (CUIC) [1 slide, in toto; very seriously damaged].

= *Dichopygina bernhardi* Vilkamaa, Hippa & Komarova, 2004 syn. nov.
Type locality: JAPAN: Hokkaido, Tomakomai.
Holotype: ♂, 28.6.1986, leg. B. Lindberg (MZH).
Paratypes: CZECH REPUBLIC: Polanka nad Odrou, 1 ♂, 12.9.1997, leg. J. Ševčik (ZSM). RUSSIA: Altay region, 37 km from Teletskoe Ozero, 3 ♂♂, 21.7.2000, leg. L. A. Komarova (PLKB). Novosibirsk, Akademgorodok, 1 ♂, 14.8.1982, leg. K. Mikkola (MZH).

Literature: *Dichopygina bernhardi* Vilkamaa, Hippa & Komarova – Vilkamaa et al. (2004): 110, 115, fig. 5 A–H. *Neosciara perfecta* Pettey – Pettey (1918b): 325, 341, figs 30, 61. *Bradysia* (*Bradysia*) *perfecta* (Pettey) – Stone & Laffoon (1965): 234. *Corynoptera perfecta* (Pettey) – Steffan (1966): 49, 54.

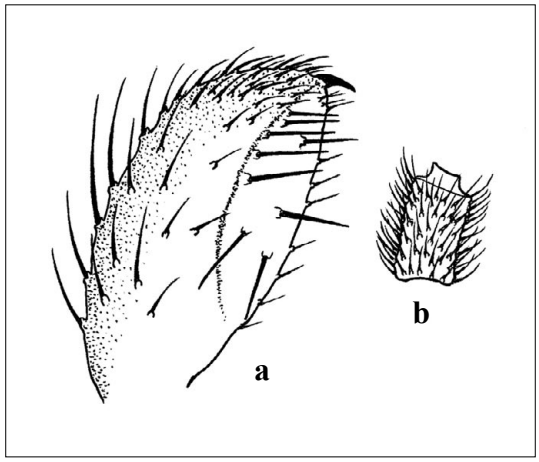


Fig. 28: *Dichopygina perfecta* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view (phantom picture); – **b**: 4th flagellomere.

Redescription. **Male**. Antennae short, flagellomeres with dense hairs shorter than flagellomere diameter; 4th flagellomere with l/w index of about 2.0. Palpi 3-segmented; basal segment with one bristle. Thorax brown, legs yellowish. Wings pale; R_1 = 2/3 R; r-m somewhat shorter than bM, both bare; C = 2/3 w. Tibial organ of fore tibiae with circular bordered patch of bristles. Gonostylus with a rather strong apical tooth, inner side straight or somewhat excavated, with 10 rather long and narrow spines spread nearly over the whole inner surface; the more distally inserted spines probably at the inner ventral margin, the proximal spines long and directed inwards.

Comments. The holotype is in poor condition, but without doubt a *Dichopygina*. The species resembles *D. aculeata* Vilkamaa, Hippa & Komarova, but has more slender spines. It resembles also the Nearctic *D. duplicis* Vilkamaa, Hippa & Komarova, but has more numerous gonostylar

spines (10 versus 6–8). In that respect it is identical with *D. bernhardi*, which has also short flagellomeres, yellowish legs and a whitish setosity of thorax and abdomen. Despite the bad condition of the holotype and the absence of other material from North America at present we confidently synonymize *Di. bernhardi* with *Di. perfecta*. The species has a wide Palaearctic distribution (Vilkamaa et al. 2005).

Distribution. Holarctic: Europe (Czech Republic, Sweden), Russia (Altay region, Far East), Japan; USA (Maryland).

Dichopygina stricta Vilkamaa, Hippa & Komarova, 2004

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, 23.4.–11.8.1984, leg. S. Peck & J. Peck (MZH).
Paratypes: USA: same data as holotype, 1 ♂ (MZH). CANADA: Ontario, Iroquois Falls, 2 ♂♂, 20.6.1987, leg. J. R. Vockeroth (1 ♂ in CNC; 1 ♂ in SMNH).

Literature: *Dichopygina stricta* Vilkamaa, Hippa & Komarova – Vilkamaa et al. (2004): 110, 120, figs 1 A, 10 A–E.

Distribution. Canada (Ontario), USA (Alaska).

Genus *Epidapus* Haliday, 1851

Type species: *Epidapus venaticus* Haliday, 1856 – Insecta Brit. Dipt. **3**: 56; monotypy [= *Tipula atomaria* De Geer, 1778].

Subgenera: *Cornepidapus* Menzel & Mohrig, 2000; *Epidapus* Haliday, 1851 s. str.; *Pseudoaptanogyna* Vimmer, 1926; *Pseudoepidapus* Mohrig, 1982; *Zuhalia* Koçak & Hüseyinoğlu, 2008.

Synonyms: = *Atomaria* Bigot, 1854 [preocc.]; = *Aptanogyna* Börner, 1903; = *Mycosciara* Kieffer, 1903; = *Pholeosciara* Schmitz, 1915; = *Landrockia* Czižek, 1917; = *Calcaromyia* Vimmer, 1926; = *Schmitzia* Vimmer, 1926 [preocc.]; = *Soudekia* Vimmer, 1928; = *Lengersdorfia* Kratochvil, 1936; = *Vimmeria* Kratochvil, 1936; = *Sciarobezzia* Venturi, 1964; = *Bonessia* Gerbachevskaya-Pavluchenko, 1986.

Literature: *Peyerimhoffia* Kieffer – Shaw & Fisher (1952): 209, 210 [misidentification]. *Atomaria* Bigot – Bigot (1854): 454, 482. *Aptanogyna* Börner – Börner (1903): 504; – Enderlein (1911): 128, 185; – Czižek (1917): 289; – Vimmer (1926): 10; – Lengersdorf (1928–30): 19; – Frey (1942): 24, 42; – Shaw (1953b): 30; – Tuomikoski (1959): 37; – Tuomikoski (1960): 97; – Venturi (1964): 92, 94. *Mycosciara* Kieffer – Kieffer (1903) 197, 203; – Enderlein (1911): 128, 185; – Lengersdorf (1928–30): 15; – Frey (1942): 34, 40; – Shaw (1953b): 30. *Pholeosciara* Schmitz – Schmitz (1915a): 285; – Czižek (1917): 289. *Landrockia* Czižek – Czižek (1917): 290; – Venturi (1970b): 2. *Calcaromyia* Vimmer – Vimmer (1926): 11; – Kratochvil (1936a): 161; – Frey (1942): 25, 42; – Shaw (1953b): 30; – Venturi (1964): 94. *Schmitzia* Vimmer – Vimmer (1926): 8, 10. *Soudekia* Vimmer – Vimmer in Soudek (1928): 23; – Kratochvil (1936a): 161; – Frey (1942): 25, 42; – Shaw (1953b): 30; – Venturi (1964): 94. *Lengersdorfia* Kratochvil – Kratochvil (1936b): 14, 36; – Tuomikoski (1959): 44; – Venturi (1964): 94, 111 [in part]; – Mohrig (1969): 53; – Mohrig (1970): 134. *Vimmeria* Kratochvil – Kratochvil (1936a): 158, 161. *Vimmeria* (*Vimmeria*) – Kratochvil (1936b): 13, 35. *Epidapus* (*Vimmeria*) – Tuomikoski (1960): 10, 97. *Sciarobezzia* Venturi – Venturi (1964): 94, 97. *Epidapus* Haliday – Haliday in Walker (1851): 7; – Haliday in Walker (1856): 56; – Rübsaamen (1894): 19; – Lintner (1895b): 398; – Enderlein (1911): 127, 185; – Czižek (1917): 283; – Vimmer (1926): 2; – Lengersdorf (1928–30): 16; – Kratochvil (1936a): 158, 161; – Frey (1942): 24, 42; – Frey (1948): 45, 72, 88; – Shaw (1953a): 63; – Tuomikoski (1960): 6, 10, 96; – Venturi (1964): 88, 94; – Stone & Laffoon (1965): 235; – Steffan (1966): 33, 44; – Mohrig (1969): 54; – Mohrig (1970): 135; – Venturi (1970b): 2; – Hippa et al. (1997): 153, 155; – Freeman (1983): 26; – Poole (1996): 239; – Mohrig & Jaschhof (1999): 13, 29; – Arnett (2000): 856; – Menzel & Mohrig (2000): 91, 299; – Mohrig (2003): 59; – Mohrig et al. (2004): 304; – Koçak & Hüseyinoğlu (2008): 2; – Mohrig & Menzel (2009): 291, 292; – Shin et al. (2013): 833.

Epidapus (*Epidapus*) *atomarius* (De Geer, 1778)

Type locality: SWEDEN: ? District Uppsala, Lövstabruk SE of Gälve.
Holotype: ♀, leg. K. De Geer (SMNH) [missing since 1810].

= *Epidapus johannseni* Shaw, 1953 syn. nov.
Type locality: USA: Connecticut, Hartford Co., Mt. Higby Reservoir.
Lectotype: ♂, Red and With pine, soil samples, 27.3.1951, leg. P. Bellinger (UMEC) [slide]; hereby designated in order to fix the name.
Paralectotypes: USA: same locality, 3 ♂♂, 14.4.1951; 1 ♂ 4 ♀♀, 23.5.1951; 7 ♂♂, 1951 [2 ♂♂ missing], all leg. P. Bellinger (UMEC) [all slides].

Further synonyms: = *Zygoneura pumila* Winnertz, 1853; = *Atomaria degeeri* Bigot, 1854; = *Epidapus venaticus* Haliday, 1856; = *Myosciara brevipalpis* Kieffer, 1903; = *Pholeosciara melina* Schmitz, 1915; = *Landrockia moravica* Cižek, 1917; = *Schmitzia soudeki* Vimmer, 1926; = *Soudekia monocalcarata* Vimmer, 1926; = *Lengersdorfia acutehomerata* Venturi, 1964 [all as synonyms in Menzel & Mohrig (2000)].

Literature: *Mycosciara brevipalpis* Kieffer – Lengersdorf (1928–30): 15, textfig. 14. *Pholeosciara melina* Schmitz – Venturi (1970b): 2; fig. 2 1–3. *Epidapus venaticus* Haliday – Venturi (1970b): 9, fig. 4. *Soudekia soudeki* Vimmer – Venturi (1964): 95, fig. 5 1–4. *Epidapus johannseni* Shaw – Shaw (1953a): 63, figs 1, 2; – Stone & Laffoon (1965): 235; – Steffan (1966): 45, 53. *Tipula atomaria* De Geer – De Geer (1778): 602, figs 27, 28; – Cižek (1915): 365. *Epidapus atomarius* (De Geer) – Cižek (1915): 370, figs 1–8; – Cižek (1917): 284, 289, figs 1–3; – Lengersdorf (1928–30): 16, textfigs 1, 2, 6, 15, 16, fig. 12; – Kratochvil (1936b): 18, 28, 39, 42, figs 28, 31–33, 43–49 [♂ only; not figs 26, 27, 29, 30]; – Venturi (1964): 88, figs 1 [in part], 2; – Steffan (1966): 45, 52; – Freeman (1983): 26, figs 66, 68, 69. *Epidapus* (*Epidapus*) *atomarius* (De Geer) – Tuomikoski (1960): 98, fig. 24 c, d; – Mohrig (1969): 56, figs 1 a, 6 a–c, 6 f–j, 7 c, 7 f; – Menzel & Mohrig (2000): 315, figs 260–266.

Comments. The comparison with the European specimens of *Epidapus atomarius* (De Geer) shows that they are identical in all details. The species is characterized in males by very long and thin antennal flagellomeres with long necks and sparse long bristles; the gonostylus with a strong apical tooth and few long bristles on its lateral side and one fine hyaline spine on its mesial side. Both sexes have a 1-segmented palpus. The females are wingless and without any vestiges of the reduced wings and halteres. In contrast to European specimens, the eye bridge of the Nearctic specimens is very small, one facet wide; in males 1–2 facets wide.

Distribution. Holarctic: Widely distributed in Europe; USA (Connecticut).

Epidapus (*Pseudoaptanogyna*) *johnstoni* (Shaw, 1935) comb. nov.
(Fig. 29)

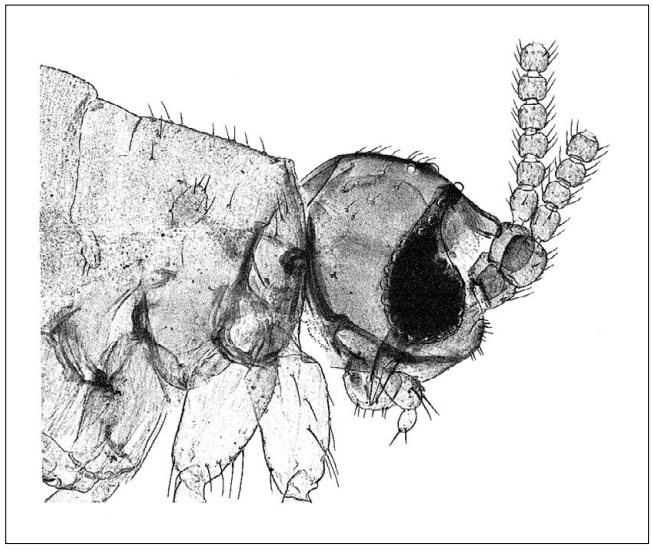


Fig. 29: *Epidapus johnstoni* (Shaw) ♀, holotype. Thorax and head, lateral view.

Type locality: USA: Massachusetts, Worchester Co., Petersham.
Holotype: ♀, soil sample, no date, leg. J. W. Johnston (UMEC) [slide, in good condition].

Literature: *Peyerimhoffia johnstoni* Shaw – Shaw (1935c): 160, figs 1, 2; – Shaw & Fisher (1952): 210; – Stone & Laffoon (1965): 235. *Plastosciara johnstoni* (Shaw) – Steffan (1966): 48, 53.

Comments. The species has very short flagellomeres with short necks; a small eye bridge (one facet wide), a 2-segmented palpus and very small rudiments of wing and halteres. The detection of the unknown male together with the known female is difficult because males fly

readily and could perhaps be caught with sweep-nets or Malaise traps, whereas the females run on soil surface and can be collected using soil traps, such as Barber traps or soil eclectors. Yellow traps on soil could be useful for collecting both sexes.

Distribution. USA (Massachusetts).

Genus *Eugnoriste* Coquillett, 1896

Type species: *Eugnoriste occidentalis* Coquillett, 1896 – Proc. Ent. Soc. Wash. **3**: 322; fig. 24; by original designation, monotypy.

Literature: *Rhynchosciara* Rübsaamen sensu Lengersdorf [in part] – Curran (1930): 35; – Curran (1965): 119; – Stone & Laffoon (1965): 231. *Eugnoriste* Coquillett – Coquillett (1896): 321; – Coquillett (1904): 169; – Enderlein (1911): 199; – Johannsen (1912): 113; – Curran (1930): 35; – Shaw (1935b): 87; – Shaw & Fisher (1952): 209, 210; – Shaw (1953b): 29; – Curran (1965): 119; – Stone & Laffoon (1965): 231; – Steffan (1966): 32, 40; – Steffan (1968): 41; – Steffan (1971): 54; – Steffan (1981): 251; – Poole (1996): 239; – Arnett (2000): 856; – Menzel & Mohrig (2000): 703; – Mohrig (2003): 32, 66; – Mohrig & Menzel 2009: 283, 292; – Shin et al. (2013): 834.

Eugnoriste brevirostris Coquillett, 1904

(Fig. 30 a, b)

Type locality: USA: Colorado, El Paso Co., Pikes Peak, Halfway House.
Holotype: ♀, type no. 7944, no date, leg. T. D. A. Cockerell (USNM) [pinned, transferred to slide].

Further material: CANADA: Alberta, Beaverlodge, 1 ♀, 19.7.1931, leg. Strickland (ANSP). USA: New Jersey, Trenton, 1 ♀, no. SBS 256, 3.8.1908, leg. et det. T. D. A. Coquillett (ANSP).

Literature: *Eugnoriste brevirostris* Coquillett – Coquillett (1904): 169; – Johannsen (1912): 113; – ? Lengersdorf (1940a): 249; – Stone & Laffoon (1965): 231; – Steffan (1966): 41, 52.

Comments. The species is known from the female sex only. It is dinguished from *Eugnoriste occidentalis* Coquillett by shorter mouth parts (half as long as height of head).

Distribution. ? Mexico; Canada (Alberta), USA (Colorado, New Jersey).

Eugnoriste occidentalis Coquillett, 1896

(Figs 1, 31 a, 31 b)

Type locality: USA: New Mexico, Doña Ana Co., Las Cruces.
Lectotype: ♀, no. 3653, 8.6.1895, leg. T. D. A. Cockerell (USNM) [slide]; designated by Steffan (1968).
Paralectotypes: 2 ♀♀, same data as lectotype (USNM) [pinned; not studied].

= *Rhynchosciara proboscidea* Lengersdorf, 1931 syn. nov.
Type locality: USA: Washington, Kittitas Co., Thorp.
Lectotype: ♀, no date, leg. V. von Röder (MLUH) [slide with body and wing]; hereby designated in order to fix the name. The also mounted hypopygium belongs to an indetermined species of *Cratyna* (*Spathobdella*).

Further material: CANADA: British Columbia, Armstrong, 1 ♀, 15.6.1948, leg. Neilson (ANSP). Ontario, Hudson's Bay, Albany River, St. Martin's Falls, 2 ♀♀, no date, leg. G. Barnston, identified as *Sciara atrata* Say by Walker (1848) (BMNH). USA: California, San Mateo Co., Memorial Park, 1 ♂, 9.–10.8.1969, leg. P. H. Arnaud (PWMP).

Literature: *Sciara atrata* Say sensu Walker – Walker (1848): 105. *Rhynchosciara proboscidea* Lengersdorf – Lengersdorf (1931): 254; – Stone & Laffoon (1965): 231. *Eugnoriste occidentalis* Coquillett – Coquillett (1896): 322, fig. 24; – Johannsen (1912): 113, figs 138, 253; – Stone & Laffoon (1965): 231; – Steffan (1966): 41, 53, fig. 12; – Steffan (1968): 41, figs 2 a–e, 3 a–d; – Menzel & Mohrig (2000): 703, figs 565–573.

Comments. Johannsen (1912) knew the male and gave a good drawing of its gonostylus (fig. 138) which allows identification of the species. Johannsen's slide with the hypopygium is missing in CUIC. Walker's identification as *Sciara atrata* Say was based on Say's description only.

As the types of *Sciara atrata* are lost, that name should be treated as a nomen dubium. The species is characterized in female sex by unusually long and needle-like mouth parts. The male is characterized by the hypopygium with *Pseudolycoriella*-like gonostylus, deeply excavated X. sternite and pelt-like dense setosity on the apical margin of the last tergites, typical for the genus. In both sexes the Costa is short (c = 1/3 w).

Distribution. Canada (British Columbia, Ontario), USA (California, New Mexico, Washington).

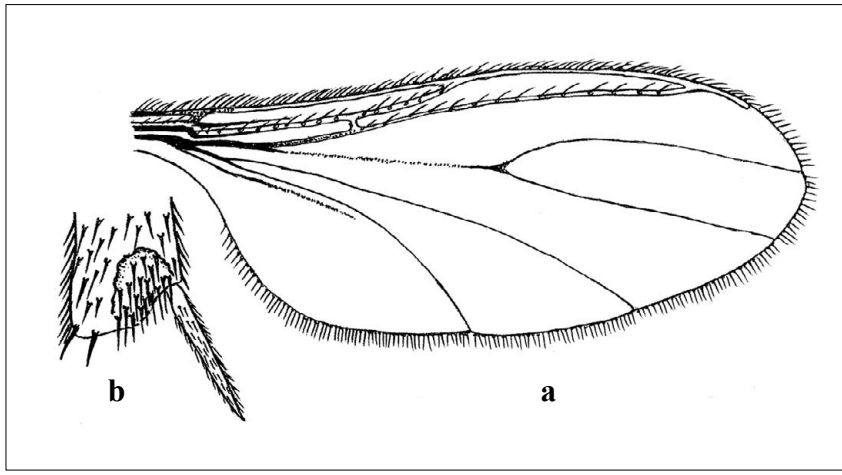


Fig. 30: *Eugnoriste brevirostris* Coquillett ♀, holotype. – **a**: Wing; – **b**: Apex of fore tibia.

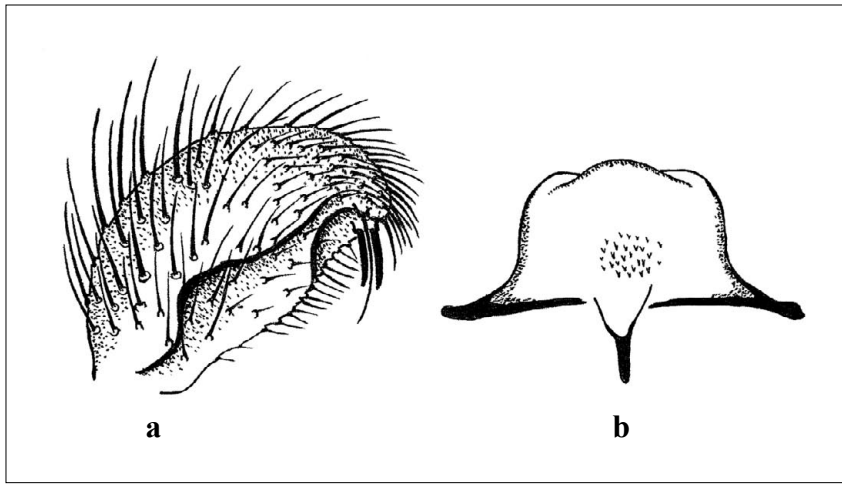


Fig. 31: *Eugnoriste occidentalis* Coquillett ♂, specimen from USA, California. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view.

Genus *Keilbachia* Mohrig, 1987

Type species: *Keilbachia nepalensis* Mohrig, 1987 – Courier Forsch.-Inst. Senckenberg **93**: 483–484; figs 1–6; by original designation, monotypy.

Literature: *Keilbachia* Mohrig – Mohrig & Martens (1987): 483; – Menzel & Mohrig (2000): 85, 348; – Vilkamaa et al. (2006): 39; – Rudzinski (2008): 346; – Vilkamaa et al. (2009): 1; – Zhang et al. (2010): 47; – Vilkamaa et al. (2011): 53; – Shin et al. (2013): 835.

Keilbachia neglecta (Johannsen, 1912)

(Fig. 32 a, b)

Type locality: USA: California, Santa Clara Co., Stanford NW of Sunnyvale Stanford University. Lectotype: ♂, type no. 2095, lot no. 760, 13.2.1906, leg. J. M. Aldrich (CUIC) [2 slides; hypopygium slightly damaged, wing; body and head partly destroyed]; hereby designated in order to fix the name. Paralectotypes: USA: California, Monterey Co., Pacific Grove near Monterey, 2 ♀♀, leg. J. M. Aldrich (CUIC) [pinned; not studied].

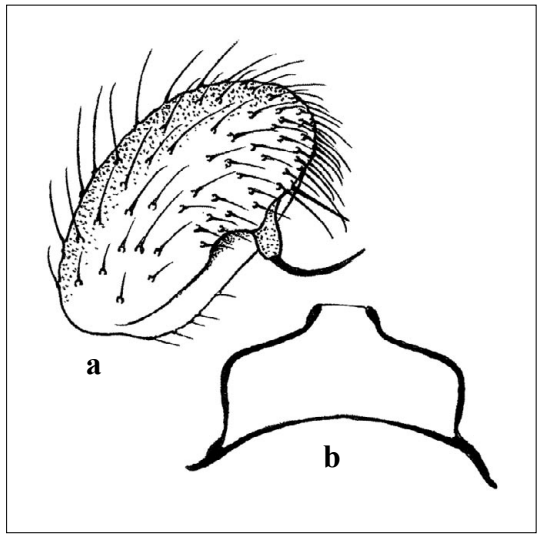


Fig. 32: *Keilbachia neglecta* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view.

Further material: USA: Washington, Jefferson Co., falls outside Olympic National Park, entrance, 15 km NE Quinault, 1 ♂, 28.6.1974, leg. P. H. Arnaud (PWMP).

Literature: *Sciara neglecta* Johannsen – Johannsen (1912): 133, figs 122, 242: – Mohrig et al. (2004): 303 [under *Keilbachia* Mohrig]. *Neosciara neglecta* (Johannsen) – Petty (1918b): 326. *Bradysia* (*Bradysia*) *neglecta* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia neglecta* (Johannsen) – Steffan (1966): 36, 53. *Keilbachia neglecta* (Johannsen) – Vilkamaa et al. (2009): 3, 18.

Redescription. **Male**. Eye bridge 2–3 facets wide. Antennae brownish, 4th flagellomere with l/w index of 2.2, palpus not visible. Thorax brownish, mesonotum fine and sparsely setose, few lateral and two scutellar bristles longer. Wings pale; R_1 = 2/3 R; c longer 1/2 w; r-m = bM, with 1 macrotrichium; posterior veins weak, without macrotrichia. Legs brownish, tibial organ not visible. Hypopygium without basal lobe; gonocoxites on inner ventral side rather long setose; gonostylus ovoid, apically densely setose, with one fine bristle-like hyaline spine within as long apical bristles, few (2–3) bristles longer; in the middle of inner side with a upwards curved spine on large base. Tegmen laterally winged aedeagus short.

Comment. The species belongs to the *Keilbachia nepalensis* group sensu Menzel & Mohrig (2000): 350.

Distribution. USA (California, Washington).

Genus *Leptosciarella* Tuomikoski, 1960

Type species: *Sciara elegans* Winnertz, 1867 – Monogr. Sciarinen: 27–28; by original designation [= *Sciara scutellata* Staeger, 1840].

Subgenera: *Hirtipennia* Mohrig & Menzel, 1997; *Leptosciarella* Tuomikoski, 1960 s. str.; *Leptospina* Mohrig & Menzel, 1997; *Protosciarella* Mohrig, 2003; *Trichosiopsis* Tuomikoski, 1960.

Literature: *Leptosciara* Frey [in part] – Frey (1942): 28; – Frey (1948): 47; – Shaw (1953b): 29. *Trichosia* (*Leptosciarella*) – Tuomikoski (1960): 17, 20; – Menzel & Mohrig (1997a): 4, 5; – Menzel & Mohrig (1997b): 66, 67. *Leptosciarella* Tuomikoski – Mohrig & Menzel (1997): 42, 44; – Menzel & Mohrig (2000): 88, 353; – Mohrig (2003): 6; – Mohrig et al. (2004): 269; – Mohrig & Menzel (2009): 281, 292; – Heller (2012a): 91; – Shin et al. (2013): 834.

Leptosciarella (*Leptosciarella*) *dives* (Johannsen, 1912) comb. nov.

(Fig. 33 a–d)

Type locality: USA: California, Santa Clara Co., Stanford NW of Sunnyvale Stanford University.
Holotype: ♂, no. 2079, 31.1.1906, leg. J. M. Aldrich (CUIC) [two slides].

Further material: GREECE: Kerkini, Krousia Mountains, southern slope near timber stack, Malaise trap, 1 ♂, no. 6102, 30.5.–5.6.2007, leg. G. Ramel (PKHE). MOROCCO: Quirgane, garden, Malaise trap, 1 ♂, no. 1959, 3.–8.4.1996, leg. C. F. Kassebeer (PKHE).

Literature: *Sciara dives* Johannsen – Johannsen (1912): 118, 125, figs 101, 220; – Pettey (1918b): 320; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52.

Redescription. **Male**. Head: Eye bridge 2–3 facets wide. 4th flagellomere with l/w index of 2.4–2.8; with dense, salient setosity, setae shorter than diameter of flagellomere. Thorax: Brown or pale brown. Thoracic setae normal. Postpronotum non-setose. Legs yellow. Hind coxae concolourous with femora. Setae of front coxa darkened, or bright; tibial bristles on hind legs normal, shorter than tibial width. Posterior wing veins with macrotrichia; M-stem bare or with some macrotrichia; CuA_1 and CuA_2 mainly with macrotrichia; r-m bare or with few macrotrichia; $R_1 = 1.4–1.7$ R; c = 0.65–0.75 w. Abdomen: Gonocoxite narrowly separated. Gonostylus 2.1–2.4 × longer than wide; apex equally rounded, or with one obtuse angle; mesial margin straight. Apical tooth 2.2–3.0 × longer than wide. Awl-like short spines, basal to apical tooth, absent or present. Tegmen broader than long, rectangular with roundish apicolateral corners. Aedeagal apical structure absent. Body size: 2.2–3.1 mm. Wing length: 2.1–3.0 mm.

Comments. Only the holotype of *Leptosciarella dives* is known from North America. Although the hypopygium is preserved well in overall view, its colour is faded and most setae are missing. Antennal flagellomeres are mostly missing except for the first one of the right antenna. The species is characterized by its apically tapered gonostylus, which is very slightly subapically angled. The apical tooth is unusually long and thin, extending the length of the inner margin of the gonostylus. The awl-like short spines are very distinct and projecting beneath the apical tooth. The holotype is a very small specimen in comparison with other species of *Leptosciarella* having a wing length of only 2.3 mm. On the basis of the identical gonostylus, we have identified two Palaearctic specimens as *L. dives*, although these specimens are somewhat larger and their wing veins are more setose. Furthermore, the specimen from Greece has more darkened legs. More material from North America is needed to see the intraspecific variation, to decide if the Palaearctic specimens really are conspecific with the type.

Distribution. Holarctic: Europe (Greece), Morocco; USA (California).

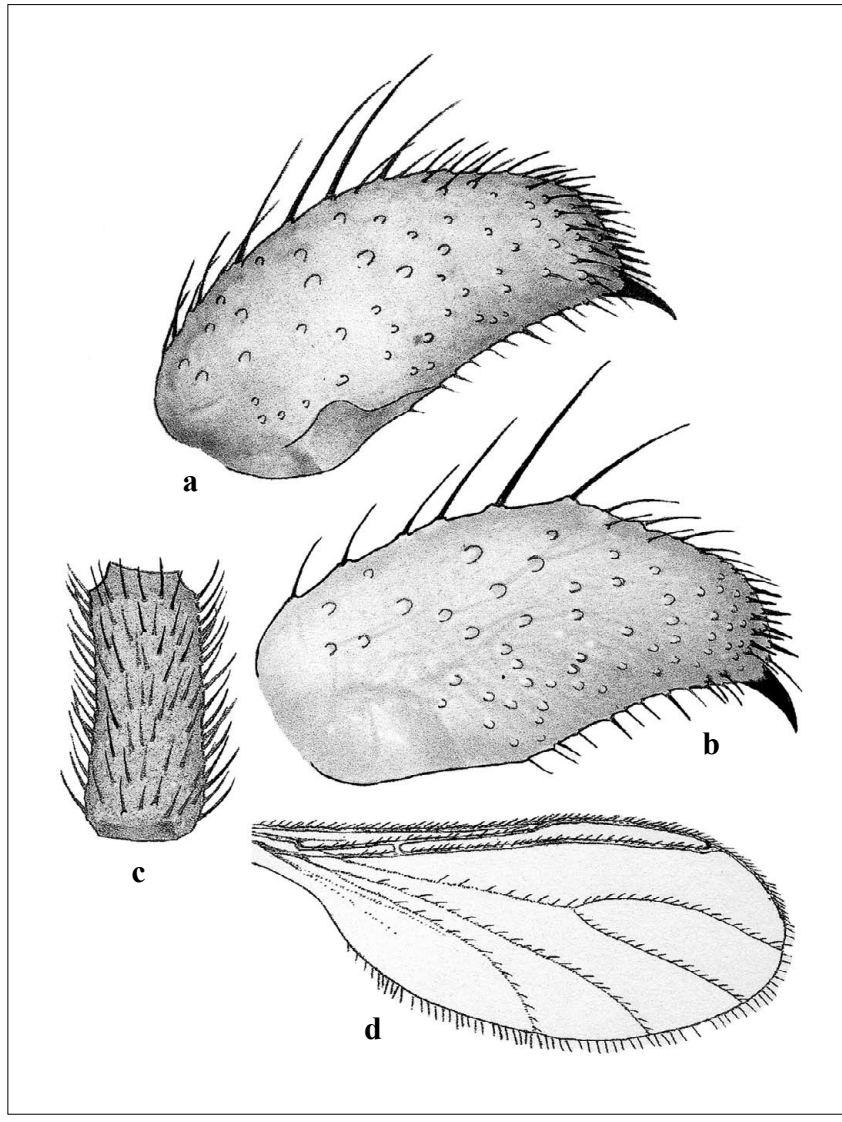


Fig. 33: *Leptosciarella dives* (Johannsen) ♂, photo-based pictures. – **a**: Gonostylus of holotype, ventral view; – **b**: Gonostylus of specimen from Marocco, ventral view; – **c**: 4th flagellomere of holotype; – **d**: Wing of holotype.

Leptosciarella (Leptosciarella) unicorn (Garrett, 1925) comb. nov.

(Fig. 34)

Type locality: CANADA: British Columbia, Cranbrook.
Holotype: ♂, no. 4743, 10 June, leg. C. B. D. Garrett (CNC) [two slides, in good condition].

Further material: USA: Montana, Gallatin Co., Cottonwood Canyon, 1♂, no. 1716, 19.6.1996, leg. La Masiner (PKHE).

Literature: *Sciara unicorn* Garrett – Garrett (1925): 16; – Stone & Laffoon (1965): 236; – Steffan (1966): 44, 54.

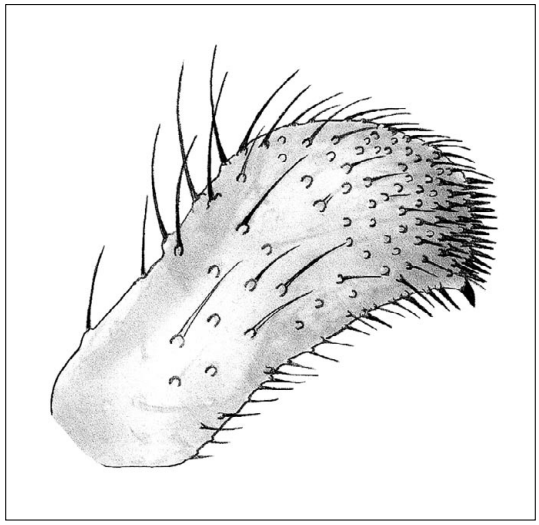


Fig. 34: *Leptosciarella unicorn* (Garrett) ♂, holotype. Gonostylus, dorsal view (photo-based picture).

Redescription. **Male**. Head: Eye bridge 3–5 facets wide. 4th flagellomere with l/w index of 2.5–3.0; neck 0.30–0.37 of diameter; with dense and salient setosity, setae shorter than diameter of flagellomere. Thorax: Brown. Postpronotum non-setose. Legs yellowish-brown; hind coxa darkened; setae of front coxa darkened. Hind tibial bristles weak, inconspicuous. Posterior wing veins with macrotrichia; M-stem with a few macrotrichia, or bare; CuA_1 and CuA_2 mainly with macrotrichia; r-m bare, or with few bristles; $R_1 = 0.9–1.2$ R; c = 0.65–0.75 w. Abdomen: Gonocoxite widely separated. Gonostylus 2.2–2.5 × as long as wide; apex with one obtuse angle, or with two obtuse angles; mesial margin concave or straight. Apical tooth 1.8–2.5x as long as wide. Awl-like spines short, present also basad of apical tooth. Tegmen broader than long; 0.75–1.0 × as long as wide; rectangular, with rounded apicolateral corners. Aedeagal apical structure present. Wing length: 3.1–3.5 mm.

Comments. This medium sized species is characterized by a small apical tooth to the gonostylus, surrounded by tiny awl-like bristles. The Palaearctic *Le. pilosa* (Staeger, 1840) and *Le. subspinulosa* (Edwards, 1925) are similar in this respect, but both have more strongly developed subapical awl-like setae. *Le. unicorn* is also peculiar by the long setae on the antennal flagellomeres and the nearly complete absence of macrotrichia on the wing veins M_2 and r-m.

Distribution. Canada (British Columbia), USA (Montana).

Genus *Lycoriella* Frey, 1942

Type species: *Bradysia* (*Chaetosciara*) *paucisetulosa* Frey, 1948 – Notul. Ent. **27**(2–4): 57, 63, 82, plate 15, fig. 86; designated by Menzel & Heller (2005) [= *Sciara sativae* Johannsen, 1912].

Subgenera: *Coelostylina* Tuomikoski, 1960; *Hemineurina* Frey, 1942; *Lycoriella* Frey, 1942 s. str.; *Merizomma* Sasakawa, 2003.

= *Niadina* Rapp, 1946 [synonymy in Steffan (1966)].
Type species: *Niadina jauva* Rapp, 1946 – Trans. Am. Entomol. Soc. **71**: 125, 126; by original designation, monotypy [= *Sciara ingenua* Dufour, 1839].

Literature: *Niadina* Rapp – Rapp (1946): 126; – Stone & Laffoon (1965): 235; – Steffan (1966): 27, 49. *Bradysia* (*Chaetosciara*) [in part] – Frey (1948): 51, 57, 79. *Lycoriella* Frey – Frey (1942): 22, 36; – Shaw (1953b): 29; – Tuomikoski (1960): 6, 73; – Stone & Laffoon (1965): 231; – Steffan (1966): 33, 49; – Tuomikoski (1967): 47; – Steffan (1981): 255; – Freeman (1983): 17, 29; – Poole (1996): 239; – Menzel & Mohrig (1997b): 54, 66, – Menzel & Mohrig (1998): 360 [under *Bradysiopsis*]; – Mohrig & Jaschhof (1999): 13; – Arnett (2000): 856; – Menzel & Mohrig (2000): 90, 375; – Menzel & Heller (2005): 354; – Shin et al. (2013): 833.

Comments. We agree with Steffan's (1966) synonymization. Rapp's case for postulating a new genus on the basis of missing anal veins, reduced M-stem and base part of M_1 is either a misinterpretation or phylogenetically unsound. Weakly developed M-stems and basal parts of

M_1 are known in many species of different genera. By the synonymization of the type species *Niadina jauva* Rapp with *Lycoriella ingenua* (Dufour) the generic identity becomes clear.

Lycoriella (*Lycoriella*) *abbreviata* (Walker, 1848) comb. nov.

Type locality: CANADA: Ontario, Hudson's Bay, Albany River, St. Martin's Falls.
Holotype: ♀, no. BMNH(E)#250070, no date, leg. G. Barnston (BMNH) [pinned, badly damaged and crushed].

Literature: *Sciara abbreviata* Walker – Walker (1848): 109; – Coquillett (1900): 392; – Johannsen (1912): 138; – Stone & Laffoon (1965): 235; – Steffan (1966): 51, 52.

Comments. The specimen is about 2 mm long and we consider that it belongs to the genus *Lycoriella* on the basis of a distinct sensory pit on the first palpal segment and the pale and weak setae on the thorax, abdomen and legs. The front tibial organ was not discernible in the pinned specimen. The long and curved flagellomeral setae are similar to those in *Lycoriella brevipila* Tuomikoski, but because that species is not known from North America, the synonymization would be doubtful.

Distribution. Canada (Ontario). Mentioned also for USA (Alaska, Popof Island) by Coquillett (1900).

Lycoriella (*Lycoriella*) *agraria* (Felt, 1898)

(Fig. 35 a–c)

Type locality: USA: New York, Albany Co., Albany.
Lectotype: ♂, sampled from mushroom cellar, 12.7.1896, leg. W. Hailes (USNM) [slide]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 6♂♂ 4♀♀ (USNM) [3 slides].

= *Sciara multiseta* Felt, 1898 syn. nov.
Type locality: USA: New Jersey, Middlesex Co., New Brunswick, New Jersey Agricultural Experiment Station.
Lectotype: ♂, reared from mushrooms, 6.8.1896, leg. J. B. Smith (USNM) [slide]; hereby designated in order to fix the name.
Paralectotypes: same data as lectotype, 2♂♂ 6♀♀ (USNM) [2 slides]. 4 Paralectotypes (1♂ 3♀♀) belong to *Bradysia tilicola* (Loew).

= *Neosciara cellaris* Lengersdorf, 1934 syn. nov.
Type locality: CZECH REPUBLIC: Bohemia, house "Liechtenstein" below the mountain Králický Sněžnik.
Lectotype: ♂, 1,400 m, house cellar, 25.5.1933, leg. F. Pax & K. Maschke (ZFMK); designated by Menzel in Menzel & Mohrig (2000).
Paralectotypes: CZECH REPUBLIC: same locality, ? 2♂♂, 8.6.1933 and 9.7.1933, leg. F. Pax & K. Maschke (ZFMK) [missing]. One paralectotype belongs to *Bradysia forficulata* (Bezzi, 1914) [see Tuomikoski (1960: 85, 142) as *B. nocturna* Tuomikoski].

Further synonyms: = *Bradysia* (*Chaetosciara*) *stramentorum* Frey, 1948 [in Tuomikoski (1960)]; = *Lycoriella* (*Lycoriella*) *rufula* Tuomikoski, 1959 [in Menzel & Mohrig (2000)].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, 1♂, 23.7.–15.9.1994, leg. E. Fuller (PWMP). USA: Montana, Gallatin Co., Cottonwood Canyon, 1♂, no. 1704, 23.6.1996, leg. La Masiner (PKHE). Texas, Sam Houston National Forest, Willis, 60 km N Houston, pine forest, yellow trap, 2♂♂, 3.–6.11.1996, leg. W. Mohrig (PWMP). Virginia, Williamsburg, mixed forest, yellow trap, 1♂, 21.–23.7.1997, leg. W. Mohrig (PWMP).

Literature: *Lycoriella* (*Lycoriella*) *vanderwieli* (Schmitz) – Freeman (1983): 31, figs 94, 101 [msidentification]. *Sciara multiseta* Felt – Felt (1898): 223, figs 1, 2, 11; – Johannsen (1912): 120, 130, fig. 124. *Sciara agraria* Felt [misidentification] – McCarthy (1945a): 110, figs 9–12; – McCarthy (1945b): 241, figs 42, 56. *Neosciara multiseta* (Felt) – Pettey

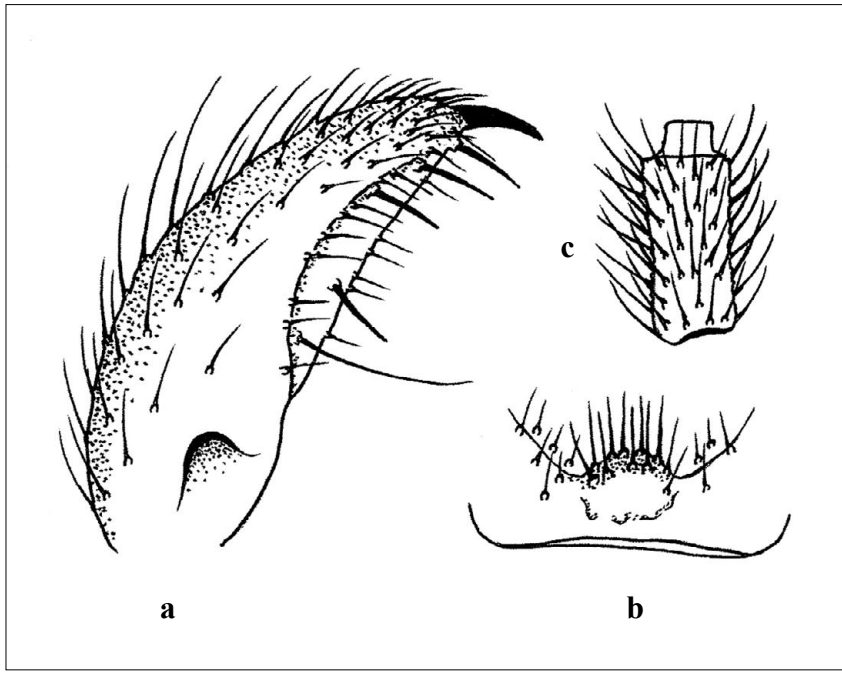


Fig. 35: *Lycoriella agraria* (Felt) ♂, specimen from USA, Texas. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view; – **c**: 4th flagellomere.

(1918b): 323. *Lycoria multiseta* (Felt) – Shaw & Fisher (1952): 211, 212. *Lycoriella* (*Lycoriella*) *multiseta* (Felt) – Stone & Laffoon (1965): 231. *Lycoriella multiseta* (Felt) – Steffan (1966): 51, 53. *Neosciara cellaris* Lengersdorf – Lengersdorf (1934): 24, fig. 1. *Lycoriella* (*Lycoriella*) *cellaris* Lengersdorf – Tuomikoski (1960): 79, 85, figs 17 c, 18 f, 19 c, 20 f; – Buck et al. (1997): 132, 135, figs 6–13; – Menzel & Mohrig (2000): 392. *Sciara agraria* Felt – Felt (1898): 225, figs 5, 6, 10; – Johannsen (1912): 120, 131. *Neosciara agraria* (Felt) – Pettey (1918b): 323. *Lycoriella* (*Lycoriella*) *agraria* (Felt) – Stone & Laffoon (1965): 231. *Lycoriella agraria* (Felt) – Steffan (1966): 50, 52.

Comments. The names *Sciara multisetosa* and *Sciara agraria* were published in the same paper by Felt (1898). We chose the name *L. agraria* as the valid species name, because it has been more commonly used in the literature. The large and densely setose intercoxal lobe of the hypopygium, as illustrated in the figures of both species, suggest conspecificity with *Lycoriella cellaris* (Lengersdorf), as supported also by the similarity of the collecting habitat [cellars in *L. cellaris* (Lengersdorf) and *L. agraria* (Felt), caves in *Lycoriella rufula* Tuomikoski].

Distribution. Holarctic: Europe, Afghanistan; Canada (Alberta), USA (Montana, New Jersey, New York, ? Pennsylvania, Texas, Virginia).

Lycoriella (*Hemineurina*) *conspicua* (Winnertz, 1867)

Type locality: AUSTRIA: as "Austria" [no locality details].
Lectotype: ♀, spring, ex coll. Winthem (NHMW); designated by Menzel in Menzel & Mohrig (2000).

= *Neosciara polychaeta* Pettey, 1918 syn. nov.
Type locality: USA: Georgia, Rabun Co., at Clayton.
Holotype: ♂, no. 222, 18.–26.5.1911, leg. F. W. Pettey (CUIC) [2 slides; hypopygium, wing; body glued].
Paratypes: USA: 3 ♂♂ 1 ♀, same data as holotype (CUIC) [glued, only one ♂ with hypopygium; other missing].

Literature: *Neosciara polychaeta* Pettey – Pettey (1918b): 323, 335, figs 17 a, 17 b, 48. *Bradysia* (*Bradysia*) *polychaeta* (Pettey) – Stone & Laffoon (1965): 234. *Lycoriella polychaeta* (Pettey) – Steffan (1966): 51, 54. *Sciara conspicua* Winnertz – Winnertz (1867): 135; – Lengersdorf (1925): 209, fig. 23. *Lycoria* (*Neosciara*) *conspicua* (Winnertz) – Lengersdorf (1928–30): 47, fig. 60. *Bradysia* (*Hemineurina*) *conspicua* (Winnertz) – Frey (1948): 65, 84, fig. 103. *Lycoriella* (*Hemineurina*) *conspicua* (Winnertz) – Frey (1942): 36; – Tuomikoski (1960): 75, 76; – Menzel & Mohrig (2000): 401, figs 361–364.

Comments. The holotype of *N. polychaeta* Pettey is identical with *Lycoriella conspicua* (Winnertz) in the shape of the gonostylus and in the very short C (shorter 1/3 w). The fig. 17 a given by Pettey (1918b) shows the bulbous mesial side of the gonostylus, and, fig. 17 b the bristle patches basally on the ventromesial margin of the gonocoxite, typical for this species.

Distribution. Holarctic: Europe; USA (Georgia).

Lycoriella (*Lycoriella*) *ingenua* (Dufour, 1839)

Type locality: FRANCE: Ascogne, Saint-Sever S of Mont-de-Marsan.
Syntypes: several ♂♂ and ♀♀, reared from mushroom culture (e. g. *Boletus imbricatus* Bull.), 18.11.–4.12.1938, leg. L. Dufour (? MNHN) [missing].

= *Sciara caesar* Johannsen, 1929 syn. nov.
Type locality: CANADA: Ontario, Brampton.
Holotype: ♂, no. 2108, bred from larvae very abundant in soil in a green house, apparently injurious to the plants, no date, leg. L. Caesar (CUIC) [1 slide; gonostylus badly damaged, the dorsal margin of the inner side is broken off and seems to form a spine-like lobe].
Paratypes: CANADA: same data as holotype, 4 ♀♀, no. 2108.6–2108.9 (CUIC) [slides]; 3 ♀♀, same data as holotype (CUIC) [pinned].

= *Niadina jauva* Rapp, 1946 syn. nov.
Type locality: USA: Illinois, Champaign Co., near St. Joseph, bank of the Salt Fork River.
Holotype: ♂, no. 6676, 11.2.1945, leg. W. F. Rapp (ANSP) [missing].
Paratype: USA: Illinois, Champaign Co., S of Champaign, 1 ♂, 4.2.1945, leg. W. F. Rapp (ANSP) [missing].

Further synonyms: = *Molobrus mali* Fitch, 1856 [in Menzel & Mohrig (2000)]; = *Sciara bigoti* Laboulbène, 1863; = *Sciara celer* Winnertz, 1867; = *Sciara debilis* Winnertz, 1867; = *Sciara decliva* Winnertz, 1867; = *Sciara flaviventris* Winnertz, 1867; = *Sciara humilis* Winnertz, 1867; = *Sciara velox* Winnertz, 1867; = *Sciara venusta* Winnertz, 1867; = *Sciara segnis* Winnertz, 1871; = *Sciara solani* Winnertz, 1871 [all in Menzel & Mohrig (2000)]; = *Sciara pauciseta* Felt, 1897 [in Steffan (1965) and Menzel & Mohrig (2000)]; = *Sciara ramicola* Kieffer, 1919 [in Menzel & Mohrig (2000)]; = *Bradysia* (*Chaetosciara*) *mycorum* Frey, 1948 [as synonym to *Lycoriella solani* (Winnertz) in Tuomikoski (1960)]; = *Psilosciara flammulinae* Sasakawa, 1983 [in Menzel & Mohrig (2000)]

Further material: USA: California, Los Angeles Co., San Gabriel Mountains, San Gabriel Canyon, maple mixed wood, 800 m, yellow trap, 1 ♂, 4.–9.3.1996; 6 ♂♂, 13.–19.4.1996, all leg. W. Mohrig (PWMP). California, Los Angeles Co., Topanga National Forest, mixed wood, yellow trap, 1 ♂, 12.–17.12.1996, leg. W. Mohrig (PWMP). California, Napa Co., Lake Berryessa, sweep-netting, 3 ♂♂, 4.1.2001, leg. W. Mohrig (PWMP). California, Santa Cruz Co., Santa Cruz, Big Basin, Redwood State Park, 3 ♂♂, 29.12.1994, leg. W. Mohrig (2 ♂♂ in PWMP; 1 ♂ PKHE).

Literature: *Molobrus mali* Fitch – Fitch (1856a): 484; – Fitch (1856b): 252; – Fitch (1859): 29; – Stone & Laffoon (1965): 236. *Sciara mali* (Fitch) – ? Johannsen (1912): 139. *Lycoriella mali* (Fitch) – Steffan (1966): 51, 53, figs 9–11, 13, 16 a, 17–22; – Steffan (1974c): 43, 47; – Menzel & Mohrig (1997b): 56, 60, fig. 6.49. *Lycoriella* (*Lycoriella*) *mali* (Fitch) – Steffan (1973): 357; – Steffan (1981): 251, figs 13, 23. *Sciara solani* Winnertz – Winnertz (1871): 855. *Lycoriella* (*Lycoriella*) *solani* (Winnertz) – Tuomikoski (1960): 79, 84, figs 18 e, 20 e. *Sciara pauciseta* Felt – Felt (1897): 224, figs 3, 4, 12; – Johannsen (1912): 119, 130, figs 117, 117 a, 141, 231; – Metz (1938b): 494, fig. 3. *Neosciara pauciseta* (Felt) – Pettey (1918b): 323. *Bradysia pauciseta* (Felt) – Keen (1958): 28, 76. *Lycoriella* (*Lycoriella*) *pauciseta* (Felt) – Stone & Laffoon (1965): 231. *Lycoria* (*Neosciara*) *ramicola* (Kieffer) – Lengersdorf (1928–30): 44, 54, fig. 76. *Lycoria* (*Neosciara*) *fenestralis* (Zetterstedt) – Lengersdorf (1928–30): 48, fig. 61 [misidentification]. *Lycoria fenestralis* (Zetterstedt) – Shaw & Fisher (1952): 211, 212, fig. 50 [misidentification]. *Sciara fenestralis* Zetterstedt form I [misidentification] – McCarthy (1945a): 109, fig. 4 a, b; – McCarthy (1945b): 232, figs 37–40,

48, 54. *Bradysia* (*Chaetosciara*) *auripila* (Winnertz) – Frey (1948): 63, 82, fig. 87 [misidentification]. *Lycoriella* (*Lycoriella*) *agraria* (Felt) – Freeman (1983): 31 [misidentification]. *Sciara caesar* Johannsen – Johannsen (1929a): 223. *Lycoriella* (*Lycoriella*) *caesar* (Johannsen) – Stone & Laffoon (1965): 231. *Lycoriella caesar* (Johannsen) – Steffan (1966): 50, 52. *Niadina jauva* Rapp – Rapp (1946): 126, fig. 1 A–C; – Stone & Laffoon (1965): 235. *Lycoriella jauva* (Rapp) – Steffan (1966): 51, 53. *Sciara ingenua* Dufour – Dufour (1839): 29, figs 20–28. *Lycoriella* (*Lycoriella*) *ingenua* (Dufour) – Menzel & Mohrig (2000): 393, figs 43, 89.

Comments. *Lycoriella ingenua* is a common pest in cultures of fungi and plants in greenhouses. The species can be found also in the soil of forests and agricultural areas. The identity of *S. caesar* Johannsen and *S. ingenua* Dufour has been verified by comparing the types with European specimens. The synonymy of *Niadina jauva* Rapp with *L. ingenua* (Dufour) is not so certain, because the type of the former is missing in ANSP. The synonymy is based on the figures given by Rapp (1946), especially of the slender gonostylus with dense subapical bristles near the apical tooth.

Distribution. Holarctic. Probably cosmopolitan.

Lycoriella (*Hemineurina*) *johannseni* (Enderlein, 1912) comb. nov.

(Fig. 36 a, b)

= *Sciara nigricans* Johannsen, 1912 [preocc., nec *Lycoria nigricans* Enderlein, 1911].
Type locality: USA: Rhode Island, Washington Co., Kingston.
Lectotype: ♂, no. 2096, leg. J. Barlow (CUIC) [slide; hypopygium in good position, wing; body glued].
Paralectotypes: USA: same data as holotype, 1 ♂, no. 2096.1 (CUIC) [slide, only wing; body glued]; 1 ♂, no. 2096.2 (CUIC) [glued, without hypopygium]; 1 ♂, no. 2096.3 (CUIC) [pinned, transferred to slide]; 1 ♂ 1 ♀ (CUIC) [missing].

= *Sciara* (*Neosciara*) *mesochra* Shaw, 1941 syn. nov.
Type locality: USA: New Mexico, Taos Co., Red River.
Holotype: ♂, 6.7.1938, leg. R. W. Kaiser (UMEC) [pinned, without hypopygium, head and legs; slide with hypopygium missing].

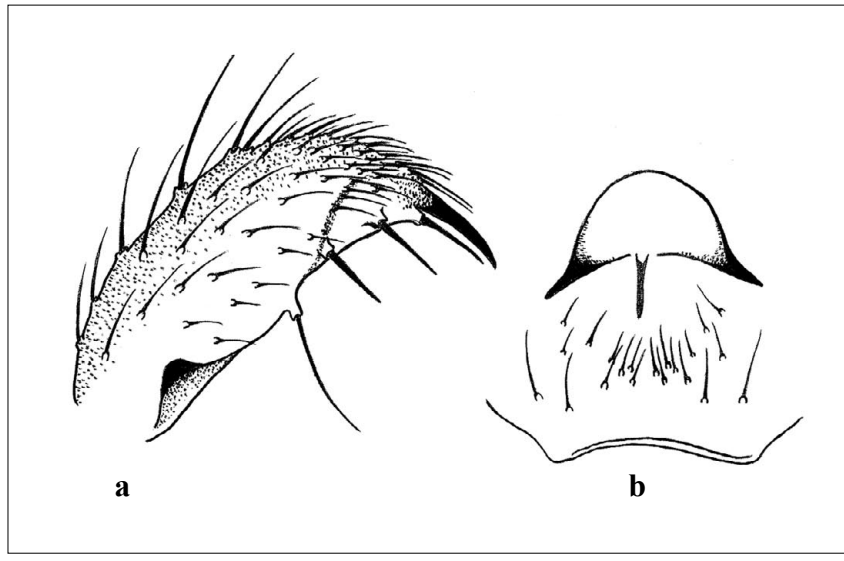


Fig. 36: *Lycoriella johannseni* (Enderlein) ♂, holotype of *Sciara nigricans* Johannsen. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view.

Literature: *Sciara* (*Neosciara*) *mesochra* Shaw – Shaw (1941b): 320, fig. 1. *Bradysia* (*Bradysia*) *mesochra* (Shaw) – Stone & Laffoon (1965): 233. *Bradysia mesochra* (Shaw) – Steffan (1966): 36, 53. *Sciara nigricans* Johannsen – Johannsen (1912): 120, 122, 134, figs 125, 243. *Sciara johannseni* Enderlein – Enderlein (1912): 282 [replacement name for *Lycoria nigricans* Johannsen, 1911]. *Neosciara johannseni* (Einderlein) – Pettey (1918b): 324, 326. *Lycoria johannseni* (Enderlein) – Shaw & Fisher (1952): 212. *Bradysia* (*Bradysia*) *johannseni* (Enderlein) – Stone & Laffoon (1965): 233. *Bradysia johannseni* (Enderlein) – Steffan (1966): 36, 53.

Redescription. **Male**. R_1 very short, = 1/2 R; C = 1/3 w; r-m = 2.0 bM, both without macrotrichia; posterior veins without macrotrichia.

Comments. The well conserved hypopygium of the holotype and one paratype, together with the good illustration given by Johannsen (1912) allow the certain identification of *Sciara nigricans* Johannsen [preocc.; = *johannseni* Enderlein]. That *Sciara mesochra* Shaw is identical to *Sciara johannseni* Enderlein is suggested by Shaw's species running to the latter species in Pettey's key (Pettey 1918). Figure 1 by Shaw (1941b) and 125 by Johannsen (1912) show the similar arrangement of spines on mesial side of the gonostylus.

Distribution. USA (Kansas, New Mexico, New York, Rhode Island).

Lycoriella (*Hemineurina*) *modesta* (Staeger, 1840)

(Fig. 37 a–e)

Type locality: DENMARK: as "Danmark" [no locality details].
Lectotype: ♂, no. 239, May, leg. R. C. Staeger (ZMUC); designated by Menzel in Menzel & Mohrig (2000).

= *Neosciara conglomerata* Pettey, 1918 syn. nov.
Type locality: USA: California, Humboldt Co., at Blue Lake E of Arcata.
Holotype: ♂, no. 223, 20.–27.6.1907, leg. J. C. Bradley (CUIC) [3 slides; hypopygium in good condition, wing, body seriously damaged].
Paratypes: USA: same data as holotype, 1 ♀ [slide] and 1 ♀ [pinned; not studied] (CUIC); 3 ♂♂ 2 ♂♂ [missing].

Further synonyms: = *Sciara arctica* Holmgren, 1869; = *Sciara ecalcarata* Holmgren, 1869 [all in Menzel & Mohrig (2000)]; = *Sciara frigida* Holmgren, 1869 [preocc., nec *Sciara frigida* Winnertz, 1867; as synonym to *Bradysia modesta* (Staeger) in Frey (1948)]; = *Sciara groenlandica* Holmgren, 1872 [in Frey (1948) and Menzel & Mohrig (2000)]; = *Sciara holmgreni* Rübsaamen, 1894 [replacement name for *Sciara frigida* Holmgren, 1869; synonymy in Tuomikoski (1967)]; = *Sciara fumatella* Lundbeck, 1898 [in Menzel & Mohrig (2000)].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, 2 ♂♂, 30.4.–11.6.1994, leg. E. Fuller (PWMP). USA: Idaho, Boundary Co., Twenty mile Creek Road, 2 km N of Naples 1 ♂, 18.7.1974, leg. P. H. Arnaud (PWMP). Mentioned also for USA (Alaska, Popof Island) by Coquillett (1900), and Canada by McAlpine (1964) (Nunavut, Queen Elizabeth Islands, Ellef Ringnes Island, at Isachsen).

Literature: *Sciara glacialis* Rübsaamen – Malloch (1923): 179, fig. 3 [misidentification]. *Sciara arctica* Holmgren – Holmgren (1869): 52; – Tuomikoski (1967): 49. *Lycoriella* (*Hemineurina*) *arctica* (Holmgren) – Frey (1942): 36. *Sciara ecalcarata* Holmgren – Holmgren (1869): 52. *Sciara frigida* Holmgren – Holmgren (1869): 53; – Holmgren (1883): 182. *Sciara groenlandica* Holmgren – Holmgren (1872): 104; – Coquillett (1900): 392. *Bradysia* (*Bradysia*) *groenlandica* (Holmgren) – Stone & Laffoon (1965): 233. *Bradysia groenlandica* (Holmgren) – Steffan (1966): 36, 53. *Sciara holmgreni* Rübsaamen – Rübsaamen (1894): 23. *Bradysia* (*Hemineurina*) *modesta* var. *holmgreni* (Rübsaamen) – Frey (1948): 66, 84, fig. 105 [not *modesta frigida* (Holmgren)]. *Bradysia holmgreni* (Rübsaamen) – McAlpine (1964): 128. *Sciara fumatella* Lundbeck – Lundbeck (1898): 249, fig. 8; – Stone & Laffoon (1965): 236. *Neosciara conglomerata* Pettey – Pettey (1918b): 322, 323, 335, figs 18 a, 18 b, 49. *Bradysia* (*Bradysia*) *conglomerata* (Pettey) – Stone & Laffoon (1965): 232. *Lycoriella conglomerata* (Pettey) – Steffan (1966): 50, 52. *Sciara modesta* Staeger – Staeger (1840): 286. *Bradysia* (*Hemineurina*) *modesta* (Staeger) – Frey (1948): 66, 84, fig. 104. *Lycoriella* (*Hemineurina*) *modesta* (Staeger) – Frey (1942): 36; – Tuomikoski (1960): 75, 77; – Tuomikoski (1967): 48; – Freeman (1983): 30, 56, fig. 99; – Menzel & Mohrig (2000): 405.

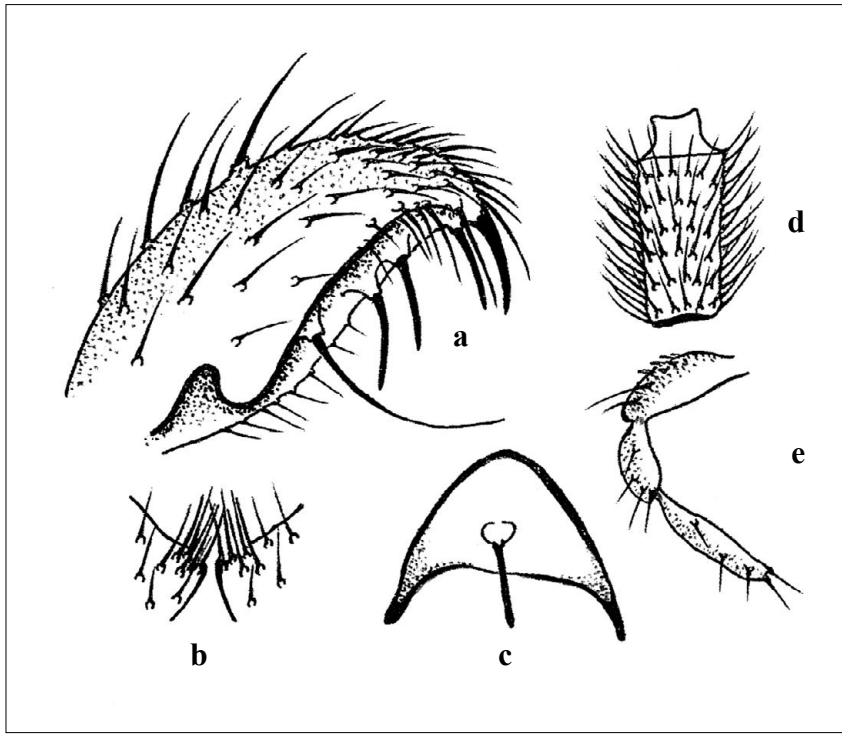


Fig. 37: *Lycoriella modesta* (Staeger) ♂, specimen from USA, Idaho. – **a**: Gonostylus, ventral view; – **b**: Inner margin on base of hypopygium, ventral view; – **c**: Tegmen, ventral view; – **d**: 4th flagellomere; – **e**: Palpus.

Comments. The holotype of *N. conglomerata* Pettey is identical with the new material from Idaho and Canada. The holotype and the additional specimens, in conjunction with the good illustration of the gonostylus and the intercoxal lobe of the hypopygium by Pettey (1918b), allow the synonymization.

Distribution. Holarctic: Europe (e. g. Austria, Denmark, Great Britain, Germany, Finland, Norway: Spitsbergen); Greenland, Canada (Alberta, Nunavut), USA (Alaska, California, Idaho).

Lycoriella (*Hemineurina*) *riparia* (Holmgren, 1883)

(Fig. 38 a, b)

Type locality: RUSSIA: Novaya Zemlya, Matochkin Shar.
Lectotype: ♂, 1875, leg. A. E. Nordenskjøld (SMNH); designated by Menzel in Menzel & Mohrig (2000).
Paralectotype: RUSSIA: same data as lectotype, 1 ♀ (SMNH).

= *Sciara unguicauda* Malloch, 1923 syn. nov.
Type locality: USA: Alaska, Bering Sea, Aleutains West Census Area, St. George Island.
Holotype: ♂, no. 26477, 8.7.1914, leg. G. D. Hanna (USNM) [pinned, without antennae, wings and legs; only body with hypopygium, femur and tibia of p_3; transferred to slide].
Paratypes: USA: same locality as holotype, 6 ♂♂ and ♀♀, 4.7.1914 (toward Zapadni Rookery) and 8.7.1914, leg. G. D. Hanna (USNM) [not seen].

Further Material: CANADA: Northwest Territory, Mackenzie Delta, Reindeer Depot, 1 ♂, 1.7.1948, leg. J. R. Vockeroth (MZH). USA: Alaska, Honolulu Creek, 1 ♂, 17.7.1968, leg. P. H. Arnaud (PWMP).

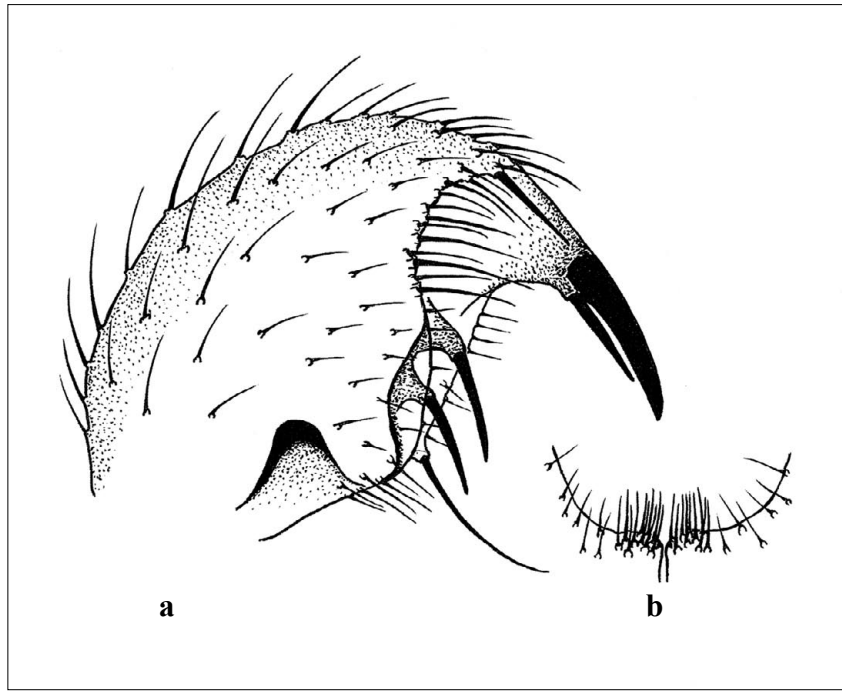


Fig. 38: *Lycoriella riparia* (Holmgren) ♂, holotype of *Sciara unguicauda* Malloch. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view.

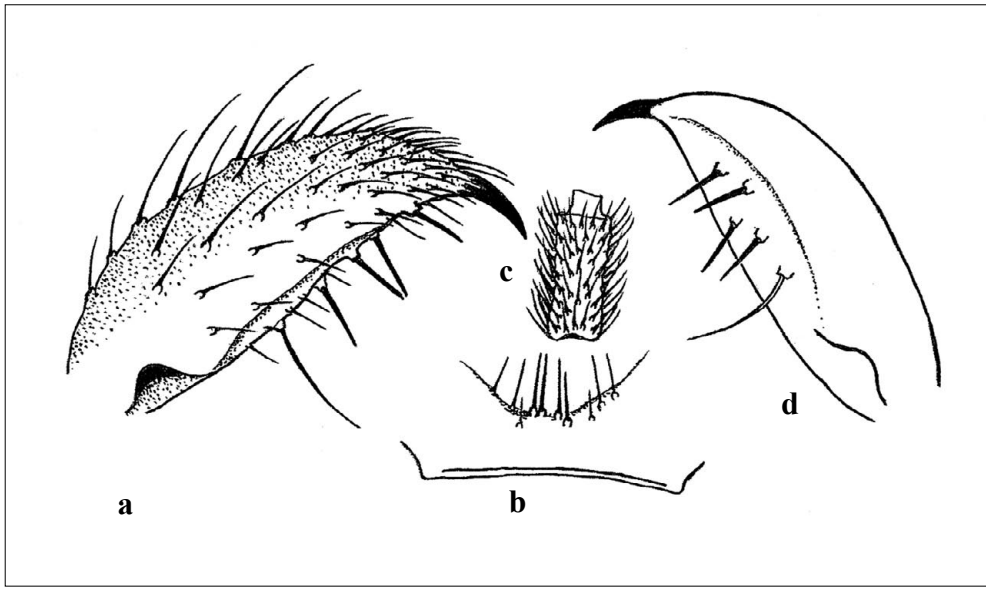


Fig. 39: *Lycoriella sativae* (Johannsen) ♂. – **a**: Gonostylus of holotype of *Sciara similans* Johannsen, ventral view; – **b**: Base of hypopygium of *Sciara similans* Johannsen in ventral view, holotype; – **c**: 4th flagellomere of holotype of *Sciara similans* Johannsen; – **d**: Gonostylus of holotype of *Sciara sativae* Johannsen, ventral view (sketch drawing).

Literature: *Sciara unguicauda* Malloch – Malloch (1923): 180. *Bradysia* (*Bradysia*) *unguicauda* (Malloch) – Stone & Laffoon (1965): 234. *Bradysia unguicauda* (Malloch) – Steffan (1966): 37, 54. *Sciara riparia* Holmgren – Holmgren (1883): 183. *Lycoria* (*Neosciara*) *riparia* (Holmgren) – Lengersdorf (1928–30): 63. *Lycoriella* (*Hemineurina*) *riparia* (Holmgren) – Menzel & Mohrig (2000): 406, figs 371–376.

Redescription. **Male**. Eye bridge with 4 rows of facets. Palpus 3-segmented; basal segment narrow, without sensory pit, with some short bristles; 3th segment long and narrow. Prefrons with sparse and short setosity. Thorax brown; mesonotum with very pale, fine and short setosity; postpronotum non-setose, anterior pronotum and prothoracic episternite with sparse and very short setosity. Halter pale. Abdomen with very short and pale setosity. Intercoxal area of hypopygium with divided lobe; ventromesial margin of gonocoxite with rather short setosity; gonostylus large, ovoid, laterally roundish, mesially strongly impressed, with very strong apical tooth, 4 strong spines and one long whiplash seta; one spine placed on the ventral basis of tooth, second spine laterally of the tooth and two further strong spines placed near the middle of the ventromesial margin of gonostylus near the the whiplash seta.

Comment: *Sciara unguicauda* Malloch is identical with *Lycoriella riparia* (Holmgren) in all details.

Distribution. Holarctic: Russia (Novaya Zemlya); Canada (Northwest Territories), USA (Alaska).

Lycoriella (*Lycoriella*) *sativae* (Johannsen, 1912)

(Fig. 39 a–d)

Type locality: USA: Kansas, Ellsworth Co., Wilson.
Lectotype: ♂, no. 2097, bred from wheat plants, no date, leg. T. J. Headlee (CUIC) [slide, in toto]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 1 ♂ 1 ♀, no. 2090 (CUIC).

= *Sciara trifolii* Pettey, 1918 syn. nov.
Type locality: USA: Idaho, Latah Co., Moscow.
Lectotype: ♂, no. 221, reared from red clover crowns, 27.10.1916, leg. A. C. Burrill (CUIC) [3 slides; hypopygium, wing, rest of body, seriously damaged]; hereby designated in order to fix the name.
Paralectotypes: USA: same locality, 3.10.1916 or 27.10.1916, 1 ♂, no. 221.1 (CUIC) [slide, artificial resin, completely destroyed]; 4 ♀♀, no. 221.2–5 (CUIC) [pinned; not studied].

= *Sciara similans* Johannsen, 1925 syn. nov.
Type locality: USA: New York, Suffolk Co., Long Island, Cold Spring Harbor.
Holotype: ♂, no. 2109, no date, leg. C. W. Metz (CUIC) [in toto, hypopygium crushed].
Paratypes: USA: same data as holotype, 5 ♂♂ 1 ♀, no. 2109.1–4 and 2109.6 (CUIC) [slides]. The paratypes mentioned by Johannsen (1925: 267) as deposited in the collections of USNM and MCZC are missing.

= *Neosciara castanescens* Lengersdorf, 1940 syn. nov.
Type locality: FINLAND: Mosku, Luirojoki, 27°50'N 68°00'E.
Lectotype: ♂, 7.8.1938, leg. H. J. Stammer (ZFMK); designated by Menzel in Menzel & Mohrig (2000).

= *Sciara* (*Neosciara*) *brevipetiolata* Shaw, 1941 syn. nov.
Type locality: USA: Oklahoma, Sequoyah Co., at Sallisaw.
Holotype: ♂, 21.6.1937, leg. Standish & R. W. Kaiser (UMEC) [slide; hypopygium, wing; body glued].

= *Sciara* (*Neosciara*) *kaiseri* Shaw, 1941 syn. nov.
Type locality: USA: Oklahoma, Sequoyah Co., at Sallisaw.
Holotype: ♂, 21.6.1937, leg. Standish & R. W. Kaiser (UMEC) [missing].

Further synonyms: = *Bradysia* (*Chaetosciara*) *difficilis* Frey, 1948; = *Bradysia* (*Chaetosciara*) *fucorum* Frey, 1948; = *Bradysia* (*Chaetosciara*) *paucisetulosa* Frey, 1948; = *Lycoriella* (*Lycoriella*) *rufotincta* Tuomikoski, 1959; = *Lycoriella agarici* Loudon, 1978 [all as synonyms to *Lycoriella castanescens* (Lengersdorf) in Menzel & Mohrig (2000)].

Further material: USA: Arizona, Cochise Co., Huachuca Mountains, Ash Canyon Road, 31.39°N 111.24°W, oak-pine woodland, Malaise trap, 5,100 ft., 1 ♂, 24.9.–5.10.1993, leg. McFarland (PWMP). Illinois, Urbana, from mouse nest, 1 ♂, 5.1.1939, leg. P. C. Stone (ANSP).

Literature: *Lycoriella* (*Lycoriella*) *vivida* (Winnertz) sensu Frey – Frey (1942): 37, fig. 12 [misidentification]. *Sciara fenestralis* Zetterstedt form II [misidentification] – ? McCarthy (1945a): 109, fig. 7 a–b; – ? McCarthy (1945b): 231, figs 33–36, 44, 53. *Lycoriella auripila* (Winnertz) sensu Fitch [not *auripila* (Fitch)] – Naumann 1993: 167 [misidentification]. *Lycoriella* (*Lycoriella*) *auripila* (Winnertz) sensu Tuomikoski – Tuomikoski (1960): 82, 88, figs 17 g, 18 d, 20 d; – Freeman (1983): 31, figs 93, 102. *Sciara trifolii* Pettey – Pettey (1918a): 420, fig. 15 a, b, plate 13, fig. 3, 4; – Smith (1919): 461. *Neosciara trifolii* Pettey – Pettey (1918b): 323, 334, figs 16 a, 16 b, 47. *Bradysia trifolii* (Pettey) – Steffan (1966): 22. *Lycoriella* (*Lycoriella*) *trifolii* (Pettey) – Stone & Laffoon (1965): 231. *Lycoriella trifolii* (Pettey) – Steffan (1966): 51, 54. *Sciara similans* Johannsen – Johannsen (1925): 266; – Metz (1938b): 494, 497. *Lycoria similans* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 54 [also as *simulans*; incorrect spelling]. *Lycoriella* (*Lycoriella*) *similans* (Johannsen) – Stone & Laffoon (1965): 231. *Lycoriella similans* (Johannsen) – Steffan (1966): 51, 54. *Sciara* (*Neosciara*) *brevipetiolata* Shaw – Shaw (1941b): 322, fig. 5. *Lycoriella* (*Lycoriella*) *brevipetiolata* (Shaw) – Stone & Laffoon (1965): 231. *Lycoriella brevipetiolata* (Shaw) – Steffan (1966): 50, 52. *Sciara* (*Neosciara*) *kaiseri* Shaw – Shaw (1941b): 320. *Bradysia* (*Bradysia*) *kaiseri* (Shaw) – Stone & Laffoon (1965): 233. *Bradysia kaiseri* (Shaw) – Steffan (1966): 36, 53. *Bradysia* (*Chaetosciara*) *fucorum* Frey – Frey (1948): 60, 80, fig. 68. *Lycoriella* (*Lycoriella*) *fucorum* (Frey) – Tuomikoski (1960): 82, 88, figs 18 c, 20 c. *Lycoriella agarici* Loudon – Loudon (1978): 163, figs 1–8. *Neosciara castanescens* Lengersdorf – Lengersdorf (1940b): 28, fig. 11. *Lycoriella castanescens* (Lengersdorf) – Menzel & Mohrig (1997b): 58, figs 6.22, 6.56. *Lycoriella* (*Lycoriella*) *castanescens* (Lengersdorf) – Menzel & Mohrig (2000): 386, figs 56, 71 b, 353–355. *Sciara sativae* Johannsen – Johannsen (1912): 133, figs 120, 240. *Neosciara sativae* (Johannsen) – Pettey (1918b): 323, 325. *Lycoriella* (*Lycoriella*) *sativae* (Johannsen) – Stone & Laffoon (1965): 231. *Lycoriella sativae* (Johannsen) – Steffan (1966): 51, 54.

Comments. The species name "*trifolii*" was described twice by Pettey in the "Journal of Economic Entomology" (1918a) as *Sciara* [published in October 1918], and later in the "Annals of the Entomological Society of America" (1918b) as *Neosciara* [published in December 1918]. The figures are the same in both journals (the gonostylus and the intercoxal lobe of the hypopygium) and without doubt identical with *Sciara sativae* Johannsen. The type specimen of *Sciara brevipetiolata* Shaw, as also figure 5 of Shaw (1941b: 323), show the slightly excavated mesial side of the gonostylus with 4–5 isolated spines, and the indistinct bristle patch in intercoxal area of the hypopygium and confirm without doubt that it is identical to the European *N. castanescens* Lengersdorf and *S. sativae* Johannsen. Shaw (1941b) gives no figure of *Sciara kaiseri* and in the description he compared it with *S. brevipetiolata* Shaw and *S. pauciseta* Felt: the hypopygium resembles that of *Sciara brevipetiolata*, the wing venation is similar to *S. pauciseta*. The comparison of the type material of *S. similans* Johannsen and *S. trifolii* Pettey show also that they are identical to the European *Neosciara castanescens* Lengersdorf and the American *Sciara sativae* Johannsen, the latter being the valid name for this species. *Lycoriella sativae* sometimes appears as a pest in cultures of fungi, but is much less damaging than *L. ingenua*. It is nevertheless a synanthropic and agrarian species and the most abundant species of Sciaridae on fields. The species name was occasionallay cited with a wrong author as "*Lycoriella auripila* (Fitch)" [correctly *L. auripila* (Winnertz) sensu Fitch; = *L. sativae* (Johannsen, 1912)].

Distribution. Holarctic: probably cosmopolitan, transported by man to Central America and sub-antarctic islands.

Genus *Mapiria* Edwards, 1934 restit.

Type species: *Mapiria transversalis* Edwards, 1934 – Revista Entomologia **4**(3): 369, fig. 2; by original designation, monotypy.

= ***Zygomma*** **Enderlein, 1911** [preocc., nec *Zygomma* Bronn, 1859].
Type species: *Zygomma fasciatellum* Enderlein, 1911 – Arch. Naturgesch. **77**(1) Suppl. 3: 144–145, plate, fig. 11; by original designation, monotypy.

= *Muhabbetiola* Koçak, 2009 syn. nov. [replacement name for *Zygomma* Enderlein, 1911].

Literature: *Zygoneura* Meigen sensu Edwards [in part] – Edwards (1934): 369; – Lengersdorf (1940a): 245; – Steffan (1966): 39; – Amorim (1992): 68. *Zygomma* Enderlein – Enderlein (1911): 126, 143; – Schmitz (1915b): 157; – Lengersdorf (1940a): 246; – Menzel & Mohrig (2000): 721; – Mohrig (2003): 37, 65; – Mohrig & Menzel (2009): 285, 292; – Menzel & Mohrig (2000): 722; – Shin et al. (2013): 835. *Muhabbetiola* Koçak – Koçak & Kemal (2009): 7. *Mapiria* Edwards – Edwards (1934): 368.

Comments. The nomenclature of the *Zygomma*/*Mapiria* complex has been chaotic. Amorim (1992) included all species with a vase-like M-fork (curved M_1) in the genus *Zygoneura* Meigen and declared *Zygomma* and *Mapiria* as synonyms. This is a formal view, because a curved M_1 vein cannot be regarded as a good character of generic importance, and occurs in species of different genera. Menzel & Mohrig (2000) resurrected *Zygomma* Enderlein with the type species *Z. fasciatellum* Enderlein. They failed to notice that the name was preoccupied by *Zygomma* Bronn, 1859. Koçak recognized in Koçak & Kemal (2009) that *Zygomma* Enderlein was preoccupied and proposed the new name *Muhabbetiola*. In the meantime Mohrig (2003) included the species *Mapiria transversalis* Edwards, 1934, type species of the genus *Mapiria* Edwards in *Zygomma* Enderlein, 1911. In this new situation there is an older available name – *Mapiria* Edwards, 1934 – the latter being therefore valid.

Mapiria modica (Mohrig, 2003) comb. nov.

Type locality: COSTA RICA: Guanacaste Prov., Santa Rosa National Park, 10.95°N 85.62°W.
Holotype: ♂, dry tropical forest, Malaise trap, 18.10.–8.11.1986, leg. Gould & Janzen (PWMP).
Paratypes: USA: Arizona, Santa Cruz Co., Patagonia, 1 ♂, 20.7.1995, leg. B. V. Brown (PWMP). COSTA RICA: same data as holotype, 1 ♀ (PWMP). San José Prov., Lurgu de Moravia, 1,600 m, 1 ♀, August 1995, leg. P. Hanson (PWMP). Heredia Prov., La Caja 8 km NW of San José, 1 ♂, 1930, leg. Schmidt (SDEI).

Literature: *Zygomma modica* Mohrig – Mohrig (2003): 42, fig. 30 a–d; – Mohrig & Menzel (2009): 284, figs 16.29, 16.35, 16.76.

Comments. The species is characterized by a curved M_1, a flat face with elongated mouth parts, apical third of the gonostylus curved with a short apical tooth and three apical spines, and a comb-like tibial organ; the female by unpigmented last three flagellomeres.

Distribution. Only known from the New World. Costa Rica; USA (Arizona).

Genus *Moehnia* Pritchard, 1960

Type species: *Moehnia erema* Pritchard, 1960 – Ann. Ent. Soc. America **53**(3): 309–310, figs 1, 2; by original designation, monotypy.

Subgenera: *Afromoehnia* Rudzinski, 1999; *Moehnia* Pritchard, 1960 s. str.; *Neomoehnia* Rudzinski, 1999.

Literature: *Moehnia* Pritchard – Pritchard (1960): 308; – Gagné (1970): 60; – Steffan (1981): 250, 254; – Poole (1996): 239; – Hippa et al. (1997): 154; – Rudzinski (1999): 373; – Arnett (2000): 856; – Menzel & Mohrig (2000): 707.

Comments. *Moehnia* was described as a genus of Cecidomyiidae. Gagné (1970), correctly transferred the genus to the Sciaridae. The genus is not species rich, but seems to be widely distributed throughout the world.

Moehnia (*Moehnia*) *erema* Pritchard, 1960

Type locality: USA: California, Alameda Co., Berkeley.
Holotype: ♀, laboratory, emerged from a steam-pipe tunnel, August 1958, leg. A. E. Pritchard & J. W. MacSwain (USNM).

Paratypes: USA: same data as holotype, 34 ♀♀ [on slides] and several hundred ♀♀ conserved in alcohol (USNM).

Further material: CANADA: Ontario, Ottawa, 2 ♂♂ 2 ♀♀, 21.9.1989, leg. J. R. Vockeroth (CNC). SPAIN: 1 ♀, Canary Islands, La Palma, Parque Nacional de la Caldera de Taburiente, Barranco de Las Traves, 1,068 m, Malaise trap, 5.9.1999, leg. T. Domingo-Quero (SDEI).

Literature: *Moehnia erema* Pritchard – Pritchard (1960): 309, figs 1, 2; – Gagné (1970): 60; – Steffan (1981): 250; – Hippa et al. (1997): 157, figs 2 A, 2 C, 2 E, 3 A, 3 B; – Menzel & Mohrig (2000): 708, figs 580–589. *Moehnia* (*Moehnia*) *erema* Pritchard – Rudzinski (1999): 373, 377.

Distribution. Holarctic. Spain (Canary Islands); Canada (Ontario), USA (California).

Genus *Odontosciara* Rübsaamen, 1908

Type species: *Sciara nigra* Wiedemann, 1821 – Dipt. exotica **1**: 44; designated by Coquillett (1910).

Subgenera: *Mohriga* Koçak & Hüseyinoğlu, 2008 [replacement name for *Obscura* Mohrig, 2003; preocc.]; *Odontosciara* Rübsaamen, 1908 s. str.

Synonyms: = *Odontonyx* Rübsaamen, 1894 [preocc., nec *Odontonyx* Stephens, 1828]; = *Phorodonta* Coquillett, 1910 [replacement name for *Odontonyx* Rübsaamen, 1894].

Literature: *Odontonyx* Rübsaamen – Rübsaamen (1894): 19, 25; – Enderlein (1911): 126, 145 [in part]; – Lengersdorf (1940a): 250. *Phorodonta* Coquillett [often in part] – Coquillett (1910): 578; – Johannsen (1912): 113, 117; – Johnson (1913): 47; – Curran (1930): 35; – Shaw (1935b): 87; – Rapp (1946): 125; – Curran (1965): 119; – Stone & Laffoon (1965): 230; – Poole (1996): 239; – Arnett (2000): 856. *Odontosciara* Rübsaamen – Rübsaamen (1908): 450; – Steffan (1981): 252; – Amorim (1992): 62, 63; – Mohrig & Menzel (1994): 204; – Menzel & Mohrig (2000): 711; – Mohrig (2003): 16; – Mohrig & Menzel (2009): 285, 287, 292; – Shin et al. (2013): 835.

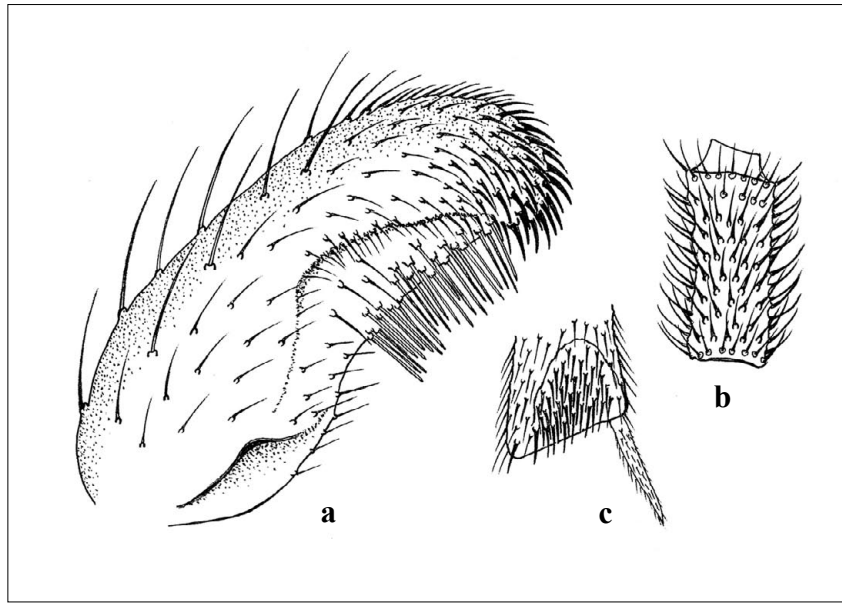


Fig. 40: *Odontosciara munda* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view (phantom picture); – **b**: 4th flagellomere; – **c**: Apex of fore tibia.

Odontosciara (*Odontosciara*) *munda* (Johannsen, 1912) comb. nov.

(Fig. 40 a–c)

Type locality: USA: Washington, San Juan Co., San Juan Island, Friday Harbor.
Holotype: ♂, no. 2083, no date, J. M. Aldrich (CUIC) [1 slide with hypopygium, damaged, wing; body pinned].

Literature: *Sciara munda* Johannsen – Johannsen (1912): 118, 127, figs 105, 224. *Neosciara munda* (Johannsen) – Pettey (1918b): 322. *Bradysia* (*Bradysia*) *munda* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia munda* (Johannsen) – Steffan (1966): 36, 53.

Redescription. **Male**. 4th flagellomere with l/w index of 2.4 wide, with somewhat shorter setosity than diameter of flagellomere; wings brownish, darker in anteriorly; R_1 longer R, behind the base of M-fork joining C; c = 3/4 w; M-fork = M-stem; CuA-stem short; posterior wing veins without macrotrichia. Intercoxal area of hypopygium short and sparsely setose; gonostylus elongated, apically roundish and densely setose, apical half mesially with dark hyaline spines in a palisade-like row.

Comments. The species is similar to *Odontosciara nocta* Mohrig, 2003 from Honduras. It differs in the smaller body size, paler legs and palisade-like spines only on the apical half of gonostylus.

Distribution. USA (Washington).

Odontosciara (*Odontosciara*) *nigra* (Wiedemann, 1821)

(Fig. A)

Type locality: USA: Georgia, Chatham Co., Savannah.
Holotype: ♂, no date, ex coll. Westermann (ZMUC).

= *Sciara fulviventris* Wiedemann, 1821 syn. nov.
Type locality: ? USA: as "Amer. bor." [America borealis = North America] [not "Amaz. bas." = Amazon basin as interpreted by Amorim (1992): 62].
Lectotype: ♀, no date, ex coll. Winthem (NHMW); hereby designated in order to fix the name.
Paralectotypes; USA: Georgia, Chatham Co., Savannah, 1 ♀, ex coll. Westermann (NHMW). South Carolina [as "Süd Carolina"], 1 ♀, no date, no collector detail (NHMW).

= *Sciara picea* Rübsaamen, 1894 syn. nov.
Type locality: USA: Georgia.
Lectotype: ♀, no date, leg. Morrison (ZMHB) [slide]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 2 ♀♀, no. 7933 (ZMHB) [slides].

Further material: USA: South Carolina, Georgetown Co., Hobcaw Barony, Belle Baruch Marine Field Laboratory, S of Myrtle Beach, 33°21'46"N 79°13'33"W, 2 ♂♂ 2 ♀♀, 19.5.2004, leg. S. Marshall (SDEI). Texas, Walker Co., Sam Houston National Forest, Roark creek, 16 km SE Huntsville, 1 ♂ 1 ♀, 14.5.1993, leg. Nelson & Koenig (PWMP).

Literature: *Sciara fulviventris* Wiedemann – Wiedemann (1821): 44; – Wiedemann (1828): 67; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 53. *Sciara picea* Rübsaamen – Rübsaamen (1894): 31, 32, figs 6, 14; – Johannsen (1912): 117, 123, figs 143, 218; – Johnson (1913): 47. *Neosciara picea* (Rübsaamen) – Pettey (1918b): 321. *Bradysia* (*Semnomyia*) *picea* (Rübsaamen) – Stone & Laffoon (1965): 234. *Bradysia picea* (Rübsaamen) – Steffan (1966): 36, 54; – Arnett (2000): 856. *Sciara nigra* Wiedemann – Wiedemann (1821): 44; – Wiedemann (1828): 68; – Steffan (1966): 51. *Phorodonta niger* (Wiedemann) [correctly *nigra*; incorrect spelling] – Johannsen (1912): 117; – Steffan (1966): 34. *Phorodonta nigra* (Wiedemann) – Coquillett (1910): 578, 589; – Johnson (1913): 47; – Stone & Laffoon (1965): 230; – Steffan (1966): 53. *Odontosciara nigra* (Wiedemann) – Amorim (1992): 63; – Mohrig & Menzel (1994): 204, figs 100–105; – Menzel & Mohrig (2000): 712, figs 595–600. *Odontosciara* (*Odontosciara*) *nigra* (Wiedemann) – Mohrig (2003): 18 [under *Odontosciara nocta* Mohrig].

Comments. This large species is characterized by its dark body colour, brown wings with long R_1 and the bilobate gonostylus with a row of short spines on the dorsal lobe.

Distribution. Central and South America; USA (Georgia, North Carolina, South Carolina, Texas).

Genus *Phytosciara* Frey, 1942

Type species: *Sciara halterata* Lengersdorf, 1926 – Konowia **5**(3): 250, fig. 12; by original designation, monotypy.

Subgenera: *Dolichosciara* Tuomikoski, 1960; *Phytosciara* Frey, 1942 s. str.; *Prosciara* Frey, 1942.

Literature: *Phorodonta* Coquillett sensu Edwards – Lengersdorf (1928–30): 6, 8; – Shaw (1935b): 87 [in part]; – Frey (1948): 45, 46, 73; – Shaw (1953b): 29. *Phytosciara* (*Phorodonta*) – Steffan (1966): 32. *Dolichosciara* Tuomikoski – Hippa & Vilkamaa (1991): 117; – Amorim (1992): 60; – Vilkamaa (2000): 47, 65, 68. *Prosciara* Frey – Hippa & Vilkamaa (1991): 113; – Vilkamaa & Hippa (1996): 2; – Vilkamaa (2000): 47, 64, 67. *Phytosciara* Frey – Frey (1942): 21, 27; – Frey (1948): 45, 46, 73; – Shaw (1953b): 28; – Tuomikoski (1960): 6, 7, 103; – Stone & Laffoon (1965): 230; – Steffan (1966): 32, 33; – Steffan (1969): 676, 707; – Steffan (1973): 358; – Steffan (1974c): 43, 47; – Antonova (1977): 109; – Steffan (1981): 254; – Freeman (1983): 16, 31; – Hippa & Vilkamaa (1991): 117; – Mohrig & Menzel (1994): 167; – Menzel & Mohrig (1997b): 51, 65; – Arnett (2000): 856; – Menzel & Mohrig (2000): 87, 429, 714; – Vilkamaa (2000): 47, 63, 67; – Mohrig (2003): 29, 65; – Menzel et al. (2006): 114; – Mohrig & Menzel (2009): 285, 292; – Shin et al. (2013): 833.

Phytosciara (*Dolichosciara*) *multisetifera* (Pettey, 1918) comb. nov.

(Fig. 41 a, b)

Type locality: USA: South Arizona.
Holotype: ♂, no. 208, August 1902, leg. F. H. Snow (CUIC) [2 slides; body pinned].
Paratypes: USA: same data as holotype, 1 ♂, lot no. 663 (CUIC) [pinned, transferred to slide]; 1 ♀, no. 208 (CUIC) [pinned, transferred to slide]; 1 ♂ 1 ♀, no. 208 [pinned, not studied] (CUIC).

Literature: *Sciara multisetifera* Pettey – Pettey (1918b): 320, 328, figs 2, 33; – Stone & Laffoon (1965): 230; – Steffan (1966): 53.

Redescription. **Male**. Wings rather dark; R_1 = 2/3 R; r-m longer than bM, with macrotrichia; distal half of M_1 and M_2 with macrotrichia, Cu bare. Hypopygium without intercoxal lobe;

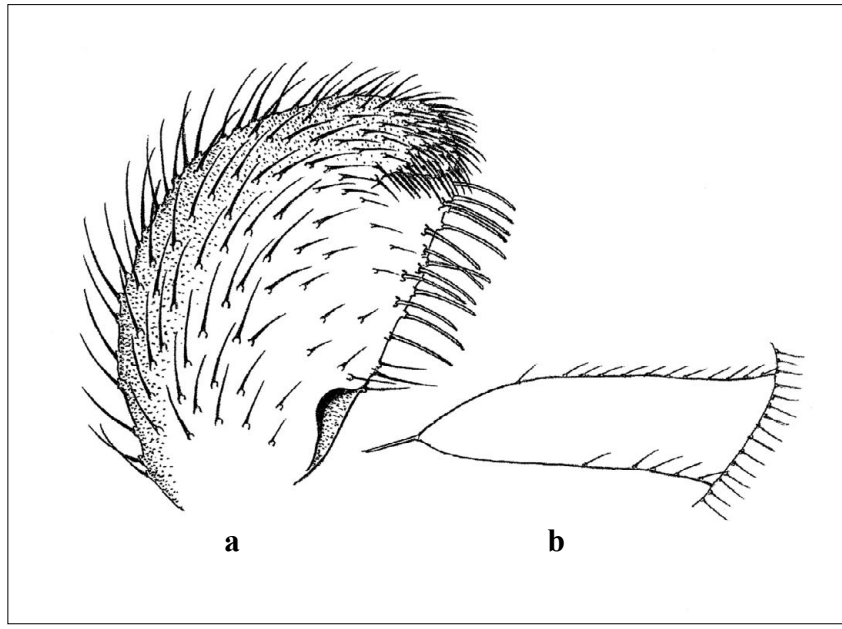


Fig. 41: *Phytosciara multisetifera* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: M-fork of wing with macrotrichia.

ventromesial margin of gonocoxite with rather short setosity; gonostylus thickened, with ventral lobe-like apex and dorsomesial margin with a row of hyaline spines on the apical half.

Comments. The species belongs to the subgenus *Dolichosciara* Tuomikoski of the genus *Phytosciara* Frey. In contrast to all other described species, it is characterized by the reduction of macrotrichia on the posterior wing veins, with the exception of the M-fork.

Distribution. USA (Arizona).

Phytosciara (*Dolichosciara*) *ornata* (Winnertz, 1867)

(Fig. 42 a–c)

Type locality: GERMANY: as "Germania" [no locality details].
Lectotype: ♀, no data, ex coll. Winthem (NHMW).

= *Sciara psittacus* Pettey, 1918 syn. nov.
Type locality: USA: Maine.
Holotype: ♂, no. 210, 21.8.1913, leg. C. P. Alexander (CUIC) [2 slides, hypopygium; wing; body pinned].

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 10♂♂ 4♀♀, 23.7.–15.9.1994, leg. E. Fuller (PWMP). British Columbia, Vancouver Island, Upper Carmanah Valley, 2♂♂, no. 7987 and 7989, 27.8.1991, leg. N. Winchester (7987 in PKHE; 7989 in MZH). USA: Oregon, Multnomah Co., Multnomah Falls, 1♂, 26.6.1974, leg. P. H. Arnaud (CAS).

Literature: *Sciara psittacus* Pettey – Pettey (1918b): 321, 330, figs 5, 36; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 54. *Lycoria psittacus* (Pettey) – Shaw & Fisher (1952): 210, 212. *Sciara ornata* Winnertz – Winnertz (1867): 103. *Lycoria* (*Lycoria*) *ornata* (Winnertz) – Lengersdorf (1928–30): 28. *Phytosciara ornata* (Winnertz) – Menzel & Mohrig (1997b): 65, fig. 6.59. *Phytosciara* (*Dolichosciara*) *ornata* (Winnertz) – Tuomikoski (1960): 108, 109, fig. 26 f; – Mohrig & Menzel (1994): 177, 190, figs 32, 33, 41, 52, 53, 65; – Menzel & Mohrig (2000): 445, fig. 94.

Comments. The holotype of *Sciara psittacus* Pettey is identical with the listed specimens from Canada and Oregon, and with the European specimens of *Phytosciara ornata* (Winnertz).

Distribution. Holarctic: Europe, Japan; Canada (Alberta, British Columbia), USA (Maine, Oregon).

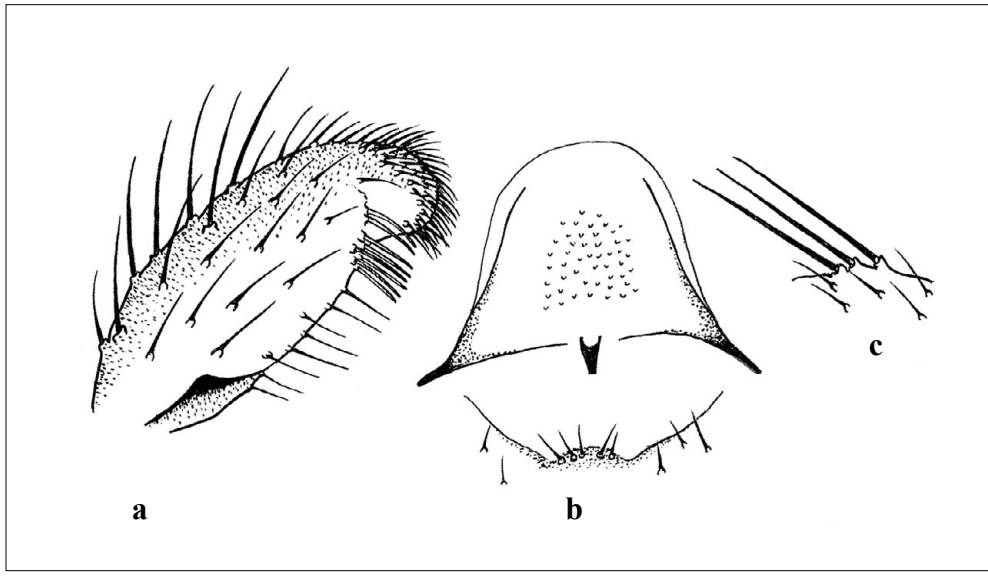


Fig. 42: *Phytosciara ornata* (Winnertz) ♂, holotype of *Sciara psittacus* Pettey. – **a**: Gonostylus, dorsal view; – **b**: Basal lobe of hypopygium with tegmen, ventral view; – **c**: Megasetae on inner apex of gonocoxite, ventral view.

Phytosciara (*Prosciara*) *prosciaroides* (Tuomikoski, 1960)

Type locality: FINLAND: Vichtis [= Regio aboensis], Vihti, Vihtijärvi.
Lectotype: ♂, 18.6.1958, leg. R. Tuomikoski (MZH); designated by Hippa & Vilkamaa (1991).
Paralectotypes: FINLAND: same locality as lectotype, 1 ♂, 21.6.1959, leg. R. Tuomikoski (MZH). Regio kuusamoensis, Kuusamo, river Oulankajoki, 1 ♂, 2.7.1958, leg. R. Tuomikoski (MZH).

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 1 ♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 8 ♂♂, 11.6.23.7.1994, leg. E. Fuller (PWMP). USA: New Hampshire, White Mountains, 1 ♂, 26.4.1935, leg. C. P. Alexander (PWMP). North Carolina, Mt. Mitchell, 6,500 ft., 1 ♂, 1940, leg. C. P. Alexander (PWMP). The species is also reported from Alaska by Hippa & Vilkamaa (1991). Details: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270, alder-poplar-spruce forest, 1 ♂, 23.6.–2.8.1984, leg. S. Peck & J. Peck (MZH).

Literature: *Bradysia prosciaroides* Tuomikoski – Tuomikoski (1960): 113, figs 25 d, 26 j; – Freeman (1983): 37, fig. 142. *Prosciara prosciaroides* (Tuomikoski) – Hippa & Vilkamaa (1991): 119, 120, figs 2 A–D, 3 A, 3 C, 3 E. *Phytosciara* (*Prosciara*) *prosciaroides* Tuomikoski – Mohrig & Menzel (1994): 191, 192, figs 71, 87–89; – Menzel & Mohrig (2000): 449.

Comments. The species is characterized by 5 long spines at the apex of the gonostylus, the intercoxal area without a lobe, fine toothed claws, and the posterior wing veins without macrotrichia. It resembles the Palaearctic *Ph. plusiochaeta* (Hippa & Vilkamaa).

Distribution. Holarctic: Europe; Canada (Alberta), USA (Alaska, New Hampshire, North Carolina).

Genus *Pnyxia* Johannsen, 1912

Type species: *Epidapus scabiei* Hopkins, 1895 – Proc. Ent. Soc. Wash. **3**(3): 152–157; figs 10 a–f, 11 a–f, 12, 13 a–f, 14–18; by original designation, monotypy.

Synonyms: = *Allostoomma* Schmitz, 1915; = *Epidapulus* Venturi, 1970.

Literature: *Epidapulus* Venturi – Venturi (1970a): 284; – Venturi (1970b): 5, 26. *Allostoomma* Schmitz – Schmitz (1915a): 289; – Lengersdorf (1928–30): 17; – Venturi (1970b): 2, 20. *Pnyxia* (*Allostoomma*) – Schmitz (1918): 108, 109. *Pnyxia* Johannsen – Johannsen (1912): 113, 114; – Schmitz (1918): 101, 108; – Curran (1930): 35 [as *Pnixia*; incorrect spelling]; – Shaw (1935b): 86, 87, 88; – Shaw & Fisher (1952): 197, 199; – Shaw (1953a): 62; – Tuomikoski (1960): 6, 102; – Stone & Laffoon (1965): 235; – Steffan (1966): 33, 45; – Steffan (1981): 254, 255; – Freeman (1983): 17, 27; – Amorim (1992): 63; – Menzel & Mohrig (1997b): 51, 67; – Arnett (2000): 856; – Menzel & Mohrig (2000): 92, 451; – Shin et al. (2013): 835.

Pnyxia hartii (Johannsen, 1912) comb. nov.

(Fig. 43 a–c)

Type locality: USA: Illinois, Whiteside Co., Morrison.
Lectotype: ♂, no. 2111, in forcing houses (bred from cucumbers), February 1901, leg. C. A. Hart (CUIC) [slide; body with head; hypopygium isolated, in not good position]; hereby designated in order to fix the name.
Paratypes: USA: same data as lectotype, 1 ♀ (CUIC) [slide, missing]; 29 ♀♀, lot no. 860 (CUIC) [? in alcohol; missing].

Literature: *Sciara hartii* Johannsen – Johannsen (1912): 144. *Neosciara hartii* Johannsen – Pettey (1918b): 325, fig. 67. *Bradysia* (*Bradysia*) *hartii* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia hartii* (Johannsen) – Steffan (1966): 36, 53.

Redescription. **Male**. Head somewhat flattened; eye bridge with 1–2 rows of facets. Antenna short; 4th flagellomere with l/w index of 1.2, with strikingly bristle-like setosity. Palpus 1-segmented, sensory pit not visible. Thorax brownish; mesonotum with short setae, lateral and prescutellar setae somewhat longer. Scutellum with 2 longer marginal bristles and few short setae on surface. Wings broad, also anal area quite well developed; c somewhat longer 1 /2 w; r-m = bM, with few macrotrichia; M-stem longer than M-fork; M-fork wide, directed to the tip of wing; CuA-

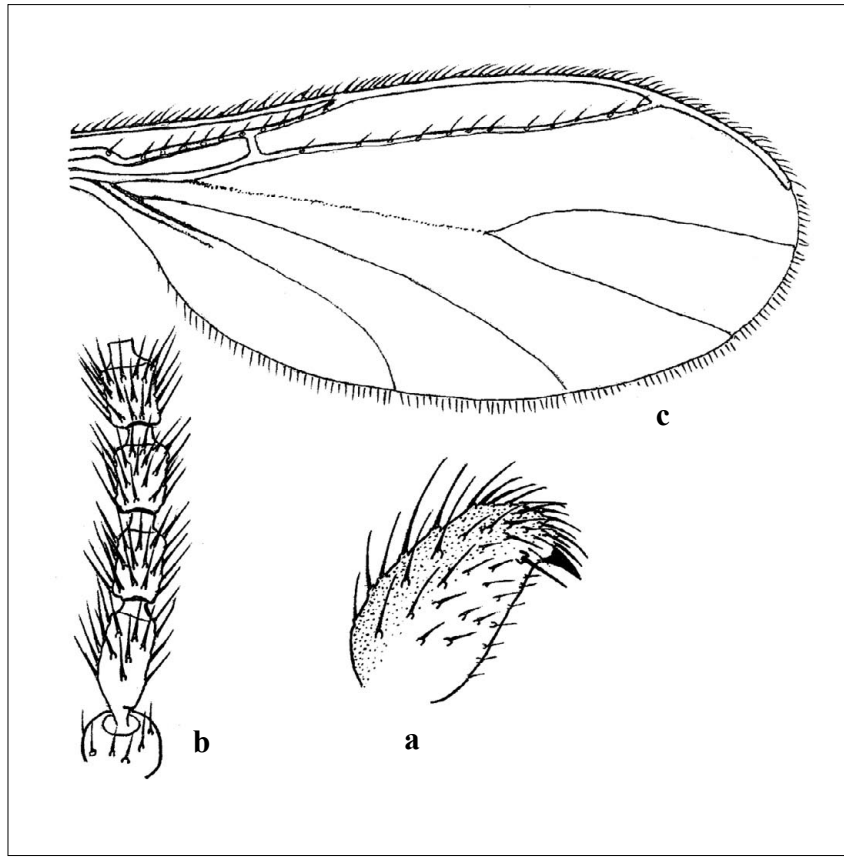


Fig. 43: *Pnyxia hartii* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Pedicel and flagellomeres 1–4; – **c**: Wing.

stem short, Cu-fork long; posterior veins weak, without macrotrichia. Halter short. Front tibial organ indifferent; tibial spurs short and thin; claws untoothed. Gonostylus short, narrowed towards apex, with strong apical tooth and fine hyaline subapical bristle-like spine. Body length: 1.2 mm.

Comments. The main part of the male hypopygium is destroyed and the gonostyli are in not a good position. However, we think that the species belongs most closely to *Pnyxia* Johannsen. It is very similar to *Pnyxia schmallenbergensis* Menzel & Mohrig, 1998 especially because of its short and thin tibial spurs, the lack of distinct front tibial organ, the mesonotum with short setosity, the unusual bristle-like setae on the antennal flagellomeres and the shape of the gonostylus with a short and strong apical tooth and a very fine hyaline subapical spine. *P. schmallenbergensis* differs in the more strongly reduced eye bridge (a narrow eye bridge being present in *P. hartii*) and in the significantly shorter flagellomeres. The absence of a distinct apical sensory pit contradicts the placement in the genus *Pnyxia* and indicates a possible connection to species of *Moehnia*. For a final decision more material in better condition is needed.

Distribution. USA (Illinois).

Pnyxia scabiei (Hopkins, 1895)

Type locality: USA: West Virginia, Monongalia Co., Morgantown, West Virginia Agricultural Experiment Station.
Lectotype: ♂, no. 6511, ? March 1894, reared from potato tubers, leg. S. W. Williston (USNM) [slide]; designated by Menzel in Menzel & Mohrig (2000).
Paralectotypes: USA: West Virginia, "different sections of state" [e. g. Monongalia Co., Morgantown, West Virginia Agricultural Experiment Station], reared from ordinary potting soil, from stable manure and in a mushroom bed in greenhouse / Pennsylvania, Philadelphia Co., Philadelphia, from seed tubers, 11 ♂♂ 6 ♀♀, 1 pupa and 8 larvae, no. 6511, 6511a, 5611c, 6539, 6576a, 6585 and 6589, 1893–1894, leg. S. W. Williston & A. D. Hopkins (USNM) [all slides].

Synonyms: = *Peyerimhoffia subterranea* Schmitz, 1913; = *Pnyxia dispar* Schmitz, 1927 [all in Tuomikoski (1960)]; = *Epidapulus ruffoi* Venturi, 1970 [in Mohrig & Mamaev (1978)].

Literature: *Peyerimhoffia subterranea* Schmitz – Schmitz (1913): 212, figs 1–4. *Allostoomma subterranea* (Schmitz) – Schmitz (1915a): 289; – Lengersdorf (1928–30): 18, textfig. 17; – Venturi (1970b): 20, fig. 7 1–4. *Pnyxia* (*Allostoomma*) *subterranea* (Schmitz) – Schmitz (1918): 100, fig. 2. *Pnyxia dispar* Schmitz – Schmitz (1927): 27. *Epidapulus ruffoi* Venturi – Venturi (1970a): 283, figs 1–6; – Venturi (1970b): 26, figs 10, 11. *Epidapus scabiei* Hopkins – Hopkins (1895): 152, figs 10 a–f, 11 a–f, 12, 13 a–f, 14–18. *Pnyxia scabiei* (Hopkins) – Johannsen (1912): 115, figs 136, 262, 264; – Shaw & Fisher (1952): 197, 199; – Shaw (1953a): 62; – Tuomikoski (1960): 102; – Stone & Laffoon (1965): 235; – Steffan (1966): 47, 54; – Mohrig & Mamaev (1978): 129, figs 1 a–d, 2 a–e; – Freeman (1983): 27, figs 72, 73, 73 a; – Menzel & Mohrig (1997b): 52, 56, figs 6.8, 6.33, 6.48; – Arnett (2000): 856; – Menzel & Mohrig (2000): 453, figs 50, 78, 423–428 [not Venturi (1970b): 16, fig. 6].

Comments. *Pnyxia scabiei* is mostly synanthropic, sometimes causing damage in greenhouses. It has rarely been observed in natural habitats, and only sometimes in caves.

Distribution. Probably cosmopolitan. Europe (e. g. Germany, Finland, Italy, The Netherlands); South America (Argentina); USA (New York, Pennsylvania, West Virginia).

Genus *Pseudolycoriella* Menzel & Mohrig, 1998

Type species: *Sciara bruckii* Winnertz, 1867 – Monogr. Sciarinen: 38–39; by original designation.

Literature: *Lycoriella* Frey [in part; *L. bruckii* group] – Menzel & Mohrig (1997b): 54, 66. *Pseudolycoriella* Menzel & Mohrig – Menzel & Mohrig (1998): 367; – Mohrig & Jaschhof (1999): 13, 36; – Menzel & Mohrig (2000): 86, 464, 714; – Mohrig (2003): 34; – Rudzinski (2003): 97; – Mohrig et al. (2004): 277, 308; – Menzel & Heller (2007): 221; – Mohrig & Menzel (2009): 285, 287, 292; – Heller (2012b): 195; – Vilkamaa et al. (2012a): 1; – Shin et al. (2013): 834.

Pseudolycoriella jucunda (Johannsen, 1912) comb. nov.

(Fig. 44 a–e)

Type locality: USA: Rhode Island, Washington Co., Kingston.
Holotype: ♂, no. 2088, 17.8.1903, leg. J. Barlow (CUIC) [1 slide; hypopygium deformed, wing, legs, antennae; body glued].
Paratypes: USA: same data as holotype, 1 ♂, no. 2088.7 (CUIC) [slide, in toto]; 5 ♂♂, 2088.2–6 (CUIC) [glued, without genitalia]; 4 ♀♀, no. 2088.8–11 (CUIC) [glued; not studied]. Remarks: Slide no. 2088.1 (♂, without genitalia) is not identical with the holotype; slide no. 2726 (♂, only hypopygium) is *Lycoriella* spec.; slide no. 881 (♂) is *Corynoptera* spec.

Further material: CANADA: Loc. ab 43, Lab. no. 6, 1 ♂, no further data (CNC). USA: Arizona, Patagonia, 5 ♂♂, no. 1664–1667, 15.7.1995, leg. B. V. Brown (no. 1664 and 1665 in PKHE; no. 1666 and 1667 in PWMP). Virginia, Falls Church, Holmes Run, 1 ♂, 13.8.1960; 1 ♂, 22.8.1960; 1 ♂, 29.8.1960; 1 ♂, 17.9.1962, all leg. W. W. Wirth (USNM).

Literature: *Sciara jucunda* Johannsen – Johannsen (1912): 119, 120, 131, figs 123, 123 a, 232. *Lycoria jucunda* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 51. *Neosciara jucunda* (Johannsen) – Pettey (1918b): 322, 323. *Bradysia* (*Bradysia*) *jucunda* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia jucunda* (Johannsen) – Steffan (1966): 36, 53.

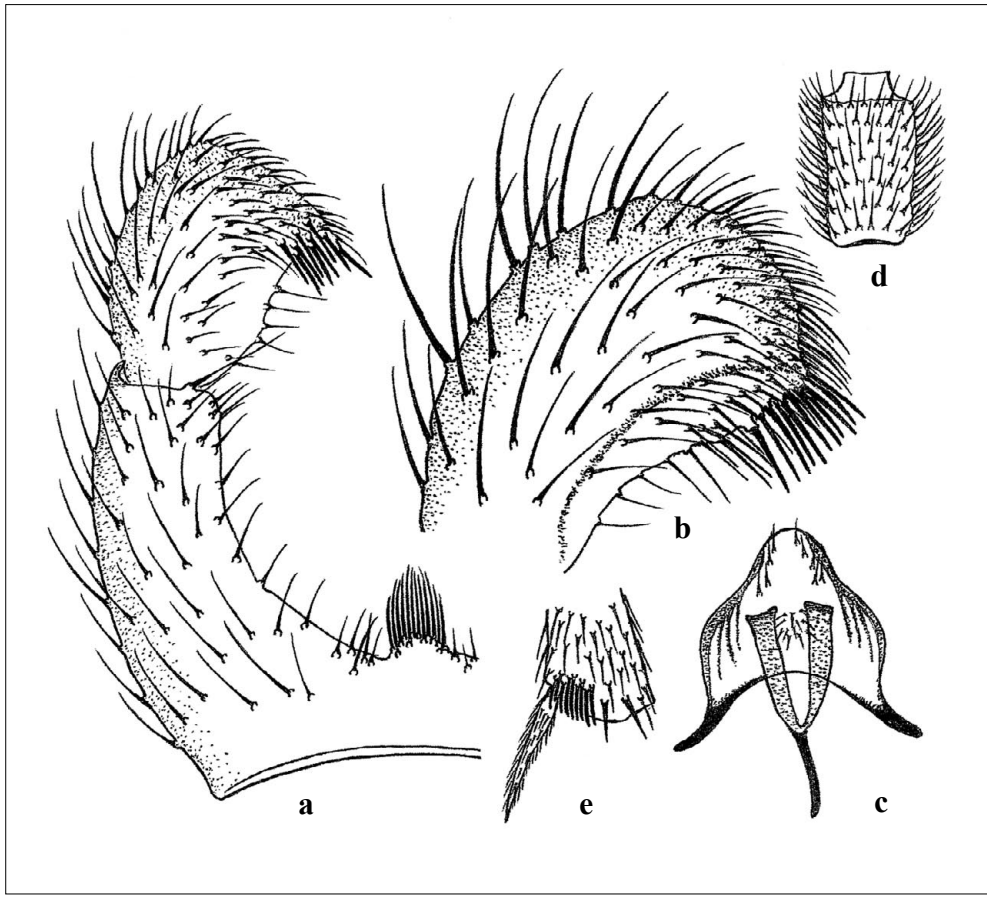


Fig. 44: *Pseudolycoriella jucunda* (Johannsen) ♂. – **a**: Left side of hypopygium, ventral view (phantom picture of holotype); – **b**: Gonostylus of specimen from USA, Arizona, ventral view; – **c**: Tegmen of specimen from USA, Arizona, ventral view; – **d**: 4th flagellomere of holotype; – **e**: Apex of fore tibia of specimen from USA, Arizona.

Redescription. **Male**. R_1 shorter R; c somewhat longer than 1/2 w; r-m longer than bM, both bare; CuA-stem shorter bM; posterior wing veins without macrotrichia; apex of front tibia with irregular row-like patch of bristles; claws untoothed.

Comments. Despite the deformed hypopygium of the type, the shape of the tegmen with the large furca of the aedeagus, allows it to be recognized as conspecific with new material, and placed in *Pseudolycoriella*. The species is characterized by the intercoxal lobe of the hypopygium with hyaline, palisade-like bristles.

Distribution. Canada (no details), USA (Arizona, New York, Rhode Island, Virginia).

Pseudolycoriella lobosa (Pettey, 1918)

(Fig. 45 a–d)

Type locality: CANADA: British Columbia, at Carbonate, Columbia River.
Holotype: ♂, no. 218, 2,600 ft., 7.–12.7.1908, leg. J. C. Bradley (CUIC) [2 slides; hypopygium, wing; body pinned].

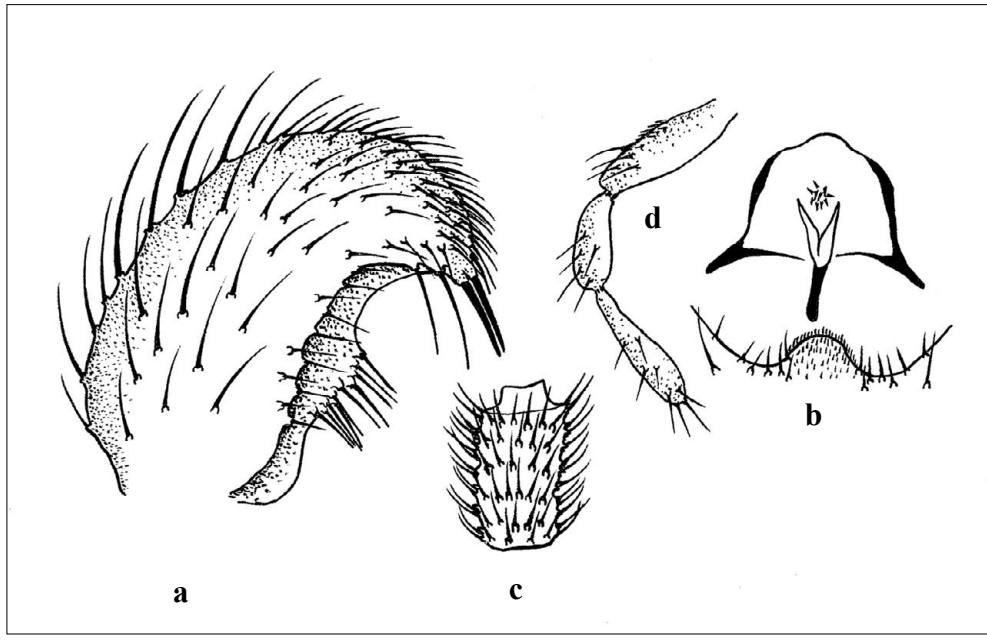


Fig. 45: *Pseudolycoriella lobosa* (Pettey) ♂. – **a**: Gonostylus of holotype, ventral view; – **b**: Basal lobe of hypopygium with tegmen of specimen from USA, California, ventral view; – **c**: 4th flagellomere of specimen from USA, California; – **d**: Palpus of specimen from USA, California.

Further material: USA: Arizona, Cochise Co., Huachuca Mts., Ash Cyn Rd., 31.39°N 11.24°W, oak-pine woodland, 33 ♂♂, 24.9.1993–14.3.1994, leg. McFarland (1 ♂ in MZH; 1 ♂ in PKHE; 31 ♂♂ in PWMP). California, Los Angeles Co., San Gabriel Mountains, San Gabriel Canyon, 2 ♂♂, 29.2.1996, leg. W. Mohrig (PWMP). California, Orange Co., Santa Ana Mountains, Santiago Canyon, Irvine Lake, 1 ♂, 27.2.1996, leg. W. Mohrig (PWMP).

Literature: *Neosciara lobosa* Pettey – Pettey (1918b): 323, 333, figs 13 a, 13 b, 44. *Bradysia* (*Bradysia*) *lobosa* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia lobosa* (Pettey) – Steffan (1966): 36, 53. *Pseudolycoriella* (*Ostroverkhovana*) *lobosa* (Pettey) – Heller (2012b): 196.

Comments. The species belongs to *Pseudolycoriella*. It is closely related to the Palaearctic species *Psl. nodulosa* (Mohrig & Krivosheina, 1985), but differs distinctly in lacking a mesial hyaline spine on the gonostylus.

Distribution. USA (California, Arizona); Canada (British Columbia).

Pseudolycoriella parilis (Johannsen, 1912)

(Fig. 46 a–d)

Type locality: USA: Kansas, Douglas Co., Lawrence.
Lectotype: ♂, no. 2092, June–August, leg. O. A. Johannsen (CUIC) [1 slide with hypopygium in not good position, wing, antennae and legs; body pinned]; hereby designated in order to fix the name.
Paralectotypes: USA: same data and no. as holotype, 1 ♀ (CUIC) [pinned, not studied]; 2 ♂♂ (CUIC) [pinned; one without hypopygium, not studied; the second transferred to slide, not identical with the lectotype].

= *Merianina bicornis* Menzel, 1997 syn. nov.
Type locality: CUBA: Cayo Largo Island, N and NE of Cocodrilo.
Holotype: ♂, 24.12.–29.12.1994, leg. A. Stark (SDEI).
Parapypes: CUBA: same data as holotype, 18 ♂♂ 3 ♀♀ (1 ♂ in PWMP; 17 ♂♂ 3 ♀♀ in SDEI).

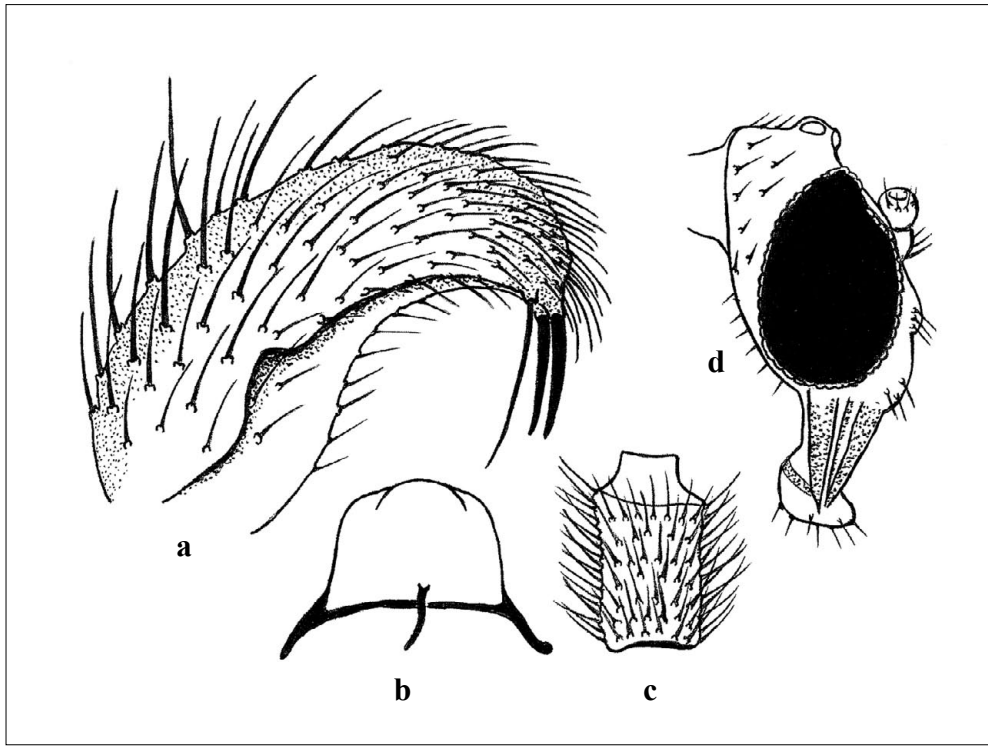


Fig. 46: *Pseudolycoriella parilis* (Johannsen) ♂, specimen from USA, Florida. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view; – **c**: 4th flagellomere; – **d**: Head, lateral view.

Further material: USA: Alabama, Baldwin Co., Big Lizard Creek, 30°52'70"N 57°57'50"W, 21.10.2001, leg. J. W. McCreadie (SDEI). Florida, Monroe Co., Big Pine Key, light trap, 2 ♂♂, 25.10.2004, leg. L. J. Hribar (PWMP). Florida, Monroe Co., Everglades National Park, Flamingo, 1 ♂, 4.12.1970, leg. P. H. Arnaud (PWMP). Florida, Monroe Co., No Name Key, light trap, 15 ♂♂, 17.8.2004, leg. L. J. Hribar (PWMP). Florida, Monroe Co., Vaca Key, light trap, 1 ♂, 23.8.2004, leg. L. J. Hribar (MZH). COSTA RICA: Guanacaste Prov., Santa Rosa National Park, 10.95°N 85.62°W, dry tropical forest, 8 ♂♂, 6.9.–18.10.1986, leg. Gould & Janzen (SDEI). DOMINICAN REPUBLIC: Paravia Prov., 19 mi N San Jose de Ocoa, 1 ♂, 30.6.1991, leg. D. Grimaldi & Stark (PWMP). PUERTO RICO: Guanica State Forest, 17.97°N 66.86°W, 1 ♂, 25.7.1996, leg. Canals (PWMP).

Literature: *Merianina bicornis* Menzel – Menzel (1997): 109, figs 1–11. *Pseudolycoriella bicornis* (Menzel) – Menzel & Mohrig (2000): 714; – Rudzinski (2000): 183; – Mohrig et al. (2004): 278, 308. *Sciara parilis* Johannsen – Johannsen (1912): 121, 132, figs 118, 238. *Neosciara parilis* (Johannsen) – Pettey (1918b): 325. *Lycoria parilis* (Johannsen) – Shaw & Fisher (1952): 212. *Bradysia* (*Bradysia*) *parilis* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia parilis* (Johannsen) – Steffan (1966): 36, 54. *Pseudolycoriella parilis* (Johannsen) – Rudzinski (2000): 183.

Redescription. **Male**. Head with somewhat elongated mouth parts, higher than long. 4th flagellomere with l/w index of 1.8, with dense setosity, setae shorter than diameter of flagellomere. Mesonotum with very short setosity, some lateral and prescutellar bristles longer. Postpronotum non-setose. Wings hyaline; $R_1 = 3/4$ R; c distinctly shorter than w; r-m = bM, bare; CuA-stem longer than bM. Front tibial organ with comb-like row of pale bristles. Claws untoothed. Intercoxal area of hypopygium without lobe or groups of bristles; gonostylus long; ventromesial margin excavated nearly along its whole length; apex with two long hyaline spines and one long whiplash hair. Body length: 3.0 mm.

Comments. The comparison of the holotype with specimens from Florida, Costa Rica, Dominican Republic, Puerto Rico and Cuba [as *Merianina bicornis* Menzel] shows the conspecificity of these specimens with *Sciara parilis* Johannsen.

Distribution. Central America (Costa Rica, Cuba, Dominican Republic, Puerto Rico); USA (Alabama, Florida, Kansas).

Pseudolycoriella planiforceps (Steffan, 1971) comb. nov.

(Fig. 47 a–f)

Type locality: USA: Texas, Brewster Co., Big Bend National Park, Rio Grande Camping area.
Holotype: ♂, no. 70999, 14.7.1968, leg. D. R. Bennett (USNM) [missing].
Paratypes: USA: same data as holotype, 11 ♀♀ (BPBM, CAS, CUIC, TTU) [3 ♀♀ on slides, 7 ♀♀ pinned; not studied].

Further material: ECUADOR: Galapagos Islands, Floreana Island, Boat area to Española, 5♂♂, 23.4.1992, leg. S. Peck & J. Peck (PWMP). MEXICO: Baja California, 9 km SE Santa Rita, 1♂ 1♀, 25.8.1977, leg. Fisher & Westcott (PWMP). USA: Arizona, Pima Co., Tucson Mountains, 16 km W Tucson, 32.24°N 111.13°W, Sonora desert, Malaise trap, 16♂♂ 13♀♀, 9.–30.8.1995; 2♂♂ 2♀♀, 15.–30.8.1995; 1♂, 28.9.–7.10.1995, all leg. S. Prchal (1♂ 1♀ in CAS; 1♂ 1♀ in MZH; 1♂ 1♀ in PKHE; 16♂♂ 12♀♀ in PWMP; 1♂ in SDEI).

Literature: *Eugnoriste planiforceps* Steffan – Steffan (1971): 54, fig. 1 a–l.

Comments. The species was described as *Eugnoriste* by reason of the distinctly elongated mouth parts in both sexes. The two species of this genus known up to now have two long apical spines

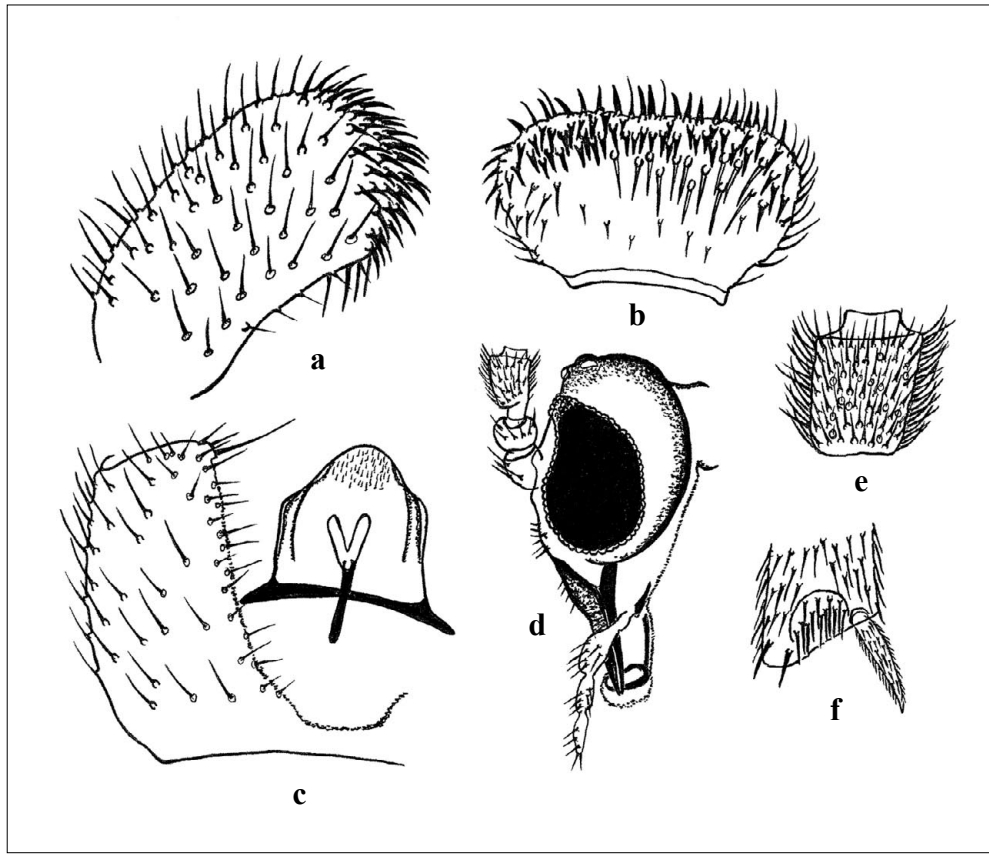


Fig. 47: *Pseudolycoriella planiforceps* (Steffan) ♂, specimen from USA, Texas. – **a**: Gonostylus, ventral view; – **b**: Inner side of gonostylus, frontal view; – **c**: Base of hypopygium with tegmen, ventral view; – **d**: Head, lateral view; – **e**: 4th flagellomere; – **f**: Apex of fore tibia.

and a long whiplash hair on the gonostylus, bilobate sternite X and dense bristle row on the apical border of last tergites. The typical shape of tegmen in conjunction with the semicircular front tibial organ and the flagellomeres with large insertion points of bristles suggest placement in the genus *Pseudolycoriella*. Nevertheless *Psl. planiforceps* is unique in the the genus in lacking whiplash seta and in the more or less characteristic apical spines on the gonostylus. Such a wide spoon-like shape of the gonostylus is only found within the genus *Bradysia* otherwise in *B. browni* (Shaw).

Distribution. Ecuador (Galapagos Islands), Mexico (Baja California); USA (Arizona, Texas).

Pseudolycoriella pollicis (Pettey, 1918) comb. nov.

(Fig. 48 a, b)

Type locality: USA: Arizona.
Holotype: ♂, no. 229, August, leg. F. W. Pettey (CUIC) [2 slides; hypopygium in good position, wing; body pinned, head without antennae].

Literature: *Neosciara pollicis* Pettey – Pettey (1918b): 325, 338, figs 24, 55. *Bradysia* (*Bradysia*) *pollicis* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia pollicis* (Pettey) – Steffan (1966): 36, 54.

Comments. The species is characterized by two narrow subequal spines on the gonostylus, not longer than the apical setae, and by a long whiplash seta. The intercoxal area of the hypopygium is v-shaped, the ventromesial margin of the gonocoxite has basally a group of longer setae. The species belongs to the genus *Pseudolycoriella* by the typical whiplash seta, placed below the apex of the gonostylus. It resembles *Psl. japonensis* (Mohrig & Menzel) and *Psl. koreensis* (Mohrig & Menzel), which are widely distributed in the Palaearctic Region. They differ from *P. pollicis* in having stronger apical spines.

Distribution. USA (Arizona).

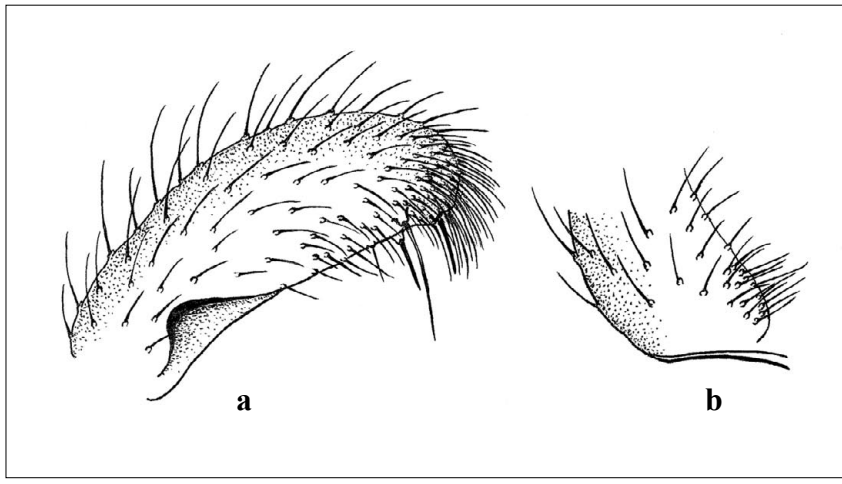


Fig. 48: *Pseudolycoriella pollicis* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium, ventral view.

Pseudolycoriella trivialis (Johannsen, 1912) comb. nov.

(Fig. 49)

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2104, no date, leg. O. A. Johannsen (CUIC) [slide with hypopygium, wing, legs; body pinned]; hereby designated in order to fix the name.
Paralectotype: USA: New York, Bronx Park, 1 ♂, no date, leg. W. B. (CUIC) [pinned, without head and hypopygium].

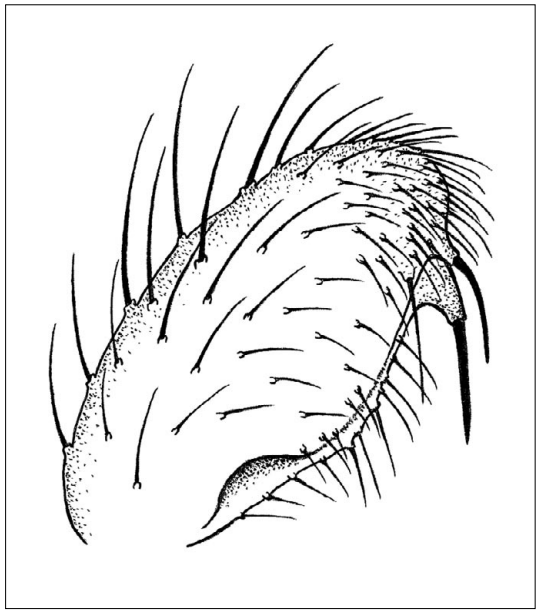


Fig. 49: *Pseudolycoriella trivialis* (Johannsen) ♂, holotype. Gonostylus, ventral view.

Further material: CANADA: New Brunswick, Carleton, Provincial Park, 1 ♂, October 1995, leg. F. Röschmann (PWMP).

Literature: *Sciara trivialis* Johannsen – Johannsen (1912): 123, 136, fig. 130, 249. *Neosciara trivialis* (Johannsen) – Pettey (1918b): 327. *Bradysia* (*Bradysia*) *trivialis* (Johannsen) – Stone & Laffoon (1965): 234. *Bradysia trivialis* (Johannsen) – Steffan (1966): 37, 54.

Redescription. **Male**. R_1 long, somewhat shorter than R; C somewhat longer than 1/2 w; r-m longer than bM, both bare; CuA-stem short, = bM; posterior wing veins without macrotrichia. Intercoxal area of hypopygium and the ventromesial margin of gonocoxite with sparse and short setosity. Gonostylus elongated, apically roundish, with two unequal subapical spines on moderately large basal bodies and distinct whiplash seta.

Comments. By its characters, the species undoubtedly belongs to *Pseudolycoriella* in the current sense. The species is characterized by the two subapical spines of different length, inserted on large basal protuberances.

Distribution. Canada (New Brunswick), USA (New York).

Genus *Pseudosciara* Schiner, 1866

Type species: *Pseudosciara hirtella* Schiner, 1866 – Verh. zool.-bot. Ges. Wien **16**: 930–931; by original designation, monotypy.

Synonyms: = *Megalosphys* Enderlein, 1911; = *Chaetomegalosphys* Lengersdorf, 1930.

Literature: *Megalosphys* Enderlein – Enderlein (1911): 126, 129; – Edwards (1934): 367; – Lengersdorf (1940a): 247. *Megalosphys* (*Chaetomegalosphys*) – Lengersdorf (1931): 253. *Chaetomegalosphys* Lengersdorf – Lengersdorf (1930b): 123; – Edwards (1934): 367. *Pseudosciara* Schiner – Schiner (1866): 928, 930; – Edwards (1934): 366; – Lengersdorf (1940a): 247; – Shaw (1953b): 29; – Lane (1959a): 287; – Steffan (1981): 252; – Amorim (1992): 63; – Mohrig (2003): 31, 65; – Mohrig et al. (2004): 271, 307; – Mohrig & Menzel (2009): 283, 292; – Shin et al. (2013): 835.

Pseudosciara forceps (Pettey, 1918) comb. nov.

(Fig. 50 a–f)

Type locality: USA: Florida, Putnam Co., at Palatka.
Holotype: ♂, no. 207, 3.–4.5.1916, leg. J. C. Bradley (CUIC) [2 slides; hypopygium, wing; body glued].

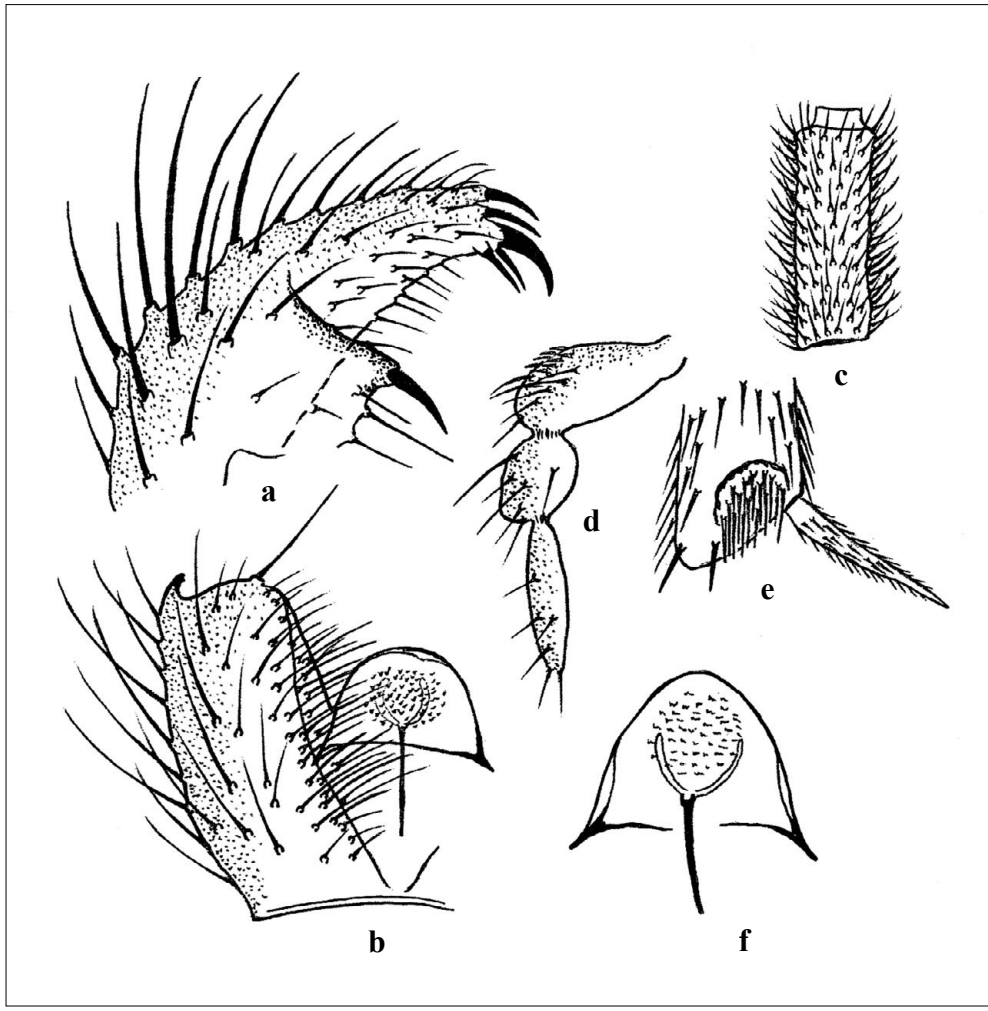


Fig. 50: *Pseudosciara forceps* (Pettey) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Left gonocoxite with tegmen, ventral view; – **c**: 4th flagellomere; – **d**: Palpus; – **e**: Apex of fore tibia; – **f**: Tegmen, ventral view.

Further material: COSTA RICA: Guanacaste Prov., Santa Rosa National Park, 10.95°N 85.62°W, dry tropical forest, 5♂♂, 27.9.–8.11.1986, leg. Gould & Janzen (PWMP). USA: Texas, Harris Co., Houston, park, yellow pan trap, 1♂, no. 3984, 3.–6.11.1996, leg. W. Mohrig (PWMP).

Literature: *Sciara forceps* Pettey – Pettey (1918b): 320, 328, figs 1, 32; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52.

Redescription. **Male**. Eye bridge 3 facets wide; antennae long, 4th flagellomere 3 times as long as diameter of flagellomere, neck short, scape, pedicel and first antennal flagellomere yellowish; palpus 3-segmented, basal segment with some bristles. Thorax, coxae and femora yellowish brown. Wings pale; R_1 shorter than R; r-m longer bM; c longer 1/2 w; CuA-stem long; posterior wing veins with macrotrichia. Halter brown, stem yellow: Front tibia with spine-like bristles within the ground setosity; Front tibial organ with large horseshoe-shaped patch of yellowish bristles. Claws untoothed. First abdominal tergite yellow, 2. and 3. brown, 4. and 5.

yellowish, the hind tergites brown. Hypopygium with v-shaped intercoxal area; ventromesial margin of gonocoxite in the middle with long and dense setae; gonostylus with apical tooth and four spines, two laterad and two mesiad to the tooth; in the middle of gonostylus a wide, thumb-like protuberance with short spine. Tegmen simple, roundish, with large area of fine teeth. Aedeagus rather long.

Comments. *Sciara forceps* Pettey is doubtlessly a species of *Pseudosciara*. Typical for this genus are the shape of the gonostylus, the arrangement its spines, macrotrichia of posterior wing veins in connection with unusual long CuA-stem and a large horseshoe-shaped patch of bristles on the front tibial organ. The species is unique within the genus by having a long and dense setosity on the ventromesial margin of the gonocoxite. This character is present only in *Pseudosciara hirtella* Schiner, 1866, but a conspecifity is excluded by the different colouration of the body and distinctly smaller body size in *Pseudolycoriella forceps*.

Distribution. Central America (Costa Rica); USA (Florida, Texas).

Genus *Scatopsciara* Edwards, 1927

Type species: *Sciara quinquelineata* Macquart, 1834 – Hist. Nat. Ins. **1**: 149; by original designation under *Sciara* (*Scatopsciara*) *unicalcarata* Edwards, 1927 [= *Sciara vitripennis* Meigen, 1818].

Subgenera: *Scatopsciara* Edwards, 1927 s. str.; *Xenopygina* Frey, 1948.

Synonyms: = *Heterosciara* Lengersdorf, 1930; = *Diorychophthalma* Frey, 1942; = *Uddmania* Frey, 1942 [preocc., nec *Uddmania* Bergroth, 1915]; = *Uddmaniella* Frey, 1948 [replacement name for *Uddmania* Frey, 1942]; = *Basalisciara* Yang & Zhang, 1987.

Literature: *Heterosciara* Lengersdorf – Lengersdorf (1928–1930): 46; – Frey (1942): 22, 38; – Shaw (1953b): 29, 31. *Diorychophthalma* Frey – Frey (1942): 36, 37. *Diorichophthalma* Frey [correctly *Diorychophthalma*; incorrect spelling] – Amorim (1992): 60. *Uddmania* Frey – Frey (1942): 22, 38; – Shaw (1953b): 29, 31. *Uddmaniella* Frey – Frey (1948): 69, 86. *Basalisciara* Yang & Zhang – Yang & Zhang (1987): 153. *Sciara* (*Scatopsciara*) – Edwards in Tonnoir & Edwards (1927): 798. *Scaptosciara* Edwards [correctly *Scatopsciara*; incorrect spelling] – Frey (1942): 22, 34; – Frey (1948): 45, 69, 86; – Shaw (1953b): 29; – Tuomikoski (1960): 7, 150. *Lycoria* (*Scatopsciara*) – Lengersdorf (1928–30): 57. *Scatopsciara* (*Uddmaniella*) – Hardy (1960): 5, 212, 231. *Scatopsciara* Edwards – Hardy (1960): 5, 230; – Stone & Laffoon (1965): 235; – Steffan (1966): 32, 37; – Steffan (1969): 676; – Steffan (1974c): 43, 48; – Steffan (1981): 254; – Freeman (1983): 17, 39; – Amorim (1992): 66; – Poole (1996): 239; – Menzel & Mohrig (1997b): 52, 63; – Menzel & Mohrig (1998): 369; – Mohrig & Jaschhof (1999): 13; – Arnett (2000): 856; – Menzel & Mohrig (2000): 85, 480, 719; – Mohrig (2003): 56, 65; – Mohrig et al. (2004): 297, 307; – Menzel & Heller (2005): 354; – Mohrig & Menzel (2009): 285, 292; – Vilkamaa et al. (2012b): 67; – Shin et al. (2013): 833.

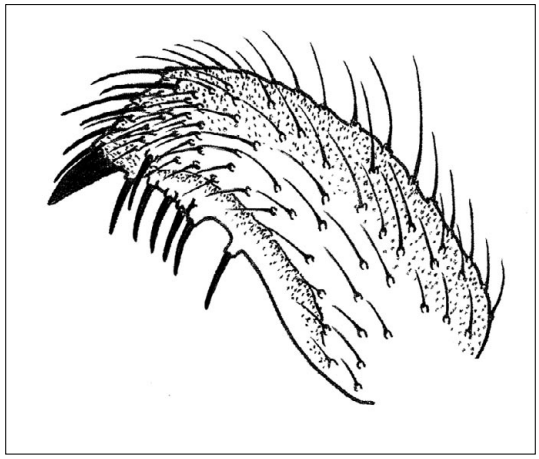
Scatopsciara (*Scatopsciara*) *acuta* (Johannsen, 1912)

(Fig. 51)

Type locality: USA: Washington, San Juan Co., San Juan Island, Friday Harbor.
Lectotype: ♂, no. 2105, 30.5.1906, leg. J. M. Aldrich (CUIC) [2 slides; hypopygium and wing, body with legs and head]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as holotype, 3 ♀♀, no. 2105 (CUIC) [pinned; not studied].

= *Scatopsciara keilbachi* Mohrig & Mamaev, 1979 syn. nov.
Type locality: RUSSIA: Tuva, Ishti-Khem.
Holotype: ♂, 9.8.1973, leg. B. M. Mamaev (PWMP).

Literature: *Scatopsciara keilbachi* Mohrig & Mamaev – Mohrig et al. (1979): 584, fig. 13 a–e. *Sciara acuta* Johannsen – Johannsen (1912): 121, 136, figs 131, 250. *Neosciara acuta* (Johannsen) – Pettey (1918b): 325; – Lengersdorf (1940a): 250. *Bradysia* (*Bradysia*) *acuta* (Johannsen) – Stone & Laffoon (1965): 232. *Scatopsciara acuta* (Johannsen) – Steffan (1966): 38, 52.



Comments. *Scatopsciara keilbachi* and *Sciara acuta* are identical in all details. The species is characterized by a strong apical tooth, 3–4 spines on its lateral side and 6–7 spines on its mesial side, and by its rather long flagellomeres.

Distribution. Holarctic: Russia (Tuva); USA (Washington).

Fig. 51: *Scatopsciara acuta* (Johannsen) ♂, holotype. Gonostylus, ventral view.

Scatopsciara (*Xenopygina*) *arenicola* (Steffan, 1984) comb. nov.

(Fig. 52 a–f)

Type locality: USA: Washington, Grant Co., Sand Hollow Creek, at Columbia River [SE of Vantage].
Holotype: ♂, 800 ft., 7.4.1979, leg. D. Carmean (WSU) [slide].
Paratypes: USA: same locality as holotype, 3♂♂ (WSU) [slides]; same locality as holotype, several specimens, 7.4.1979 and 4.4.1980, all leg. D. Carmean (WSU) [in alcohol].

Remarks. The mounted holotype and paratypes are missing in WSU (perhaps deposited in the private collection of Steffan). We studied only two of the paratypes conserved in alcohol, transferred to slides (1 ♂, no. 7914 in PKHE; 1 ♂, no. 7915 in WSU) [both in good condition].

Literature: *Plastosciara arenicola* Steffan – Steffan (1984): 287, figs 1, 2 a–h.

Redescription. **Male**. Eye bridge is closed with 1–2 rows of facets; the flagellomeres with sparse, long setosity. Wings shortened, halter nearly normal; palpus 2-segmented; femur strong. Apex of front tibia dorsally spur-like elongated, and with dorso-lateral shorter scale-like protuberance; mid and hind tibiae are not spur-like elongated, with shorter ptotuberances. Spurs of mid and hind tibiae are sub-unequal. Front tibial organ flat, with weakly developed patch of gonocoxite short and strong, ventromesial margin with short setosity, intercoxal area closed, and gonostylus without apical tooth, gonostylus slightly bilobate, with two short spines at apex of ventral lobe and few longer bristles and densely placed spine-like bristles on wider dorsal lobe, and three long spines in the middle, one more ventrally placed.

Comments. The species belongs to *Scatopsciara*, subgenus *Xenopygina*, and is related to *Scatopsciara curvilinea* (Lengersdorf) and *Scatopsciara ventrospinula* Mohrig & Mamaev. Both species are known from arid areas in the Palaearctic region (Israel, Turkmenistan). The development of spur- or scale-like appendages at the apex of the tibiae in combination with wing reduction is known also in *Parapnyxia armata* Mohrig & Mamaev, which lives on desert sand in Turkmenistan. Obviously, also in Sciaridae, similar habitat (like sand here) may cause the evolution of similar morphological adaptations in different phylogenetic lineages.

Distribution. USA (Washington).

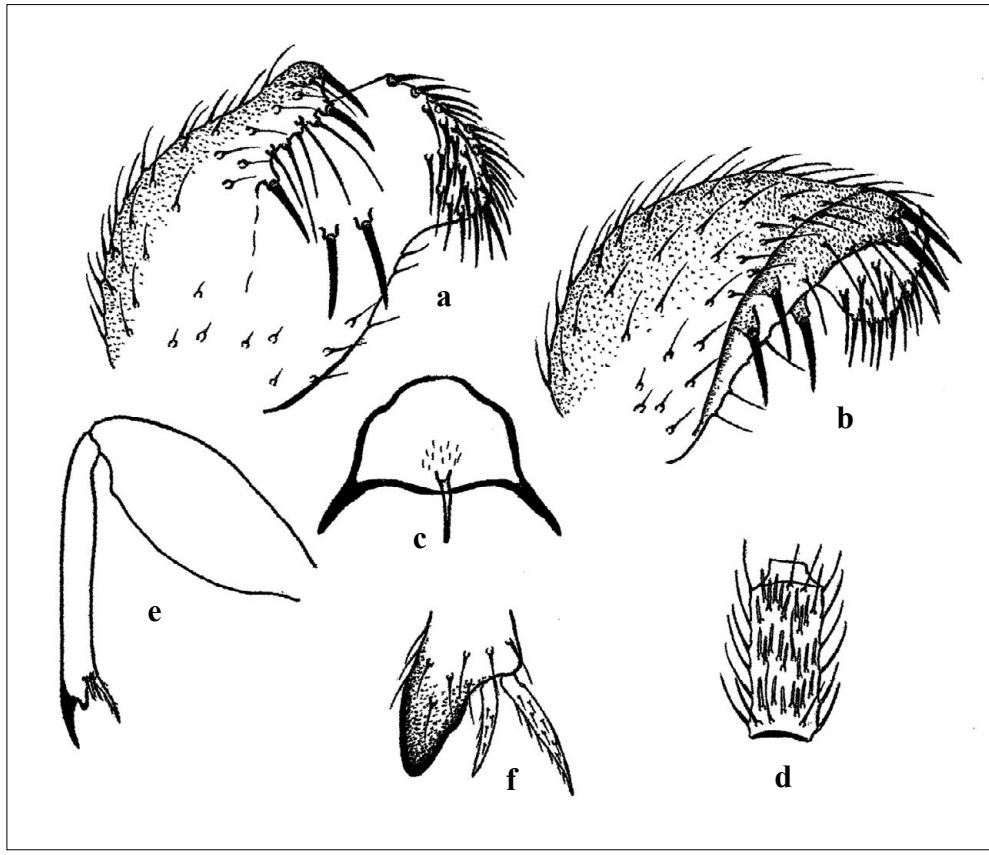


Fig. 52: *Scatopsciara arenicola* (Steffan) ♂, paratype. – **a**: Gonostylus, ventro-lateral view; – **b**: Gonostylus ventral view; – **c**: Tegmen, ventral view; – **d**: 4th flagellomere; – **e**: Femur and tibia of fore leg, lateral view; – **f**: Apex of middle tibia, lateral view.

Scatopsciara (*Scatopsciara*) *atomaria* (Zetterstedt, 1851)

Type locality: NORWAY: Thynäs.
Holotype: ♂, no. 158, 4.7.1840, leg. J. W. Zetterstedt (MZLU).

= *Sciara nacta* Johannsen, 1912 syn. nov.
Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2090, leg. O. A. Johannsen (CUIC) [2 slides; hypopygium, wing; body with head, all in good positions]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as holotype, 1 ♂ 1 ♀, no. 2090 (CUIC) [pinned, male without hypopygium; missing].

= *Sciara radialis* Shaw, 1934 syn. nov.
Type locality: USA: North Carolina, Guilford Co., Sykes' greenhouse.
Lectotype: ♂, no. 2165, collected from a greenhouse, 5.12.1933, leg. J. P. Reynolds (CUIC) [slide, lectotype and one paralectotype]; hereby designated in order to fix the name.
Paralectotypes: USA: same data as lectotype, 4 ♂♂ 8 ♀♀ [pinned; not studied]. Remark: 1 ♂ 1 ♀ [pinned] with label "holotype" in CUIC cannot be the illustrated specimen because from this male the hypopygium is not dissected.

Further synonyms: = *Sciara falsaria* Winnertz, 1867; = *Sciara hybrida* Winnertz, 1867; = *Sciara mundula* Winnertz, 1867; = *Sciara pagana* Winnertz, 1867; = *Sciara pratinicola* Winnertz, 1867; = *Sciara soluta* Winnertz, 1867; = *Sciara vivida* Winnertz, 1867; = *Sciara* (*Neosciara*) *silvestris* Frey, 1936 [all in Menzel & Mohrig (2000)].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W pine forest, Malaise trap, 3 ♂♂, 11.6.–24.7.1994, leg. E. Fuller (PWMP). New Brunswick, Carleton, Provincial Park, 1 ♂, October 1995, leg. F. Röschmann (PWMP). USA: Alaska, Highway, Wolf Creek, 1 ♂, 21.8.1954, leg. C. P. Alexander (PWMP). Alaska, Knik Lake, 1 ♂, 18.7.1978, leg. P. H. Arnaud (PWMP). Arizona, Cochise Co., Huachuca Mts., Ash Cyn Rd., 31.39°N 111.24°W, oak-pine woodland, Malaise trap, 1 ♂, 15.2.–14.3.1994, leg. McFarland (PWMP). Arizona, Pimo Co., Tucson Mts. 16 Km W Tucson, 30.24°N 111.13°W, Sonora desert, Malaise trap, 9 ♂♂, 30.4.–16.5.1995, leg. S. Prchal (PWMP). California, Death Valley National Park, Furnace Creek Ditch S of Park Village, 36°27'20"N 116°51'44"W, desert spring habitat, vacuumed from native shrubs (*Pluchea sericea* dominant), 2 ♂♂, 27.3.2009, leg. J. Schmidt-Gengenbach & J. Holmquist, det. F. Menzel as *Scatopsciara nacta* (Johannsen) (SDEI). California, Los Angeles Co., San Gabriel Mountains, San Gabriel Canyon, 800 m, 1 ♂, 29.2.1996, leg. W. Mohrig (PWMP). California, San Francisco, Golden Gate Park, 1 ♂, 5.5.1950, leg. P. H. Arnaud (PWMP). California, Shasta Co., 1 ♂, 27.7.1974, leg. P. H. Arnaud (PWMP). Illinois, Urbana, from mouse nest, 2 ♂♂, 16.4.1939, leg. P. C. Stone (PWMP). New York, Tompkins Co., Ithaca, City Park, 1 ♂, 19.11.1996, leg. W. Mohrig (PWMP). Oregon, Jackson Co., Whisky Creek Campground on Hwy 62, 1 ♂, 29.7.1974, leg. P. H. Arnaud (CAS). South Carolina: Orangeburg County, Santee State Park, Santee Cave, 33°29'N 80°28'W, 1 ♂, 16.3.1999, leg. Reeves, det. F. Menzel as *Scatopsciara nacta* (Johannsen) (SDEI). Virginia, Williamsburg, mixed forest, yellow trap, 2 ♂♂, 21.–23.7.1997, leg. W. Mohrig (PWMP).

Literature: *Sciara nacta* Johannsen – Johannsen (1912): 132, figs 114, 234; – McCarthy (1945a): 117, fig. 2 a, b; – McCarthy (1945b): 229, figs 29–32, 41, 50. *Lycoria nacta* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 52. *Neosciara nacta* (Johannsen) – Pettey (1918b): 324. *Scatopsciara nacta* (Johannsen) – Stone & Laffoon (1965): 235; – Steffan (1966): 38, 53; – Reeves (2001): 83 [nec *Scatopsciara nacta* (Johannsen) sensu Tuomikoski (1960); **see taxonomic note!**]. *Sciara radialis* Shaw – Shaw (1934): 233, figs 1, 2. *Bradysia* (*Bradysia*) *radialis* (Shaw) – Stone & Laffoon (1965): 234. *Scatopsciara radialis* (Shaw) – Steffan (1966): 38, 54. *Sciara vivida* Winnertz – Winnertz (1867): 156. *Lycoria* (*Neosciara*) *vivida* (Winnertz) – Lengersdorf (1928–30): 58, fig. 87. *Scaptosciara* (*Uddmaniella*) *vivida* (Winnertz) – Frey (1948): 70, 87, fig. 120. *Scaptosciara vivida* (Winnertz) – Tuomikoski (1960): 151, 153. *Scatopsciara vivida* (Winnertz) – Stone & Laffoon (1965): 235; – Steffan (1966): 38, 54; – Freeman (1983): 39, figs 151, 152. *Sciara atomaria* Zetterstedt – Zetterstedt (1851): 3714, 3761; – Lengersdorf (1930a): 53. *Scatopsciara* (*Scatopsciara*) *atomaria* (Zetterstedt) – Menzel & Mohrig (2000): 494, figs 79 d, 458–463.

Comments. *Sc. atomaria* is easy to identify by the sparsely setose antennal flagellomeres with single bristle-like setae within the normal setosity. There is no doubt about the identity of types of *Sciara nacta* Johannsen, *S. atomaria* Zetterstedt and *S. radialis* Shaw. *Scatopsciara atomaria* (Zetterstedt) is a ubiquitous species, which is one of the most common species in areas of anthropogenic influence. It is probably distributed worldwide.

Distribution. Cosmopolitan. Holarctic: Europe, Russia; Greenland, Canada (Alberta, New Brunswick), USA (Alaska, Arizona, California, Illinois, New York, North Carolina, Oregon, ? Pennsylvania, South Carolina, Virginia).

Taxonomic note: *Sciara nacta* Johannsen was misinterpreted by European taxonomists as a different species than *Scatopsciara atomaria*, distributed in the Palaearctic region [see Tuomikoski (1960): 153; Menzel & Mohrig (2000): 498]. That species would be left unnamed because of the synonymy of *Sciara nacta* with *Scatopsciara atomaria*. Fortunately a re-examination of the Zetterstedt types revealed, that the holotype of *Sciara brevicornis* Zetterstedt is identical with *Scatopsciara nacta* auct. sensu Tuomikoski (1960). *Sciara brevicornis* was already combined into the genus *Scatopsciara* by Menzel & Mohrig (2000: 409). That species is now correctly named ***Scatopsciara* (*Scatopsciara*) *brevicornis* (Zetterstedt, 1851)** [= *Scatopsciara nacta* (Johannsen) sensu Tuomikoski (1960); nec Johannsen (1912)]. The lectotype designation of the male specimen by Menzel in Menzel & Mohrig (2000): 490 and 747 is invalid, because it was not collected at the type locality "Trondhjem" [= Trondheim], but in "Töien" [= Oslo] and because Zetterstedt (1851: 3748) explicitly described his species upon a single female from Trondheim (holotype!) and mentions the male only doubtfully as conspecific under additional

material. In fact the male specimen belongs to *Scatopsciara*, but cannot be identified due to its poor condition with the genitalia missing.

Scatopsciara (*Scatopsciara*) *cucumeris* (Johannsen, 1912) comb. nov.

(Fig. 53 a, b)

Type locality: USA: Illinois, Carroll Co., at Savanna.
Lectotype: ♂, no. 2094, bred from cucumbers, 29.2.1912, leg. E. W. Gabourie (CUIC) [slide; in toto, hypopygium somewhat demaged]; hereby designated in order to fix the name.
Paralectotype: USA: same data as lectotype, 1 ♂, same no. (CUIC) [glued, hypopygium missing].

Literature: *Sciara cucumeris* Johannsen – Johannsen (1912): 120, 121, 133, figs 261, 267. *Neosciara cucumeris* (Johannsen) – Pettey (1918b): 324, 325; – Lengersdorf (1935a): 207. *Bradysia* (*Bradysia*) *cucumeris* (Johannsen) – Stone & Laffoon (1965): 232. *Bradysia cucumeris* (Johannsen) – Steffan (1966): 35, 52.

Redescription. **Male**. Head round; palpus 3-segmented, basal segment large, with small sensory pit, 3rd segment small and roundish; eye bridge medially with three facets, laterally smaller, with one facet wide; 4th flagellomere 2.0 times as long as wide, with rather long setosity. Mesonotum with brownish setosity, laterally with 2–3 stronger bristles. Coxae lighter than thorax; front tibial organ with comb of 6–7 bristles, middle and hind tibiae with a long and a short tibial spur; claws untoothed. Wings short and wide, posterior wing veins weak; c somewhat shorter 1/2 w; r-m = 1/2 bM, non-setose. Halter short, brownish. Gonostylus without apical tooth, with 3 equal apical spines, subapically with 4–5 short spine-like bristles. Body length: 1.5 mm.

Comments: *Scatopsiara cucumeris* is a very small species with short and wide wings. The lack of an apical tooth supports its placement in the subgenus *Xenopygina*, but the small body size, the shape of the gonostylus and the small and wide wings resembles more the species of the *Scatopsciara atomaria* group near *Sc*. *dicuspidata* Mohrig & Antonova, 1978.

Distribution: USA (Illinois).

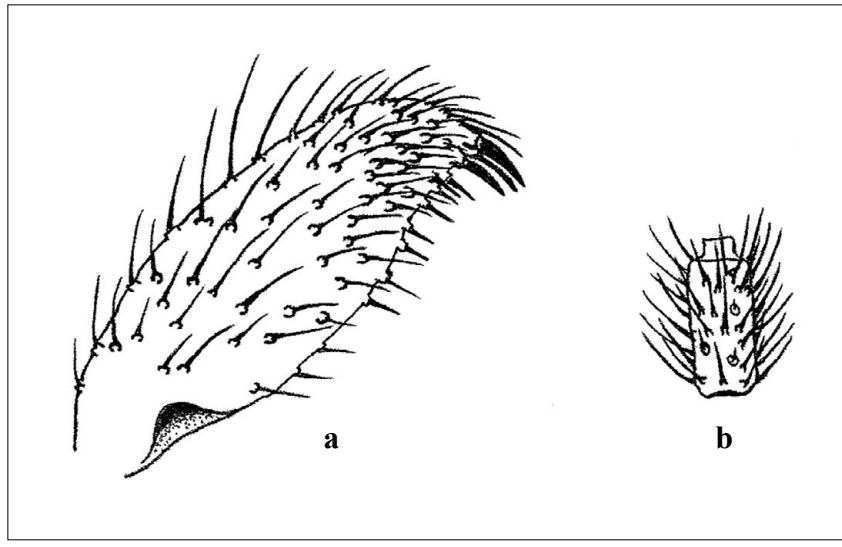


Fig. 53: *Scatopsciara cucumeris* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere.

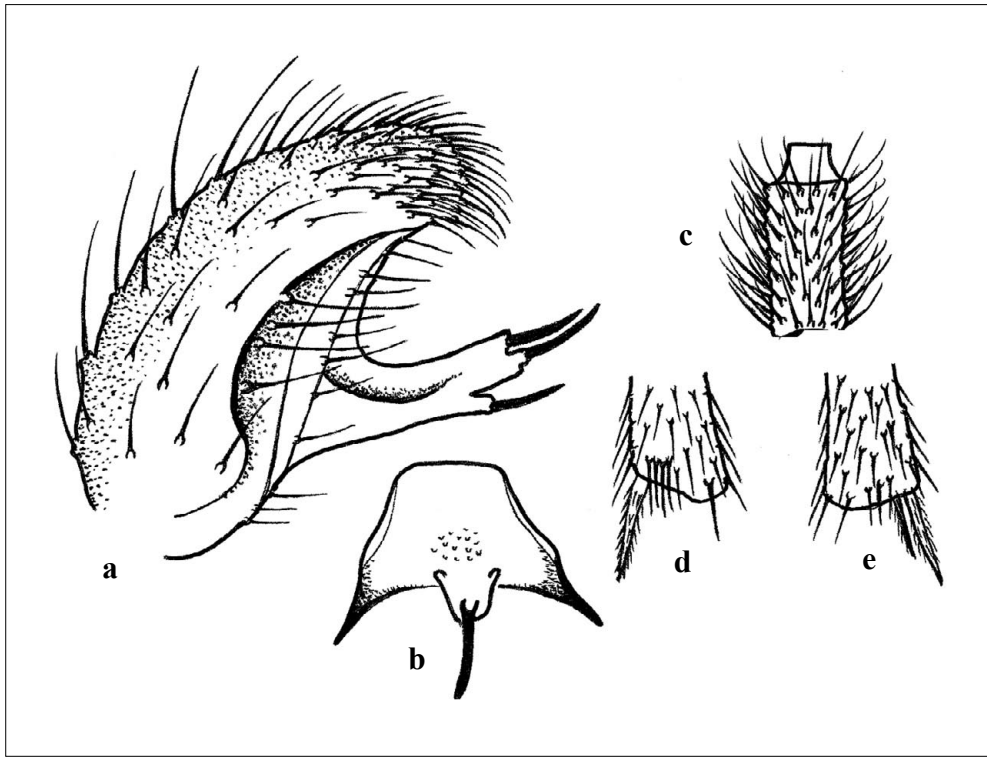


Fig. 54: *Scatopsciara hastata* (Johannsen) ♂, holotype. – **a**: Gonostylus combined with apex of inner lobe of slide no. 2707, ventral view (reconstruction); – **b**: Tegmen, ventral view; – **c**: 3rd flagellomere; – **d**: Apex of fore tibia; – **e**: Apex of middle tibia, lateal view.

Scatopsciara (*Xenopygina*) *hastata* (Johannsen, 1912)

(Fig. 54 a–e)

Type locality: USA: New York, Tompkins Co.

Lectotype: ♂, no. 2087, June/July, leg. O. A. Johannsen (CUIC) [slide with hypopygium, wing and legs of p_2/p_3]; hereby designated in order to fix the name.

Paralectotypes: USA: same data as lectotype, 4♀♀, no. 2087.1, 2087.4, 2087.5 and 2087.7 (CUIC) [pinned]; 3♂♂ without hypopygium, no. 2087.2, 2087.3 and 2087.8 (CUIC) [pinned, no slides], 1 ♂, no. 2087–6 (CUIC) [glued]; all not studied.

Further material: CANADA: Newfoundland, Terra Nova National Park, 1 ♂, 8.7.1961, leg. C. P. Alexander (MZH). Ontario, Ottawa, Oliver Bog, 3 km S Galt, 1 ♂, 28.8.–3.9.1987, leg. D. Blades (MZH). USA: Maryland, Baltimore, Loch Raven, 1 ♂, 8.5.1938, leg. E. G. Fisher (PWMP). North Carolina, Swain Co., Great Smoky Mountains, Forney Ridge, 6,000 ft., 1 ♂, 18.6.1940, leg. C. P. Alexander (PWMP).

Literature: *Sciara hastata* Johannsen – Johannsen (1912): 119, 130, figs 112, 230. *Lycoria hastata* (Johannsen) – Shaw & Fisher (1952): 211, 212. *Bradysia* (*Bradysia*) *hastata* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia hastata* (Johannsen) – Steffan (1966): 36, 53. *Xenopygina hastata* (Johannsen) – Hippa & Vilkamaa (1991): 115, fig. 1 A, C–E. *Scatopsciara* (*Xenopygina*) *hastata* (Johannsen) – Menzel & Mohrig (2000): 430, 486.

Redescription. **Male**. 4th flagellomere with l/w index of 2.2, the setae as long as diameter of flagellomere. Palpus rather long, 3-segmented; basal segment without sensory pit, with 5–6 bristles; second segment long, elliptical, third segment long and narrow. Thorax brown. Mesonotum with short and dark setosity; postpronotum non-setose. Wings pale; R_1 rather long, = 2/3 R; c some-

what longer 1/2 w; r-m somewhat shorter bM, both non-setose; posterior veins sturdy, without macrotrichia: Halter short, knobs darkened: Coxae and legs yellowish-brown; front tibial organ with a small comb of 4–5 specialized setae on a lobe-like base; apical spurs on tibiae 2 and 3 distinctly unequal. Claws untoothed. Intercoxal area and ventromesial margin of gonocoxite short and sparsely setose. Gonostylus apically densely setose, the mesial side below middle with long lobe with 3 finger-like strong spines. Tegmen apically straight, with small area of fine teeth. Body length: 2.8 mm.

Comments. The species belongs to *Scatopsciara* (*Xenopygina*) on the basis of the unequal spurs on tibiae of 2 and 3, and the small comb of setae on front tibial organ. It resembles *Scatopsciara* (*Xenopygina*) *paradoxa* (Frey).

Distribution. Canada (Newfoundland, Ontario), USA (Maryland, New York, North Carolina).

Scatopsciara (*Scatopsciara*) *dendrotica* Steffan, 1968

Type locality: USA: California, El Dorado Co., Blodgett Forest E of Georgetown.
Holotype: ♂, no. 674, emerged ex *Pinus ponderosa*, 9.12.1965, leg. D. L. Dahlsten (CAS) [slide; embedded in artificial resin, badly damaged].
Paratypes: USA: same data as holotype, 4♂♂ 6♀♀ (CAS) [not found in the collection].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 1♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP).

Literature: *Scatopsciara dendrotica* Steffan – Steffan (1968): 37, fig. 1 a–h.

Comments. The species belongs to *Scatopsciara* s. str. It is characterized by the very strong spines in the middle of the ventromesial side of the gonostylus.

Distribution. Canada (Alberta), USA (California).

Scatopsciara (*Scatopsciara*) *nana* (Winnertz, 1871)

(Fig. 55)

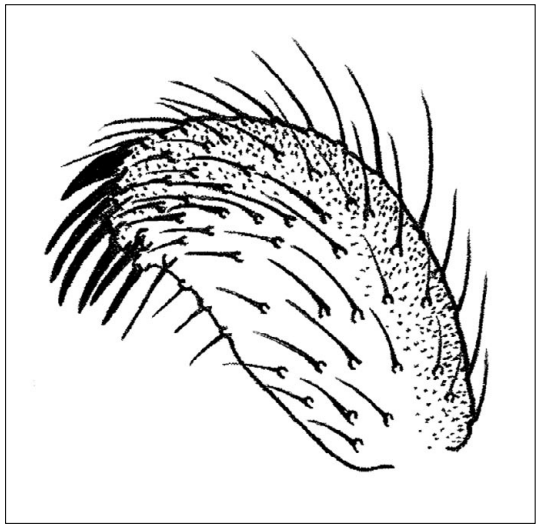


Fig. 55: *Scatopsciara nana* (Winnertz) ♂, holotype of *Neosciara felti* Pettey. Gonostylus, ventral view.

Type locality: GERMANY: as "Baiern" [= Bavaria].
Lectotype: ♂, no. 208, summer, leg. J. Winnertz (ZFMK); designated by Menzel in Menzel & Mohrig (2000).

= *Neosciara felti* Pettey, 1918 syn. nov.
Type locality: USA: New York, Tompkins Co., Ithaca.
Holotype: ♂, no. 231, 9.7.1904, leg. F. W. Pettey (CUIC) [2 slides; hypopygium with one gonostylus, wing; body pinned, head without antennae].

Literature: *Neosciara felti* Pettey – Pettey (1918b): 326, 339, figs 26, 57. *Bradysia* (*Bradysia*) *felti* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia felti* (Pettey) – Steffan (1966): 36, 52. *Sciara nana* Winnertz – Winnertz (1871): 854; – Lengersdorf (1925): 213, fig. 41; – Lengersdorf (1941b): 50, fig. 20. *Scatopsciara nana* (Winnertz) – Freeman (1983): 40, fig. 159. *Scatopsciara* (*Scatopsciara*) *nana* (Winnertz) – Menzel & Mohrig 2000: 492.

Comments. The species is characterized by its short and strong apical tooth and longer subapical spines in the apical third of the gonostylus. It is similar to *Scatopsciara vitripennis* (Meigen) and differs in distinctly longer subapical spines, as shown also in fig. 26 of Pettey (1918b). Comparison of North American with European specimens leaves no doubt as the conspecifity of *Neosciara felti* Pettey with *Scatopsciara nana* (Winnertz).

Distribution. Holarctic: Europe; USA (New York).

Scatopsciara (*Xenopygina*) *paradoxa* (Frey, 1948)

Type locality: RUSSIA: Tuhkala.
Holotype: ♂, 6.6.1939, leg. R. Frey (MZH).

Further material: CANADA: Quebec, Kuujjuarapik, 1 ♂, 6.6.–15.7.1990, leg. S. Koponen (MZH).

Literature: *Bradysia* (*Xenopygina*) *paradoxa* Frey – Frey (1948): 55, 78, fig. 52. *Phytosciara* (*Prosciara*) *paradoxa* (Frey) – Tuomikoski (1960): 104, 106; – Mohrig & Menzel (1994): 192, 201, fig. 86. *Xenopygina paradoxa* (Frey) – Hippa & Vilkamaa (1991): 117, fig. 1 B. *Scatopsciara* (*Xenopygina*) *paradoxa* (Frey) – Menzel & Mohrig (1998): 373; – Menzel & Mohrig (2000): 502, figs 469–473.

Comments. The species is characterized by the bilobate apex of the gonostylus without apical tooth. The apical lobe has 2 spines and setae of equal length, the mesial lobe has 3 apical spines. The intercoxal area of the hypopygium is long and closed, the tegmen higher than wide, apically straight, and sclerotized. The species is largely similar to *Sc. hastata* (Johannsen).

Distribution. Holarctic: Russia; Canada (Quebec).

Scatopsciara (*Scatopsciara*) *vitripennis* (Meigen, 1818)

Type locality: GERMANY: ? Stolberg near Aachen.
Syntypes: 1 ♂ 2 ♀♀, no details (MNHN).

= *Sciara actuosa* Johannsen, 1912 syn. nov.
Type locality: USA: New York, Niagara Co., Niagara Falls.
Lectotype: ♂, no. 2098, October, leg. M. C. Van Duzee (CUIC) [2 slides; hypopygium, wing; body glued]; hereby designated in order to fix the name.
Paralectotypes: USA: Ithaca and/or Freeville, 2 ♀♀, same no. as lectotype (CUIC) [pinned; not studied].

Further synonyms: = *Sciara quinquelineata* Macquart, 1834 [in Lengersdorf (1928–30)]; = *Sciara coracina* Zetterstedt, 1851; = *Sciara nitidula* Zetterstedt, 1851 [all in Menzel & Mohrig (2000)]; = *Sciara aucta* Winnertz, 1867 [in Lengersdorf (1924)]; = *Sciara intermista* Winnertz, 1867; = *Sciara superba* Winnertz, 1867; = *Basalisciara basaliseta* Yang & Zhang, 1987 [all in Menzel & Mohrig (2000)].

Further material: USA: Alaska, Alaska Highway, 1 ♂, 8.7.1952, leg. C. P. Alexander (PWMP).

Literature: *Sciara quinquelineata* Macquart – Macquart (1834): 149; – Lengersdorf (1924): 11; – Lengersdorf (1925): 213, fig. 38. *Neosciara quinquelineata* (Macquart) – Lengersdorf (1941a): 71. *Scatopsciara quinquelineata* (Macquart) – Freeman (1983): 39, fig. 158. *Sciara actuosa* Johannsen – Johannsen (1912): 120, 122, 134, figs 217, 260. *Neosciara actuosa* (Johannsen) – Pettey (1918b): 324, 326. *Lycoria actuosa* (Johannsen) – Shaw & Fisher (1952): 212. *Bradysia* (*Bradysia*) *actuosa* (Johannsen) – Stone & Laffoon (1965): 232. *Scatopsciara actuosa* (Johannsen) – Steffan (1966): 38, 52. *Basalisciara basaliseta* Yang & Zhang – Yang & Zhang (1987): 152, 155, fig. 18 a–f_3. *Sciara vitripennis* Meigen – Meigen (1818): 281. *Lycoria* (*Scatopsciara*) *vitripennis* (Meigen) – Lengersdorf (1928–30): 57 [not fig. 86]. *Scaptosciara* (*Scaptosciara*) *vitripennis* (Meigen) – Frey (1948): 69, 86, fig. 116. *Scaptosciara vitripennis* (Meigen) – Tuomikoski (1960): 150, 151. *Scatopsciara* (*Scatopsciara*) *vitripennis* (Meigen) – Menzel & Mohrig (2000): 487, figs 446–450.

Comments. The *Sciara actuosa* Johannsen is in all important details – the shape of the gonostylus, the apical tooth and its subapical spines, short c, r-m/bM with macrotrichia – identical with *Scatopsiara vitripennis* (Meigen).

Distribution. Widely distributed in the Holarctic region: Europe, Russia, China; USA (Alaska, New York).

Genus *Schwenckfeldina* Frey, 1942

Type species: *Sciara carbonaria* Meigen, 1830 – Syst. Beschr. **6**: 306–307; by original designation.

Literature: *Neosciara* (*Schwenckfeldina*) – Frey (1942): 32. *Bradysia* (*Schwenckfeldina*) – Frey (1948): 51, 75. *Schwenkfeldina* Frey [correctly *Schwenckfeldina*; incorrect spelling] – Steffan (1974b): 118; – Steffan (1981): 254; – Amorim (1992): 66; – Poole (1996): 239; – Arnett (2000): 856. *Schwenckfeldina* Frey – Tuomikoski (1960): 4, 29; – Tuomikoski (1966): 137; – Tuomikoski (1967): 45; – Steffan (1974b): 118; – Freeman (1983): 16, 21; – Menzel & Mohrig (1997b): 56, 66; – Menzel & Mohrig (2000): 89, 508; – Mohrig (2003): 14, 65; – Mohrig & Menzel (2009): 285, 287, 292; – Shin et al. (2013): 835.

Schwenckfeldina dux (Johannsen, 1912)

(Fig. 56 a, b)

Type locality: USA: Wisconsin.

Holotype: ♂, no. 2084, no date, leg. W. M. Wheeler (CUIC) [1 slide with hypopygium, wing and p_2; body pinned].

Paratype: USA: New York, Tompkins Co., Ithaca, 1 ♀, June, leg. O. A. Johannsen (CUIC) [pinned, not studied].

Further material: CANADA: Quebec, Bristol, 1 ♂, no. 1672, 26.6.1996, no collector detail (PWMP). Loc. ab 43, Lab. no. 6, 1 ♂, no further data (CNC).

Literature: *Sciara dux* Johannsen – Johannsen (1912): 118, 127, figs 106, 225. *Lycoria dux* (Johannsen) – Shaw & Fisher (1952): 211, 212, fig. 47. *Neosciara dux* (Johannsen) – Pettey (1918b): 322; – Johnson (1930): 126. *Bradysia* (*Bradysia*) *dux* (Johannsen) – Stone & Laffoon (1965): 232. *Bradysia dux* (Johannsen) – Steffan (1966): 35, 52. *Schwenkfeldina dux* (Johannsen) [correctly *Schwenckfeldina*; incorrect spelling] – Steffan (1974b): 119.

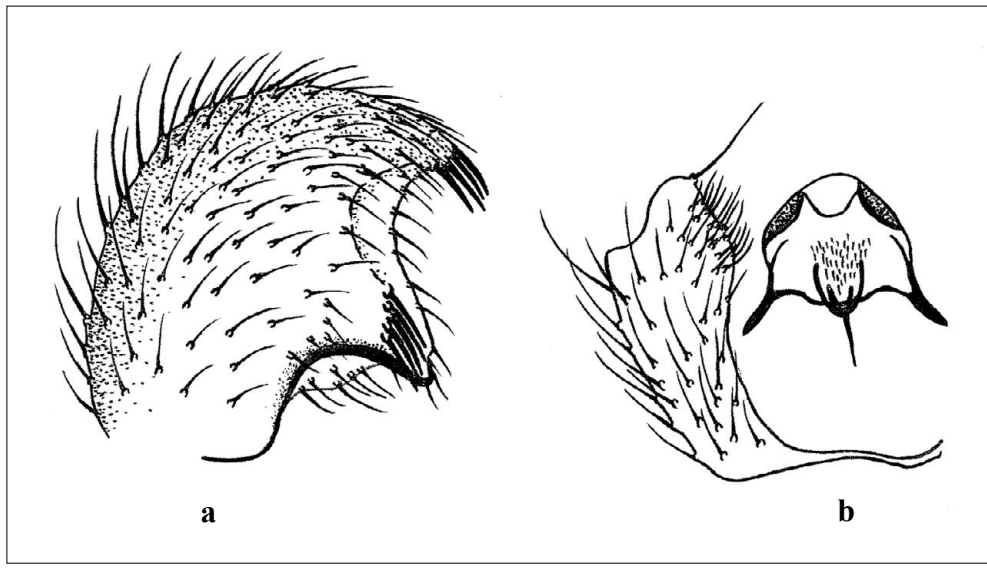


Fig. 56: *Schwenckfeldina dux* (Johannsen) ♂, specimen from Canada, Quebec. – **a**: Gonostylus, ventral view; – **b**: Left gonocoxite with tegmen, ventral view.

Comments. The species is characterized by the gonostylus having a short mesial protuberance with 6–7 spines directly at the base. The apical ventral lobe of gonocoxites is short haired.

Distribution. Canada (Quebec), USA (Massachusetts, New York, Wisconsin).

Schwenckfeldina imitans (Johannsen, 1912)

(Fig. 57 a–f)

Type locality: USA: Washington, San Juan Co., San Juan Island, Friday Harbor.
Lectotype: ♂, no. 2085.1, May, leg. J. M. Aldrich (CUIC); hereby designated in order to fix the name.
Paralectotypes: several ♂♂, same data as lectotype (CUIC) [slides, 2 ♂♂ present; not studied].

Further material: CANADA: Quebec, Lac Roddic, 16 km S Maniwaki, 1 ♂, 23.4.1991, leg. M. Bartàk (SDEI). Loc. ab 45, Lab. no. 5, 1 ♂, no further data (CNC). USA: Oregon, Marion Co., Silver Falls State Park, North Falls, Silver Creek, 4 ♂♂ 2 ♀♀, 24.6.1974, leg. P. H. Arnaud (2 ♂♂ 2 ♀♀ in CAS; 2 ♂♂ in PWMP). Washington, Grays Harbor Co., Quinault Lake, 1 ♂, 28.6.1974, leg. P. H. Arnaud (PWMP). Washington, Lewis Co., Grant Purcell Falls, 1 ♂, 4.7.1974, leg. P. H. Arnaud (PWMP).

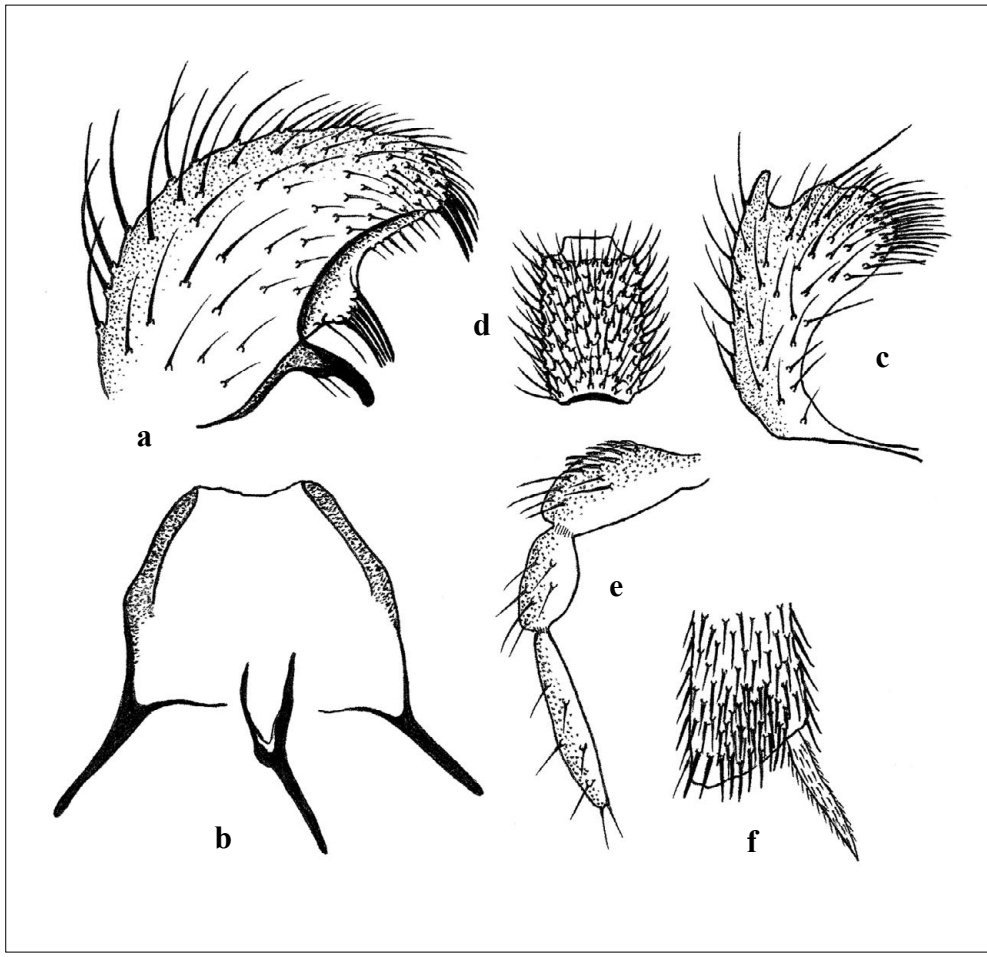


Fig. 57: *Schwenckfeldina imitans* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Tegmen, ventral view; – **c**: Left gonocoxite, ventral view; – **d**: 4th flagellomere; – **e**: Palpus; – **f**: Apex of fore tibia.

Literature: *Sciara imitans* Johannsen – Johannsen (1912): 118, 128, figs 107, 226. *Neosciara imitans* (Johannsen) – Pettey (1918b): 322. *Bradysia* (*Bradysia*) *imitans* (Johannsen) – Stone & Laffoon (1965): 233. *Bradysia imitans* (Johannsen) – Steffan (1966): 36, 53. *Schwenkfeldina imitans* (Johannsen) [correctly *Schwenckfeldina*; incorrect spelling] – Steffan (1974b): 119, fig. 1 A–E.

Comments. The species is very similar to *Schwenckfeldina dux*, but characterized by a long mesial protuberance on the gonostylus and with 8–10 spines placed on the apical side of the protuberance. The ventroapical lobe of the gonocoxite is densely covered with long bristles.

Distribution. Canada (Quebec), USA (Oregon, Washington).

Schwenckfeldina joffrei (Pettey, 1918) comb. nov.

(Fig. 58 a–c)

Type locality: USA: Pennsylvania, Lycoming Co., North Mountain NW of Lungerville.
Holotype: ♂, no. 215, 7 June, leg. F. W. Pettey (CUIC) [2 slides; hypopygium, wing; body pinned].

Further material: USA: Virginia, Fairfax Co., Great Falls, 1 ♂, 30.5.1912, leg. W. L. McAtee (CUIC).

Literature: *Neosciara joffrei* Pettey – Pettey (1918b): 322, 332, figs 10, 41. *Bradysia* (*Bradysia*) *joffrei* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia joffrei* (Pettey) – Steffan (1966): 36, 53. *Chaetosciara joffrei* (Pettey) – Steffan (1981): 255.

Comments. The species probably represents a primitive type of *Schwenckfeldina.* In its shape of the gonostylus and in the lack of dense and long bristles on the ventromesial margin of the gonocoxite it is similar to the Palaearctic *Scythropochroa radialis*, but has a 3-segmented, not 1-segmented palpus. It is similar to *Schwenckfeldina quadrispinosa* (Pettey) and differs only in

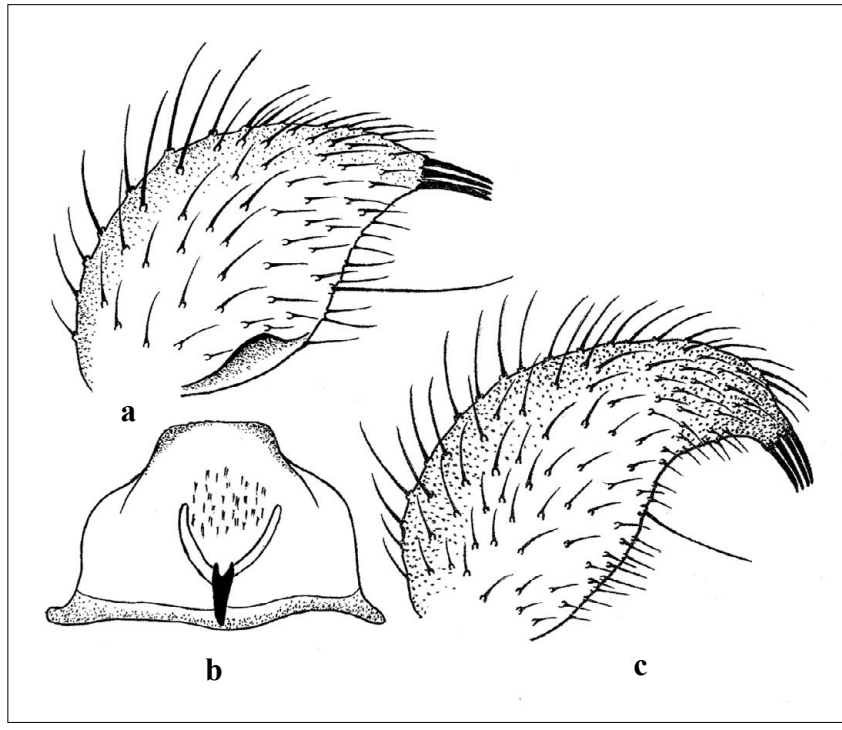


Fig. 58: *Schwenckfeldina joffrei* (Pettey) ♂. – **a**: Gonostylus of holotype, ventral view (phantom picture); – **b**: Tegmen of holotype, ventral view; – **c**: Gonostylus of specimen from USA, Virginia, ventral view.

shorter apical spines on the apex of the gonostylus and a wider and shorter tegmen. For comparison see under that species.

Distribution. USA (Pennsylvania, Virginia).

Schwenckfeldina quadrispinosa (Pettey, 1918) comb. nov.

(Fig. 59 a, b)

Type locality: USA, Massachusetts, Berkshire Co., at North Adams.
Holotype: ♂, no. 216, 20. March, leg. F. W. Pettey (CUIC) [2 slides; hypopygium strongly deformed, wing; body pinned].

Further material: CANADA: Ontario, Algonquin, primary forest, sweep-netting, 1 ♂, 1.6.1991, leg. M. Barták (SDEI). USA: Maine, Hancock Co., Mount Desert Island, 2 ♂♂, 22.6.1935, leg. C. P. Alexander (PWMP). North Carolina, Swain Co., Great Smoky Mountains, Forney Ridge, 1 ♂, 18.6.1946, leg. C. P. Alexander (PWMP) [pinned, transferred to slides, in not good condition]. No data, 2 ♂♂, leg. et det. F. R. Shaw (UMEC) [2 slides, in bad condition].

Literature: *Neosciara quadrispinosa* Pettey – Pettey (1918b): 322, 332, figs 11, 42. *Lycoria quadrispinosa* (Pettey) – Shaw & Fisher (1952): 211, 212. *Bradysia* (*Bradysia*) *quadrispinosa* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia quadrispinosa* (Pettey) – Steffan (1966): 36, 54.

Comments. The hypopygium of the type specimens of *Schwenckfeldina joffrei* and *Schw. quadrispinosa* are strongly deformed. The gonostylus has in both species 4 strong spines on the apex and a long whiplash-like bristle near the middle of the mesial side of the gonostylus. The difference between figures 10 and 11 given by Pettey (1918b) is seen only in distinctly longer spines in *Schw. quadrispinosa*, which we can state are also present in the three specimens collected by Alexander, studied by us. New alcohol-conserved material would be necessary for a complete redescription of the species.

Distribution. Canada (Ontario), USA (Massachusetts, Maine, North Carolina).

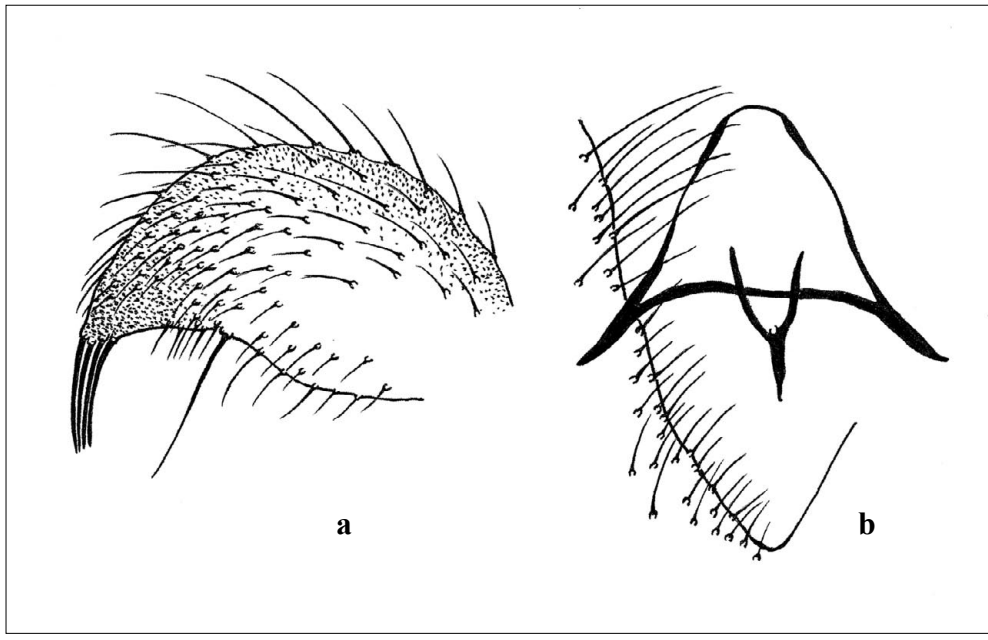


Fig. 59: *Schwenckfeldina quadrispinosa* (Pettey) ♂, specimen from USA, Maine. – **a**: Gonostylus, ventral view; – **b**: Innerside of left gonocoxite with tegmen, ventral view.

Schwenckfeldina scita (Johannsen, 1912) comb. nov.

(Fig. 60 a–c)

Type locality: USA: Oregon, Lincoln Co., Newport.
Holotype: ♂, no. 2102, no details (CUIC) [2 slides; hypopygium, wing and antennae; body].
Paratype: USA: Washington D. C., 1 ♀, no. 2102 (CUIC) [slide; in artificial resin, body badly damaged, indeterminable]; second ♀ missing.

= *Neosciara fochi* Pettey, 1918 syn. nov.
Type locality: USA: Wyoming, Fremont Co., Lander [not "Leander"; incorrect spelling].
Holotype: ♂, no. 214, 5,000–8,000 ft., August, leg. R. Moodie (CUIC) [2 slides; hypopygium in good position, wing; body pinned, without head and legs].

Literature: *Neosciara fochi* Pettey – Pettey (1918b): 322, 331, figs 9 a, 9 b, 40. *Bradysia* (*Bradysia*) *fochi* (Pettey) – Stone & Laffoon (1965): 233. *Bradysia fochi* (Pettey) – Steffan (1966): 36, 52. *Sciara scita* Johannsen – Johannsen (1912): 123, 135, figs 128, 247; – Steffan (1966): 44, 54. *Neosciara scita* (Johannsen) – Pettey (1918b): 323, 327. *Bradysia* (*Bradysia*) *scita* (Johannsen) – Stone & Laffoon (1965): 234.

Redescription. **Male**. Eye bridge with 3–4 rows of facets; palpus 3-segmented; basal segment without sensory pit, with 6–8 bristles. Thorax and legs dark; postpronotum densely setose; mesonotum with dark setosity, with strong lateral bristles. R_1 longer R, joining C about the level of the M-fork; C = 2/3 w; posterior veins sturdy, without macrotrichia; CuA-stem short, = bM; r-m = 2 bM, non-setose. Halter short and dark. Front tibial organ with large patch of short bristles. Spurs long, claws untoothed. Ventromesial margin of gonocoxite basally with a group of long setae. Gonostylus with two strong apical spines, subapical moderately long bristle, and an indistinctly haired process on the apical half.

Comments. The conspecificity of the two species is confirmed by the characteristic groups of long bristles basally on the ventromesial margin of the gonocoxite, and by the shape of the gonostylus. The taxonomic position of the species is not so clear. The dense hair on postpronotum,

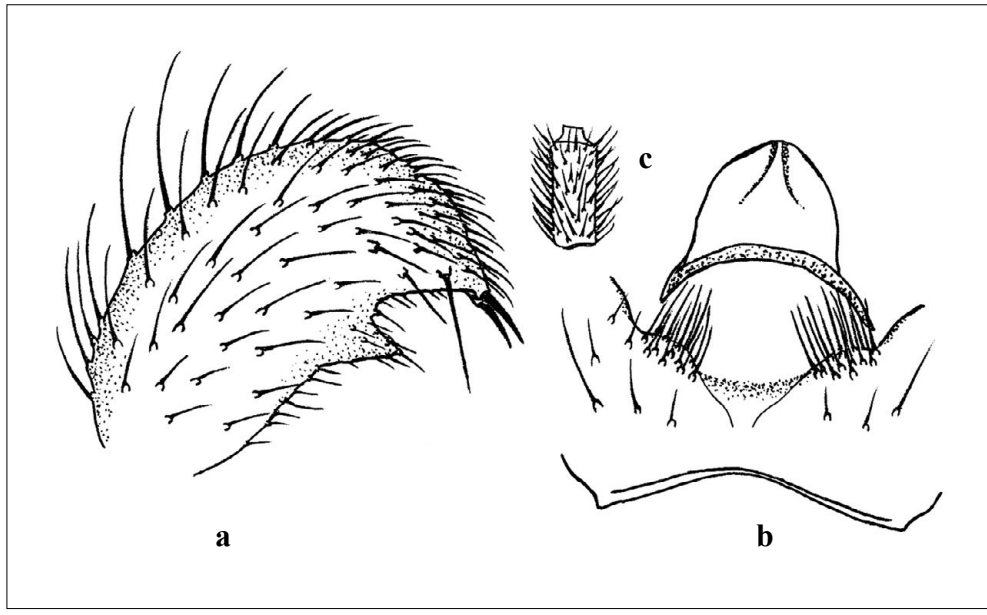


Fig. 60: *Schwenckfeldina scita* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view; – **c**: 4th flagellomere.

the 3-segmented palpus, the irregular bristle patch of the front tibial organ, the untoothed claws and the long R_1, joining C opposite of base of M-fork, do indicate a placement in *Schwenckfeldina*. The rather long flagellomeres without distinct net-like surface structures do not fit well in *Schwenckfeldina,* like the species *Schw. carbonaria* (Meigen) or *Schw. dux* (Johannsen). The shape of the gonostylus is similar to species of *Pseudolycoriella*, but the other above mentioned characters are unknown in this genus.

Distribution. USA (Oregon, Wyoming).

Schwenckfeldina tridentata (Rübsaamen, 1898)

Type locality: DENMARK: Greenland, Umanak District.
Syntypes: several ♂♂ and ♀♀, July 1893, leg. Vanhoeffen (ZMHB).

Synonyms: = *Sciara atrata* Holmgren, 1869 [preocc.; in Lengersdorf (1930a)]; = *Sciara holmgreni* Jacobson, 1898 **[**replacement name for *Sciara atrata* Holmgren, 1869]; = *Sciara validicornis* Lundbeck, 1898; = *Rhynchosciara laguncularis* Lengersdorf, 1930; = *Bradysia* (*Neosciara*) *incisiforceps* Frey, 1948 [replacement name for *Sciara atrata* Holmgren, 1869] [all as synonyms in Tuomikoski (1967)].

Further material: CANADA: Yukon, Noth Fork Crossing, mi 42, Peel Pit Road, 3,500 ft., 1 ♂, 24.6.1969, leg. Skitska (MZH). NORWAY: NW Spitsbergen, South coast of Kongsfjord, W of Ny Ålesund, yellow trap, 5 ♂♂; 2.–15.7.1974, leg. Stephan (1 ♂, no. 3619 in PKHE; 1 ♂ in PWMP; 3 ♂♂ in SDEI).

Literature: *Lycoria* (*Neosciara*) *meigeni* (Rübsaamen) sensu Lengersdorf – Lengersdorf (1928–30): 40, fig. 49. *Sciara atrata* Holmgren – Holmgren (1869): 51; – Lengersdorf (1930a): 55. *Lycoriella* (*Hemineurina*) *atrata* (Holmgren) – Frey (1942): 36. *Sciara holmgreni* Jacobson – Jacobson (1898): 204. *Sciara validicornis* Lundbeck – Lundbeck (1898): 243, fig. 2; – Steffan (1966): 51, 54. *Bradysia* (*Neosciara*) *incisiforceps* Frey – Frey (1948): 53, 77, fig. 35. *Sciara tridentata* Rübsaamen – Rübsaamen (1898): 107, textfig. 6, figs 1, 13, 24; – Lundbeck (1900): 312; – Coquillett (1900): 392; – Johannsen (1912): 118, 127, fig. 109; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 54. *Neosciara tridentata* (Rübsaamen) – Pettey (1918b): 321. *Schwenkfeldina tridentata* (Rübsaamen) [correctly *Schwenckfeldina*; incorrect spelling] – Steffan (1974b): 120. *Schwenckfeldina tridentata* (Rübsaamen) – Tuomikoski (1966): 137; – Tuomikoski (1967): 45; – Menzel & Mohrig (1997b): 57, fig. 6.13; – Menzel & Mohrig (2000): 513, figs 66, 99 b–c, 479–481.

Comments. The species was reported by Coquillett (1900) for British Columbia (Lowe Inlet) and by Steffan (1974b) also for British Columbia and Manitoba. These reports can be accepted, although we have not seen the material in question. *Schw. tridentata* Rübsaamen is a very characteristic species and easy to identify. The species is circumpolar in distribution.

Distribution. Holarctic: Europe (Norway: Spitsbergen, Jan Mayen Island); Greenland, Canada (British Columbia, Manitoba, Nunavut: Bear Island, Yukon).

Genus *Sciara* Meigen, 1803

Type species: *Tipula thomae* Linnaeus, 1767 [as "*Hirtea thomae* Fabricius"] – Syst. Nat. (ed. 12) **1**(2): 976; monotypy [= *Tipula hemerobioides* Scopoli, 1763].

Synonyms: = *Lycoria* Meigen, 1800 [suppressed by I. C. Z. N. (1963): 339]; = *Molobrus* Latreille, 1805; = *Nowickia* Kjellander, 1943 [preocc.]; = *Nowickiana* Kjellander, 1943 [replacement name for *Nowickia* Kjellander, 1943]; = *Semisciara* Kjellander, 1943.

Literature: *Trichosia* Winnertz sensu Loew – Loew (1869): 161; – Curran (1930): 35; – Shaw & Fisher (1952): 209, 210; – Curran (1965): 119; – Stone & Laffoon (1965): 229; – Steffan (1966): 32, 41; – Poole (1996): 240. *Lycoria* Meigen [in part] – Meigen (1800): 17; – Enderlein (1911): 127, 150; – Lengersdorf (1928–30): 23. *Sciara* Meigen [often in part] – Meigen (1803): 263; – Winnertz (1867): 11; – Johannsen (1912): 113, 117; – Lengersdorf (1925): 203; – Curran (1928): 15; – Curran (1930): 35; – Johnson (1930): 126; – Lengersdorf (1930a): 50; – Collin (1933): 61; – Shaw (1935b): 87; – Frey (1942): 14, 28; – Frey (1948): 45, 48, 75; – Shaw (1953b): 29; – Tuomikoski (1960): 4, 13; – Curran (1965): 119; – Stone & Laffoon (1965): 230; – Steffan (1966): 32, 42; – Antonova (1978): 180; – Steffan (1981): 254; – Freeman (1983): 16, 17; – Poole (1996): 239; – Menzel & Mohrig (1997b): 51, 67; – Menzel & Mohrig (1998): 373; – Arnett (2000): 856; – Menzel & Mohrig (2000): 88, 515, 720; – Mohrig (2003): 3, 65; – Mohrig & Menzel (2009): 281, 292; – Shin et al. (2013): 835.

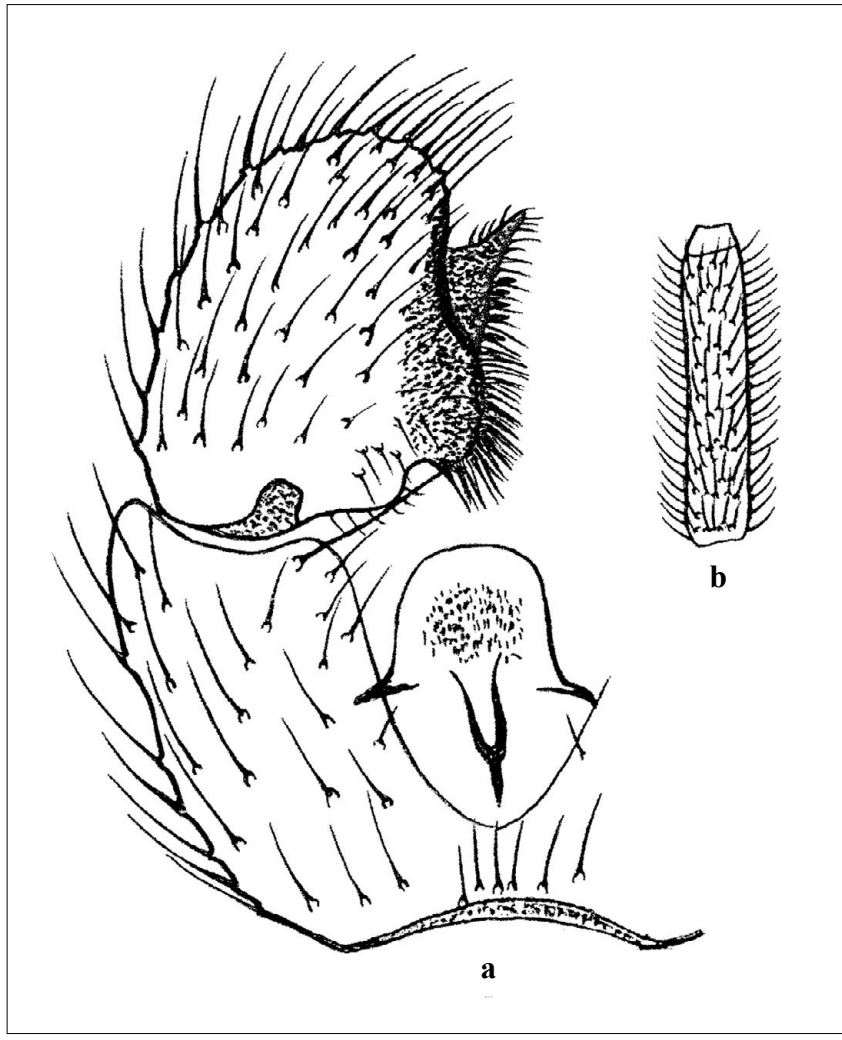


Fig. 61: *Sciara cingulata* Rübsaamen ♂, holotype from *Sciara crinita* Lengersdorf. – **a**: Left side of hypopygium, ventral view; – **b**: 4th flagellomere.

Sciara cingulata Rübsaamen, 1894

(Fig. 61 a, b)

Type locality: USA: Georgia.

Holotype: ♀, no. 6200 and 50, leg. Pöpping (ZMHB) [embedded between coverslips in capsule on pin, transferred to two slides, wing separate; specimen bleached, flattened and constricted].

= *Lycoria crinita* Lengersdorf, 1944 syn. nov.

Type locality: MEXICO: Chiapas, Finca Vergel, 200 m above Vergel.

Holotype: ♂, no. M.F.4415, 1,000 m, 21.5.1935 [nec 3.6.1935], leg. A. Dampf (SDEI).

Literature: *Lycoria crinita* Lengersdorf – Lengersdorf (1944): 128, fig. 4. *Sciara cingulata* Rübsaamen – Rübsaamen (1894): 30, 31, figs 8, 9; – Johannsen (1912): 118, 124; – Pettey (1918b): 320, 321 [also as *Neosciara*]; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52.

Redescription. **Female**. Antenna yellow, rather short, flagellomere necks bottle-like, 4th flagellomere with l/w index of 2. 0. Setae shorter than diameter of flagellomere. R_1 longer than R, c = 2/3 w; r-m = bM, without macrotrichia. CuA-stem short; posterior veins with macrotrichia; wing membrane with some macrotrichia apically between M_1 and CuA_1. Front tibial organ with triangular patch of small setae. Claws untoothed. Body length: 7.0 mm; wing length: 5.5 mm.

Male. See Lengersdorf (1944). Front tibial organ and macrotrichia on wing membrane as in the female. Gonostylus with a broad mesial lobe with numerous dark spines. Body length: 4.0 mm; wing length: 5.0 mm.

Comments. We consider both specimens as conspecific on the basis of the identical wing venation and the distribution of macrotrichia (especially the non-setose r-m and bM). The species belongs to the *Sciara hemerobioides* group sensu Menzel & Mohrig (2000): 519. The shape of the gonostylus is similar to *Sciara ochrolabis*, but has a still larger mesial lobe.

Distribution. Mexico (Chiapas); USA (Georgia).

Sciara futilis Johannsen, 1912

(Fig. 62 a, b)

Type locality: USA: Wisconsin.

Lectotype: ♂, type no. 2080, leg. W. M. Wheeler (CUIC) [2 slides; hypopygium and wing; body and head badly damaged]; hereby designated in order to fix the name.

Paralectotype: USA: same data as lectotype, 1 ♀, no. 20547, leg. W. M. Wheeler (AMNH) [pinned, transferred to slide, in good condition].

Literature: *Sciara futilis* Johannsen – Johannsen (1912): 118, 125, figs 102, 221; Pettey (1918b): 321; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 53 [also as *futillis*; incorrect spelling].

Redescription. **Male**. Antennae long, flagellomere necks bottle-like; 4th flagellomere 3 times as long as wide, setae as long as the diameter of flagellomere. Palpus rather short. R_1 longer R; C = 2/3 w; r-m = bM, with 1–2 macrotrichia; CuA-stem shorter bM; posterior veins with macrotrichia. Tibial organ with with dense patch of bristles. Claws untoothed. Intercoxal area of hypopygium non-setose and bare, ventromesial margin of gonocoxite with coarse and fine setae. Gonostylus elongated, apically with dense and short setosity, with tooth-like subapical process and group of about 8 strong spines on lateral side behind the tip; mesially with short and sparse setosity. Large species, body length: about 4.0 mm. X: posterior wing veins with macrotrichia with exception of M-stem.

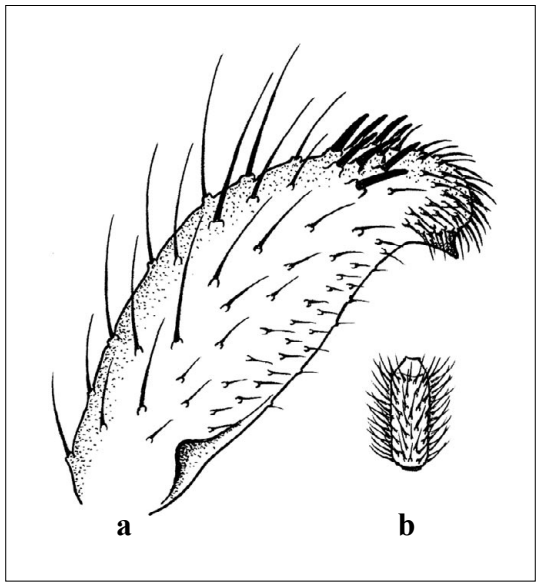


Fig. 62: *Sciara futilis* Johannsen ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere.

Comments. The species unique in having a tooth-like protuberance at the apex of the gonostylus and therefore a placement in one of the genus groups by Menzel & Mohrig (2000: 518) is not possible.

Distribution. USA (Wisconsin).

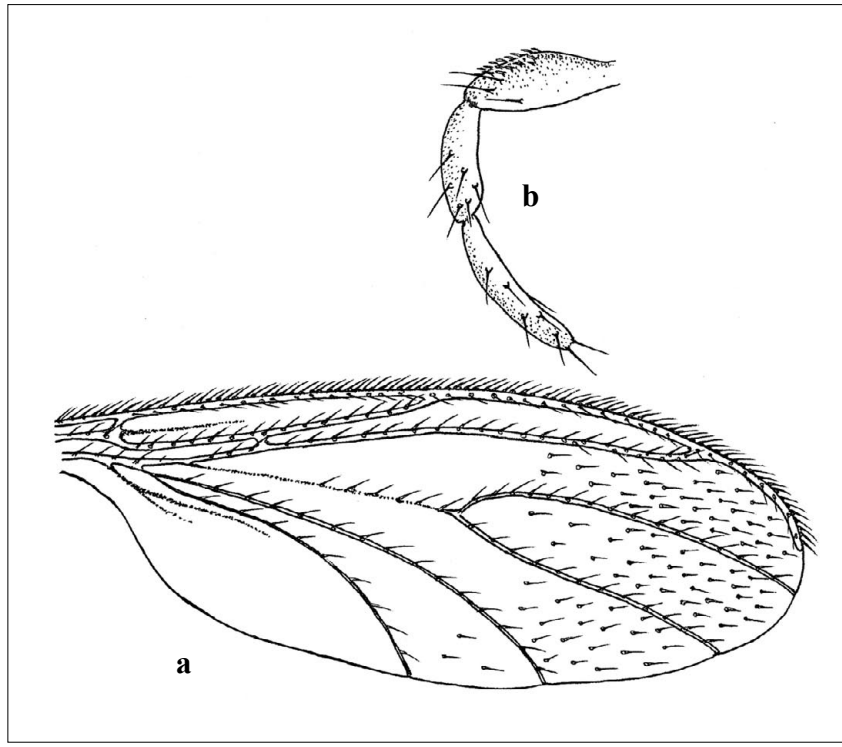


Fig. 63: *Sciara hebes* (Loew) ♀, holotype. – **a**: Wing; – **b**: Palpus.

Sciara hebes (Loew, 1869) comb. nov.

(Fig. 63 a, b)

Type locality: USA: New York.
Holotype: ♀, no. 14545, no date (MCZC) [pinned, transferred to slide].

= *Trichosia modesta* Winnertz, 1867 [preocc., nec *Sciara modesta* Staeger, 1840; as synonym to *Sciara mendax* Tuomikoski in Tuomikoski (1960)].
Type locality: THE NETHERLANDS: near Scheveningen.
Holotype: ♀, no. 3013, leg. C. von Heyden (SFNF) [slide].

= *Sciara mendax* Tuomikoski, 1960 syn. nov. [replacement name for *Trichosia modesta* Winnertz, 1867].

Further synonyms: = *Sciara marginata* Mohrig & Krivosheina, 1983 [preocc., nec *Sciara marginata* Rübsaamen, 1898; as synonym to *Sciara ulrichi* Menzel & Mohrig in Menzel & Mohrig (1998)]; = *Sciara ulrichi* Menzel & Mohrig, 1998 **[**replacement name for *Sciara marginata* Mohrig & Krivosheina; as synonym to *Sciara nursei* Freeman in Menzel et al. (2006)]; = *Sciara nursei* Freeman 1983 [as synonym to *Sciara mendax* Tuomikoski in Menzel & Heller (2007)].

Literature: *Sciara flavomarginata* Mohrig & Mamaev – Menzel & Mohrig (2000): 523 [in part, misidentification]. *Trichosia modesta* Winnertz – Winnertz (1867): 175; – Lengersdorf (1928–30): 10, fig. 7. *Sciara modesta* (Winnertz) – Menzel & Mohrig (2000): 525. *Sciara mendax* Tuomikoski – Tuomikoski (1960): 13 [in part; not fig. 3 a, 4 a]; – Menzel & Heller (2007): 223. *Sciara marginata* Mohrig & Krivosheina – Mohrig et al. (1983): 2, fig. 1 a, b. *Sciara ulrichi* Menzel & Mohrig – Menzel & Mohrig (1998): 373; – Menzel & Mohrig (2000): 527. *Sciara nursei* Freeman – Freeman (1983): 18, fig. 11; – Menzel et al. (2006): 37, 134. *Trichosia hebes* Loew – Loew (1869): 161; – Johannsen (1912): 115; – Shaw & Fisher (1952): 210; – Stone & Laffoon (1965): 229; – Steffan (1966): 42, 53.

Redescription. **Female**. Eye bridge with 2–3 rows of facets; 4th flagellomere with l/w index of 2.0; setae as long as diameter of flagellomere; palpus 3-segmented, long, basal segment with 3–4 bristles, without sensory pit, third segment long and narrow. Thorax brown; mesonotum with moderately long dorsocentrals and long laterals; postpronotum setose. Wings darkened; R_1 as long as R, joining C opposite M-fork; c = 2/3 w; r-m = bM; r-m with 1–2 macrotrichia; CuA-stem short; posterior wing veins with macrotrichia; wing membrane with macrotrichia at apical third. Halter short, brown. Front tibial organ with irregular patch of dark bristles; spurs of tibiae 1 and 3 long; claws untoothed.

Comments. The supposed conspecifity between *Sciara hebes* (Loew) and *S. mendax* Tuomikoski is based on the presence of macrotrichia on the apical third of the wing membrane, not often present, in addition to the long palpus (especially the third segment). We compared the wing venation and the arrangement of macrotrichia on the wing membrane with females from Brandenburg (Germany) and Bohemia (Czech Republic) and found the same pattern between R_5 and CuA_2. The only difference is that some European specimens have 2–3 macrotrichia on the otherwise invisible anal vein. The species belongs to the *Sciara hemerobioides* group sensu Menzel & Mohrig (2000): 519.

Distribution. Holarctic: Europe; USA (New York).

Sciara ochrolabis Loew, 1869

(Fig. 64 a, b)

Type locality: USA, New York.
Lectotype: ♂, no. 14547, no date, leg. Edwards (MCZC) [3 slides]; hereby designated in order to fix the name.
Paralectotypes: ? ♂♂ and ? ♀♀, same data as lectotype (? MCZC) [not seen].

Further material: CANADA: Quebec, Rigaud, 1 ♂, no date, no collector detail, det. O. A. Johannsen (CUIC). USA: Maryland, Frederick Co., Catoctin Mountain Park, 2 ♂♂, 16.6.1991, leg. M. Barták (SDEI). Minnesota, Mahnomen Co., Beaulieu, 1 ♂, 25.6.1906, no collector detail, det. O. A. Johannsen (PWMP). New York, Tompkins Co., Ithaca, 2 ♂♂, 25.7.1906, no collector detail (1 ♂ in PWMP; 1 ♂ in SDEI) [slides]. No data, 1 ♂, lot no. 785, det. O. A. Johannsen (CUIC) [slide, hypopygium].

Literature: *Lycoria ochrolabis* (Loew) – Shaw & Fisher (1952): 210, 212. *Sciara ochrolabis* Loew – Loew (1869): 160; – Johannsen (1912): 118, 125, figs 103, 222; – Pettey (1918b): 321; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 54.

Redescription. **Male**. Eye bridge 4 rows of facets wide. Antennae long, 4th flagellomere with l/w index of about 3.0, with dense setosity, setae somewhat longer than diameter of flagellomere; neck bottle-like. Palpus 3-segmented, basal segment with some bristles. Thorax brownish with yellow parts on pleura; mesonotum with moderately short setosity, some lateral bristles longer; postpronotum with fine setae. Wings large, wing membrane apically with macrotrichia; R_1 = R, joining C opposite the base of M-fork; c = 2/3 w; r-m as long as or longer than bM; r-m without macrotrichia; M-stem without macrotrichia; M-fork, CuA_1 and CuA_2 with macrotrichia. Halter short, brownish. Coxae and legs yellowish; front tibial organ with irregular patch of bristles. Claws untoothed. Hypopygium large, yellow; gonocoxite short and strong, with fine, short and dense setosity on ventromesial margin; gonostylus short, globular, apically widely flattened, dark, and with very short and dense setosity mesially; within the setosity very short awl-like spines. Tegmen rectangular, aedeagus short. Body length: 4.0 mm.

Comments. The species is characterized by the yellow body colour. The shape of the mesial lobe of the gonostylus is variable in length and width. *Sciara ochrolabis* is very similar to the Palaearctic *S. helvola* Winnertz, but differs in having a broader gonostylar lobe with shorter and more numerous

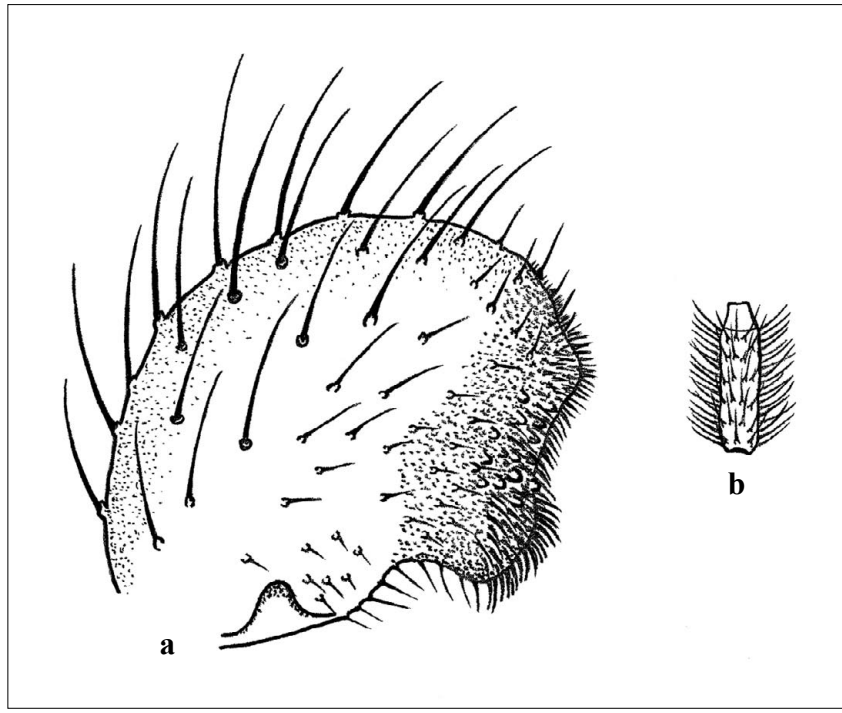


Fig. 64: *Sciara ochrolabis* Loew ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere.

spines and in the presence of more numerous macrotrichia on the wing membrane. The species belongs to the *Sciara hemerobioides* group sensu Menzel & Mohrig (2000): 519.

Distribution. Canada (Quebec), USA (Maryland, Minnesota, New York, Wisconsin).

Sciara robusta Walker, 1848

Type locality: CANADA: Ontario, Hudson's Bay, Albany River, St. Martin's Falls.
Syntypes: 2 ♀♀, no. BMNH(E)#250038 and BMNH(E)#250039, no date, leg. G. Barnston (BMNH) [pinned; specimens in good condition]. Contrary to the original description, no male is present in the BMNH.

Literature: *Sciara robusta* Walker – Walker (1848): 105; – Johannsen (1912): 140; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 54.

Redescription. **Female**. Length 3.0–4.0 mm. Wings are of the same length as the body with completely setose wing veins and with some macrotrichia on the tip of the wing membrane between R_5 and CuA_1. CuA-stem nearly as long as bM. Antennal flagellomeres short-elliptical.

Comments. The macrotrichia on the wing membrane and the shape of the antennal flagellomeres indicate that the species belongs to *Sciara*. It cannot be identified reliably with any other North-American species. The most similar species appears to be *Sciara hebes* (Loew), which also has a relatively long CuA-stem and macrotrichia on the wing membrane, which in turn are much more numerous than those of *S. robusta*. Up till now, the male of this species is not known.

Distribution. Canada (Ontario).

Sciara sciophila Loew, 1869

(Fig. 65 a–c)

Type locality: USA: District of Columbia [= Washington D. C.].
Lectotype: ♂, no. 14546, no date, leg. C. R. Osten Sacken (MCZC) [2 slides]; hereby designated in order to fix the name.
Paralectotype: ?♂♂ and ?♀♀, same data as lectotype (? MCZC) [not seen].

Further material: USA: Massachusetts, Hampshire Co., Amherst, light trap, 2♂♂, 18.7.1938; 1♂, 5.8.1938, all leg. J. F. Hanson (PWMP). Massachusetts, Hampshire Co., Amherst, 1♂, 17.10.1938; 1♂, 22.10.1938, all leg. G. Erikson (PWMP). Massachusetts, Hampshire Co., Amherst, light trap, 1♂, 27.–29.7.1951, leg. E. I. Coher (SDEI). Massachusetts, Worcester Co., Sunderland, light trap, 1♂, 19.8.1951, leg. E. I. Coher (SDEI). Ohio, Cuyahoga Co., Cleveland, 1♂, no. 1925, July 1912, leg. et det. O. A. Johannsen (CUIC). Vermont, Windham Co., Wilmington, 1♂, 12.7.1934, leg. H. D. Pratt (PWMP).

Literature: *Lycoria sciophila* (Loew) – Shaw & Fisher (1952): 210, 212, fig. 40. *Sciara sciophila* Loew – Loew (1869): 160; – Johannsen (1912): 118, 126, figs 104, 223; – Pettey (1918b): 321; – Johnson (1930): 126; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 54.

Redescription. **Male**. Eye bridge 2–3 facets wide. Antennae long; 4th flagellomere with l/w index of about 3. 0, neck bottle-like, densely setose, setae as long as diameter of flagellomere. Palpus 3-segmented, basal segment with some bristles; prefrons sparsely setose. Mesonotum with moderately short setosity, some lateral bristles longer; postpronotum non-setose. Wings large, R_1 long, joining C opposite the base of M-fork; c longer than 1/2 w; r-m longer than bM, r-m with some macrotrichia; M-stem weak, without macrotrichia; M-fork and CuA_1 veins with macrotrichia; CuA_2 along whole length with macrotrichia. Halter short and brownish. Coxae and legs yellowish brown. Front tibial organ with irregular patch of bristles; middle and hind tibiae with equal spurs, somewhat longer than width of the apex. Claws untoothed. Gonocoxite short and strong, ventromesial margin with short and fine setosity; gonostylus with three apical and one mesial lobe: apicoventral lobe densely setose, with two sharp spines, two apicodorsal lobes with two and four sharp spines, mesial lobe with 5–6 sharp spines. Body length: 4.0 mm.

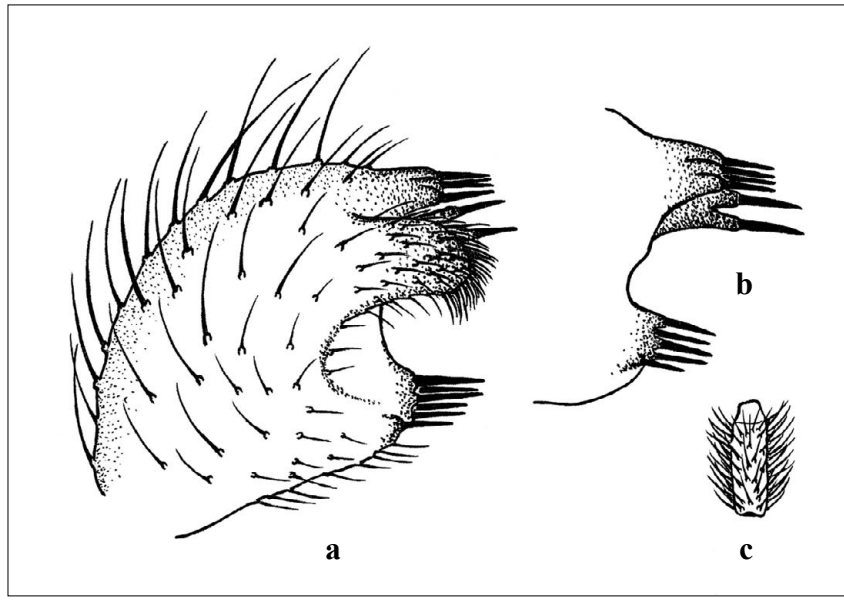


Fig. 65: *Sciara sciophila* Loew ♂, lectotype. – **a**: Gonostylus, ventral view; – **b**: Apex of gonostylus, dorsal view; – **c**: 4th flagellomere.

Comments. The species is similar to *Sciara hemerobioides* (Scopoli, 1763), widely distributed in Europe. *S. sciophila* differs in having three, not two, apical lobes in its gonostylus. It belongs to the *Sciara hemerobioides* group sensu Menzel & Mohrig (2000): 519.

Distribution. USA (Massachusetts, Ohio, Vermont, Virginia, Washington D. C.).

Genus *Trichosia* Winnertz, 1867

Type species: *Trichosia splendens* Winnertz, 1867 – Monogr. Sciarinen: 173–174; designated by Coquillett (1910).

Subgenera: *Archaeosciara* Mohrig & Röschmann, 1994; *Baeosciara* Tuomikoski, 1960; *Mouffetina* Frey, 1942; *Palaeotrichosia* Mohrig & Röschmann, 1994; *Trichosia* Winnertz, 1867 s. str.

Synonyms: = *Leptosciara* Frey, 1942; = *Lestremioides* Frey, 1942.

Literature: *Leptosciara* Frey [in part] – Frey (1942): 21, 28; – Frey (1948): 45, 47, 73; – Shaw (1953b): 29. *Lestremioides* Frey – Frey (1948): 45, 70, 87; – Shaw (1953b): 29; – Tuomikoski (1960): 4, 15; – Menzel & Mohrig (1997b): 67. *Baeosciara* Tuomikoski – Vilkamaa (2003): 220. *Trichosia* Winnertz [often in part] – Winnertz (1867): 173; – Enderlein (1911): 127, 149; – Johannsen (1912): 113, 115; – Curran (1930): 35; – Shaw (1935b): 87; – Frey (1942): 20, 25; – Frey (1948): 44, 46, 73; – Shaw (1953b): 28; – Tuomikoski (1960): 4, 17; – Curran (1965): 119; – Steffan (1966): 32, 41; – Freeman (1983): 16, 19; – Menzel & Mohrig (1997a): 3; – Menzel & Mohrig (1997b): 51, 67; – Menzel & Mohrig (2000): 88, 544; – Vilkamaa (2003): 220; – Shin et al. (2013): 833.

Trichosia (*Trichosia*) *cylindrica* (Pettey, 1918) comb. nov.

(Fig. 66 a–d)

Type locality: USA: California, Santa Cruz Co., Santa Cruz Mountains, at Felton.
Holotype: ♂, no. 209, 15.–19.5.1907, leg. J. C. Bradley (CUIC) [3 slides; hypopygium, wing, body without antennae and fore legs; strongly damaged].

Further material: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley, 2 ♂♂, no. 7983 and 7984, 21.6.–3.7.1991 (PKHE); 2 ♂♂, 28.8.–9.9.1991, all leg. N. Winchester (MZH; 7985 in PKHE). USA: California, Big Sur, Redwood National Park, 3 ♂♂, no. 3995–3997, 25.–26.12.1994, leg. W. Mohrig (PWMP). California, Santa Cruz Co., Santa Cruz Mountains, Felton, 1 ♀, no. 209, labelled as "paratype", 15.–19.5.1907, leg. J. C. Bradley (CUIC) [glued]. California, Santa Cruz Co., Santa Cruz, Big Basin, Redwood State Park, 2 ♂♂, no. 3993 and 3994, 29.12.1994, leg. W. Mohrig (PWMP).

Literature: *Sciara cylindrica* Pettey – Pettey (1918b): 321, 329, figs 3, 34; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52.

Redescription. **Male**. Eye bridge with 3–4 rows of facets. 4th flagellomere with l/w index of 2.4–2.8; neck 1/3–1/4 of width of flagellomere; flagellomeral setae adjacent and as long as width of flagellomere. Palpus 3-segmented; basal segment without sensory pit, with some bristles, twice as long as the second segment; the third segment narrow and somewhat shorter than the basal segment. Thorax: brown, or pale brown. Postpronotum non-setose. Legs yellow-brown; hind coxae concolourous with femora; setae on front coxa darkened; tibial setae on hind legs normal, shorter than tibial width. Wing length 3.3–3.9 mm; wings slightly darkened; wing membrane partially with macrotrichia; posterior veins with macrotrichia; R_1 long, = R; c = 2/3 w; r-m longer than bM, r-m with some macrotrichia; M-stem mainly with macrotrichia; CuA_1 and CuA_2 mainly with macrotrichia; r-m with some setae. Gonocoxite widely separated; intercoxal area of hypopygium non-setose, ventromesial margin of gonocoxite with sparse and not long setosity; gonostylus 1.75–1.95 × as long as wide; apex roundish, mesial inner margin impressed; apical tooth absent; with 5–6 thin and slightly curved spines mesially at apical half; tegmen 0.55–0.78 × as long as wide, triangular. Aedeagus short, thickened. Body size: 3.4–4 mm.

Comments. *Trichosia cylindrica* is the only North American species of the genus with macro-

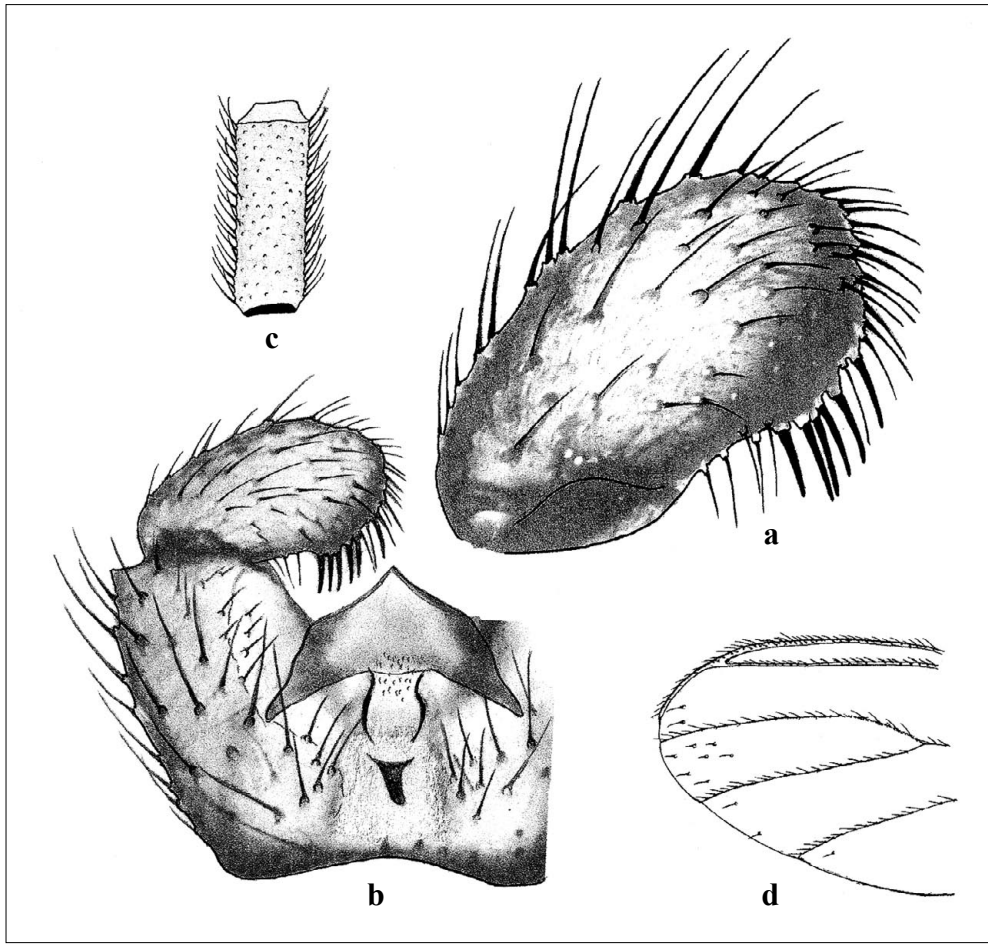


Fig. 66: *Trichosia cylindrica* (Pettey) ♂, holotype (a–c, photo-based pictures). – **a**: Gonostylus, ventral view; – **b**: Left side of hypopygium, ventral view; – **c**: 4th flagellomere; – **d**: Apex of wing.

trichia on the wing membrane, even if these are only very sparse. In that respect it resembles the Palaearctic species *T. morio*, which, however, is larger and has more elongated gonostylus with stronger spines. In the shape of its gonostylus *T. cylindrica* is similar to *T. habilis* and *T. diota*.

Distribution. Canada (British Columbia), USA (California).

Trichosia (*Trichosia*) *diota* (Garrett, 1925) comb. nov.

(Fig. 67 a–d)

Type locality: CANADA: British Columbia, Cranbrook.
Syntypes: several ♂♂, type no. 199, July and August, leg. C. B. D. Garrett (CNC) [not seen].

Material examined: 1 ♂, no. 199, "type no. 7907", British Columbia, Marysville, 19 August, leg. C. B. D. Garrett (CNC) [pinned, transferred to slide, not in good condition]. Remark: Cooper (1991: 67) mentions as "holotype" one ♂ from the locality "Marysville, B. C.", which is not in accordance with the type locality "Cranbrook". This implies that the studied specimen is probably not part of the type series. Nevertheless we accept Garrett's identification and follow his concept of the species, because it is in accordance with the original description.

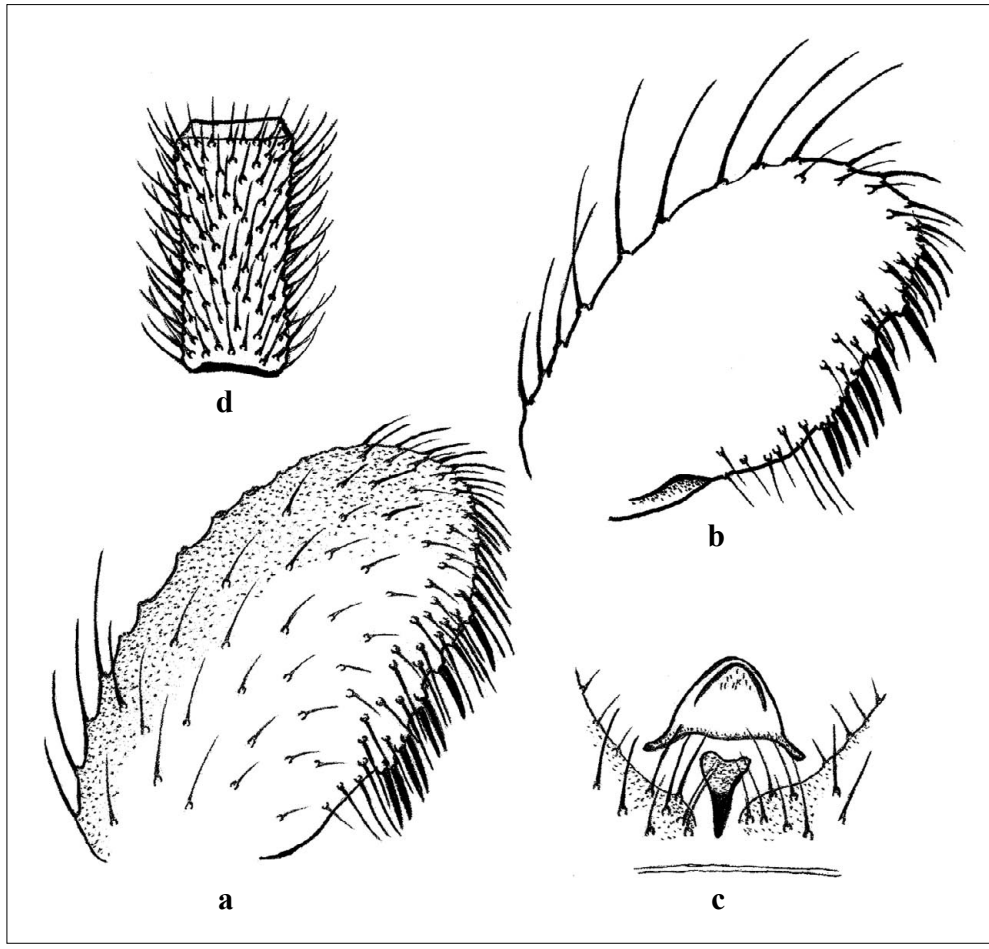


Fig. 67: *Trichosia diota* (Garrett) ♂, specimen from Canada, British Columbia. – **a**: Gonostylus, ventral view; – **b**: Gonostylus, ventral view (sketch drawing); – **c**: Base of hypopygium with tegmen, ventral view; – **d**: 4th flagellomere.

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 3♂♂, no. 3990–3992, 23.7.–15.9.1994, leg. E. Fuller (PWMP). Ontario, Algonquin, primary forest, sweep-netting, 7♂♂, 1.6.1991, leg. M. Barták (SDEI). Ontario, Silver Creek, Malaise trap, 1♂, no. 1713, 13.–20.6.1996, leg. Dumouchel (PKHE). FINLAND: Lapponia kemensis, Kolari, Ylläs, Röhkömukanmaa, old pine forest, Malaise trap, 1♂, no. 9348, 15.6. –15.7.2006, leg. J. Penttinen & J. Yakovlev (MZH). USA: Montana, Gallatin Co., Cottonwood Canyon, 1♂, no. 1688, 16.–23.6.1996, leg. La Masiner (PKHE).

Literature: *Sciara diota* Garrett – Garrett (1925): 16; – Stone & Laffoon (1965): 236; – Steffan (1966): 44, 52.

Comments. The species is similar to *Sciara habilis* Johannsen but differs in having a longer gonostylus with stronger and more numerous spines. The gonostylus resembles that of *T. morio*. *T. diota* has a lobe-like concentration of setae at the base of the gonocoxite, but not as distinctly as *T. townesi*. In some specimens of *T. townesi* the gonostylus is basally broadened and has the basal spines placed on a lobe-like process. Furthermore, the latter species is distinctly smaller. Garrett (1925) mentioned the similarity of his species and figure 139 of Johannsen (1912)

(*Sciara habilis*) and indicated that the yellow coxae, legs and halter are typical for *T. diota*, but these characters are not reliable, because they are very variable in *T. habilis*.

Distribution. Holarctic: Finland; Canada (Alberta, British Columbia, Ontario), USA (Montana).

Trichosia (*Mouffetina*) *expolita* (Coquillett, 1900) comb. nov.

(Fig. 68 a–d)

Type locality: USA: Alaska, Sitka Co., Sitka.
Holotype: ♀, no. 5193, 16.6.1899, leg. T. Kincaid (USNM) [pinned, transferred to slide].

= *Sciara abdita* Johannsen, 1912 syn. nov.
Type locality: CANADA: Ontario, Parry Sound District, Kearney.
Holotype: ♂, no. 2081, no date, leg. M. C. Van Duzee (CUIC) [2 slides; hypopygium, wing; body, both in good conditions].

= *Sciara clavata* Garrett, 1925 syn. nov.
Type locality: CANADA: British Columbia, Nelson.
Holotype: ♂, no. 200, type no. 7908 [body] and 4836 [hypopygium], 24 June, leg. C. B. D. Garrett (CNC) [body pinned, transferred to slide].

= *Trichosia* (*Mouffetina*) *filispina* Menzel & Mohrig, 1997 syn. nov.
Type locality: NORWAY: Pasvik Valley near Vaggatem.
Holotype: ♂, 5.7.1992, leg. M. Jaschhof (PWMP).
Paratypes: NORWAY: same data as holotype, 1♂ (PWMP). RUSSIA: Far East, Amur region, Kundur, 4♂♂ 3♀♀, 18.5.1975; 3♂♂, 22.5.1975, all leg. E. B. Antonova (7♂♂ 3♀♀ in PWMP; 2♂♂ in SDEI). Far East, Primorsky Kray, Kedrovaya Pad, Primorskaya, 4♂♂ 2♀♀, 7.5.1967; 1♂ 1♀, 11.5.1969, all leg. N. P. Krivosheina (4♂♂ 3♀♀ in PWMP; 1♂ in SDEI).

Literature: *Sciara abdita* Johannsen – Johannsen (1912): 125, fig. 258 and 266; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52. *Sciara clavata* Garrett – Garrett (1925): 16; – Stone & Laffoon (1965): 230; – Steffan

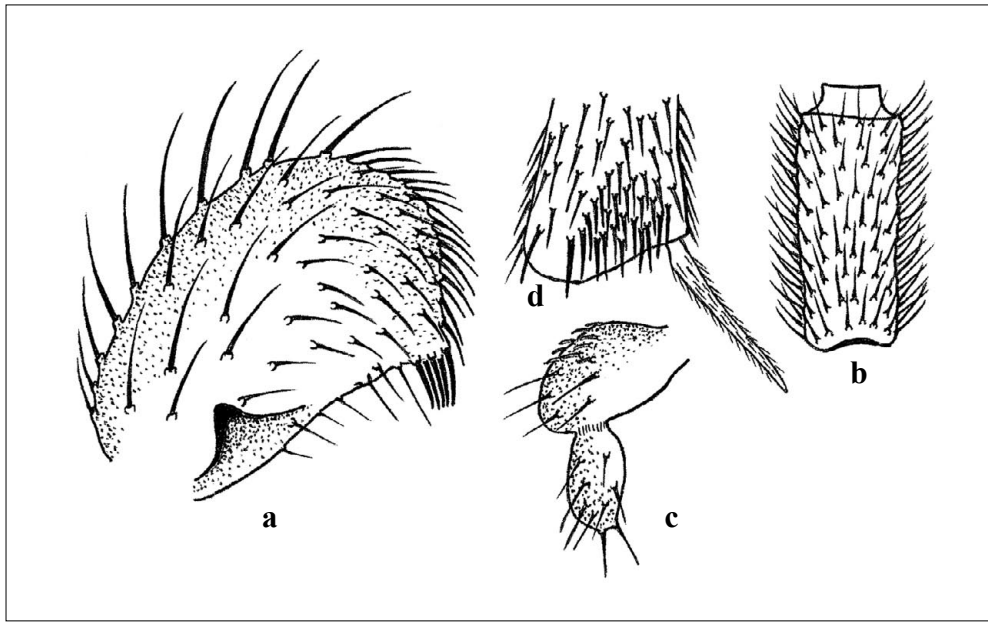


Fig. 68: *Trichosia expolita* (Coquillett) ♂, holotype of *Sciara abdita* Johannsen. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere; – **c**: Palpus; – **d**: Apex of fore tibia.

(1966): 44, 52. *Trichosia* (*Mouffetina*) *filispina* Menzel & Mohrig – Menzel & Mohrig (1997a): 10, 32, fig. 17 a–c. *Sciara expolita* Coquillett – Coquillett (1900): 392; – Steffan (1966): 44, 52. *Bradysia* (*Bradysia*) *expolita* (Coquillett) – Stone & Laffoon (1965): 232.

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, Malaise trap, 2 ♂♂, no. 4001 and 4002, 11.6.–24.7.1994, leg. E. Fuller (PWMP). British Columbia, Vancouver Island, Upper Carmanah Valley, 1 ♂, no. 7991, 12.–27.8.1991, leg. N. Winchester (PKHE). Ontario, Algonquin, primary forest, sweep-netting, 6 ♂♂, 1.6.1991, leg. M. Barták (SDEI). USA: Oregon, Multnomah Falls, 2 ♂♂, 26.6.1974, leg. P. H. Arnaud (CAS; PWMP).

Redescription. **Female**. 4th flagellomere with l/w index of 2.0; setae somewhat shorter than the diameter of flagellomere; scape anteriorly with 2–3 longer bristles. Palpus 2-segmented; basal segment large, with large sensory area, 2nd segment short-elliptical. Prefrons with dense and long setae. Thorax dark brown; postpronotum with 3–4 bristles, anterior pronotum and prothoracic episternum, with dense and coarse setae. Mesonotum densely setose. Scutellum with dense and rather short setae. Wings darkened; R_1 longer than R, joins the C distad of the base of the M-fork; R_5 with ventral macrotrichia in the distal half; C = 2/3 w; r-m = 2 bM, with macrotrichia; M-stem weak, non-setose, M-fork with numerous macrotrichia; CuA_1 and CuA_2 only in the basal third without macrotrichia. Halter darkened. Coxae of front legs paler than those of mid and hind legs. Front tibia with some short spines within the ground setosity, the tibial organ with dense patch of setae, weakly bordered; tibial spurs long and equal in size. Claws untoothed.

Comments. The conspecificity of the female holotype of *Trichosia expolita* (Coquillett) with the males of *Trichosia abdita* (Johannsen), *T. clavata* (Garrett) and *T. filispina* Menzel & Mohrig is based on the 2-segmented palpus, the similar setosity of the mesonotum, scutellum, prefrons, postpronotum and anterior pronotum, in connection with the tendency to depigmentation of the apical flagellomeres. Garrett (1925) mentioned one stout preapical spine and had failed to observe that his "stout spine" consists in fact of 5 closely placed spines.

Distribution. Holarctic: Europe (Norway), Russia (Far East); Canada (Alberta, British Columbia, Ontario), USA (Alaska, Oregon).

Trichosia (*Trichosia*) *habilis* (Johannsen, 1912) comb. nov.

(Fig. 69 a–c)

Type locality: USA: New York, Tompkins Co., Ithaca.
Lectotype: ♂, no. 2082, leg. O. A. Johannsen (CUIC) [1 slide with hypopygium in good position, wing; body pinned]; hereby designated in order to fix the name.
Paralectotypes: "USA, North Carolina, Black Mountains" and "CANADA, Ontario, Parry Sound District, Kearney", 1 ♂ [pinned, transferred to slide] and 1 ♀ [pinned; not studied], no details (CUIC).

= *Sciara habilis* Johannsen, 1912 var. [unnamed]
Material examined: USA: Georgia, Rabun Co., at Clayton, 1 ♂; labelled as "type" no. 211, 26.5.1911, leg. F. W. Pettey (CUIC) [2 slides with hypopygium and wing].

= *Sciara globosa* Pettey, 1918 syn. nov.
Type locality: USA: California, Marin Co., at Muir Woods.
Holotype: ♂, type no. 212, 30.8.1908, leg. J. C. Bradley (CUIC) [3 slides; hypopygium in not good position, wing, body strongly damaged]. Remark: Pettey compares his species with *Sciara habilis* and *Sciara serrosa*. The latter name is unknown to us and probably a nomen nudum.

= *Lycoria edwardsi* Lengersdorf, 1930 syn. nov.
Type locality: GREAT BRITAIN: England, Hampshire, New Forest.
Lectotype: ♂, no. 1919–303, 26.6.1909, leg. F. C. Adams (ZFMK); designated by Menzel in Menzel & Mohrig (1997a).

Further material: USA: Virginia, Smyth Co., Mt. Rogers, 5,300–5,700 ft., 1 ♂, 1.6.1962, leg. J. R. Vockeroth (MZH).

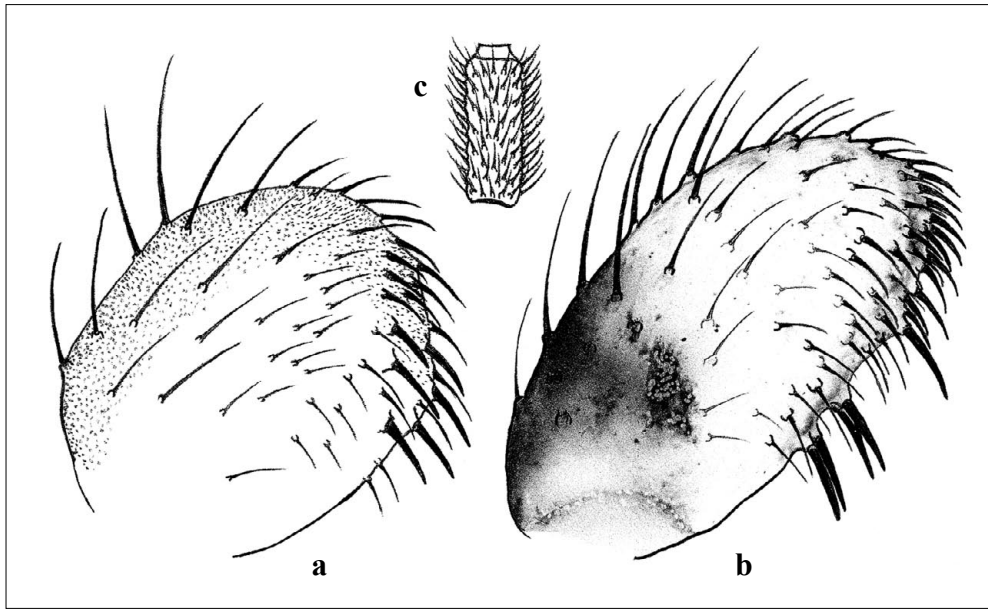


Fig. 69: *Trichosia habilis* (Johannsen) ♂. – **a**: Gonostylus of holotype of *Sciara globosa* Pettey, ventral view (phantom picture); – **b**: Gonostylus of holotype of *Sciara habilis* Johannsen, ventral view (photo-based picture); – **c**: 4th flagellomere of holotype of *Sciara globosa* Pettey.

Literature: *Trichosia* (*Trichosia*) *morio* (Fabricius) [in part, misidentification] – Menzel & Mohrig (1997a): 9, 19 [not figs 1 c, 9 a–e]; – Menzel & Mohrig (2000): 558; – Menzel et al. (2006): 139. *Lycoria edwardsi* Lengersdorf – Lengersdorf (1928–30): 29, 67, fig. 34. [for *Lycoria* (*Lycoria*) *trochanterata* Zetterstedt sensu Edwards, in part]. *Trichosia* (*Trichosia*) *edwardsi* (Lengersdorf) – Menzel & Heller (2006): 52. *Sciara globosa* Pettey – Pettey (1918b): 321, 330, figs 7, 38; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 53. *Sciara habilis* Johannsen var. – Pettey (1918b): 321, 330, figs 6, 37. *Sciara habilis* Johannsen – Johannsen (1912): 118, 126, figs 139, 256; – Pettey (1918b): 321; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 53. *Lycoria habilis* (Johannsen) – Shaw & Fisher (1952): 210, 212, figs 15, 43.

Redescription. **Male**. Head: Eye bridge with 4–5 rows of facets. Flagellomeres with dense, fine, salient and short setosity, setae shorter than diameter of flagellomeres; 4th flagellomere with l/w index of 2.2–2.6; width/length of neck 0.25–0.38. Thorax: Brown. Postpronotum with short bristles. Wings darkened, R_1 long, joining C opposite the base of M-fork; c = 2/3 w, r-m longer bM; r-m with macrotrichia; posterior veins with macrotrichia; M-stem mainly with macrotrichia or with some macrotrichia; CuA_1 and CuA_2 mainly with macrotrichia. Halter dark or pale. Legs yellow or yellowish brown; front tibial organ with irregular patch of dark bristles; hind coxa concolourous with femora or darkened. Hairs on fore coxae black, or darkened, or bright. Claws untoothed. Gonocoxites widely separated; intercoxal area of hypopygium non-setose, bare. Gonostylus subglobular, 1.65–2x as long as wide; apex roundish, without apical tooth; mesially impressed; with 4–6 thick and straight spines at inner margin, apical part with short and spine-like setosity; position of basal-most spine 45–60 % from apex. Length/width of tegmen 0.6–0.8, trapezoid or apically roundish. Aedeagus short, thickened; aedeagal apical structure present. Body size: 3.3–5 mm. Wing length: 3–4.2 mm.

Comments. Pettey (1918b) mentioned for "*Sciara habilis* var." differences in the number of spines on the mesial side of the gonostylus and in the size – the "var. specimen" being smaller. In fact the true spines are only slightly stronger than the normal setae and therefore only seem to be

more numerous. Rather, they are slightly curved, which is not so in *T. habilis*. The wing length of the "var. specimen" is identical with the holotype and the hypopygium is even larger, so the "var." specimens are treated as conspecific with *T. habilis* at present. *Lycoria edwardsi* Lengersdorf was erroneously synonymized by Menzel & Mohrig (2000: 559) with *Trichosia morio* (Fabricius). In fact, *T. morio* and *T. edwardsi* are distinct species (Menzel & Heller 2006).

Trichosia habilis is a very variable species with respect to size, colouration and to some degree even the shape of the gonostylus. It is still possible that it is a species complex, but we have not been able to find constant unique character combinations. On the basis of the identical hypopygium, we regard the North American *T. habilis* and *T. globosa,* and the Palaearctic *T. edwardsi* as one species. The gonostylus is oval and has 4–7 perpendicular spines medially on the mesial side, 1 or 2 of them more ventrally and usually 6 more dorsally. Usually there is another isolated spine more apically. *Trichosia habilis* can be distinguished from the Palaearctic species *T. morio* and *T. acrotricha* by the complete absence of macrotrichia at the tip of the wing membrane. Neither of the latter two has yet been recorded from North America. *T. morio* has, in addition, longer and more oblique spines. For differences to *T. townesi* see under the latter. The very similar *T. diota* is recognized as a distinct species – see under the latter.

Distribution. Holarctic: Europe; USA (California, Georgia, New York, Virginia).

Trichosia (*Baeosciara*) *pectinata* (Vilkamaa, 2003) comb. nov.

Type locality: CANADA: British Columbia, Vancouver Island, Upper Carmanah Valley.
Holotype: ♂, forest floor, Malaise trap, 30.7.1991, leg. N. Winchester (CNC).
Paratypes: CANADA: same data as holotype, 1 ♂ (MZH); same locality, forest canopy, Malaise trap, 1 ♂, 15.7.1991, leg. N. Winchester (CNC).

Further material: CANADA: Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 2 ♂♂, no. 4006 and 4007, 23.7.–15.9.1994, leg. E. Fuller (PWMP).

Literature: *Baeosciara pectinata* Vilkamaa – Vilkamaa (2003): 224, fig. 1 C, D.

Distribution. Canada (Alberta, British Columbia).

Trichosia (*Baeosciara*) *scotica* (Edwards, 1925) comb. nov.

(Fig. 70 a–c)

Type locality: GREAT BRITAIN: Brodick [= Scotland], North Ayrshire, Arran.
Holotype: ♂, 22.–25.5.1919, leg. F. W. Edwards (BMNH).

= *Sciara arcuata* Garrett, 1925 syn. nov.
Type locality: CANADA: British Columbia, Cranbrook.
Holotype: ♂, no. 201, type no. 7909 [body] and 4835 [hypopygium], June, leg. C. B. D. Garrett (CNC).

= *Sciara diderma* Garrett, 1925 syn. nov.
Type locality: CANADA: British Columbia, Cranbrook.
Lectotype: ♂, no. 198, type no. 7906 [body] and 4842 [hypopygium], May or July, leg. C. B. D. Garrett (CNC) [slides]; hereby designated in order to fix the name.
Paralectotype: CANADA: same locality as lectotype, 1 ♂, no. 4839 and 4839.1, 23 July, leg. C. B. D. Garrett (CNC) [slide; body in artificial resin, badly damaged; hypopygium missing].

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, 4 ♂♂, 11.6.–23.7.1994, leg. E. Fuller (PWMP). Alberta, Munn Creek, 53.30°N 118.10°W, spruce forest, 8 ♂♂, 11.6.–24.7.1994; 2 ♂♂, 23.7.–15.9.1994, all leg. E. Fuller (PWMP). USA: New York, Adirondack Mountains, 1 ♂, 6.7.1938, leg. R. A. Harrison (PWMP).

Literature: *Sciara arcuata* Garrett – Garrett (1925): 16; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52. *Sciara diderma* Garrett – Garrett (1925): 16; – Stone & Laffoon (1965): 236; – Steffan (1966): 44, 52. *Sciara scotica* Edwards – Edwards (1925): 536, fig. 12. *Trichosia* (*Trichosia*) *scotica* (Edwards) – Tuomikoski

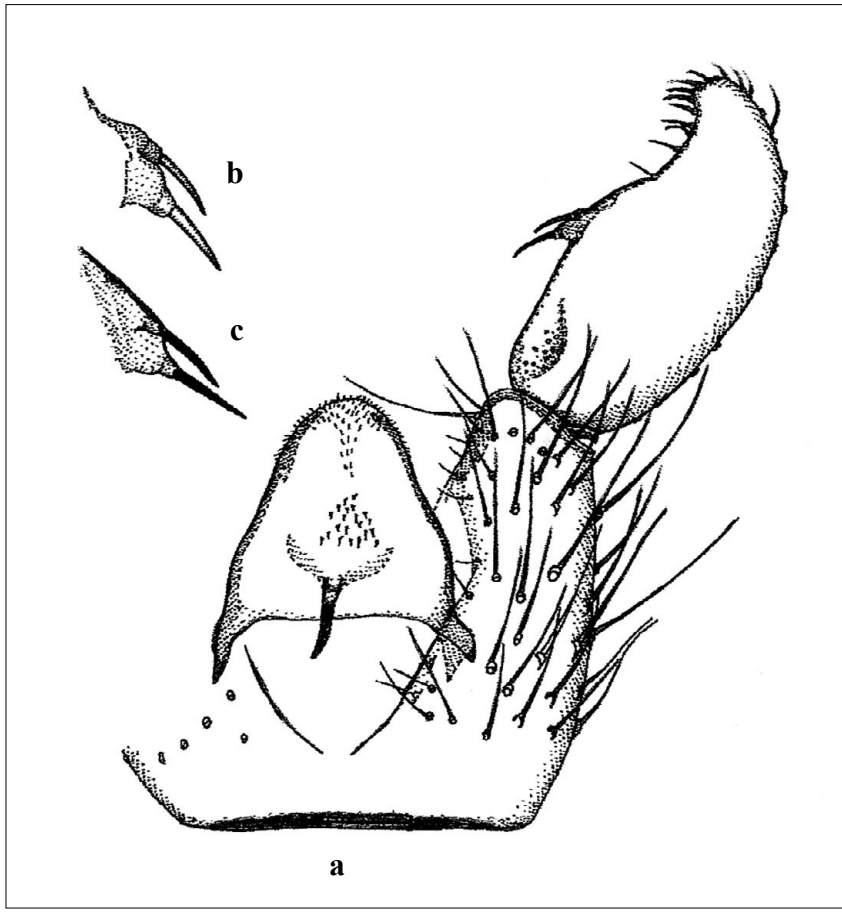


Fig. 70: *Trichosia scotica* (Edwards) ♂. – **a**: Hypopygium of holotype of *Sciara diderma* Garrett, ventral view; – **b**: Mesial spines of gonostylus of *Sciara diderma* Garrett, holotype; – **c**: Mesial spines of gonostylus of *Sciara arcuata* Garrett, holotype.

(1960): 17, 20, fig. 3 d. *Trichosia scotica* (Edwards) – Freeman (1983): 20, fig. 18. *Baeosciara scotica* (Edwards) – Vilkamaa (2003): 223, 225, fig. 2 C, D. *Trichosia* (*Baeosciara*) *scotica* (Edwards) – Menzel & Mohrig (1997a): 10, 37, fig. 21 a–e; – Menzel & Mohrig (2000): 549, 551.

Comments. The two species of Garrett (*Sciara arcuata* and *Sciara diderma*) are identical with each other and with *Sciara scotica* Edwards and new synonyms of the latter, because the paper by Garrett has been accepted as published on 31.12.1925, but that of Edwards in February of the same year.

Distribution. Holarctic: Europe; Canada (Alberta, British Columbia, Quebec), USA (Alaska, New York).

Trichosia (*Trichosia*) *townesi* (Shaw, 1935) comb. nov.

(Fig. 71 a, b)

Type locality: USA: South Carolina, Greenville Co.
Holotype: ♂, 18.5.1933, leg. H. K. Townes (UMEC) [missing].

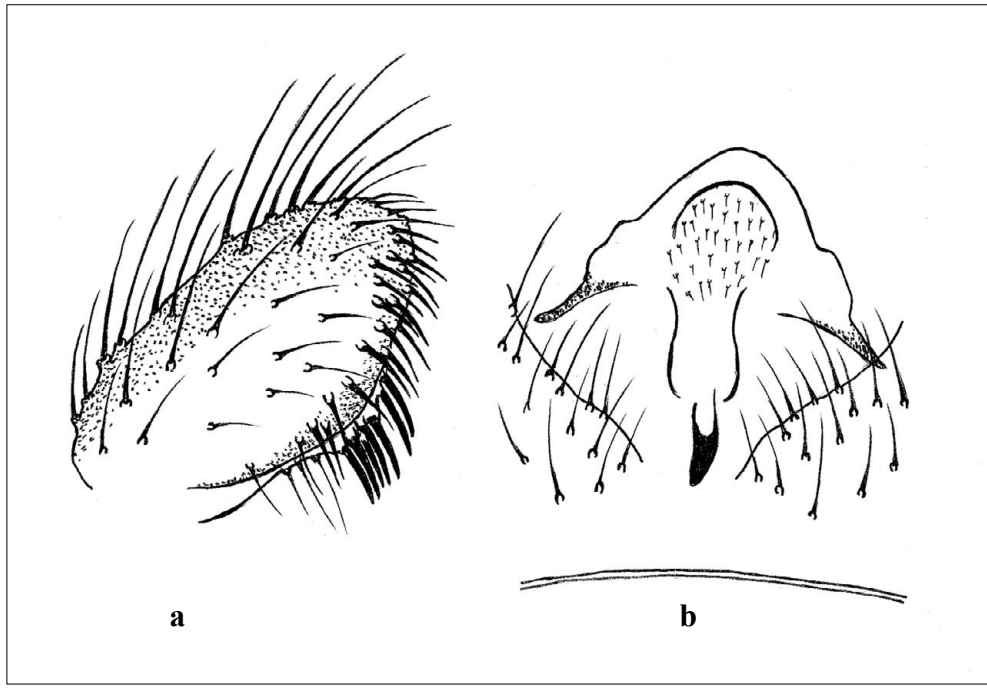


Fig. 71: *Trichosia townesi* (Shaw) ♂, specimen from USA, Maryland. – **a**: Gonostylus, ventral view; – **b**: Base of hypopygium with tegmen, ventral view.

Further material: USA: Maine, Hancock Co., Mount Desert Island, 1 ♂, 30.6.1952, leg. F. R. Shaw (UMEC); 1 ♂, 21.6.1933, leg. C. P. Alexander (PKHE). Maryland, Baltimore Co., Baltimore, Loch Raven, 1 ♂, 8.5.1938, leg. E. G. Fisher (PWMP). Maryland, Prince Georges Co., Beltsville, 1 ♂, det. O. A. Johannsen as *Sciara habilis*, 28.5.1916, leg. MacAtee (CUIC). New Hampshire, Grafton Co., Mount Whiteface, 1 ♂, 5.7.1938, leg. R. A. Harrison (PWMP).

Literature: *Sciara townesi* Shaw – Shaw (1935a): 227, fig. 1; – Stone & Laffoon (1965): 231; – Steffan (1966): 44, 54.

Redescription. **Male**. Head: Eye bridge as wide as 4–6 rows of facets. 4th flagellomere with l/w index of 1.7–2; neck 0.2–0.3 of segment width. Antennal setosity shorter than the segment width, dense and salient. Thorax: Brown. Mesonotal hairs darkened, or pale. Postpronotum with some bristles. Postpronotal bristles 1–3; fine. Legs yellow; hind coxa concolourous with femur; setae on front coxa pale. Tibial bristles on hind leg normal, shorter than tibial width. Wing membrane without macrotrichia, or partially with macrotrichia. Posterior veins with macrotrichia; M-stem mainly with macrotrichia; CuA_1 and CuA_2 mainly with macrotrichia; r-m with a few setae, or mostly setose. Halter pale. Abdomen: Setae of tergites dark; on sternites paler. Gonocoxites widely separated, basoventrally with lobe-like structure. Gonostylus 1.75–1.95 × as long as wide; apex roundish; ventromesial margin convex; mesially with 9–12 spines; spines thick curved; position of most basal spine 42–55 % from apex. Tegmen less than half as long as wide (0.2–0.35 x), triangular. Aedeagus short and thickened; aedeagal apical structure present. Body size: 3.2–3.8 mm. Wing length: 3.4–3.9 mm.

Comments. Although we have not been able to locate the holotype, which is possibly lost, we are sure about the correct identification of the listed additional material as *T. townesi*. They agree in all details with the original description and the drawing by Shaw (1935), only the wing length is larger in our specimens. The species is well characterized by the unusually pale mesonotal setae and the shining yellow legs and a sometimes slightly reddish abdomen. The hypopygium is distinctive in

having diagonal ridges at the base of the gonocoxite, which are not known in any other species of the genus. The gonostyli are very large and covered with long setae. The conical apical part bears very strong and stout setae and mesially there is a group of stronger spines on a common basal body. This arrangement of the spines is reminiscent of the Palaearctic species *Trichosia acrotricha* Tuomikoski, which also has macrotrichia on the apical part of the wing membrane.

Distribution. USA (Maine, Maryland, New Hampshire, South Carolina)

Trichosia (*Trichosia*) *vicina* (Johannsen, 1912) comb. nov.

(Fig. 72 a–c)

Type locality: USA: New York, Tompkins Co., Ithaca.
Holotype: ♂, no. 2078, no date, leg. O. A. Johannsen (CUIC) [2 slides; hypopygium in good position, wing; body damaged, head in good position].

Further material: CANADA: Quebec, Lac Roddic, 16 km S of Maniwaki, 3 ♂♂, 22.6.1991, leg. M. Barták (2 ♂♂ in SDEI; 1 ♂ in PWMP). USA: New York, New York City, Prospect Park, 2 ♂♂, 20.6.2000, leg. B. Rulik (PKHE, PWMP). New York, New York City, Bronx, Van Cortland Park, C. Croton woods, 1 ♂, 25–29.6.2000, leg. B. Rulik (PWMP).

Literature: *Sciara vicina* Johannsen – Johannsen (1912): 118, 124, figs 100, 219; – Pettey (1918b): 320; – Stone & Laffoon (1965): 231; – Steffan (1966): 44, 54. *Lycoria vicina* (Johannsen) – Shaw & Fisher (1952): 210, 212.

Redescription. **Male**. Antennae long, 4th flagellomere with l/w index of about 3.2, setae as long as diameter of flagellomere. Palpus 3-segmented; basal segment without sensory pit, with some bristles; second segment short, elliptical, third narrow and twice as long. R_1 = R, joining C somewhat proximally of the M-fork; r-m = bM, both non-setose; M-stem and base of M_1 weakly visible; M_1 and M_2 with macrotrichia only in distal half; CuA_1 only on distal third with macrotrichia, CuA_2 without macrotrichia. Gonostylus apically broad and roundish, sparsely setose, with a dense group of 5–7 strong subapical spines.

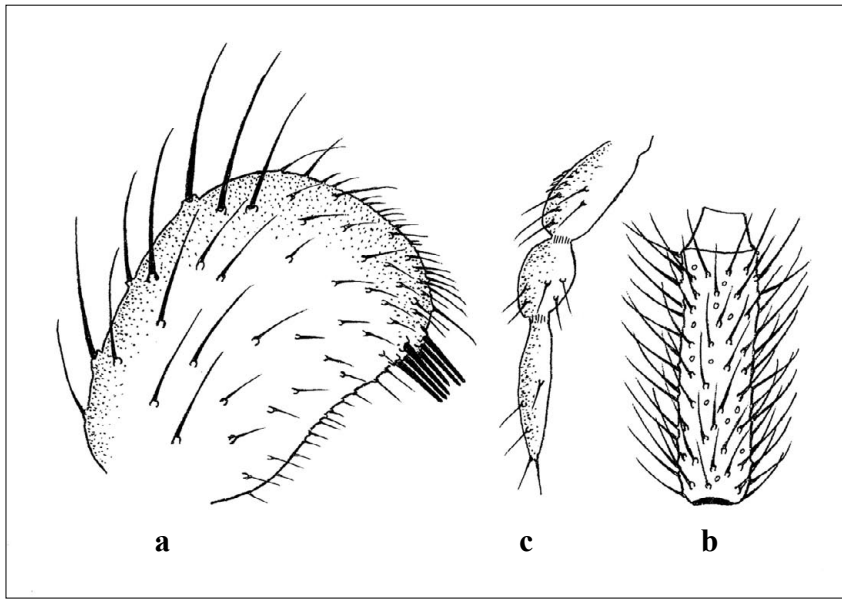


Fig. 72: *Trichosia vicina* (Johannsen) ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: 4th flagellomere; – **c**: Palpus.

Comments. The species belongs to *Trichosia* s. str. and is unique in the apical concentration of spines on the gonostyles. This arrangement is similar to *Mouffetina*, but the 3-segmented palpi and the unicolourous antennae lead to the actual placement.

Distribution. Canada (Quebec), USA (New York).

Genus *Xylosciara* Tuomikoski, 1957

Type species: *Sciara lignicola* Winnertz, 1867 – Monogr. Sciarinen: 77; by original designation.

Subgenera: *Protoxylosciara* Tuomikoski, 1960; *Xylosciara* Tuomikoski, 1957 s. str.

Synonym: = *Trixylosciara* Tuomikoski, 1960.

Literature: *Plastosciara* Berg [in part] – Frey (1942): 34 [misidentification]. *Plastosciara* (*Plastosciara*) [in part] – Frey (1948): 46, 70, 87 [misidentification]. *Xylosciara* Tuomikoski – Tuomikoski (1957): 10, 30; – Tuomikoski (1960): 5, 89; – Freeman (1983): 26; – Menzel & Mohrig (1997b): 51, 66; – Menzel & Mohrig (2000): 91, 564; – Hippa & Vilkamaa (2004): 1; – Shin et al. (2013): 833.

Xylosciara (*Xylosciara*) *horrida* Hippa & Vilkamaa, 2004

Type locality: CANADA: Yukon, Dempster Hwy, km 135–195.
Holotype: ♂, spruce-willow forest, car-netting, 19.6.1984, leg. S. Peck & J. Peck (CNC).

Further material: USA: Montana, Gallatin Co., Cottonwood Canyon, Malaise trap, 1♂, no. 1701, 16.–23.6.1996, leg. La Masiner (PKHE).

Literature: *Xylosciara* (*Xylosciara*) *horrida* Hippa & Vilkamaa – Hippa & Vilkamaa (2004): 6, 22, fig. 12 A, B.

Distribution. Canada (Yukon), USA (Montana).

Xylosciara (*Xylosciara*) *merodon* Hippa & Vilkamaa, 2004

Type locality: CANADA: Quebec, Kuujjuarapik, 53°17'N 77°48'W.
Holotype: ♂, burned *Picea glauca* forest, pitfall trap, 14.7.–l.8.1990, leg. S. Koponen (SMNH).
Paratypes: CANADA: same data as holotype, 5♂♂ (SMNH).

Literature: *Xylosciara* (*Xylosciara*) *merodon* Hippa & Vilkamaa – Hippa & Vilkamaa (2004): 7, 16, figs 3 B, 3 G, 8 A, 8 B.

Distribution. Canada (Quebec).

Xylosciara (*Xylosciara*) *mohrigi* Hippa & Vilkamaa, 2004

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, alder-poplar-spruce forest, Malaise trap, 23.6.–11.8.1984, leg. S. Peck & J. Peck (MZH).

Literature: *Xylosciara* (*Xylosciara*) *mohrigi* Hippa & Vilkamaa – Hippa & Vilkamaa (2004): 6, 11, figs 3 A, 4 D, 4 E.

Distribution. USA (Alaska).

Xylosciara (*Xylosciara*) *ontario* Hippa & Vilkamaa, 2004

Type locality: CANADA: Ontario, Griffith.
Holotype: ♂, 23.7.1989, leg. B. E. Cooper (CNC).

Literature: *Xylosciara* (*Xylosciara*) *ontario* Hippa & Vilkamaa – Hippa & Vilkamaa (2004): 7, 16, fig. 8 C, D.

Distribution. Canada (Ontario).

Xylosciara (*Xylosciara*) *spinata* (Pettey, 1918) comb. nov.

(Fig. 73)

Type locality: USA: Rhode Island, Washington Co., Kingston.
Lectotype: ♂, no. 241, 18.7.1905, leg. J. Barlow (CUIC) [hypopygium in good position; body glued, transferred to slide]; hereby designated in order to fix the name.
Paralectotype: USA: same data as lectotype, 1 ♂, same no. (CUIC) [glued, without hypopygium, badly damaged; not studied].

= *Xylosciara* (*Xylosciara*) *betulae* Tuomikoski, 1960 syn. nov.
Type locality: FINLAND: Regio kuusamoensis, Kuusamo, river Oulankajoki.
Lectotype: ♂, 2.7.1958 (MZH); designated by Hippa & Vilkamaa (2004).
Paralectotypes: FINLAND: Lapponia kemensis, Sodankylä, Mutenia, Korvanen, 1 ♂ 2 ♀♀, 30.7.1958, leg. R. Tuomikoski (MZH). Satakunta, Kankaanpää, Niinisalo, 1 ♂, no date, leg. R. Krogerus.

Further material: CANADA: Alberta, Berland River at Hwy 40, 53.42°N 118.20°W, pine forest, Malaise trap, 1 ♂, 30.4.–11.6.1994, leg. E. Fuller (PWMP). Ontario, Ottawa, from a fallen birch stem, 4 ♂♂, 31.5.1990, leg. J. R. Vockeroth (CNC; SMNH). USA: New York, Oswego Co., New Haven, 3 ♂♂, lot no. 2728, 1.5.1920, leg. et det. O. A. Johannsen (2 ♂♂ in CUIC; 1 ♂ in PWMP).

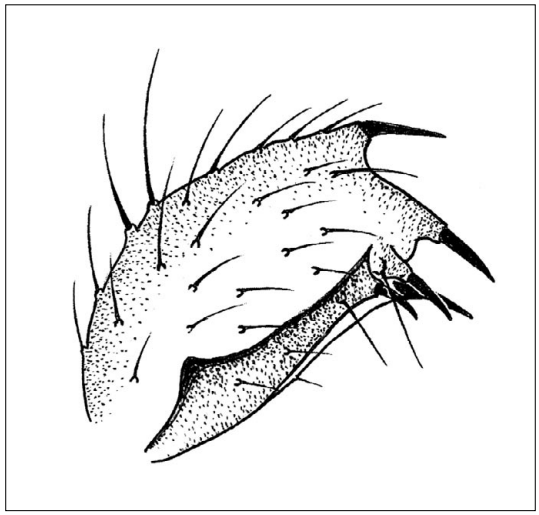


Fig. 73: *Xylosciara spinata* (Pettey) ♂, holotype. Gonostylus, ventral view.

Literature: *Xylosciara* (*Xylosciara*) *betulae* Tuomikoski – Tuomikoski (1960): 92, 95, fig. 22 d; – Menzel & Mohrig (2000): 567, 568; – Hippa & Vilkamaa (2004): 7, 20, figs 3 E, 11 A–D. *Sciara* sp. 24 – Johannsen (1912): 120, 131, figs 119, 239. *Neosciara spinata* Pettey – Pettey (1918b): 324 [as "*Sciara* sp. 24" sensu Johannsen (1912)]. *Bradysia* (*Bradysia*) *spinata* (Pettey) – Stone & Laffoon (1965): 234. *Bradysia spinata* (Pettey) – Steffan (1966): 36, 54.

Comments. This species was described as "*Sciara* sp. 24" by Johannsen (1912: 120 and 131, figs 119, 239). Pettey (1918b) named it in his key as "*Neosciara spinata* n. sp." with reference to Johannsen's (1912) description and figures. The comparison of the type specimen of *N. spinata* Pettey with European specimens of *X. betulae* Tuomikoski leaves no doubt about the synonymy.

Distribution. Holarctic: Europe; Canada (Alberta, Ontario), USA (New York, Rhode Island).

Xylosciara (*Xylosciara*) *trigemina* Hippa & Vilkamaa, 2004

Type locality: USA: Alaska, 11 mi S Anderson Jct, Rte 3, mi 270.
Holotype: ♂, alder-poplar-spruce forest, Malaise trap, 23.6–11.8.1984, leg. S. Peck & J. Peck (MZH).
Paratypes: CANADA: Ontario, Ottawa, *Acer* wood, yellow pan trap, 1 ♂, 16.6.1989, leg. J. R. Vockeroth (CNC). USA: Alaska, same data as holotype, 1 ♂ (MZH).

Literature: *Xylosciara* (*Xylosciara*) *trigemina* Hippa & Vilkamaa – Hippa & Vilkamaa (2004): 7, 22, fig. 10 C–E.

Distribution. Canada (Ontario), USA (Alaska).

Xylosciara (*Xylosciara*) *validinervis* Tuomikoski, 1960

Type localities: FINLAND: Lapponia kemensis, Muonio.
Lectotype: ♀, no. 3168, on pine planks by a saw-mill, 10.7.1943, leg. et det. R. Frey as *Plastosciara pernidida* Edwards (MZH); hereby designated in order to fix the name.
Paralectotypes: FINLAND: same data as lectotype, 1 ♀, no. 3173 (MZH). NORWAY: Finnmark, Vestertana, 1 ♀, 3.8.1958, leg. R. Tuomikoski (MZH).

Further material: Hippa & Vilkamaa (2004) found the male in material from Canada. CANADA: Quebec, Kuujjuarapik, 53°17'N 77°48'W, partly burned *Picea glauca* forest, pitfall trap, 1 ♂, 14.7.–1.8.1990, leg. S. Koponen (SMNH).

Literature: *Plastosciara* (*Plastosciara*) *pernitida* Edwards – Frey (1948): 71, 88 [misidentification]. *Xylosciara* (*Xylosciara*) *validinervis* Tuomikoski – Tuomikoski (1960): 92, 95; – Hippa & Vilkamaa (2004): 6, 16, figs 3 J, 9 A, 9 B.

Comments. The species was described by Tuomikoski (1960), based on three females, two of them determined by Frey (1948: 71, 88) as *Plastosciara pernitida* Edwards [misidentification; nec *Cratyna pernitida* (Edwards, 1915)].

Distribution. Holarctic: Europe (Finland, Norway, Sweden); Canada (Quebec).

Genus *Zygoneura* Meigen, 1830

Type species: *Zygoneura sciarina* Meigen, 1830 – Syst. Beschr. **6**: 305, plate 65, fig. 15; monotypy.

Subgenera: *Allozygoneura* Menzel & Mohrig, 1998; *Pharetratula* Mamaev, 1968; *Zygoneura* Meigen, 1830 s. str.

Literature: *Zygoneura* Meigen [often in part] – Meigen (1830): 304; – Walker (1848): 103; – Winnertz (1867): 183; – Rübsaamen (1894): 19; – Enderlein (1911): 187, 191; – Johannsen (1912): 113, 116; – Lengersdorf (1928–30): 66; – Curran (1930): 35; – Shaw (1935b): 87; – Frey (1942): 21, 35; – Frey (1948): 45, 69, 86; – Shaw & Fisher (1952): 209, 210; – Shaw (1953b): 29; – Tuomikoski (1960): 3, 156; – Curran (1965): 119; – Stone & Laffoon (1965): 231; – Steffan (1966): 32, 39; – Mamaev (1968): 610; – Mamaev (1976): 135; – Steffan (1981): 250; – Freeman (1983): 16, 22; – Menzel & Mohrig (1997b): 51, 62; – Menzel & Mohrig (1998): 374; – Arnett (2000): 856; – Menzel & Mohrig (2000): 84, 576, 723; – Zhang et al. (2010): 40, 41; – Shin et al. (2013): 833 [not Malloch (1914): 233, fig. 26; = Cecidomyiidae: Lestremiinae; *Zygoneura fenestrata* Malloch, 1914 = *Lestremia cinerea* Macquart, 1826].

Zygoneura (*Zygoneura*) *flavicoxa* Johannsen, 1912
(Fig. 74 a–d)

Type locality: USA: New York, Tompkins Co., Ithaca.
Holotype: ♂, no. 2077, leg. O. A. Johannsen (CUIC) [3 slides; hypopygium, gonocoxites damaged; body, legs without tarsalia; wing].

Further material: CANADA: Nova Scotia, Cape Breton Island, Frizzleton, 1 ♂, 30.8.1936, leg. E. G. Fisher (PWMP). Ontario, Lac Roddic, 16 km S of Maniwaki, 1 ♂, 22.6.1991, leg. M. Barták (SDEI). Ontario, Ottawa, earth ditch, shaded damp, 1 ♂, 16.10.1999, leg. J. R. Vockeroth (MZH). USA: Tennessee, Smoky Mountains, 4,500 ft., 1 ♂, 9.4.1939, leg. C. P. Alexander (PWMP).

Literature: *Zygoneura flavicoxa* Johannsen – Johannsen (1912): 116, fig. 99, 254; – Lengersdorf (1940a): 246; – Shaw & Fisher (1952): 210; – Stone & Laffoon (1965): 231; – Steffan (1966): 40, 52, figs 8, 15.

Redescription. **Male**. Palpus 3-segmented, basal segment with one bristle and rather long sensilla. 4th flagellomere with necks as long as flagellomeral body, with long setae, setae not in strong circular rows. R_1 short, about 1/2 R; C long, = 4/5 w; M_1 strong arched; CuA_2 strongly curved; posterior veins without macrotrichia; gonostylus apically roundish, with 2 spines on large basal bodies.

Comment: The species differs distinctly from the European *Zygoneura sciarina* Meigen by having only two spines on its gonostylus.

Distribution: ? Mexico (Chiapas); Canada (Nova Scotia, Ontario, Quebec), USA (New York, Tennessee).

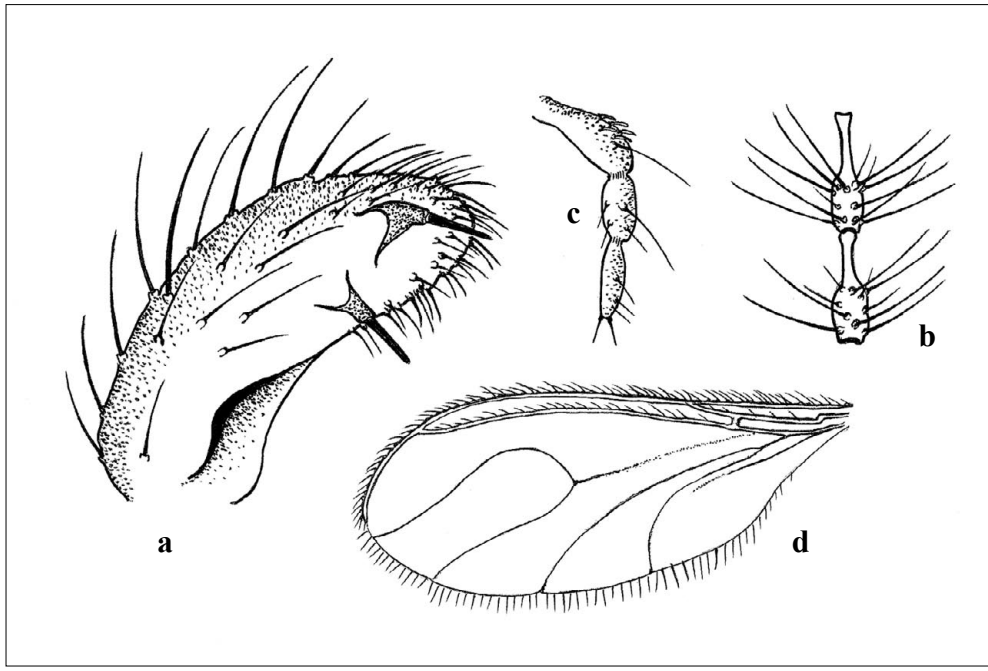


Fig. 74: *Zygoneura flavicoxa* Johannsen ♂, holotype. – **a**: Gonostylus, ventral view; – **b**: Flagellomeres 3 and 4; – **c**: Palpus; – **d**: Wing.

8 Species incertae sedis

8.1 Unplaced species

Sciara bispina Fisher, 1938

(Fig. 75 a, b)

Type locality: USA: Michigan, Ingham Co., East Lansing.
Holotype: ♂, no. 6549, 12.6.1936, leg. C. W. Sabrosky (ANSP) [2 slides; isolated gonocoxite and gonostylus, fore leg; body pinned, without antennae, fore leg, spurs and tarsalia of p_2/p_3; body transferred to slide].

Literature: *Sciara bispina* Fisher – Fisher (1938): 199, figs 10, 11. *Bradysia* (*Bradysia*) *bispina* (Fisher) – Stone & Laffoon (1965): 232. *Bradysia bispina* (Fisher) – Steffan (1966): 35, 52.

Redescription. **Male**. Palpi 3-segmented; basal segment without sensory pit, perhaps with some setae; second segment long, elliptical; third segment long and narrow. Thorax brown; mesonotum with moderately short and dark setae, with some longer lateral and prescutellar bristles. Scutellum with more than four long marginal bristles. Postpronotum non-setose; antepronotum and prothoracal episternite with sparse and short setae. Wings brownish; c = 1/2 w; R_1 = 3/4 R; r-m = 1/2 bM, both bare; M-stem longer than M-fork; CuA-stem shorter than bM; posterior veins distinct and without macrotrichia. Halter short and brownish. Coxae somewhat paler than thorax, legs yellowish-brown; front tibial organ with a comb-like row of bristles, but somewhat irregular; spurs longer than the diameter of apex of tibiae.

Comments. Both gonostyli are seriously damaged, so that the shape is not easily interpreted. The two long spines on the inner side of the gonostylus are visible and correspond with the drawings of Fisher

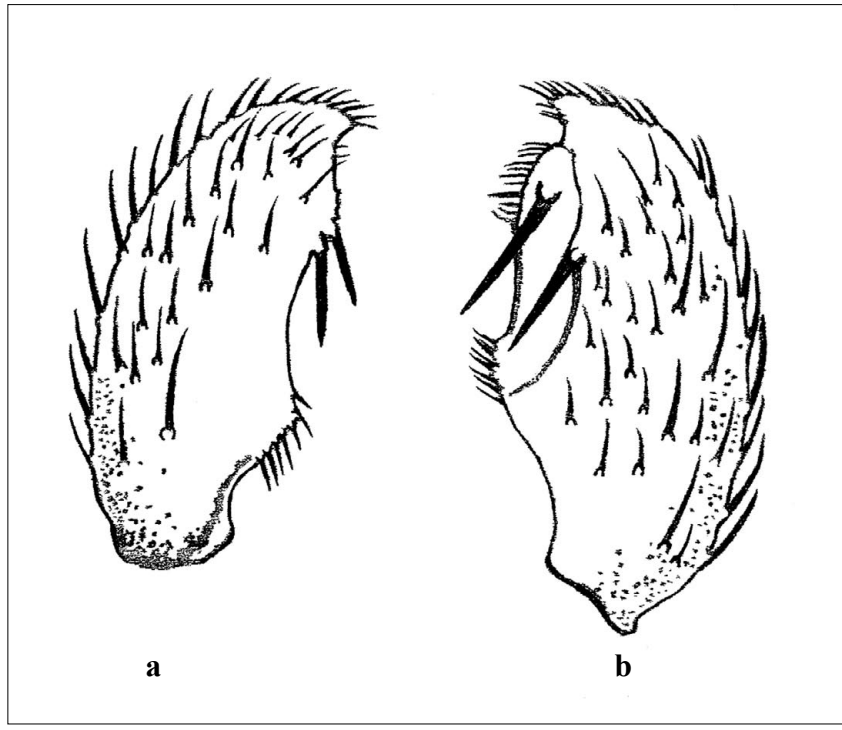


Fig. **75**: *Sciara bispina* Fisher ♂, holotype after Fisher (1938). – **a**: Left gonostylus, dorsal view; – **b**: Right gonostylus, ventral view.

(1938). The taxonomic position is uncertain. The species may belong to a genus near *Lycoriella* (*Hemineurina*). The good drawings by Fisher (1938) will allow the identification of future specimens.

Distribution. USA (Michigan).

Sciara congregata Johannsen, 1914

(Fig. 76 a–d)

Type locality: USA: Arkansas, Washington Co., Fayetteville.
Holotype: ♂, no. 2110, 16.7.1913, leg. G. G. Becker (CUIC) [slide; in toto, partly damaged].
Paratypes: USA: same data as holotype, 2 ♀♀, no. 2110.1 and 2110.3 (CUIC) [glued; not studied]. Our request for further paratypes from UAAM, mentioned by Johannsen, was not successful. The entire material is missing, as reported by the curator Jeffrey K. Barnes.

Literature: *Sciara congregata* Johannsen – Johannsen (1914): 93; – Becker (1914): 94; – Pettey (1918b): 321, 329, figs 4, 35; – Stone & Laffoon (1965): 230; – Steffan (1966): 44, 52.

Redescription. **Male**. Eye bridge narrow, laterally only with one row of facets. Antenna short, flagellomeres a little longer than wide, last flagellomeres seem unpigmented. Palpi not visible in the specimen. Wings somewhat shortened, anterior veins strong; M_1 along whole length, M_2 proximally, CuA_1 distally and CuA_2 with only 1–2 macrotrichia. Legs short and thickened; front tibial organ weakly horseshoe-shaped with bordered bristle patch; spurs short and rather

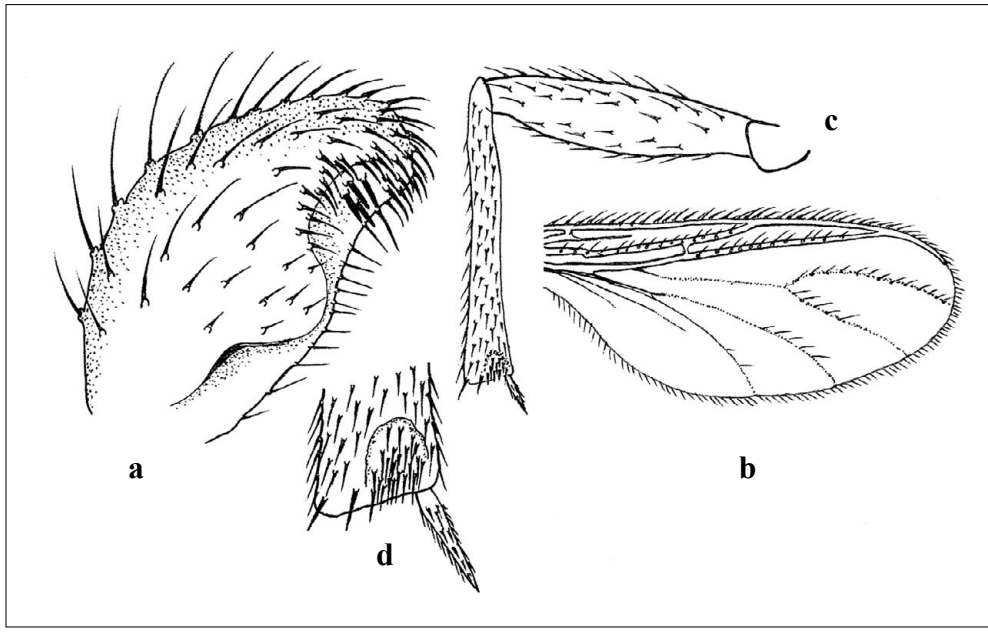


Fig. 76: *Sciara congregata* Johannsen ♂, holotype. – **a**: Gonostylus, dorsal view (phantom picture); – **b**: Wing; – **c**: Femur and tibia of fore leg, lateral view; – **d**: Apex of fore tibia.

thick. Hypopygium damaged and deformed in the specimen, so that the drawing (Fig. 76) is a reconstruction. The gonostylus is apically roundish, mesial inner side may be weakly impressed and subapically with 4–5 short spines in short setosity.

Comments. Becker (1914: 94–95) reported an army of larvae in a chain of about five feet long and three inches wide. The chain was moving slowly at a rate of probably not more than a few inches per minute. Some of these larvae were kept and pupated about one week after they were transferred to leaf mould. The adults emerged two weeks later. They were described by Johannsen (1914) as *Sciara congregata*. This species belongs probably to the genus *Trichosia*, subgenus *Mouffetina,* because it has some superficial similarity with *T. gryptostyla* Mohrig & Röschmann, 1997. But until now no formation of army worms is known in that genus. The real taxonomic position cannot be decided with certainty on the basis of the only available specimen.

Distribution: USA (Arkansas).

8.2 Unclear species

The species described by Say (1823, 1824, 1832), Walker (1848) and Fitch (1856) have not been treated in the earlier revisions of North American Sciaridae. Johannsen (1912) only reproduced the original descriptions, and Steffan (1966) did not re-examine the types either. The type specimens of Say's species are deemed to be lost and should be treated as nomina dubia. The same applies to *Sciara fuliginosa*, *S. inconstans* and *S. vulgaris* described by Fitch (1956). The North American species, described by Walker (1848) are still mostly present in the collection of the BMNH. We were able to loan the type specimens except for *Sciara punctata*, which is probably lost.

Sciara punctata Walker, 1848

Type locality: North America.
Syntypes: ?♀♀, no data (BMNH) [not present in the collection of BMNH; probably lost].

Literature: *Sciara punctata* Walker – Walker (1848): 106; – Johannsen (1912): 140; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 54.

Sciara silvestrii Kieffer, 1910

Type locality: USA: New York.
Holotype: ♀, no date, leg. F. Silvestri.

Literature: *Sciara silvestrii* Kieffer – Kieffer (1910): 327–328. *Bradysia* (*Bradysia*) *silvestrii* (Kieffer) – Stone & Laffoon (1965): 23. *Bradysia silvestrii* (Kieffer) – Steffan (1966): 36, 54. *Lycoria sylvestris* (Kieffer) [correctly *silvestrii*; incorrect spelling] – Shaw & Fisher (1952): 211, 212.

Comment. The holotype is perhaps deposited in Paris (MNHN). The species name was occasionally cited in misspelled forms as "*Neosciara sylvestrii* (Kieffer)" or "*Lycoria sylvestris* (Kieffer)" [nomina nuda].

Sciara transpacifica Curran, 1925

Type locality: CANADA: Ontario, Toronto.
Holotype: ♂, no. 1542, no date, leg. J. G. McPharlin.

Literature: *Sciara transpacifica* Curran – Curran (1925): 292, fig. 1 A.

Comment. The holotype is perhaps deposited in Ottawa (CNC). This specimen was taken from underground ginger roots imported from Hongkong, China (Curran 1925).

The following species names in this list were also cited in publications in combination with the genus names *Sciara*, *Lycoria* or *Molobrus*: e. g. Hine (1899), Chittenden (1901), Bezzi (1911), Brunetti (1912), Johannsen (1912), Johnson (1913), Shaw & Fisher (1952), Stone & Laffoon (1965), Steffan (1966), Barnes (1988).

***Sciara fuliginosa* (Fitch, 1856)** [described as *Molobrus fuliginosus*; preocc., nec *Sciara fuliginosa* Blanchard, 1852]
***Sciara inconstans* (Fitch, 1856)** [described as *Molobrus inconstans*]
***Sciara vulgaris* (Fitch, 1856)** [described as *Molobrus vulgaris*]

9 Nomina dubia

The following 7 species-group names, described from North America, could not be fully clarified. The type material is probably lost and the descriptions or redescriptions by Say (1823–1859), Wiedemann (1828), Guérin (1835) and Walker (1848) are so fragmentary, that Johannsen (1912) had already failed to interpret them. We recommend treatment of these names as nomina dubia.

***atrata* Say, 1824** [*Sciara*]
***dimidiata* Say, 1832** [*Sciara*]
***exigua* Say, 1824** [*Sciara*]
***exilis* Say, 1829** [*Sciara*]
***femorata* Say, 1823** [*Sciara*]
***fraterna* Say, 1824** [*Sciara*]
***polita* Say, 1824** [*Sciara*]

10 Species from Greenland

The following species were included in species lists of North America by Stone & Laffoon (1965, 1983) and Steffan (1966), America north of Mexico only. Greenland belongs zoogeographically to the Nearctic region, but politically to Denmark, and was therefore considered in the revision of Palaearctic Sciaridae (Menzel & Mohrig 2000). The inclusion of sciarid species from Greenland in "Nomina Insecta Nearctica" by Poole (1996) is in principle correct. The present revision deals with the species described from the USA and Canada (America north of Mexico). Only species from Greenland, which are also distributed on the North American continent have been treated. The following nominal taxa, partly awaiting revision, are exclusively reported from Greenland.

Bradysia forcipulata (Lundbeck, 1898)

Synonym: = *Sciara humicola* Lundbeck, 1898.

Literature: *Bradysia* (*Neosciara*) *moesta* Frey [in part] – Frey (1948): 54, 78, fig. 44 [misidentification]. *Sciara humicola* Lundbeck – Lundbeck (1898): 252, fig. 10; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 53. *Sciara forcipulata* Lundbeck – Lundbeck (1898): 244, fig. 3. *Bradysia* (*Chaetosciara*) *forcipulata* (Lundbeck) – Frey (1948): 63, 82, fig. 94. *Bradysia* (*Bradysia*) *forcipulata* (Lundbeck) – Stone & Laffoon (1965): 233. *Bradysia forcipulata* (Lundbeck) – Tuomikoski (1960): 139, 142; – Steffan (1966): 36, 52; – Menzel & Mohrig (2000): 138.

Comments: Synonomy and more information in Menzel & Mohrig (2000). Also known from Europe (e. g. Finland, Sweden).

Lycoriella (*Lycoriella*) *attenuata* (Rübsaamen, 1898)

Synonym: = *Sciara latipennis* Lundbeck, 1898.

Literature: *Sciara latipennis* Lundbeck – Lundbeck (1898): 242, fig 1; – Steffan (1966): 51, 53 [also as *latepennis*; incorrect spelling]. *Sciara attenuata* Rübsaamen – Rübsaamen (1898): 106, fig. 2; – Lundbeck (1900): 312; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 52. *Lycoriella* (*Lycoriella*) *attenuata* (Rübsaamen) – Menzel & Mohrig (2000): 390.

Comment: Synonymy and more information in Menzel & Mohrig (2000).

Lycoriella (*Hemineurina*) *cochleata* (Rübsaamen, 1898)

Synonym: = *Sciara haemorrhoidalis* Lundbeck, 1898.

Literature: *Sciara haemorrhoidalis* Lundbeck – Lundbeck (1898): 247, fig. 6. *Sciara cochleata* Rübsaamen – Rübsaamen (1898): 108, figs 4, 22; – Lundbeck (1900): 312. *Bradysia* (*Hemineurina*) *cochleata* (Rübsaamen) – Frey (1948): 65, 83, fig. 100. *Lycoriella* (*Hemineurina*) *cochleata* (Rübsaamen) – Tuomikoski (1960): 75, 76; – Stone & Laffoon (1965): 232; *Lycoriella cochleata* (Rübsaamen) – Steffan (1966): 50, 52; – Tuomikoski (1967): 47; – Menzel & Mohrig (2000): 409, figs 377–379.

Comments: Synonymy and more information in Menzel & Mohrig (2000). Also known from Europe (Czech Republic, Finland, Norway: Spitsbergen, Russia: Karelia).

Lycoriella (*Hemineurina*) *inflata* (Winnertz, 1867)

Synonyms: = *Sciara nitens* Winnertz, 1867; = *Sciara difficilis* Grzegorzek, 1884; = *Sciara interdicta* Grzegorzek, 1884; = *Lycoriella* (*Hemineurina*) *subvenosa* Mohrig & Krivosheina, 1983.

Literature: *Bradysia* (*Hemineurina*) *venosa* (Staeger) sensu Frey – Frey (1948): 65, 84, fig. 102 [misidentification]. *Lycoriella* (*Hemineurina*) *venosa* (Staeger) sensu Frey – Tuomokoski (1960): 75, 77; – Stone & Laffoon (1965): 232; – Freeman (1983): 30, fig. 98 [all misidentification]. *Sciara inflata* Winnertz – Winnertz (1867): 146. *Lycoriella* (*Hemineurina*) *inflata* (Winnertz) – Menzel & Mohrig (2000): 403, figs 365–370.

Comments: Widespead in Europe. Synonymy and more information in Menzel & Mohrig (2000) under *Lycoriella inflata* (Winnertz).

Lycoriella (*Lycoriella*) *parva* (Holmgren, 1869)

Synonyms: = *Bradysia* (*Chaetosciara*) *difficilis* var. *obscuratipes* Frey, 1948; = *Lycoriella* (*Lycoriella*) *curvispina* Tuomikoski, 1960.

Literature: *Sciara parva* Holmgren – Holmgren (1869): 52. *Bradysia* (*Bradysia*) *parva* (Holmgren) – Frey (1948): 67, 85; – Stone & Laffoon (1965): 234. *Bradysia parva* (Holmgren) – McAlpine (1964): 128. *Lycoriella* (*Lycoriella*) *parva* (Holmgren) – Tuomikoski (1967): 49; – Menzel & Mohrig (2000): 398.

Comments: Synonymy and more information in Menzel & Mohrig (2000). Known from Europe (Austria, Great Britain, Finland, Sweden, Norway: Spitsbergen). Mentioned also for Canada by McAlpine (1964) as *Bradysia parva* (Nunavut, Queen Elizabeth Islands, Ellef Ringnes Island, at Isachsen) [questionable record; material not seen].

Lycoriella (*Hemineurina*) *vitticollis* (Holmgren, 1883)

Synonyms: = *Sciara glacialis* Lundbeck, 1898 [preocc., nec *Sciara glacialis* Rübsaamen, 1898]; = *Sciara permutata* Lundbeck, 1900 [replacement name for *Sciara glacialis* Lundbeck, 1898].

Literature: *Sciara glacialis* Lundbeck – Lundbeck (1898): 254, fig. 13. *Sciara permutata* Lundbeck – Lundbeck (1900): 313. *Bradysia* (*Hemineurina*) *permutata* (Lundbeck) – Frey (1948): 66, 84, fig. 106. *Bradysia permutata* (Lundbeck) – McAlpine (1964): 128. *Lycoriella* (*Hemineurina*) *permutata* (Lundbeck) – Tuomikoski (1960): 75, 76; – Stone & Laffoon (1965): 232; – Tuomikoski (1967): 48. *Sciara vitticollis* Holmgren – Holmgren (1883): 182. *Lycoriella* (*Hemineurina*) *vitticollis* (Holmgren) – Menzel & Mohrig (2000): 411, figs 380, 381.

Comments: Synonymy and more information in Menzel & Mohrig (2000). Known from Europe (Finland, Norway: Spitsbergen; Russia: Novaya Zemlya). Mentioned also for Canada by McAlpine (1964) as *Bradysia permutata* (Nunavut, Queen Elizabeth Islands, Ellef Ringnes Island, at Isachsen) [questionable record; material not seen].

Scatopsciara (*Scatopsciara*) *morionella* (Holmgren, 1883)

Synonym: = *Sciara biformis* Lundbeck, 1898.

Literature: *Sciara biformis* Lundbeck – Lundbeck (1898): 256, figs 15, 16. *Bradysia* (*Bradysia*) *biformis* (Lundbeck) – Frey (1948): 67, 85, figs 2–4; – Stone & Laffoon (1965): 232. *Bradysia biformis* (Lundbeck) – Steffan (1966): 35, 52. *Heterosciara biformis* (Lundbeck) – Freeman (1983): 23. *Sciara morionella* Holmgren – Holmgren (1883): 183. *Scatopsciara* (*Scatopsciara*) *morionella* (Holmgren) – Menzel & Mohrig (2000): 490, figs 98, 451–455.

Comments: Synonymy and more information in Menzel & Mohrig (2000). Also known from Europe (Russia: Novaya Zemlya).

Sciara borealis Rübsaamen, 1898

Literature: *Sciara borealis* Rübsaamen – Rübsaamen (1898): 109, figs 8, 14; – Coquillett (1900): 392; – Lundbeck (1900): 313; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 52; – Menzel & Mohrig (2000): 600.

Comments: As unplaced species in Menzel & Mohrig (2000). Mentioned also for USA (Alaska, Sitka) by Coquillett (1900) [questionable record; material not seen].

Sciara delessei Séguy, 1953

Literature: *Sciara delessei* Séguy – Séguy (1953): 118 [as *de Lessei*; incorrect spelling]; – Stone & Laffoon (1965): 236.

Comments: Unplaced species. Not mentioned by Menzel & Mohrig (2000).

Sciara glacialis Rübsaamen, 1898

Literature: *Sciara glacialis* Rübsaamen – Rübsaamen (1898): 109, figs 7, 16; – Lundbeck (1900): 313; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 53; – Tuomikoski (1967): 50; – Menzel & Mohrig (2000): 600.

Comment: As unplaced species in Menzel & Mohrig (2000).

Sciara marginata Rübsaamen, 1898

Literature: *Sciara marginata* Rübsaamen – Rübsaamen (1898): 107, figs 3, 11; – Lundbeck (1900): 312; – Stone & Laffoon (1965): 236; – Steffan (1966): 51, 53; – Menzel & Mohrig (2000): 600.

Comment: As unplaced species in Menzel & Mohrig (2000) [preocc., nec *Sciara marginata* Skuse, 1890].

Sciara septemtrionalis Rübsaamen, 1898

Literature: *Sciara septentrionalis* Rübsaamen [correctly *septemtrionalis*; incorrect spelling] – Lundbeck (1900): 312; – Steffan (1966): 51, 54. *Sciara septemtrionalis* Rübsaamen – Rübsaamen (1898): 109, figs 5, 12; – Stone & Laffoon (1965): 236; – Menzel & Mohrig (2000): 600.

Comment: As unplaced species in Menzel & Mohrig (2000).

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13 Nomina Sciaridae (mentioned in the text)

Remarks: **bold page numbers** = valid taxa from North America; ***bold names*** = treated taxa in context with this revision; *normal font names* = subgenera, type species, established synonyms, unclear names or taxa not distributed in North America.

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